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ENERGY LABELING AND DISCLOSURE

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HEARINGS

BEFORE THE

COMMITTEE ON COMMERCE UNITED STATES SENATE

NINETY-FOURTH CONGRESS

FIRST SESSION

ON

S. 349

TO AMEND THE FEDERAL TRADE COMMISSION ACT

S. 594, title X

TO INCREASE DOMESTIC ENERGY SUPPLIES AND AVAIL-
ABILITY TO RESTRAIN ENERGY DEMAND; AND TO
PREPARE FOR ENERGY EMERGENCIES, AND FOR OTHER
PURPOSES

FEBRUARY 24 AND 25, 1975

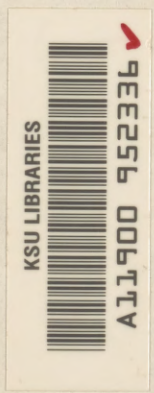
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CHAPTER I

The first part of the book is devoted to a general survey of the subject. It begins with a definition of the term "philosophy" and a discussion of its history. The author then proceeds to a survey of the various branches of philosophy, including metaphysics, epistemology, ethics, and political philosophy. The second part of the book is devoted to a more detailed examination of the various branches of philosophy. It begins with a discussion of metaphysics, which is the study of the nature of reality. The author then discusses epistemology, which is the study of knowledge. This is followed by a discussion of ethics, which is the study of morality. The final part of the book is devoted to a discussion of political philosophy, which is the study of the nature of government and the rights of citizens. The author concludes the book with a summary of the main points discussed in the previous chapters.

ENERGY LABELING AND DISCLOSURE

MONDAY, FEBRUARY 24, 1975

U.S. SENATE,
COMMITTEE ON COMMERCE,
Washington, D.C.

The committee met at 9:37 a.m. in room 5110 of the Dirksen Senate Office Building; Hon. John V. Tunney presiding.

OPENING STATEMENT BY SENATOR TUNNEY

Senator TUNNEY. The hearing will come to order.

This morning the Commerce Committee is holding the first of 2 days of hearings on proposed legislation that would provide purchasers with information regarding the energy costs of consumer products and systems.

We will receive comments on S. 349, the Truth in Energy Act of 1975, which would establish a system of disclosing the estimated annual operating cost for major household appliances, central air-conditioning, and heating systems, and automobiles.

S. 349 is a revised version of a bill which I first introduced in March 1973, and which passed the Senate in December 1973.

The House did not complete action on that legislation prior to the end of the 93d Congress, and I recently introduced a new version of the bill.

This morning, the committee will also hear testimony on similar legislation proposed by the administration, title 12 of S. 594, the National Appliance and Motor Vehicle Energy Labeling Act of 1975.

Since I introduced the first truth in energy bill 2 years ago, energy conservation has rapidly become one of the high-priority issues confronting this Nation. Individual citizens, as well as corporations, and government agencies are becoming increasingly conscious of the need to eliminate wasteful patterns in energy consumption.

This increased consciousness, to a large degree, is a result of substantial increases in utility bills and the price of gasoline and home heating oil.

As a result of these sudden increases in energy prices, the American consumer is learning that practicing energy conservation is not just a patriotic gesture, but can have a major effect on the household budget.

According to a newspaper article I read last week, it is not unusual for homeowners in the Washington metropolitan area to pay \$150 per month for utility bills.

With gasoline prices at 60 cents a gallon, the typical motorist who drives an automobile which gets 14 miles per gallon, will pay \$425 a

Staff member assigned to these hearings: Barry I. Hyman

year for gasoline. At 70 cents a gallon, which we will probably soon be paying, the annual cost of gasoline will jump to \$500.

Yes, direct energy costs are taking a bigger and bigger bite out of the American family budget, and is rapidly becoming one of the single biggest expenditures.

While we can expect that the economic forces of the marketplace will lead to greater efforts by consumers to select those products and systems for which the initial cost plus energy costs represents the best investment for them, such expectations can only be realized if the consumer has prior access to reliable information as to what these energy costs are.

Right now the typical consumer has to dig into his pocket to pay utility bills, or to fill up the gas tank before learning the energy costs. By then it is too late.

The average American family just cannot afford to trade in their gas-guzzling automobile that they bought last week, or to sell their electricity-guzzling house that they bought last year.

American consumers are entitled to know ahead of time what these costs are going to be so that they can make informal decisions as to which brand or model is the best investment for them.

We have a truth in lending law which requires that consumers be informed of the true interest rate they are paying.

We also need a truth in energy law so that consumers are informed of the energy costs they will have to bear. And this information must be provided to them at a time, and in a form, that would permit them to make wise purchase decisions.

Senator Moss?

OPENING STATEMENT BY SENATOR MOSS

Senator Moss. Thank you, Mr. Chairman.

I came here this morning because I am so intensely interested in the hearings that you are beginning. Unfortunately, I won't be able to stay long since I must appear before the Rules Committee this morning.

The conservation of energy is probably as urgent a problem as we have in the country. Just this morning's press has another story pointing out that we are only 6 percent of the world's population, and use over 30 percent of the world's energy. We are the most wasteful people in the world of energy.

At a time when we must seek self-sufficiency ultimately, our best point of attack is conservation. The bills before you this morning are directed at that.

There are others that are before the Congress; and I certainly hope that we can turn around in our consciousness of the waste of energy and adopt measures that will enable us to conserve and utilize energy in an efficient manner.

We shouldn't stifle our economy, but we should use energy only where it is effective, and is needed, and not let it go to waste.

So, I commend you for opening the hearings, and getting this underway, and I hope to be able to be with you a good part of the time in these hearings commensurate with my other commitments.

Senator TUNNEY. Thank you very much, Senator.

I appreciate your support and interest.

If you recall, last year when we had similar legislation before the committee, you were one of the strongest advocates for the approach that is being used. I want to thank you for being here.

Senator Moss. Thank you.

Senator TUNNEY. Senator Ford?

Senator FORD. I am just sitting here listening.

[The bills and agency comments follow:]

94TH CONGRESS
1ST SESSION

S. 349

IN THE SENATE OF THE UNITED STATES

JANUARY 23, 1975

Mr. TUNNEY introduced the following bill; which was read twice and referred to the Committee on Commerce

A BILL

To amend the Federal Trade Commission Act.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*
3 That this Act may be cited as the "Truth in Energy Act of
4 1975".

5 SEC. 2. (a) The Federal Trade Commission Act (15
6 U.S.C. 41 et seq.) is amended by—

7 (1) striking out section 18 thereof in its entirety;

8 (2) amending section 1 thereof by inserting at the
9 beginning of the first sentence thereof the following:

10 "b";

1 (3) inserting a new section 1 (a) thereof as follows:

2 “(a) This Act may be cited as the ‘Federal Trade Com-
3 mission Act’.”; and

4 (4) adding at the end thereof the following new
5 sections:

6 “SEC. 18. FINDINGS AND PURPOSE.—(a) The Con-
7 gress finds and declares that—

8 “(1) The Nation is facing an energy shortage of
9 acute proportions. The problem has already manifested
10 itself in different geographical areas in the form of
11 power blackouts and brownouts, school closings because
12 of a scarcity of fuel, and shortages of gasoline for auto-
13 mobiles and fuel for farm equipment.

14 “(2) A significant easing of the energy problem
15 can be achieved by elimination of wasteful uses of
16 energy, promotion of more effective uses of energy,
17 and education of consumers as to the importance of
18 conserving energy.

19 “(3) Climate conditioning systems, automobiles,
20 and household products such as water heaters, room air-
21 conditioners, refrigerators, freezers, stoves, and clothes
22 dryers use significant quantities of energy. Substantial
23 reductions are possible in the energy consumption of
24 many of these systems, automobiles, and products if

1 more attention is paid to energy usage in their design
2 and in their use by consumers.

3 “(4) Many owners of major energy-consuming
4 products and automobiles, and many owners and lessees
5 of buildings equipped with climate conditioning systems,
6 do not know nor can they readily discover prior to pur-
7 chase or lease how much each such product, automobile,
8 or system will cost each year to operate (in terms of
9 energy charges) nor are they able to compare in terms
10 of operating cost, competing products, automobiles, or
11 systems using different energy sources.

12 “(b) Since informed consumers are essential to the fair
13 working of the free enterprise system and to the main-
14 tenance of balance between the supply of and the demand
15 for energy, it is hereby declared to be the intent of Con-
16 gress to assure, through a uniform national system, non-
17 compliance with which shall be an unfair or deceptive act
18 or practice, meaningful disclosure of the annual operating
19 cost of certain products, automobiles, and systems, so that
20 consumers can readily compare them and thereby avoid
21 purchasing those which unnecessarily waste energy.

22 “SEC. 19. DEFINITIONS.—As used in sections 18
23 through 24 of this Act—

24 “(1) ‘Automobile’ means a four-wheeled vehicle pro-

1 pelled by fuel which is manufactured primarily for use on
2 the public streets, roads, and highways, except any vehicle
3 operated exclusively on a rail or rails, and which has as its
4 primary intended function the transportation of not more
5 than ten individuals. The term 'automobile' includes a light
6 duty truck rated at 6,000 pounds gross vehicle weight or
7 less, and a multipurpose passenger vehicle which has as its
8 primary intended function the transportation of not more
9 than ten individuals.

10 “(2) ‘Building’ means any physical enclosure or portion
11 thereof which is designed for use or used for residential, com-
12 mercial, industrial, governmental, or public accommodation
13 purposes, including mobile homes, and which is provided or
14 designed to be provided with a climate conditioning system.

15 “(3) ‘Climate conditioning system’ means any system
16 which is designed to be installed or is installed in a previously
17 unoccupied building for the purpose of artificially controlling
18 temperature or humidity levels within such building or por-
19 tion thereof. Such systems include electric resistance heating
20 systems, and systems composed of a number of components
21 (such as piping, ducting, furnaces, boilers, fans, heaters, com-
22 pressors, pumps, controls, and working fluids, such as air,
23 other gases, water, steam, oils, and refrigerants) which are
24 not designed for or are incapable of controlling temperature

1 or humidity levels within such building until and unless they
2 are connected or combined together.

3 “(4) ‘Communications medium’ means any printed or
4 electronic means of communication which reaches significant
5 numbers of people including, but not limited to, newspapers,
6 journals, periodicals, publications, radios, televisions, films,
7 or theater.

8 “(5) ‘Dealer’ means any person engaged in the business
9 of selling new automobiles or new major energy consuming
10 products to purchasers who buy for purposes other than
11 resale.

12 “(6) Estimated ‘annual operating cost’ means, with
13 respect to a major energy-consuming household product,
14 automobile, or climate conditioning system, the estimated
15 cost of electricity or fuel needed for average usage during
16 a calendar year as determined in accordance with the provi-
17 sions of section 20 of this Act.

18 “(7) ‘Fuel’ means butane, coal, diesel oil, fuel oil,
19 gasoline, natural gas, propane, or steam obtained from a
20 central source; or any other substance which, when utilized,
21 is capable of powering a major energy-consuming household
22 product, automobile, or climate conditioning system.

23 “(8) ‘Fuel economy’ refers to the average distance
24 traveled by an automobile per unit of fuel consumed as de-

1 terminated in accordance with the test procedures established
2 by the Environmental Protection Agency.

3 “(9) ‘Lease’ means the act or agreement by which (A)
4 a person conveys a building or portion thereof for a period
5 of at least one year to a second party (lessee); and (B) a
6 second party (lessee) agrees to pay the costs incurred for
7 electricity, fuel, or both in the course of operating the climate
8 conditioning system within such building or portion thereof
9 during such period.

10 “(10) ‘Major energy consuming household product’
11 means a product which: (A) is sold or intended to be sold
12 for use in a residence; (B) functions when connected to a
13 readily available source of energy external to the product;
14 and (C) requires, based on average patterns of usage, a
15 significant amount of energy per year as determined by the
16 Commission, after consultation with the Federal Energy
17 Administration.

18 “(11) ‘Supplier’ means any manufacturer, importer,
19 wholesaler, direct sale merchandiser, distributor, or dealer
20 of any new automobile, or any new major energy consuming
21 household product; or any engineer or contractor who is
22 designing a climate conditioning system for use in a pre-
23 viously unoccupied building.

24 “SEC. 20. ESTIMATES OF ANNUAL OPERATING
25 COSTS.—(a) The Commission, after consulting with the

1 Federal Energy Administration, shall, within nine months
2 after the date of enactment of this section, (1) define average-
3 use cycles, and devise procedures by which the average-use
4 cycles of major energy consuming household products may
5 be simulated and by which the energy utilized during any
6 such cycle may be measured or calculated, and (2) adopt
7 the procedure utilized by the Environmental Protection
8 Agency for measuring the fuel economy of automobiles. In
9 developing such procedures, the Commission shall consult
10 with other Federal agencies, appropriate professional engi-
11 neering societies, and organizations representing the manu-
12 facturers of major energy-consuming household products and
13 automobiles in order to enable the Commission to make the
14 best possible utilization of appropriate existing testing pro-
15 cedures and professional expertise.

16 “(b) The Commission shall direct each manufacturer
17 and importer of major energy-consuming household products
18 and automobiles to conduct tests or calculations on all ap-
19 plicable models of such products and automobiles in accord-
20 ance with the procedures established under subsection (a)
21 of this section. Beginning as soon as practical, but no later
22 than 15 months after the date of enactment of this section,
23 such manufacturers and importers shall furnish the results
24 of such tests and calculations to the Commission.

25 “(c) The Commission, after consultation with the

1 Federal Energy Administration, within 9 months after the
2 date of enactment of this section, shall develop and maintain,
3 on a regional, national, or other basis which the Commission
4 finds appropriate, information on the estimated (1) number
5 of average-use cycles performed annually by each major
6 energy consuming household product; (2) distance traveled
7 annually by new automobiles in average usage; and (3)
8 average unit cost of electricity and fuel for those circum-
9 stances under which automobiles and major energy consum-
10 ing household products are expected to be utilized.

11 “(d) (1) The Commission shall, beginning 9 months
12 after the date of enactment of this section and on an annual
13 basis thereafter, disseminate to all manufacturers and im-
14 porters of major energy consuming household products and
15 automobiles the information developed under subsection (c)
16 of this section. Such information shall be accompanied by
17 instructions for determining the estimated annual operating
18 cost of a given major energy consuming household product
19 or automobile.

20 “(2) The determination of the estimated annual operat-
21 ing cost shall be made by the manufacturers or importers.
22 Such determinations may, at the discretion of the Commis-
23 sion, include a range of estimated annual operating costs to
24 reflect geographical differences in usage patterns or energy
25 costs, as determined by the Commission, after consultation

1 with the Federal Energy Administrator. Beginning as soon
2 as practical, but not later than 15 months after the date of
3 enactment of this section, the estimated annual operating cost
4 figures shall be included by the manufacturers or importers
5 as part of the material shipped with each such product or
6 automobile to all the suppliers who carry such product.

7 “(3) If a range of estimated annual operating costs is
8 provided to suppliers in accordance with paragraph (2) of
9 this subsection, dealers shall select the estimated annual oper-
10 ating costs applicable to them in accordance with instructions
11 furnished by the Commission.

12 “(4) Within 18 months after the date of enactment of
13 this section, and periodically thereafter when a revision is
14 deemed necessary or appropriate, a compilation of infor-
15 mation provided to or developed by the Commission under
16 subsections (b) and (c) of this section shall be published
17 by the Commission in a public document to be placed on
18 sale at the Government Printing Office. The Commission
19 shall take steps to encourage the widest possible distribution
20 of such document and any revision thereof.

21 “(e) Within 12 months after the date of enactment
22 of this section, the Commission after consultation with the
23 Federal Energy Administration, shall establish—(1) Model
24 calculation procedures for use by suppliers in determining

1 the estimated annual operating costs of climate conditioning
2 systems, (2) procedures for supplies to disclose such esti-
3 mates to their clients. In developing such procedures, the
4 Commission shall consult with appropriate professional en-
5 gineering societies, and organizations representing the cli-
6 mate conditioning industry so as to allow the best possible
7 utilization by the Commission of appropriate existing proce-
8 dures and professional expertise. The procedures developed
9 under this subsection shall be distributed or otherwise made
10 available by the Commission at reasonable cost to all appli-
11 cable suppliers and other interested persons.

12 "SEC. 21. LABELING AND ADVERTISING.—(a) Begin-
13 ning eighteen months after the date of enactment of this
14 section, it shall be unlawful for any supplier or person to
15 sell or offer for sale in commerce for purposes other than
16 resale any new major energy consuming household product
17 for which such procedures have been adopted; or new auto-
18 mobile; or to sell or lease, or to offer for sale or lease, any
19 previously unoccupied building for which a climate con-
20 ditioning system has been designed subsequent to the adop-
21 tion of such procedures; unless the estimated annual
22 operating cost of such product, automobile, or system is
23 disclosed by the supplier or person prior to any such sale
24 or lease. Such disclosure shall appear on the same label, tag,
25 shelf, display case, counter, contract, estimate, proposal,

1 direct-mail statement, or any other place on which the pur-
2 chase price or acquisition cost of such product, automobile,
3 or purchase price or rental cost of any previously unoccupied
4 building in which such system has been installed, is stated,
5 in accordance with rules established by the Commission:
6 *Provided*, That if estimated annual operating costs are
7 significantly different in different sections of the country,
8 communications covering more than one such section in the
9 form of mail-order literature, catalogs, brochures, or other
10 media which contain price data shall include national aver-
11 age values of estimated annual operating costs and shall
12 disclose clearly and conspicuously that the estimated annual
13 operating costs of such products for any specific section of
14 the country may be obtained from the supplier.

15 “(b) Beginning 18 months after the date of enactment
16 of this section it shall be unlawful for any supplier to ad-
17 vertise or cause to be advertised in commerce through any
18 communications medium any new major energy-consuming
19 household product for which such procedure has been
20 adopted, or any new automobile, if such advertisement states
21 the purchase price or acquisition cost of such product or
22 automobile, unless the advertisement includes a statement
23 of the estimated annual operating cost of such product in
24 accordance with rules established by the Commission: *Pro-*
25 *vided*, That if estimated annual operating costs are signifi-

1 cantly different in different sections of the country, price ad-
2 vertising covering more than one such section shall include
3 national average values of estimated annual operating costs,
4 and shall disclose clearly and conspicuously that the estimated
5 annual operating costs of such products for any specific section
6 of the country may be obtained from the supplier.

7 “(c) Beginning 3 months after the date of adoption
8 of procedures for determining fuel economy in accordance
9 with section 20 of this Act it shall be unlawful for any sup-
10 plier to advertise or cause to be advertised in commerce
11 through any communications medium, the fuel economy of
12 any new automobile, unless such fuel economy has been
13 measured in accordance with procedures established under
14 section 20 of this Act.

15 “(d) It shall be unlawful for any supplier to give false
16 or misleading information to the Commission or any pros-
17 pective purchaser with respect to the estimated annual op-
18 erating cost of any new major energy-consuming household
19 product or with respect to fuel economy or estimated an-
20 nual operating costs of new automobiles; or for any person
21 to give false or misleading information to the Commission
22 or any client or prospective purchaser or lessee, with re-
23 spect to the estimated annual operating cost of any climate
24 conditioning system; or, in the case of a manufacturer or

1 importer, with respect to tests or calculations conducted in
2 accordance with section 20 of this Act.

3 “(e) It shall be unlawful for any supplier to fail to
4 comply with any requirement imposed by any rule or regu-
5 lation issued under this section or section 20 of this Act.

6 “(f) (1) No requirement with respect to disclosure of
7 the estimated annual operating cost of a new major energy-
8 consuming household product or new automobile shall be
9 applicable to any such product or automobile which is
10 shipped in commerce by a manufacturer or importer prior
11 to the date of applicability of any requirement with respect
12 to disclosure of the estimated annual operating cost of such
13 product or automobile.

14 “(2) The Commission may by rule prohibit a supplier
15 from stockpiling any new major energy-consuming house-
16 hold product or automobile prior to the date of applicability,
17 under paragraph (1) of this subsection, of any requirement
18 with respect to disclosure of the estimated annual operating
19 cost of such product or automobile. For the purposes of this
20 paragraph, ‘stockpiling’ means shipping a new major energy-
21 consuming household product or automobile between the
22 date of promulgation of a testing procedure for such product
23 or automobile and 6 months subsequent to such date at a
24 rate which is significantly greater than the rate at which such

1 product or automobile was shipped during a base period
2 (prescribed in the rule under this paragraph) ending before
3 the date of promulgation of the testing procedure.

4 “(g) Nothing in this section shall be construed to give
5 rise to a cause of action for rescission of any contract or for
6 damages, unless the supplier or person fraudulently or know-
7 ingly gave the client, purchaser, or lessee false information
8 on annual operating costs, and such client, purchaser, or les-
9 see reasonably relied thereon to his detriment in entering
10 upon such contract.

11 “(h) Nothing in this section shall be deemed to prohibit
12 a supplier, person, or advertiser from representing orally or
13 in writing that the estimated annual operating costs required
14 to be disclosed by this section are based on average patterns
15 of usage and should not be construed as a precise calculation
16 of annual operating costs to be experienced by an individual
17 client, purchaser, or lessee.

18 “SEC. 22. PROHIBITED ACTS AND ENFORCEMENT.—

19 (a) Violation of any disclosure provision of section 20 or
20 21 of this Act shall constitute an unfair or deceptive act or
21 practice under section 5 of this Act and shall be subject to
22 proceedings thereunder.

23 “(b) The district courts of the United States shall have
24 jurisdiction without regard to the amount in controversy
25 or the citizenship of the parties to restrain any violation

1 of section 20 or 21 of this Act. Such actions may be brought
2 by the Commission in any district court of the United States
3 for a judicial district in which the defendant resides, is found,
4 or transacts business or in which the alleged violation oc-
5 curred. In any such action, process may be served in any
6 judicial district in which a defendant resides or is found.

7 “(c) (1) Any person may commence a civil action on
8 his own behalf against (A) any supplier who is alleged to be
9 in violation of any provision of section 20 or 21 of this Act
10 or any regulation thereunder; or (B) the Commission where
11 there is an alleged failure of the Commission to perform any
12 act or duty under such sections which is not discretionary.
13 The district courts of the United States shall have jurisdic-
14 tion without regard to amount in controversy or citizenship
15 of the parties to grant mandatory or prohibitive injunctive
16 relief or interim equitable relief to enforce such provisions
17 with respect to any supplier or to order the Commission to
18 perform any such act or duty. Such court, in issuing any final
19 order in an action brought under this subsection, may award
20 costs of litigation (including reasonable attorney and expert
21 witness fees) to any party, whenever the court determines
22 such an award is appropriate. No action may be commenced
23 under this subsection prior to 60 days after the plaintiff has
24 given notice of the alleged violation to the appropriate sup-
25 plier and the Commission.

1 “(2) In any action under this subsection, the Commis-
2 sion, if not a party, may intervene as a matter of right.

3 “(3) Nothing in this subsection shall restrict any right
4 which any person or class of persons may have under any
5 other statute or at common law to seek enforcement of any
6 provision of sections 18 through 24 of this Act or regulation
7 thereunder or any other relief.

8 “SEC. 23. PREEMPTION.—(a) It is hereby declared to
9 be the express intent of Congress to supersede any and all
10 laws of the States or political subdivisions thereof insofar as
11 they may now or hereafter provide for the disclosure of
12 energy consumption, energy efficiency, efficiency ratio, fuel
13 economy, or annual operating cost of any new major energy
14 consuming household product, automobile, or climate condi-
15 tioning system if there is in effect and applicable a Federal
16 disclosure requirement with respect to such product, automo-
17 bile, or system.

18 “(b) Upon petition by any State, or political subdivi-
19 sion thereof, the Commission may, by rule, after notice
20 and opportunity for presentation of views, exempt from the
21 provisions of this subsection, under such conditions as it may
22 impose, any State or local requirement that (1) affords
23 protection to consumers greater than that provided in the
24 applicable Commission rule; (2) is required by compelling
25 local conditions; and (3) does not unduly burden commerce.

1 The Commission shall maintain continuing jurisdiction with
2 respect to those States or political subdivisions thereof which
3 are specifically exempted under this subsection. Any such
4 exemption granted by the Commission may be withdrawn
5 by it whenever it is determined that the State or political
6 subdivision thereof is not efficiently enforcing its require-
7 ments or that such exemption is no longer in the public
8 interest.

9 "SEC. 24. REPORT AND AUTHORIZATION.—(a) On
10 July 1 of the year following the year in which this Act is
11 enacted and every year thereafter as part of its annual
12 report, the Commission shall report to the Congress and to
13 the President on the progress made in carrying out the
14 purposes of sections 18 through 24 of this Act.

15 "(b) There are authorized to be appropriated such sums
16 as may be necessary to carry out the provisions of sections
17 18 through 24 of this Act, not to exceed \$3,000,000 for
18 the fiscal years 1975, 1976, and 1977."

94TH CONGRESS
1ST SESSION

S. 594

IN THE SENATE OF THE UNITED STATES

FEBRUARY 5, 1975

Mr. HUGH SCOTT introduced the following bill; which was read twice and, by unanimous consent, referred to the Committees on Armed Services, Banking, Housing and Urban Affairs, Commerce, Finance, Government Operations, Interior and Insular Affairs, the Judiciary, Labor and Public Welfare, and Public Works

A BILL

To increase domestic energy supplies and availability; to restrain energy demand; and to prepare for energy emergencies, and for other purposes.

PART B—DEMAND RESTRAINT

TITLE X

SHORT TITLE

SEC. 1001. This title may be cited as the "Building Energy Conservation Standards Act of 1975".

FINDINGS AND PURPOSE

SEC. 1002. (a) The Congress finds that—

(1) large amounts of fuels and energy are consumed unnecessarily each year in heating, cooling, ventilating, and providing domestic hot water for newly constructed residential and commercial buildings because such buildings lack adequate energy conservation features;

(2) Federal policies and practices contribute to this condition, which the Nation can no longer afford in view of its current and anticipated energy shortage, by providing, without regard to energy considerations, Fed-

1 eral construction aids directly such as through loans or
2 grants and indirectly through financing from federally
3 approved, regulated, or insured financial institutions;

4 (3) failure to provide adequate energy conservation
5 measures in newly constructed buildings increases long-
6 term operating costs that may affect adversely the
7 repayment of and security for loans made, insured or
8 guaranteed by Federal agencies or made by federally
9 insured or regulated instrumentalities; and

10 (4) State and local building codes or similar con-
11 trols can provide an existing means by which to assure,
12 in coordination with other building requirements and
13 with a minimum of Federal interference in State and
14 local transactions, that newly constructed buildings con-
15 tain adequate energy conservation features.

16 (b) The purposes of this title, therefore, are to—

17 (1) redirect Federal policies and practices so that
18 Federal financial assistance for construction purposes is
19 provided only under conditions which assure that reason-
20 able energy conservation features will be incorporated
21 into new buildings receiving such assistance;

22 (2) provide for the development and implementa-
23 tion as soon as feasible of prescriptive and performance
24 standards for new residential and commercial buildings
25 which are designed to achieve the maximum practicable

1 economies in fuels and energy consumption within rea-
2 sonable cost levels; and

3 (3) encourage States and local governments to
4 adopt and enforce such standards through their existing
5 building code and other construction control mechanisms.

6 DEFINITIONS

7 SEC. 1003. As used in this title, the term—

8 (1) "Secretary" means the Secretary of Housing
9 and Urban Development;

10 (2) "Administrator" means the Administrator of
11 the Federal Energy Administration;

12 (3) "building" means any structure to be con-
13 structed which includes provision for a heating or cooling
14 system, or both, or a hot water system;

15 (4) "residential building" means any building de-
16 veloped for residential occupancy, substantially on a
17 year-round basis, for one or more persons or families;

18 (5) "commercial building" means any building de-
19 veloped for use other than residential occupancy, includ-
20 ing buildings developed for industrial or public use;

21 (6) "Federal building" means any building to be
22 constructed by or for the use of any Federal agency
23 which is not legally subject to State or local codes or
24 similar requirements;

25 (7) "unit of general local government" means a

1 city, county, town, municipality, or other political sub-
2 division of a State or any combination thereof, which
3 has a building code or similar jurisdiction over a particu-
4 lar area;

5 (8) "Federal agency" means any department,
6 agency, corporation, or other entity or instrumentality
7 of the executive branch of the Federal Government, and
8 includes the United States Postal Service, the Federal
9 National Mortgage Association, and the Federal Home
10 Loan Mortgage Corporation;

11 (9) "financial assistance" means any form of loan,
12 grant, guaranty, insurance, payment, rebate, subsidy, or
13 any other form of direct or indirect Federal assistance,
14 other than general or special revenue sharing or formula
15 grants made to States;

16 (10) "Federal instrumentality responsible for the
17 supervision, approval, regulation, or insuring of banks,
18 savings and loan associations, or similar institutions"
19 means the Board of Governors of the Federal Reserve
20 System, the Federal Deposit Insurance Corporation, the
21 Comptroller of the Currency, the Federal Home Loan
22 Bank Board, the Federal Savings and Loan Insurance
23 Corporation, and the National Credit Union Adminis-
24 tration;

25 (11) "State" includes each of the several States, the

1 District of Columbia, the Commonwealth of Puerto Rico,
2 and the United States territories and possessions;

3 (12) "prescriptive standard" means a minimum
4 standard describing the means, such as structural com-
5 ponents, systems and subsystems, to be employed to
6 meet prescribed thermal or energy consumption require-
7 ments for a building and/or component thereof;

8 (13) "performance standard" means a minimum
9 energy conservation standard for various classifications
10 of buildings which may be satisfied through any method
11 or system which consumes or involves use or loss of less
12 than specified amounts of energy in connection with
13 heating, cooling, ventilating, lighting, or providing do-
14 mestic hot water for a building, and which includes or
15 is accompanied by one or more illustrative prescriptive
16 solutions which meet the performance requirements
17 specified; and

18 (14) "building code" means a legal instrument
19 which is in effect in a State or unit of general local gov-
20 ernment, the provisions of which must be adhered to
21 if a building is to be considered to be in conformance
22 with law and suitable for occupancy and use.

23 PROMULGATION OF MINIMUM ENERGY CONSERVATION
24 STANDARDS

25 SEC. 1004. (a) (1) Within six months after the enact-
26 ment of this title, the Secretary, only after consultation with

1 the Administrator and the Secretary of Commerce utilizing
2 the services of the Director of the National Bureau of Stand-
3 ards shall develop and publish in the Federal Register for
4 public comment proposed prescriptive energy conservation
5 standards for new residential buildings. Final prescriptive
6 standards shall be developed and promulgated within six
7 months after publication of the proposed standards, shall be-
8 come effective one year after such promulgation, and shall
9 remain effective until superseded by the standards described
10 in subsection (a) (3) of this section.

11 (2) As soon as practicable, but in no event later than
12 eighteen months after enactment of this title, the Secretary,
13 only after consultation with the Administrator, the Secretary
14 of Commerce utilizing the services of the Director of the Na-
15 tional Bureau of Standards, and the Administrator of the
16 General Services Administration, shall develop and publish
17 in the Federal Register for public comment proposed per-
18 formance energy conservation standards for new commercial
19 buildings. Performance standards shall be developed and
20 promulgated within six months after publication of the pro-
21 posed standards, and shall become effective within a reason-
22 able time, not to exceed one year after promulgation, as
23 specified by the Secretary.

24 (3) As soon as practicable, but in no event later than
25 three years after enactment of this title, the Secretary, only

1 after consultation with the Administrator and the Secretary
2 of Commerce utilizing the services of the Director of the
3 National Bureau of Standards, shall develop and publish in
4 the Federal Register for public comment proposed per-
5 formance energy conservation standards for new residential
6 buildings. Performance standards for such buildings shall
7 be promulgated within six months after publication of the
8 proposed standards, and shall become effective within a
9 reasonable time, not to exceed one year after promulgation,
10 as specified by the Secretary.

11 (b) All standards promulgated pursuant to this sec-
12 tion shall take account of, and make such allowance as the
13 Secretary determines appropriate for, climatic variations
14 among the different regions of the country.

15 (c) The Secretary, in consultation with the Administra-
16 tor, the Secretary of Commerce, the Administrator of the
17 General Services Administration, and other Federal officials,
18 as appropriate, shall periodically review and provide for the
19 updating of standards promulgated pursuant to this section.

20 (d) The Secretary, if he finds that the dates otherwise
21 specified in this section for publication of proposed or pro-
22 mulgation of final performance standards under subsection
23 (a) (2) or (a) (3) cannot practically be met, may extend
24 the time for such publication or promulgation, but no such
25 extension shall result in a delay of more than six months

1 in promulgation. The Secretary may also extend for not to
2 exceed six months the date for promulgation of prescriptive
3 standards under subsection (a) (1) if he finds that such
4 extension is necessary in order to allow an adequate oppor-
5 tunity for analysis and action on public comments.

6 INCORPORATION OF STANDARDS IN STATE AND LOCAL CODES

7 SEC. 1005. (a) No Federal officer or agency shall ap-
8 prove any financial assistance for the construction of any
9 building in any area of a State unless the State has certified
10 that the unit of general local government having jurisdiction
11 over such area has adopted and is implementing a building
12 code or similar requirement which provides for the enforce-
13 ment of any effective energy conservation standard or stand-
14 ards promulgated pursuant to section 1004 of this title, or
15 unless the State certifies that a State code or requirement
16 providing for the enforcement of such standard or standards
17 has been adopted and is being implemented on a statewide
18 basis or within the area in which such building is to be
19 located.

20 (b) In any case where, on the effective date of the
21 prescriptive standards referred to in section 1004 (a) (1), a
22 State has not yet developed and implemented a procedure
23 for certifying local codes or similar requirements, or adopted
24 and proceeded to implement a State code or requirement for
25 carrying out the provisions of subsection (a) of this section,

1 but where the Secretary finds that the State is actively
2 developing such procedure or code, the Secretary may receive
3 and approve a code or other requirement proposed by a unit
4 of general local government as complying with the provisions
5 of subsection (a) of this section, but no such approval shall
6 extend for more than one year.

7 (c) Each Federal instrumentality responsible for the
8 supervision, regulation, or insuring of banks, savings and
9 loan associations or similar institutions shall adopt regulations
10 prohibiting such institutions from—

11 (1) making loans for the construction or financing
12 of buildings, or

13 (2) purchasing loans made after the effective date
14 of any energy conservation standard for the construc-
15 tion or financing of buildings, unless such buildings
16 are to be located in areas where Federal assistance for
17 construction is permitted under subsection (a) of this
18 section.

19 (d) The Secretary shall, by regulation, provide for the
20 periodic updating of State certifications under this section,
21 and shall make such reviews and investigations as he deems
22 necessary to determine the accuracy of such certifications.
23 The Secretary may reject, disapprove or require the with-
24 drawal of any certification but he shall not take such action
25 without affording the State a reasonable opportunity for
26 hearing.

FEDERAL BUILDINGS

1

2 SEC. 1006. The head of each Federal agency responsible
3 for the construction of Federal buildings shall adopt such
4 procedures as may be necessary to assure that such con-
5 struction meets or exceeds the applicable energy conserva-
6 tion standards promulgated pursuant to this title.

7

GRANTS TO STATES

8

9 SEC. 1007. (a) The Secretary is authorized to make
10 grants to States to assist them in meeting the costs of devel-
11 oping State building codes or State certification procedures
12 to carry out the provisions of section 1005 of this title.

13 (b) There is hereby authorized to be appropriated for
14 the purpose of grants under this section not to exceed a
15 total of \$5,000,000 for fiscal year 1976.

16

TECHNICAL ASSISTANCE

17 SEC. 1008. The Secretary, directly, by contract or other-
18 wise, may provide technical assistance to States and units of
19 general local government to assist them in meeting the re-
20 quirements of this title.

21 CONSULTATION WITH INTERESTED AND AFFECTED GROUPS

22 SEC. 1009. In promulgating standards and carrying out
23 his other functions under this title, the Secretary shall con-
24 sult with appropriate representatives of the building com-
25 munity, including labor, the construction industry, engineers,
and architects, and with appropriate public officials and

1 organizations of public officials, and representatives of con-
2 sumer groups. For purposes of such consultation, the Secre-
3 tary shall, to the extent feasible, make use of the National
4 Institute of Building Sciences as established by section 809
5 of the Housing and Community Development Act of 1974.
6 The Secretary may also establish one or more advisory com-
7 mittees as may be appropriate. Any advisory committee or
8 committees established pursuant to this section shall be
9 subject to the provisions of the Federal Advisory Committee
10 Act.

11 RESEARCH

12 SEC. 1010. The Secretary, in cooperation with the
13 Administrator, the Administrator of the Energy Research
14 and Development Administration, and the Director of the
15 National Bureau of Standards shall carry out such research
16 and demonstration activities as he determines may be neces-
17 sary to assist in the development of standards under this
18 title and to facilitate the implementation of such standards
19 by State and local governments. Such activities shall be
20 designed to assure that standards are adequately analyzed
21 in terms of energy use, institutional resources, habitability,
22 economic cost and benefit, and impact upon affected groups.

DEPARTMENT OF STATE,
Washington, D.C.

Hon. WARREN G. MAGNUSON,
Chairman, Committee on Commerce,
U.S. Senate.

DEAR MR. CHAIRMAN: Secretary Kissinger has asked me to reply to your letter of February 24 requesting the State Department's comments concerning the merits of S. 594 and the propriety of its passage.

Title XIII of S. 594 (the Standby Energy Authorities Act of 1975) is designed to enable the United States to fulfill the commitments it has undertaken in adhering to the Agreement on an International Energy Program (IEP). That Agreement constitutes a significant step toward consumer cooperation by the major industrialized oil consuming countries following the disruptive experience of the oil embargo last winter. The IEP consists of the following complementary short-term and long-term programs:

A comprehensive emergency oil sharing program to protect the consuming countries against another oil embargo. It assures that we will have the capability to deal with future oil supply interruptions in a cooperative framework, thus avoiding a scramble for oil which serves only to bid up prices.

A commitment to a long-term cooperative program among consuming countries to reduce their dependence on imported oil through joint programs in the fields of conservation, the development of alternative energy supplies and research and development on energy. This program is essential if we are to restore equilibrium between the oil consuming and producing nations and ultimately in the world oil market to exert downward pressure on current oil price levels.

At present our government is bound only provisionally by the Agreement on an International Energy Program. We are obligated to apply it only to the extent that it is not inconsistent with existing legislation until we give notice that the United States, having complied with its constitutional procedures, consents to be fully bound. In negotiating the Agreement it was our view that implementing legislation would be both necessary and appropriate before the United States could agree to be bound by the full range of commitments embodied in the IEP. Title XIII would provide us with the necessary authority to fully implement our commitments.

The Agreement provided that the participating countries will bring it fully into force in accordance with their respective constitutional and legal procedures by May 1, 1975. It is imperative that the United States meet this deadline in order to maintain the momentum toward international energy cooperation already achieved in the IEA. This will clearly demonstrate to OPEC that we are determined to deal with the energy crisis. Accordingly, the State Department urges Congress to act expeditiously and decisively to grant the authority that will permit us to move ahead in this critical international endeavor.

The Office of Management and Budget advises that from the standpoint of the Administration's program there is no objection to the submission of this report.

Sincerely,

ROBERT J. McCLOSKEY,
Assistant Secretary for Congressional Relations.

Senator TUNNEY. Our next—or first witness, is the Honorable Betsy Ancker-Johnson, Assistant Secretary for Science and Technology, Department of Commerce.

Good morning.

**STATEMENT OF BETSY ANCKER-JOHNSON, ASSISTANT SECRETARY
OF COMMERCE FOR SCIENCE AND TECHNOLOGY; ACCOMPANIED
BY MELVIN MEYERSON; AND ROBERT B. ELLERT**

Dr. ANCKER-JOHNSON. Mr. Chairman, members of the committee, I appreciate the opportunity to appear before you today to comment on the appliance-related and climate-conditioning systems portion of S. 349, the Truth in Energy Act of 1975, and on the appliance-related portion of title XII of S. 594, the administration's National Appliance and Motor Vehicle Act of 1975.

The goals of these bills are the same and have our full support.

I would like to introduce the men accompanying me: Mr. Robert Ellert, the Assistant General Counsel for Science and Technology, Department of Commerce; and Dr. Melvin Meyerson, Chief, Products Analysis Division, National Bureau of Standards.

The administration's bill, S. 594, places all authority for carrying out its provisions in the President. It is contemplated that under this bill, responsibility would be delegated to the Administrator, FEA, to fix overall policy and direction for the program and to the Secretary of Commerce for the promulgation of the final tests and standards under the bill. Enforcement would be through the Attorney General.

On the other hand, S. 349 places all responsibility in the FTC.

First, I would like to discuss the appliance portion of both bills.

Since last discussing appliance energy labeling before this committee on July 23, 1973, the energy situation has become more critical and the conservation of energy has become an even more high priority goal of the administration.

At that time I described the plans for a proposed Department of Commerce voluntary labeling program for household appliances and equipment to effect energy conservation.

I would like to start my testimony today by describing the rather impressive results obtained by that program to date, and what would likely happen if either S. 594 or S. 349 should become law or, if indeed, no legislation is passed at all.

The Department of Commerce program, initiated by President Nixon, was officially started by Federal Register Notice on October 26, 1973. It has been implemented by the National Bureau of Standards by a small group of highly qualified engineers and specialists who have been carrying out its provisions, including the consumer education features that we feel are very important.

The appliances included in the program are: room air-conditioners, refrigerators, refrigerator-freezers, freezers, water heaters, clothes washers, clothes dryers, and kitchen ranges.

We recently published a notice in the Federal Register requesting public comment on the addition of television receivers.

These nine appliances use about 8 percent of the Nation's energy amounting to an equivalency of roughly 3 million barrels of oil per day.

We specify or develop the test method to be used by all participating industries to assure that each comparative product is measured in the same way. We design and specify the format of the label and even specify its color, size, type, style, and where it must be on the appliance.

Such steps avoid confusion on the part of the consumer that could be caused by unclear or hidden labels. Deciding what information should be placed on a label to maximize its usefulness to a consumer is a difficult task.

In addition to the label itself, we prepare a brochure for each labeled appliance to give the consumer more detailed information than can be placed on a label.

We have issued thousands of copies of the brochure on room air-conditioners. This is the air-conditioner brochure, and with your permission, Mr. Chairman, I would like to include it in this record.

Senator TUNNEY. It will be included.

[The document follows:]

Energy Efficiency

in Room Air Conditioners



LC 1053

U.S. DEPARTMENT OF COMMERCE
National Bureau of Standards

CHOOSING A ROOM AIR CONDITIONER

Although we usually think of air conditioners as appliances designed to cool air, they can actually increase comfort in more ways than that. They also dehumidify, clean, and circulate air in enclosed rooms, and some models can be used for ventilating or for heating rooms in cooler weather.

In order to enjoy the full benefits of air conditioning it is important to choose the right air conditioner for the room in which it will be installed. A wrong choice can mean less than optimum comfort, and can also cost you money — both in initial purchase price, and in higher operating cost.

THINGS TO KNOW . . . BEFORE YOU BUY

Window and Through-Wall Models

Room air conditioners come in a number of styles, depending upon whether they are to be mounted in sash or casement windows or through a wall. Some models are sold with adapters and can be mounted several ways.

In some areas building regulations require that air conditioners must not project more than a certain distance from the walls of a building. If such rules apply in your area, your dealer can show you models designed with a minimum of overhang. Similarly, some room air conditioners can be installed so that the front is nearly flush with the inside windowsill. You may consider this type desirable since it permits you to pull drapes across the unit when it is not in operation.

When you shop for a window model, be able to describe your window style to the salesman and to give its dimensions.

Household Wiring

Most homes use 115-volt, 15-ampere branch circuits for lighting and small appliances. Many air conditioners are designed to be simply plugged into the outlets of these circuits. However, some models require the installation of a separate circuit.

A 115-volt unit which draws 7.5 amperes or less can be operated on a 15-ampere circuit, provided the other loading on this same circuit does not exceed 7.5 amperes. An air conditioner that draws up to 12 amperes may be operated on a 15-ampere circuit, but it must be the only load on that circuit. A special circuit must be installed for any 115-volt air conditioner that requires more than 12 amperes, or for any 230-volt unit.

If you have any question concerning whether your present wiring is adequate, it is best to ask your electrician or public utility representative.

Cooling Capacity

In choosing the proper room air conditioner to satisfy your needs, it is important to determine the amount of cooling capacity needed. If the cooling capacity of a room air conditioner is too small for the room where you plan to use it, it will not do an adequate job of cooling and dehumidifying. If it is too large for the room, it may be more expensive to purchase and it may not dehumidify properly.

The cooling capacity of air conditioners is rated in Btu (British thermal units) per hour. This rating indicates the amount of heat an air conditioner will remove from the air each hour under specified test conditions. One Btu represents about the amount of heat produced by the burning of a wooden kitchen match to ashes. A room air conditioner with a cooling capacity of 5,000 Btu per hour would remove approximately 5,000 Btu of heat from a room each hour.

ESTIMATING THE COOLING CAPACITY YOU NEED.

Your dealer can usually help you estimate what room air conditioner cooling capacity you need to cool and dehumidify a given room. However, for those who want to make their own estimate, a method developed by the Association of Home Appliance Manufacturers (AHAM) can be of assistance. Here is how the AHAM method works:

- 1 Determine the floor area in square feet of the room to be cooled by multiplying its length by its width.
- 2 Along the left side of the adjacent "Cooling Load Chart" find the point corresponding to the room area. Then move horizontally to the right to the center of Band A, B or C, depending on what kind of space is above the room to be cooled:
 - Band A — Occupied room above room to be cooled.
 - Band B — Insulated ceiling and unoccupied attic above room to be cooled.
 - Band C — Uninsulated ceiling and unoccupied attic above room to be cooled.
- 3 From the center of the band, move horizontally within the band — to the left for a northern or shady exposure and to the right for a sunny exposure.
- 4 From this point move straight down to the bottom of the chart to determine the unadjusted cooling capacity in Btu per hour.
- 5 Locate your geographical area on the map and determine the climate factor for your area. Multiply the answer to Item No. 4 by the climate factor.
- 6 If the room is to be cooled primarily at night and daytime temperature is not very important, multiply the answer to Item No. 5 by 0.7.
- 7 Determine the number of linear feet of wall separating the room to be cooled from other cooled rooms. Multiply this number by 30 Btu per hour and subtract the result from the answer to Item No. 5 (or Item No. 6 for night use).

- 8 If only one person will usually occupy the cooled room, subtract 600 Btu per hour from the answer to Item No. 7. If more than two people will usually occupy the room, add 600 Btu per hour for each person over two.

- 9 Add 4,000 Btu per hour to the answer to Item No. 8 if the area to be cooled includes a kitchen.

The answer indicates the recommended cooling capacity of an air conditioner suitable for that room.

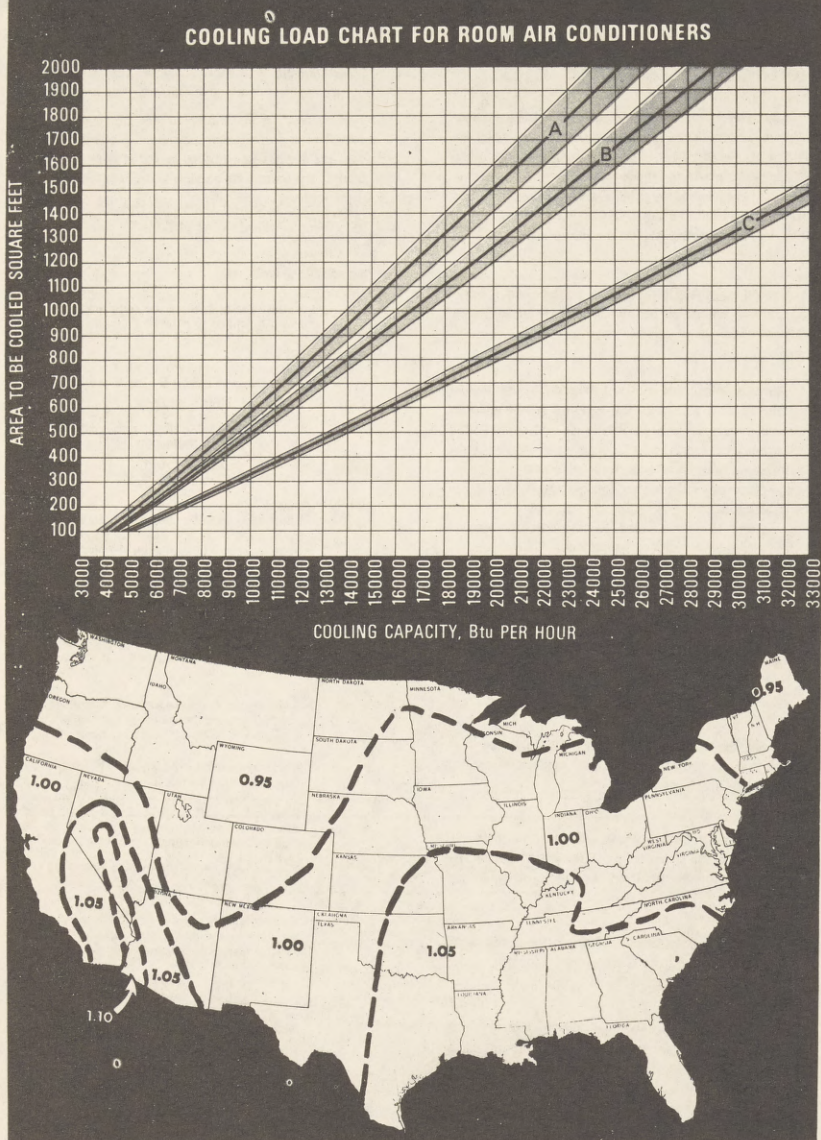
EXAMPLE

As an example of how to use the chart, consider the problem of choosing a room air conditioner for this room:

12 feet x 15 feet combined kitchen-dining area. An occupied room is above the kitchen. Northern exposure, with one 16 ft. wall adjoining another cooled room. Normally occupied by one person during meal preparation. Located in Dallas, Texas.

- 1) The floor area is 12 feet x 15 feet = 180 square feet.
- 2) Find 180 on left side of chart and move horizontally over to center of Band A, since there is occupied space above the kitchen.
- 3) Move horizontally to left of Band A because room has a northern exposure.
- 4) From the left edge of Band A move straight down to bottom of chart and see that the unadjusted cooling capacity is 4,700 Btu per hour.
- 5) Since Dallas, Texas has a climate factor of 1.05, multiply this by the answer to Item No. 4:
 $1.05 \times 4,700 = 4,935$ Btu per hour
- 6) Since the kitchen is to be cooled in the daytime, skip Item No. 6.
- 7) Since one kitchen wall adjoins another cooled room, multiply the length of that wall by 30 Btu per hour and subtract this from the answer to Item No. 5:
 $16 \times 30 = 480$ Btu per hour
 $4,935 - 480 = 4,455$ Btu per hour
- 8) Since there will normally be only one person in the kitchen during the peak heat load (during food preparation), subtract 600 Btu from the answer to Item No. 7:
 $4,455 - 600 = 3,855$ Btu per hour
- 9) Since the room is a kitchen, add 4,000 Btu per hour to the answer to Item No. 8.
 $3,855 + 4,000 = 7,855$ Btu per hour

The required cooling capacity for the kitchen is about 8,000 Btu per hour. Models having cooling capacities between about 7,500 and 8,500 Btu per hour would be suitable for this application.



ROOM AIR CONDITIONER EFFICIENCY

Once you have determined the amount of cooling capacity you need for a given room, it is possible to judge how well different models of the same cooling capacity perform. This can be done by comparing the Energy Efficiency Ratio (EER) of various models.

The EER is a measure of the amount of cooling a room air conditioner can do relative to the amount of electricity it uses. Air conditioners with the same cooling capacity (as measured in Btu per hour) may vary greatly in efficiency. That is, some use much more electricity to achieve the same cooling and dehumidifying than others.

The EER is determined by dividing the Btu per hour rating of a room air conditioner by the watts (power) it uses. Air conditioners with higher EER ratings are relatively more efficient and those with lower EER's are less efficient. For a given cooling capacity, the more efficient models consume less electricity and are less costly to operate.

Department of Commerce Energy Guide Labels can help you compare energy efficiency among competing models. As shown in the illustration, the labels indicate the EER of the unit to which they are attached and the EER range for all room air conditioners having about the same cooling capacity.

Cost of Electricity

The cost of electricity to operate your room air conditioner for a season depends on the climate you live in, the power requirement of your air conditioner, the cost of electric service in your area, and such factors as the time of day and how frequently you leave the unit on and at what control settings.

Climate determines the number of hours each season you would have to operate your air conditioner to obtain the temperature reduction and dehumidification needed for comfort. The average yearly operation in some representative U.S. Cities is shown below.

Table 1

Estimated Annual Hours of Operation for Properly Sized Equipment in Typical Cities during Normal Cooling Season*

CITY	Hours per Season	CITY	Hours per Season
Atlanta, Ga.	750	Jacksonville, Fla.	1,600
Boston, Mass.	200	Minneapolis, Minn.	350
Chicago, Ill.	400	New Orleans, La.	1,500
Cleveland, Ohio	450	New York, N.Y.	350
Dallas, Texas	1,400	St. Louis, Mo.	1,000
Fresno, Calif.	900	Washington, D.C.	800

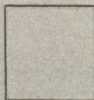
* From ASHRAE Guide and Data Book — Systems — 1973. Published by American Society of Heating, Refrigerating and Air Conditioning Engineers — New York.

ASDF Corp. Model 5508A10

8,000 Btu per hour
(cooling capacity)

115 volts 860 watts 7.5 amperes

Data on this label
for this unit certified by



energy guide

EER=9.3

Energy Efficiency Ratio expressed in Btu per watt-hour

For available 7,500 to 8,500 Btu per hour 115 volt window models the EER range is

EER 5.4 to EER 9.9

For information on cost of operation and selection of correct cooling capacity, ask your dealer for NBS Publication LC 1053 or write to National Bureau of Standards, 411.00, Washington, D.C. 20234

IMPORTANT...

for units with the same cooling capacity, higher EER means:
Lower energy consumption
Lower cost to use!

Tested in accordance with



The Energy Guide Label appearing on room air conditioners states the power requirement of the unit, in watts. This figure was obtained by measuring the unit's performance under standard test conditions. Electric service rates are based on the kilowatt-hour, which represents the usage of 1,000 watts of electrical power in one hour. The kilowatt-hours of electricity that a room air conditioner will use in a season can be calculated by multiplying the wattage rating of an appliance times the number of hours usage per season (from Table 1) and dividing by 1,000.

Your electric service rate depends on the rate structure of your local utility company and the amount of electricity you use. For consumers using between 500 and 1,000 kilowatt-hours of electricity per month, U.S. rates in a recent year varied from about 1¢ to 6¢ per kilowatt-hour, with the national average rate being about 2.2¢ per kilowatt-hour. You can find out what your rate is by asking your local utility company.

You can estimate the cost of electricity to operate a room air conditioner in your home for one season by using the following formula:

$$\text{cost} = \left(\frac{\text{your electric rate}}{1} \right) \times \left(\frac{\text{hours operation per season}}{1} \right) \times \frac{\text{wattage rating}}{1,000}$$

For example, if you live in an area having a climate similar to that of Dallas, Texas, Table 1 indicates that if you are an average user, you may operate your room air conditioner about 1,400 hours per season. If your electric service rate is 3¢ (\$.03) per kilowatt-hour, and the wattage rating of the room air conditioner you have selected is 860 watts, your estimated cost for electricity will be:

$$\text{Cost} = .03 \times 1,400 \times \frac{860}{1,000} = \$36.12 \text{ per season}$$

Of course, many people do not fit the average use pattern. If you use your air conditioner only at night, you will operate it fewer hours and at lower outdoor temperatures, and your cost will be less. If you try to maintain an unusually low indoor temperature throughout the day, your cost will be greater. The higher you set the air conditioner's thermostat, the less time the unit will run and the lower your operating cost will be. Most people are comfortable at temperatures up to 80° F.

Relating Cost of Electricity and Purchase Price

This method for estimating the cost of electricity to operate a room air conditioner can also be used to estimate whether it is worthwhile, from the viewpoint of economy, to purchase a more efficient model with an initial cost that may be appreciably more than a less efficient model. For example, assume that a relatively inefficient model is available on the market, and that it is priced \$60.00 lower than the model used in the example above.

The ratings of the two models are as follows:

	More Efficient Model	Less Efficient Model
Btu per hour cooling capacity	8,000	8,000
Power requirement, watts	860	1,380
Energy Efficiency Ratio (EER)	9.3	5.8
Estimated hours operation per season	1,400	1,400
Estimated cost of electricity per season	\$36.12	\$57.96

Based on these ratings, the estimated cost of electricity would be \$21.84 per year lower for the more efficient model. Put another way, if the more efficient model were priced \$60 higher than the less efficient one, the higher price would be made up within three years by savings in the cost of electricity.

MAINTAINING EFFICIENCY

Once you have chosen the right air conditioner there are a number of things you can do to keep it operating efficiently. These are usually described in an owner's booklet. Read — and follow — the instructions that come with your room air conditioner.

1974



Dr. ANCKER-JOHNSON. We expect them to be available in dealers' showrooms at the start of the next season. The label shows any consumer where to send for an individual, free copy.

To coincide with the appearance of the labels in the marketplace, we prepare educational materials. As new labels issue, use will be made of TV spots, radio announcements, tape-slide shows for educators and consumer groups, press releases, and lectures. We encourage industry, likewise, to advertise and market energy conservation.

Where do we stand today?

The final procedures for room air-conditioners were published in May of 1974, and some labels were seen in the summer of 1974. However, since 1974, model air-conditioners were started in production in late summer or fall of 1973, most were built and in the distribution chain by the time the labeling program was finalized. The units being built since last summer are 1975 models.

I am most pleased to report that under our voluntary program, about 95 percent of all 1975 models being produced today, are being labeled with the Department of Commerce label.

Even more encouraging is the fact that since the program started, the Energy Efficiency Rating, the EER, of 115-volt room air-conditioners, has increased by $61\frac{1}{2}$ percent. This is a remarkable improvement in such a short time, and is vindication of our belief that an important secondary effect of a labeling program would be the production of appliances with better performance.

In December 1974, we proposed in the Federal Register labeling specifications for three more appliances: Refrigerators, refrigerator-freezers, and freezers.

The period for written comment has just closed and an informal hearing on the proposed specification is scheduled for tomorrow, February 25. We expect to have the final specifications ready in April. Labels should begin to appear this summer or fall, depending to some extent on the rate of sales.

As in the automobile industry, there has been a serious slowdown in the sales of all appliances, except for freezers.

Water heaters are the largest consumers of energy of any single household appliance by a wide margin. The preparation of a proposed specification is nearing completion and should be published next month. This will be followed by clothes washers and clothes dryers in midyear.

Most importantly, we are planning to complete the first comment period on all nine appliance categories prior to the end of fiscal year 1976.

Notwithstanding the success of the voluntary labeling program, it should be formalized by legislation.

There are three strong reasons for making labeling mandatory.

1. To preempt State and local conflicting actions which can only produce higher prices and confusion among consumers;
2. To eliminate the potential for removal or alteration of labels along the distribution line; and
3. To assure of 100 percent participation in labeling by the industry.

The first annual report describing details and accomplishments of our program has been prepared and is in the clearance process. I shall provide the committee with copies, shortly.

Now I will comment on the portion of S. 349 that pertains to appliances.

I am extremely disappointed that any bill dealing with appliance energy labeling does not accord a role to the Department of Commerce and its National Bureau of Standards.

It is our view that any bill dealing with mandatory labeling should assign to the Secretary of Commerce, authority to promulgate final tests and standards.

We are the national experts in this field. Our accomplishments, as described, are noteworthy. Failure to involve us directly in this activity could mean that all of the work I have described, the valuable working relationships established with industrial technical leaders, consumer and retailer groups, and other Government agencies, the labels about to appear on the market, and about \$800,000 of the taxpayers' money could go down the drain.

Furthermore, the President's directive, in his January 15, 1975, state of the Union message, established a new program of Government working with industry to cut energy consumption by 20 percent in new appliances by 1980.

The President has asked the Secretary of Commerce to contact all appliance manufacturers to seek their agreement to comply with this goal. If agreement cannot be reached in 6 months, the President will submit legislation to establish mandatory appliance efficiency standards.

The Secretary last week, on February 20, had an initial public meeting with all appliance manufacturers to present the Department of Commerce program for attaining the Presidential goal.

The response of the manufacturers at this meeting was most encouraging and we feel that we will have virtually full industry participation in our effort to achieve the Presidential goal.

The group at NBS involved with the labeling program has also been charged with achieving this extremely important goal and is trying to get commitments from industry within 5 months. The goal can only be achieved through the use of methods, to measure energy consumption and efficiency, exactly what is developed and being developed for the labeling program.

To discard these test methods and start all over with untrained people would make commitment to the Presidential conservation goal in 5 months, impossible.

S. 349 would require disclosure of the estimated annual operating cost. We agree that cost of operation, if it can be reasonably determined, is the single, best way of getting the energy message to the consumer.

In our air-conditioner label, however, we do not show a cost of operation, a situation which distressed some of you as well as us.

The reason for this omission was that we could not reflect without deception on a single, static label the three necessary variables, namely:

1. Climatic conditions,
2. User selection as to when he operates his unit, and
3. The extremely wide range of electricity rates, namely from 2 cents to 9 cents per kilowatt hour.

Instead, we had to provide cost information in a brochure called to the consumers' attention by a notice on the label.

Our experience has now given us greater insight as to how cost of operation for room air-conditioners may be displayed honestly. For example, we are studying the possibility of a label, more complicated to make, but simpler to use.

Such a label might be made so that the consumer could "dial in" appropriate values for the three variables just mentioned, and directly read a cost of operation. If we succeed in devising such a dynamic label or in producing a better scheme, we would not hesitate to modify the existing label so it showed a cost of operation.

We view all of our activities dynamically. They are subject to improvement.

In the case of refrigerators, freezers, and refrigerator-freezers, we have placed cost of operation on the label and will do so with water heaters and with every other appliance, if feasible.

Use of a system whereby the consumer can see his approximate cost of operation regardless of his electricity or gas rate. The consumer can get this rate simply by dividing his total bill by the number of kilowatts of electricity or therms of gas used, as shown on the bill, or he could phone his utility company or ask his dealer.

I predict that very soon consumers will be as familiar with their utility rates as they are with the cost of a gallon of gasoline or with their rent. For example, the Philadelphia Electric Company already lists the average rate on each monthly bill.

The advantages of the cost display technique that I have described, and that we advocate for labeling over those in S. 349 are enormous. S. 349 requires an initial calculation of operating costs for specific products, but does not contain any provisions for revision of these costs to reflect the changing cost of energy.

Further, S. 349 requires that retailers rather than manufacturers supply operating cost information to consumers. However, no standard format for presentation of this operating cost data is required or suggested in S. 349.

Some advantages of the administration's labeling system are as follows:

1. The cost information is inflation proof and correct regardless of rapid changes in utility rates.

2. The label can be printed by the manufacturer in clear, uniform format, and be usable anywhere in the country.

3. There are only a few manufacturers, less than 50 for air-conditioners, whereas there are more than 100,000 retailers. The tremendous data-gathering activities and the expensive transmittal of data to huge numbers of retailers proposed by S. 349 would be avoided.

4. It is far easier to monitor and control the activities of tens, or even hundreds of manufacturers, than hundreds of thousands of retailers.

5. The operating cost determined by manufacturers or importers under S. 349 is permitted to show a range based on geographic differences in usage patterns and operating costs. Since in any one locale, energy costs can vary considerably, depending on whether the consumer has a preferred rate based on the number of electric or gas appliances he has, the cost range shown on a label could be quite large and so could destroy the usefulness of the label to the consumer.

6. Once a retailer labels a product under S. 349, there is no assurance that he will constantly revise it and update it. In fact, there is no requirement that he do so.

7. Whenever a large number of people, such as 100,000 in the case of air-conditioners alone, are required to make a calculation or to select and record numbers, unintentional mistakes are bound to be made.

8. The format used by more than 100,000 dealers will vary in 100,000 ways, not to mention the likelihood of weak pencil markings, erasures, scratch-throughs, poor handwriting, et cetera.

I have serious reservations about anyone being able to develop test methods for all appliances in 9 months as required by section 20(a).

Cooking ranges and ovens provide a good example. We do not yet know how to measure the efficiency or fuel consumption of a range in a way that relates to real-life usage. How many of the burners should be turned on and to what heat level while energy consumption measurements are made?

What percentage of the time is the oven used, or the broiler?

What is the contribution of the pilot light?

What is the effect of family size or area of the country?

How does the type of food being cooked, affect performance?

What effect does pot or pan size and shape make?

Can a reproducible substitute for food be used for testing instead of highly variable food?

And there are more difficult questions to try to answer. Some of these questions may never be resolved, but every reasonable effort should be made to do so, and it does take time. Test methods far less complex than this one have been known to take an unexpectedly long time to develop.

I have similar, if not greater reservations about determining "average use cycles" for each appliance within 9 months, as required by S. 349.

If tests are required, as they may well be, in some cases the expense to obtain statistically valid data nationwide and perhaps on a regional basis would be enormous. It is doubtful if the instrumentation to do this could be obtained in 9 months, much less be installed, measurements performed, and the data analyzed.

Furthermore, heating systems can only be checked in the winter, and air-conditioners in the summer. Hence, if the bill became law next month, it would be impossible to check heating systems until next winter, and it would be equally impossible to plan, procure instrumentation for, and implement field surveys for air-conditioners before the summer of 1976.

The appliance-labeling system envisioned for S. 594, which is based on the present Department of Commerce voluntary program, has none of these drawbacks.

Now I will discuss the administration bill.

Senator TUNNEY. Excuse me for interrupting.

I am going to ask Senator Ford to chair the hearing temporarily. Mrs. Carla Hills is about to be introduced to the committee for confirmation hearings. She is a Californian. I told her I would introduce her.

I will be back in 10 minutes.

Senator Ford can carry on with the hearings.

Dr. ANCKER-JOHNSON. Yes, sir.

By making the voluntary program mandatory, we will be able to take advantage of every bit of the manpower, money, and background work already expended by the Department of Commerce in its ongoing voluntary program. Hence, the room air-conditioner, refrigerator, freezer, and refrigerator-freeze labeling programs would be in effect and labels available almost immediately. These labels would be followed in short order by labels for water heaters.

These five appliances represent 65 percent of all energy used by appliances.

Our bill accounts for the fact that each appliance has different energy-use characteristics and thus requires its own tailor-made label.

We can avoid the long delays before labels could be issued that S. 349 could require in order to obtain national or regional data, or average-use cycles through extensive field tests.

Further, S. 349 is too rigid. Under our bill we could devise better test methods and amend the labels whenever it is in the public interest, for example, after field data are available.

This is not permitted under the rigid requirements of S. 349.

For some appliances, labels based on average-use cycles as required by S. 349 may be misleading to the consumer. Let me give an example of the lack of usefulness of the concept average-use cycle.

For a washing machine under our bill, and without the delay and expense of collecting new data, we could state the annual cost of operation, based on loads of wash per week. We would then give simple instructions for converting 10 to X loads per week. Every householder knows how many loads are washed per week.

The cost of operation thus obtained is factual for that household and is simple to calculate.

We could even prepare the label so that no calculations would be required.

Let's carry this a little further. Let's assume the national average cycle is 10 loads per week. If we used an annual cost of operation based on this figure as is required under S. 349, then how would households with no children be affected? They may wash only two loads per week.

The annual cost on the label would be five times higher than it should be and that household could be completely misled.

Our bill is sensitive to this kind of problem and has the flexibility to deal with it.

Our bill has another feature that we believe to be of great value. On a single label we would not only report energy consumption and/or efficiency and cost of operation whenever possible, but on that same label we would compare these with all other similar appliances of the same size or performance level.

With the comparison information right on the label, the consumer need not travel from store to store reading different labels and wasting energy. Instead, he knows at a glance what the marketplace has to offer, and where the appliance he is looking at ranks in that marketplace.

Mr. Chairman, we strongly urge enactment of S. 594 as the most effective and economical way of achieving our mutual objectives for the role of appliance labeling in energy conservation.

Mr. Chairman, you have also asked me to comment on the sections of S. 349 which relate to disclosure of energy-consumption characteristics of all new buildings.

While the purpose of this portion of the bill is also commendable, the legislation, in its present form, would not permit the consumer to make a wise choice among alternative buildings, since the bill would not provide information adequate for making energy-conserving decisions.

To save energy in a building, the energy required to operate the building must be identified, rather than the energy used by its climate-conditioning system.

The situation is analogous to attempting to label the annual energy costs of an automobile engine rather than the entire automobile.

For instance, a specific engine would have a much different energy cost if installed in a compact car rather than in a van. Thus, as with automobiles, to achieve meaningful results, it is necessary to label whole buildings rather than their climate-condition systems.

The accuracy with which we can label the energy costs of whole buildings is somewhat limited at present. Reliable climatic data are available for most localities in the United States, to describe the anticipated annual environmental conditions.

However, the energy demands associated with various classes of occupancy, such as office buildings, schools, and homes, are not completely defined. In fact, available studies show variations in energy demands of as much as 400 percent for similar occupants in similar buildings, such as among families of four in nominally identical tract houses.

Improved standards, which are currently under development in the voluntary national standards process, are needed to define the properties of building construction and equipment for the purposes of predicting the energy usage. Most buildings are constructed onsite and, therefore, have considerably more variation in their properties for nominally identical buildings, than do manufactured products such as household appliances.

Mobile homes and manufactured buildings would be more comparable to appliances in the uniformity of the characteristics of the finished products.

However, the authority to develop mandatory Federal standards for mobile homes, which could include authority for labeling energy-cost estimates, already exists under the terms of the Housing and Community Development Act of 1974, Public Law 93-383.

It is not impossible to label climate-conditioning equipment for its energy requirements, as S. 349 would require. However, it would have to be done for an arbitrary duty cycle, such as the amount of energy required to operate a furnace halftime during the heating season. This would give some guidance on the choice between alternative pieces of equipment intended for the same purpose.

The choice would be incorrect, however, if the actual duty cycle differed from the one for which the equipment is labeled, and if the relative economy is reversed, for the actual duty cycle.

To illustrate this concept, car A might have better fuel economy at 50 miles per hour than car B, but poorer economy in typical city traffic.

The Department of Commerce, using the National Bureau of Standards with support from the FEA, is conducting research on the development of standard methods for specifying and testing the seasonal performance of heating, ventilating, and air-conditioning equipment.

The administration's bill, title 10 of S. 594, provides an alternative approach to achieving the objectives of S. 349.

Under the administration's bill, HUD in consultation with the Department of Commerce and the FEA would have authority to develop and promulgate energy conservation standards for new buildings, rather than just climate conditioning systems. The use of such standards would assure an energy-efficient level of performance.

From this improved level of performance, using estimates of the occupants' demands for the building services which admittedly will vary as I have indicated, it will be feasible to predict the energy requirements, and so label buildings.

The approach of S. 594 is preferable to that of S. 349 since the consumer would be much more likely to obtain useful information.

Mr. Chairman, you have also asked for an outline of the programs at the NBS which are aimed at the most effective use of energy in buildings.

I ask that the material describing these programs be included in the record.

[The document follows:]

ENERGY CONSERVATION PROGRAMS AT THE NATIONAL BUREAU OF STANDARDS

In the last three years the NBS energy conservation programs have been expanded substantially. A new Office of Energy Conservation was established this year in the Center for Building Technology at NBS to oversee and coordinate the large number of projects on energy conservation in buildings, appliances, community services (utilities) and industry. The NBS effort—which makes up a significant portion of the total Federal activity in energy conservation—is supported in part by the Federal Energy Administration, the Department of Housing and Urban Development and the Energy Research and Development Administration. It involves both laboratory and field research. A key feature of the program is disseminating information learned from these studies to industry, architects, engineers, and consumers.

ENERGY CONSERVATION IN BUILDINGS

Many experts believe that the largest energy savings and perhaps the easiest to accomplish in the long run could occur in homes and commercial buildings which, historically, have been designed for low first cost and not for efficient use of energy. For a number of years, NBS has conducted research to determine exactly where energy is used and wasted in buildings. A few years ago, NBS developed new computer techniques for estimating the energy requirements of homes, office buildings, schools and hospitals. The new methods are much more precise and faster to use than previous approaches. Most important, they permit a detailed analysis of costs and benefits of various energy savings designs and retrofit options for buildings. The computer program was validated on a full size, four bedroom townhouse in the Bureau's environmental chamber, where outdoor temperature patterns anywhere in the world can be simulated and controlled. This project has provided important data on how much energy is saved by setting thermostats back at night, reducing ventilation and air leakage or infiltration, and adding insulation.

Standard

Late in 1973 the Bureau was asked by the National Conference of States on Building Codes and Standards (NCSBCS) to provide design criteria and guide-

lines for energy conservation in new buildings. NBS delivered the resulting document—"Design and Evaluation Criteria for Energy Conservation in New Buildings"—to NCSBCS in February 1974. A revised version of the document was issued for public comment by the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE). It is expected that the revised ASHRAE standard will become a national voluntary consensus standard and will be incorporated by states into building codes. NBS is cooperating with the Federal Energy Administration and other agencies to develop test procedures and mechanisms required to facilitate the successful implementation of the standard.

Retrofit

Existing buildings also present a major opportunity for energy conservation. Current NBS laboratory and field studies focus on the costs and benefits of insulating conventional dwellings and mobile homes and the potentials for heat pump or solar system retrofit for partial heating and cooling of residences. Studies are also being carried out on the NBS office and laboratory buildings to demonstrate the energy savings which can be achieved by reduced lighting, controlled ventilation, and computer-controlled heating and cooling to provide these services on an "as-required" basis rather than continually. NBS scientists are predicting that energy consumption in these buildings can be reduced by half without causing discomfort to employees or interrupting vital services and experiments.

Design.

NBS is collaborating with the General Services Administration in the design and evaluation of a demonstration office building under construction in Manchester, New Hampshire. This building is expected to save about one third the energy used by a similar building of conventional design. The building houses an extensive instrumentation system devised by NBS to determine which energy conserving features, incorporated in the building, are most effective. In a similar project, NBS is cooperating with the New York City Board of Education under a grant from the National Science Foundation to develop a public school building that will provide a significant energy savings.

These NBS projects are intended to provide architects and engineers with needed data and methods to improve the efficiency of energy use in new building designs. Fundamental to all these NBS studies is development of new instrumentation and test methods for measuring energy use and loss and for determining efficiency and performance of heating and cooling systems.

ENERGY LABELING OF HOUSEHOLD APPLIANCES

The Voluntary Energy Conservation Labeling Program for Household Appliances and Equipment made significant progress in 1974 by introducing the first of what should become a long series of widely referenced and used consumer aids. This program was developed by the Department of Commerce, working with the Council on Environmental Quality and the Environmental Protection Agency.

The purpose of the program is two-fold—to encourage manufacturers of large energy-consuming appliances to provide point-of-sale information on appliance energy use, and to encourage consumers to buy the most efficient products that will meet their needs. Under the program, participating companies label their products to indicate their energy consumption and their relative efficiency in comparison with other directly competitive models. Where it is practical, the cost of operating the appliance appears on the labels.

The NBS role in this program is directed toward developing methods for measuring product efficiency and presenting this information to consumers in understandable form. Room air conditioners were the first appliances to be labeled under the program and, already, the manufacturer's of more than two thirds of all units on the marketplace have agreed to label their appliances. The next items to be labeled are refrigerators, freezers, and combination refrigerator-freezers. Other items to be labeled eventually include water heaters, dishwashers, clothes washers, clothes dryers, kitchen ranges and ovens, central air conditioners and comfort heating equipment.

INTEGRATED UTILITY SYSTEMS FOR COMMUNITIES

NBS serves as the principal technical support for the Department of Housing and Urban Development (HUD) for a major Federal program known as Modular

Integrated Utility Systems (MIUS). A MIUS is a total energy system with additional facilities for recycling waste products and water treatment. The MIUS concept brings together subsystems that serve different utility needs and builds them into a master system that performs the combined functions better than the conventional systems. Energy conservation in a MIUS is achieved primarily through the sharing and recycling of energy which is normally wasted by separate facilities. As energy is saved, pollution and costs are also reduced.

Currently, NBS is evaluating for HUD a demonstration project in Jersey City, New Jersey. The Jersey City project is a total energy plant, which is the foundation of a MIUS. The evaluation involves design, installation and operation of a complete data collection and analysis system for a three megawatt power plant serving the electrical heating and cooling needs for a 484-dwelling unit complex, a school and a commercial area. A demonstration pneumatic trash collection system on this site is also under evaluation. Additional experimental integrated systems to be demonstrated in the Jersey City project include heat recovery, incineration, thermal storage, solar heating and innovative electric power generation.

A 1000-dwelling unit MIUS facility is scheduled to be constructed by HUD within the next year. NBS is preparing the performance specification for this MIUS plant and is designing the monitoring instrumentation system. After completion NBS will evaluate the performance of the plant. NBS also provides technical support for a number of advanced and/or innovative utility integration subsystems demonstrations in the MIUS program.

EFFICIENCY OF ENERGY USE IN INDUSTRY

The goal of the NBS energy conservation program for industry is to improve the efficiency of energy use in the industrial sector of the economy, which uses over 40 percent of our energy supplies. NBS aids industry by developing and promoting methods for reducing energy use, preventing loss of energy, and using waste heat generated in industrial processes and systems.

In September 1974 NBS, in cooperation with the Federal Energy Administration, published a handbook designed to help small to medium sized organizations—companies, manufacturers or commercial establishments—establish or improve ongoing energy conservation programs. The handbook—Energy Conservation Program Guide for Industry and Commerce (EPIC)—outlines in detail the steps in setting up an energy conservation program, suggests more than 200 energy conserving opportunities and contains actual case histories of energy saving actions taken by companies. EPIC is based on the successful experiences of companies which were collected and reviewed by NBS. A major effort has been developed by the Department of Commerce to promote the use of the guide. A graduate level course is being conducted at the University of Pittsburgh based on EPIC under a contract funded by FEA through NBS. A number of state energy offices across the country are sponsoring energy conservation workshops for industry based on EPIC.

NBS also is developing a technical guidebook for engineers on managing industrial waste heat. Other industry-oriented projects include development of new measurement technology for industrial furnaces, evaluation of innovations in waste heat management, and providing technical and advisory services to the Department of Commerce and the Federal Energy Administration on energy conservation programs.

ENERGY CONSERVATION AND THE ENVIRONMENT

It has been estimated that large quantities of energy will be expended by industry to carry out the pollution abatement and control programs required by the Clean Air Act and the Federal Water Pollution Control Act. Accurate measurements of emissions and pollutants are necessary because inaccurate measurements can lead to unnecessary consumption of energy by requiring overly stringent emission controls to compensate for the margin of error in the measurement. NBS has an active program in developing more accurate pollution measurement devices, which, it is hoped, will lead to energy conservation. The Bureau has developed accurate measurement techniques for nitrogen and sulfur oxide emissions from the burning of fossil fuels and is working on sensitive techniques for measuring other pollutants in both air and water.

ELECTRIC POWER SYSTEM MEASUREMENTS

Extra high voltage (EHV) transmission lines are highly efficient means of transmitting large amounts of electric power over long distances—which is often necessary to alleviate temporary regional shortages of electric energy. The daily value of energy transmitted through a single line can be as high as \$500,000. Thus, small inaccuracies in the measurement of the transmitted energy may result in significant inequities. NBS is developing new instrumentation and methods for accurately measuring voltage and electric power in EHV lines.

Dr. ANCKER-JOHNSON. This concludes my statement, Mr. Chairman. I will be pleased to answer any questions you have.

Senator FORD. I will announce a temporary recess until Senator Tunney returns, since this is his legislation and he is very much concerned with it. In deference to his interests we will wait for him.

I do appreciate your coming. It is quite a change to see somebody like you testify, from what I have been viewing from this end of the room.

He said he would be back in about 10 minutes.

[Recess.]

Senator TUNNEY. The hearing will come to order.

I want first to say, Mrs. Ancker-Johnson, that I am very pleased that the administration feels strongly that a mandatory labeling program is appropriate.

If you will recall last year, the administration did not feel that a mandatory program was needed; and I think that substantial progress has been made by those in the administration who felt that although a voluntary program might be good, a mandatory program would be even better; so I am pleased by the movement that has been made; and I would like to address some of the specifics in your testimony.

I think that what we are dealing with initially in the two bills is the question of which agency should have the responsibility for the program; the FTC, or the Department of Commerce.

And as you know, last year initially my legislation provided for the Department of Commerce to have the overall responsibility and it was subsequently changed to make it the FTC. I suppose one of the main reasons for this was that the FTC favored energy labeling and Commerce opposed it.

Now, Commerce has changed its position and favors it.

I wonder if you could explain to the committee why it is that you feel that the FTC should not have it?

You have explained in your testimony, as I read it, why you think you should have it; but would you make the record complete and explain why, in your opinion, the FTC should not have it?

Dr. ANCKER-JOHNSON. Thank you, Mr. Chairman.

May I first say that one of the major reasons why we now take the position that mandatory labeling, rather than voluntary, is a good idea, is the fact that the 50 States and locales, local governments have begun to issue their own regulations. This gets very confusing for the consumer who is not usually confined to States, and also to the manufacturers.

It is turning out to be a very good idea to go mandatory.

The question of which agency should administer this program is, I think, a very important one. What we are talking about, in the case

of labeling of appliances, is a state of the art. We are developing tests, new tests, for which considerable amount of R. & D. has to be done.

That is exactly what the National Bureau of Standards was mandated to do.

Therefore, I feel that it falls very much within their mission, and would be really a mistake not to use this national resource for this purpose.

The overhead would be considerably less if the National Bureau of Standards might be called on in any case to do this work, were to go ahead and promulgate through the Department of Commerce the rules and regulations for the administration.

In the case of the administration bill, furthermore, the Attorney General would assure that the regulations are obeyed.

I would like to ask Mr. Ellert to expand on that a bit.

MR. ELLERT. Sir, I think Dr. Ancker-Johnson covered the main points. Just as essentially a measurement of the existing appliances in the marketplace in which the NBS was really constituted and set up to do.

Also, we found in the rulemaking process with the National Bureau of Standards and ourselves, the Department of Commerce, that we have to cooperate and coordinate these activities very closely and also we have to maintain the integrity of the scientific measurement data which NBS does.

In the Department of Commerce this is recognized that they are knowledgeable about how the tests should be conducted.

It seems—we feel that the NBS will have to play an important part in this program. If it is played with a different agency, that it will complicate the whole situation tremendously.

Senator TUNNEY. What about a possibility of letting the Commerce and NBS do the technical work, and then having the FTC develop the rules?

DR. ANCKER-JOHNSON. One of the reasons why I personally feel that that is somewhat wasteful is because dealing—when we are dealing with a—the state of the art kinds of know-how, then a tremendous amount of education would have to go on for those who did not do the technical work, or were not closely associated with it before they could prepare the rules and promulgate these rules and do the education for those who use them; whereas, if that is all combined in one organization, the Department of Commerce, you won't have this waste of effort, this overlapping, this duplication, and it would cut the costs considerably, I think, because a great deal of effort does go into the rule-making and the decision whether we are having a hearing tomorrow, and whether they can come in to speak what is on their mind before a particular test method becomes the test method.

Did you have anything to add to that?

MR. ELLERT. Mr. Chairman, I was wondering, were you contemplating under what you suggested that the Department of Commerce would publish a final specification for labeling of, say, a refrigerator, and then the FTC would incorporate that into their rulemaking?

Senator TUNNEY. Yes.

MR. ELLERT. What we want is the fact that we can put out the rule-making to define the labeling specifications.

Under our bill, the Attorney General would be enforcing that.

Thinking of switching to FTC, this would be less objectionable. If we had to consult with FTC and they would publish the final specification, this is where we start running into a very difficult, technical problem in getting out the technical specifications.

Since we are reporting the state of the art of the industry, what the technical state of the art is, we think this would be a justification for us putting out a final technical specification.

Senator TUNNEY. The FTC is going to have an opportunity to testify tomorrow; and I assume that they will be telling us why they think they should be the agency to have this responsibility.

Is there anything that you would like to add?

This record will be complete today in representing the Department's point of view?

Dr. ANCKER-JOHNSON. Perhaps I might ask your permission, Mr. Chairman, if something occurs to us that I could send it for the record?

Senator TUNNEY. Certainly.

In your testimony, regarding the provision in S. 349 as to the obligations of retailers, I do not believe that it accurately reflects the language of the bill.

The bill states that all the calculations are to be performed by the manufacturer; all the retailer would be obligated to do is to select the cost figure appropriate to his customers; so S. 349 is no more complicated than what the President has proposed.

Let me just read from the bill, S. 349, page 8 and page 9, (d) (2) line 20, page 8:

The determination of the estimated annual operating cost shall be made by the manufacturers or importers.

And it goes on in subsection (3), page 9, to say:

If a range of estimated annual operating costs is provided to suppliers in accordance with paragraph (2) of this subsection, dealers shall select the estimated annual operating costs applicable to them in accordance with instructions furnished by the Commission.

Dr. ANCKER-JOHNSON. Yes.

Senator TUNNEY. This is different from last year.

Dr. ANCKER-JOHNSON. I am aware of this language, and did study it carefully.

I feel that the fact that the dealers are instructed to make a selection does require them to, if not do some calculations, certainly to have an awareness as to which of the several categories that presumably, they will fall in.

Furthermore, as you recall, I made a very strong case for a uniform sort of label which becomes familiar to all consumers. I brought one along here.

If—we are using this format for all the appliance labels in the voluntary program. We already have it on the market for the air-conditioner, and it is just in the process of becoming final for the next four appliances; and we will use this same format so long as this program continues.

The consumer gets confidence in this mark; he knows what to look for; he begins to be familiar with this—the kind of information that is on here.

We feel it very important to have a uniform and carefully thought through format that the consumer does get used to.

Perhaps you would like to have this new refrigerator-freezer—
Senator TUNNEY. Yes.

I saw a copy in the Federal Register.

Dr. ANCKER-JOHNSON. This one, I think, is new.

That one you have, I believe, is the air-conditioner. This is the refrigerator-freezer and freezer.

Senator TUNNEY. This is, of course, part of the voluntary program of the Department?

Dr. ANCKER-JOHNSON. Yes, of course.

Senator TUNNEY. And this is for refrigerator-freezers.

The manufacturer puts this on to the refrigerator, right?

Where, on the refrigerator?

Dr. ANCKER-JOHNSON. He is told where to put it. Is that what you asked?

Senator TUNNEY. Yes.

Where does he put it?

Is it visible? Can it be seen?

Mr. MEYERSON. The original idea, sir, was that we would have a label pasted to the exterior door.

There was some objection because if the sun hits this, there will be a faded mark after the label is removed and also some consumers without prior thought, would take a knife and try to scrape this off and damage the finish.

Both consumer groups and manufacturers told us they preferred it visibly on the inside. All purchasers of refrigerators open doors before they buy.

The specification is that that be adhered to—put on the top shelf at the front on the refrigerator side; so it will be about 4 feet high, 4½ feet high, on the refrigerator side.

Senator TUNNEY. And you plan to have it open?

Mr. MEYERSON. There is a string. It would be folded and there is a string that goes through the top and it would hang.

Senator TUNNEY. I see.

One of the things that has concerned me about the approach that is being taken by the Department of Commerce—and I recognize the shortcomings of the approach in the bill that I have introduced, too—but one of the things that worries me about this approach that you have is that you have on the label this type of information. You say that if your electric rate per kilowatt hour is 1 cent, 3 cents, 5 cents, 9 cents, then your monthly cost of operation will be approximately—and you specify that.

I have no idea what electricity costs me per kilowatt hour. Maybe I will find out pretty soon. Maybe I will become educated.

I have no idea what it costs where I live. I dare say if you ask people to hold up their hands in this room, there may be one person who knows and could tell you what the kilowatt cost is. They know what their monthly electricity bills are, but they don't know what the kilowatt cost of electricity is.

I think that this kind of a designation or information at the present time is really useless information. I don't have any idea what my refrigerator would cost me as a result of this energy card you are putting out.

I think that must also apply to 99 $\frac{10}{100}$ percent of the people in this country.

Dr. ANCKER-JOHNSON. Mr. Chairman, I think that your point is very well taken, that very few people at this point do know what their, for example, electricity rate is, since you are looking at an appliance operated by electricity rather than, say, gas.

However, I believe that is something we will get as familiar with as we are the price of gasoline, or rent, as I mentioned in my testimony.

In fact, it is such an easy number to determine, that I believe if you were in the market for, let's say, a refrigerator that you would indeed make the simple—either look at your last bill and make the simple calculation, or ask your dealer, or call the utility company and ask them.

It would be a very wise thing to do, because I may be in a community that has a sliding scale, as I mentioned in my testimony; and, therefore, It would be quite impossible for the dealer even to answer the question for you accurately. Your best bet would be either to ask the utility company, or if you are able, to simply make that calculation, which you can readily do from your monthly bill.

Dr. Meyerson would like to elaborate on that a bit.

Mr. MEYERSON. Mr. Chairman, this label does have a cost of operation in bold letters; namely, \$5.50 per month. It could just as easily be an annual cost; and we state that this is based on 4 cents per kilowatt-hour, which is close to the national average.

Since these labels may not be on the market for a year or since the rates of electricity are changing so rapidly, we don't say it is the national average, but in fact it is close to a national average, and that is why we bring it out in bold letters.

Now, the additional data is just extra. People don't have to read that if they want a national average.

Senator TUNNEY. I assume that you are opposed to the idea of having the average operating cost printed on the price tag?

Dr. ANCKER-JOHNSON. No, sir.

I think what we just said is that we have, in fact, printed it on this label. The average operating cost, as best we can see it, is \$5.50 per month for this.

Senator TUNNEY. I was saying on the price tag.

Dr. ANCKER-JOHNSON. On the price tag itself rather than on a separate label?

Senator TUNNEY. Yes.

Dr. ANCKER-JOHNSON. Yes, sir; I am.

I believe it is really misleading to the consumer. If we try always to make things simpler than they really are, I think we encourage the consumer to develop a mistrust in us because a consumer who is doing a little thinking can quickly observe that in fact he has been misled; that is not his average cost at all.

I would far prefer to give the consumer the opportunity to do a little more careful thinking, and show him exactly how he can do this and avoid the consumer being misled or being—feeling that he has been misled.

Senator TUNNEY. Well, your statement is certainly one that I think all of us could agree with.

We don't want to mislead the consumers.

On the other hand, I think that we want to give consumers at least some indication of what their costs are going to be; and I suppose we all extrapolate from our own experience when we are looking at a label such as this and trying to determine whether or not it would be meaningful.

I may be atypical, or I may be typical, but I find that when I go to purchase an item, I am most concerned with the price, the cost; and an assurance, of course, that it does the job.

I am not at all sure that this energy guide would have any meaning to me if I went to purchase a refrigerator, let's say, here, at a department store in Washington, D.C.

I dare say that the retailer, the person that is working in the store for the retailer, is going to be unprepared and purposefully so, to answer the questions on the kilowatt hours per month cost of electricity or cost per kilowatt hour of electricity simply because they do not want to be in a position of having given misleading information; and they are not going to want to say that if you live in such and such a section of town, that the cost is x number of cents per kilowatt hour, unless there is some requirement that they have to do that, and I don't think we want to place that requirement on the average agent of the retailer in the store.

I suppose I come back to the question of what would give to the consumer, the best type of information to give them a guide in their purchases; and you say that average could be misleading.

I recognize that averages could be misleading if they are thought to be anything other than averages.

If they are thought to be averages, then they are averages. They can draw their own impressions, whether they are above the average, below the average, or right on target.

It seems to me that the information on this tag is almost irrelevant to the average purchaser. That is where I guess we disagree, because I am sure you think it is quite relevant.

Dr. ANCKER-JOHNSON. Perhaps I could make two comments, Mr. Chairman.

I think, first of all, when automobiles were first introduced the concept of miles per gallon was also something that had to be learned, and thought about. I believe that hardly any car owner, especially a new car owner, does not calculate very quickly, and this is no more difficult a calculation that we are suggesting—in fact, this is really an easier calculation than determining miles per gallon.

Also, I believe, Mr. Chairman, if you only put an average cost of operation and no clues as to how the consumer may differ from that average, no guidelines as to how that household may differ, we are really asking more sophistication of the consumer by that approach than we are if, indeed, we do give the consumer some simple guidelines as to how to calculate or how to think about in what way he or she deviates from the average.

I believe that pointing out that there is a difference in electrical rate, for example, is a healthy thing for the consumer to think about. That makes it even more important for them to consider the cost of operation. It will begin to get into the consumer's mind that he better think about it in terms of the other items that I may buy besides those that are labeled.

Whereas, if we ask the consumer to always do this thinking about how do I deviate from the average, in order to come to some conclusion about whether I might use more or less energy, I believe that requires a level of sophistication that is really too high to expect.

Senator TUNNEY. Well, I certainly can't fault your logic.

In fact, I applaud it when you say that experience with automobiles would suggest that at some point in time people are going to become concerned as to the price of a given unit of energy.

Dr. ANCKER-JOHNSON. I might also point out, if I may, Mr. Chairman, that we have consulted, of course, with consumer groups a great deal in connection with designing this label; and, of course, with Virginia Knauer's office. We have taken suggestions and tried to incorporate them.

As we mentioned earlier, we are very much aware that improvements can always be made in anything that is a state-of-the-art affair. We are always anxious to make improvements as we find they are appropriate.

Senator TUNNEY. Have you run any test cases at all to find out just what the impact of this is on consumers?

Dr. ANCKER-JOHNSON. I would like to ask Dr. Meyerson to answer that, please.

Mr. MEYERSON. We meet with consumer groups on each label, and also we have contracted with a private research firm whose name eludes me now, sir, but I shall provide it for the record, who went out and researched items for this label.

They reported to us that consumers preferred both the energy consumption as well as a cost of operation; even the color, which is not quite direct, but the color we specified has been researched as being the kind of color that attracts consumers' attention. It is called super pan-tone red. This is not it, but it is close.

We have looked at this, sir. It is not just agreement up in our own laboratory.

Senator TUNNEY. How many test cases did you have as an example for this label, if you had any?

I would just like to know what the reaction of consumers has been, just the average—the average fellow, gal, who goes in to buy a refrigerator and sees this energy guide. I wondered what your experience has been.

Dr. ANCKER-JOHNSON. First, let me say, Mr. Chairman, to make sure we are clear that the particular guide you have in your hand has not yet been issued. That is in the proposed state. The only guide which is on the market, which you would see if you went into a store today, is for the air-conditioner.

We are relatively early still in our ability to get consumer reactions. Only this one label has been on appliances and it has only been partially so for this summer, this past summer. By next summer they will be on, as I said, 95 percent.

Senator TUNNEY. What was the experience this summer with the air-conditioners?

Dr. ANCKER-JOHNSON. We did not make, I believe, a detailed study at this point.

Mr. MEYERSON. The air-conditioning label became ready last May, I believe, sir. At that time most 1974 model air-conditioners had been

built. Therefore, they were in pipelines, in boxes, and in the distribution chain. Therefore, we did not have any labels on the market last summer, really too few to make a judgment.

We do expect to have them in full force this summer.

Senator TUNNEY. Before we go ahead with a labeling program and get millions of these guides printed up, why don't we run some test cases?

Dr. ANCKER-JOHNSON. We certainly intend to find out what the reaction is?

I know what my reaction would be. I am just one person. I know what my reaction would be when I went downtown to buy a refrigerator. That would be meaningless to me.

I assume there are other people whom it would be meaningful to. I don't know. I said that I thought I would probably fit into a category at the moment of about 99 percent of the people.

I may be wrong about that. Maybe people do have an understanding of what the cost per kilowatt hour is.

Do you know what the cost per kilowatt hour is where you live?

Dr. ANCKER-JOHNSON. Yes, sir.

Senator TUNNEY. You do?

Dr. ANCKER-JOHNSON. You would expect me to, I am sure.

Let me say, Mr. Chairman, that we intend, of course, to have continuous feedback from the consumers.

As I mentioned in my statement, that is a very important part of this program, that the consumer attitude and reaction is something that we are very much interested in. Obviously we don't want to go to all of this work and not have the label be of use.

Our primary concern with this entire program is to help the consumer choose the appliance best suited to his needs.

Now, since—

Senator TUNNEY. And also, most important to encourage, energy efficiency.

Dr. ANCKER-JOHNSON. I am assuming energy efficiency best serves the needs of the country.

I am so convinced of our energy problem, that I take that for granted. I think you are right. I should have articulated it.

Senator TUNNEY. The only reason I say that is that some people advocate a much tougher approach, standard setting. When I first thought about this legislation, many people said that we ought to come in with a bill that sets certain efficiency standards, rather than encourage the free market to develop more energy efficient appliances by having consumers compare the energy efficiency or the cost of operating one appliance as opposed to another.

I close the free market position, which seems to me to be the best approach; but there are a lot of people who feel the other way, that we ought to have standards.

You know that as well as I do.

Dr. ANCKER-JOHNSON. As you also know, Mr. Chairman, the President has asked the industry to improve its energy use by 20 percent in appliances by 1980.

We, as I described in my testimony, are in the process of determining—trying to get industry cooperation in this venture.

I think your trust in the marketplace to do its own correcting toward more efficient appliances, is really well placed, because as I pointed out, even though this air conditioner program has been in operation only a very short time, we have in fact seen a 6½-percent improvement in the efficiency of the 115 volt models, the most popular models.

I would say that your reliance on the free market system to correct itself and tend toward more and more energy-efficient devices, is indeed well placed.

Senator TUNNEY. Well, with the case of the labeling of washing machines, does the energy consumption include that required to heat the water?

Mr. MEYERSON. Senator, that is a very difficult problem. We are trying to include that, yes, sir, if we can.

We are now planning to include it, but we have tremendous problems because the cost of heating the water varies, depending upon whether you heat it by electricity or gas, and there are tremendous problems involved in that.

We shall try.

Senator TUNNEY. Well, I recognize the difficulties that you have with establishing the standards to be used in a labeling program.

I want to be able to work with you as we refine the legislation. I don't think it serves much purpose to harangue one another today about the details of this label.

I think we have developed a record that indicates your feeling that this kind of energy guide is adequate, and I think it also reflects my skepticism.

I would just like to ask you one final question:

Do you think the level of funding authorized by S. 349 is adequate?

Dr. ANCKER-JOHNSON. If I may take a moment before answering that—

Senator TUNNEY. It is \$3 million a year.

Dr. ANCKER-JOHNSON. With your permission, if I may take a moment before answering that, I would like very much to call to your attention that one whole side of this label, or one whole page after it is folded in the format that the consumer normally gets, it is indeed devoted to comparison information which I believe is very important to the consumer, and is not called for in your bill.

Otherwise, without the comparison information, the consumer is required to do a great deal of shopping in order to find whether the particular appliance he may be looking at at the moment, is indeed an energy-efficient one, or not, or where it ranks among all of those that are available.

This takes up quite a bit of space. It takes one side of this label. If we discarded, in this particular case, the comparison information, the label would be half as large.

However, I think that is one of the things that makes this label useful for the consumer, the fact that right there on every label he looks at, is all the information he needs to tell whether or not the particular appliance he is thinking of, or looking at, indeed is energy-efficient, or not.

You notice also that nowhere else can you find the information about the type of defrost options you have in the case of a refrigerator, or refrigerator-freezer, as is shown on this particular label. It may be

that by looking at this, a consumer will decide that—to go for the option, the type of appliance which indeed, is the less energy-consuming. That would be a very valuable asset, if indeed this label is looked at, as I believe it really is.

I think consumers are getting more and more sophisticated and looking for more and more information, and I attribute it to the excellent work in Mrs. Knauer's office and her predecessors.

Senator TUNNEY. Why can't you have some of these, for instance, distributed in the local area over the next couple of months?

Dr. ANCKER-JOHNSON. Indeed, once this one is approved, we would like very much to do that.

Senator TUNNEY. How long will it take to get approval?

Dr. ANCKER-JOHNSON. Dr. Meyerson, we are having a hearing tomorrow. When do we expect to get the final—

Mr. MEYERSON. It will be within 6 weeks.

Senator TUNNEY. I don't know how long it is going to take to get this legislation through, but I was hoping—and I suppose it was a false hope—that we could achieve some indication from your field tests as to how successful this guide was prior to the time that we marked up our bill.

However, I would like to get back just to that one question.

Dr. ANCKER-JOHNSON. Excuse me for not answering immediately.

Senator TUNNEY. No; you raised a good point.

Dr. ANCKER-JOHNSON. I wanted to be sure you thought about it. Thank you.

In answer to your question about whether the authority would be adequate in order to carry out this program, I believe that I would have to study that further. I am not here prepared to talk about money. That comes up shortly with the budget hearings.

I daresay that is somewhat less than we are currently spending. However, may I submit that for the record?

Senator TUNNEY. Yes; you can.

(The following information was subsequently received for the record):

I would say about \$3,500,000 for S. 349 and about \$2,000,000 for S. 594.

Senator TUNNEY. What about the length of time. You have said that you thought 9 months in my bill was inadequate as a period of time, because you needed more time; just couldn't do all the work that would be necessary, or that no agency could do the work that would be necessary.

How much time do you think would be needed?

Dr. ANCKER-JOHNSON. In my testimony, Mr. Chairman, I state that we will have had the first go-around, first comment period complete on all nine appliances that are—that were—that I listed in my testimony by the end of fiscal 1976—excuse me, calendar 1976.

That means that such labels would appear on nine different types of appliances by that time.

Senator TUNNEY. And you think that that is the appropriate time?

Dr. ANCKER-JOHNSON. Excuse me.

The labels would not yet appear, but be in the works.

Senator TUNNEY. Yes.

You think any bill—

Dr. ANCKER-JOHNSON. Ought to take that into account, yes, sir. Senator TUNNEY [continuing]. Ought to take that time frame into account. Fine.

I want to thank you very much, Dr. Ancker-Johnson, for being here and for your testimony.

As I say, I would like to be able to work with you as we attempt to refine the final version of the bill. I don't pretend that I have the answers here. I would like to think that I have thought about it a good deal, but I am going to certainly need the expertise that you and your associates have, as we finally draft my bill.

So, I am appreciative of your cooperation.

Dr. ANCKER-JOHNSON. Thank you very much, Mr. Chairman, it was a pleasure to be here.

[The following information was subsequently received for the record:]

APPLIANCE LABELING PROGRAM

CONSUMER ACTIVITIES

Labeling specification development

Consumer representatives have been a part of the appliance labeling program from the beginning. A standing feature of the program has been the formal participation of consumer groups, through meetings called for that purpose, in the developmental stages of labeling specifications. The first specification for room air conditioners received input from the following consumer groups:

1. Consumer Federation of America
2. Consumers Union
3. Congress Watch
4. American Home Economics Association
5. Office of Consumer Affairs, HEW

Subsequent specifications for food storage appliances and domestic water heaters were discussed and reviewed with various Consumer Sounding Boards. These Boards have been specifically established to provide a means of conferring with a cross-section of ultimate consumers. The Boards are not limited to activities in the Appliance Labeling Program; but rather, they are designed to make available a dependable report of broad consumer experience, attitude, and opinion for the use of standards development groups regarding particular products. Proposed labels for refrigerators, refrigerator-freezers, freezers, and water heaters were reviewed and discussed with the Boards at a series of four meetings in the Washington, D.C., and Philadelphia metropolitan areas.

As one of the five sponsoring agencies of the Consumer Board concept, the NBS plans to continue utilizing the Boards for assistance in the development of specifications and labels for household appliances.

In addition, the NBS has sought comments and criticism from all identifiable consumer organizations in both the public and private sectors prior to finalizing label specifications. All proposed specifications have been sent to the following groups for their review:

	<i>Number of offices</i>
1. State consumer offices.....	93
2. County consumer offices.....	86
3. City consumer offices.....	44
4. Private sector consumer organizations at national, state, county, and city levels.....	61

Additional input has regularly been sought in specification development through the use of the U.S.D.A. Cooperative Extension Service. The Service is a cooperative program of the U.S. Department of Agriculture, state universities, and county governments. One of its major functions is to conduct consumer educational programs through meetings, demonstrations, tours, publications, and the mass media. All program materials, particularly proposed specifications and labels, have been made available to the Service for distribution and review throughout the country.

Consumer studies

Two formal studies have been conducted in the course of implementing the appliance labeling program. One of the studies was conducted in-house, and the second was conducted under contract by Human Sciences Research, Inc., of McLean, Virginia. The purpose of these studies was to determine:

1. The essential information required by consumers on an energy label; and
2. Consumer reaction to alternative methods of expressing and displaying such information.

The first study covered the room air conditioner, and the second one concerned labels for refrigerators, refrigerator-freezers, and freezers. The results of the studies have been incorporated into the specifications and labels for the products involved.

Literature searches and surveys have been conducted to determine consumer appliance usage patterns. The results of such efforts have been instrumental in specification and label development. Additionally, several limited field tests to determine consumer usage patterns for refrigerators and freezers have been conducted. The data from such consumer tests have been used to verify laboratory test data.

Information dissemination

Periodic news releases concerning program activities have been made available to the trade press, consumer press, and the general mass media. Two publications have been authored concerning program activities and have been made available to the following organizations and agencies for distribution to the consumer public:

1. Office of Consumer Affairs, HEW
2. Consumer Information Center, GSA
3. Federal Information Centers, GSA
4. Office of Energy Conservation, FEA
5. Office of Field Operations, DoC
6. Public Affairs Group, EPA
7. Cooperative Extension Service, USDA
8. National Energy Information Center, FEA
9. Council on Environmental Quality
10. State, County, and City Consumer Affairs Agencies
11. State Energy Conservation and Fuel Allocation Offices
12. Professional Societies
13. Manufacturer and Retailer Trade Associations
- ¹ 14. Utility Companies

Public service radio and television announcements aimed at consumers have been prepared and distributed by the DoC and in cooperation with the Consumer Information Center of the GSA. Also, a public service television film announcement is nearing completion. This consumer message will be released to coincide with the spring and summer selling season for room air conditioners.

A slide/tape presentation on energy efficiency in room air conditioners, suitable for showing to all types of consumer groups, is nearing completion. The kit is designed to be used at all types of public meetings and will be made available through such organizations as the USDA Cooperative Extension Service and the DoC Field Office Network. Additionally, the kit will be made available to any other interested group or agency.

Future developments

It is anticipated that Consumer Sounding Boards will be used extensively in the development of specifications and labels for all additional appliances in the program. Consumer pamphlets will be prepared and distributed for each type or class of appliances. Public service television and radio announcements will be prepared and distributed as new appliances enter the program.

Moreover, it is anticipated that consumer surveys will be made to determine the utility of the Energy Guide labels. Such surveys will be conducted among actual appliance purchasers to determine the degree of influence and the effectiveness of the energy information on consumer purchase decisions.

¹ Materials have been made available to these types of organizations with permission to reprint and distribute indefinite numbers of copies.

Senator TUNNEY. Our next witness is Mr. Richard Canavan, staff vice president, Builder Services National Association of Home Builders.

STATEMENT OF RICHARD J. CANAVAN, STAFF VICE PRESIDENT, BUILDER SERVICES NATIONAL ASSOCIATION OF HOME BUILDERS; ACCOMPANIED BY CARL A. S. COAN, JR., STAFF VICE PRESIDENT, LEGISLATIVE COUNSEL; AND ALAN TRELLIS, ASSISTANT DIRECTOR, TECHNICAL SERVICES

Mr. CANAVAN. Mr. Chairman, I am Richard J. Canavan. I am a staff vice president of the National Association of Home Builders. The NAHB has more than 77,000 members in 603 associations throughout the country. I have with me today Alan R. Trellis, assistant director of our Technical Services Department, and joining us in a moment will be Mr. Carl Coan, who is down the hall at Mrs. Hills' hearings.

We thank you for the opportunity to present some brief comments on S. 349, the "Truth in Energy Act." Our industry is deeply involved and vitally concerned with the energy problems facing our Nation. Energy shortages, natural gas moratoriums, and soaring utility rates have severely affected the home building industry in many parts of the country.

We strongly support Government efforts to effectively and reasonably deal with these problems; however, several of the provisions contained in S. 349, in our opinion, are neither reasonable nor effective. Rather, they are arbitrary and complex requirements which would needlessly burden the building industry and confuse the general public.

We do understand that a proposal similar to this bill but more limited in scope will be considered. This bill is the "National Appliance and Motor Vehicle Energy Labeling Act of 1975," and the provisions we are referring to are included in title XII.

Our primary concern is with those provisions of S. 349 which would require the calculation and presentation to potential purchasers and lessees of the annual operating costs of climate-conditioning systems in new buildings, including residences. While application of this requirement may be entirely feasible for appliances, it is totally impractical with respect to buildings.

Subsection (e) of section 20 of the bill requires the FTC to establish model calculation procedures to determine the estimated annual operating costs of climate-conditioning systems. We believe that to be meaningful such model calculation procedures for buildings would have to be immensely complex due to the many variables involved.

Claims that this procedure can, at the same time, be simple and meaningful, are in themselves an over-simplification. There are no simple solutions to complex problems.

The extreme difficulty of determining what is "normal" energy consumption for a home or apartment is worthy of close examination. Theoretically, the results of the model calculation procedure should be highly indicative of the true annual operating costs. Yet, differences in family size, life style, temperature preference, housing maintenance and many other factors will significantly affect energy consumption.

Because of this, any simplifying or averaging assumptions will only insure large variations between the calculated and the actual operating costs. The fact that a model procedure cannot and will not yield a truly indicative annual cost estimate is our first area of concern.

Equally important to any estimate of energy consumption are the variables associated with design and construction. Building area, equipment selection, mechanical system design, ceiling height, window sizes and orientation, thermal insulation selection, and shading coefficients are only a few of the literally hundreds of factors which affect annual operating costs for heating and cooling, and which must be utilized in the determination of the normal operating costs for a given building. Yet, unless these variables are subjectively analyzed for each individual house or apartment, we return to the fact that the resultant annual cost estimate will not be truly indicative of actual costs.

As an example of what would be required by the builder to obtain a meaningful analysis, one only need look at a typical subdivision sold to the general public. Assuming four basic models which are offered on any 1 of 50 building lots, we immediately find that the variable of site orientation alone would dictate consideration of 4×50 or 200 possible combinations.

Additionally, if each of these models had several optional features which affected energy consumption—that is, walk-out basement, extra bedroom, fireplace, storm windows, et cetera—then provision would have to be made for calculating the effect of these options, singly and in combination, for each model on each lot.

As an example of the effect of such variables, we have taken a typical single-family house and oriented it both in the most favorable and least favorable way. A rough engineering analysis, shown in exhibit A, indicates a potential increase in heat gain of 29.6 percent in the Washington, D.C. area, with, theoretically, a corresponding increase in the cost of air-conditioning.

Similarly, studies on energy consumption have shown that heating and/or cooling energy usage may vary as much as 100 percent for identical dwellings because of usage patterns. We do not believe that is reasonable, fair or economically feasible to burden the supplier of housing—that is, the builder—with the elaborate and lengthy calculations necessary to incorporate all of the design and construction variables. Anything less, however, will only increase the discrepancies resulting from the variations in usage previously mentioned. This conflict between realistic requirements and meaningful mathematics is our second major area of concern.

Our third major area of concern deals with the relationship between the builder and the consumer—either homebuyer or tenant. Requiring the builder to provide an annual estimate of heating and cooling costs, computed with the use of prescribed model calculation procedures, places the builder in the untenable position of mediating between the consumer and the Government.

When the estimated energy costs vary from the actual costs, no matter what the cause, it is the builder who will be forced to bear the dissatisfaction and possible harassment of the consumer. It is the builder whose reputation will be tainted by unhappy homeowners complaining that the facts have been misrepresented. It is the builder who will have to explain the disparities between estimate and fact.

Forcing the seller or lessor of a new home or apartment to provide, explain, and interpret engineering calculations based upon procedures which he did not conceive is, in itself, greatly unfair and burdensome. But, doing so when it is known in advance that the results of such calculations may not be a true representation of actual costs is an injustice, rather than an aid, to the consumer.

As stated in the bill, it is the intent of Congress:

To assure * * * meaningful disclosure of the annual operating cost certain products * * * and systems so that consumers can readily compare them and thereby avoid purchasing those which unnecessarily waste energy.

We contend that the provisions of this bill do not achieve this intent for the following reasons:

1. It is, for practical purposes, technically infeasible to assure a "meaningful disclosure of annual operating costs" for buildings. Small appliances and even large mechanical equipment can be analyzed and then energy usage determined fairly readily. Buildings, however, do not demand a fixed amount of energy, such as a toaster. Rather, their energy usage is a dynamic response to innumerable variables, and as such, is not readily calculable.

2. It is not necessary to provide elaborate calculations so that consumers can compare alternative residences. Improved consumer education coupled with basic information already available in the marketplace and improved labeling of equipment provide the basis for meaningful comparisons.

3. The use of alternate fuels and the constantly changing price of the fuels can make meaningful cost comparisons between mechanical systems impossible. No matter what fuel rates are used or assumed, there is no way of knowing or reasonable predicting where energy prices will end up. Regulation, deregulation, embargos, new sources, et cetera, all conspire to reduce fuel cost estimating to crude levels of analysis at best.

In view of the serious difficulty in calculating and providing meaningful information on the expected energy use of residences, we urge that the provision of S. 349 requiring this information be furnished be eliminated from the bill. We believe that the remainder of the bill is generally workable and desirable and can see no objection to its early enactment.

[The documents referred to follow:]

EXHIBIT A

The following example illustrates a comparison of a typical single family detached house of 1,370 sq.ft., oriented on an east-west axis with the principal glass areas facing north and south, versus the same house oriented with the principal glass areas facing east and west. Both have full thick insulation in walls and ceiling.

1) East-West Axis

Window areas:

North - 86 sq.ft.
 East - 35 sq.ft.
 South - 85 sq.ft.
 West - 0 sq.ft.

Total heat gain - Washington D.C. area

20,829 BTUH

(See attached work sheet & floor plan for details)

2) North-South Axis

Window areas:

North - 0 sq.ft.
 East - 86 sq.ft.
 South - 35 sq.ft.
 West - 85 sq.ft.

Total heat gain - Washington D.C. area

27,008 BTUH

(See attached work sheet & floor plan for details)

Percent Difference in Total Heat Gain:

$$\frac{27,008 - 20,829}{20,829} = 29.67\% \text{ increase in heat gain}$$

1) PROPER ORIENTATION

COOLING WORKSHEET

COMPONENT OF LOAD	AREA	HEAT GAIN	6. BUILDING SECTION	INSULATION R-VALUE	HEAT GAIN	TRIAL NO. 1	TRIAL NO. 2	TRIAL NO. 3	
1. Windows ☒ Single ☐ Double Exposure N E S W	86	2378	Ceilings 1370..... sq. ft.	R-19	3367				
					R-11				
	35	1795			R-7				
		85	3260	Walls (gross area) Frame 1480.. sq. ft. Masonry sq. ft.	R-11	6201			
					R-7				
					R-0				
					R-7				
2. Doors ☒ Single ☐ Storm	54	628		R-0					
3. Number of Occupants 4 x 400 4. Appliances		1600	Floors Over Open Spaces^a 1370..... sq. ft.	R-19					
				R-11					
				R-7					
				R-0					
5. Heat Gain Excluding Building Sections		11261	7. Heat Gain Through Building Sections		9568				
----- Transfer heat gain excluding -----> building sections to these three boxes						11261			
8A. Maximum allowable heat gain (FHA only)									
12. ESTIMATED ANNUAL COOLING COST^d Total heat gain 100,000 x Cooling Index = \$ /yr.									
8. Subtotal Excluding Ducts						20829			
9. Duct Multiplier^b									
10. TOTAL HEAT GAIN^c									
11. EQUIPMENT SIZE									

NOTES

- a. Floor heat gain to be calculated only for floors over open spaces, such as bedrooms over garages. Slab-on-grade floors, floors over basements, and floors over vented and unvented crawl spaces may be considered to have no heat gain. In most cases, worksheet entries for floors should be omitted.
- b. Multipliers for heat gain to ducts:
- | | |
|--|------|
| Ducts in attic, 1" flexible insulation | 1.15 |
| Ducts in attic, 2" flexible insulation, 1" rigid insulation, or 1" fiber glass duct | 1.10 |
| Ducts in other unconditioned spaces above grade, 1" flexible insulation | 1.05 |
| Ducts in unconditioned spaces below grade, including unconditioned basements, no duct insulation | 1.05 |
| Ducts in conditioned spaces | 1.00 |

The NAHB Research Foundation, Inc., assumes no responsibility for the validity of cooling operating cost estimates in relation to actual costs in specific instances because of the many possible variations in occupancy, equipment efficiency, living habits, and other factors.

- c. Total Heat Gain in Step 10 may be reduced 15 per cent if a 4½° F. interior design temperature swing is used or may be reduced 30 per cent for a 6° F. interior design temperature swing.
- d. Cooling Index and estimated annual cooling cost assumes a thermostat setting of 75° F. A thermostat setting of 70° F., for example, would significantly increase operating cost.

2) POOR ORIENTATION

COOLING WORKSHEET

COMPONENT OF LOAD	AREA	HEAT GAIN	6. BUILDING SECTION	INSULATION R-VALUE	HEAT GAIN	TRIAL NO. 1	TRIAL NO. 2	TRIAL NO. 3
1. Windows ☐ Single ☐ Double N E S W	0	0	Ceilings	R-19		3367		
			 sq. ft.	R-11				
	86	6167		R-7				
	35	1340	Walls (gross area)	Frame	R-11	6201		
	85	6105		 sq. ft.	R-7			
				R-0				
		Masonry		R-7				
2. Doors ☒ Single ☐ Storm	54	628	 sq. ft.	R-0				
3. Number of Occupants 4 x 400		1600	Floors Over Open Spaces^a sq. ft.	R-19				
				R-11				
				R-7				
4. Appliances		1600		R-0				
5. Heat Gain Excluding Building Sections		17440	7. Heat Gain Through Building Sections			9568		
Transfer heat gain excluding building sections to these three boxes						17440		
8A. Maximum allowable heat gain (FHA only)						8. Subtotal Excluding Ducts	27008	
						9. Duct Multiplier^b		
						10. TOTAL HEAT GAIN^c		
						11. EQUIPMENT SIZE		
12. ESTIMATED ANNUAL COOLING COST^d Total heat gain 100,000 x = \$ /yr. Cooling Index								

NOTES

- a. Floor heat gain to be calculated only for floors over open spaces, such as bedrooms over garages. Slab-on-grade floors, floors over basements, and floors over vented and unvented crawl spaces may be considered to have no heat gain. In most cases, worksheet entries for floors should be omitted.
- b. Multipliers for heat gain to ducts:
- | | |
|--|------|
| Ducts in attic, 1" flexible insulation | 1.15 |
| Ducts in attic, 2" flexible insulation, 1" rigid insulation, or 1" fiber glass duct | 1.10 |
| Ducts in other unconditioned spaces above grade, 1" flexible insulation | 1.05 |
| Ducts in unconditioned spaces below grade, including unconditioned basements, no duct insulation | 1.05 |
| Ducts in conditioned spaces | 1.00 |

The NAHB Research Foundation, Inc., assumes no responsibility for the validity of cooling operating cost estimates in relation to actual costs in specific instances because of the many possible variations in occupancy, equipment efficiency, living habits, and other factors.

- c. Total Heat Gain in Step 10 may be reduced 15 per cent if a 4½° F. interior design temperature swing is used or may be reduced 30 per cent for a 6° F. interior design temperature swing.
- d. Cooling Index and estimated annual cooling cost assumes a thermostat setting of 75° F. A thermostat setting of 70° F., for example, would significantly increase operating cost.

6—Winter Heat Loss and Summer Heat Gain Calculated for a Representative Dwelling Unit

This section gives a range of heat gains and losses for the house shown below. By example, it also shows operating cost calculations. Calculations were made by the worksheet methods explained in Reference Sections 4 and 5.

Floor, ceiling area: 1,370 sq. ft.

Wall area (gross, no deduction for windows and doors): 1,480 sq. ft.

Window areas:

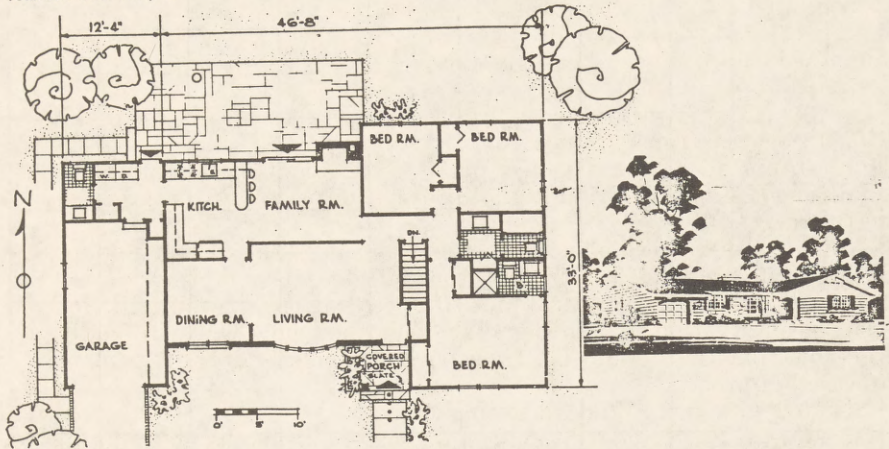
North—86 sq. ft.

East—35 sq. ft.

South—85 sq. ft.

West—0 sq. ft.

Total door area: 54 sq. ft.



Winter heat loss

Heat loss is given below for 10 combinations of insulation and single or double windows and doors. Calculations have been made for a temperature difference of 1° F. Thus, the total heat loss for this house in any locality with different insulation, windows, and doors can be determined by multiplying the Btuh heat loss/°F. by the actual temperature difference for that locality.

Ceiling Insulation	Wall Insulation	Windows, Doors	Btuh heat loss/°F.	Btuh heat loss/70°F. TD
R-7	R-0	Single	1043	73,010
R-7	R-0	Double	835	58,450
R-7	R-7	Single	806	56,420
R-7	R-7	Double	598	41,860
R-11	R-7	Single	752	52,640
R-11	R-7	Double	544	38,080
R-11	R-11	Single	707	49,490
R-11	R-11	Double	499	34,930
R-19	R-11	Single	666	46,620
R-19	R-11	Double	458	32,060

Example for Columbus, Ohio: winter design temperature, 2° F.; temperature difference (TD), 68° F.; heat loss/°F., 666 Btuh (R-19 ceiling insulation, R-11 wall insulation, single windows and doors); Heating Index, 639:

$$\text{Total heat loss (excluding any duct loss)} = \text{Heat loss/°F.} \times \text{TD} = 666 \times 68 = 45,288 \text{ Btuh}$$

$$\text{Estimated annual heating cost} = \frac{\text{Heat loss} \times \text{Heating Index} \times 24}{\text{TD} \times 100,000} = \frac{45,288 \times 639 \times 24}{68 \times 100,000} = \$102.14$$

Senator TUNNEY. Mr. Canavan, can you suggest to the committee how we can get greater energy efficiencies in heating and cooling systems without an approach such as is being used in this legislation. It appeals to the free market desire that I have to give to the consumer an opportunity to evaluate the efficiencies of various products and hopefully choose for purchase the products that's most energy efficient because it's cheapest?

As you heard when I was questioning Dr. Ancker-Johnson, we could have gone to an approach of standard setting. It did not seem to me to be wise to do it; but I would like to get your views. How can we get greater energy efficiency in our heating and cooling systems?

You oppose the approach that the bill takes, and you state, I think with precision, where your problems are with it. I am now asking you for advice as to how we can get the energy efficiency that all of us desire.

Mr. CANAVAN. Well, we are both concerned, Senator, with this problem. It's a very serious problem to us.

Our problem here is the fact that it's just about impossible for a small businessman to provide the information necessary on a meaningful basis.

Now, in other areas of activity there is a good bit of work going on in the design field. I think the other bill does have a provision for the establishment of certain kinds of specifications, if you will, for energy conservation in buildings. We don't know how that will finally come out, but that would be, from our standpoint, probably a more practical approach.

Senator TUNNEY. Standard setting?

Mr. CANAVAN. Standard setting in a sense, but maybe not quite in the sense you were addressing yourself to earlier, but it is standard setting; yes, sir.

Senator TUNNEY. In your statement you claim any calculational procedure would be immensely complex. Other experts disagree with you. Last spring when I chaired hearings on this subject, a representative of the major air-conditioning manufacturers told me such a calculation is relatively straightforward and I would like to include pages 309 and 310 of that hearing record into the record of this morning's hearing.

At that same hearing last spring, an architect endorsed the position of the equipment manufacturers.

Now I'm going to ask you if you can indicate to the committee why at least certain manufacturers and architects feel that such calculations are feasible but your organization feels that it's far too complex.

Mr. CANAVAN. It's a regular procedure to prepare estimates of this type for buildings for design purposes. However, I am not familiar with the architect's presentation. We do expect, of course, the manufacturers of equipment to provide this kind of information. From our standpoint in having experience in dealing with consumers on this kind of issue, we know that the usage varies. And as I pointed out, such things as orientation or even within a given area, microclimates will vary from place to place. This will result in a variation in the energy usage pattern.

We would not agree that it's a simple matter. To do it honestly and meaningfully, that is.

Senator TUNNEY. Well—

Mr. CANAVAN. They may have been talking about only equipment, too. We would concur with that.

Senator TUNNEY. No. They weren't.

Mr. CANAVAN. They were talking about buildings?

Senator TUNNEY. Yes.

Your example in exhibit A shows if an average value for heat gain were used, that it would be 24,000 Btu's per hour. Then the variations due to extreme differences in orientation would be less than 29.6 percent.

Now that's like predicting the miles per gallon of a Cadillac would be 10 miles per gallon and the actual performance turns out to be between 9 and 11 miles per gallon.

Don't you think that consumers would be satisfied with that level of accuracy, particularly if they were told that that was what could be expected in the way of variation?

Mr. CANAVAN. The example used in the same house. The difference shown there is the orientation from the most desirable orientation to the least desirable orientation. It's not a Cadillac versus a Chevrolet question. It's the same house. The only variable is the orientation.

Senator TUNNEY. Couldn't you use the average value and give to the purchaser some indication of what the cost was going to be? Just as an example?

I have one personal example. I went into a home in Georgetown when I first got back to Washington 8 years ago and—well, I had been here, I guess, 2 years, but I had moved into a home in Georgetown.

I recall getting the heating bill for the first month of operation of the heater system during the winter months. I guess it was December; and back 8 years ago, the cost of heating the building was \$200, and I couldn't believe it.

The place was a barn. There were obvious cracks in the wall which allowed the heat to flow out, so I was heating up the entire District of Columbia.

I recall the experience because I moved into another house shortly thereafter which I purchased about the same footage, and the heating bill was about \$60 a month.

So I think that there are tremendous variations, I will agree with you, tremendous variations in the heating and cooling of a house, depending upon the kind of construction, the kind of insulation, and the heating system or heating and cooling system. What I suppose we are trying to do here is to make sure that when a purchaser goes out to buy a home, that they are given some indication as to the amount of money it will take to heat and cool that building which will accomplish two purposes.

One, it will perhaps get the builders to use better insulation, and second, it will get the manufacturers of heating and cooling equipment to build more energy efficient units.

You say that you just don't think that that's possible; it's just too complicated.

Mr. CANAVAN. Well, I appreciate your concern, Senator, on this issue. The fact is that estimates have been made right along. For example, if you were building a house under FHA inspections, you

would be required to make an estimate of the utility costs of that house for mortgage and credit analysis purposes. It is an estimate.

I certainly share your concern with the rising prices. This has increased costs in a very major fashion. Estimates are now made; and I think—

Senator TUNNEY. How about giving those estimates to the consumer?

Mr. CANAVAN. I think they are often given to the consumer now where they can be made. They are not put out as a guarantee in any way.

Senator TUNNEY. I don't think that this legislation should in any way provide that guarantees are to be made as undertakings by manufacturers or by homebuilders. As a matter of fact, there is a specific clause in the bill which states that it will not be a guarantee, that it is just an estimate.

I added this language myself for reasons that I heard last year. I said nothing in this section shall be construed to give rise to a cause of action for damages unless a person fraudulently and knowingly gave the purchaser or lessee false information.

The reason we did that was to protect the manufacturer and the builder. We just didn't want a unilateral rescission of contract as a result of the requirements of this legislation.

Well, I understand your concern with the legislation. It doesn't surprise me. But on the other hand, I think that we just have to do something about the energy efficiency of our housing stock in this country, and particularly when we know that approximately 22 percent of all energy is used in residences and commercial buildings. That is a lot of energy.

It seems to me we have to have some method of developing greater efficiencies.

I will be happy to work with your organization; but I am not sure that we can have too much in the way of cooperation if you are absolutely dead set against any proposal which is going to encourage giving to consumers an estimate of what the heating and cooling of a building is going to be during the course of a year, particularly inasmuch as the FHA, according to your own testimony, is requiring these estimates be made for their own programs.

Mr. CANAVAN. Well, I would hope our statement did not come out quite that strongly as you put it.

On the 22 percent, incidentally, that is all housing. The new housing being produced—

Senator TUNNEY. I was thinking of all housing.

Mr. CANAVAN. The new housing would be less than 1 percent.

Senator TUNNEY. Certainly. Depending upon the time period, obviously. That is 22 percent for all housing, commercial and residential. Well, thank you for your testimony.

The staff has just indicated to me that apparently you provide your builders with a calculation sheet for determining that annual operating cost. I see here in your statement, your attachment, that you have, in box 12, estimated annual cooling costs; and then you have another sheet for heating. So apparently that is a requirement that is already being undertaken.

Mr. TRELLIS. Could I answer that question, sir?

Senator TUNNEY. Yes.

Mr. TRELLIS. Rather than a requirement, this sheet you see is an excerpt from a manual put out by the association for the builders to help them in the design process. Most of these calculations, however, are really not designed to be used as an estimate of consumption, but rather to be used in determining the proper size of equipment to be placed in the building.

The calculations are very, very approximate, very very crude. For example, if you look on the sheet, there is a place—this is a heat gain sheet—on the loss sheet there is a column where you have to put in a coefficient which can vary from 0.9 to 2. When you multiply that number by another series of numbers we are talking about a variation depending upon qualities of windows, et cetera, in excess of 100 percent variations. There are other worksheets provided by other associations, such as the National Environmental Systems Contractors, et cetera, which are used and again are primarily designed for the proper sizing of equipment.

That is in no way a guarantee or even an indication of what consumption is going to be.

Senator TUNNEY. But if it's good enough for the builders shouldn't it be good enough for the consumers?

Mr. TRELLIS. Because it will not actually or accurately give a good representation of what the utility bills will be. I think that is what your intent is. I think that's what the legislation states its intent is.

Senator TUNNEY. What is the intent of this estimated annual cooling and heating cost? What is the purpose of that? That is to give the builder, is it not, some indication of the kind of unit they have to have in the house?

Mr. TRELLIS. That is to give the builder a rough feel for that equipment as compared to other equipment. That is correct.

Senator TUNNEY. When you decide the kind of equipment you are going to use, you are deciding it on the basis of the size of the house, the amount of square footage, and the kind of output of the heating and cooling system; right?

Mr. TRELLIS. Well, the output is determined by this. In other words, you select your equipment based on this plus the equipment efficiency.

Senator TUNNEY. Right. And what you do is you make an estimated annual cooling cost and heating cost for the internal purposes of the builder; right?

Mr. TRELLIS. Right.

Senator TUNNEY. If you are doing it for yourselves, why can't you do it for the consumer and just share that information with him?

Mr. TRELLIS. The only problem is the number varies all over the place. It's one thing to do it for yourself within a subdivision, to do it for a given model house and size, but when you vary the location of the house, the orientation, and all the other variables, and then, more importantly, when you add usage, the true electricity bill which the people receive plus when you add the utility rate structures and variations, those bills are going to vary tremendously.

Senator TUNNEY. Of course they will vary tremendously. Of course the cost of energy is going to change; but it would seem to me that if you gave an average estimate and if it was factored into an assumption as to the cost of energy, you would be protected; and particularly if, in giving to the consumer this information, you pointed out that it was a

rough average estimate—but I tell you one thing: When I moved into that Georgetown house, if somebody told me that the cost of heating was going to be \$200 a month, I wouldn't have moved in.

Mr. TRELLIS. We wouldn't have told you, because it was an existing house. I suspect it was an older house.

Senator TUNNEY. It was.

Mr. TRELLIS. Part of what we try to do for our industry is upgrade the standard of construction to keep with the times.

Senator TUNNEY. You know as well as I do there are great variations now in the kind of insulation that is put into new homes and also variations in the type of heating and cooling equipment that go in. It can be as great, I am sure, as 200 percent difference, depending upon the builder and the kind of insulation that is used, the kind of heating and cooling equipment. What we are just simply suggesting is that if the builder himself feels that it's important to have a rough estimate as to the annual operating costs, there is no reason why you shouldn't give that kind of rough estimate to the consumer.

Mr. CANAVAN. I think our problem, Senator, as with the previous witness, we don't know what the average consumer is, exactly.

Senator TUNNEY. Well, no, but you do make that kind of calculation for yourselves as to what the average consumer is, don't you? Because it's here in the worksheet.

Mr. CANAVAN. Yes.

Senator TUNNEY. It's here in the cooling worksheet. You go down and talk about the number of windows, and the doors, and the number of occupants, and the appliances, and the heat gain, excluding building sections, and heat gain through building sections, and maximum allowable heat gain; and then you have the estimated annual cooling costs.

I think it's clear that you are making these calculations for yourselves and what I am simply saying is why shouldn't this information be shared with the consumer?

If it's good enough for you, why shouldn't you share it with the consumer?

Mr. COAN. Senator, I am Carl Coan, legislative counsel for the association. I think part of the problem is that even though the bill says that nothing required by it shall give anybody a cause of action, I think we have seen, unfortunately, regulations which—and regulatory requirements which develop into areas which have many imponderables which wind up causing considerably more trouble than was in the mind of the enactors when they enacted them.

The builder is a focal point for many things: he builds very complex structures, with thousands and thousands of components. Because of that, the least little thing goes wrong, he is immediately looked to and called down because of it. Because of the problem in this area, we have instituted a warranty program in order to try to provide some certitude for purchasers with respect to the conditions of their house over a period of years with respect to the construction of it.

I don't know how we could provide the same sort of situation in this area. I have five children that live in a house that's the same size as neighbors of mine who have no children. I am sure that the house next door to me uses a considerable lot less energy. I know it does. Occasionally I get their bills by mistake in the mail.

It's the same house, identical. There is no difference whatsoever in the square footage or anything. My five children, and my cat, and my dog going in and out of the house all the time have a decided bearing on my use of energy as compared to my next-door neighbors who work—both work all day long, and are gone frequently on weekends, on camping trips, and things of that nature.

There are also, within these same size houses, families with six and seven children. I know, as a matter of fact, that there are vast variations between these same houses, all of which have the same amount of insulation and all of which have the same building techniques and all are built by the same builder at the same time.

Senator TUNNEY. Of course on the calculation worksheet, number of occupants is a factor; and I think, obviously, it has to be factored into any information that is given to the consumer.

Look, we have other witnesses and I know what your position is. If you have any language that you think that is better than the language that we have in the bill as it relates to the proviso that there cannot be a cause of action for rescission of the contract for damages, if the information is not accurate, I would be pleased to have it because we were trying there to protect the manufacturer and home-builder.

If you have any better language you would like to suggest, we would like to have it.

Mr. COAN. Well, Senator, I am not sure we can really come to an agreement on this basic thing. We will explore it.

Senator TUNNEY. Thank you.

It goes without saying that if you have anything else you would like to submit to us in addition to your statement, I hope that you will.

Mr. CANAVAN. Thank you.

Senator TUNNEY. Thank you very much.

Our next witness is Mr. Eric Fine, George Washington University Law Center, accompanied by Mr. Louis Ebert and Ms. Julie Hamos.

STATEMENT OF ERIC FINE, MEMBER, HOUSE INFO; ACCOMPANIED BY JULIE HAMOS; GLENN A. GOLDBERG; LOUIS EBERT; AND JOHN BANZHAF

Mr. BANZHAF. I am Prof. John F. Banzhaf III, of George Washington University Law School. With me is the student group known as House Info, which has been doing a study of exactly this problem since September.

They would like to present their conclusions to you. However, to make their testimony plainer, I think I would like to take just a moment if I can, to disabuse you of two notions which I think the National Home Builders, with all due respect, have set up as strawmen.

The first is that what we are looking for and what we must have is an estimate of consumption. I think a little reflection will show what we are really interested in is an estimate of relative consumption.

You don't have to know exactly how much house A, or house B, or house C will cost you. What you do have to know is that house B is likely to cost you twice as much as house A, even though the individual figures will vary.

This is what is going to make your market approach work.

The second strawman, which I think was set up and which I would like to disabuse you at at this point, is the problem that this proposed formula cannot take into account the variables mentioned by the Home Builder Association.

Senator, these variables are worked into the formula. If you take a look at the testimony of the Home Builders, you see their very own worksheets take into account the orientation of the house, how many windows face north, south, east, and west.

Yes; it's a variable, but the formula takes it into account.

Another strawman they throw up is the number of occupants. Again, if you have five children, a dog, and a cat, you know that any estimate you are given is going to be less than your consumption. On the other hand, if you are a single person in the same size house, you know your consumption will be less than a reasonable estimate. What we feel the buyer needs is some relevant information of the estimate of relative consumption and, in direct contrast to the testimony you heard, we would like to argue that such a formula already exists. Without any further delay and obfuscation and studies, it can be enacted and become effective now where it can have an immediate impact on the energy crisis.

On my right is Mr. Glenn Goldberg, an instructor in law at the National Law Center. He has worked closely with the project and supervised it.

I would like to have him introduce the project and the members to you.

Mr. GOLDBERG. Mr. Chairman, the House Info group will file today at the FTC a major legal petition for rulemaking which would require the affirmative disclosure to potential homebuyers of certain material information with respect to the estimated annual climate-conditioning costs and energy efficiency of new single-family homes.

This petition, obviously, dovetails both in shared objectives and common approaches with your legislation, S. 349, the Truth in Energy Act of 1975.

The members of House Info are most grateful and appreciative for this opportunity to briefly explain our petition to this committee, and to present our reasoned thoughts and conclusions on your important and innovative bill.

Eric Fine, seated directly to my right, will initially document the compelling need for legislative and agency action in this area.

Louis Ebert will explain the House Info petition filed with the FTC, and Julie Hamos will convey our strong endorsement of S. 349 and suggest one important modification that can substantially improve its effectiveness.

At the conclusion of our testimony we would be most delighted to answer any questions you might have.

Mr. FINE. Mr. Chairman, when a potential homebuyer visits a new home, he is bombarded with a wealth of advertising materials. He is advised about esthetic features, cost and financing arrangements, neighborhood characteristics, and growth potential, and about school, recreation, transportation, shopping, and sewer facilities.

What he is not provided with, however, is what he desperately needs most in these troubled times of double-digit stagflation and the energy

crisis—reliable, clear, easy-to-use information relating to the energy efficiency, or as the case may be, the energy wastefulness of the home; in other words, although he may know the purchase price and monthly mortgage payments, he has no idea of what it will cost to heat and cool his home, nor can he compare these costs with similar houses he is also considering.

Consequently, and regrettably, the biggest, most important and most complex purchasing decision a consumer will ever face must be made without the benefit of that information truly indispensable to an intelligent, well-reasoned and informed choice.

How is the homeowner to know if he has this, R-19 insulation, or this, R-3 insulation? The R-19 insulation can be three times as effective in preventing heat from escaping from the house. He can't look inside the walls, nor is this information included in the multicolored brochures he receives.

It doesn't have to be this way. We don't have to go on paying more, and wasting more valuable resources. The members of House Info are here today to discuss our suggestions for preventing this waste and to support and try to aid this committee in its efforts to do the same.

By adopting our proposed rule, which requires the disclosure of estimated heating-and-cooling costs of a home, American homebuyers could save between \$36.4 billion and \$49.5 billion by the year 1985, according to FEA estimates. The total energy savings would be equivalent to between 4 and 5 billion barrels of oil. Unlike many other energy proposals being considered by Congress, it is submitted that this proposal could be implemented almost immediately at very little cost to the consumer, the builder, and the Government.

Despite the current recession, there were 825,000 single-family units started in 1974, constituting over 65 percent of all residential units built that year. The single-family home is here to stay. In the year 1973, household markets alone consumed over one-fifth of the total energy supply. Both FEA and HUD, eying this waste of scarce resources, have concluded that approximately 40 percent of the energy utilized in single-family homes could be saved.

Senators, we respectfully submit that the enactment of our proposed rule is vital to the realization of these savings.

People are beginning to demand the information that our petition will provide. For instance, Family Circle magazine advertised plans for an energy-efficient house for sale at \$10 per copy. Within 3 weeks, 3,000 readers of this magazine of limited circulation had ordered the plans.

Quality builders have also begun to find that the construction of energy-efficient homes is to their economic advantage. One builder, P. Schmidt, Inc., brags about a model house that he has constructed which, for an additional cost of only \$600, will save homeowners \$280 a year in fuel bills.

The enactment of our petition could help to turn an energy crisis into an energy advantage—an advantage for builders in constructing higher quality homes, for homebuyers in conserving fuel and costs, and for the Nation as a whole in conserving our scarce energy supply.

Mr. GOLDBERG. Louis Ebert will now explain the nature of our petition to the FTC.

Mr. EBERT. Mr. Chairman, under the terms of our proposal, any seller of a single-family home would be required to provide a potential purchaser with a Home Buyers Information Sheet, which would contain all of the material energy efficiency information necessary to a rational and more perfect purchasing decision.

We have prepared a mockup Home Buyers Information Sheet so that you may more easily understand our petition.

As you can see, the sheet would disclose the estimated annual costs of heating and cooling the home and the type of energy used for the heating system and the hot water heating system. You can also see it would vary in relationship to occupancy, orientation, and other factors. It would also disclose how well the house is insulated by stating the type and the "R-value" of the insulation.

R-value is a measure of the heat resistance of the insulating material and is important because it directly affects a consumer's fuel bill. The higher the R-value, the better the insulation.

Our proposal would also require that the presence of single or double glazing in the windows and doors be indicated. All conditions being equal, double-glazing is superior to single-glazing in retarding the transmission of heat, thereby aiding in energy conservation.

Let us attempt to demonstrate how this sheet could be used by consumers in comparative home shopping. The calculation of annual heating and cooling costs has been made possible by the development, publication, and acceptance of a formula by the housing industry.

Mr. Chairman, suppose that you were to shop for an average, three-bedroom home in Columbus, Ohio. Let us further assume that this house has a gas heating and cooling system, that it has fiberglass insulation, ceilings with R-7 insulation, walls with R-0 and floors with R-7 insulation, and single-glazing in both windows and doors. At the cost of 20 cents per therm of gas, you could expect to spend \$374.16 for heating and \$107.79 for cooling, for a total of \$481.95 per year.

Now suppose that you were to look at a house of comparable size right across the street. It also uses gas for heating and hot water, and has fiberglass insulation. But its ceilings have R-19, its walls R-11 and its floors R-7 insulation, and it has double-glazing in the windows and doors.

The estimated costs of heating and cooling this home are \$183.67 and \$66.60 respectively, for a total of \$250.27. Now remember, Mr. Chairman, that the total fuel bill of the first home that you looked at was \$480.00 while the second home was about \$250.00 per year. All other things being equal, Senators, which home would you buy?

I am afraid too much emphasis today has been placed on presenting an estimate which is perfectly accurate. This is not the definition of an estimate. Based on our research this is the best formula available for determining costs. Action is needed now, not after years of research.

I would also like to comment on Mr. Canavan's statement about the difficulty in computing this estimate.

I have no engineering background and not much mathematical background either. On Sunday, I used the insulation manual put out by the Home Builders Research Foundation which not only includes the work sheet that was presented in Mr. Canavan's exhibit, but also estimates of heat loss that you can expect from different variations in the types of insulation that you put in.

Using a calculator, it took me roughly an hour or two. The formula which we have just used to compute these heating and cooling estimates has been developed by ASHRAE, the American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.

ASHRAE has approved and published this formula in its Guide and Data Book, the standard reference source used by engineers and architects in the climate conditioning industry. The ASHRAE formula yields the amount of energy which will be consumed. Consequently, in order to frame the figure in dollars and cents, we have utilized the modified formula devised by Arthur Johnson and Ralph Johnson of the National Home Builders Research Foundation.

Not only is the proposal which we have outlined for you today necessary and useful, but it could be implemented quickly, effectively and with the imposition of minimal cost upon the Government, the builder, and the consumer. As we have shown, our proposal is necessary because of the compelling societal need to conserve energy, to fight inflation, and to provide consumers with the material energy efficiency information necessary to intelligent, comparative home purchasing.

Our proposal is useful because it would provide the consumer with the necessary information in a clear, concise and readily understandable format. Since all the technology and informational items required to complete the sheet are presently easily available to the builder, our proposal could be implemented immediately upon enactment. Since our proposal would require that the buyer acknowledge in writing the receipt of the Home Buyers Information Sheet, we can be assured that compliance will be maximized and enforcement facilitated.

As we have demonstrated, the only additional burden placed upon the builder is the cost of calculation and distribution of the Information Sheet. Surely, when these nominal costs are weighed against the billions of dollars and millions of gallons of fuel that can be saved, as well as the prospect of a more perfect marketplace, the choice is clear.

Senator TUNNEY. I would like to ask you if you feel that the FTC has the power to make these rules absent any additional legislation. Have you done any research on that?

Mr. EBERT. This you will find in the legal section of the petition we are filing at the FTC today. We have made the argument that it is an unfair and deceptive trade practice for any seller of a new single-family home to fail to disclose the information provided in our information sheet.

Mr. BANZHAF. Mr. Chairman, the FTC was recently given by Congress greatly broadened powers. There is no longer any question about their power to issue trade regulation rules which would be binding. They have issued trade regulation rules relating to a variety of things, even small things like light bulbs.

We feel there is no question of their power to do the same for housing. There may be, quite frankly, some question as to their willingness. Although I feel the same way you do, that the authority under your bill should go to the FTC rather than the Department of Commerce, I would like to point out that a similar student group working with me last year filed with the FTC a petition asking the FTC to publish a

trade regulation rule requiring energy efficiency labeling on all air-conditioners and on all advertising for air-conditioners.

To the best of my knowledge, no action whatsoever has been taken on that petition to date; in other words, they have not even taken the first step, which would be the publication of this rulemaking petition in the Federal Register, so as to invite comments.

For some reason the Department of Commerce has moved more quickly than the FTC. Perhaps when the FTC is before you tomorrow, you might ask them why they have sat so long on this petition and others before them.

Senator TUNNEY. Well, we can ask them that and we will.

I certainly am supportive of the concept in your petition. I haven't had the opportunity yet to read it, but from the way you described it, I am supportive of what you are attempting to do. I think it is most important, because I just can't help but feel that we are not only talking about dollars and cents that we are going to save the consumer, but we are also talking about national security when we talk about the amount of oil that is needed to run this country.

We have had Secretary Kissinger threaten recently the OPEC countries with the possibility of armed intervention, and if the oil crisis is serious enough to elicit this kind of threat, it seems to me that we want to be prepared on the homefront to do the kinds of things that are going to result in substantial savings of energy to the extent, in the case of home heating and cooling, of being able to completely eliminate, at least for the next few years, any need for Arab OPEC oil.

We could have sufficient energy savings if we could cut back, say, 15, 20 percent the amount of energy used in home heating and cooling to almost totally eliminate the amount of oil that we are getting from the Arab and OPEC countries.

Mr. BANZHAF. Mr. Chairman, we couldn't agree with you more. To amplify, it seems many of the proposals presented to Congress to meet the energy crisis involve a very difficult weighing and balancing of advantages and disadvantages, costs and benefits.

Should we substantially increase the import tariff, which would reduce our consumption of oil, but would also place a great burden on the consumer and increase inflation? Should we ration gasoline, which would be a tremendous imposition on the consumer, and so on.

We think ours is one proposal which has no major disadvantages. It saves fuel, it saves money. All we are asking, as you yourself have suggested, is to take the kind of information that these homebuilders are already computing and using, to select heating and cooling equipment, and making available within the industry, and saying in effect, let's let the consumer take a look at it.

To a certain extent it's a truth in information bill for homebuilders and home buyers. It gives the consumer the right to get the same information that the homebuilder and the appliance manufacturers already have and are utilizing.

Senator TUNNEY. Yes; and it represents a far smaller intervention of government into the affairs of the individual than any of the things that you have suggested like the tariff increase, the rationing of gasoline, the allocation of petroleum from one sector of the economy to the others.

Ms. Hamos, we haven't forgotten you.

Would you like to say a few words?

Ms. HAMOS. Yes. I would like to comment on the two bills pending before this committee.

As we have told you, we are today filing our petition before the FTC which would require the affirmative disclosure of energy information on our "Home Buyers Information Sheet."

However, as you know, absent legislation of the sort that is being considered by this committee, the Commission has no duty to act in this area and has acted in fact upon similar consumer petitions with a regrettable lack of speed.

Thus while we urge the Commission to act favorably upon our commission, the possibility of future Commission action cannot relieve this Committee of its own obligations to enact truth in energy legislation.

House info heartily endorses the concept embodied in both S. 349 and S. 594, but we would prefer the enactment of Senator Tunney's Truth in Energy Act rather than President Ford's National Appliance and Motor Vehicle Energy Labeling Act. Why?

S. 349 would bestow authority upon the FTC, a longtime independent and nonpartisan regulatory agency, to administer and enforce the energy disclosure program.

The Commission, an acknowledged champion of consumer causes, has already accumulated expertise in the area of affirmative disclosure of product information, and thus could more effectively supervise and disseminate the energy disclosures required by the two enactments than the President or his representatives.

So, S. 349 is the statute we would like to see enacted, but we would propose one major modification. It is true that in present form S. 349 would disclose to consumers how much fuel a given climate conditioning system would theoretically consume each year. While this information would be useful and is not presently available to consumers, it would not provide the most accurate possible picture of fuel operating costs.

This is because, to obtain a true estimate of annual heating and cooling costs, the system must be evaluated in the context of the home in which it operates. For example, geographical conditions, insulation, and square footage of window area and other similar factors may substantially affect the consumer's ultimate fuel bill.

While S. 349 is a praiseworthy first step, the incorporation of our petition and the formula described therein could yield a much more accurate estimate. A high efficiency heating system placed next to half-inch wall insulation will neither save fuel nor heat anything but the garden outside. We are convinced that an effective home energy conservation program must incorporate all of the factors that account for energy wastage in the house—in short, home buyers must be made aware of the energy efficiency of their entire home, not merely of the individual components, whether they be a dishwasher, a television, or a heating system.

Therefore, we propose that those sections of S. 349 relating to climate-conditioning systems in residential, single-family homes be deleted and considered separately.

We respectfully submit that the Senate Commerce Committee should amend S. 349 so as to substantially incorporate the provisions of our petition to the Federal Trade Commission. Following this suggestion, the committee would not only make possible a truly accurate portrayal of expected fuel costs of the entire home, but would also obviate the necessity for enduring prolonged months or years of technological and methodological research and development before the intended information and benefits could accrue to the consumer.

In the case of major appliances, it will, unfortunately, be necessary to await the results of FTC research for devising reliable methods to ascertain the fuel-operating costs. Where, as in the case of automobiles, there is already in existence a valid methodology, the statute requires that that methodology be imposed.

Why doesn't the committee take the same approach with home annual cooling-and-heating costs? Such an approach seems compelled by the availability of an already accepted formula. An unprecedented opportunity exists to bestow immediately upon enactment of this legislation substantial and desperately needed benefits upon a consuming public that demands and needs action now. Will the public get it?

Frankly, we are concerned about the tremendous time lags that have prevailed in the case of other key legislation. For example, we have examined the Motor Vehicles Information and Cost Savings Act of 1972, which directed the Secretary of Transportation to conduct a comprehensive study by the end of 1973 with regard to the damage susceptibility and degree of crashworthiness of passenger automobiles.

Important insurance cost comparisons based on the data were to follow, with completion set for February 1975. At \$3 million per year, where are those studies? DOT tells us they are still working on them.

In addition, in 1972, a \$1 million study was commissioned by the National Institute of Mental Health to devise a television violence indexing system. The report will not be completed until 1976, and its findings will not be ready for implementation for several years after that.

In another instance, the National Traffic and Motor Vehicle Safety Act of 1966 ordered DOT to promulgate schoolbus safety standards. To the best of our knowledge, a petition for rulemaking is, to this day, awaiting action before the DOT.

Mr. Chairman, we strongly support the urgent need for legislation to promote more efficient uses of energy and to eliminate unnecessary wastefulness. Why not act now when the methodology is already available and in use and further delay should not be tolerated.

Senator TUNNEY. Thank you very much.

Mr. GOLDBERG. May our petitions be placed in the record of this proceeding?

Senator TUNNEY. Yes. It will be placed in the record.¹

I want to set the record clear with regard to the comment you made that the labeling as to annual estimated operating costs in the legislation applies only to the heating and cooling equipment, not to building as a whole.

¹ See p. 184.

In rereading the section, I think you are right. That was not my intent to have that be the case. We will have to make some changes in the language of that section.

Ms. HAMOS. We hope so.

Senator TUNNEY. I appreciate your calling that to our attention.

Mr. BANZHAF. Mr. Chairman, I think you are going to get some objections from the homebuilding industry and others to adopting either by FTC action or action of Congress any given formula for estimating relative costs of heating or cooling homes. You will be told again and again of the many different factors which can vary and affect the estimates.

I think it is rather important to point out that many of these factors which the Home Builders Association claim will vary the formula are already, in fact, built into it.

There seem to be very few which have been mentioned which cannot be built into it. The one which cannot obviously be built into any formula is the user: How many children does he have, how often do they run in and out, how does he set his thermostat, et cetera.

Yet one could measure the energy consumption of a home with no users in it, and use that as an estimate not of the total cost of consumption, but of the relative cost. By way of analogy, you and I might drive cars differently, I with a heavier foot than you, but we nevertheless know if I drive a Cadillac, I will get lower gas mileage than I would driving a Volkswagen.

I think it might also be fair to suggest to your committee the legislative technique of saying that this formula will be enacted into law unless someone else can come up with a better one within a reasonable time limit. There is a standard. We believe it is the most accurate that exists.

The figures that we have seen indicate that the formula will produce variations of up to about plus or minus 10 percent between actual and predicted home heating and cooling costs, but that your mean variations will be only on the order of 3 to 5 percent.

If the homebuilders, the Commerce Department, or anyone else feels they have a better formula, if anyone feels that a further refinement is necessary to include a different factor, set a very short time limit, require them to come in and prove this, and then, perhaps, use a different formula.

We believe the formula does exist which could go into effect tomorrow. These calculations are already being made by the home manufacturers. When we talk about \$30,000 to \$100,000 homes, it is no great burden to make these calculations nor to make them available to the public.

We hope we might get swift action on this very important means of saving energy and money.

We thank you for the opportunity to appear.

Senator TUNNEY. Thank you very much. We appreciate the work all of you did in preparing your testimony today.

Our final witness is M. Lawrence G. Spielvogel, consulting engineer.

**STATEMENT OF LAWRENCE G. SPIELVOGEL, CONSULTING
ENGINEER**

Mr. SPIELVOGEL. My name is Larry Spielvogel of Wyncote, Pa., and I am pleased to offer my testimony today on the Truth in Energy Act of 1975, S. 349.

I am a consulting engineer dealing exclusively in energy management in buildings, having spent my entire career in this field. I have a B.S. degree in mechanical engineering from Drexel University and have studied at the graduate level at the University of Pennsylvania. I am a registered professional engineer admitted to practice in 26 States.

My major field of endeavor is consulting on energy systems in buildings to architects, engineers, and building owners and have been involved in numerous major building projects throughout the country. One project that you may be familiar with is the GSA Manchester, N.H., Federal Office Building, which is the GSA energy conservation demonstration project.

I am also a very active member of the American Society of Heating, Refrigerating, and Air Conditioning Engineers, a technical society, and am currently serving as chairman of their computer applications committee and as a member of the executive committee of standard 90P, energy conservation in new building design, and as chairman of the 90P panel on heating, ventilation, air-conditioning systems.

ASHRAE standard 90P is intended to be a national voluntary consensus standard, in accordance with the procedures of the American National Standards Institute. This standard was initiated at the request of the National Conference of States on Building Codes and Standards and should be completed and issued by the summer of 1975. It is intended to serve as the technical basis for legislation in those States and cities which wish to adopt it. Compliance with the standard will yield a building whose occupants should be able to operate it at minimum levels of energy consumption.

The definition of "lease" on page 6, line 3, would indicate that this act applies only to those lessees who pay for the costs of the energy they use for climate conditioning and would not apply to those lessees whose utility costs are included in the rent. The determination of who pays the utility costs is very much a local choice and depends upon the type of building involved and the manner in which similar types of buildings in that area handle utility costs. If this act does not apply to those situations in which utility costs are included in the rent, I foresee a vast and rapid shift in climate conditioning systems concept which might well prove to be counterproductive, in that building owners would no longer be motivated to install more efficient central climate conditioning systems, but would rather opt to install a system for each tenant and let him pay for the cost of operation. This would probably have the effect of increasing the cost to the ultimate user as well, since there would be no motivation to buy energy in bulk and, therefore, achieve a lower cost. Should the lease include utilities as well as an

escalation provision on the rent due to increases in utility and fuel costs, there would be some confusion with respect to the applicability of this act, since the lessee would only be paying the increased portion of the costs.

The definition of supplier on page 6, line 18, with respect to climate-conditioning systems should be expanded to include architects, dealers, and owners, all of whom on occasion design climate-conditioning systems for buildings. Most State and local laws do not require that a licensed engineer or contractor design or install climate-conditioning systems.

I am not aware of any capability within the FEA to establish model calculation procedures for determining estimated annual operating costs for climate-conditioning systems. In fact, there is very limited agreement amongst the few experts in the field. This subject has been a highly controversial one for many years.

Other than for single-family houses, there is only one building in the country that has been sufficiently instrumented and tested to accurately determine its energy use and verify the validity of some of the calculation procedures that have been developed.

The calculation procedures for estimating heating energy consumption in single-family houses—the degree-day method—are reasonably well established by ASHRAE, although it should be recognized that they were originally developed in the 1920's when houses had little insulation. The degree-day method estimates fuel consumption as a function of ambient dry bulb temperatures. As we insulate houses better, the degree-day method to lose accuracy rapidly, since a significant proportion—up to 50 percent—of the heating energy requirement to overcome air leakage becomes influenced by wind velocity and direction. Engineers in England are beginning to look at the wind-temperature factor as being more significant than dry bulb temperature.

The calculation procedures for estimating cooling energy consumption in single-family houses are less established, and much less accurate. Reference to actual metered energy consumption data for identical houses in the same development shows variations of as much as 2 to 1 for both heating-and-cooling energy consumption.

Senator TUNNEY. Could you stop there and say primarily why that is true?

Mr. SPIELVOGEL. It is primarily the living habits of the people. These houses are in an area where the living habits and socioeconomic elements have been equalized as much as possible.

The calculation techniques for estimating energy use in buildings other than single-family houses are generally available, but have not received wide use primarily because of the cost involved in doing so. These costs can range from a minimum of about \$1,000 up into the tens of thousands of dollars for each building, depending upon the particular building at hand. Even having done this, there would be no assurance that the actual energy use would be even with 100 percent of the estimate, depending upon the assumptions made as to the use of the building. Note the wide discrepancies in the facts presented in the attached paper, "Actual Energy Use in Buildings."

For a more detailed discussion of energy estimating methods refer to chapter 43 of the 1973 ASHRAE handbook.

During the 1960's we saw the battle of the fuels in which the suppliers of electricity, natural gas, and oil conducted very aggressive marketing programs in an effort to increase their share of the market for climate-conditioning energy. As a result of that fierce competition, it became necessary for the fuel-and-energy suppliers to prepare estimates of operating costs for each building that they were competing for. This made us aware that the techniques for estimating energy consumption prior to the late 1960's were very much lacking. Subsequently, computerized techniques were developed which enable the professional to estimate the energy consumption of a building with a fairly good degree of accuracy, provided he knows in great detail how the building will be used hour by hour throughout the year.

Unfortunately, this becomes a big stumbling block in estimating the energy consumption, since people rarely ever use buildings in the manner in which the design professional thought they would. As the attached paper, "Actual Energy Use in Buildings," shows, the biggest single factor in determining the amount of energy used in a building is the people and the way in which they use the building, much more than the building itself and its energy-consuming systems.

One of the big problems that I foresee, having established an "Energy Cost Budget," is that in most cases it will be impossible to verify or confirm the energy costs associated with the climate conditioning systems. This is due to the fact that in virtually all instances electricity is metered either once per building or one per tenant, and there is no way short of extensive and expensive submetering, to determine how much energy is being used for climate conditioning. Then, even if chillers and heating equipment were metered, there are still many other climate conditioning devices such as fans and pumps which would be expensive and impractical to meter. In many buildings the energy consumed to move energy around a building namely by the fans and pumps, can be more per year than the energy consumed to heat and cool a building.

Studies on the energy consumption of "identical" buildings with identical systems in operation have shown that even for single family houses, that the heating and/or cooling energy can vary by as much as two to one. In all other building types this variation can be 10 to 1 and more.

Consider the case of a 1,000 square foot office which might be rented and used by a psychiatrist 3 days per week with an annual climate conditioning energy cost of \$300. Replace the psychiatrist with a computer operating 7 days per week and the annual climate conditioning energy cost could easily jump to \$5,000 for the identical office.

There is also a problem in defining estimated annual energy costs in view of the many and varied utility rate structures, both with respect to demand charges and energy charges, for both electricity and natural gas. Operating costs could be computed on an "average cost" basis which would be very simple to do, but could yield cost errors of 50 percent or more, due to the rate structures.

In the industry, we have traditionally used the "incremental cost" concept since it takes into account all other uses of energy and the way those uses are integrated with the energy used by the climate conditioning systems. This can be a difficult and expensive task to perform.

I am concerned about the liability and professional liability exposure of building owners, architects and engineers with respect to purchasers or users bringing suit when there is a wide discrepancy between the energy cost estimate and the actual energy bill, even though the basis for the estimate was clearly and accurately stated. I am particularly sensitive to this, having recently been an expert witness in lawsuits where this very problem existed. My lawyer friends tell me that there is really not too much precedent in this area and that the many and complex technical issues involved would make such lawsuits extremely expensive to pursue.

In view of the fact that buildings for lease in which the operating costs are included in the rent are not subject to the provisions of this act, and since the establishment of reasonably accurate and verifiable estimated operating costs for climate conditioning systems in buildings other than single family houses—and possibly apartments, town-houses, condominiums, and mobile homes—is very questionable at best, I recommend that you eliminate all buildings other than residential from this act.

Furthermore, once the building has been occupied, the energy costs are known for at least one set of conditions. Since there are many more existing buildings than new ones, and since there is a high rate of turnover in these buildings, I suggest this bill be changed to cover existing buildings rather than previously unoccupied buildings, and to require that the seller or leaser of any building or portion thereof disclose the energy cost when they can be determined.

Doing this would probably have 10 times the impact that the currently proposed bill would have. This would not only be of value to the purchaser or lessee, but would also serve the lending community in evaluating the ability of the mortgagee to meet his financial commitments. Doing this would enable the use of facts rather than estimates, at least under the circumstances which the current owner or tenant used the building.

Senator TUNNEY. Thank you very much Mr. Spielvogel. I think that you are familiar with the fact that the legislation S. 349 contains a proviso that nothing in the legislation shall be construed to give rise to a cause of action for rescission of any contract for damages unless the supplier or person fraudulently or knowingly gave the client, purchaser or lessee false information on annual operating costs.

We have attempted to address that problem that you raised in your testimony that it would—if this bill passed—expose the manufacturer or the architect, the builder to these kinds of liabilities if there is a variation between their estimated cost of heating-cooling the building and the actual cost.

I think you are right when you say that we can include existing housing stock in the legislation and it would have a much greater impact than just including new buildings or unoccupied buildings.

As a matter of fact, last year I wanted very much to include existing buildings in the legislation; but if you think that this bill evokes a cry of outrage and despair, you ought to have seen what happened when we talked about including all existing buildings. People were saying that this some way invaded their privacy to have to give to a prospective purchaser or lessee information as the annual heating-cooling costs based upon experience.

I personally do not feel that this represents that type of violation of a person's privacy. Certainly it represents to me much less of an intrusion than gasoline rationing; but there are others, I guess, who feel differently about it. I can't help but think if we could save several tens of millions of barrels per year of energy as a result of this kind of legislation getting home builders to produce more energy-efficient housing stock that we would not need perhaps the kind of rationing that some are talking about; but at any rate, it just doesn't make any sense to me to say that we should not proceed with the legislation because it represents an intrusion on privacy.

The technical problems are very important and we don't want to pass legislation which is going to require an estimation of costs that cannot be made. As I gather from your testimony, the bottom line for you is that it would be very difficult to estimate the cost but that it is not impossible to do it, particularly if you are talking about relative costs rather than absolute costs.

Mr. SPIELVOGEL. Yes, sir. Within the industry, most of the analysis that we have made have been for new or proposed buildings, the intent being to look at relative energy consumption.

Now that we are going back into many of our existing buildings and trying to use these same techniques to evaluate making changes to existing buildings, we find that it is a problem of a much greater order of magnitude primarily due to our lack of knowledge about what really goes on in buildings; and it is the people that influence it more so than the equipment itself.

Senator TUNNEY. Yes, that's true, I am sure. The standard procedure would be one in which the number of persons in the family, the age of the family members, all has a tremendous impact; but I am also conscious of the fact that depending upon the amount of insulation in a home and upon the heating and cooling equipment, we would have great variations, too. It doesn't seem right to me, at a time when energy is becoming a matter of national security, for us as a Nation, to allow poor insulation in homes to remain the rule rather than the exception to the rule.

When I say "allow it" I am not talking about any government edict now specifying the kind of insulation that each building should have, but I am talking about not encouraging greater energy efficiency on the part of homebuilders as well as the residents of homes.

Mr. SPIELVOGEL. Mr. Chairman, I can appreciate many of the criticisms that are being made; and I would like to cite two examples that would show the reason for some of these criticisms.

One example would be the case of a friend of mine who built a home in suburban Philadelphia that was essentially the same size, shape and orientation as his neighbor's home. In his particular case he had a beautiful view. He decided to make one entire wall of his three-story house out of clear single glass. He ended up having to put in a furnace that was 50 percent bigger than his neighbors' furnaces.

He was concerned about getting oil in the winter so he put in an oil tank that was twice as big. As neighbors do, they compared oil bills. His oil bill was less than half that of his neighbors; the reason being that his glass wall faced south and he was able to use passive solar energy.

The second example I would like to cite is two identical houses, one of which has the most inefficient window air-conditioning units that can be purchased today. The second house has the most efficient central air-conditioning unit today. It turns out that the house with the most efficient central air-conditioning unit uses twice as much energy for cooling as the house with the least efficient window units, because in order to cool any one room in the house with central air-conditioning, you have to air-condition the whole house, whereas with window units you only have to run the unit in that one window.

So these are some of the reasons why the subject is as complex as it is, and you can see the natural forces and the people intervention that really are very difficult to put into a formula.

Senator TUNNEY. You make the point, as I understand it, that lowest energy consumption does not always lead to lowest energy costs in commercial buildings.

Mr. SPIELVOGEL. Yes.

Senator TUNNEY. Is it true that if you were given detailed information as to the use patterns and other requirements applying to commercial buildings, you could predict the energy requirement with pretty good accuracy?

Mr. SPIELVOGEL. Yes, sir.

Senator TUNNEY. You might go to a less energy efficient design, however, to lower operating costs and/or capital costs?

Mr. SPIELVOGEL. That would depend very much on the financial motivation of the owner; and in most cases, the motivation is a financial one. The specific point that I made, that I think you are questioning, deals with two things, the biggest one of which is the manner in which utilities are sold.

Earlier you heard testimony about the average cost of electricity. Well, I can show you places where the average cost of electricity really does not mean that much when it comes to determining the operating costs of appliances and climate conditioning systems; and there is a variation of 1,000 to 1, even within a given utility.

In Philadelphia, where I am familiar with it, depending upon when you use that kilowatt hour, you can still buy it for less than a penny or more than \$4, for that 1 kilowatt hour.

Senator TUNNEY. One of the things that occurs is the question as to how you can develop a formula on relative costs in heating and cooling a house. Would it make any sense to try and develop those estimates on the basis of a home that was—let's say—occupied by two people or standard family with two adults and two children, or do you feel that the variation is so great that any figures that you got from that kind of an estimation would not be valuable to the potential consumer?

I ask the question recognizing that what we have got to be dealing with here is relative costs rather than absolute costs; and what we are trying to do is fashion legislation that will give to the consumer some indication of what their relative cost will be as contrasted with other homes that are of a similar size.

Mr. SPIELVOGEL. Well, first of all in housing, the people influence is not nearly as great as it is in most other kinds of buildings. Second, the techniques that are used for estimating energy consumption could be used to provide an estimate based on some reasonable number of

assumptions. However, the problem is not as simple as some of the previous witnesses have indicated. It is a matter of becoming far more informed than even the preceding witnesses who have spent a good bit of time studying the question. It is just a very complex question that you are trying to apply very simple conclusions to; and I am afraid you can't do it.

The house with the glass wall that I cited is one such example which would not be evident by any of the formulations that were earlier proposed.

Senator TUNNEY. Have you seen the formula?

Mr. SPIELVOGEL. Oh, yes; I am quite familiar with the general formulas.

I might also add that the witnesses who testified that ASHRAE endorses and recommends these formulas ought to read the source they came from more closely. There are many caveats associated with the use of those formulas. I have cited those in the references.

Senator TUNNEY. How expensive is it for the builder to make the estimates that he does make as to the costs of heating and cooling in buildings?

Mr. SPIELVOGEL. I would say that the costs, the way they are now estimated, are insignificant.

Senator TUNNEY. What would the cost be if this bill were passed?

Mr. SPIELVOGEL. Well, without knowing the techniques that were being used, there are techniques available that could well cost more than the house.

Senator TUNNEY. Oh, well; yes, sure. You can take it out to ridiculous lengths. Clearly we have no desire to see that happen. We are talking about trying to get some kind of averaging estimate. What do you think that would be? What would be likely? Not taking the worst case nor the best case, but if this legislation should pass; what do you think it would cost to get a decent estimate of what the annual operating cost would be?

Mr. SPIELVOGEL. I would guess, based on what might be proposed in the way of an estimating technique, a cost of several hundred dollars per house.

Senator TUNNEY. Several hundred dollars per house?

And yet you say that it doesn't cost hardly anything at all now, it is insignificant, when builders make these estimates for themselves?

Mr. SPIELVOGEL. Yes.

Senator TUNNEY. Where is the difference in price? Why is it going to cost several hundred dollars if this bill passes and it doesn't cost very much now, but only in home consumption.

Mr. SPIELVOGEL. I think it is primarily a matter—I can't speak for the builder—but I think it is primarily a matter of putting your neck out on the line with a number for public consumption as opposed to a number for discussion.

Senator TUNNEY. Well, isn't the whole purpose, the whole thrust of this legislation to protect the builder and the architect from liability whereas at the same time provide the consumer, the purchaser, a reasonable estimate as to the annual operating cost? We are not asking for detailed information that's going to be exactly accurate, but we are talking about estimates. I don't know what word I can use beside

estimate that means estimate. You and I both know here that we are talking about estimates.

Mr. SPIELVOGEL. Yes, sir.

Senator TUNNEY. We are not talking about detailed calculations. It is very interesting to me that people that oppose the bill talk about hundreds of dollars of extra costs and yet these same kind of calculations are being made by architects and homebuilders now at an insignificant cost.

Now why can't we give that kind of information to the consumers? Why can't we? The reason we can't do it is we don't want to do it.

Mr. SPIELVOGEL. No. I think it is more than that, Senator. I think it is a matter that an estimate should bear some relation to the fact; and I am afraid that the variation between any estimate made before a building is built and the facts that appear after it is occupied are so different as to make the estimate relatively useless except for the purpose of comparing alternatives, saying that, yes, one system would have cost relatively more than another system to operate. It is a matter of absoluteness versus relativity.

Senator TUNNEY. One of the things I would like to ask you—so I could have a better understanding of your degree of expertise in this area—how much in the way of experience have you had with making—you personally now—of making estimates of the annual heating and cooling costs of the building and then comparing those cost estimates with the fact after the building is occupied?

Mr. SPIELVOGEL. Dozens of buildings per year.

Senator TUNNEY. And you say that with the dozens of buildings that you do it per year, that your estimates are not good?

Mr. SPIELVOGEL. Yes, sir, they are not good.

Senator TUNNEY. And you say nobody else can do any better than you do in making the estimates?

Mr. SPIELVOGEL. That is correct.

Senator TUNNEY. OK. I have no further questions.

Thank you very much, Mr. Spielvogel.

Mr. SPIELVOGEL. Thank you.

Senator TUNNEY. Mr. Spielvogel was our last witness. The committee will adjourn until tomorrow in this room at 9:30 when we will hear from the Federal Trade Commission and other witnesses.

[Whereupon, at 12:43 p.m., the hearing was adjourned, to reconvene at 9:30 a.m., Tuesday, February 25, 1975.]

ENERGY LABELING AND DISCLOSURE

TUESDAY, FEBRUARY 25, 1975

U.S. SENATE,
COMMITTEE ON COMMERCE,
Washington, D.C.

The committee was reconvened, pursuant to adjournment, at 9:30 a.m. in room 5110 of the Dirksen Senate Office Building; Hon. John V. Tunney presiding.

OPENING STATEMENT BY SENATOR TUNNEY

Senator TUNNEY. The committee hearing will come to order.

This morning the Commerce Committee is holding the second of 2 days of hearings on proposed legislation that would provide purchasers with information regarding the energy costs of consumer products and systems.

We received comments on S. 349, the Truth in Energy Act of 1975, which would establish a system of disclosing the estimated annual operating costs for major household appliances, central air-conditioning, and heating systems, and automobiles.

We will also hear testimony on similar legislation proposed by the administration, title XII of S. 594, the National Appliance and Motor Vehicle Energy Labeling Act of 1975.

Yesterday we heard testimony from four different witnesses, all of whom agreed with the concept of mandatory labeling of the energy efficiency or operating costs of major appliances.

Considerable support was expressed for similar labeling of climatic conditioning equipment and estimates of operating costs of such equipment in new buildings.

There was also some contrary opinion with respect to buildings. Estimates of possible cumulative energy savings over a 10-year period ran as high as several billions of barrels of oil.

As I said yesterday, I believe the energy conservation program will be most effective and most accepted if it relies on a free market system to achieve its ends.

Success of the free market in doing the job will in turn depend on well-informed consumers.

The legislation which I have proposed in S. 349 is intended to make it possible for the consumer to get sufficient information to make intelligent choices in this area of energy conservation.

We will begin our hearing today with Mr. Richard Herzog of the FTC, and I would like to welcome you, Mr. Herzog, to the committee.

I don't know if you have had anyone here representing the agency

yesterday, but Dr. Ancker-Johnson, representing the Commerce Department, felt very strongly that the major responsibility for the program, ought to be in Commerce and not in the FTC.

I have not read your statement yet, but I hope you will address yourself to that point in your testimony.

STATEMENT OF RICHARD HERZOG, ASSISTANT DIRECTOR, NATIONAL ADVERTISING, BUREAU OF CONSUMER PROTECTION, FEDERAL TRADE COMMISSION; ACCOMPANIED BY DAVID BICKART, DEPUTY ASSISTANT DIRECTOR, NATIONAL ADVERTISING; AND BRUCE PARKER, STAFF ATTORNEY

Mr. HERZOG. Mr. Chairman and members of the committee: My name is Richard Herzog. I am the Assistant Director for National Advertising in the Bureau of Consumer Protection of the FTC.

As you know, Mr. Thomas Rosch, who is the Director of the Bureau, was scheduled to testify before this committee.

The Commission unexpectedly advanced the time of a meeting scheduled for later today, at which it was to consider matters squarely falling within Mr. Rosch's Bureau, and he had to attend that meeting and I am here in his stead.

With me is Mr. David Bickart, the Deputy Assistant Director for National Advertising, and to my left is Mr. Bruce Parker, a staff attorney, who has worked on our energy-efficiency-disclosure pilot program.

Mr. Chairman, with your permission, I will read a summary of our prepared statement.

Senator TUNNEY. Fine.

Mr. HERZOG. We are particularly pleased to respond to your request to discuss S. 349, the proposed Truth in Energy Act of 1975 and title XII of S. 594, the National Appliance and Motor Vehicle Energy Labeling Act of 1975.

Since S. 349 specifically delegates to the Commission the primary responsibility and authority for developing trade regulation rules to require energy-consumption disclosures for major household appliances and climatic conditioning systems, my remarks will primarily focus on the former bill.

Of course, the views I express are my own and not necessarily those of the Commission or of any individual Commissioner.

I will emphasize at the outset that we fully endorse the findings and purposes of these bills which recognize the needs to take affirmative action in dealing with the energy crisis now facing the country.

Disclosures of energy efficiency will enable consumers to compare the relative merits of competing major energy-consuming appliances.

As a result, the public will be able to take energy conservation into account as a material factor in purchase decisions.

In so doing, consumers can choose on the basis of operating costs rather than purchase price alone while also promoting the larger national interest in conserving scarce national resources.

In the absence of energy-efficiency disclosures, the consumer cannot translate a concern for economy, let alone energy conservation, into positive action when purchasing energy-consuming products.

Our own experience in this area reinforces our belief that the kinds of energy disclosures prescribed by S. 349 are both important and desirable, but our experience has also taught us that there are technical problems with devising fair and accurate energy-efficiency disclosures, problems which will require substantial time and resources to resolve.

They can be resolved.

We are vitally interested in working with the committee to help design the best possible disclosure program.

A primary lesson we have learned from our product-information disclosure program and one whose importance cannot be overestimated is that the development of standards and disclosures for energy consumption is itself a large-scale consumer of time and human energy.

Variations among geographic regions and among patterns of individual use complicate the process for many consumer goods.

In addition, different types of products present different problems in measurements of energy consumption, and the individual characteristics of each must be carefully considered in the interests of fairness and accuracy.

These variations in combination with the fact that the entire area is extremely complex technically mean that developing disclosure is a process honeycombed with hidden difficulties, each of which must be discovered and systematically dealt with.

A specific example drawn from our recent experience with the product-information program should illustrate what I mean.

S. 349 mandates an estimated annual operating cost as the exclusive index to measure the comparative energy efficiency for those product categories to be labeled under the bill.

As a practical matter, operating costs disclosures, which are stated in absolute dollar terms easily understandable to consumers, should provide the optimal information on which to choose among competing products.

They permit decisions on the basis of the real cost of operating the product over its life, as opposed to the initial purchase price.

Part of the Commission's product information disclosure pilot program is an examination of the disclosures of estimated annual operating costs for appliances, as part of the consumers' material information.

As a general matter, S. 349's choice of estimated annual operating cost as the touchstone is eminently sound. Nonetheless, there may exist certain types of appliances for which such disclosure is neither practical nor feasible.

A prime example is a room air-conditioner. Unlike other appliances such as refrigerators, which are not substantially affected by climatic conditions and individual-use decision, hours of operation for room air-conditioners vary both with climatic differences and with individual comfort preferences.

The point is simply that whatever legislation the Congress passes in this field should not tie the responsible agency to a single type of standard for all energy-consuming products.

The issue of time, we think, merits separate consideration.

Section 20(a) of S. 349 provides that, within 9 months after consultation with the Federal Energy Administration, the Commission

shall define average-use cycles and devise procedures by which such use cycles of major energy-consuming household products may be simulated and by which the energy utilized in such a cycle may be measured or calculated.

As we read this section, the Commission would be responsible for developing test protocols and defining average-use cycles for all major energy-consuming products within 9 months, and for promulgating those as rules within the same period.

The development of test protocols and technical definitions is a complex process. Even for one appliance it would be extremely difficult to accomplish the task within 9 months.

In all candor, we cannot promise you that it could be done at all within that period.

Moreover, section 20(a) only refers to major energy-consuming household products, and it is unclear whether this includes climate conditioning systems which are separately defined in section 19(3).

Presumably, these systems are included. If so, the difficulty of issuing the rules in 9 months is further increased.

Determining average-use cycles for such systems is particularly time consuming because of their size, the way they are hooked up and the attendant systems which must be considered.

We think a realistic schedule must be adopted to allow the Commission to meet responsibly the requirements that S. 349 would place upon it.

I think it is prudent to permit the Commission sufficient time to establish a priority ranking system, and then substantially increase the time in which to proceed in developing rules for the energy-efficiency labeling of appliances.

This brings me to another suggestion. Section 20(a) of S. 349 refers to the Commission's consultation with the FEA as well as with other appropriate agencies and professional engineering societies in developing standards.

However, since the Commission does not possess the in-house expertise to deal with complex technical matters which S. 349 entails, it is imperative that the language of section 20(a) remove any doubt of voluntary cooperation with the Commission in implementing this bill.

It is essential that the legislation mandate technical assistance.

Equally important, we think that the NBS should be named specifically as part of this consulting framework, as NBS has a wealth of technical expertise.

We have saved for last the crucial matter, the question of what specific type of rulemaking procedure the Commission is bound to follow in its promulgation of the multiple labeling and advertising rules pursuant to S. 349.

Early this year the FTC Improvements Act became law, as you are aware. Section 18 of that act gave the Commission statutory rulemaking authority.

In so doing, it specified a procedure which departed from section 553 of the Administrative Procedure Act. Specifically it provides for a variant of cross-examination in rulemaking proceedings.

While it certainly falls short of the rigid requirements of rule-making mandated by sections 556 and 557 of the APA, it nevertheless

may substantially increase the time and complexity of our rulemaking proceedings.

Since S. 349 is silent on specific rulemaking procedures, it is reasonable to suppose that the new section 18 will apply.

This problem is compounded by the fact that under section 22(c) (1) of S. 349 anyone could sue the Commission to force it to meet the deadlines.

Clearly, without informal rulemaking authority under the Administrative Procedure Act, S. 349 could produce great disarray.

We strongly recommend section 553 rulemaking authority for the purposes of this bill.

Section 1204(a) of S. 594, the other bill under discussion today, does provide for section 553 rulemaking in the promulgation of its energy disclosure rules.

Also, section 9(a) (2) of the Consumer Product Safety Act, which empowers the Product Safety Commission to remove products from the market and set minimum standards, only requires section 553 rulemaking.

The Commission should not be bound to more stringent procedural rules under S. 349 since it only empowers the Commission to require labeling and to develop test methods, but not minimum standards.

In closing, Mr. Chairman, we want to reiterate our complete support for the central aims and methods of both these bills: to permit consumers to save both money and energy by exercising an informed purchasing choice.

Our disagreements with them are matters of detail and procedure. This is a job that needs doing and we have tried to offer the committee the benefit of the experience we have had in the field to insure that it is done as well as possible.

Mr. Rosch, the Commission staff, and I are extremely eager to work with the committee in developing an effective, workable legislative program, and we feel that we can offer a valuable contribution.

We invite you to call on us.

Thank you very much.

Senator TUNNEY. Thank you, Mr. Herzog.

One of the areas which the committee is interested in, of course, is the agency that should have the operating responsibility for developing the labeling program.

Now, Commerce would like to have the main responsibility. It is my understanding that the Federal Energy Administration is going to be testifying later on this morning that they would like to have a prime responsibility. And, of course, the way the legislation is written, it gives the FTC a prime responsibility.

Now, we had testimony, from Dr. Ancker-Johnson, as I indicated in the beginning of our hearing this morning, that it would be inappropriate to have the main responsibility for administering this program under any agency other than the Commerce Department.

Would you care to comment as to the relative value of having the FTC be the lead agency, or Commerce Department, or FEA, or whatever other agency comes to mind?

Mr. HERZOG. First let me make clear, Senator, that we think the idea is so good that we think it ought to happen and it ought to be done regardless of who does it.

We are for the central purpose of the bills.

Now, our concern is that the bottom line on these bills is informed consumer choice, and the most sophisticated and refined testing methods there are will come to naught unless somebody is ingenious enough to develop a method of communicating those test results in such a way that consumers become aware of the information, perceive it accurately, have a rule of decision to apply to it, and integrate it into their purchase decisions.

Now, this factor may not have received emphasis so far because much of the testimony has been on the hardware aspects such as developing annual use cycle measurements. The issues of communication that I have just summarized call into play their own specialties. These specialties involve their own arts, their own methods of measurement and their own very substantial issues.

The successful solution of those problems of communication in the marketplace, where consumers are perhaps not inclined to study things carefully, is essential. We are talking about developing and disclosing in a very quick and summary way complex matters, in a portion of a 30-second television spot, for example. That is, finally, the bottom line of this bill, which does not mandate consumer behavior but leaves it to the marketplace and to informed consumer choice to achieve both the personal goals and the public goals involved.

Now, we think that the Commission in its 60 years of working with consumer problems, with national advertising problems and with point of sale communication problems, has a very special expertise to offer to assure the successful resolution of those problems.

We think that half of the problem, which is the communication problem, calls into play in a very special way the traditional expertise of the FTC.

We think frankly that the problem requires a real hand-in-glove relationship between our agency, which does have expertise in these areas, and the agencies that have the technical expertise and indeed the laboratory facilities to develop test methods, to test, to run measurements, run actual testing; to put meters in refrigerators in people's homes to determine how they are actually used, to take a recent historic example.

We think it calls for the skills, really, of our agency and of NBS.

Senator TUNNEY. Do you think that the legislation is worded in a way that provides that working relationship between you and NBS?

Mr. HERZOG. I think that we would like to see a little more of the language of mandate in the cooperation section rather than simply the connotation now of an essentially consulting framework. We think that our lawyers can't simply go out and consult with engineers and then return to their offices, and try to piece it out for themselves.

We think even at that final decisionmaking stage, we should have ready access to technical expertise. We think access to lab facilities is crucial, and we think that perhaps the language should connote a little more of mandate rather than essentially a cooperation framework.

Senator TUNNEY. Would you feel that the NBS could have the responsibility for establishing the test procedures, or do you feel that that is something that the FTC should have?

Mr. HERZOG. Well, again, let me add a footnote to my last comment. I don't mean to say by emphasizing our need for technical expertise that we are necessarily taking a view on NBS as against the Federal Energy Administration. I am simply emphasizing the functional point that we do need a source of technical expertise. I am not really emphasizing one agency or another.

Senator TUNNEY. One agency, FEA or NBS?

Mr. HERZOG. Correct. As far as your last question, I think that the choice of standards, the choice of measurement standards is not solely an engineering or technical choice. I think that the choice of standards itself has implications for the communications problem I just indicated. For example, suppose a test yielded a proper ranking of appliances, but perhaps the intervals among them were such that it wasn't clear at what point the interval became really a significant difference among two appliances. How would that be communicated?

I think also it is conceivable that there are tradeoffs in technological developments involved in the choice of tests. It may be that in order to do well on the test, people will design a certain aspect of the appliance at the expense of others that may be also of importance to consumers. I think there may be competitive aspects in the choice of test as among large and small producers and so forth.

What I'm getting at is that I think even the choice of test finally might very well involve certain areas beyond the purely engineering issues. There may be a range of reasonable tests and then other considerations of an economic and communications nature are introduced that finally help in choosing the final test. I suppose, therefore, that we would think it important that we have a role even in the choice of test rather than simply having a test essentially developed without our participation and given to us without an opportunity to evaluate it independently.

Senator TUNNEY. What has been the cooperation that you have had from the Commerce Department with regard to your labeling program for refrigerators, the operating costs of refrigerators? Have you been going off on two tracks or have you been working together?

Mr. HERZOG. That's part of our pilot program in energy efficiency disclosures of air-conditioners, refrigerators, and mileage economy. We of course had to essentially wait for the NBS resolution of certain of the basic issues on energy efficiency testing of refrigerators. I think we find that we are able to build on what they do. As I say, it does raise some problems, and we have to evaluate them from our own perspective.

But certainly we have had access to their people, and we have been able to get educated as we need to be. I think by and large it could become a very satisfactory relationship, if the priority of this program for the technical agency is clear.

Senator TUNNEY. The FEA feels that, as I understand it, that they ought to have a prime responsibility here inasmuch as they are the agency in the Government which is charged primarily with energy problems, including conservation. And I can't speak for any individual person in the FEA, but from conversations I have had generally with representatives of the agency leads me to believe that they feel they ought to have very important responsibility in any energy labeling program, because they have energy conservation as a prime

responsibility. And it goes to the heart of what they consider this label program to be; what they consider to be one of the key factors in an energy program for the future.

Do you have any comment on the FEA's role? You mentioned obliquely it really doesn't make much difference to you where you get your expertise, from the NBS or FEA. Do you care to elaborate on that statement based upon my impressions of what the FEA wants?

Mr. HERZOG. First, if there is any question about the priority status of energy efficiency disclosures in the FTC, let me immediately lay that to rest. It is, I can squarely, unequivocally say, a high priority matter. Second, I think that the FEA clearly has not only a role, but a responsibility, in what I would characterize as strategic thinking, that is to say, what are the troublesome areas, either by region of the country, or by appliance, how do we focus our efforts, where are the priorities, and what are the energy problems.

To some extent there are distinctions among the intensity of the problem by particular appliances, but when we go from strategic to tactical thinking, I have to emphasize that it comes down to some subtle engineering and communications issues. I don't know that FEA has in its experience, for example, putting meters in refrigerators in people's homes in order to measure such things as ambient air conditions, whether the refrigerators are typically fully loaded, how many times the door is opened, and that kind of specific fact-finding which is involved in developing tests for annual use cycles and energy efficiency measurements.

And similarly, again on the tactical level, I don't know whether FEA has been involved in such questions as how to communicate in a 30-second television spot, what do we know about how consumers perceive and process information, the role of time constraints and so on.

I am suggesting that FEA's role should involve pointing out to us the goals and priorities, but there is a range of tactical issues that are so technical that it would simply be useful, I suppose, to tap expertise that already exists.

Senator TUNNEY. Can you tell me, Mr. Herzog, what you think about that part of the bill that relates to buildings, residences, commercial buildings? One of the things of course, at the time the bill was being drafted we didn't realize was that the President was going to come up with a program of requiring certain energy efficiency standards for buildings, and it is my understanding now that the program that has been announced by the President, and they are holding hearings now in the Banking Committee on it, a program to establish standards for insulation, and in general energy efficiency for residential buildings as well as commercial buildings. I understand that it is keyed into a Federal role in the lending of money for the construction of buildings, and it is my understanding that if you borrow money from a bank that is in the Federal Reserve System, you come within the purview of the legislation.

So it really will probably impact 95 or 96, maybe 99 percent of the construction of buildings in the country. So perhaps there is a substantial degree of overlapping in the thrust of this legislation, and the administration's program.

Now, of course, my legislation appeals to the free market instinct that people have, in wanting to be able to make their choice in pur-

chases. The administration program of course represents a much greater Government intervention, in standard setting.

Do you have any impressions, one way or the other, on this as to which approach you favor?

Mr. HERZOG. Well, Senator, I'm not entirely familiar with how that standard-setting system would work, but I will just offer a general comment, which is very much along the lines that you have suggested. If the standards are not by their operation going to bring about uniformity, that is to say, if the standards will still leave the possibility that there will be a range of energy efficiencies in the market, then consumer choice still matters. I think that the purposes of this bill, to assure informed consumer choice, interbrand comparability, if you will, still have full force.

Senator TUNNEY. Well, we will have the FEA testimony this morning on this point, and it is something which has relevance because, as I say, we were not aware that the administration's program was going to require standard setting for energy efficiency in buildings when we drafted this bill.

What about education programs that might be run with the labeling program? The thing that came up yesterday, when we heard from Commerce, there is a voluntary program now and they are going to put out this energy guide. Have you seen it?

Mr. HERZOG. I'm sure my staff has.

Senator TUNNEY. It is an energy guide. What it requires is a knowledge on the part of the consumer of the cost per kilowatt-hour of electricity.

Now my point with Dr. Ancker-Johnson was that there is probably one person in a hundred that knows what the cost per kilowatt-hour of electricity is in their neighborhood. They know what their electric bill is, but they don't know what the cost per kilowatt-hour is. And she felt that this was something which certainly could become a part of the common knowledge of the community the way the price of gasoline has become common knowledge among consumers. I suppose she is right, depending upon the kind of educational program there is.

But I would like to have your thoughts on that.

Mr. HERZOG. First of all, of course, I observe that annual operating costs would shortcircuit that whole problem.

Senator TUNNEY. That is right. But what they want, instead of having an estimated average annual cost, they want to have a guide which would talk about the cost of operation with the left-hand column indicating 1, 3, 5, 7, 9 cents per kilowatt-hour and the right-hand column indicating what your monthly cost of operation would be approximately, assuming those different levels of electricity cost. And it would require a consumer to know what the cost was per kilowatt-hour of their electricity, in order to find out what their monthly cost would be. Now, that requires several calculations, and my point was that the average consumer probably is not going to be able to make that kind of calculation. Dr. Ancker-Johnson disagreed with me, and she said she thought they would be able to if they were informed.

Mr. HERZOG. I think, in the parlance of our marketing research consultants, that appliances are an infrequently purchased, expensive, and high-risk item in the sense that if you make a bad choice, you are locked into the choice for a substantial period of time.

That often leads, so our social scientists tell us, to fairly high incentives to search for information in advance of purchase. That might lead many people to seek out information on electricity cost.

Nevertheless, I would have to say, based on our experience, that it would be a little bit premature to say that cost per kilowatt-hour is going to become common knowledge. I think that if it were to become common knowledge you might well need the cooperation of the utility companies to include on their monthly bills what the kilowatt-hour costs are. I think, in other words, repetition, accessibility, minimizing search costs, all would have to go into making that information available. It might include 24-hour telephone service at utilities so someone can call. I think it is possible that if the availability of the information were to be carefully structured so that it became very easily accessible, many people probably would seek it out.

Whether it would ever become as well known as the price of a gallon of gasoline, I don't know. One obvious difference is that most people, most of the time, are purchasing gasoline. I mean it is a weekly repetitive purchase, and that kind of confrontation with the information just doesn't happen on the cost of electricity, unless as I say, it is right there on your bill. I would find it a little premature to say it would become common knowledge, but I think it is surely worth making it as easily accessible as possible.

Senator TUNNEY. Do you favor disclosing an estimated average value on the price tag?

Mr. HERZOG. Excuse me, Senator?

Senator TUNNEY. Do you favor having a disclosure on the price tag of the average operating cost, on an annual basis, for a particular appliance?

Mr. HERZOG. That is to say, as distinguished from somewhere else at the point of sale?

Senator TUNNEY. As distinguished from somewhere else, as distinguished from perhaps putting it inside the appliance, or perhaps not indicating what the average annual cost is at all, just having a chart similar to the one that has been prepared by the Commerce Department, which would require a knowledge of the cost per kilowatt-hour of electricity and then factoring that into the annual monthly cost.

Mr. HERZOG. That raises a very basic, almost philosophic, question of what the nature of price is. I think your bill indicates that price is a good deal more than initial acquisition cost, that one must consider in the same breath really, at least the major components of life-cycle cost. That is a somewhat different concept of price from the one that has heretofore prevailed. I think the staff of the Commission is extremely eager to explore that concept of price. I don't know that I am prepared to say today as to how we would resolve that. I think, though, the disclosure should certainly be in a position where the consumer at the time that he sees the price is almost certain to see the annual operating cost, especially because appliances that have a relatively lower annual operating cost may well be the ones that have a relatively higher initial purchase price.

If people see only the initial purchase price, and not the annual operating cost, I think that the purposes of the bill may not be achieved. I think that annual operating cost has to be integrated with all of the consumers dollar thinking about that appliance.

Senator TUNNEY. One of the things that I have objected to is the Department of Commerce's labels for air-conditioners. I don't know if you are familiar with it, but it is an energy-efficiency rating, and I honestly think that it is the most confusing label I have ever seen in my life. It talks about an EER equals 9.3, and then it says for available 7,500 to 8,500 Btu per hour, 115-volt window models, the EER range is EER 5.4 to EER 9.9.

Now, what I can't tell by just reading this quickly is whether, if you have a higher value it means it is more efficient, or if you have a lower value it is more efficient. I mean the average person who looks at the thing couldn't tell. I think it is unbelievably confusing.

I just don't know if you have some comment on that or not. I don't ask you to be highly critical of a sister agency, or even to give them all kinds of praise, but I just wondered if you did have an impression.

Mr. HERZOG. Senator, I think that the points you are making emphasize the importance and the difficulty of the communications problem. Those are very real and very difficult problems, and the whole success of the program finally turns on those myriad individual decisions of people walking through an appliance store and seeing and using information, and on how readily that information registers. I think what EFR shows is the importance of providing a person, from some source, with the rule of decision, for example, "more is better," as in the case of miles per gallon, or "more is worse," as for most of us in the case of calories. What is the rule of decision? I think the Commerce label does have a rule of decision on it saying that higher EER means less energy cost.

Apparently, there are issues perhaps about the salience of that rule of decision as it physically appears on that label. Interestingly enough, we have a consumer study in Alabama which shows a very high comprehension rate of that label.

Senator TUNNEY. It is interesting, I had perhaps spent maybe 15 seconds looking at the label, and my eyes had not gone to the right-hand side of the label, which indicates as you say, for units with the same cooling capacity, higher EER means lower energy consumption, lower costs to use.

Perhaps if it had been a typical consumer purchase, I would have gone in and spent a minute or two looking at the whole label. Maybe I would have and maybe I wouldn't. But I just say in the first glance I didn't see it.

Mr. HERZOG. Senator, that is a good example of why you need very special lines of expertise to develop an effective program. There are ways of measuring how much time a consumer is going to take to look at that label. There are ways of measuring where his eye is going to go first and where it will then travel on that label. These are the communications issues that we think the Commission has expertise in. And again, it is the bottom line of the whole program. It may be that many consumers don't spend more than 15 seconds looking at the label.

Senator TUNNEY. At yesterday's hearing there were some favorable remarks concerning the role of the FTC in the area of consumer protection.

On the other hand, it was mentioned that in June 1974 a group of law students from George Washington University filed a petition with the FTC for a ruling requiring efficiency labeling of air-conditioners.

According to yesterday's witness, no action has been taken on that petition. Could you give us any information as to why?

Mr. HERZOG. Yes, Senator, in fact, the Bureau of Consumer Protection has forwarded its recommendations to the Commission on energy efficiency disclosures for air-conditioners, both labeling and advertising.

Senator TUNNEY. Has been forwarded to what?

Mr. HERZOG. To the Commission. We received the petition, I guess, last June which was just about the time that the Commerce Department air-conditioning program became final. That was our foundation for our program. As with many of the petitions we receive, the petition to which you are referring presented a very, very good idea, but in all candor, we have to say that it simply did not grapple with many of the issues involved, particularly the advertising issues involved. This was the first time, I might say, that the staff of the Commission was facing those issues, and we were amazed to find, after 10 or 12 drafts of a rule, that 3 or 4 months had gone by.

We found it to be very difficult. I must say that I think our learning curve is very steep, and I think this is in some ways the seminal effort on the question of energy efficiency disclosures in advertising. I think we have probably resolved in that air-conditioner effort many of the advertising issues we will be facing again in refrigerators and mileage and so forth.

I can only say it received a great deal of attention, in fact this question was receiving attention prior to the petition. It was actually a priority within the Bureau and a going project within the Bureau before we received the petition. It was simply our first outing on these issues and it took time.

Senator TUNNEY. Is the Commission going to act on the Bureau's recommendations soon?

Mr. HERZOG. Senator, I am afraid that is the kind of question that a staff member of the Commission prefers generally not to answer simply because he really can't answer it.

Senator TUNNEY. Is it on the calendar?

Mr. HERZOG. Well, it is before the Commission.

Senator TUNNEY. Does that mean that they have to take action on it, or can they just wait it out indefinitely? Is there any kind of requirement when a Bureau makes a recommendation that the Commission has to act or can the Commission just decide to sit on it?

Mr. HERZOG. I suppose theoretically they need not act, but in point of fact that isn't the way the Commission resolves things, even if it disagrees with the staff. In such a case it simply votes on the matter and rejects the recommendation.

Senator TUNNEY. Well, thank you very much, Mr. Herzog. I appreciate your being here and your testimony. You gave us a good deal of help. Thank you.

(The statement follows:)

STATEMENT OF J. THOMAS ROSCH, DIRECTOR, BUREAU OF CONSUMER PROTECTION,
FEDERAL TRADE COMMISSION¹

Mr. Chairman and Members of the Committee: My name is J. Thomas Rosch, Director of the Bureau of Consumer Protection of the Federal Trade Commission. I am particularly pleased to respond to your request to discuss S. 349, the proposed "Truth in Energy Act of 1975" and Title XII of S. 594, the "National Appliance and Motor Vehicle Energy Labeling Act of 1975". Since S. 349 specifically delegates to the Commission the primary responsibility and authority for developing trade regulation rules to require energy consumption disclosures for major household appliances and climatic conditioning systems, my remarks will primarily focus on the former bill rather than on S. 594, which vests the President of the United States with such authority and responsibility. Of course, the views I express are my own and not necessarily those of the Commission or any individual Commissioner.

At the outset, let me say that I fully endorse the findings and purposes of these bills, which recognize the need to take affirmative action in dealing with the energy crisis now facing this country. Disclosures of energy efficiency will enable consumers to compare the relative merits of competing major energy consuming appliances. Consequently, the public will be able to take energy conservation into account as a material factor in their purchasing decisions. In so doing, consumers can choose on the basis of operating costs rather than purchase price alone, while also promoting the larger national interest in conserving scarce natural resources. In the absence of energy efficiency disclosures the consumer cannot translate a concern for economy, let alone energy conservation, into positive action when purchasing energy consuming products.

The Commission has already taken steps to develop disclosures along similar lines pursuant to its existing authority under Section 5 of the Federal Trade Commission Act which, I believe, grants it the power to require the same types of disclosures called for by S. 349. The Commission has approved a pilot program directed toward securing disclosure to consumers of material information about major household appliances. One aspect of that program deals with the cost of operation of those appliances. For example, the Commission staff is presently developing a trade regulation rule regarding refrigerators which takes into account, among other disclosures, cost of operation.

The Commission has also been active in the field of automobile fuel economy. Sections 19(S) and 20(a) of S. 349 refer to the use of the Environmental Protection Agency's test procedures as the basis for measuring fuel economy. I want also to bring to the Committee's attention that the Commission very recently held public hearings on automobile fuel economy claims for the very purpose of determining the most accurate test to measure fuel economy. Although the staff's evaluation of these hearings is not complete, the Commission clearly supports the use of a single test to measure fuel economy.

In short, we are not strangers to this area, and our experience reinforces my belief that the kinds of energy disclosures prescribed by S. 349 are both important and desirable. But our experience has also taught us that there are technical problems with devising fair and accurate energy efficiency disclosures, problems which will require time and resources to resolve. They *can* be resolved, however, and we are vitally interested in working with the Committee to help design the best possible disclosure program.

A primary lesson we have learned from our product information disclosure program, and one whose importance cannot be overestimated, is that the development of standards and disclosures for energy consumption is itself a large-scale consumer of time and human energy. Variations among geographic regions and

¹ The remarks in the testimony represent only the views of a member of the Federal Trade Commission Staff. They are not intended to be, and should not be construed as, representative of an official commission policy.

among patterns of use initially complicate the process for many consumer goods. In addition, different types of products present different problems in measurement of energy consumption, and the individual characteristics of each must be carefully considered in the interest of fairness and accuracy. These variations, in combination with the fact that the entire area is extremely complex technically, mean that developing disclosures is a process honeycombed with hidden difficulties, each of which must be discovered and systematically dealt with. A specific example drawn from our experience with the product information program should illustrate what I mean.

S. 349 mandates an estimated annual operating cost as the *exclusive* index to measure the comparative energy efficiency for those product categories to be labeled under the bill. As a practical matter, operating-cost disclosures which are stated in absolute dollar terms, easily understandable to consumers, should provide the optimal information on which to choose among competing products. They permit decisions on the basis of the real cost of operating the product over its life, as opposed to the initial purchase price. As I mentioned earlier, part of the Commission's product information disclosure program is an examination of the disclosure of estimated annual operating cost for appliances as material information. As a general matter, S. 349's choice of estimated annual operating cost as the touchstone is eminently sound.

Nonetheless, there may exist certain types of appliances for which such a disclosure is neither practical nor feasible. A prime example is a room air conditioner. Unlike other appliances, such as refrigerators, which are not substantially affected by climatic conditions and individual use decisions, hours of operation for room air conditioners vary both with climatic differences and with individual comfort preferences.

According to the National Bureau of Standards estimates, as well as the Association of Home Appliance Manufacturers, the average number of hours of air conditioner use varies from 1600 hours per season in hot, humid climates to less than 200 hours in cooler, less humid climates. Moreover, individual comfort decisions (on all day, on only when a room is occupied, on while sleeping, off while sleeping) can result in substantial variance. Thus, even if utility rates were constant throughout the country, a cost of operation based on a national "average" could be more than 50% too low for some consumers and more than 100% too high for other consumers.

While it would, of course, be possible to account for regional variances in air conditioning use, as Section 20(d) (2) of the bill provides, through supplementing the cost-of-operation disclosure with a conversion table which lists the percentage variance from the national average for each region, use of such a table would deprive annual operating cost disclosures of the very simplicity that is their greatest appeal. Most importantly, a table of regional variances in air conditioning use would still not account for the significant variations in personal use preferences within a region. With other appliances, however, an estimated annual operating cost can be determined within the parameters of statistical reliability.

Thus, for room air conditioners, at least, the use of the EER (Energy Efficiency Ratio)² may be the most practical way of disclosing energy efficiency. The EER, as you are aware, is currently being used in conjunction with the Department of Commerce's voluntary energy labeling specification for room air conditioners. The City of Philadelphia with the cooperation of its public utility company over the past three years has developed a program whereby appliance dealers disclose the EER on labels attached to room air conditioners.

Air conditioners are not the only appliances affected by such complexities: another example is washing machines, for which variations in family size may make annual operating cost an unsatisfactory measure. The narrow point is that whatever legislation the Congress passes in this field should not tie the responsible agency to a single inflexible type of standard for all energy-consuming products.³

The issue of time, I think, merits separate consideration. Section 20(a) of S. 349 provides that within 9 months, after consultation with the Federal Energy Administration, the Commission shall define average use cycles and devise proce-

² An EER is the ratio at which a consumer product converts units of energy into units of output. Its usefulness is limited, however, to those products whose output can be measured in terms of units (such as air conditioners, in BTU's).

³ Section 1205(a) (4) of S. 594 recognizes that the information which shall be included on the appliance label to assist consumers in comparing energy efficiencies among competing appliances can be accomplished "by cost or amounts of energy use or otherwise."

dures by which such use cycles of major energy consuming household products may be simulated and by which the energy utilized in such a cycle may be measured or calculated. As I read this section, the Commission would be responsible not only for developing the protocols and standards for all major energy consuming products within 9 months, but would also be responsible for promulgating rules for all these appliances within this period, as subpart (b) directs the Commission to require each manufacturer to conduct tests using these standards as promulgated under Section 20(a).

The development of protocols and technical standards is a complex process. Even for one appliance, it would be extremely difficult to accomplish the task within 9 months, and in all candor, I cannot promise you that it could be done at all. Moreover, Section 20(a) only refers to "major energy consuming household products," and it is unclear whether this includes "climate conditioning systems," separately defined in Section 19(3) of the bill. Presumably these systems are included and, if so, the difficulty of issuing rules in 9 months is further increased. Determining average-use cycles for such systems is particularly time consuming and difficult because of their size, the way they are hooked up, and the attendant systems which must be considered.

The time limits contained in S. 2176, the predecessor to S. 349, offer an instructive comparison. Coincidentally, Section 20 of S. 2176 also dealt with the procedures for determining annual operating costs based on average-use cycles. There, a more workable time table was provided. The Commission, in cooperation with the National Bureau of Standards, was given 3 months just to identify those products which are major energy consumers. The Commission was additionally allotted 12 months after enactment of Section 20 to establish a priority ranking of major household products, and 18 months to define the average use-cycle and test methods. (It is also noteworthy that the Consumer Product Safety Commission is accorded 210 days between notice and the publication of a *proposed* rule, even though hazardous products are involved and speed should be an especially pressing concern.)

While I am not suggesting that these time tables be adopted in S. 349, I think that a realistic schedule must be adopted to allow the Commission to meet responsibly the requirements that S. 349 would place upon it. I think that it is prudent to permit the Commission sufficient time to establish a priority ranking system and then substantially increase the time frame in which to proceed in developing rules for the energy efficiency labeling of appliances.

This brings me to another suggestion. Section 20(a) of S. 349 refers to the Commission's consultation with the Federal Energy Administration as well as with other appropriate agencies and professional engineering societies in developing standards. However, since the Commission does not possess the in-house expertise to deal with complex technical matters which S. 349 entails, it is imperative that the language of Section 20(a) remove any doubt of voluntary cooperation with the Commission in implementing this bill. It is essential that the legislation mandate technical assistance. Equally important, we think that the National Bureau of Standards should be named specifically as part of this consulting framework, as NBS has a wealth of technical expertise.

With respect to the authorization of funds, it is conceivable that the \$3 million authorized by S. 349 would be sufficient for the task, but only if the 9 month deadline were to be extended.

On the question of when disclosures must be made, Section 21(b) triggers an advertising disclosure of the estimated annual operating cost of a product *only* if the advertisement states the purchase price or acquisition cost of the product. The Commission's experience has demonstrated that there are a host of problems in developing advertising disclosure provisions. While a statute such as S. 349 cannot address such difficulties specifically, it is essential that the general statutory language leave the Commission free to resolve those difficulties in applying its expertise to determine what constitutes unfair or deceptive advertising under our Act. Section 1208 of S. 594, for example, specifies that when an advertiser advertises the "energy characteristics" of his product, then disclosures required by that bill must be made. It is important that Section 21(b) include language to the effect that nothing in this section shall prevent the Commission from exercising its authority under the Federal Trade Commission Act.

Section 21(g) appears in my judgment to be less than clear. I assume the prohibitions therein as to a rescission remedy apply to the Commission as well.

Accordingly, I recommend that language be added to make it clear that this section does not preclude or restrict the Commission from utilizing its consumer redress powers under Section 19 of the Federal Trade Commission Act, or its full remedial powers under Section 5, as recently amended.

I have purposely saved for last the matter which I consider the most crucial to the expeditious and effective implementation of S. 349—the question of what specific type of rulemaking procedure the Commission is bound to follow in its promulgation of the multiple labeling rules pursuant to S. 349. Early this year, the “Federal Trade Commission Improvement Act” became law. Section 18 of that Act gave the Commission statutory rulemaking authority, but in so doing it specified a procedure which departed from Section 553 of the Administrative Procedure Act. Specifically, it provides for a variant of cross-examination in rulemaking proceedings. While it certainly falls short of the rigid requirements of rulemaking mandated by Sections 556 and 557 of the APA, it nevertheless may substantially increase the time and complexity of our rulemaking proceedings. Since S. 349 is silent on specific rulemaking procedures, it is reasonable to suppose that the new Section 18 will apply. This problem is compounded by the fact that under Section 22(c) (1) of S. 349 anyone could sue the Commission to force it to meet the deadlines. Clearly, without informal rulemaking authority under the Administrative Procedure Act, S. 349 could produce.

We strongly recommend Section 553 rulemaking authority for the purposes of this bill. Section 1204(a) of S. 594, the other bill under discussion today, does provide for Section 553 rulemaking in the promulgation of its energy disclosure rules. Also, Section 9(a) (2) of the Consumer Product Safety Act, which empowers the Product Safety Commission to remove products from the market and set minimum standards, only requires Section 553 rulemaking. The Commission should not be bound to more stringent procedural rules under S. 349, since it only empowers the Commission to require labeling and to develop test methods, but not minimum standards.

In closing, Mr. Chairman, we want to reiterate my complete support for the central aims and methods of both of these bills: to permit consumers to save both money and energy by exercising an informed purchasing choice. Our disagreements with them are matters of detail and procedure. This is a job that needs doing, and we have tried to offer the Committee the benefit of the experience we have had in the field to insure that it is done as well as possible. Mr. Rosch and my staff and I are extremely eager to work with the Committee in developing an effective, workable legislative program, and we feel that we can offer a valuable contribution. We invite you to call on us.

Senator TUNNEY. Our next witness is Mr. Lee White, chairman of the Energy Policy Task Force, Consumer Federation America.

Good morning.

STATEMENT OF LEE C. WHITE, CHAIRMAN, ENERGY POLICY TASK FORCE, CONSUMER FEDERATION OF AMERICA

Mr. WHITE. Good morning, Mr. Chairman. I have a comparatively brief statement, and I would appreciate it if it could be incorporated into the record, and I will speak very briefly—

Senator TUNNEY. Yes.

Mr. WHITE. First, a slight disclaimer. I am here in my capacity as chairman of the energy policy task force which includes about 30 major organizations. We are primarily an ad hoc group, set up 2 years ago to put the consumer's views and biases into the energy policy debates before Congress and the administration.

Obviously with such a large number of organizations, and many of them with very large memberships, I can't honestly say that we have canvassed all the people we undertake to speak for. But, we do have some general principles that brought us into being, and I must say the subject of this hearing is probably the easiest one that I have yet faced, and probably will face in terms of general agreement.

In a sense it is kind of reassuring that there are some fantastic, even bitter, debates going on over energy policy, but the area you have seems to be a relatively pleasant one in that the administration is in competition with your own bill, and that is the best kind of competition I can imagine.

Senator TUNNEY. Yes. They testified against it last year, they have changed in the last 12 months.

Mr. WHITE. Hope springs eternal, and maybe—

Senator TUNNEY. I'm very happy they have changed their opinion. I think it was a pleasure to have Dr. Ancker-Johnson down here this year agreeing with the concept, whereas last year she was testifying against the concept. So it does mean that in the last year the energy crisis has permeated the consciousness of many people that did not think it was a problem before.

I agree, I think it is a very good thing that there is such widespread agreement as to the thrust of the legislation, but there is substantial disagreement as to which agency should have the lead responsibility, and there is also disagreement as to whether or not buildings ought to be incorporated within the legislation.

And I really would hope that maybe you could shed some light on these problems, if you have any opinions.

Mr. WHITE. I do on both of them. First, I have to be candid. I don't think that where the responsibility is located is quite as important as the force and the pressure that the President himself puts behind it.

As you may know, there is a special wing in St. Elizabeth's Hospital for those people who are specialists in Government organization.

There is one ward that says that everything ought to be sort of horizontal and report directly to the President, and there is another that says everything ought to be vertical. And the biggest ward of all is for the group that says everything has to be coordinated.

I would suggest from my own reading of the Washington bureaucracy at the moment that the FTC is perhaps the hottest outfit in town.

One of the indicators is where the brightest young law students want to go to work, and I think happily the FTC has come out of a period when it was sort of in the doldrums. This may well be the best test that one would want to apply in selecting which agency should have responsibility.

I was told the Commerce Department made an earnest pitch yesterday and maybe that is a good sign, too. Sometimes it is more difficult for a regulatory agency to be an operating mechanism. Here I think your legislation is keyed more to the promulgation of rules and standards and that is appropriate for a regulatory body.

I wouldn't make it a major issue in my own assessment but if I had to reach a determination, I think I would give it to the FTC, which has shown considerable interest in this area of activity, and does have the expertise, as the preceding witness suggested.

I know, from my own personal experience, how difficult it is for regulatory agencies to get their budgets increased when their responsibilities are increased. So perhaps the Commerce Committee may wish to give a little assistance to the FTC to make darn sure there are ade-

quate funds and people to carry out the program that might be given to them.

With respect to buildings, I think that is a terribly important area for energy savings and reduction. I agree with your views that the President ought to be commended for recognizing the problem. I find so few things to commend about his energy program, that when we find something worthwhile, we ought to make a little fuss about it.

I think practicality standards are extremely important. Especially in smaller buildings, I think it would be useful to use that energy-saving index as a very important feature for salespeople, as they try to sell and design their product. So I would believe that on that score your bill is superior to title XII of the President's bill that is also before the committee at the moment.

If I may, I should like to submit for the record a little pamphlet that was prepared by our task force working with the U.S. Conference of Mayors. It was intended as an outline and a guideline to local officials and consumer groups as to what they may do by way of discharging their own responsibilities, in part because they are the owners and the builders and the managers of public buildings, and in larger part because of the regulator role that they have in their own communities.

I think the question of preemption and whether Federal standards ought to apply is always a difficult one. I have no desire to make things more difficult on industry, but normally I believe the Federal Government's role ought to be in the way of minimal standards, and that if any State or local governmental unit, for whatever reason that may be peculiar to them, wishes to require more stringent factors to be taken into account, they ought to be permitted to do so.

But that, too, is a very detailed sort of problem to wrestle with. I certainly want to urge that this continue being discussed.

Your encouraging remarks about how the administration has moved along offers a lot of hope. But by the same token, we probably have lost about a half year to a year that we need not have lost, and that will never be regained.

Senator TUNNEY. I appreciate very much your being here. I have glanced through the prepared statement that you submitted, and I'm happy that you are supportive of S. 349.

I think that you are also right about phasing in the reductions in oil consumption. I think that it makes a good deal of sense as far as the economy of the country is concerned to have a period of a year or 18 months where we can absorb these reductions, and I think that we can absorb them without any decrease in our standards of living, too.

Mr. WHITE. I really do think so. Of course the whole package of consumer items that your legislation is aimed at is going to make that possible. There is a heightened awareness, as you indicated, in energy, and I would assume that increasingly we will see ads focusing more on the energy use factor than on price itself.

Frankly, that is really the way it should be today. Nobody can say that 5 years ago that was necessarily important, because we had not come to that period of national awareness of how crucial energy is, especially for the future.

So it is very easy, Mr. Chairman, to support your bill. I think it is in some ways a little tighter than the administration's, and I hope you will be successful in pushing yours through.

Senator TUNNEY. Do you think that consumers will accept the concept of average value, or best estimates of operating costs without assuming that they represent guarantees?

Mr. WHITE. Yes, if there is general acceptance among the experts, including the governmental personnel who are supervising these figures. It is no secret that there is an enormous lack of credibility by the American public in its institutions, and when we see some of the major ones getting cuffed around pretty bad because of violations of law and other things, it is hard to be sure.

But yes, I think under an appropriate program, and especially with the emphasis on education that you mentioned earlier this morning, I think consumers are anxious to find some indicators, and I think they will accept what they see on the printed label, especially if it has the imprimatur of a Federal agency that people respect of which people have no reason to doubt the integrity.

Senator TUNNEY. I see the thing that is going to be a recurring question is the approach that is used by the agency on the label to disclose the information as to energy efficiency of the particular appliance. There are a number of different ways of going.

One way is the energy efficiency rating. Another way would be to require some knowledge of the cost per kilowatt hour of electricity, and then factor that into the monthly operating costs. Another way would be to give an estimate of the average annual operating cost, perhaps then with an asterisk which would lead you to more detailed information such as the proviso in the Department of Commerce Energy Guide that is being put out for refrigerator-freezers.

This simply requires, as I indicated earlier, a knowledge of what the cost of electricity is per kilowatt-hour, and then factor it into an annual or rather a monthly operating cost. I mean, there are so many different approaches that can be used.

I wonder if you have thought about it at all, and I wonder what you think about the concept of having an average annual operating cost on the label with perhaps an asterisk that leads you to more detailed information.

Do you have an opinion?

Mr. WHITE. I do. It comes in two parts.

I think that the average consumer, if there is such an animal, would prefer to have the arithmetic worked out for him with some sort of a relatively easy index to use, maybe a scale of 0 to 100 indicating what somebody else has calculated to be the efficiency. But if the last 1½ years is any indicator, one of the principal ingredients, namely the cost of electricity, is going to continue to be a moving target.

I do have a feeling, though, that increasingly more citizens are aware of the per-unit cost of electricity than they ever were before in their whole lifetimes, because cost is beginning to be an item that is hurting some people heavily. And when your power bill goes from an all-time high of \$60 to maybe \$230 a month, it jolts you into the awareness that maybe you ought to figure out what this stuff costs.

So I guess I would like to see two efforts: One, a generalized index, and the other, a mechanism by which a more concerned possible purchaser could calculate the energy costs of the appliance.

Undoubtedly there's going to be difficulty in coming to any general number and I certainly, were I a manufacturer, would be apprehensive about how that were done, because it could be devastating in terms of the marketability of your product. It doesn't take any clairvoyance to see interminable fights with the FTC, or whoever has this responsibility, for the manner in which they go about calculating that index.

And, presumably, the American public will still have some considerable interest in the style, appearance, quietness, for example, of the motor, and all of the other factors that are going to be considered by somebody who is going to put \$300 or \$400 into a refrigerator.

But I certainly do believe that where energy has always been on the checklist in the past, it has been near the bottom, and what we are talking about is moving it right up near the top in those considerations that somebody takes into account when making a purchase. So I wouldn't want to minimize the difficulty of that problem of coming up with an index that says, for example, that Westinghouse is 75 on the index and General Electric is 85. That could be devastating unless it were absolutely accurate.

There will always, I think, have to be some opportunity for other selling devices. I don't know that we really want to say that only equipment can be manufactured that meets an absolute minimum standard. That may be what will ultimately take place in the marketplace anyhow.

Senator TUNNEY. Thank you very much. We appreciate your being with us, and being so helpful.

Mr. WHITE. I'm delighted, Senator.

[The statement follows:]

STATEMENT OF LEE C. WHITE, CHAIRMAN OF THE ENERGY POLICY TASK FORCE OF
CONSUMER FEDERATION OF AMERICA

Mr. Chairman and Members of the Committee: My name is Lee C. White, and I am here today in my capacity as Chairman of the Energy Policy Task Force of the Consumer Federation of America. Our Task Force has 30 member organizations (Attachment A), and our expressed purpose is to ensure that the consumers' views are included and considered in the energy policy debates currently taking place, and, in particular, within the Congress. We recognize that there is no necessary single "consumer interest" in any of the numerous issues that comprise the energy policy debates; nevertheless, we have undertaken to do the best job possible in assessing and stating the views of the consuming public and, as the broad base of our membership suggests, we do indirectly represent millions of Americans.

I appreciate the opportunity to appear before the Senate Commerce Committee to discuss Senator Tunney's bill, S. 349, the "Truth in Energy Act of 1975", and the Administration's proposal described as the "National Appliance and Motor Vehicle Energy Labeling Act of 1975". To some extent these two bills determine what each of them undertakes to achieve—namely, competition for the buyer's approval and purchase. Frankly, it is the type of competition that we like to witness and it is reassuring to know that there is virtual unanimity on the goal of stimulating buyer awareness of the energy characteristics of major energy-consuming products.

There is a major dispute underway now with regard to whether the President's basic approach to energy conservation, namely the imposition of significant import fees and excise taxes on crude oil and petroleum products, is the appropriate

way to proceed. Even though it is the position of the Energy Policy Task Force that the President's approach is ill-conceived, not likely to achieve the objective, contains enormous inflationary consequences, and is inequitable, we do share the general goal that the Nation must embark upon a program to reduce our importation of crude oil and petroleum products. I do not share the judgment expressed by many economists and, according to the newspapers, an important element in the program being prepared by Senate Democrats, that the critical and even frightening character of our present economic situation is such that any beginning on reducing import levels must be delayed. I believe that the President's authority to fix import quotas, which was used from 1959 to 1973 to protect the domestic industry against world oil prices \$1.75 to \$2.00 per barrel, ought now to be used to initiate an effective conservation program. So long as there is abundant supplies of gasoline and other fuels, the pressures to conserve will be very nearly ineffective. I do not advocate the same goal fixed by the President of a reduction of imports by one million barrels per day by the end of 1975. So far as I know, that is a figure plucked from the air and with nothing to commend it, except possibly for the fact that it is a nice, round number. Instead, I would urge a reduction of somewhere on the order of 10% of our imports or 700,000 barrels per day by the end of 1975. I would suggest that a third of that amount be achieved on April 1, a third on September 1, and the final third on December 31. I believe, on the basis of our experience during the oil embargo of 1973-74, these reductions can be achieved with minimal impact on our economy and with acceptable burdens of inconvenience, with the bulk of the reductions in gasoline. Since the import quota authority, vested in the President, is flexible, the President retains the ability to adjust the volumes to meet changing circumstances. Thus, if the figures I have offered prove to be too rapid a reduction, taking into account the precarious condition of the economy, the President should exercise his authority to adjust the figures accordingly. The important point, in my view, is that we must begin.

With regard to the "truth in energy" concept, it ought to have the support of Congress and the Administration. We have thought about the crisis long enough and the disruption of the 1973-74 embargo served a highly educational function. We hold the view, expressed frequently, that the American public may well be ahead of its political leaders in its understanding and its willingness to begin the shift to a more judicious and restrained use of energy. Accordingly, it is time to require manufacturers to provide the purchasing public with reliable information about energy consumption so that this important characteristic of newly manufactured products can be considered when the prospective purchaser makes his or her choice.

Although both of the proposals generally move in the same worthwhile direction, S. 349 appears to be somewhat more comprehensive and, therefore, in my judgment, to be preferred. Among the items that I believe appear in S. 349 that are absent from the Administration's bill is the application to sell or lease of new buildings; the failure in the Administration's bill to require estimated annual operating costs; the Administration's bill does not appear to include products purchased by catalogs, as distinguished from those purchased in retail outlets.

Especially significant is the reduction of energy used in large buildings. Presumably, those who are in the contracting business will make the investment in time and effort to focus on the energy considerations in design and in the choice of materials. I would like to submit for the Committee record, a pamphlet prepared by the U.S. Conference of Mayors, the National League of Cities, and the Energy Policy Task Force of the Consumer Federation of America, which is intended to provide guidance to local officials and to other interested parties in achieving a greater awareness on the part of companies and individuals in the construction business of the energy-saving potential. We hope it will be of widespread assistance and would welcome the interest of the Committee.

Happily, there seems to be relatively little conflict between the Committee and the Administration and I hope, therefore, that S. 349 can be reported out promptly and move speedily along the path to becoming national law.

Thank you.

ATTACHMENT A—ENERGY POLICY TASK FORCE MEMBER ORGANIZATIONS

Adams Electric Cooperative, Inc.
AFL-CIO

Allegheny Electric Cooperative, Inc.
 American Federation of State, County and Municipal Employees AFL-CIO.
 American Federation of Teachers AFL-CIO.
 American Public Gas Association.
 American Public Power Association.
 Consumers Union.
 Cooperative League of the USA.
 Industrial Union Department AFL-CIO.
 International Association of Machinists and Aerospace Workers AFL-CIO.
 International Brotherhood of Electrical Workers AFL-CIO.
 Kansas Municipal Utilities.
 Lincoln, Nebraska, City of.
 Maritime Trades Department AFL-CIO.
 Minnesota Farmers Union.
 National Farmers Organization.
 National Farmers Union.
 National Rural Electric Cooperative Association.
 Northeast Public Power Association.
 Northwest Public Power Association.
 Oil, Chemical and Atomic Workers International Union AFL-CIO.
 Service Employees International Union AFL-CIO.
 Tennessee Valley Public Power Association.
 Textile Workers Union of America AFL-CIO.
 United Auto Workers.
 United States Conference of Mayors.
 United Steelworkers of America AFL-CIO.
 Wisconsin State AFL-CIO.

Senator TUNNEY. Our next witness is Mr. Richard F. Ferris, treasurer, Air-Conditioning and Refrigeration Institute.

Mr. Ferris, if you would identify the people with you.

STATEMENT OF RICHARD F. FERRIS, TREASURER, AIR-CONDITIONING AND REFRIGERATION INSTITUTE; ACCOMPANIED BY G. R. MUNGER; W. D. SPARKS; AND H. T. GILKEY

Mr. FERRIS. Yes, sir; I will do that.

On my left is Mr. G. R. Munger, who is the managing director of the Air-Conditioning and Refrigeration Institute, about which you will hear more in just a moment.

On my right is Mr. Wilbur Sparks, who is director of legislative affairs for the Air-Conditioning and Refrigeration Institute. Next to him is Mr. Herb Gilkey, who is director of government and consumer affairs, also for the Air-Conditioning and Refrigeration Institute.

Mr. Chairman, I have a 32-page prepared statement, which, with your permission, I would like to have entered into the record, and speak extemporaneously.

Senator TUNNEY. It will be. Thank you.

Mr. FERRIS. My position is, I am the worldwide product line manager for environmental, construction, and industrial products for international Telephone and Telegraph Corp., headquartered in New York. I am appearing today in my capacity as treasurer and a director of the Air-Conditioning and Refrigeration Institute, which is a manufacturers association of 173 manufacturers of equipment and components for refrigeration and air-conditioning systems in the United States.

Our product sales represent in excess of 90 percent of the products, components, lubricants, et cetera, sold to refrigeration and air-condi-

tioning systems in this country. We do not have foreign representation.

The products manufactured are central residential air-conditioning products, essentially consisting of outdoor condensing units and indoor cooling coils or blower coil assemblies; heat pumps of a similar nature, but outfitted to operate in the reverse cycle to provide winter heating, as well as summer cooling; applied systems components used for major nonresidential buildings of a commercial, industrial, or institutional nature, such as reciprocating and centrifugal compressors, condensing units, water chilling packages, fans, coils, filters, valves, and units of control of these systems.

Also, humidifiers and filters.

This association does not represent the window air-conditioner industry.

Our members are acutely aware of the Nation's energy shortage and the fact that it is serious. We are agreed that conservation is a necessity. We are keenly aware of the consequences of the shortage in our own industry, both as sellers in the energy-consuming industry and as manufacturers requiring energy to perform our tasks. We support programs which will effectively bring about the proper use of our resources, and we recognize the need to work to optimize air-conditioning systems, and the operation of these systems.

Our engineers and designers are engaged in this task daily and progress is being made against this objective.

This morning, I would like to speak, first, specifically to S. 349, section 20, paragraph 2, and I am speaking with specific regard to central residential air-conditioning systems components. This paragraph requires that submitted annual operating cost shall be made by the manufacturer, and the key word is "manufacturer."

Air-conditioning systems, whether they be simple, for residences, or complex, as may be the case of a system in this building, consist of factory-made components, engineered into an integrated system and installed and interconnected by an installing contractor with ducts, pipes, wires, and controls.

It is fair to say, in our judgment, that the installing contractor then becomes the manufacturer of the air-conditioning system in the context of S. 349. I won't build up the way the thing goes, but simply say, as a result of this, the manufacturer of the apparatus, which I represent, is not in a position to submit the operating cost of that system for several reasons. I am still speaking of central residential apparatus.

The first reason is the manufacturer does not sell to the consumer, he does not interface with the consumer. He interfaces through a chain of secondary distribution. Second, the manufacturer does no system design today. Twenty years ago, that was not the case; today it is the case.

Third, one manufacturer does not always supply all of the system components, even in a residence.

Fourth, the design and installation of the piping, the ductwork, the interconnections, the control system, all of these things, have a profound effect on the operation of the system and its efficiency. Use of good engineering practice or lack of it affects significantly the energy

input. And these are items which are of a technical nature, and would probably not add too much to the conversation here today, but are second nature to people in the sheet metal and piping business.

Nevertheless, the way in which these engineering practices are put into practice have a substantial effect on not only the efficiency of the system, but also its effectiveness. It is possible to use a lot of energy and not produce any comfort conditions.

Therefore, we request that central residential air-conditioning apparatus, the systems and components, including residential heat pump apparatus, be reclassified into climate-conditioning systems and that the responsibility for computing energy consumption or cost be assigned to the installer contractor.

What manufacturers can do is to provide reliable input/output data on their products against a standardized set of operating criteria.

I refer now to section 20, subparagraph b, which says, "The Commission shall direct each manufacturer of energy-consuming household products to conduct tests or calculations on all applicable models in accordance with subsection (a) of this section."

And subsection (a) is the subsection that deals with the establishing of simulated use cycles and use tests. Members of ARI have already done this through a certification program and a seal appearing on the product assuring the customer that he is getting certified apparatus.

Now, what is the certification program? It is a program that we have had in effect for 15 years whereby every manufacturer who signs a license agreement with ARI agrees to test his product in accordance with a specified criteria. He does this, he submits the data to the engineering department of ARI, which consists of professional engineer. He then is permitted to carry the label of this capacity and energy draw.

He must submit to random testing by an independent third party. We use Electrical Testing Laboratories in New York.

The specifications of the certification program call for 30 percent of each manufacturer's models to be tested annually. The expense attached to this program is defrayed by shipping fees which each manufacturer pays on each piece of goods shipped that are certified. The program has a penalty clause for overrating, whereby the manufacturer, either through a random test procedure, or a complaint test procedure by a competing manufacturer, if his equipment is found to be overrated in terms of capacity or underrated in terms of current draw, he has the alternative opportunity to either derate his equipment, withdraw the model from sale, or in the event he chooses not to do either, he will be removed from the certification program and his name will be taken out of the directory.

We feel very strongly that this is a program with teeth.

I have brought with me today the latest directory of the certification program, which Mr. Munger will hand to you. You can see, I think, it is not a piece of sales promotion material but, rather, a factual listing of apparatus. The program has substance, Mr. Chairman. The standard by which this program is operated is updated every 5 years by the industry. This directory you are looking at is the most current one for the period January through June of 1975.

Up until this directory, we published Btu output and watts input. With this directory, we are inaugurating the publishing of energy

efficiency ratio in an effort to provide a consistent vocabulary for the public, inasmuch as efficiency ratio was started with the window air-conditioner program in 1974, which has been referred to earlier.

And you will find here, I daresay, in this product category 95 per cent or better of the products that are sold in interstate commerce are listed in this manual.

I might add, as a plug for our industry, that this certification program is only 1 of 11 such certification programs that we operate to provide reliable performance data on energy consumption and energy output to the public. All have random testing, all have penalty provisions.

I would like to move to the subject of preemption now.

It is extremely difficult to design and produce products against more than one standard relating to certification of capacity, standards for development of data, and advertising.

We already exist in an environment where we must be responsive to national safety codes such as the American Gas Association, Underwriters Laboratories, American National Standards Institute Standard B-9.1, the Mechanical Code for Refrigeration Safety, ASME, section 8 for Unfired Pressure Vessels, the National Electric Code, Factory Mutual, and the Fire Insurance Association Codes.

Over the years, and with hard work and at great expense, we have worked to meet some supplementary State and city codes which in our judgment do not enhance consumer safety beyond the national codes. We therefore endorse wording such as is found in section 1211 of S. 594 in this regard, which says Federal preemption is absolute, there will be no permission to use other than the national standards.

I would also like to add our thoughts for your consideration on the subject of existing structures. I refer here not only to residences, but perhaps more importantly to other than residences, structures of commercial or industrial nature, where a great percentage of our apparatus is sold today. We would like to have you give consideration to extending this program to include new systems in any structure.

We would like to reinforce with the weight of our experience the thoughts expressed in section 4 and 4(b) of section 18 on consumer education.

An informed public is essential to energy conservation, and we believe, and it has been our experience, that a massive educational job is required to bring consumers to the point where they can appreciate and use owning and operating cost data to their advantage and the advantage of our country and our resource program.

Senator TUNNEY. Can I just stop you there?

Mr. FERRIS. Yes, sir.

Senator TUNNEY. Do you feel that it would be appropriate perhaps to have some kind of requirement that the public utilities indicate in their monthly bills the unit cost of electricity, the cost per kilowatt hour, so that perhaps if we were to use a label such as has been suggested by the Department of Commerce, which requires a knowledge of the cost of electricity, it would be possible to have an informed consuming public making use, in meaningful terms, of this kind of label?

Mr. FERRIS. I don't think I could say we would be against it. I think, as was pointed out by the previous speaker, the cost of energy is

a moving target, and it would be difficult for an energy company, or a utility, to project, which really would be to the benefit of the consumer. But I am not opposed to what you are saying.

Senator TUNNEY. You see one of the problems I have, and which I am going to have to resolve with other members of the committee and the Senate is with the provisions in the bill calling for an annual estimated operating cost of the appliance with energy being a moving target, and inasmuch as you do have such significant changes going on in the price of electricity, I am fully aware that that provision of the bill becomes additionally controversial. And perhaps it is a requirement which is not justified.

What I am attempting to do is balance the values as best I can. A consumer who comes into a store and sees an appliance with annual operating cost projection on the label, is probably going to be better informed if the projection is accurate, than if he has to make a calculation himself.

On the other hand, if the estimate, the projection, is inaccurate, then, of course, we are doing a disservice to the consumer, unless you are dealing with relative values.

And then the question is how do you establish the relative values? Of course, the Department of Commerce has attempted with one of their programs, air-conditioner programs, to have energy efficiency ratings. The question, of course, about the energy efficiency ratings is whether or not that is sufficiently lucid a description to give to the consumers the information that they need. And we all are muddling along here trying to figure out what is the best approach to use.

What I am simply asking you is your opinion. You have expertise in this area. I would like to know what your thoughts are.

Mr. FERRIS. It is a tough question for me, Senator, because we are really not—I expand on that point a little later in my statement—I don't feel we are sufficiently conversant with the habits of consumers who buy in the store, like brown goods and white goods, that we can—I don't mean to duck the question—but I don't think we have that kind of expertise to contribute to your question. I would have to say in my experience that the subject of getting people to appreciate operating costs would be a big step forward as compared to first cost, particularly in the construction industry, as it relates to climate conditioning systems.

Senator TUNNEY. I appreciate your candor. Go ahead, I didn't mean to interrupt your train of thought.

Mr. FERRIS. That's perfectly all right. We were speaking about the problem of education of the public, and I would like to make the point that ARI spends a great deal of money annually to promote its certification programs, and to make the consumer aware that solid programs are in being and have been in being for a long time, that generate factual data on energy use and relative output characteristics.

I would like to move now to S. 594, title 12, and offer one point.

We support the idea of energy efficiency identification on energy-consuming major appliances, and central residential air-conditioning system components. The air-conditioning industry has carried this idea into practice since 1959 through the vehicle of its certification programs, the ARI seal and the ARI directory. We do not support compulsory labeling for air-conditioning appliances for two significant reasons:

One, it duplicates the ARI certification program and may, therefore, not be necessary expense wise.

But, perhaps, even more pragmatic, and responsive to your earlier question, the consumer rarely sees a residential air-conditioning apparatus before he owns it. There are two situations in which a consumer purchases central residential air-conditioning, first, the new home. In the case of the new home, it will either be standard equipment, in which case he buys the house or doesn't buy the house, or, in the alternative case, it is an alternate add-on, or optional extra, if you will, to the base price of the house.

Again, the consumer deals simply with the builder to express his yea or nay as to whether or not he wishes to purchase the "central residential cooling."

The purchase of that product is between the builder and the dealer-installer.

Therefore—and in almost every case, I might add, the dealer-installer and the house builder are dealing strictly in first cost for the complete system. Not simply the apparatus. In any event, the consumer does not walk into a store, such as brown goods or white goods store, and look at a unit, a Westinghouse or Carrier unit, or whatever, and have an opportunity to view these tags.

He doesn't go in the store. And even if he did go in the store, as might be the case in the aftermarket, although unlikely, he might go to the dealer-installer's store, the dealer-installer, first of all, would probably only have one brand in his showroom, if he had a showroom.

And, number two, it would be one piece of equipment of show a consumer the general configuration of what the heck the residential airconditioner is, the quality of the tin and screws and such, of the particular brand that he has.

But most times, even in the aftermarket, the consumer will do one of two things. He will look at the brand of furnace that he has, call up the dealer in town who carries that brand of cooling, get an estimate, and make the decision whether he can or cannot afford the first cost.

Perhaps the more discerning consumer will call two or three dealers in town and get proposals.

The transaction is normally carried out following a survey, in this event, by the people who are familiar with the apparatus, a survey by the dealer-installer, and a proposal handed to the purchaser's home.

Again, not an environment where a tag on a piece of apparatus serves any purpose in allowing the consumer to make the decision you are referring to.

We believe, however, that the ARI certification code and the presence of this directory, any transaction—obviously it is easy to carry around for a dealer-installer—is the method by which the energy-efficiency and the relative energy-efficiency, which is really the only thing under control here, can be viewed and a decision made by the consumer.

Senator TUNNEY. How do we control those manufacturers who operate out of your program—who say they don't want to be included in your directory?

Mr. FERRIS. Let me say, if we can get 95 percent coverage, I think we have done a great deal. I think with time, the percentage of non-

participants gets even smaller and smaller. The pressure on the manufacturer from the reseller to have ARI-certified products is intense. That is No. 1.

Now, No. 2, which is an important facet to the certification program, the manufacturer does not need to be a member of ARI to participate in this program, provided he is willing to sign the license agreement and pay the shipping fees.

We have seen a number of people in recent years capitulate, if you will, to the competitive pressures of this program and come in.

Senator TUNNEY. Of course, one of the difficulties that I suppose I have is what about the poor consumer that gets stuck with the cooling system that is manufactured by someone who is not under your program, and thereby gets a system which perhaps is far less efficient than the 95 percent of the systems which are included in your program. I can understand from your point of view how you are very proud of this directory and your feeling is that 95 percent is a pretty good ratio.

I am not at all sure that those of us who are in the business of legislating for the public can accept a view that we should have 95 percent coverage and just forget about the people who might pick up the lemons that represent the 5 percent.

Mr. FERRIS. Well, No. 1, of course, we are manufacturers of apparatus. Not the complete system. That is No. 1. We can't control beyond that point.

And No. 2, as I pointed out, we are spending all of the money that we can afford, in good times and bad, to protect the consumer, if you will, to get this program to 100 percent.

And in addition, we strive to obtain space in shelter publications by offering very substantive articles to consumers on the merits and the benefits of the Air Conditioning and Refrigeration Institute, and the benefits of certified equipment.

Senator TUNNEY. I might say that I think that your directory here is extremely impressive. I think it certainly does, from just a cursory glance at it, it does what you suggested you want to do, and that is provide very detailed information as to the energy consumption of the various units, and the energy-efficiency rating that is given to the various systems. It suggests that some systems are extremely efficient, a 9.1 rating, whereas others are quite inefficient, using your standard scale, having a rating somewhere around five.

Mr. FERRIS. Senator, I would like to, if I may, interrupt you for just a moment. I would like to ask Mr. Sparks to speak to the Florida labeling law and that directory because I think you would be interested in it.

Mr. SPARKS. Mr. Chairman, I am sure you know that a few States already have passed labeling laws, energy labeling laws.

Florida is one of these. In early 1974 the Attorney General issued an opinion down there which announces that reference to our directory is equivalent, is conforming to the requirement of putting a label on equipment, and that an installer-contractor down there, if he refers to the directory and gives that information to the buyer, and that is an EER number, he will be conforming to the requirements of the labeling law down there.

It is a recognition on the part of the Attorney General that the directory is an authoritative reference on this, and also brings to the attention of the public that this directory is authoritative and is available to them.

Senator TUNNEY. Well, that is interesting. Of course, one of the problems that we have in passing legislation which is too restrictive in the specific requirements as to what should appear on the label is that you have a change in the cost of energy, you have specific situations, such as the one that you refer to with your industry, that the consumer probably never sees the unit on the shelf, he only sees it once it is in the house. And it is the contractor who actually makes the choice as to the unit, and therefore, there ought to be, perhaps, a greater degree of flexibility as to the requirements of labeling than maybe is provided in the bill that I have introduced.

I want to say that I am very appreciative, Mr. Ferris, of the great amount of effort that you have put into the analyzing of S. 349. Your comments have been extremely helpful. I would like to continue to stay in touch with you, as we begin to draft the final version of the legislation, using hopefully the best aspects of the administration bill and the best aspects of the bill that I have introduced.

Mr. FERRIS. We would be very pleased to, Senator. Mr. Munger, of course, and the office of the ARI staff are here in Rosslyn, Arlington, right across the river, and we would be pleased to work with you and your staff.

Senator TUNNEY. Good.

That would be very helpful.

In your presentation you question the preemption clause in S. 349, stating that it might place an undue burden on the manufacturer. But don't you believe that the provisions of the preemption give significant protection to the manufacturer? It requires, and I quote here, "Upon petition by any state or political subdivision thereof, the Commission may, by rule, after notice and opportunity for presentation of views, exempt from the provisions of this Subsection"—excuse me, I am reading from page 16 of my bill now, section 23, Preemption. It is line 18. "Upon petition by any state or political subdivision thereof, the Commission may, by rule after notice and opportunities for presentation of views, exempt from the provisions of this subsection under such conditions as it may impose any state or local requirement, that, (1), affords protection to consumers greater than that provided in the applicable Commission rule; (2) is required by compelling local conditions, and (3) does not unduly burden commerce."

Mr. FERRIS. Let me answer that in three parts, if you will. First of all, manufacturers, as you can appreciate, of this type of product are producing standard goods. They are not built as custom components. If you are a reseller, let's say, which would be a customer of the manufacturer, in an area such as Washington, you would have to cope with D.C., Maryland, and Virginia regulations. In New York, with New Jersey, New York and Connecticut regulations. As the law is, perhaps Illinois and Missouri. It is difficult for a manufacturer to cope with this situation, particularly with respect to standard apparatus.

Number 2, I would like to draw on an experience that we have had in the State of California with the Los Angeles Testing Laboratory

and the City of Los Angeles, which has a very stringent code, believe me, one of the most stringent in the country, with the simple clause, if the apparatus is certified by Underwriters Laboratory and carries their seal, that is the end.

There is no further involvement with the City of Los Angeles code.

Likewise, the State of Washington, as you may be aware, is attempting to adopt the Underwriters Laboratory code for all electrical apparatus. Electrical apparatus way beyond the capability of Underwriters Laboratory to test and certify.

So, I think the interest in the States is to find a Federal or nationwide code, if you will, not a government code, necessarily, but a nationwide code that they can adopt into their city codes or State codes. It is to their advantage, actually.

And to reiterate the first answer, I think it would make it very difficult, no matter. You know the point being implied here, if a code on the part of a State or city is more stringent than the national code, it is better. I mean that is the implication. I don't think that we can cope with that, with the volume of products that are sold on a nationwide basis in this industry.

Senator TUNNEY. Well, there are two provisos for getting out from under, that I think are relevant to what you just said. "If required by compelling local conditions," and "does not unduly burden commerce."

What you have suggested would unduly burden commerce.

Mr. FERRIS. I think that I have to say that, you know, I can't—

Senator TUNNEY. What you are concerned about is the fact that it is going to be a decision made by a man or a woman, and that, therefore, you are never sure.

Mr. FERRIS. I couldn't have answered it better. Thank you.

Senator TUNNEY. Well, I really appreciate your testimony. It has been very helpful, and we will be in touch with you.

Mr. FERRIS. Thank you.

[The statement follows:]

STATEMENT OF RICHARD F. FERRIS ON BEHALF OF AIR-CONDITIONING AND REFRIGERATION INSTITUTE

My name is Richard F. Ferris. I am Product Line Manager for Environmental, Construction and Industrial Products, International Telephone and Telegraph Corporation, headquartered in New York City. I appear here today in my capacity as Treasurer and a Director of the Air-Conditioning and Refrigeration Institute, a national trade association of 173 manufacturers who produce more than 90 percent of all U.S.-made equipment, as well as related components, used in refrigeration systems and air-conditioning systems.¹ The organization is commonly known as ARI, and I shall refer to it in this statement.

I welcome this opportunity to express views on S. 349, a bill to assure meaningful disclosure of the annual operating costs of certain products, automobiles and systems, and S. 594, a bill to increase domestic energy supplies and availability and to restrain energy demand. Because members of ARI manufacture and market components of climate conditioning systems, as defined in S. 349, because such climate conditioning systems are installed in new residential buildings which would be affected by the proposed prescriptive and performance energy conservation standards which, in part, are the subject of Title XII of S. 594, and because many of the components made by ARI members also fall within the definition of "appliance" in Section 1203 (b) of Title XII of S. 594, these members have given careful study to the provisions of these two bills.

¹ A list of ARI's members follows the text of this statement as Attachment 1.

The products of ARI-member companies which would be affected by these bills are:

(1) central residential air conditioners, each commonly consisting of a cooling coil, located in an air-duct system inside the home, and a condensing unit located outdoors;

(2) residential heat pumps, having the same components listed above, but arranged so that they might both heat and cool a residence through the central ducting system;

(3) components of systems for commercial and industrial refrigeration and air-conditioning systems, including heat pump systems, for large structures such as centrifugal refrigerant compressors, coils for refrigeration, cooling or heating, packed equipment used for refrigeration or air conditioning, fans and blowers for circulating air, and various types of valves or other devices for controlling the flow of air, refrigerants, water, and brines, etc;

(4) humidifiers, designed to add moisture in winter to air circulated through an air-duct system; and

(5) air filters, designed to remove particulate matter from the air circulated through an air-duct system.

The members of ARI are acutely aware of the fact that the nation's shortage of energy is serious. We are agreed that energy conservation is a national necessity. We are very much aware of the consequences of this shortage in our industry, and we support programs which will effectively bring about the proper use of our energy resources.

We recognize that a major economic problem for the long term future is to make the most effective use of our nation's energy resources. Air-conditioning equipment must be manufactured, and systems designed and operated, so as to achieve optimum energy utilization. Our engineers and designers are engaged in this effort and are increasingly succeeding in their striving toward this goal.

We feel that legislation and regulations dealing with energy use, if required, may appropriately be directed toward achieving these goals; however, we believe that the government should establish guidelines rather than legislating specific and perhaps restrictive means to achieve such objectives.

Before making specific comments on these bills, ARI wishes to emphasize that air-conditioning and refrigeration equipment installed in a structure are not factory-finished entities, ready to be unpacked and put to use by the purchaser. Instead, they are a group of system components which perform their intended function only after they are fully integrated in a system engineered for the structure at the site. The air conditioner cannot cool air, the humidifier cannot add moisture to the air, the heat pump cannot warm or cool, and the filter cannot clean air until they become a part of a functioning air-duct system within the home of the consumer. Someone other than the product manufacturer must carry out the essential tasks which allow the product to perform its intended function.

Most equipment manufacturers in the industry sell their products to distributors or wholesalers, who in turn sell to retailing and installing contractors. (A few sell directly to contractors.) In the normal course of business, manufacturers do not specify or select equipment for a specific installation. For example, the equipment manufacturers do not install their products in the homes of the ultimate purchasers of central, residential air conditioners. Instead, the system components are selected, sold and installed for the consumer by an installer-contractor, who performs multiple roles of the retailer, system designer, equipment selector, and system installer. It is to this retailer that the consumer must look, and upon whom he must rely, for selecting equipment of a proper type and capacity required to provide comfort in his home.

This retailer does more than select, sell and install equipment. In effect the retailer-contractor "manufactures" the air-conditioning system on the consumer's premises. As a result of a survey and calculations using engineering data, he determines the type and capacity of equipment which is needed. He selects and purchases the specific products which will become parts of the air-conditioning system. Often these will include products of several different manufacturers—an air conditioning unit from one manufacturer, a heating unit from a second, a humidifier from a third, and a filter, perhaps from yet another manufacturer. He selects, positions, and installs the air control devices that supply and return conditioned air within the occupied space. He makes appropriate utility connections, and he starts and adjusts the system for the proper operation.

The skill of the installer-contractor in carrying out this manufacturing process directly affects the consumption of electricity by the air-conditioning system. The basic engineering on the size of the unit needed, the calculations in properly sizing the air-ducts, and the decisions in selecting the type of wiring, the type of air outlets and the routing of ducts through the floor plan of a home, commercial or industrial building all are vital to the ultimate efficiency of the system and have a significant effect on the amount of energy the system will consume.

Therefore, both the consumer and the equipment manufacturer rely heavily on the skill and judgment of the designer and the installer-contractor. The consumer relies on them for system performance; the equipment manufacturer relies on them to perform this function with the degree of skill required to insure that the system components—the manufacturer's products—will perform as they are intended to perform.

Concerned though he must be about the ultimate disposition of his product, the equipment manufacturer can exert no real control over any sale except the one which he himself makes to the distributor of his product. He cannot control his distributor's sale to the retailer-contractor, nor can he control the retailer's sale to the consumer. Either type of interference would constitute a violation of the antitrust laws.

There are, therefore, significant differences between the products of ARI members and other household equipment classified as "appliances." The differences are in the manner of marketing, the degree of readiness for immediate use when the products leave the factories of their respective manufacturers, and the steps required to be taken before the products can be considered as a completed system and ready to perform its intended function.

S. 349 recognizes these facts through its definition of "climate conditioning system," beginning at line 15 on page 4 of this bill. It also recognizes this by dealing with climate conditioning systems separately from "major energy consuming household products" (page 6, line 10), and by specifically separating its consideration of the "supplier" of a major energy-consuming household product from the "supplier" of a climate conditioning system, defining the latter as an engineer or contractor who is designing such a system in a previously unoccupied building.

We believe that these factors must be clearly kept in mind when considering this bill, and that air-conditioning equipment should be regarded as components of climate conditioning systems, including central residential systems, rather than major energy-consuming household appliances in the context of this bill.

Furthermore, it should be noted that the air-conditioning and refrigeration equipment installed in a structure is only a component of the larger system which is a part of that building. For each such system, there are at least four distinct stages in which decisions affecting energy consumption are made.

These stages are:

- (1) design of the structure suitable for its intended use and of compatible systems, which includes selection of equipment required by these systems;
- (2) installation of the systems, including their components;
- (3) operation of the systems; and
- (4) maintenance of the systems.

In virtually all instances, a given organization will perform no more than one or two of these functions. As a consequence, and despite their concern, the manufacturers of the system components usually have no direct control over the proper application, installation, operation and maintenance of their products in the larger system. The manner in which each of these functions is performed will substantially affect the amount of energy consumed by the system.

In light of these considerations, ARI members agree that users of products which consume energy should be provided with information which will enable them to know the energy-consuming characteristics of the products and systems which they operate. We believe that disclosure of such information and data should be made by the person or persons responsible for the final design and/or assembly of the system. In the case of commercial, industrial and institutional buildings, including special-use structures such as refrigerated warehouses, the disclosure of energy consumption by air conditioning and/or refrigeration systems should be provided to the owner or operator by the designer of the system or the structure. Manufacturers of system components in an air-conditioning system or refrigeration system can and should provide sufficient data to allow the designer or installer, after taking into account the local climatic data, to calcu-

late and disclose to the user the approximate amount of energy which will be consumed in normal operation of the system.

Where it is appropriate, manufacturers should provide data which will allow the designer or installer to calculate the cost of the energy required to operate the system. The manufacturer certainly cannot supply operating cost information, since the cost of this energy varies from one market or community to another. To be at all effective and informative, such a cost disclosure would have to take into consideration these local utility costs. In addition, this disclosure would have to be based, in part, on local climatic conditions. The basic data for these factors will not be easily available to component manufacturers. They would be available to component manufacturers. They would be available, however, to the system designer.

S. 349

S. 349, which is similar to S. 3938 (93rd Cong.), had its genesis in S. 1327 (93rd Cong.) and S. 2176 (93rd Cong.). The latter bill was passed by the Senate but never became the subject of hearings in the House of Representatives during the 93rd Congress.

These bills all treated "major energy-consuming household products" differently from "climate conditioning systems." In general, they called for labeling by the manufacturer on major energy-consuming household products—generally classed as "appliance"—and called for some type of disclosure of the estimated annual cost of operation by the designer or contractor who installs the climate conditioning system.

We favor the approach in S. 349 which places the responsibility for disclosing estimated operating cost of a specific system on the engineer or contractor who is designing that system. (See page 6, line 18; page 10, line 12, *et seq.*)

Members of ARI do not believe that S. 349 should be limited in its application to previously unoccupied buildings. Section 19(3), at line 15 on page 4, Section 19(11) at line 18 on page 6, and Section 21(a) at line 12 on page 10, all contain this limitation. We believe that it should apply to both new construction and previously occupied buildings.

Many studies and investigations made in recent years indicate that energy consumption can be reduced substantially in commercial, institutional, governmental, industrial and residential buildings already in place. As the editor of *Airconditioning and Refrigeration Business* magazine pointed out in its February, 1975, issue:

"This priceless energy is being wasted in . . . existing commercial, office, school, hospital and government building space throughout the country, not to mention the energy loss in . . . homes or . . . factories.

"The technological know-how to save this energy has been practiced by engineers in the heating, ventilating and air conditioning industry whenever they had the opportunity to do so. The hardware to implement energy savings was developed long ago by the HVAC manufacturers and, as a matter of fact, is on the shelf. A sufficient number of buildings around the nation stand as proof to the energy efficiencies possible, and as proof that the technology and hardware is known and available."

In line with this conclusion, we believe that S. 349 should be directed not only to new construction, but also to a separate program to modify, alter or refit such buildings in the heating, cooling and lighting areas. It was estimated by *Airconditioning and Refrigeration Business* that such a program made applicable to Federal, State, county and municipal buildings alone could be paid back to government in a maximum of five years out of operating budget savings.

Similarly, we need a massive educational program directed to energy-wise operation by managers of commercial and industrial buildings and by homeowners using climate conditioning systems. Such an educational program should be an essential part of the energy policy of the United States. It should emphasize what the user himself can do to make the best possible use of energy in his own building or his own home and, simultaneously, to reduce his own energy costs. These efforts would have the dual effect of conserving energy and making the consumer energy-conscious, so that when he does purchase equipment for his home or for any other structure, he will consciously consider energy utilization characteristics as an important factor in determining the specific product to be purchased. Until the user does this, energy labeling or a disclosure of the estimated cost of operation can have only a small effect toward conserving the nation's expenditure of energy in climate conditioning systems.

The Air-Conditioning and Refrigeration Institute believes that it is impossible to over-emphasize the importance and potential energy-saving benefits of such an educational program. We believe there is far more potential for conserving energy in the wise operation of equipment already in use, than there could be, for many years, in the gradual movement of more efficient products from design to production, distribution, sale and, finally, use in buildings. We believe that all possible steps to achieve such improved levels of maintenance and operation should be of the highest priority. We urge the Committee on Commerce to consider the importance of this matter.

S. 349 should be addressed, therefore, both to new construction and to presently occupied buildings. Retrofitting existing structures with materials, equipment and systems which will make them more energy-efficient is possible and may be necessary in some cases. Whether retrofitting is carried out or not, large amounts of energy can be saved *now* by improved operation and maintenance of existing systems in buildings.

We believe that the intention of the drafters of this bill in Section 21(a), beginning at line 12 on page 10, is to require that the supplier of a climate conditioning system installed in a previously unoccupied building disclose, prior to the sale or lease of the building, his estimate of the annual operating cost of that system. "Supplier" is defined in Section 19(11) at line 18 on page 6, as "any engineer or contractor who is designing a climate conditioning system for use in a previously unoccupied building." Section 21(a) does not clearly require this disclosure by the supplier.

As it reads in the bill, Section 21(a) provides:

"Beginning 18 months after the date of enactment of this section, it shall be unlawful for any supplier or person to sell or offer for sale in commerce for purposes other than resale any new major energy-consuming household product for which such procedures have been adopted; or new automobiles; or to sell or lease, or to offer for sale or lease, any previously unoccupied building from which a climate conditioning system has been designed subsequent to the adoption of such procedures; unless the estimated annual operating cost of such product, automobile, or system is disclosed by the supplier or person prior to any such sale or lease."

This seems to assume that the supplier will be the seller or lessor of a previously unoccupied building containing a climate conditioning system designed subsequent to the establishment of model calculation procedures by the Federal Trade Commission. No *direct* burden is placed on the supplier to disclose the estimated annual operating costs to the buyer or lessee of the building if he is not the seller or lessor.

Furthermore, Section 22(a), at line 18 on page 14, makes "violation of any disclosure provision of Section 20 or 21" an unfair or deceptive act or practice and subject to proceedings under Section 5 of the Federal Trade Commission Act. It is not at all clear that Section 21 speaks to the supplier who is not a seller or lessor of a building, and it certainly is not clear that the penalties which Section 22(a) provides are to be applied to any supplier mentioned in Section 21(a) unless he is a seller or a lessor. We believe the language of Section 22(a) should be altered to much more clearly comply with what we think is the intent of the drafters of this bill.

We have some specific comments about the language of S. 394 which may be helpful to the Committee during its consideration of this bill.

On page 4, line 18, "climate conditioning system" is defined as any system which is designed to be installed or is installed in a previously unoccupied building for the purpose of artificially controlling temperature or humidity levels in such building or portion thereof. This suggests that only air temperature or humidity are basically controlled. We suggest that air quality—through natural or forced ventilation, as well as filtration or otherwise—also may be controlled. We suggest that language such as "... artificially controlling the temperature, humidity or quality of the air within such building ..." may be a more accurate representation.

On page 5, line 18, "fuel" is defined as butane, coal, Diesel oil, fuel oil, gasoline, natural gas, propane, or steam obtained from a central source; or any other substance which, when utilized, is capable of powering a major energy-consuming household product, automobile, or climate conditioning system. The weakness of this definition is that it makes no distinction between energy sources used for the first (and usually last) time in the product, and energy sources which are the waste of products from other devices—such as Diesel engine exhaust

gas to heat water, turbine exhaust steam to operate an absorption refrigeration system, etc. The key factor seems to us to be *depletion*; solar energy and wind power, for example, are not subject to depletion. We suggest an alternative definition: "Fuel means any natural resource or derivative thereof, used directly or indirectly to power a major energy-consuming household product, automobile or climate conditioning system and whose use causes a depletion in the availability of such natural resource." (Elsewhere in the bill, "electricity" is distinguished from "fuel.")

The requirement in this bill which calls for the Federal Trade Commission to establish model calculation procedures for use in determining the estimated annual operating cost of climate conditioning systems refers in line 7 on page 10 to the "best possible utilization by the Commission of appropriate existing procedures and professional expertise." The same definition also speaks of consultation by the Commission with organizations representing the climate conditioning industry. The certification programs of ARI, set up to give assurance to consumers, engineers, contractors and specifiers of industry products, are an important example of "appropriate existing procedures and professional expertise" which may be of assistance to the Commission. These ARI programs, open to both members and non-members of this trade association, are each based on an ARI standard which is produced by product-section engineering committees composed of industry experts. Under these certification programs, participants agree, pursuant to firm contracts, that they will:

- (1) submit test data on products to be certified;
- (2) allow random testing by an independent laboratory on products to be certified;
- (3) derate, re-engineer or withdraw from the market models which do not comply; and
- (4) comply with these procedures on all their models in the specific program.

We believe that the professional expertise rising out of ARI activities, and in particular out of these certification programs, can be very valuable to the Commission in developing model calculation procedures if this bill is enacted into law.

In Section 21(a), beginning at line 6 on page 11, it is provided that "if estimated annual operating costs are significantly different in the different sections of the country, communications covering more than one such section in the form of mail-order literature, catalogs, brochures or other media which contain price data shall contain national average values of estimated annual operating costs and shall disclose clearly and conspicuously that the estimated annual operating costs of such products for any specific section of the country may be obtained from the supplier." While this section is primarily applicable to major energy-consuming household products, we think the Committee should consider the fact that the use of national averages should be (and can be) avoided, as they can be contrived to imply misinformation. It is not common practice in mail-order literature to include the amount of information called for in this provision of the bill: we believe the manufacturer, in his general producer literature, should be permitted to reference his catalog or specification sheet on which such information customarily is included, and should be allowed to point to local sources having such information as means of correction for specific localities or regions, utility rates, etc.

We call to the attention of the Committee that it is important to keep in mind, in connection with this and other energy bills, that the nation's goal must be to make the most effective use of its energy resources. Legislation relating to energy use should always be directed toward achieving this objective. It must be recognized that the manufacture of equipment which is more efficient in conserving energy requires the use of increased quantities of energy-intensive and frequently scarce materials. The cost of the additional energy used in the production of these materials will be reflected in the cost of the more efficient products. Total energy conservation must strike a constructive balance between the increased requirements of the energy-intensive materials and the decreased energy requirement of the more efficient products.

ARI believes that laws and regulations which relate to the disclosure of energy utilization should be uniform in all essential characteristics. If nonuniformity exists, manufacturers who sell in more than one affected jurisdiction will be required to provide different information—and perhaps different products—to purchasers in different jurisdictions at substantial extra costs to users and without benefit to users or the public. Similarly, architects and engineers who design

buildings and the energy-consuming systems included in those buildings will be forced, absent this uniformity, to use different design criteria and calculation procedures. The members of ARI believe that reasonable Federal preemptive legislation would be far preferable to a myriad of conflicting State and local laws and regulations. A Federal law should preempt any rules, regulations and laws which conflict with its provisions.

The importance of a strong and effective Federal preemption of State and local laws on energy labeling increases every day. State and local bodies are considering proposals to require energy labels of several different varieties and some of these proposals already have been enacted into law. Virtually every State and local program will differ from every other one. This will present a very troublesome problem for the manufacturers of products to which such laws apply. The manufacturer will find it very difficult, if not impossible, to comply with these differing laws and regulations. This will be especially the case if the State and local laws require the manufacturer to place different energy labels on products being shipped into different market areas. Such labels have to be placed in the shipping carton with the product at the time it is packed, and in some cases this packing occurs long before the ultimate destination of the product is known.

In addition, we must point out, the product may be shipped to a distributor or installer-contractor who serves a multi-state area. Shipments to St. Louis, Mo./Ill., Kansas City, Mo./Kans., the New York-New Jersey-Connecticut area, and Washington, D.C. (serving suburban Virginia and Maryland) are only a few examples. If jurisdictions surrounding the point of receipt of such a shipment were to enact energy-labeling statutes or ordinances, it is inconceivable to expect that they would be identical, and compliance would be very expensive, if even possible.

While we favor very real protection to consumers in their purchase of all products, including air-conditioning and refrigeration equipment, we believe that the preemption requirements of S. 349, as set out in Section 23 (a) and (b), beginning at line 8 on page 16, are not realistic. Instead, we favor the preemption requirement of S. 594, stated in Section 1211 of that bill, beginning at line 5 on page 129. This provides that Title XII supersedes "any and all laws and regulations of the States or political subdivisions thereof, insofar as they may now or hereafter provide for the disclosure of energy use or consumption, energy efficiency, efficiency ratio or annual operating cost of any product, if there is in effect and applicable any specification with respect to such product."

Section 23 of S. 349 contains only a qualified preemption. It provides as above, but goes on to provide that "upon petition by any State, or political subdivision thereof, the Commission may, by rule, after notice and opportunity for presentation of views, exempt from the provisions of this subsection, under such conditions as it may impose, any State or local requirement that (1) affords protection to consumers greater than that provided in the applicable Commission rules; (2) is required by compelling local conditions; and (3) does not unduly burden commerce."

We fear that this qualified preemption in S. 349 is not a wise one and will result in an unnecessary burden on all interested parties. Federal preemption is crucial to our industry if an energy disclosure law is to be enacted, for unless manufacturers can sell their products in a uniform commercial climate, they will be severely handicapped. Ultimately, a similar handicap will be placed on the consumer by reason of the expense which would be placed on the manufacturer, the designer, and the installer-contractor.

S. 594

As background for our comments on S. 594, we believe it is appropriate to call to the Committee's attention the work presently being done by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., known as ASHRAE, in the area of conservation of energy and the control of environment. Starting from earlier efforts by the National Bureau of Standards (NBS) made at the request of the National Conference of States on Building Codes and Standards (NCSECS), ASHRAE is in the final stages of designing and issuing a standard on "Energy Conservation in New Building Design." It is known at present as "Standard 90P."

Prior to January, 1973, NBS engaged in writing the predecessor document, and at the Semi-Annual Meeting of ASHRAE in February, 1973, that draft was considered at length. The result of that consideration was that NCSECS turned

over an NBS draft of this standard document to ASHRAE, with the request that the Society proceed with the writing of a standard. Since that time, literally thousands of manhours and very considerable sums of money spent for travel and other expense have been donated by members of ASHRAE who formed the Project Coordinating Committee, the more than 100 other representatives of industry and the design professions who have prepared the draft and the thousands who have critically reviewed this draft. These are persons who are experts in this field and represent the best knowledge of the state of the art of construction materials, equipment, lighting, power, etc.

It is probable that the final draft of Standard 90P will be approved and issued as ASHRAE Standard 90 later this year. Once it is approved and issued as an ASHRAE Standard, it is anticipated that this standard will be reviewed and updated on at least an annual basis. This is a more frequent revision schedule than the present procedure for updating ASHRAE standards because, as this new standard is applied, areas which require revision will quickly become apparent.

The intent of Standard 90P is to provide a method of designing the energy-consuming systems in a building and then to evaluate its systems so that the overall energy consumption can be reduced to a minimum while still maintaining occupancy comfort—both physical and visual. The purpose of the standard, therefore, is to provide performance-oriented design and evaluation criteria for energy-efficient buildings.

The performance requirements and criteria contained in Standard 90P are directed toward the design of building envelopes with high thermal resistance and low-air leakage, and toward requiring practices in the design of improved mechanical or electrical systems which promote the efficient usage of energy. Such efficient use of energy can be achieved by the use of energy without following each and every detailed requirement. It is intended that these criteria will be flexible and that designers will be encouraged to use innovative procedures and techniques to achieve efficient utilization of energy.

Standard 90 will be important to the designer as well as to the ultimate owner or user of the building. Some chapters of the standard will have more importance because they directly affect the design of the building and may also affect its esthetics and its orientation. It is a well known fact that extra money spent in first cost for energy efficient design and equipment can, and usually does, result in a lowered operating and/or life cycle cost.

ARI's comments on S. 594 will be addressed first to Section 1004 of that bill. Subsection (a) (1) would appear to eliminate such standards as ASHRAE Standard 90P. While that standard is being prepared by the private sector, it is clear that, by the time the standards covered by Section 1004 would be ready, Standard 90 will be adopted by many States. The prescriptive energy conservation standards for new residential buildings to which Subsection (a) (1) is addressed would have to be developed and published in the *Federal Register* within six months after enactment of Title XII. The final prescriptive standards would have to be developed and promulgated within six months after their publication, and would become effective one year after such promulgation.

In view of this apparent conflict, we suggest that Section 1004 should make provision for adoption of suitable existing private sector standards, specifically standards such as ASHRAE Standard 90.

The same considerations and the same comments apply to the proposed performance energy conservation standard for new commercial buildings covered by Subsection (a) (2) of Section 1004.

Section 1004(b) requires that all standards promulgated under this section take account of, and make such allowance as the Secretary of Housing and Urban Development determines appropriate for, climatic variations among the different regions of the country. To the extent that the standards referred to deal only with energy, and not first cost, operating and maintenance costs, and replacement costs, this paragraph is satisfactory. But the economic consequences of this type of rule should be weighed and balanced by the Committee.

Section 1005(a) prohibits approval by any Federal officer or agency of any financial assistance for the construction of a building in any area of a State unless that State has certified that the unit of general local government having jurisdiction over such area has adopted and is implementing a building code providing for the enforcement of an effective energy conservation standard promulgated pursuant to Section 1004, or unless the State certifies that a State code or re-

quirement providing for the enforcement of such a standard has been adopted on a State-wide basis or within the area in which such building is to be located.

This section strikes at the right of well qualified private sector organizations to prepare and have implemented by State and local jurisdictions such codes as are here under discussion. The National Electrical Code of the American National Standards Institute (ANSI-C1) and the Safety Code for Mechanical Refrigeration of the same organization (ANSI-B9.1) are examples in point. If a State or local jurisdiction has adopted a privately developed safety standard of comparable or more stringent requirements than the Federal document, this should be accepted. As a matter of fact, such standards should be eligible for consideration under Section 1004(a)(1), (2), and (3) of this bill. Section 1005(b) partly meets this objection, but it is for a temporary period. Such a code or requirement should be considered for acceptance on a permanent basis. We urge, however, that the Secretary be required to include safeguards on updating, etc.

At this point in our comments on S. 594, we wish to examine several of the definitions in Section 1003 of the bill.

In Section 1003(4), dealing with the "residential building," we suggest that provision be made for distinguishing between one- and two-family housing and multi-family housing.

Section 1003(5) deals with the "commercial building." We suggest that additional language be added so that this definition refers to "any building developed for use other than residential occupancy, including buildings developed for industrial or public use, with the exception of those portions of a building which houses processing or fabricating equipment or operations which do not require maintenance of 'comfort' conditions."

Section 1003(12) deals with the "prescriptive standard." We suggest that language be added to this definition so that it refers to "a minimum standard describing the materials or the means, such as structural components, systems and subsystems, to be employed to meet the prescribed thermal or energy consumption requirements of a building and/or component thereof."

Standard 1003(13) speaks to the "performance standard." This definition seems inconclusive and contradictory. We suggest that it be altered so that the definition refers to "a minimum energy conservation standard for various classifications of buildings which places an upper limit on energy losses through the building envelope, and the maximum energy input, or minimum operating efficiency, on the equipment and systems in connection with heating, cooling, ventilating, lighting, or providing domestic hot water for a building, and which may include or be accompanied by one or more illustrative prescriptive solutions which meet the performance requirement specified." Many standards are written for which illustrative examples are unnecessary and could be construed as restrictive.

Summary of Title X

In effect, Title X is directed toward the establishment of a Federally-developed national building code. ARI believes that the proponents of this bill should offer inducement to existing groups in the private sector to join together to produce such a code on a basis acceptable for meeting the needs which prompted the bill. Section 1009 is one such approach, but it does not make specific provision for the new National Institute of Building Sciences or for other groups (such as a coalition of the principal building code organizations) to be encouraged to develop a single code.

Title XII

On October 24, 1973, the Assistant Secretary of Commerce for Science and Technology, Betsy Ancker-Johnson, issued procedures for a voluntary labeling program for household appliances and equipment to effect energy conservation. The goal of this program has been to encourage manufacturers to provide consumers, at the point of sales, with information on the energy consumption and energy efficiency of household appliances and equipment. Manufacturers who agree to participate in this program uniformly display such information on labels attached to energy-consuming appliances and equipment which they manufacture and market.

The first voluntary energy conservation specification issued under this program, dated April 25, 1974, applied to room air conditioners. This program requires the use by participating manufacturers of labels stating the appropriate

energy efficiency ratio (EER) number on each room air conditioner they market. The program covering room air conditioners is receiving quite good acceptance from industry. As of December 23, 1974, 22 manufacturers had voluntarily agreed to participate. According to a spokesman of the Department of Commerce, these companies account for about 95% of sales.

At present, a second program is pending. It was proposed on December 31, 1974, and it will cover refrigerators, refrigerator-freezers and freezers. The proposed program for refrigerators, refrigerator-freezers and freezers offers the prospective buyer of one of these items an estimated cost of operating the particular model on which the label appears. This figure is based on a stated "rated energy consumption per month" and a stated electric rate. Buyers may convert the estimated cost of operation to their own situation by use of a conversion table on the label which gives figures for other electric rates.

In effect, Title XII would make mandatory this voluntary labeling program of the Department of Commerce. ARI recognizes that there is a need to make the most effective use of our nation's energy resources, and that air conditioning equipment must be manufactured, and systems designed and operated, so as to achieve optimum energy utilization. But we feel that legislation and regulations dealing with energy use should be directed toward the establishment by government of *guidelines*, rather than toward specific and perhaps restrictive means to achieve these objectives. While many ARI members are among those who have agreed to voluntarily cooperate with the Department of Commerce labeling program as it stands today, we feel that the establishment of this program as a mandatory program would not be wise.

Products which are within the ARI scope and would be eligible for inclusion in the mandatory labeling program under the definition stated in Section 1203(b) are central air conditioners and heat pumps which are installed as components of the system intended to heat and/or cool a dwelling unit or a commercial establishment.

We believe that placing energy labels on central residential air conditioners would be of limited value for two reasons. The first is that such a provision would require that information, already available as a result of voluntary industry certification programs, would be duplicated. The ARI certification programs on these products require that data on energy utilization efficiency, such as that which would be required by Title XII, is now published in a directory of certified products and is therefore available to contractors and to the public. This program is self-governing and the competitive pressures of the market place provides strong encouragement for manufacturers to participate. In fact, the manufacturers of approximately 95 percent of central residential air conditioning and heat pump equipment participate in these certification programs. The members of ARI are proud that the industry has recognized the legitimate consumer needs for certified rating and energy consumption information and that the industry has responded to satisfy this need.

The second reason for questioning the value of mandatory energy labeling stems from a recognition that the consumer seldom purchases a central air conditioner in such a way that he is exposed to labels or displays which might inform him adequately of the energy utilization characteristics of products identical or similar to one which might be installed in his home. (This is one respect in which the purchase of a central air conditioner differs from the purchase of a room air conditioner or other appliance.) Although large retailing organizations which sell central residential air conditioners may display a few sample models, by far the greater portion to have an opportunity to inspect an air conditioning unit or to be significantly exposed to information relating to the energy consumption characteristics of the equipment.

In 1972 about two-thirds of the central residential air conditioners sold went into new construction, including single-family homes, apartments and mobile homes. In most such instances, the consumer has no voice in the selection of the air conditioner. The owner or builder of an apartment or commercial establishment—or perhaps his architect or engineer—specifies the equipment that is to be installed. In single-family homes, the equipment is usually specified by the developer: the consumer purchases a finished structure and all the equipment in it, including air conditioning. An exception to this general rule might occur with a customer-designed and built single-family home. Air conditioning for a mobile home is usually an "extra" installed by the dealer or a contractor retained by him. There may be some opportunity here for a consumer's concern for energy to influence the equipment selection.

This type of consumer, therefore, generally has little chance to influence the selection of central air-conditioning equipment with improved energy utilization characteristics. Indeed, the speculative character of construction markets suggests that any improvement in energy utilization characteristics of a product would not be an effective incentive for purchasing if the improvement is accompanied by an increase in product cost. As we have pointed out earlier in this statement, only consumer awareness of and concern for energy conservation can alter this situation constructively.

The approach of Title X, calling for a disclosure of energy efficiency by the engineer or designer of a central air conditioning system to the buyer of the system or the purchaser of the building in which such a system is already located, is a much more realistic way of getting efficiency or cost information on a central air-conditioning system to the purchaser of the system or building in which it is contained. Additionally, system specifications calling for higher component efficiency will put the desired pressure on manufacturers to improve their products.

In the replacement or add-on market, there is a somewhat greater opportunity for the consumer to be effectively made aware of the energy utilization characteristics of equipment which he purchases. Most frequently, the consumer contacts several contractors and asks them to survey his home and to prepare a proposal on the cost of installing air-conditioning equipment. The survey—actually a measurement of room and window sizes, a determination of the amount of insulation installed in the home, and a calculation of the heat gain in the structure—is usually conducted within the home. The contractor's proposal may even be completed and given to the consumer at that time.

The consumer usually does not visit the contractor's place of business and he is not exposed, therefore, to floor samples on display or to sales literature. In fact, a contractor is unlikely to have a specific model on hand which he can show the consumer, for he usually obtains the equipment from his distributor after the sale has been made. Unless the consumer specifically asks for the information and conscientiously compares data received from competing contractors, he is unlikely to be aware of the energy utilization characteristics of the equipment which he may eventually purchase.

ARI members do not favor a mandatory energy labeling program for central air conditioning and heat pumps because they fear that developing this program on a mandatory basis could be an exercise in futility in so far as it would affect energy use. If an individual manufacturer wishes to participate in a voluntary program, he should be allowed to do so. But a mandatory program of this type would not be constructive.

Even though we do not favor a mandatory energy labeling program, we believe and hope it would be helpful for us to comment on Title XII.

Section 1202 (a) (5) places primary responsibility for the efficient utilization of energy on manufacturers of energy-consuming major appliances and motor vehicles and the purchasers and users of these products. Yet comparable responsibility lies with others, such as industrial users of energy—chemical processors, those who transform ores into metals, those who manufacture structural elements, etc. This paragraph puts the whole burden on just two classes of users of energy.

The definition contained in Section 1203 (a) should apply to the term "manufacturer," and it should include not only "any person" but "any person or entity" engaged in the manufacturing or assembling of new products, etc.

The definition of "appliance" in Section 1203 (b) recognizes "energy in the form of fossil fuels" while elsewhere (Sec. 1202-a-1) it differentiates between "fuel resources" (of which fossil fuels are part) and their use "in the production of energy." It might be preferable to treat fossil fuels, in either crude or refined form, as forms of energy.

The wording in Section 1203(e), defining the term "energy efficiency" seems to be reversed. In addition, we believe that instead of using the words "energy use" in this definition, the words "energy input to" or "energy absorbed by" would be preferable, since in some instances the total "energy use" could be more than its use for the service performed by the product. For example, a gas turbine-driven centrifugal refrigerant compressor would receive gas fuel to perform the refrigerant compression phase of a refrigeration cycle, and the hot products of combustion exhausted by the turbine would be used in an absorption refrigeration machine, essentially without additional use of fuel resource energy. We suggest the following definition: "Energy efficiency" means the relation between the total output of services resulting from the energy input to a product,

and the amount of that energy input, as determined through test procedures contained or identified in a specification.

Section 1203 (f) would be better applied to the term "energy input." In order to accomplish the purpose of the bill, the performance of the product must be established under a wide range of conditions of its use. This range varies with the type of application, climatic situation, program of use, etc.; all conditions in this range would be "conditions of use." We therefore suggest a new definition: "Energy use" means the energy resources used by a product under specified conditions of use, as determined by test procedures contained, referenced or identified in a specification.

Section 1204 (b) calls for consultation by the President with appropriate Federal agencies, affected manufacturers, etc. We believe that it would be wiser to provide, as Section 1210 of this bill and Section 20 (e) of S. 349 do, for consultation with affected manufacturers, possibly to the exclusion of some manufacturers not identified, does not seem to us to be wise.

Section 1205 (a) (2) refers to ranges of energy efficiency and energy use. So far as products within the ARI scope are concerned (central air conditioning and heat pumps), these ranges are published in directories of certified products issued by ARI. We recommend that such publications as these directories be recognized and included in the wording of this subparagraph.

Section 1206 (a) allows comment on proposed specifications by interested persons for only 30 days following its publication in the *Federal Register*. This is an extremely short time in which to prepare an informed response to such a proposal, which in our case should represent a consensus of those in ARI concerned with one of our products. We suggest that this period be increased to a minimum of 60 days. In addition, there should be a provision for extension of time.

Section 1206 (b) refers to the specification which is to be adopted. For reasons already mentioned, we suggest that such a specification should permit reference to periodically issued directories or listings of certifying agencies such as ARI, the American Gas Association, the Association of Home Appliance Manufacturers and the like.

Where the range of energy efficiency of a product is not known at the time of publication, Section 1206 (c) calls for each manufacturer of that product to forward test data to the President. On the basis of this information, the President would be authorized to publish a range of energy efficiency values as an adjunct to the specification. It appears to us that as written, this paragraph tends to establish ranges with no indication of any means to motivate either improved ranges or increasing use of products in the upper part of the ranges which are published.

Section 1207 (b) provides that manufacturers must use labels reflecting revised energy efficiency and/or energy use ranges on all affected products manufactured after the expiration of 60 days following the publication of a revised table of ranges. Again, we think 60 days is very short. We suggest that this be 90 days.

Section 1207 (c) provides that if requested by the President, the manufacturer should provide, within 30 days of the request, the data from which the information included on the label and required by the specification was derived. This kind of data demand seems excessive. However, we suggest the following solution: If a certification program such as ARI's is available and accepted, the problem could be solved by calling for ARI to supply its director, with each manufacturer certifying that it lists all its models.

Section 1207 (d) provides that when requested by the President, a manufacturer shall supply at his expense a reasonable number of products to any laboratory designated by the President for the purpose of ascertaining whether the information placed on the label is accurate. In order to assure uniformity in testing, we believe that test programs in use by such certification programs as ARI's be considered to fill this requirement. In any event, "reasonable number" should be specifically defined.

Section 1207 (e) provides that a specification may require a manufacturer or his agent to permit a representative designated by the President to observe and inspect tests performed on products. We believe that the ARI certification program, which involves the use of an independent laboratory, should be allowed here.

As a matter of fact, Subparagraphs (b) through (f) of Section 1207 could be simplified greatly through the acceptance of certification programs such as ARI's.

Summary

As stated earlier, the members of the Air-Conditioning and Refrigeration Institute are quite conscious of the fact that the nation faces an acute shortage of energy. They are completely ready to support programs which, in a reasonable, constructive and positive manner, will effectively bring about more efficient use of our energy resources.

We appreciate the opportunity to express our views to this Committee. We hope that our opinions and suggestions have been received in the same constructive manner in which we have intended to offer them. If members of ARI, or its staff (housed in nearby Arlington, Va.), can be of assistance to the Committee, we hope you will not hesitate to call upon us.

ATTACHMENT 1

Addison Products Company.
 Aerofin Corporation.
 Aeronea, Inc., Environmental Control Group.
 Aeroquip Corporation, Industrial Division.
 Aire-o-dyne Filter Corporation.
 Airguard Industries, Inc.
 Air Kontrol Filter, Mfg. Co., Inc.
 Airtemp Division, Chrysler Corp.
 Airtherm Manufacturing Company.
 Alco Controls Division, Emerson Electric Co.
 Allied Chemical Corporation, Speciality Chemicals Division.
 Amana Refrigeration, Inc.
 American Air Filter Company, Inc.
 Americold Compressor Corporation.
 Aqua-Mist, Incorporated.
 Armstrong Furnace Company, Division of Johnson Corporation.
 Automatic Switch Company.
 Bally Case and Cooler, Inc.
 Baltimore Aircoil Company, Inc.
 Barber-Colman Company, Controls Division.
 Bard Manufacturing Company.
 Barkow Mfg. Co., Inc. Aug. G.
 Blissfield Manufacturing Company.
 Bohn Aluminum & Brass Corporation Heat Transfer Division.
 Brundage Company, The.
 Bryant Air Conditioning Company.
 Bundy Corp., Bundy Tubing Div.
 Cambridge Filter Corporation.
 Carrier Corporation.
 Carrier Air Conditioning Division.
 Carrier Machinery and Systems Division.
 Carrier Transicold Division.
 Century Engineering Corporation, Subsidiary of McCord Corporation.
 Cerro Copper Products, Division of Cerro Corporation.
 Chatleff Controls Division, A-T-O Inc.
 Climate Master Division, Weil-McLain Company, Inc.
 Climate Master Products, Division of Weil-McLain, Inc.
 Coleman Company, Incorporated, The.
 Consolidated Industries Corp.
 Continental Air Filter Co., Division Wehr Corporation.
 Controls Company of America, Subsidiary of The Singer Company.
 Copeland Corporation.
 Cutler-Hammer, Incorporated.
 Day & Night Air Conditioning Company.
 Dearborn Stove Company, Division of Addison Products Company.
 Dunham-Bush, Inc.
 Duo-Therm, Division of Motor Wheel Corporation.
 du Pont de Nemours and Company, Incorporated, E. I., "Freon" Products Division.
 Eaton Corporation Dispenser Operations.
 Ebco Manufacturing Company.
 Electro Air Division, Emerson Electric Co.
 Elkay Manufacturing Company.
 Environmental Control Systems, Inc.
 Environment/One Corporation.
 Essex Controls Division, Essex International, Inc.
 Fedders Corporation.
 Fiber Bond Corporation.
 Follett Manufacturing Co.
 Foote Mineral Company.
 Fram Corporation, General Products Division.
 Fraser & Johnston Company.
 Frick Company.
 Friedrich Refrigerators Incorporated.
 General Electric Company, Air Conditioning Products Division.
 General Electric Company, Food Service Equipment Business Department.
 General Filters, Inc.
 Halsey Taylor Division, King-Seeley Thermes Co.
 Halstead and Mitchell, Division of Halstead Industries, Inc.
 Hart & Cooley Manufacturing Co.
 Heat Exchangers, Inc.
 Heil-Quaker Corporation, Subsidiary of Whirlpool Corporation.
 Henry Valve Company.
 HERRmidifier Company, Inc.
 Hill Refrigeration, Division Emhart Corporation.

- Honeywell, Inc.
 Humid-Aire Corp.
 Hussmann Refrigerator Co.
 Imperial-Eastman Corporation.
 International Environmental Corporation.
 International Heating and Air Conditioning Division.
 Intertherm, Inc.
 I-T-E Imperial Corporation, Distribution & Controls Group.
 ITT Environmental Products Division, International Telephone & Telegraph Corp.
 ITT Fluid Handling Division, International Telephone & Telegraph Corporation.
 Jackes-Evans Mfg. Co.
 Janitrol Division, ANDRO Corporation.
 Johns-Manville Corporation, Fiber Glass Insulation Divisions.
 Johnson Corporation.
 Kaiser Chemicals, Div. of Kaiser Aluminum & Chemical Corp.
 Krack Corporation.
 Kramer Trenton Company.
 La Crosse Cooler Company.
 Larkin Coils, Inc.
 Lau Industries.
 Lear Siegler, Inc., Home-Siegler Division.
 Lehigh Inc.
 Lennox Industries Inc.
 Lima Register Company.
 Lithium Corporation of America, Inc.
 Luxaire, Inc.
 Manitowoc Equipment Works, Division of the Manitowoc Co., Inc.
 Marsh Instrument Company.
 Marvair Company, The
 McCord Corporation-Heat Transfer Division.
 McDonald & Miller ITT.
 McQuay Group, McQuay-Perfex Inc.
 Metal-Fab., Inc.
 Meyer Furnace Company, The.
 Modine Manufacturing Company.
 Morrison Products, Inc.
 Mueller Brass Co.
 Mueller-Climatrol Corporation.
 Owens-Corning Fiberglas Corp.
 Packless Industries, Inc.
 Paragon Electric Company, Inc.
 Parker-Hannifin Corporation, Air Conditioning and Refrigeration Division.
 Payne Air Conditioning Company.
 Penn Controls, Division of Johnson Service.
 Pennsylvania Engineering Company.
 Pennwalt Corporation.
 Queen Products Division, King-Seeley Thermos Co.
 Racon Incorporated.
 Ranco.
 Reading Industries, Inc.
 Refrigerating Specialties Company.
 Reliable Metal Products, Inc.
 Research Products Corporation.
 Rheem Manufacturing Company.
 Ritchie Engineering Co., Inc.
 Robertshaw Controls Company.
 Robinair Manufacturing Corporation.
 Ross-Temp. Inc.
 Russell Coil Company.
 Schnacke Inc.
 Scott Paper Company, Foam Division.
 Servodyne Corporation.
 Singer Company, The, Climate Control Division.
 Skuttle Manufacturing Company.
 Snowbird Industries, Refrigeration Division.
 Sporlan Valve Company.
 Standard Refrigeration Company.
 Stewart-Warner Corporation, Heating & Air Conditioning Division.
 Sunbeam-Mile High Equipment Company.
 Sundstrand Corporation.
 Sunroc Corporation.
 Superior Valve Company.
 Tappan Company, The, Air Conditioning Division.
 Tecumseh Products Company.
 Temtrol Inc.
 Texas Instruments Incorporated.
 Therm-Air Manufacturing Co., Inc.
 Thermal Specialties Co., Inc.
 Thermo King Corporation.
 Torin Corporation.
 Trane Company, The.
 Trion, Inc.
 Tyler Refrigeration Division, Clark Equipment Company.
 Typhoon Air Conditioning Company.
 Uniflow Manufacturing Company.
 Union Carbide Corporation.
 United States Gypsum Company.
 United States Register Company.
 Vilter Manufacturing Corporation.
 Virginia Chemicals, Inc.
 Wagner Electric Corporation.
 Walton Laboratories, Division of Melnor Industries.
 Watseo, Inc.
 Weil-McLain Company, Inc.
 Westinghouse Electric Corporation, Central Residential Air Conditioning Division.
 Westinghouse Electric Corporation, Commercial-Industrial Air Conditioning Division.
 Westinghouse Electric Corporation, Water Cooler Department.
 Whirlpool Corporation, Commercial Refrigeration Division.
 White-Rodgers Division, Emerson Electric Co.

Williamson Company, The.

Wolverine Tube Division, Universal Oil Products Company.

York Division, Borg-Warner Corporation.

Senator TUNNEY. Our next witness is Mr. Roger Sant, Assistant Administrator for Energy Conservation and Environment, Federal Energy Administration.

Welcome, Mr. Sant.

STATEMENT OF ROGER SANT, ASSISTANT ADMINISTRATOR FOR ENERGY CONSERVATION AND ENVIRONMENT, FEDERAL ENERGY ADMINISTRATION; ACCOMPANIED BY CHARLES R. INCE

Mr. SANT. Mr. Chairman, it is a pleasure to be with you this morning to discuss the bill that you have introduced, S. 349, as well as the Administration bill, S. 594.

There is clearly a need to provide more detailed and accurate information to consumers on operating costs. We share that goal in common and we look forward to working with you throughout the course of these proceedings to try and get the best bill possible.

Before discussing the legislation in particular, I would like to review briefly the first part of my testimony regarding the posture we find ourselves in in our energy policy.

In 1950, we imported no foreign oil; we were totally reliant on our domestic supplies and these supplies equalled our domestic consumption. By 1960, that had only slightly changed, but by 1970, it had changed more significantly, and, in 1974, we are now relying for almost 40 percent of our petroleum usage on imported oil.

Our findings indicate that by 1985, that figure will rise to 53 percent. We are extremely concerned over that trend; not only the increasing domestic consumption, but also the declining domestic supplies. As a result of this, the President has announced an energy program which includes very specific goals in the short term of reducing oil consumption by a million barrels a day in 1975, and 2 million barrels a day by the end of 1977.

By 1985, he has asked us to achieve a stature of self-reliance or independence. The total program the President has proposed is included in the omnibus bill and one portion of that bill is the energy labeling bill that we are going to discuss this morning.

In addition to that, there are a number of other proposals that deal with conservation, which we will have an opportunity to review with you, I'm sure, in the future, but I won't spend any time on those this morning.

Mr. Chairman and members of the committee, I appreciate the opportunity to appear before you today to present the views of the Federal Energy Administration on S. 349, the "Truth in Energy Act 1975" and title XII of S. 594, the Administration's "Energy Independence Act of 1975."

The need to provide more detailed and accurate information to consumers on the operating costs, particularly the energy costs, of major home appliances and motor vehicles has long been a major concern of FEA. We look forward to working closely with your committee in an effort to enact appropriate legislation.

Before I discuss the proposed legislation in detail, I would like to provide an overview of the Nation's energy problems in order to relate this important legislation to the rest of the President's energy programs.

Last winter's oil embargo demonstrated the vulnerability of the United States to foreign supply cutoffs. The embargo was one result of years of energy policy neglect which left the economy and its relationship with other nations subject to foreign influence, sudden disruption, and devastating price increases.

The problem can be seen by examining several disturbing trends in the Nation's energy situation.

First, and of most concern to us here today, is that the Nation's demand for energy has been growing at about 4.5 percent annually for the past 10 years. Demand for petroleum products has increased at even a more alarming rate.

Second, our domestic supplies of petroleum and other fuels has not kept pace with this increasing demand. In fact, in 1970, domestic production of crude oil peaked and has been declining ever since.

Third, the gap between domestic demand for energy and domestic supplies has been filled by an increasing reliance on imported petroleum. In 1960, the United States imported only 15 percent of its petroleum requirements. By 1973 this figure had grown to 35 percent and in recent months our reliance on imported petroleum has even surpassed 1973 levels.

Clearly, our Nation's deteriorating energy situation requires broad, decisive and prompt Government action to prevent continued erosion of our economy and national security. Reducing our vulnerability to supply interruption and price manipulation must be given the highest priority.

The President has prescribed tough action to cure our energy ills. He has outlined three, timephase goals:

No. 1. In the short term, a cut in our oil imports of 1 million barrels per day by the end of this year and of 2 million barrels per day by the end of 1977.

No. 2. By 1985, imports of no more than 3-5 million barrels per day—and the capability of immediately replacing that amount from storage and standby measures in the event of a supply disruption.

No. 3. Accelerated development of energy technology and resources so that the United States can meet a significant share of the energy needs of the free world by the end of this century.

ACTIONS TO MEET THE SHORT TERM GOAL

In the first crucial years, there are only a limited number of actions that can increase domestic supply. We must develop and increase production for the Elk Hills, Calif., Naval Petroleum Reserve. The President has submitted legislation for this purpose.

The administration has also submitted a set of comprehensive amendments to the Energy Supply and Environmental Coordination Act of 1974 to increase the number of oil burning facilities than can be converted to coal in the coming years.

These are the only supply actions that can have much effect during the next 2 or 3 years. Therefore, we must rely heavily on energy

conservation and it is clear that voluntary conservation is not sufficient. We cannot wait months or years for long term conservation measures to achieve our national goals. The President therefore has raised the cost of all imported petroleum products by imposing a \$3 per barrel import fee on crude oil as a first step to reducing demand.

To ease the impact on regions heavily dependent on imported petroleum products, such as New England and the Northeast States, the President's program provides for a much lower fee rate on products than on crude oil. This fee began February 1 and will be applied in three consecutive monthly \$1 increments. The revenues raised thereby will be returned to the economy through the President's recommended tax program.

I want to emphasize that these increased import fees are only temporary and will be adjusted to \$2 when Congress enacts the President's comprehensive tax legislation, which includes an excise tax of \$2 per barrel on all crude oil and petroleum products.

In addition, a proposed excise tax of 37 cents per 1,000 cubic feet on all natural gas would approximate the \$2 oil excise tax and would, with deregulation of natural gas as proposed by the administration, serve to reverse the trend of dwindling natural gas reserves, unemployment due to curtailments, and prevent industrial switching from oil to already scarce natural gas.

Further tax changes under the program include:

A windfall profits tax. The President will take steps to administratively decontrol the price of old domestic crude oil on April 1. Accordingly, congressional enactment of the windfall profits tax by that time is urgently required to prevent excess profits accruing to the industry. However, care must be taken not to inhibit the needed amount of capital required to find and develop new oil and other energy sources.

A program of income tax reductions and rebate measures to return to the economy the roughly \$30 billion estimated to be raised this year through these provisions. Most of this money is to be restored directly to consumers, with special measures to provide funds for the poor.

The use of import fees and excise taxes to foster large-scale energy conservation has attracted much attention and criticism. I would like, therefore, to spend a few moments discussing alternatives. First, there is the alternative of doing nothing. No action only postpones the tough decisions we have to make. Without conservation, our tab for imported oil, which was \$3 billion in 1970, and \$24 billion last year (1974), would reach \$32 billion in 1977. A brief respite of a year or so will only increase the vulnerability of the world to a crippling embargo by the producers.

The Arab embargo of 1973 resulted in a significant drop in our gross national product and the unemployment of perhaps one-half million members of our labor force. Yet today, even more of our imports are coming from Africa and the Middle East than did a year ago. Now over half of our petroleum imports come from sources outside of the Western Hemisphere. And, unless we do something, this dependence on African and Middle Eastern sources will continue to grow. By 1977, imports will reach 8 million barrels per day, as compared with 6

during the last embargo. Because all of the increase will come from insecure sources, we may well be just as vulnerable as we were last winter. This is simply unacceptable.

Every month we hesitate will make it that much harder to achieve our 1985 goals. Those who say action is too expensive should reflect on the future cost to the Nation if we do not act expeditiously.

There are those who believe that raising prices of energy at home will not help us cut back on consumption. They are wrong. A comparison of our present consumption with that of last year's show that we are actually using slightly more energy now. However, we are using much less than we would if prices had not risen 400 percent in the last year. This is a clear demonstration of price elasticity of demand, or consumption of certain items decreasing as their prices rise relative to other prices. Present consumption would have been at least 1 million barrels a day more if prices had not risen so sharply. Furthermore, although the cartel has cut back on production by about 9 million barrels a day, there is still a surplus of oil on the world market. There is concrete evidence all around us that price is indeed effective in reducing demand.

The other alternative to inaction is the greater use of Government controls—whether import quotas, allocation systems or rationing, or on another level, Sunday closings of gasoline stations, no driving days, et cetera. We looked at all of those last year during the embargo. We chose some and rejected others. And our reasoning was good for a short-term crisis. We now face a longer-term one. Each of these alternatives would involve some form of self-imposed shortages as well as built-in inefficiencies, burgeoning bureaucracies and regulatory proliferation and disruptions in the lives of American citizens. And remember, to be effective, controls must be in place for a long term of up to 10 years. I doubt that the American people would be willing to put up with such alternatives nor should we subject them to this long lasting pervasive control over almost every aspect of their lives. Furthermore, most of the controls would involve higher costs to everyone. Gasoline taxes, for example, would have to be increased about 40 cents per gallon to save 1 million barrels of oil per day. Instead, the crude oil price increase, distributed across all of the products from a barrel of oil will raise the price of gasoline about 10 cents to 15 cents per gallon. This seems a more effective and more equitable solution. We should allow the free market to work to the maximum extent possible. This is what the energy conservation taxes and fees would do. Furthermore, the rebates would assure no significant loss of consumer purchasing power or economic impact.

MID-RANGE (1975-1985)

The second of the goals addressed in our energy program is the elimination, by 1985, of our Nation's vulnerability to economic disruption by foreign suppliers. In other words, by then our petroleum imports should amount to only 3-5 million barrels per day of our consumption, and we should be able to implement standby emergency measures and draw from storage enough to offset a complete cutoff of these remaining imports.

To attain such a goal, we must start immediately to remove constraints and provide new incentives for domestic production and conservation because most of the measures will take 5-10 years to reach fruition after the necessary laws are enacted. And all of these things must be accomplished through a single program that has the balance to bring about the required reduction in our energy use, and the necessary increase in our domestic production. There is no piecemeal program which can provide the balance that is required.

The President has reaffirmed the intent of this administration to move ahead with exploration, leasing and production in those frontier areas of the Outer Continental Shelf where the environmental risks are judged to be acceptable. He has also asked the Congress to authorize oil production from the largest of the Nation's Naval Petroleum Reserves, NPR4 in Alaska, to provide petroleum for the domestic economy, with 20 percent earmarked for military needs and strategic storage. According to our estimates NPR4 could produce 2-3 million barrels of oil per day and commensurately large quantities of gas by 1985.

But, in addition to finding more oil and gas, we must take advantage of our most abundant energy resource, coal. The President vetoed the surface mining legislation passed by the last Congress. But it remains a valuable piece of work. The President has submitted a bill which builds upon S. 425 in such a way as to make it acceptable to the administration. I and others in the administration are prepared to work with the Congress to arrive at a sound surface mining law.

The Congress must also act on the administration's amendment to grant the Environmental Protection Agency authority to suspend emission limitations for powerplants until low-sulfur coal can be obtained or stack gas scrubbers can be installed. The Nation would thus be permitted to reap the enormous benefit of increased use of domestic coal under appropriate environmental safeguards.

The Congress should also amend the Clean Air Act to deal with the issue of "significant deterioration" of air quality. In this case, as in that of the strip mining legislation, we want Congress, rather than the courts, to make the essential legislative decisions that are required.

To assure rapid coal production from existing leases and to make new, low-sulfur supplies available, the President has directed the Interior Department to adopt legal diligence requirements for existing Federal coal leases and to design a new program for accelerated leasing of Federal coal lands.

Of course the market for coal, as well as the availability of all electric power, depends upon the health of the electric utilities industry, and we must address its problems. In recent months, utilities have canceled or postponed more than 60 percent of planned nuclear expansion and 30 percent of planned additions to non-nuclear capacity. The delays and difficulties this industry is currently experiencing could well lead to higher oil import needs and inadequate supplies of electricity 5 to 10 years from now.

The President has, therefore, proposed legislation to assist the electric utilities through higher investment tax credits, mandated reforms in State Utility Commission practices, and other measures. And to rejuvenate our drive toward more effective use of the potentials

of nuclear power we have markedly increased our budget request for nuclear waste disposal and for continued improvements in safeguards.

As we take these actions to increase our energy supplies, we must be aware of some potential problems. Before we achieve our goals of energy sufficiency, actions of oil-producing nations, or economic conditions, could result in lower—but unstable—price levels that could weaken our continued commitment to greater self-sufficiency. The Federal Government must take actions to encourage and protect domestic energy investment in the face of significant world price uncertainty. To foster such investment, the President has requested legislation to authorize and require the use of tariffs, import quotas or other measures to maintain energy prices at levels that will achieve full national capability for self-sufficiency and protect our energy industry and jobs.

All of the actions I have mentioned would have the effect of increasing our available domestic supplies of energy. Oil production could reach 13 or 14 million barrels per day versus approximately 9 million today, coal production could double and nuclear generation could increase from a 4 to 30 percent share of our electric generation capacity by 1985.

But, as in the short-term, supply actions are not enough. We must dramatically cut our historical demand growth. We have signed agreements from major domestic automakers to improve gasoline mileage by 40 percent on average by 1980, as compared to 1974 model cars, provided that the Clean Air Act automobile emission requirements are modified for 5 years.

The Energy Resources Council is developing energy efficiency standards for major appliances and will seek agreements from manufacturers to achieve an average 20 percent improvement in efficiency by 1980. At the same time, draft legislation has been submitted that would require labels on automobiles and major appliances disclosing energy use and efficiency. Because the need for mandatory energy efficiency labeling is the explicit concern of S. 349, I will return to it later in more detail. In another critical area, the Federal Government will provide money to the States for purchase of insulation and other energy conserving devices to be installed in homes owned or occupied by low-income citizens. The President's program also sets forth proposals to mandate thermal efficiency standards for all new buildings in the United States. Since energy savings are even greater for existing homes it also includes a proposal to institute a 15 percent tax credit for insulation investments up to \$1,000.

These numerous proposals and actions taken together, can reduce our dependence on foreign energy supplies to 3-5 million barrels of oil per day by 1985. While this does not seem much less than current consumption, it is down substantially from the 12-13 million barrels which we would have to import if we did not act.

To insure that we could meet any supply disruption of the remaining imports we must establish legal authority for emergency measures that can be readily implemented to guarantee the equal sharing of shortages and the equitable allocation of supplies at home, and to meet our obligations under the International Energy Agreement aboard. We must also begin as soon as possible to develop a strategic storage

capacity of 1 billion barrels of oil for domestic use and 300 million barrels for military use. Only by taking such precautions can we act responsibly both at home and in the international community in a time of future supply interruptions.

ACTION TO MEET THE LONG-TERM (POST 1985) GOAL

For the longer term, our goal is to sustain a position of energy independence, and to enhance it so that the United States will again be capable of supplying a significant share of the free world's energy needs.

This means that, as a Nation, we must reaffirm our commitment to a strong energy research and development program, aimed not only at developing the capability to tap all our major domestic energy resources but also at improving the efficiency of energy utilization in all sectors of our economy.

Last year, the United States committed itself to a 5-year, \$10 billion energy R. & D. effort. Our 1975 energy R. & D. budget was twice that of 1974 and three times that of 1973. In 1976, this accelerated effort must continue, and the President has pledged to seek whatever funds are needed for future R. & D. activities.

Now that we have an Energy Research and Development Administration, a Federal Energy Administration and an Energy Resources Council, we have, for the first time, both the unified Federal organization and the financial commitment to get the job done.

But energy R. & D. funds and organization are not enough, we also need incentives to assure that emerging technologies are not only developed in the laboratory, but brought into use in the marketplace. Therefore, the President has announced a national synthetic fuels program which will assure that the equivalent of at least 1 million barrels per day in synthetic fuels capacity by 1985. It will entail a program of Federal incentives designed to reduce price uncertainty, raise capital and overcome unnecessary delays in bringing existing or nearly developed technologies into commercial use. The program will result in the commercial application of technologies of several types and the construction of major new plants, using both oil shale and coal resources.

The program the President put forward is a comprehensive one. It will reach the goals the President set forth and which I think the American people want. I have heard much talk and criticism in recent weeks on elements of it, but I have seen no comprehensive alternative. We all want an easier way to reach our goals. This program does require sacrifice by all, but it is also equitable. Its impacts are far outweighed by the important benefits it will achieve.

Let me turn instead to the specific provisions, starting with page 18 of my testimony, of the two bills we are discussing.

I'd like to begin our discussion of S. 349 and title XII of S. 594 by reinforcing a few things you probably already know.

S. 349 covers three areas of substantial energy consumption—automobiles, buildings, and appliances—and title XII covers two of these areas—automobiles and appliances. The three sectors, taken together, account for about 45 percent of total U.S. energy consumption. Thus, you are considering areas of significant energy conservation potential.

You are also considering areas that have significant impact on the daily lives of most Americans. Shelter and transportation are pervasive in their impact on the economy, on jobs, and on our concept of the good life. And many of the forces that cause the purchase of homes, cars, and appliances often have little to do with energy use or cost, whether it is the initial cost or long-term operating cost.

For example, many consumers still perceive appliances as a form of emancipation from household chores, new cars as indicators of achieving a new status in life, and a new home as a sign of true establishment of a family.

The point is this—let us maintain an awareness of the use to which many of the products covered by the bills are put, and let us consider ways to achieve energy conservation in these areas that do not substantially disrupt existing patterns and expectations, because otherwise we may find that our well intentioned ideas will meet consumer resistance and have substantial impacts on the economy.

The Federal Energy Administration strongly believes that to achieve energy conservation consumers must be provided, before sale, with estimates of the cost of energy required to operate appliances and motor vehicles. Such information is essential if consumers are to be able to accurately judge the benefits of increased energy efficiency.

This conclusion is supported by a nationwide survey, done for FEA in January 1975, of American car owners. The survey results indicated that consumers, by a 2-to-1 margin, prefer government fuel economy figures to those provided by industry. Similar surveys conducted for FEA reveal that there remains a great deal of ignorance on the part of consumers regarding the energy use of major home appliances and the opportunities for energy conservation.

We believe that providing more detailed and accurate information on energy costs will give consumers a powerful tool in their efforts to improve the efficiency of energy use. Both S. 349 and title XII of S. 594 would provide this tool.

Before discussing the specific provisions of the two proposals, I would like to review energy use in two sectors that the proposals would affect: home appliances and motor vehicles. I will discuss the provisions of S. 349 dealing with the labeling of climate conditioning systems at the conclusion of my testimony.

Major home appliances account for about 8 percent of total U.S. energy consumption. About 70 percent of the energy used by appliances is in the form of electricity, and virtually all of the remainder is natural gas. Furthermore, appliance energy use has been growing rapidly in recent years and there are indications that appliance energy demand will continue to grow in the future unless major adjustments are made.

The American home relies heavily on a wide range of appliances, as current statistics demonstrate:

- at least 99 percent of all homes have refrigerators;
- at least 99 percent of all homes have black and white televisions;
- at least 60 percent have color TVs;
- at least 46 percent have air conditioning; and
- at least 32 percent have dishwashers.

In 1973, nearly 57 million major home appliances were sold with a

retail value of \$31.5 billion. Clearly, the appliance industry is of major importance not only to the individual but also to the national economy.

What steps can be taken to improve appliance energy efficiency and reduce energy consumption while still meeting individual needs? Our analysis has shown that not only do the energy efficiencies of currently manufactured appliances differ substantially, but also that many technical opportunities exist for rapidly improving appliance efficiency. While increased energy efficiency may add to the initial cost of certain appliances, such costs are more than compensated for by the reduced operating costs enjoyed by the consumer.

At present, consumers have no easy way of determining the savings they would enjoy if they purchased a more efficient appliance, and, as a result, substantial emphasis has been placed on minimizing first costs to the detriment of the long term operating costs. The result is bad for the consumer and the Nation. This lack of information has been a factor in the trend toward decreasing energy efficiency for several types of major appliances.

The FEA feels that an effective Federal effort to reduce appliance energy demand should encompass three separate approaches:

- (1) Direct Federal involvement to insure improvements in the energy efficiency of major appliances.
- (2) Federal regulations to require energy efficiency labeling.
- (3) A continuing public education program to encourage more efficient use of home appliances.

The President recently announced initiatives in each of these areas.

As a part of these new initiatives, the Department of Commerce, in close cooperation with the FEA, has recently begun a voluntary efficiency improvement program which has a goal of obtaining the commitment from appliance manufacturers to an average 20 percent improvement in all new appliances by 1980. If voluntary commitments are not obtained, or the program doesn't work satisfactorily, the President will submit legislation to establish mandatory appliance efficiency standards.

The President has also called for a stepped-up public information program to encourage and assist individuals in conserving energy.

Finally, the administration has submitted draft legislation, which the committee is considering today, requiring the energy efficiency labeling of major home appliances.

FEA is convinced that, if each of these approaches are implemented, we can substantially reduce appliance energy demand—reducing our imports of petroleum by about 300,000 barrels per day by 1985 and additional savings of domestic fuels as well.

Transportation is the second sector directly affected by S. 349 and title XII.

Currently, there are approximately 100 million automobiles and light-duty trucks in operation in the United States. These motor vehicles account for about 13 percent of total U.S. energy consumption and about 28 percent of all petroleum used.

To achieve our national goal of reducing our reliance on imported petroleum it is clear that major improvements in the fuel economy, or gas mileage, of automobiles must be achieved. During the past 10 years, however, there has been a steady decline in the average fuel

economy of new cars. This trend was caused by many factors, including increased size and weight, more stringent emission controls and a proliferation of such conveniences as air-conditioning and automatic transmission.

Until recently, consumers had no reliable means of determining the fuel economy of new automobiles—and even if the fuel economy was known, it was still difficult to determine the benefits of more efficient cars because testing procedures differed and energy cost information was not provided. The administration, recognizing the need for more accurate information on automotive fuel economy, began a voluntary labeling program in the fall of 1973.

While this program has enjoyed wide acceptance, there still remain manufacturers and retailers who refuse to participate. In order to insure adoption of the labels and broaden consumer awareness of automotive fuel economy, the administration has requested mandatory labeling authority in title XII of S. 594. S. 349 would provide similar authority.

Although automobile labeling is important, the administration is convinced that further actions are necessary to insure that major savings are achieved in this sector. Therefore, as a part of the President's total energy program, the administration has obtained the commitment of major auto manufacturers to a 40 percent increase in new car fuel economy by model year 1980. These agreements are conditioned on the enactment of amendments to the Clean Air Act so as not to increase the fuel economy penalty associated with emission controls during this period.

I will now turn to a more detailed discussion of the significant difference between S. 349 and title XII of S. 594.

In order to present my comments on these differences most clearly, I will first discuss the provisions of S. 349 as they pertain to appliances and motor vehicles and then turn to those provisions concerning the labeling of climate conditioning systems in buildings.

First, S. 349 would place responsibility for implementing the labeling program in the FTC, and would require the FTC to consult with FEA and other agencies in some instances. As the committee knows, substantial expertise has been developed in the EPA with respect to the measurement of automotive fuel economy, and in the Department of Commerce's NBS with respect to the measurement of appliance energy efficiency.

We recommend that any mandatory program continue to rely on the operational expertise of these agencies; this approach will insure continuity, and minimize start-up time for the mandatory program. As S. 349 recognizes, FEA also has a role in a mandatory labeling program—to provide overall guidance.

For example, FEA can help set priorities among appliances by considering the impact of such factors as the contribution of the appliances to peak electrical demand. We do not believe that giving yet another agency significant responsibility in implementing the program will result in an efficiently functioning program.

We, therefore, strongly urge the approach of the administration's bill, which places responsibility with the President, so that he can delegate overall responsibility to FEA for fixing policy and direc-

tion and responsibility to EPA and NBS for promulgation for final tests and standards.

A second major difference between the bills is the type of information to be provided to the consumer. S. 349 emphasizes the average annual cost of operation as the means of conveying information to consumers on energy use. While FEA strongly supports the concept of cost labeling, we believe the addition of other factors would improve the effectiveness of the labels.

Other factors which we believe should be included are average fuel consumption and widely recognized fuel use ratings, such as miles per gallon for automobiles. Furthermore, we believe that all labels should contain a chart comparing the operating cost of the appliance or automobile to the operating costs of other products in the same class. This would enable the consumer to easily determine the relative efficiency of any single product, without examining the labels of a large number of other products.

A related provision in S. 349 would require that energy cost information be included in all advertising that cites the initial cost of the product. I am not convinced that this is wise public policy. Perhaps the net result would be that advertisers will not mention cost or efficiency at all, in which case this provision will work to the detriment of our overall objective.

An alternative might be a more selective requirement, such as stipulating that energy costs be included in all advertising which refers to the products energy use or any material citing initial cost information which is provided directly to the consumer by the retailer.

A third difference between the bills is the degree of flexibility in the time frame for implementation. S. 349 sets specific time frames within which certain actions must be taken for all products. While we believe that labels could be adopted for most major appliances and automobiles within the time frame cited, our knowledge in this area is still incomplete. For instance, developing regional energy cost information for air conditioners is not possible within a 9-month period. Therefore, a more flexible time frame would be appropriate.

Fourth, title XII contains several useful provisions not included in S. 349 which we believe should be part of any energy efficiency labeling legislation. These include: (1) explicit provisions requiring a manufacturer to supply sample products for testing, and authorizing Federal employees to observe and inspect manufacturers' test; (2) a provision for an energy conservation mark to help consumers recognize the efficiency labeling; and (3) provisions for consumer education.

In addition to these general comments, I have two specific comments on the provisions of S. 349 that relate to the labeling of automobiles. First, S. 349 has no provision for the labeling of motor vehicles other than small trucks and automobiles.

The administration's bill, reflecting the need for broader coverage, clearly establishes authority for labeling all those motor vehicles that use public streets and highways, including trucks, buses and other vehicles. While testing procedures for these remaining motor vehicles could not be developed within the time frame required by S. 349, we believe that they should not be excluded from any fuel economy labeling program.

Second, S. 349 requires adoption of the testing procedures developed by the EPA. Manufacturers would then be required to conduct the tests. It is not clear whether the bill contemplates wholesale adoption of EPA's procedures or would require a critical evaluation of these procedures prior to their incorporation in a mandatory program, as well as updating of the procedures as necessary. We feel more flexibility should be provided to ensure that the best testing procedures are utilized.

It is also unclear what authority EPA would have to police manufacturer testing methods.

Now, I would like to turn to those provisions of S. 349 relating to the labeling of climate conditioning systems, for which there are no comparable provisions in title XII of S. 594.

We certainly agree with the premise of S. 349 that there is significant potential for energy savings in the heating and cooling of buildings. Space conditioning in residential and commercial buildings accounts for about 18 percent of total U.S. energy demand. Total energy demand in this sector was growing at about 4 percent per year before the embargo—in effect, doubling every 19 years.

While the greatest potential for achieving major energy savings in the short term lies in modifying existing buildings, only in new buildings can the full range of energy conserving design and construction practices be incorporated. Furthermore, by 1985, approximately 30 percent of all residential units and 40 percent of all commercial space will have been constructed after 1974.

Studies have shown that as much as 40 percent of the energy consumed in buildings is wasted due to inadequate construction and operating practices, inefficient equipment, over lighting and unnecessary heating/cooling levels.

As with appliances, a major reason for wasteful use of energy in buildings is the lack of information available to purchasers. Buyers have traditionally stressed lowest first costs and have ignored the benefits of added insulation, storm windows, and more efficient space conditioning equipment. Adoption now of energy conserving design practices could reduce the energy consumed in heating and cooling new single family dwellings by 35 percent, high rise multi-family structures by 24 percent and commercial buildings by 32 percent.

In order to rapidly achieve this potential, the President has proposed legislation that would authorize the Department of Housing and Urban Development to develop mandatory energy conservation standards for new buildings. The proposed legislation, title X of S. 594, calls for the establishment of national thermal standards for both residential and commercial buildings to be implemented by State and local governments.

This bill will, within 3 years, establish minimum performance standards for all new construction. The standards are, in some areas, likely to apply to major remodeling efforts as well. If enacted, these standards would reduce imports of petroleum by about 300,000 barrels per day by 1985, and a greater amount in total fuel use.

I suggest that the concept of labeling climate conditioning systems described in S.349, may not be as effective in achieving energy savings as would be adoption of national thermal standards. The advantages of thermal standards over labeling are substantial.

Standards make clear to the builder precisely what he must do. They also impact on decisions made while the building is in the planning and construction stages, while labeling impacts mainly at the time of sale.

The proposed thermal standards would use the existing building inspection and enforcement mechanism. S. 349, on the other hand would require enforcement by the FTC, but does not address the problems inherent in Federal enforcement of the labeling requirement.

A further concern relates to establishing methods of determining average energy use and operating costs in buildings. With an appliance, one can at least obtain a reasonable estimate on projected use. However, a new building's expected usage is often quite different from actual energy consumption. Consider the simple example of a lessee operating computer facilities. Computers not only require significant energy to run, but the energy requirements of their climate conditioning and support equipment can increase total building energy consumption by over 50 percent.

Appliances can be easily monitored at the manufacturer level for accurate label and information; this is not possible with a complicated system such as a building. In addition, most appliances are made by a comparatively small number of manufacturers, but about 90 percent of new homes are built by builders who build less than 20 homes a year.

In summary, we are in agreement with the objectives of S. 349 relating to building energy consumption, but we believe that regionally variable thermal standards better achieve those ends. At a minimum, any labeling of major climate conditioning systems or components should be carried out as part of the implementation of the proposed minimum property standards.

In conclusion, the FEA strongly supports the concept of mandatory energy efficiency labeling for appliances and motor vehicles.

I would be happy to work closely with you and your staff to insure that the most effective and appropriate legislation is enacted.

Thank you.

Senator TUNNEY. Thank you very much, Mr. Sant.

I am wondering, from your testimony it is not clear, whether the thermal standards that the Administration is suggesting for residential and commercial buildings would also apply to remodeled structures?

Mr. SANT. In some cases, they might. In the States that elect to go that way, but that is not the major thrust of the program. The thrust of the program is for new construction only.

Senator TUNNEY. Even where Federal funds are involved in rehabilitating residences?

Mr. SANT. Well, to be frank, it is a very interesting question; it is one that we didn't think a lot about when we first drafted the provisions. Certainly it is one that we could consider. Where there are major improvements that are being made to a shell of a building which would have thermal effects, we ought to consider the possibility of expanding those standards to that kind of remodeling.

It may be difficult to determine at just what stage a remodeling effort comes under those provisions, but clearly, the objective is to try to get the most thermal efficient buildings we can, both new and existing. So, we would be very interested in proceeding with that idea.

Senator TUNNEY. You say in your testimony, "Furthermore, by 1985, approximately 30 percent of all residential units and 40 percent of all commercial space will have been constructed after 1974."

Where did you get those figures? That seems a lot, it seem to me. It assumes that we are going to have a substantial upswing in construction.

Mr. SANT. I can't give you—I think my staff probably could—the exact figures. We got that out of a study that was done that was part of the Project Independence report, projecting a 10-year trend in commercial and residential building.

The commercial buildings increase was, as I recall, a much higher order of magnitude than residential, which is down on the order of 1 percent. I think the commercial side was like 4 percent, but I am not absolutely sure. But nevertheless, it was using those figures that we came to that conclusion.

Senator TUNNEY. Well, it would depend upon whether you were taking the period 1970 to 1972, as your base period, or whether you were taking 1973 to 1974. You would have totally different results depending upon the base period.

And it would be interesting to me if you would supply for the record what your key assumptions are when you use these figures, because I think that the assumption that in a period of 10 years, approximately 30 percent of all residential units in the United States are going to be constructed in a 10-year period does not jibe with what my intuition tells me is the case.

Mr. SANT. We will be happy to provide that. I just was handed a note that the growth figures we used were 2 percent in housing and 4 percent in commercial. We will be happy to provide you with that study. I am sure the housing industry might have questions about those projections as well.

Senator TUNNEY. Fine.

You state in your statement that FEA has had surveys conducted that show a great deal of ignorance on the part of consumers regarding the energy use of major home appliances and the opportunities for energy conservation.

Would you tell us in a little more detail about these surveys? And could you supply information on these surveys to the Committee?

Mr. SANT. I would be happy to provide those in detail, Mr. Chairman.

I don't know the exact details of that. I know we have done more on the automobile labeling part of it, because that is much further along, than we have on appliance labeling. But I would be happy to provide that for the record.

Senator TUNNEY. You state that there has been a trend toward increasing energy efficiency for several types of major appliances. Could you give us some examples of these trends?

Mr. SANT. Again, unless my staff has it here, I will have to supply that for the record.

Senator TUNNEY. Would you support the concept of having FTC having responsibility for the advertising and consumer information and endorsement aspects of the labeling program?

Mr. SANT. Well, in the first instance, let me be clear that our major objective is to get some legislation in this area. We would like to have

this available to the consumer as fast as possible, and therefore, our major concern is to get this passed.

We, nevertheless, feel that the present setup of using NBS along with FEA would be the best approach. We feel conservation—as an idea, as an ethic—needs to be concentrated in one place. And we would like to see a more closely coordinated Government program in all areas of conservation, and that is why we have urged you to consider our approach.

Nevertheless, we admire what FTC has done and certainly it is not in any way a criticism of FTC. We are just saying, “Let’s not introduce a new player at the time when we have a lot going on the voluntary side right now.”

Senator TUNNEY. Of course, FTC has much greater expertise, does it not, in the area of advertising and consumer information than does Commerce or FEA?

Mr. SANT. Certainly. That has been their charge in Government. They have had the responsibility to do much more of that than other agencies. It would be hard to deny that they have built up an experience level in consumer communication that is beyond that of FEA or NBS.

Senator TUNNEY. What about the question of having a labeling program for buildings in addition to your thermal standards?

Mr. SANT. For existing buildings?

Senator TUNNEY. For new buildings. Does that make any sense, or do you think it is merely duplicative? I mean that assuming that you have good standards, it would possibly be better to have consumers have a choice as to the most efficient energy system in a new home that went above the standard that you have established. Does that make any sense?

Mr. SANT. That is an interesting point. Certainly, our approach has been to take a minimum standard and say, that is the best way of achieving the overall energy savings. Now, what you are raising is beyond that minimum. People may be able to achieve savings that are greater than the minimum, and therefore information ought to be available to the consumer in making a choice.

It is our assumption that the minimum thermal standards would include that information as a part of the program, so that any building design, no matter how constructed, would include the engineering information that would say first of all that it met the minimum performance standards, and secondly, would say how they met them and what the energy budget is for each of those buildings.

So, as an outgrowth of the program, certainly that information would be available. I see no problem at all in including that as part of the thermal standard legislation, requiring that that information be made available to the consumers at the time the purchase is made.

I think the question you could also raise is whether we should try and label existing buildings.

Senator TUNNEY. That is right. That was the next question.

Mr. SANT. We didn’t provide any testimony on that, but our view is that that is a very costly approach. However, something along those lines may have some merit. We haven’t considered all of the possibilities there. Even if 30 percent of the housing and 40 percent of the commercial buildings in place by 1985 were constructed after 1974,

there remains a lot of construction that is out there right now. Such a proposal would fit in with the additional proposal to provide a tax credit for insulation. Certainly anything we could do along the lines of making buyers conscious of thermal efficiency in making the purchase decision would certainly fit in with our objectives very nicely.

Senator TUNNEY. Well, the question was raised when we had this bill before the committee last year about requiring the seller or the leasor of an existing building to give information to his purchaser or leasee about the energy costs associated with that residence for the preceding year. The best evidence would be in the form of the bills.

Mr. SANT. Yes, to see how many kilowatt-hours of electricity they use. It is a very interesting idea. The only thing it doesn't tell you is: How did they operate it? You know, did they take long vacations or anything. It doesn't quite tell you whether that building is efficient. But nevertheless, it is a start.

Senator TUNNEY. I don't know if it has merit or not. I can see merit to it, but I can also see other problems, as you suggest the house could have been closed up for several months. It could be that the former resident had lots of children which would be perhaps much more energy consumptive than if they didn't have a large number of members of the family going in and out of the house, opening and shutting doors and so on.

Mr. SANT. I think it would be a real stimulus to the person. If he knows he has to sell his house, he might keep his thermostat really low for the year preceding, and that is a very desirable result.

Senator TUNNEY. Well, I don't know, I haven't made up my mind as to what the answer is there.

What about the level of funding in S. 349? We talk about \$3 million per annum, as I recall. Yes, \$3 million.

Mr. SANT. Frankly, we haven't done a satisfactory analysis on that, Mr. Chairman. I would be happy to try and look at in detail. Our initial impression is that may be a little low. It probably is in the range of \$5 million by our first estimates. But we would like to detail that a little more and work with you in trying to arrive at what the appropriate figure is.

Of course, the period of developing the standards, or developing the measuring devices will cost a little more. It is also the period, however, during which we are undertaking our voluntary goals program. So, those two programs somewhat coincide and will overlap. I don't know what the incremental cost would be of introducing the labeling portion of the program. But we would be happy to try and provide our estimates of that.

Senator TUNNEY. You stated that the Administration is seeking agreements from manufacturers to achieve an average 20 percent improvement in efficiency by 1980. Could you state how the 20 percent figure was chosen?

Mr. SANT. Yes. We had a study done for us by Arthur D. Little that outlined the potential for each of the appliances, the major appliances. I think that include 9 appliances, and we have reduced that down to 6 that we will concentrate on initially.

The study indicated that for those appliances looked at that the potential might be as high as 29 percent. However, it wasn't clear that

cost effective criteria were used in all cases. The study emphasized the potential for energy savings rather than relating how much energy would be saved to the cost of making that improvement.

We also surveyed the manufacturers themselves before the President made that announcement, and the weighted average of what the manufacturers came up with was a little in excess of 20 percent. Therefore, we established the goal of 20 percent. At our first meeting however, we announced to the manufacturers that 20 percent was only a starting point—a minimum—and that we wanted to be very precise about what the real potential was.

Clearly each appliance is going to have different potential. Water heaters have less potential than refrigerators, for instance. We might get as high as a 40 percent improvement in refrigerator efficiency and only 15 percent in water heaters.

So, we are just stating 20 percent as a minimum goal and hope to achieve greater than that.

Senator TUNNEY. You note a need for a continuing public education program to encourage more efficient use of home appliances. Could you detail for us what FEA is doing in this area and how much you plan to expand this program in the future?

Mr. SANT. Yes. We have had a rather small public education program with lots of spirit, but not very much funding. And we spent about \$600,000 last year.

As a part of the total energy proposal that the President made, he requested that the Congress pass supplemental authority for a \$5 million budget this year and continuing for another 3 years. Within the \$5 million budget, we have established some objectives to try and achieve a much greater penetration to the American public concerning energy problems and the need for energy conservation.

Our approach is that initially we should concentrate on just getting across the need. Therefore, at this time, we have a program that includes about 3 ads, which will shortly be showing up on Advertising Council TV—donated time—that are oriented toward understanding the need.

Following these advertisements we will be trying to create greater awareness as to what the consumer can do. It is during that phase that we will begin introducing advertisements related to labeling, such as making people conscious of making choices on everything that they buy, as well as encouraging individuals to make personal value judgments about reducing energy consumption.

The third stage of the program will be to try and achieve action.

The reason for going through these stages is that I think sometimes we have made the mistake of trying to ask for actions before anyone understood the need or understood what they could do. The consumer may be feeling the pressure of trying to conserve, but he is not certain as to what he should do in his own home to achieve that.

So, our whole effort is going to be approached that way. It will include some TV spots, as I indicated, with donated time. We are also having a series of seminars for influencing persons in the field. A number of manuals are being put out.

I won't go into all of those things. We are just trying to cover every segment of society with some form of information, some briefly,

others with more detail. But it is an overwhelming task. And I would add that to think we can achieve an understanding throughout the country with a \$5 million budget, when that is about the amount that I think the Ford Motor Company would use to introduce its Granada in the State of New Mexico, you know, is a little presumptuous on our part. We know we are under the 8-ball to do it.

Senator TUNNEY. What about the provisions in S. 349 that require the estimate of annual operating costs to be placed on the label? Do you think that that makes any sense, or do you think that, as some of the witnesses have suggested, the price of energy being a moving target, that it really would not give to the consumer the kind of information that they ought to have, because it could be quite inaccurate?

Mr. SANT. I think it is totally essential. We are convinced that the accuracy you buy by not putting that on is not worth the lack of public understanding. I am not too concerned even if that figure is 50 percent wrong, if it gives an order of magnitude to a person.

We would certainly like the dealer to take responsibility for maintaining a close watch on what current energy costs are in that locale, such that he could update those figures. But in the absence of that, we would be very upset indeed if somehow the label came out with just an efficiency rating and didn't give the person a chance to equate that. I think it is just too much to hope for that a person will get out their slide rule and calculate the cost of therms and kilowatts and suddenly arrive at, "Aha, I know how much I am going to save." We have just got to provide that to him.

Senator TUNNEY. In your statement you question S. 349's advertising provisions. Isn't it important in assessing the product that the consumer be provided not only the initial price, but the operating costs as well?

In the early hearings we had before this committee, it was pointed out that often extremely inefficient products are sold for lower prices than the more energy efficient products, but unfortunately, over the life of the product, the appliance which has the lower cost at purchase is much more expensive.

A good example of that, of course, is air conditioners, where you have a 50 percent difference in energy efficiency. Unfortunately, the purchase price of the most inefficient air conditioner is lower than the most efficient ones. I just wonder if you could explain in a little more detail your criticism of this provision.

Mr. SANT. Well, I very tactfully left that out of my verbal presentation of testimony, because I, frankly, am not convinced about that whole issue. Our reason for questioning it in the first place was that we didn't want to create a situation where no information is put in. But nevertheless, I am in agreement with your objective of trying to relate initial cost to operating costs by requiring that advertisements that give one, give the other. I think what you are trying to do is what we would like to do. We only wanted to avoid making it so restrictive that the advertiser doesn't put any information in.

Perhaps there is a way to get around that problem and clearly, our objection is in regard only to some of the adverse results that might come about. Our objective is the same as yours.

Senator TUNNEY. It seems to me that if energy efficiency is something which we are all interested in, then the best way to achieve that would be, or one of the better ways to achieve it would be to have the advertiser indicate that the costs are going to be associated with running the appliance and not just to indicate what the initial cost of the purchase is going to be.

Up until a year ago, or a year and a half ago, I had always assumed that one air conditioner was about as efficient as another—and that this same rule applied to other appliances. I just didn't realize there was this kind of disparity.

I think the reason I came to realize it was because I serve on this committee, and am getting information. Unfortunately, the vast majority of the people in the country have other responsibilities than listening to testimony respecting energy efficiency of appliances, so therefore, they are as unaware as I was a year and a half ago.

I just can't help but think this advertising provision is a very important part of the bill.

Mr. SANT. Well, I again share that thought completely. I was in the same position. I have thought the same things about automobiles. As much as we pay out for gasoline—even with a conscious recognition of how much we are paying—I don't think many of us understand what our annual gasoline costs are.

Therefore, I think your point is a good one on advertising. But I think that our points on the need for comparing a product is efficiency with that of other products to show how it differs on an annual cost basis are even more critical.

So, again, I totally support what you are saying there, I think we could resolve these pretty easily.

Senator TUNNEY. Good.

Well, I want to thank you very much, Mr. Sant. I appreciate very much your being here.

Mr. Ince, it is very nice to have you with us today and we will, of course, be working with you as we draft up the final version of this bill.

We hope to move relatively quickly on it. And we will try and make sure that any legislation that comes out of the committee will take into consideration the important role that the FEA has in developing an energy policy.

I personally feel that in any kind of energy program in this country, whether it relates to conservation or developing new sources of energy, the FEA ought to play an important policy role. So we want to make sure that we give to the FEA in this legislation, the kind of policy responsibilities that you also feel is necessary.

I think that as we draft up the final language, it will be important to consult with you and with your attorneys.

Mr. SANT. We would be more than happy. We have been working with Mr. Hyman for the last year in various mark ups of various bills and I think we are all at the point where we would like to get something through and we would like to provide as much support as we can.

Senator TUNNEY. Thank you very much.

[The following information was subsequently received for the record:]

FEDERAL ENERGY ADMINISTRATION,
Washington, D.C., March 25, 1975.

HON. WARREN G. MAGNUSON,
Chairman, Committee on Commerce, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: I was pleased to testify before the Senate Commerce Committee on February 25, 1975 and to present our views on S. 349 and S. 594 dealing with labelling of appliances, automobiles, and building climate conditioning systems.

During my appearance before the Committee a number of questions were raised, the answers to which are enclosed with this letter.

I am very interested in seeing beneficial labelling legislation result from your extensive efforts and hearings, and again extend to you an invitation to call on me if my staff or I can be of service.

Thank you again for the opportunity to appear before the Committee.

Sincerely,

ROGER W. SANT,
*Assistant Administrator,
Energy Conservation and Environment.*

Enclosure.

QUESTIONS RAISED AT THE SENATE COMMERCE COMMITTEE HEARINGS AND THE
ANSWERS THERETO

Question 1. Should major remodeling changes on buildings be included in the scope of S. 594?

We have concentrated mainly on new buildings because the technical problems associated with setting standards, designing them into new construction, and verifying thermal performance have seemed to be more tractable than for existing buildings. We still feel that this is generally true, but I agree with you that careful consideration should be given to expanding the scope of standards legislation to include this category of building. Different standards would have to be promulgated for rehabilitation of existing buildings and for new buildings.

Question 2. What are the results of Federal Energy Administration (FEA) opinion surveys bearing on consumer awareness of energy consumption and cost in the operation of items covered in the proposed legislation?

The surveys clearly show that the average American consumer would like to cut down on his or her energy consumption and its associated costs. However, there is a great deal of consumer ignorance as to what characteristics of appliances, heating and cooling systems, and automobiles actually decrease energy consumption. Consumers need to be told which appliances, cars, and heating and cooling systems use less energy than others of the same kind, and how to operate them most efficiently. Energy efficiency labelling—in the form of operating cost per year or miles per gallon for cars—and wide dissemination of this same information are a vital part of this public education effort. Detailed results from some of a series of biweekly opinion surveys conducted for FEA by Opinion Research Corporation are enclosed.

Question 3. What information does FEA presently have regarding price increases for individual appliances to be expected in meeting the President's announced goal of 20% overall efficiency improvement by 1980?

The Federal Energy Administration made a preliminary determination that a 29% average improvement was possible. This estimate was based on available studies of technical opportunities for increased efficiency, and on the economic analyses contained therein. In all cases, the requirement was that there be no increase in life-cycle cost as a result of efficiency improvements. After discussions with the industry, Commerce, and the Energy Resources Council the program was set at 20% efficiency improvement.

Price increases were estimated to be less than 10% in all cases, with lower increases for many appliances. For example, the television industry has been going through a rapid evolutionary phase away from vacuum-tube technology toward solid-state technology. This process will result in the desired efficiency increase, at no incremental cost. For gas water heaters, less than a 10% price increase results from improved insulation. FEA will evaluate these impacts carefully in conjunction with the Department of Commerce Voluntary Efficiency Improvement Program, and as a part of our long-range appliance efficiency program.

Studies available to FEA bearing on appliance efficiency and economics include:

Refrigerators: "The Productivity of Servicing Consumer Durable Products", The Center for Policy Alternatives, MIT, and the Charles Stark Draper Laboratory, Report Number CPA-74-4 to the National Science Foundation.

Water heater: "Residential Water Heating; Fuel Conservation, Economics, and Public Policy", James J. Mutch, Rand Corporation Report R-1498-NSF; National Science Foundation; May 1974.

Other appliances (covered less extensively): Arthur D. Little report to the Council on Environmental Quality, "Residential and Commercial Energy Consumption", August 1974. Copy enclosed.

Room Air Conditioners: Oak Ridge National Laboratory report by John C. Moyers; and the Association of Home Appliance Manufacturers directory of room air conditioner energy efficiency ratios.

SUMMARIZING ENERGY CONSUMPTION AND EFFICIENCY IMPROVEMENT TARGETS

Appliance	1972 energy consumption (thousands bpde)	Estimated efficiency improvement potential (percent)
Water heaters.....	986	
Electric.....	412	12
Gas.....	574	27
Refrigerator/freezers.....	589	54
Freezers.....	139	54
Ranges.....	344	
Electric.....	10	10
Gas.....	36	36
Televisions.....	230	25
Room air conditioners.....	179	25
Clothes dryers.....	135	10
Other appliances.....	314	15

Question 4. Should energy labelling of buildings be considered as a part of the thermal standards to be developed under Title X of S. 594?

When thermal standards have been developed, enough knowledge will be available to allow a determination of whether one can assign energy consumption costs on the basis of the thermal design, using tests or perhaps computer simulation. We appreciate the benefit of introducing energy consumption as a marketing factor in buildings and agree that labelling should be investigated. We are not prepared at this time, however, to prognosticate on the outcome of this effort; probably 3-4 years will be required before a reliable answer can be given.

Question 5. Are the levels of funding in S. 349 for labelling appropriate?

We feel that the stated annual figure of \$3 million is adequate for labelling of appliances and automobiles, but that the technical difficulties and uncertainties surrounding the development of a practical scheme for labelling buildings climate conditioning systems are so great that additional funding would be necessary.

Question 6. What are FEA's plans for public information programs to supplement labelling and efficiency improvement activities for appliances and automobiles?

The Federal Energy Administration has already begun a public education program to encourage individuals to conserve energy. This program has a budget of about \$1 million for FY 75 and the President has requested \$5 million in supplemental funding for FY 1975. The Federal Energy Administration has developed and distributed numerous pamphlets that provide the consumer with specific information on what he/she can do to conserve energy in the use of automobiles and appliances.

For example, FEA has distributed over two million copies of "Tips For The Motorist", and over one million copies of the "1975 Guide To Gasoline Mileage." FEA has also sponsored, in conjunction with the Ad Council, numerous advertisements in newspapers and periodicals urging energy conservation. Currently we

are developing an expanded program which will include both radio and television spots as well as the inclusion of our "energy conservation mark" on all labelled appliances and automobiles. In the future, FEA will continue to work in close cooperation with the Department of Commerce and the Environmental Protection Agency to ensure that the general public is informed on the opportunities for energy conservation and, specifically, the importance of energy performance labelling for appliances and automobiles.

Question 7. What are FEA's concerns about advertising of appliance efficiency and operating cost?

We support the concept of including operating cost and energy consumption indicators in communications with consumers. We are concerned, however, that the proposed section might be counter productive. For example, it would appear that a substantial portion of appliance advertising is done by retailers in local newspapers. It is possible that regulation of the content of these local advertisements, along with monitoring and enforcement, may involve substantial increases in cost for the retail sector and the government. We are not sure what the potential impacts of this provision are. We raise the point mainly to assist the committee in its evaluations.

Question 8. What is the source of the statement that by 1985 approximately 30% of all residential units and 40% of all commercial space will have been constructed after 1974?

The tables on pages 56 and 68 of the enclosed Project Independence Task Force report on Residential and Commercial Energy Use Patterns 1970-1990 contain the data used in FEA projections.

Senator TUNNEY. Our next witness is Mr. Harry Paynter, Gas Appliance Manufacturers Association, accompanied by Mr. Wynne A. Stevens, Jr., and Mr. Jack P. Langmead.

Welcome, gentlemen.

STATEMENT OF HARRY PAYNTER, GAS APPLIANCE MANUFACTURERS ASSOCIATION; ACCOMPANIED BY WYNNE A. STEVENS, JR.; AND JACK P. LANGMEAD

Mr. PAYNTER. Good morning, Mr. Chairman. Thank you for this opportunity for the Gas Appliance Manufacturers Association to give you its opinions and recommendations concerning S. 349 and title XII of S. 594.

Both bills have as their purpose the encouraging of energy conservation and both therefore have objectives we enthusiastically support.

As you indicated, I am accompanied by Wynne A. Stevens, Jr., GAMA's Director of Legislative Services who worked closely with the Department of Commerce in the development of its voluntary program and with the staff of this committee in the development of S. 2176 in the last Congress; and Jack P. Langmead, GAMA's Director of Technical Services who has worked closely with the NBS and industry groups in the implementation of Commerce's voluntary program. They will assist in responding to any questions you may have.

In considering the predecessor bills in the Senate of the 93rd Congress, GAMA expressed to this committee a preference for the voluntary appliance efficiency labeling program being implemented by the Department of Commerce. We have been working diligently in support of that program. We believe that it will work, and we do, as a matter of principle, prefer the solution of problems by voluntary action over the development of additional Federal regulatory systems.

At this point in time, however, the imperative necessity of conserving energy of all forms and the equally important requirement to direct all

forms of primary energy into the uses for which each is best suited are the overriding considerations. There are substantial opportunities for conserving energy by means of a well-conceived appliance efficiency labeling program.

There are substantial opportunities for conservation by directing primary energy to uses which are inherently efficient. Considering the urgency of the problem and the opportunities available, taking action is of vastly greater importance than the selection of the mechanisms. Therefore, either the voluntary program of the Department of Commerce or a Federal mandatory labeling regulatory approach will receive the unqualified support of the Gas Appliance Manufacturers Association.

The voluntary program of the Department of Commerce has recognized the fundamental importance of developing an approach to labeling which will permit prospective purchasers to make their comparisons on an inter-fuel basis. Unless the method developed permits a comparison on an inter-fuel basis, it may defeat rather than support energy conservation goals. For example, in the manufacturing of electricity, coal, oil, and natural gas are consumed to generate over 80 percent of the country's electricity.

Because of the losses in the process of generating and distributing electricity, only 28 percent of the energy value of the fossil fuels consumed is delivered to the home as usable energy.

On the other hand, electric appliances appear to be more efficient if comparisons are made on the basis of energy input at the point of use compared with the thermal output of the appliance. It is, therefore, basically important to approach appliance efficiency labeling considering both of these factors. When both are considered, the conclusion is inescapable that the use of natural gas for the performance of appliance or heating functions in residences is inherently more efficient than the use of their electric counterparts. To document these facts for you, I have appended to the committee's copies of this statement a summary of efficiency analyses prepared by the Oak Ridge National Laboratories, the President's Council on Environmental Quality, the Rand Corp., and an American Gas Association study.

A statement made by the Chairman of the Council on Environmental Quality to a committee of the House last year is pertinent at this point and should be part of the record of this hearing:

The selection of the right energy system for a particular need often offers the greatest potential for energy conservation. For example, natural gas and electricity may be used interchangeably for most residential needs—heating and air conditioning homes, heating water, cooking, and drying clothes. For all these functions the gas-powered appliance consumes more energy at point of use than its electric counterpart. For example, an electric stove needs only 49 percent of the energy input of a gas stove. But when the entire energy production-transmission-consumption system is considered, the electric stove uses 40 percent more energy than the gas stove. Indeed, all gas appliances are more efficient than their electric counterparts because of poor efficiency at the powerplant and significant transmission line losses. This is particularly true for home heating, for which gas is more than twice as efficient as electricity. The energy savings apparent in using natural gas for residential purposes points up the necessity of developing new gas sources.

Home appliances, whatever their source of power, consume large amounts of energy, particularly electricity, and there are big differences in the many products designed to do the same job. Yet information on these differences is not available

to the consumer when he purchases these products. The voluntary appliance labeling program, proposed by the President in April and now being implemented by the Department of Commerce in cooperation with the Council on Environmental Quality, should spur savings in energy and in energy bills.

Another aspect of the problem is the need to disclose to consumers the range in the energy consumption by competing products using the same fuel or energy source. While these ranges are not in all cases large, they are of sufficient importance to be disclosed to consumers.

In our judgment, the comparisons of appliances on an interfuel basis as well as a comparison of those using the same fuel or energy source can both be achieved by following the annual cost of operation approach taken in S. 349. This approach is feasible from a technical point of view and would be more meaningful to a consumer than any other possible approach.

This feasibility has been demonstrated in the development of a voluntary program for water heaters. Or to express it conversely, I know of no approach other than an operating cost approach which would prove feasible.

Additionally, the simplicity of this approach from the standpoint of the consumer has a very definite attractiveness.

A good example of the usefulness of the cost of operation approach was given in an article in last Thursday's Washington Post that compared the utility bills of nearly identical residences, some heated with gas and using gas appliances and some using electric systems.

I say nearly identical, because there was one difference. The electric homes were better insulated. The comparison of the utility costs given in that article provide a simple and reasonably accurate measurement of comparative efficiencies. That is what the consumer needs. That is what he is being given by the Commerce Department's voluntary program, and that is what he would be given under S. 349.

The balance of my statement will address specific provisions of the bills under consideration and suggest the type of melding of the two bills that we believe would result in a single, good and constructive measure.

Title 12 of S. 594 is a translation of the Commerce Department's voluntary program into statutory language. We believe we know how the Commerce Department would interpret the law if, as is to be expected, the President delegates the authority of title 12 of S. 594 to that department. We could live with that interpretation because it would be consistent with the primary fuel measurement and cost of operation concepts I have mentioned.

However, it is not a tightly drawn bill. It represents an effort to write in flexibility in order to satisfy conflicting points of view. Some of its definitions—that of “specification,” for example, are circular. By permitting comparisons on the basis of “cost or amount of energy used or otherwise,” it appears to back away from the simplicity and directness of the annual cost of operations approach. Its definitions of “energy efficiency” and “energy use” also appear to be intended to accommodate other than a cost of operation approach.

Still speaking of title 12 of S. 594, it would, by section 1219(b), provide for the sanction of seizure. This is an extreme sanction, and we believe that the civil penalty for violation is an entirely adequate approach to enforcement. We also believe that section 1206(c) is too in-

flexible in limiting the time allowed for interested persons to comment on a proposed rule to 30 days.

Complex issues are involved in appliance efficiency labeling, and some products involve more complexities than others. Provision should be made for allowing additional time for good reason shown.

Section 1209 of title 12 calls for the development and registration of an "energy conservation mark." This was made a part of the voluntary approach to provide an inducement to manufacturers for voluntary participation. We see no need for such a provision in a mandatory program, particularly since the mark would appear on the relatively inefficient as well as the relatively efficient.

There are aspects of title 12 of S. 594 that commend themselves to us. Section 1206(e) provides for building on the progress made in the implementation of the voluntary program of the Department of Commerce. It would be a pity to not take advantage of the great effort the Commerce Department, the National Bureau of Standards, and industry has made in implementing and preparing to implement the voluntary program. Much time, effort, and money have been spent with good results. This should not prove to have been wasted.

We also like the emphasis given by section 1210 on consumer education. A labeling problem not accompanied by an aggressive consumer education program would be a halfway measure.

And finally, we do find attractive the assignment of the implementing authority to the Department of Commerce. They have developed the expertise. They have developed a cooperative relationship with the industry. To change horses at this time would seem to us to be wasteful of existing capability. We have nothing against the Federal Trade Commission, but can find no apparent advantage to abandoning the existing capability and involving a new structure which does not now have a capability in this particular area.

Turning now to S. 349, we find it sound in concept, except possibly for the structural arrangement just mentioned. If there were to be incorporated an appropriate emphasis on consumer education and provision for not wasting the work done to date under the voluntary program, we would be close to having a good bill. But there are some weaknesses which I will proceed to identify for you.

As I mentioned a moment ago, appliance efficiency labeling involves very complex problems. The definition of average-use cycles and the development of procedures for simulation and measurement of these cycles are not easy tasks. This is particularly so if efficiency depends on systems rather than products, or where the efficiency of one product bears on the efficiency of other products.

An example or two may help in making this point. The efficiency of a clothes dryer may depend on the amount of water removed from the clothing by the washer in the final spin cycle. Or the efficiency of a dishwasher may depend in part on the temperature of the water introduced, which would then involve the question of efficiency of the water heater operating at that temperature level.

Considering these complexities as they have been made clear to us in working with the Department of Commerce's voluntary program, we believe that the time constraints of sections 20 and 21 of S. 349 are unrealistic.

The time constraints run from the date of enactment, but before the FTC could begin the complex task of defining average-use cycles and procedures for their simulation and measurement, it would first be required, in consultation with the Federal Energy Administration, to identify the products whose patterns of use warrant their being defined as major energy-consuming household products.

Presumably, the programs for all products would have to be developed concurrently, in which case the time constraints would, in our judgment, prove unworkable. We strongly recommend that these constraints be reviewed critically and that a degree of flexibility be provided.

The definition of average-use cycles and the procedures for their simulation and measurement are not only complex but also involve matters which bear very directly on the substantial interests of the manufacturers of major energy-consuming household products. This being so, they should be developed by following the rulemaking procedures set forth in title II of Public Law 93-637, the Warranty/FTC Improvement Act, passed by the 93d Congress. This involves questions of due process and procedural fairness which I hope the committee will recognize.

Section 20(b) would require each manufacturer to conduct tests or calculations on products in accordance with specified requirements. I believe it would improve the bill to permit a manufacturer, should he desire to do so, to have the tests made and be certified by a third party certification agency.

Section 21 would make it unlawful to sell a new major energy-consuming household product unless the estimated annual operating cost is disclosed on any place where the price of the product is stated. Suppose a supplier elected not to provide the product, or display with the product, anything stating the price.

By tying the disclosure requirement to documents stating the price, it seems to me that a loophole may be unintentionally provided those who might seek to avoid the application of the act.

I would recommend that you consider adding language which would authorize the implementing agency, be it Commerce or the FTC, to otherwise provide for disclosure to a purchaser prior to sale in accordance with rules established by the implementing authority.

My final recommendation relates to the preemption of State and local authority as provided for by section 23. If there is one advantage that a Federal mandatory program would have in comparison with a voluntary program, it is in the preemptive effect of the Federal law. As I read section 23, it would not preempt the authority of a State to require labeling with the monthly cost. I believe this is unintentional and would recommend amending section 23(a) to read as follows:

SEC. 23. Preemption.—(a) It is hereby declared to be the express intent of Congress to supersede any and all laws of the States or political subdivisions thereof insofar as they may now or hereafter provide for the disclosure of energy consumption, energy efficiency, efficiency ratio, fuel economy, or annual or other operating cost, or other means of enabling a comparison of the energy or fuel consumption characteristics of any new major energy consuming household product, automobile, or climate conditioning system if there is in effect and applicable a Federal disclosure requirement with respect to such product, automobile, or system.

Mr. Chairman, that concludes my prepared statement. I would like to compliment the drafters of S. 349 for their excellent start. I can assure you of our desire to support your effort in developing this legislation. The subject is important, for the opportunities are great.

Thank you. I might add, Mr. Chairman, that we are also located in the immediate area and we would be happy to work with the implementing agency in any way possible, or with those who are drafting the legislation in any way we can.

Senator TUNNEY. I appreciate that offer, and we will call upon you for assistance. I am very interested in your suggestions. I think you have made some very good suggestions to improve both bills. I have to spend a little bit more time thinking about the implications of your suggestions. But clearly I did not intend in the preemption clause to allow a loophole to develop such as you have suggested might exist. I think that is a good suggestion.

I was also very interested in the suggestion that you made with regard to rulemaking procedures. I think that is something which bears due consideration by this committee.

I want to give to the industry an opportunity for due process, and it was certainly not my intention to exclude the possibility of normal due process such as is contained in title 2 of Public Law 93-637.

Mr. PAYNTER. We didn't think that you did.

Senator TUNNEY. I just have a few questions.

One of the decisions that is going to have to be made very soon by this committee is which agencies are involved and how. And you have been sitting here this morning, you have heard me question the various agency officials with respect to that problem. Now you feel that it would be best to have Commerce be the lead agency.

What about with respect to advertising and public information? Don't you feel that the FTC has greater expertise in this area than the Commerce Department has?

Mr. PAYNTER. I believe it has, Mr. Chairman. We see no reason why the FTC could not play that role, even though the Department of Commerce had the implementing authority on the program as a whole.

I think the FTC has on many occasions played an advertising and education role where they didn't have the basic responsibility for a program.

Mr. STEVENS. I might add, Mr. Chairman, that I would hope all of the agencies of the Government would recognize that they have a task to perform in acquainting the public at large on this subject. Certainly Mrs. Knauer's office should become very much involved, and there are a number of State and local mechanisms that ought to be involved in bringing this subject to the attention of the public.

Senator TUNNEY. How about enforcement? Do you feel that should be with the Commerce Department?

Mr. PAYNTER. We believe it should, Mr. Chairman, and we see no problem with enforcement, really. It is virtually inconceivable to us, as representatives of manufacturers, that there would be any real hangup or problem in enforcement.

Senator TUNNEY. In your statement, Mr. Paynter, you state that the time constraints in S. 349 are too rigid. Could you give us some estimate of the amount of time that you think is needed?

Mr. STEVENS. That would be, I think, beyond our area of expertise, Mr. Chairman. We have had some experience with the Department of Commerce voluntary program. We have been working on that program for well over a year now, and so far only two or three products seem close to being encompassed by the program.

I was also interested in the testimony given by the representative of the FTC this morning. The witness made mention of the refrigerator performance standards. I know that that particular proposal has been circulating within the FTC for nearly 2 years now.

This is indicative of the very complex issues that are involved. I would certainly think there might be a problem, whichever agency is assigned the responsibility, if they were to be expected to deal with all of these complex issues on a number of products at the same time.

But for us to try to suggest that it ought to be 10 months or 15 months, I would have to ask you to excuse us from answering the question in that detail.

Senator TUNNEY. One of the reasons that in the Congress we like to establish timetables is that we find so frequently that if you do not have a timetable you don't have the same degree of accountability.

Mr. STEVENS. We certainly understand that, Senator. As a matter of fact, we have recently experienced some very considerable difficulties with another agency of the Government because the time constraints the Congress mandated were rather severe.

The result has been that I doubt that this particular agency or commission has been as effective as it might have been had it been permitted to follow a more orderly procedure.

Mr. LANGMEAD. Mr. Chairman, along with your question on the time constraints, I would like to reemphasize the point that with some products it is much easier to develop a standard method of test and labeling method than others.

For instance, climate-conditioning system present a number of problems and complications that will make it a difficult job, and certainly take more time than other relatively simple products.

Senator TUNNEY. Yes. I was interested that you argued for an operating cost approach. As you know, some groups have argued for an energy efficiency ratio. I have supported the operating cost approach because I thought that it gave to the consumer, gave to me the kind of relative information that I would need in a very obvious fashion rather than requiring as a witness suggested, a slide rule to make these computations as to what energy efficiency meant in the way of cost.

You feel that despite the inflation in energy costs, that it would be possible to have an operating cost approach?

Mr. PAYNTER. Very definitely, Mr. Chairman. And in fact, I heard Mr. Sant's views on the subject and I agree with him 100 percent. Even if it is in error to the magnitude of 50 percent, it would still be fair and most effective and easy for the consumer to understand, particularly if the assumption were to be very clearly stated.

Senator TUNNEY. Yes, with backup information that could be provided by the dealer.

Mr. PAYNTER. Yes.

Senator TUNNEY. Well, that seems to me to make a lot of sense.

And it would also be important that the agency require, on a regular basis, reevaluation of the operating cost based upon increased energy prices. Hopefully we would get to a point in this country's economy where you won't have your energy bills changing on a weekly or a monthly basis. There would be a degree of stability.

But I think it does make sense, and if you had that backup information, which would enable you to make the calculation as to the cost per kilowatt hour and relate it to a monthly cost or annual cost, I think that would solve the problem. But at least it would give you in your first impression the indication of what the system's cost was going to be. It would give you a way of analyzing whether or not by making a purchase of an appliance that was cheaper initially you might in the long run be spending a lot more money.

I want to thank you very much for your help, and I appreciate your being here and the detail that you had in your statement. It will be helpful to us on the Committee.

Mr. PAYNTER. Thank you.

[Whereupon, at 12:30 p.m., the hearing in the above-entitled matter was adjourned.]

ADDITIONAL ARTICLES, LETTERS, AND STATEMENTS

STATEMENT OF THE ASSOCIATION OF HOME APPLIANCE MANUFACTURERS

This statement is presented on behalf of the Association of Home Appliance Manufacturers (AHAM). The association's regular members manufacture such major appliances as refrigerators, home laundry equipment, room air conditioners, electric ranges, dishwashers, and disposers; and such portable products as coffee makers, electric toasters, blenders, and electric cookware.

I. AHAM Supports Energy Conservation

AHAM strongly supports reasonable means of conserving energy in the use of appliances and in making the products more efficient in their consumption of energy. In 1972 and 1973 the association worked and contributed substantially to what was probably the first governmental attempt to foresee and prepare for the energy crisis, a study made by New York State's Interdepartmental Fuel and Energy Committee.

AHAM has cooperated with the Department of Commerce's energy disclosure and labeling program since its inception. Product divisions of the association are now developing standards and test methods for measuring energy consumption under conditions reasonably approximating actual use. Educational programs are being undertaken to emphasize the efficient use of appliances. Thus AHAM is no stranger to the problems and practical implications of requiring the disclosure of information on energy use and efficiency for appliances.

The association and its members have had long experience in this work. Its certification programs, its standards work and consumer education programs date back to World War II.

Were it not for the fact that inconsistent regulations are being considered and promulgated by several states, AHAM would urge the Congress to delay mandatory legislation until the voluntary program of the Department of Commerce and the educational programs have been fully developed and their success determined.

II. Technical Considerations Are Fundamental

In writing legislation to require the disclosure of information on energy use and efficiency, the Congress must keep a number of facts in mind.

First, developing test methods, standards, that are acceptable for national use is an arduous, expensive, complex, and time-consuming process. Energy consumption must be related to the task a product is to accomplish—cooking, the preservation of food, washing or drying clothes, cooling the air, and so on. Often new or modified instruments must be developed to make the tests. Before a test method or standard can be offered for national use, extensive testing must be done in a number of laboratories to insure that the results obtained are consistent and repeatable.

Second, federal measurements must be presented understandably to the purchaser. Energy consumption and the efficiency of a product are determined as much by the use of the product as by its initial design. Use of a product is completely under the control of the individual consumer, no matter how skillfully the product is designed. Education, therefore, must become a part of any program to conserve energy in the use of appliances.

III. Effective Disclosure of Energy Data Serves Three Purposes

Disclosure of information on energy consumption by appliances provides information by which a purchaser may compare the amount of energy consumed or the relative efficiency of different brands and models within a class of product. The result, it is hoped, will be to encourage the purchase of the more efficient brands and models.

Disclosure of information on energy consumption aids and encourages the consumer in operating the product, after purchase, in an efficient way.

Disclosure of energy information for purchase and use purposes encourages manufacturers of appliances to increase efficiency, and thus to reduce the over-all consumption of energy by these products.

IV. AHAM Favors Integrating S. 349 and Title XII of S. 594

AHAM believes these worthy legislative goals can best be attained by combining provisions of S. 349 and Title XII of S. 594.

The views of AHAM's members on key provisions of the two bills are set forth below. Our discussion deals only with provisions applicable to appliances, and we urge that motor vehicles and appliances be the subject of separate legislation.

Products to be Covered

Different types or classes of appliances vary in the amount of energy consumed in performing their functions; and within a given type or class the variation in the efficiency of energy consumption may be great or it may be small. For instance, room air conditioners and refrigerator/freezers are large consumers of electricity, both as units and in the aggregate. Clothes washers and dishwashers, except for the energy used in heating water, consume relatively small amounts of electricity.

The efficiency in energy consumption by room air conditioners from brand to brand and model to model varies. The efficiency of the burners on electric or gas ranges probably does not vary appreciably from brand to brand or model to model. Therefore to require that energy information be disclosed for *all* major appliances can only cause the expenditure of unproductive effort and funds.

S. 349, § 19(10),⁴ would require the disclosure of energy consumption data for "major energy consuming household products," which are defined as requiring, "based on average patterns of usage, a significant amount of energy per year . . ." Title XII, S. 594, § 1204(a), would extend energy disclosure requirements to room air conditioners, refrigerators, freezers, clothes washers, dishwashers, clothes dryers, kitchen ranges and ovens, and water heaters. Additional classes of appliances could be brought under the disclosure requirements if shown to use a significant amount of energy and to have an actual or potential range of energy efficiency.

AHAM believes the flexibility provided by S. 349 is desirable to avoid requiring unnecessary and unproductive disclosure of energy information. AHAM also believes that the two tests of S. 594—i.e., that a class of appliances be shown to use a significant amount of energy [to which we would add individually and in the aggregate] and to have an actual or potential range of energy efficiency—are more clearly stated than the test in S. 349.

Information to be Made Available

Three types of information on energy consumption may have meaning for a purchaser in selecting a brand and model of appliance that uses relatively less energy than competing brands and models.

These are information on efficiency in the use of energy, information on the amount of energy consumed (kilowatt hours or British thermal units) under normal conditions of use during a specified period of time, or the cost of the energy consumed under those conditions of use and for a specified period of time.

S. 349, § 19(6), specifies that the information to be disclosed be the "estimated annual operating cost." This term is defined as "the estimated cost of electricity or fuel needed for average usage during a calendar year" as determined under the act. S. 594, § 1205(a)(4), would provide that the information to be disclosed be designed "to assist the consumer in comparing, by cost or amount of energy used or otherwise, the energy efficiency and/or energy use characteristics of a particular product with all others in its class."

AHAM supports the flexibility accorded by S. 594. "Cost of operation" for any appliance is an estimated figure, affected by consumer use and by cost of energy. Consumer use varies from household to household as does the cost of energy from community to community. The "estimated annual operating cost" with

⁴ S. 349 would amend the Federal Trade Commission Act by striking § 18 and substituting new §§ 18-24. These section numbers are used in this discussion. We believe, however, that the striking of § 18 may not be what is intended. Sec. 18 originally merely gave the short title of the act. The section now contains rulemaking procedures for the Commission, as enacted by the 93d Congress in the Warranty-Federal Trade Commission Improvements Act, S. 356. 15 U.S.C. § 58.

which an appliance would be labeled would not, in reality, be anyone's actual cost of operation. Furthermore, with the cost of energy constantly rising, "cost of operation" at time of manufacture will inevitably understate "cost of operation" at time of purchase. To mandate the disclosure of "estimated annual operating cost" imposes a rigidity upon the program that can be very misleading. The flexibility provided by S. 594 does not preclude using cost of operation, but will permit the use of another type of information when particularly relevant to a product line.

Means Used to Obtain Information

S. 349, §20(a), sets a very rigid timetable for obtaining the "estimated annual operating cost" for the various classes of appliances. Within nine months after enactment of the bill the Federal Trade Commission, with assistance from the Federal Energy Administration, would define an "average-use cycle" for each class of product. Within the same period, the agencies would be required to develop test procedures to simulate the average-use cycles and to measure the energy used during the average-use cycles.

Also within the nine months, under §20(c), the Commission and FEA would develop, "on a regional, national or other basis," data on the number of "average-use cycles" performed by each product during a year, as well as the "average unit cost of electricity" for circumstances "under which major energy-consuming household products are expected to be utilized."

This is a very tight schedule for the development of reliable test procedures to measure energy consumption by appliances under simulated conditions of average actual use. If adhered to, the schedule could result in the dissemination of inaccurate and misleading data, and data that might not give comparable results for competing products.

S. 594 is less specific on the way in which data on energy consumption will be obtained. Sec. 1204(a) directs the President, or an agency to which the authority is delegated, to "develop and promulgate energy conservation specifications" for the various classes of products. Under §1205(a), each specification would require that an energy consumption figure for each model and brand of product be shown on a "prototype label." The range of "energy efficiency" or "energy use" for each class of product, where available, would also be shown on the label. The method to be followed in obtaining this information is not specified, but the bill reflects the procedure being followed in the Department of Commerce's voluntary program.

Under that program the Department and representatives of the appliance industry are working diligently to develop test methods for determining energy consumption or efficiency in the use of energy by different classes of product. In some instances, the formulas may be comparable to that of S. 349—determination of an "average use cycle" and the average number of cycles through which an appliance may be expected to operate during a year. Such a formula may not, however, be appropriate for every class of appliance. Flexibility in determining the formulas, procedures, and test methods for each class of appliance must be provided.

In like manner, since the cost of energy varies so greatly an "average unit cost" has no meaning for the individual user, and flexibility should be permitted. The voluntary program being instituted by the Department of Commerce for refrigerator/freezers calls for the disclosure on an Energy Guide of the number of kilowatt hours consumed, "under standard test conditions," by a refrigerator/freezer during a year. The estimated annual cost of operation, at a rate of 4¢ per kwh, is also shown on the Guide. In addition, the Guide provides a tabulation of costs for different kwh rates, so that a purchaser may ascertain the estimated annual operating cost for his locality.

Method of Providing Information at Point-of-sale

Beginning nine months after enactment, and annually thereafter, S. 349, § 20(d), would require the Federal Trade Commission to disseminate to manufacturers and importers data on the number of average-use cycles performed each year by each product, the average unit cost of electricity, and instructions for determining estimated annual operating cost. The annual cost would be calculated for each product and, where appropriate, a range would be prepared to reflect geographic differences in use patterns or energy costs. The information would be sent with each product as shipped to distributors and retailers. Each dealer would then select, in accordance with instructions furnished by the Commission, the estimated annual operating cost applicable in its region.

Beginning 18 months after enactment, under § 21(a), persons offering the products for sale at retail would have to disclose the estimated annual operating cost on any tag, label, contract, etc. on which the purchase price is shown. The operating cost would have to be in the same type, color, and size as the price. Under § 21(b), the cost would also have to be stated, visually or orally and in accordance with rules issued by the Commission, whenever the price for a product is advertised.

This procedure is too cumbersome to be effective. It puts the final responsibility for assuring that the purchaser has access to the data on the retailer, who, with many other sales responsibilities, may not be able accurately to select the appropriate annual operating cost for each model of appliance he handles.

The specifications to be developed under S. 594, § 1205(a) (4), would require that a label or tag, designated an "Energy Guide" under the current voluntary program of the Department of Commerce, be attached to each product by the manufacturer. This tag or label would have the appropriate energy data for the product to which it is attached, and would be visible to the purchaser at point-of-sale.

This is, we believe, as direct and reliable a means of assuring that the energy data can be seen prior to purchase as can be devised.

Agency to Conduct Program

S. 349, § 20, vests authority to promulgate regulations for the disclosure of energy consumption data in the Federal Trade Commission, with assistance to be obtained from the Federal Energy Administration. S. 594, §§ 1204(a) and 1212(b), vests the authority in the President, with power to delegate the authority to some federal agency. AHAM recommends that the authority be vested in the Department of Commerce, where the National Bureau of Standards has engineering experience and facilities that will be required for implementation of the statute. The Bureau and industry have gained valuable experience from their work on the voluntary program. This experience should not be lost through assignment of the statutory duties to another agency of government.

Rulemaking Procedures

S. 594, § 1206(a) specifies that the Administrative Procedure Act, 5 U.S.C. § 553, be followed by the President or his delegate in promulgating rules and regulations under the act. S. 349 is silent on the subject. We assume this is because authority to promulgate rules and regulations to govern the disclosure of information would be vested by the act in the Federal Trade Commission, and rulemaking by the Commission is now governed by § 18 of the FTC Act, as amended by Pub. L. 93-637, § 202, 15 U.S.C. § 58.

If the authority for promulgating energy disclosure regulations is to be vested in another agency, rulemaking procedures similar to those in the amended § 18 should be explicitly stated in the statute. The following paragraph is recommended:

"Except as provided in this subsection, a proceeding shall be conducted in accordance with the provisions of section 553 of title 5, United States Code. Notice and a public hearing are required, and a record of the proceeding shall be maintained. The proceeding shall be structured to proceed as expeditiously as possible, while permitting all interested persons an opportunity to present their views. Participants shall be given a right to cross-examine on matters directly related to the proposed rule, and the (agency) may set such conditions and limitations on cross-examination as are deemed necessary to assure fair and expeditious consideration of the contested issues. All testimony shall be presented by affidavit or orally under oath, pursuant to regulations issued by the (agency); where appropriate, persons with the same or similar interests may be required to appear together by a single representative. Each rule issued by the (agency) shall be based on substantial evidence in the record taken as a whole and at the conclusion of a proceeding pursuant to this subsection shall be published forthwith in the Federal Register."

Pre-emption of state regulation

It is extremely important that requirements for disclosing energy consumption data on appliances be uniform throughout the nation, and that federal regulation pre-empt state and local regulation. Appliance manufacturers cannot know where products are to be sold at the time the products are manufactured. If information

of one type must go to one state and information of another type to another state, orderly distribution of products would become impossible.

Under S. 349, § 23(a), state and local requirements for the disclosure of data on energy consumption, efficiency or operating costs would be pre-empted to the extent that federal regulations were in existence. A state or locality could, however, petition the Commission, under § 23(b), for permission to impose a different requirement, when greater protection is made necessary by compelling local conditions and does not unduly burden interstate commerce. The preemption provision of S. 394, § 1211, does not permit the filing of such a petition by a state or locality.

AHAM supports the pre-emption provision of S. 594. "Compelling local conditions" may require more stringent safety standards for consumer products, as provided by the Consumer Product Safety Act. "Local conditions" would not seem to demand more stringent requirements for disclosure of energy consumption data. Receiving and passing on petitions by states and localities would divert the agency from its primary work and cause unnecessary expenditure of time and funds by both industry and government. Appliance manufacturers do not know where in the United States products are to be shipped and sold when the products come off the assembly line. Having to provide different energy consumption data for products going into different states and localities would require drastic changes in packaging, shipping and distribution practices, and would deprive consumers of the economic benefits that flow from the present practices.

Enforcement Provisions

Under S. 349, § 22(a), violations of the disclosure provisions of §§ 20 or 21 would be an unfair or deceptive act or practice under § 5 of the FTC Act. Suit in a federal district court to restrain violations of the act could be brought by the Federal Trade Commission, under § 22(b). Private suits could be brought, under § 22(c), in federal district courts to restrain violations of the act or to obtain the order forcing the Commission to fulfill its obligations under the act.

The enforcement provisions of S. 594, §§ 1218 and 1219, call for the imposition of a civil penalty of up to \$10,000 for each violation of the disclosure requirements, and the seizure and destruction of products not properly labeled. The Attorney General would also have authority to obtain an injunction to enforce compliance with the act. The penalty and seizure provisions of S. 594 far outweigh the gravity of the offense. Condemnation and destruction of mislabeled products would be wasteful in the extreme.

The enforcement provisions of S. 349 are entirely adequate.

V. AHAM Offers Further Aid to the Committee

AHAM and its members represent the greatest existing reservoir of technical and factual information on the design, production, distribution, and use of household appliances. The Committee is urged to call on AHAM, and its various boards, committees, and product groups, for any help the industry can appropriately give.

FEDERATED DEPARTMENT STORES, INC.

Cincinnati, Ohio, March 7, 1975.

Hon. JOHN V. TUNNEY,
U.S. Senate,
Washington, D.C.

DEAR SENATOR TUNNEY: On behalf of Federated Department Stores, Inc., I'd like to express our support for the principles enunciated in your bill, S. 349, the Truth-in-Energy Act of 1975. Information as to the cost of energy required to operate major appliances should be made available to the consumers at the point of sale.

Your bill requires that the computation of energy cost data be calculated by the manufacturer and supplied to the retailer and with this we heartily agree. Federated has long believed that manufacturers of appliances should provide more information in a form which we can make available to consumers at the point of sale. This not only helps prospective purchasers make a selection best suited to their needs, but helps assure informed sales personnel.

We recognize, of course, that there are sections of your bill such as those dealing with the mechanics of determining "average annual cost", the requirement covering climate conditioning systems, the determination of which Federal agency will administer the program, etc.—all of which involve some controversy.

These issues have been commented on by witnesses during your recent series of public hearings. As far as we are concerned, these are details. They can be resolved by the committee when it considers the statements submitted by these witnesses.

Again, we applaud your effort on S. 349. We will be happy to lend whatever help we can to assure a speedy trip of this measure through the Congress.

Sincerely,

JOHN HOVING.

AMERICAN RETAIL FEDERATION,
Washington, D.C., March 10, 1975.

Hon. WARREN G. MAGNUSON,
Chairman, Committee on Commerce,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: The American Retail Federation wishes to thank you for this opportunity to submit a statement on energy labeling of appliances. The members of the Federation endorse the basic concept of energy labeling.

The American Retail Federation is comprised of 50 state retail associations, 30 national retail associations, and sustaining corporate members. Through the total membership, the Federation represents over one million retail establishments. Retailing constitutes over 20% of the Gross National Product with over eleven million workers employed in retailing in the United States. Retailers in their role as seller of the appliances to the consumers have a great interest in appliance energy labeling proposals.

S. 349, the "Truth in Energy Act of 1975" which was introduced by Senator John Tunney (D-Calif.) proposes an appliance labeling program in a manner generally satisfactory to the retailer. A labeling program that gives consumers the annual operating costs of appliances at the point of sale is acceptable as long as the manufacturer prepares and ships the label in the manner proposed by S. 349. It should be noted, however, that despite the effectiveness of the proposed labeling program, as long as energy costs escalate the consumer cannot expect to save significant amounts of money.

While we generally support S. 349, the bill does present certain problems and ambiguities which retailers feel could be cleared up to strengthen and improve the bill.

The definitions in the proposal are not as specific as those included in Section 8 of S. 2176 last Congress. The definition of a major consuming household product does not give a minimum energy use for appliances which are to be labeled nor is there a definition section specifying the items to be labeled. A preferable approach to Section 19(10) would be to define a 'major consuming household product' as follows: (Taken from Section 8 of S. 2176).

"Major energy consuming household product" means a product which: (A) is sold or intended to be sold for use in a residence; (B) is utilized or intended to be utilized for a major residential end use of energy; (C) functions when connected to a readily available source of energy external to the product; and (D) requires, based on average patterns of usage as determined in accordance with section 20 of this Act, more than 200 kilowatt-hours per year or in the case of a product powered by fuel, more than 2,000,000 British thermal units per year.

To further distinguish between electric toothbrushes and self-cleaning ovens, some certainty is necessary to prevent the bill from becoming a burden on both the retailer and the manufacturers without conferring any real benefit on the consumers or the economy.

Clarification as to coverage would best be achieved by the addition of a section which could read as follows: (Taken from § 8 of S. 2176)

"Major residential end use of energy" means one of the following residential uses of energy: (A) space heating; (B) water heating; (C) cooking; (D) clothes drying; (E) refrigeration; (F) air conditioning; and (G) any other residential use of energy that the Commission, in cooperation with the National Bureau of Standards, determines, by a proceeding pursuant to section 20(j) of this Act, to be included to meet the purpose of sections 18 through 24 of this Act."

This definition by using the National Bureau of Standards takes note of the fact that NBS and the Department of Commerce have already developed and

implemented voluntary energy labeling programs in concert with the manufacturing and retailing industries.

The breadth of the definitions in the "Truth in Energy Act of 1975" makes it very important to those being regulated that procedures for developing regulations be fair and explicit. The subject matter of this bill is within the scope of Section 5 of the Federal Trade Act, and should be subject to the same type of safeguards. The regulation-rulemaking procedures found in the recently enacted Consumer Product Warranty/FTC Improvements Act of 1974 (PL 93-637) should be applied to the proposals of this bill. Therefore, it is recommended that a new section be added before Section 21 of S. 349, making all rules, orders, and regulations issued under this bill conform with Section 18 of the Federal Trade Commission Act.

In addition, these broad definitions make the procedures by which regulations are formed very important to the retailing community. Decisions in many cases are provided for after the FTC and the FEA engage in consultations. However, there is no provision for industry input into the process, and that is one of the reasons that the FTC Act was amended by PL 93-637.

Finally, a change in this proposal from Section 8 of S. 2176 which is of great concern to retailers is in the labeling and advertising Section of the bill. The word "knowingly" is omitted from that Section of the Act which makes it unlawful to give false or misleading information with respect to costs. Retailers do not have the testing facilities to check the information which under the Act is supplied by the manufacturer or importer. Therefore, the violation should be only for deliberate deception in supplying information. This can be accomplished by inserting the word "knowingly" before the words to "give false or misleading information" in Section 21 (d).

Retailers support the educating of consumers as to basic energy costs. However, the practical concerns expressed above are essential to adapting the bill's mandate to the retailers capabilities.

Sincerely,

LOYD HACKLER, *President.*

ACTUAL ENERGY USE IN BUILDINGS

We all get propaganda in the mail, sales pitches and read ads in magazines about how people are saving energy. We read all kinds of propaganda that's coming from the Government on how to save energy. Magazines are chock full of ads for products that save energy. If you go to the ASHRAE convention in Atlantic City, you'll see 490 exhibitors who will probably be exhibiting the same equipment they did last year, except that the signs have changed and this same equipment is now labeled as ultra energy conservative.

I think that if you design your next building using all these good things and end up saving all that energy, the result will be that your client will be getting checks every month from the utility companies instead of bills.

I think from the standpoint of many of us here, it is interesting to see and note what really happens in buildings; to see what energy actually goes through the meter or into the tank. What I have done is to collect some energy use data on actual buildings in operation showing their energy use and then tried to conceptualize some of the reasons why these buildings use the energy they do or that they don't. I have then tried to relate this to some of the design procedures that we're used to using.

Most of us in our field of endeavor are concerned primarily with seeing that the equipment that we install in buildings is capable of meeting the peak loads, whether its heating, cooling or a combination. The concept of energy use in buildings adds another dimension to the design process that is totally different in many respects, to the way we have been taught to think.

The major determinant of energy use in buildings is the demand that the occupants place on the building more so than the type of system, or the boilers, or the chillers or the energy source. We're building buildings for people, not for machinery, not for glass, not for insulation, not for automation centers, not for heat recovery. We're building them for people and it is the people that occupy the building that place the demands on and therefore create the energy

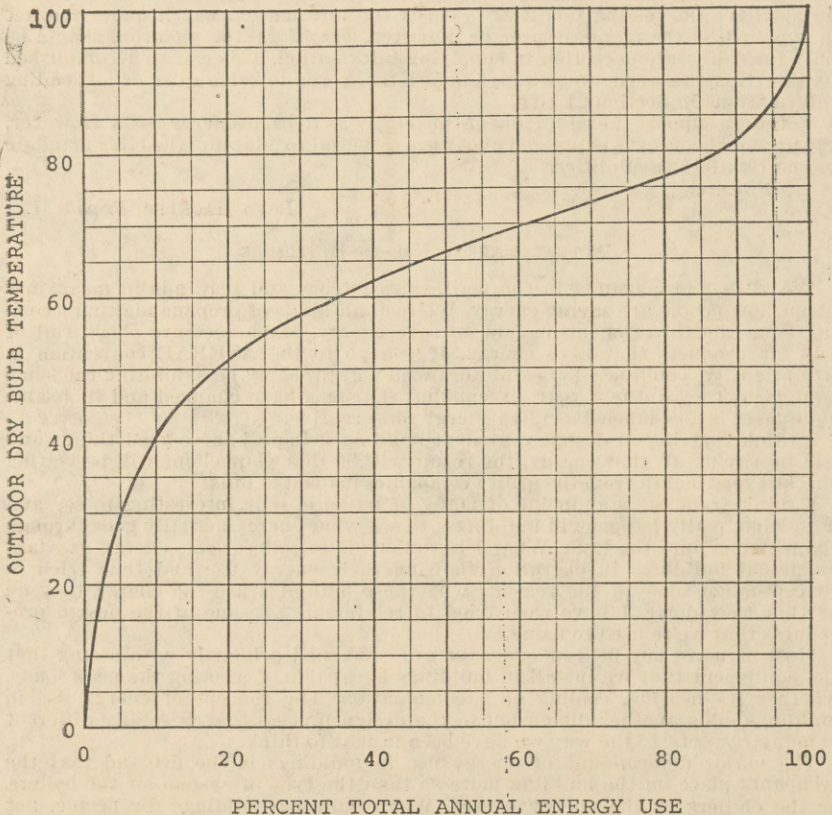
use by the systems. True, some HVAC systems respond differently than others. We're going to see how much difference in energy use that really makes.

The quantity of energy used in buildings is not necessarily related to design load or installed capacity, which is to say, if you can cut the installed capacity of the air conditioning system by 50%, there's a good chance you could well increase the energy consumption, not reduce it. So there is no relationship between installed capacity and energy consumption.

The majority of the use of energy in buildings occurs during the time when the outdoor temperature is moderate, so that the HVAC systems are operating at part load. Conversely, a very small fraction of the energy use occurs at the times when the outdoor temperature is at the annual extremes, and the systems are at or near peak load.

Figure 1 will give you an idea of this. This is a curve showing the annual energy use for heating and cooling of buildings related to outside temperature. You can see that in the 20F increment of temperature between 0F and 20F, the building is using less than 5% of its annual energy. In the 20F increment between 80F and 100F, it is using about 12% of the annual energy. In the 20F increment from 50F to 70F, the building is using about 45% of its annual energy.

HVAC ENERGY USE AS A FUNCTION OF TEMPERATURE



Many of you have probably read the article that I wrote in the January, 1974 issue of ASHRAE Journal on insulation, which applied particularly to commercial buildings and particularly in southern climates where more insula-

tion is not necessarily better, because it inhibits the flow of internal heat gains out of the building and increases the cooling energy requirements.

Therefore, we should be much more concerned about how efficiently the HVAC system operates during moderate temperatures than during extreme temperatures. This means we should look at air conditioning energy use as a function of different things than we look at for design.

We should look at energy use first in terms of hours of operation because this is the primary determinant of energy use. What runs all those hours, and typically at full load; fans and pumps. You'll find that in many buildings the fans and pumps use more energy in a year than the chillers do.

Second, in terms of heating and cooling loads, energy must be expanded to satisfy the cooling loads from internal gains in the building and from the external heat gains. The amount of heating energy required is a function of heat loss, outside air flow and HVAC system heating energy requirements. The occupancy in turn also affects the domestic hot water energy requirement of the building.

In order to describe and understand the energy use of the building, quantitatively and comparatively, it's kind of difficult to say that one building uses so many kilowatt hours, so many cubic feet of gas or so many gallons of oil. There is a common terminology developing that is called the energy budget. The energy budget is defined as the amount of fuel going into the building at its gross thermal value plus the kilowatt hours times 3, 413 Btu/Kwh, all divided by the square footage of the building.

To give you a reference point, the Federal General Services Administration suggests, that for Federal office buildings, a realistic and obtainable energy budget is 55,000 BTU's per square foot per year. Keep that number in the back of your mind as a realistic supposedly obtainable energy budget for Federal office buildings, which are occupied 9:00 A.M. to 5:00 P.M., five days a week.

Figure 2 shows the results of a study on a 335,000 square foot office building located in Central Pennsylvania. The energy budget is shown as a function of certain system alternatives, indicating how it can be influenced. The important thing to recognize in this figure is that the building, its systems and occupancy are a constant and have been reduced as far as considered practical today, and is all very theoretical, having been taken from a computer study. You can begin to see that fairly substantial variations can occur even with a given building configuration.

Case No. 1 is the "base case" which is the building as it's being built. You can see that the energy budget varies from the high 40's up into the mid 80's as a function of the energy source and the type of central plant equipment.

This is a three story building, with a central chilled water system and steam boiler plant with a medium velocity variable air volume air distribution system and perimeter radiation.

Figure 3 shows energy budgets for variations in the air side of the system in two ways; first, the manner in which the system is operated and second, the manner in which the system is designed which determines the flexibility that the operator is given. Looking at Case No. 1, which is the building as it's being built, we find an energy budget of 73,400 BTU per square foot per year, based on .1 CFM per square foot of outside air. Moving to a $\frac{1}{4}$ CFM per square foot increases it to 85,800. Going from double to single glass increases it even more. In Case No. 4, rather than operate at 75F in the summer and 72F in the winter, if we set back to 68F in the winter and set up to 80F in the summer, and reduced the humidification in winter from 30% to 20%, we can drop way down to 59,700 BTU per square foot per year.

In Case No. 5, if we later decided to use heat recovery and turn off the economy cycle, using minimum outside air at all times, we slightly increase the energy budget over the base case but may later be able to shift some cooling energy to offset some heating energy. If we install only 75% of the peak capacity of the perimeter radiation system in Case No. 6, we can effect a fairly substantial reduction in the energy budget.

Furthermore, if we control that radiation individually on a modular basis, we can effect even more savings. Finally, if we shut off that radiation at night, and let the building drift down in temperature when it is not occupied, rather than maintain the skin at a given temperature, we can save even more. If during

the day, additionally, we shut the heat off anytime the outside temperature is over 50F independently of the other controls, we can save even more energy.

In Case No. 10, if we reduce the occupied hours, delay the start up until 8:00 a.m. and shut the system off at 5:00 p.m., cutting back the hours of operation by 3 each day, we can go from 73,400 in the base case down to 68,600. This building is ordinarily operated 5½ days a week, from 6:00 a.m. to 6:00 p.m.

FIGURE 2.—ENERGY CONSUMPTION AND ENERGY BUDGETS

	Electric demand kilowatts	Electric consump MKWH/YR	Oil or gas MMCF/YR	Energy budget ¹ MBTU/SF/YR
1 Complex—Base case.....	4,049	16,253	16	82.5
2-1 OB + DIN—Base case.....	1,703	2,836	15	75.0
2-2 OB + DIN—ID towers.....	1,687	2,830	15	75.0
2-3 OB + DIN—Parallel chillers.....	1,658	2,935	15	76.0
2-4 OB + DIN—Electric heat.....	3,185	5,295	-----	53.8
2-5 OB + DIN—Electric heat demand control.....	2,400	5,295	-----	53.8
2-6 OB + DIN—Variable conditioner temperature.....	1,746	2,933	15	76.0
3 Complex—Computer on Central Plant.....	4,058	16,263	16	82.6
4-1 Complex—Heat recovery Din + Comp.....	4,485	17,672	-----	48.9
4-2 Complex—Heat recovery DIN + Comp + OB.....	4,485	17,352	-----	45.6
5 OB + DIN—Combined features.....	1,732	2,702	12	63.4

¹ Less computer and existing electric.

² Includes cooling for computer room.

FIGURE 3.—INITIAL ESTIMATE OF ENERGY BUDGET

	Estimated gas (million cubic feet)	Equivalent electricity (million kilowatt- hours)	Approximate energy budget (million Btu per square foot)
1 OB base case.....	10,127	2,415	73.4
2 OB 0.25 CFM/SF OA.....	12,913	2,498	85.8
3 OB single glass.....	14,287	2,515	91.5
4 OB 68F-80F-20 percent.....	7,324	2,226	59.7
5 OB NO econ cycle.....	9,165	2,856	75.7
6 OB 75 percent radiation.....	8,949	2,356	68.5
7 OB jcontrol radiation.....	6,729	2,353	59.0
8 OB rad shutoff.....	6,749	2,356	59.2
9 OB heat off over 50° F.....	8,799	2,364	67.5
10 OB short hours.....	9,005	2,388	68.6
11 OB long hours.....	17,851	2,869	110.6
12 OB combined features.....	4,715	2,240	49.4

In Case No. 11, if we operate the air handling system 24 hours a day, but shut off the outside air when the people leave, and turn it on when they come back in again, you can see that the energy budget jumps up to 110,000. Finally, in Case No. 12, we look at several of the above features combined, since the energy savings from each of these features are not directly cumulative. Some of these features can have a counter productive effect among themselves, so that even though we combine many of the energy conservative features shown above, we don't necessarily save the sum total of their energy.

The foregoing analysis shows that we can easily vary by a factor of two to one on the energy budget of a given building with essentially a given system.

Office Buildings

Now let's take a look at a much bigger picture and some real numbers. The Building Owner's and Managers Association every year reports the air conditioning operating cost of over 125,000,000 square feet of office buildings on a city by city basis. If we plot air conditioning operating cost, which, in itself, is fairly crude, against cooling degree days, which also is fairly crude, on a city by city basis, you get a scattering of points that look like Figure 4.

AIR CONDITIONING COSTS

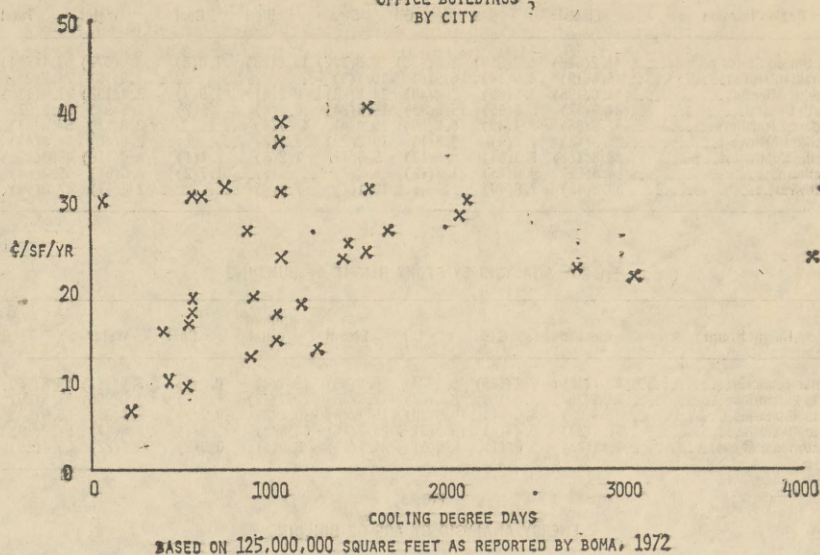
OFFICE BUILDINGS,
BY CITY

FIGURE 4

But, this is certainly not the kind of scattering of points you would expect. What you would expect would be a diagonal line starting in the lower left hand corner and moving up to the upper right. This is because you would think that air conditioning cost is a function of the cooling intensity required throughout the season, and that the warmer the climate, the more cooling energy is required. But that's not the case in office buildings, and in fact, if you could draw any conclusion from this data, you could almost say that the cooling cost of office buildings is independent of how hot it is outside. And to stretch it even a little bit more, the cooling cost of office buildings is virtually independent of the building itself.

In their 1973 report, the Building Owners and Managers Association provides the information shown in Figures 5 through 8 on annual energy cost per square foot, broken down by size of building, location, height and age of building.

The conclusions that can be drawn from this data are essentially that the larger and higher a building is, the more energy it uses, although not significantly more.

A recent study on office buildings in Chicago shows that one building with 75% glass and curtain wall uses a certain amount of energy per year. Another office building in the same study, with half as much glass and masonry walls used twice as much energy.

These are the kinds of numbers that you get for energy use in buildings in real life. Nowadays everybody is concerned about mirror glass and double glass and insulation. When you look at end result energy use, you hardly ever see the effects that these things have.

FIGURE 5.—ENERGY ANALYSIS BY SIZE OF BUILDING

Building size	Electric	Gas	Oil	Steam	Chilled	Coal	Water	Total
Under 50,000 ft. ²	37.7(78)	7.0(49)	6.4(6)	13.8(15)	2.2(1)		4.2(76)	49.3(78)
50,000 to 100,000 ft. ²	35.2(102)	6.6(71)	4.4(14)	15.9(36)	1.1(1)	1.6(2)	3.6(102)	47.0(108)
100,000 to 300,000 ft. ²	39.4(239)	4.9(152)	8.1(67)	18.1(79)	13.6(12)	1.2(2)	3.1(235)	53.6(245)
300,000 to 600,000 ft. ²	40.0(119)	5.5(66)	8.0(25)	19.1(47)	38.3(6)	.9(3)	2.5(119)	56.6(119)
600,000 ft. ² and over.....	43.4(66)	4.6(34)	9.1(21)	2.06(28)	3.1(3)	.9(1)	3.0(63)	59.9(66)

FIG. 6.—ENERGY ANALYSIS BY REGION LOCATION

Region location	Electric	Gas	Oil	Steam	Chilled	Coal	Water	Total
All United States regions.....	41.2(586)	5.2(359)	8.4(125)	19.3(202)	16.8(23)	1.0(8)	3.0(577)	57.1(594)
Canadian region.....	15.6(19)	4.0(14)	6.9(8)	10.1(3)	-----	-----	1.9(19)	21.7(23)
Middle Atlantic.....	51.6(135)	1.9(65)	5.4(40)	24.3(76)	9.2(4)	1.0(3)	3.4(133)	72.4(138)
North Central.....	34.9(92)	5.9(65)	15.5(33)	15.6(24)	6.2(4)	1(2)	2.5(93)	51.9(92)
Midwest Northern.....	32.9(86)	7.1(49)	5.3(26)	19.4(4)	43.7(6)	-----	3.8(87)	57.0(87)
Pacific Northwest.....	25.3(42)	7.6(9)	9.3(1)	10.2(29)	2.1(2)	-----	2.9(40)	34.8(41)
Pacific Southwest.....	38.8(121)	5.3(86)	.9(13)	9.3(17)	1.2(3)	2.1(1)	2.0(116)	46.7(122)
Southern.....	44.8(62)	4.9(45)	1.7(12)	8.2(7)	-----	1.7(2)	3.6(61)	55.2(64)
Southwest.....	38.8(48)	7.8(40)	-----	10.1(7)	7.8(3)	-----	2.3(47)	47.0(50)

FIG. 7

ENERGY ANALYSIS BY STORY HEIGHT OF BUILDING

Height group	Electric	Gas	Oil	Steam	Chilled water	Coal	Water	Total
Under 10 stories.....	42.1(185)	7.1(125)	5.1(34)	16.8(43)	19.1(3)	0.2(4)	3.5(187)	54.8(190)
10 to 20 stories.....	36.9(264)	4.5(169)	8.0(64)	17.7(88)	22.7(12)	1.6(2)	3.0(256)	51.6(267)
20 to 30 stories.....	41.3(96)	4.3(51)	10.6(20)	15.7(48)	10.8(2)	0.7(2)	2.4(94)	55.9(98)
30 to 40 stories.....	41.3(37)	5.4(17)	10.2(9)	24.7(15)	64.8(2)	1.8(1)	2.8(37)	57.0(39)
40 stories and over.....	45.2(23)	5.9(11)	6.5(6)	24.7(11)	3.0(4)	0.9(2)	3.2(22)	65.4(23)

FIG. 8

ENERGY ANALYSIS BY AGE OF BUILDING

Age group	Electric	Gas	Oil	Steam	Chilled water	Coal	Water	Total
Under 5 years old.....	44.7(59)	4.3(31)	5.3(5)	27.1(8)	32.6(2)	1.8(1)	2.0(58)	55.5(60)
5 to 10 years old.....	42.4(102)	6.1(69)	5.3(25)	18.3(17)	17.2(3)	.7(2)	2.6(99)	54.9(105)
10 to 15 years old.....	46.4(70)	6.0(49)	5.7(14)	24.5(23)	11.6(3)	-----	3.1(69)	63.3(72)
15 to 20 years old.....	36.7(34)	5.6(24)	6.4(12)	11.9(10)	20.6(1)	-----	3.0(32)	49.2(35)
20 to 25 years old.....	43.6(23)	11.4(10)	5.7(4)	21.8(8)	.2(1)	.9(1)	3.5(22)	63.0(23)
25 to 30 years old.....	34.5(7)	2.1(4)	.3(1)	10.0(2)	-----	-----	2.3(7)	40.3(7)
30 to 35 years old.....	41.5(9)	12.9(8)	3.9(1)	21.7(1)	-----	-----	3.1(9)	61.2(9)
35 to 40 years old.....	30.5(3)	2.5(2)	-----	20.9(2)	-----	-----	3.0(4)	36.8(4)
40 to 45 years old.....	41.9(46)	4.5(27)	6.2(9)	19.8(23)	6.6(3)	-----	3.5(47)	59.3(49)
45 to 50 years old.....	38.6(70)	3.2(41)	9.4(19)	18.6(31)	25.8(7)	-----	3.6(67)	57.0(69)
50 to 55 years old.....	45.7(37)	3.6(23)	14.4(13)	11.5(12)	5.4(1)	-----	3.4(36)	63.9(37)
Over 55 years old.....	30.3(145)	4.0(85)	11.4(30)	16.6(68)	6.2(2)	.9(4)	2.9(146)	47.2(147)

When you look at a lot of those studies, you have to recognize that the numbers here are facts, but you also must look at who made the study, and what were they trying to prove? The next several figures on office buildings in the eastern part of the country were prepared as testimony in hearings before a State Public Utilities Commission by an Electric Utility. While the numbers themselves, I am sure, are absolutely valid, you have to start questioning things like the sample itself.

The purpose here is to give you a general feel for the energy used by individual buildings as a function of the type of system that they have and the type of fuel. In Figure 9 we see office buildings over a wide size range with fan coil airside systems, electric cooling and some kind of fossil fuel heating. Energy budgets range from 150,000 to 190,000 BTU per square foot per year. Mind you, GSA says 55,000. These are existing real buildings. These are facts.

Now if we go to induction systems in Figure 10, rather than fan coil, you see that we jump up over a higher range. Now, we're at 160,000 to 210,000 BTU per square foot per year. We can begin to ask what are some of the reasons? Well some of the reasons are that the induction system has a higher auxiliary load, and that the energy requirement characteristics of induction systems are a little different than the energy requirement characteristics of fan coil systems. An induction system can bring in some outside air to offset the amount of mechanical cooling where the fan coil system has to use mechanical cooling. But, during those hours when the cooling load is low, the auxiliary load of the central plant frequently can be a higher energy consumer than the chiller, which

well may be the case in the fan coil system. I don't know. Each building has its own answer.

Let's look at induction systems with absorption cooling in Figure 11. Now we're up to the 225,000 to 260,000 BTU range. Obviously, here, the reason is the greater energy requirement of the absorption system.

FIGURE 9.—Office buildings; fan coil—Electric cooling

Gross area:	BTU/SF per year
192, 000	181, 000
136, 000	189, 000
49, 000	156, 000
285, 000	151, 000

FIGURE 10.—Office building; induction—Electric cooling

Gross area:	BTU/SF per year
431, 000	209, 000
226, 000	176, 000
209, 000	164, 000
195, 000	176, 000

FIGURE 11.—Office buildings; induction—Absorption cooling

Gross area:	BTU/SF per year
330, 000	260, 000
427, 000	242, 000
576, 000	225, 000
694, 000	248, 000

FIGURE 12.—Office buildings dual duct—Electric cooling

Gross area:	BTU/SF per year
95, 000	221, 000
195, 000	219, 000
321, 000	189, 000
310, 000	184, 000

FIGURE 13.—Office buildings unitary electric cooling and heating

Gross area:	BTU/SF per year
45, 000	79, 000
460, 000	135, 000
227, 000	80, 000
226, 000	97, 000

FIGURE 14.—Office buildings; owner occupied; Philadelphia

Gross area:	BTU/SF per year
400, 000	209, 000
600, 000	218, 000
900, 000	222, 000
900, 000	140, 000

Now, let's look at dual duct with electric cooling in Figure 12. Here again, 180,000 to 220,000 BTU, which is fairly substantial. Now, in Figure 13, we begin to see some of the reasons why this study was made. It might appear as though the people who made this study were promoting electric heat and unitary systems. So obviously, the buildings that they probably selected for unitary systems were done in the most favorable light.

However, there can be many valid reasons why unitary systems in office buildings are down to the 80,000 to 135,000 BTU range. You can install a highly efficient centrifugal chiller at .7 KW per ton, or you go out and install some low efficiency unitary units at 2 KW per ton. The centrifugal system is 3 times as efficient. But, if one person wants to work late in a large office building with a central system, you've got to turn on say, one 500 ton chiller, a couple of 100 horsepower pumps, a 50 horsepower cooling tower fan, one 400 horsepower primary air fan, a 100 horsepower return fan, and before you know it, you're using almost 1,000 KW to provide one ton of air conditioning to cool one person. Sure the chiller uses .7 KW per ton at full load, but that doesn't tell the whole story. Nor does it tell what happens at part load. So in many central systems, particularly those with long operating hours, the auxiliary energy use can be substantial.

Figure 14 comes from a different study done in Philadelphia to show the energy use of Owner occupied office buildings. Here we have a very different energy use characteristic than we do in speculative office buildings. Owner occupied buildings tend to be more specialized; they tend to be occupied for longer hours; they tend to have more computers; and they appear to have more sophisticated central systems than speculative buildings. In Philadelphia, Owner occupied office buildings have energy budgets up in the neighborhood of 140,000 to 220,000 BTU.

Let's take a look at the study shown in Figure 15 which was done on New York City office buildings. This is a study done on 86 high rise office buildings in New York to show the average, the high and low of the energy used in these buildings. They use from 72,000 to 403,000 BTU per square foot per year on the gross square footage of the building. The average is over 200,000 BTU per square foot per year.

In this same study, Figure 16 shows the same results, except by the age of the building. What this shows is that the most recent buildings are up in the range of 260,000 BTU per square foot per year, with the buildings built back in the fifties being much more energy conservative. This may well be the result of the particular name that they chose. I could probably show you buildings that were built in the forties that use 300,000 BTU per square foot a year, but Figure 16 does indicate a trend. However, this trend contradicts the BOMA results, which do not show any trend by age.

FIGURE 15
OFFICE BUILDINGS, NEW YORK CITY
[86 buildings]

Consumption/(square feet per year)	High	Low	Average
Total energy used (thousands of Btu).....	403.0	72.0	210.7
Steam (thousands of Btu).....	298.6	51.0	141.4
Electricity (kWh).....	45.0	10.8	20.3

FIGURE 16
OFFICE BUILDINGS, NEW YORK CITY—BY AGE
[Energy consumption, thousands of Btu per square feet per year]

Age grouping	Total energy	Steam	Electricity (kilowatt hours per square foot per year)
1950-54.....	128.9	78.4	14.8
1955-59.....	164.4	108.1	16.5
1960-64.....	214.5	154.1	17.7
1965-69.....	266.4	188.0	23.0

FIGURE 17
ELECTRICITY CONSUMPTION COSTS OF SCHOOLS IN FAIRFAX COUNTY

Elementary schools	Area (square feet)	Cost of electricity per square foot
London Towne.....	78,133	\$0.411
Laurel Ridge.....	80,929	.322
Hunters Woods.....	80,284	.315
Greenbriar East.....	59,483	.135
Fort Hunt.....	66,992	.131
Brookfield.....	43,794	.127
Kings Glen.....	64,023	.107
Camelot.....	76,853	.100
Forest Edge.....	80,843	.094
Mount Vernon Woods.....	40,051	.094
Oak View.....	77,254	.092
Wolftrap.....	49,082	.086
Floris.....	19,637	.079
Little Run.....	40,035	.074
Quander Road.....	40,033	.062
Cedar Lane.....	37,194	.061
Beech Tree.....	40,033	.060
Sleepy Hollow.....	39,045	.049
Oak Grove.....	10,354	.039
Crestwood.....	46,983	.038

FIGURE 18
ELECTRICITY CONSUMPTION COSTS OF SCHOOLS IN FAIRFAX COUNTY

High schools	Area (square feet)	Cost of electricity per Square foot
West Springfield.....	279,085	\$0.109
Fort Hunt.....	260,537	.106
Langley.....	213,509	.105
Herndon.....	289,625	.075
Oakton.....	288,994	.074
Woodson.....	261,361	.072
Edison.....	290,983	.069
Marshall.....	273,296	.069
McLean.....	236,052	.068
Groveton.....	152,645	.063
Jefferson.....	255,807	.057
Falls Church.....	284,152	.056
Mount Vernon.....	154,335	.052
Annandale.....	277,933	.051
Lee.....	250,463	.049
Madison.....	249,730	.045
Stuart.....	250,463	.045

FIGURE 19
FUEL CONSUMPTION COSTS OF SCHOOLS IN FAIRFAX COUNTY

Elementary schools	Area (square feet)	Cost of fuel per square feet
Oak Grove.....	10,349	\$0.188
Crestwood.....	46,983	.108
Sleepy Hollow.....	39,045	.101
Quander Road.....	40,051	.091
Floris.....	19,637	.089
Cedar Lane.....	37,194	.088
Oak view.....	77,254	.079
Camelot.....	76,853	.076
Kings Glen.....	64,023	.073
Beech Tree.....	40,333	.070
Little Run.....	40,035	.070
Mount Vernon Woods.....	40,051	.066
Brookfield.....	43,794	.062
Fort Hunt.....	66,992	.061
Greenbriar East.....	59,483	.059
Wolftrap.....	49,082	.056
Forest Edge.....	80,843	.050

FIGURE 20.—FUEL CONSUMPTION COSTS OF SCHOOLS IN FAIRFAX COTY

High schools	Area (square feet)	Cost of fuel per square feet
Annandale.....	277,933	\$0.110
Madison.....	249,730	.110
Woodson.....	261,361	.109
Stuart.....	250,463	.105
Mt. Vernon.....	154,335	.104
Falls Church.....	284,152	.092
Groveton.....	152,645	.092
Jefferson.....	255,807	.092
Lee.....	250,463	.091
Marshall.....	273,296	.086
McLean.....	236,052	.079
Fort Hunt.....	260,537	.078
Edison.....	290,983	.076
Herndon.....	289,625	.068
Langley.....	213,509	.053
West Springfield.....	279,085	.053
Oakton.....	288,994	.045

Schools

Figures 17 through 20 show the results of a study that was done on schools in Fairfax County, Virginia. You might say that the office buildings have widely different uses, totally different architecture, some may be high rise, some may be low rise, some may have long hours of operation and some may have commercial space.

All the schools in this county in Virginia operate under almost identical weather conditions, with virtually the identical schedule, and generally speaking the character of the architecture is at least similar. In Figure 17, the three schools with the highest consumption may well be all electric schools. I don't know. But still, look at the rest of them. They range from \$.135 per square foot down to \$.038 per square foot. A factor of 4 to 1. These schools are in an area where the utility company has an electric rate of a flat \$.01 per kwh with no demand. So the cost is directly related to the actual energy use in kwh.

The same thing holds true for the high schools in that same county in Figure 18. Let's even knock off the top three. You're still going from \$.075 a square foot down to \$.045 which is almost a 2 to 1 ratio.

You might say, that's the electric use and that really doesn't mean too much unless you look at the fossil fuel energy that was used for heating. Figure 19 shows the fossil fuel energy use for these same schools. About the only interesting correlation you can make here is that generally those schools that have the highest fossil fuel energy use also have the lowest electric energy use. Heating energy costs range from \$.05 a square foot to \$.19 a square foot.

Figure 20 shows High Schools from \$.045 a square foot to \$.11 a square foot.

These buildings probably have conventional east coast school house boiler plant designs, and similar air side systems which in most cases are probably unit ventilators. All these schools pay the same price for fuel so that these figures are directly related to fuel consumption.

Figure 21 shows the results of a study on one building at Ohio State University. This particular building happens to have absorption cooling with a gas fired boiler, which is also used for space heating. Just the gas use alone of this building is 395,000 BTU per square foot per year.

FIGURE 21.—Distribution of existing gas energy consumed.

ALLIED MEDICAL FACILITIES THE OHIO STATE UNIVERSITY

TOTAL GAS CONSUMPTION 37,500 MCF

395,000 BTU/SF/YR

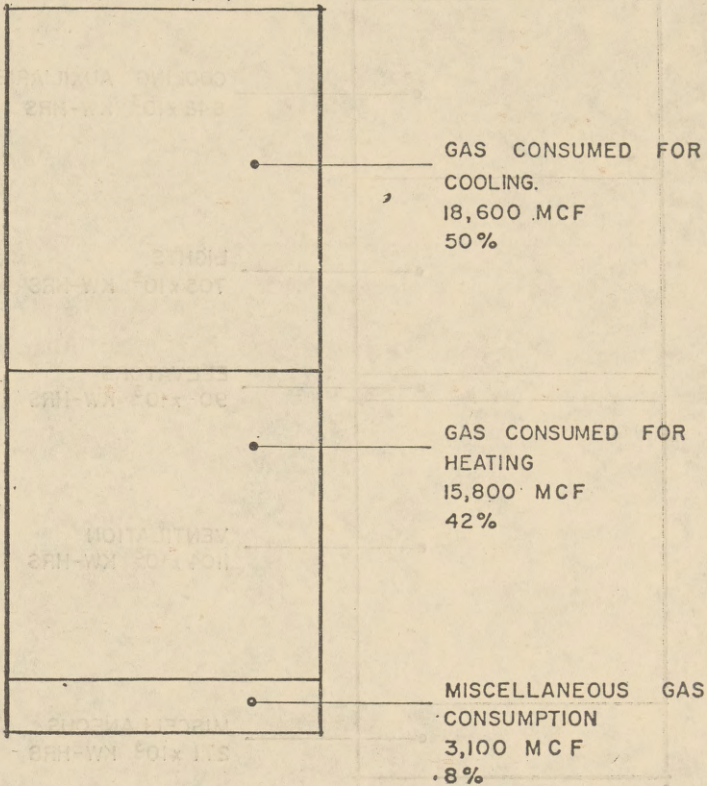


FIGURE 22.—Distribution of existing electrical energy consumed.

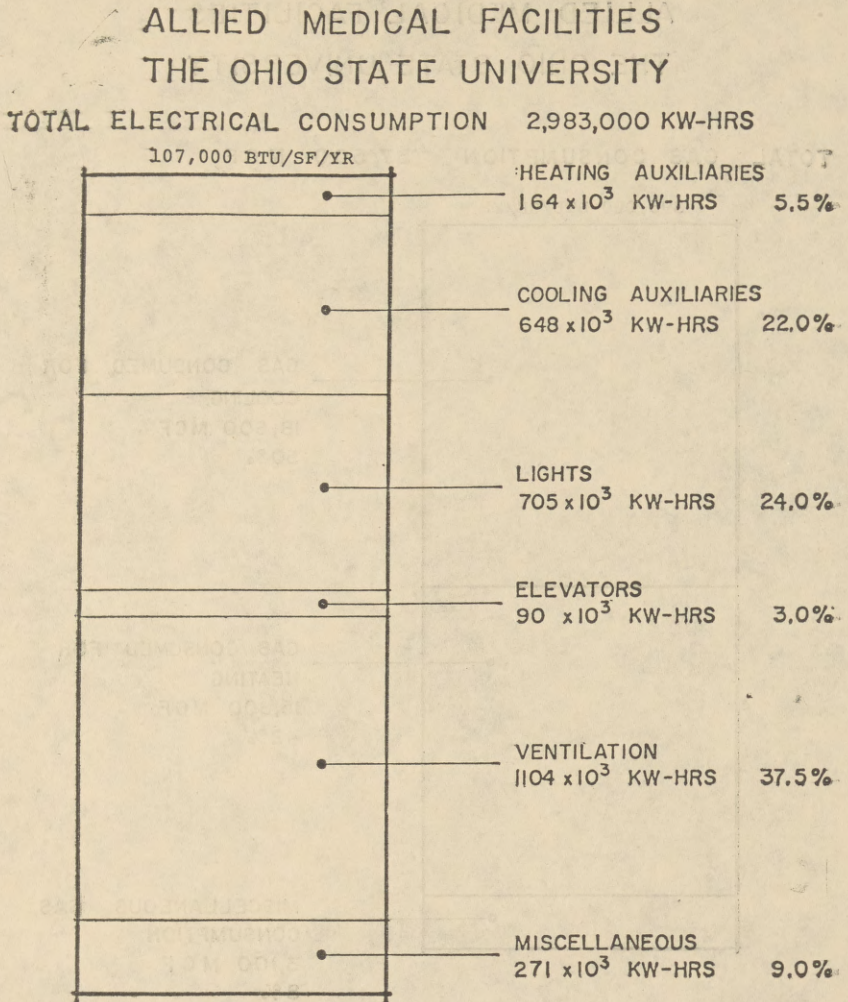


FIGURE 23.—Comparison of installed capacities versus actual yearly energy use.

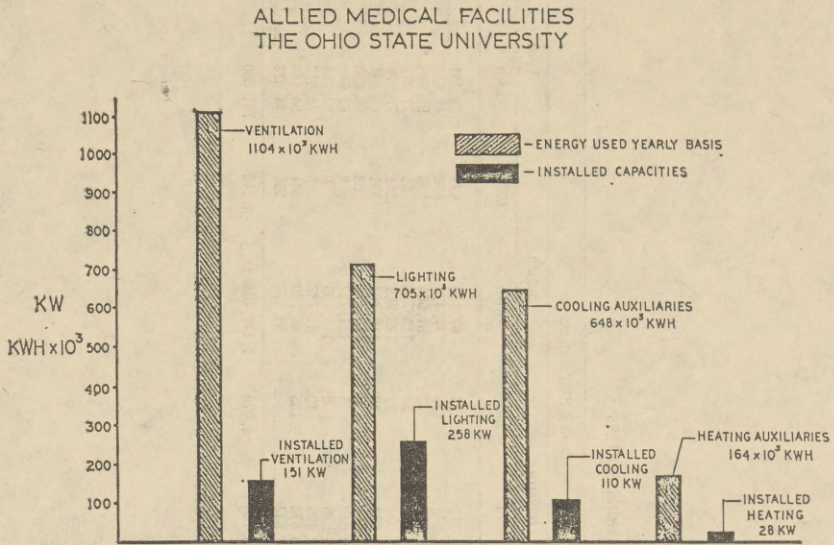


FIGURE 24.—1972 MAXIMUM KILOWATT DEMANDS 6 DALLAS LEARNING CENTERS

	Rooftop HVC		Central HVC			
	Darrell	Marshall	Buckner	Navarro	Seguin	Tyler
January.....	156	156	229	155	254	129
February.....	211	193	228	207	254	259
March.....	244	239	279	222	311	311
April.....	261	295	347	290	264	331
May.....	255	262	290	274	321	331
June.....	238	290	342	300	316	331
July.....	192	262	342	300	279	238
August.....	285	299	285	285	331	300
September.....	303	304	336	342	321	308
October.....	331	285	326	305	290	311
November.....	201	198	269	290	274	238
December.....	119	119	207	124	202	155

¹ For Darrell School, the all-electric plant, demand figures are derived and do not include electric heating demand¹. For all other schools, demand figures are from utilities billings.

FIGURE 25.—1972 ENERGY USAGE, 6 DALLAS LEARNING CENTERS

	Rooftop HVC systems				Central HVC systems					
	Darrell ¹		Marshall		Buckner		Navarro		Seguin	
	kWh	MCF	kWh	MCF	kWh	MCF	kWh	MCF	kWh	MCF
January.....	130,675	454	41,203	60,480	347	334	35,712	67,680	38,304	679
February.....	111,206	530	49,612	76,928	585	425	33,048	77,722	48,872	598
March.....	159,827	435	48,965	86,928	412	425	42,288	91,584	53,592	588
April.....	64,627	206	66,585	80,640	142	38	49,536	115,776	71,576	585
May.....	67,392	49	65,832	83,536	80	33	57,024	123,264	72,576	341
June.....	43,584	22	68,390	83,960	63	18	61,632	116,352	62,664	351
July.....	31,795	6	64,473	73,288	0	0	44,064	113,472	60,480	62
August.....	62,016	3	82,252	73,728	0	5	59,040	117,792	63,648	0
September.....	77,145	9	78,412	105,984	26	8	85,536	111,188	87,264	0
October.....	63,628	19	56,448	76,032	49	10	62,496	92,736	78,912	6
November.....	82,252	162	36,480	71,136	151	136	36,576	66,240	54,144	341
December.....	110,400	372	32,832	46,656	419	136	32,832	55,872	44,928	595
Total.....	904,547	2,277	694,228	922,176	2,276	1,079	608,784	1,149,408	741,600	4,246

¹ All-electric school.

Note: kWh, kilowatthours; MCF, million cubic feet.

FIGURE 26.—ENERGY BUDGETS
[Dallas, Tex., learning centers, 1972]

School	Annual use (months)	Btu per square foot per year
Darrell LC.....	9	64,916
Marshall LC.....	12	76,536
Buckner LC.....	9	101,363
Navarro LC.....	12	120,416
Seguin LC.....	9	118,049
Tyler LC.....	12	139,668
	9	66,155
	12	80,723
	9	171,630
	12	212,240
	9	71,234
	12	87,934

FIGURE 27.—Energy budgets; Huntington Beach, Calif.

	Btu/sq ft per year
Fountain Valley HS:	
1970-1971.....	169,507
1971-1972.....	163,670
1972-1973.....	148,967
Marina HS:	
1970-1971.....	136,275
1971-1972.....	143,267
1972-1973.....	141,908
Edison HS:	
1971-1972.....	123,871
1972-1973.....	145,708

FIGURE 28.—Hospitals

	Btu/sq ft per year
Lake City, Fla.:	
Fuel.....	189,000
Electricity.....	73,000
Total.....	262,000
San Diego, Calif.:	
Fuel.....	285,000
Electricity.....	122,000
Total.....	407,000
Buffalo, N.Y.:	
Fuel.....	176,000
Electricity.....	41,000
Total.....	217,000

FIGURE 29.—Shopping mall, Allentown, Pa.; All electric

	BTU/SF per year
Auto center.....	74,000
Department store.....	114,000
Department store.....	102,000
Variety store.....	100,000
Restaurant.....	409,000
Bank.....	131,000
Drug store.....	129,000
Food market.....	205,000
Dry cleaner.....	688,000
Book store.....	104,000
Doughnut store.....	326,000

Figure 22 shows the electric use, which is another 107,000 BTU per square foot per year. This totals over half a million BTU per square foot per year for this university building.

An interesting thing to look at in Figure 23 is the relationship between the installed capacity of various classes of equipment and the amount of energy that the equipment uses over the year. This confirms my concept that says, "I don't want to know so much how big the equipment is, I want to know how much it's used". The installed capacity of the ventilation equipment is only 151 KW but look at the amount of energy it uses, whereas the lighting load is almost twice the installed capacity of the ventilation, but the energy used is only about $\frac{1}{2}$ as much as the ventilation. So it's not the installed capacity or the design capacity, it's how much that particular system, component or accessory is used that determines energy use.

Another study on school energy use was conducted by Educational Facilities Laboratories and looked at several cities across the country.

Figures 24, 25 and 26 show the demands and energy use of six schools in Dallas, Texas built in 1970 and 1971 which are all essentially similar, having been built to the same 40,360 square foot plan. The major difference in the six buildings is that four of them have central plant HVAC systems and two have rooftop units, one of which is all electric.

Here again it must be noted that these figures were assembled by a manufacturer of rooftop equipment.

Figure 27, from the same study, shows the changes in energy budget from year to year in three high schools in California.

Hospitals

Figure 28 shows the results of a study that was completed on three Veterans Administration hospitals. In hospitals, the intensity of use and requirements for energy are pretty substantial, so that these numbers are relatively meaningless compared to office buildings. But, there is still a 2 to 1 ratio on energy use. In Buffalo, New York where the design temperature is something like minus 10F, with tremendous heating loads, you would think that the fossil fuel energy requirements would be a lot higher than for Florida or California where the design temperatures are in the thirties and forties. And what this begins to tell you is that when it comes to the amount of energy used, regardless of the source, more often than not, it's the air side system or other factors that are the prime determinants in the amount of energy used, and now how efficient the boiler is, or not what kind of fuel is being used.

Commercial

Figure 29 will allay a lot of questions about the energy use implications of hours of operation and type of building construction and materials. This is data from an enclosed mall type shopping center, about 50 miles north of Philadelphia. It happens to be an all-electric building, where the construction of each store is identical, and each store has its own unitary all electric heating and cooling system. Each store is metered and billed individually. The shopping mall operates a fixed number of hours per day, a fixed number of days per week. All the stores are open for virtually the same number of hours. You would say that if there were ever a case where the amount of energy used would be very similar, this would be it. Yet there is a ratio of almost 10 to 1 in energy used.

Summary

There are a number of concepts that I have tried to demonstrate by means of some facts. Among these are:

1. The concept of energy use in buildings adds another dimension to the design process.
2. The major determinant of energy use in buildings is the demand that the occupants place on the systems, and then the type of system, not the boilers and chillers, nor the energy source.
3. The majority of the energy use occurs during the time when the outdoor temperature is moderate.
4. Conversely, a very small fraction of the energy use occurs during the time when the outdoor temperature is at the extremes.
5. Therefore, we should be much more concerned about how efficiently a system operates during moderate temperatures than during extreme temperatures.
6. More insulation is not necessarily better.

7. The energy use of a building is not necessarily related to its design load or installed capacity.

8. Lower energy consumption does not necessarily mean lower operating cost.

9. The key input in the design process is to give the building user the ability to control energy use.

There has been a movement toward establishing annual energy budgets for buildings as the basis for legislation or as guidelines for designers to meet. While such a movement is favored by many knowledgeable people, there are numerous pros and cons. In favor of the energy budget is that it establishes target energy consumptions for buildings, however, there are many cons.

The major problem is the establishment of the budget itself. Glancing over the preceding facts reveals the enormity of the problem. Other problems include the means for determining the budget during design, and the means for enforcement.

Various interest groups in the design and construction industries opt for the energy budget as a means to "pass the buck" to other segments of the industry.

There has been a similar, but smaller movement toward the power budget, which limits the installed capacity of the energy using systems in a building. In addition to the problems facing the energy budget, the power budget concept fails to take into account the major factor in energy consumption, the use of the building.

The major factors in design that can influence energy consumption are the selection of the type of cooling plant, the type of air side systems, the handling of the internal heat gains (primarily lighting), the control schemes and heat recovery.

Of somewhat less importance are the energy source, the thermal quality of the building (except housing), the architecture and the type of heating system.

The major operating factors that influence energy consumption over which we, as designers, have very little control but must take into consideration when designing are the requirements and use habits of the occupants of the building, the hours of operation and whether or not there are going to be computers. I've seen computer rooms in office buildings with energy budgets in excess of 1,500,000 BTU per square foot per year.

Minor, but still important operating factors are maintenance, occupancy and the use of domestic hot water, except in housing where it can be a significant portion of the total heating energy.

In most commercial and industrial buildings, the electric bill is computed from monthly demand charts and meter readings that tell you how much energy has been used and when. This must be anticipated in the design of the building, since the owner has to live with it for the life of the building.

By reducing the energy consumption, you may not lower the operating cost. I just did a study on a large high rise office building where I recommended the system that had the highest annual energy requirements because the system was not only the lowest in first cost, but the operating cost was also lower. The reason was that the Owner of the building was buying district steam and there was 100% demand ratchet for the following 12 months. The system that had the highest capacity and therefore the highest demand had the highest operating cost. The cost for energy used amounted to less than one-third of the annual energy bill. The other two-thirds of the bill was for demand charges which were imposed solely because of the installed capacity of the system.

Conclusion

The conclusion to this story is that there is no conclusion. The key to this whole business is there is no one good answer for every situation. You've got to look at each building individually. If the answers were so simple, we wouldn't have such a wide variation of numbers like you have seen here.

Any consideration for legislating either power budgets or annual energy budgets must be carefully evaluated if they are to result in wise energy management.

The challenge of designing energy efficient buildings will be with us for a long time to come. There are numerous significant ways in which you can meet this challenge, and an understanding of what happens in existing buildings contributes to our ability to do the best possible job for our clients.

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(The following information was referred to on p. 79:)

BEFORE THE FEDERAL TRADE COMMISSION
WASHINGTON, D.C.

PETITION FOR RULE MAKING IN THE MATTER OF AFFIRMATIVE DISCLOSURE OF HOME
BUYING INFORMATION TO PROSPECTIVE PURCHASERS

No. _____

Petitioners: Home Owners Using Saving and Energy Information To Negotiate Fair Offers (HOUSE INFO)

Attorneys for Petitioners: John F. Banzhaf III and Glenn A. Goldberg

I. ABSTRACT

Home Owners Using Savings and Energy Information to Negotiate Fair Offers (HOUSE INFO) hereby petitions the Federal Trade Commission to promulgate a trade regulation rule requiring the affirmative disclosure of material home-buying information to potential purchasers. The information to be disclosed will include an estimate of the annual heating and cooling costs, data on how well the house is insulated, the types of fuel used for heating purposes and the warranties with respect to major systems and appliances in the home.

By adopting HOUSE INFO's proposed rule, the Federal Trade Commission will be fulfilling more than just its obligation to abolish deceptive and unfair trade practices or acts. It will be (1) complying with the recent Congressional mandate stressing the importance of warranties, as well as (2) answering the cries of all Americans for the federal government to prevent energy waste.

While the costs of preparing such information and making it available to consumers in an understandable form are nominal, the savings opportunities such information will afford consumers will be millions of dollars. The adoption of the proposed rule will aid in the restoration of faith in the American economy, as well as in the efforts of government to conserve energy.

II. INTRODUCTION

The following is a petition for rule making to the Federal Trade Commission presented by HOUSE INFO, a group of three law students concerned with deceptive and unfair practices in the housing industry. The proposed rule is designed as a means of attacking those deceptive and unfair practices which are having a substantial effect on energy shortages and inflation, two of the most vexing problems facing America today. The enactment of HOUSE INFO's proposal would require all sellers of new single-family homes to disclose to all potential home buyers information as to the energy-efficiency of the home and what warranties the home is covered by. It is the contention of HOUSE INFO that the information it seeks to have disclosed is essential for the making of a rational purchasing decision.

Specifically, the information, which will be presented to prospective buyers on a single sheet, will include: (1) an estimate of the annual heating and cooling costs of the home; (2) the types of fuel used for heating the home and water; (3) the quality of the insulation in the walls, floors and ceilings of the home; and (4) the warranties, with respect to major systems and appliances.

The disclosure of estimated heating and cooling costs will not only afford the home buyer a more realistic picture of future maintenance costs, but will serve to place home energy-efficiency in the forefront of the home purchasing decision. This will, in turn, encourage builders to construct energy-efficient homes. The disclosure of the quality of the insulation provides a constant indicia of energy-efficiency which will prove to be useful to the home owner as the costs of different sources of fuel fluctuate.

Knowledge of the types of fuel to be used in a home is of considerable importance because different fuels vary in cost, safety, cleanliness and dependability. Thus, knowing the types of fuel which the home utilizes will aid the consumer in selecting the energy source best suited to fulfill his particular needs. Finally, disclosure of warranty information, together with estimated heating and cooling costs will enable the consumer to base his purchasing decision upon house life cycle costs. The life cycle costs may be defined as the initial purchase price plus the cost of maintaining the home over a period of time. Such costs are coming to be realized as the true costs of a purchase as opposed to merely the initial purchase price.

It is envisioned that the proposed rule will come to the aid of a depressed housing industry, as that industry has been severely affected by the energy crisis and inflation. By encouraging builders to construct energy-efficient homes, the proposed rule will help to dampen the strain which our country's energy problems have placed upon the industry. The effects which energy conservation can have upon this country's battle against inflation are obvious. It is estimated that if the proposed rule had been adopted in 1974, 14.9 million gallons of oil or over 6 billion kilowatt hours could have been saved (if all homes used the same fuel—either oil or electricity).¹ This means that between \$42 million (if all homes used oil) and \$170 million (if all homes used electricity) could have been saved.²

The authority of the Federal Trade Commission to promulgate trade regulation rules was recently affirmed by Congress in the enactment of the Consumer Product Warranties and Federal Trade Commission Improvements Act.³ In the statute, Congress amends section 6(g) of the Federal Trade Commission Act⁴ to clearly give the Commission the authority to issue rules defining unfair and deceptive trade practices. It is the contention of HOUSE INFO that the failure of sellers of new homes to disclose the information required by the proposed rule constitutes an unfair and deceptive trade practice or act within the meaning of section 5 of the FTC Act for the following reasons: First of all, incomplete home buying information constitutes a misleading half-truth. Secondly, the complete omission of material information leads to irrational purchasing decisions. Third of all, the failure to supply consumers with energy-efficiency and warranty information is unfair in that it offends public policy.

The Federal Trade Commission has been the one federal agency that has stood in the forefront in representing the plight of the consumer. It is with this glorious history in mind that HOUSE INFO calls upon this valiant agency to fulfill its destiny as consumer champion by adopting this both timely and necessary rule.

HOUSE INFO is composed of three George Washington University law students, Julie Hamos, Eric Fine and Louis Ebert. The group is organized under the supervision of John F. Banzhaf III, Professor of Law at George Washington University, and Glenn A. Goldberg, Attorney at Law. Through its efforts, HOUSE INFO has come to the realization that while the purchase of a house is one of the largest and most important a consumer will make, the actual purchasing decision is plagued by an alarming shortage of material information. From the group's research and contacts with various organizations involved with the housing industry, it has come to the conclusion that the disclosure of material home buying facts will benefit the consumer, the housing industry and the nation as a whole.

¹ Residential Energy Consumption, Single-Family Housing, Final Report, March 1973, HUD, P. 3; Impact of Improved Thermal Performance in Conserving Energy, National Mineral Wool Insulation Assoc., Inc., April 1972.

² This assumes costs of \$.20/therm. and \$.0277/kwh. (See Appendix A.)

³ Public Law 93-637.

⁴ 15 U.S.C. § 41, 46(g).

III. RAVAGING INFLATION COMBINED WITH A SNOWBALLING RECESSION HAVE BROUGHT THE UNITED STATES TO THE BRINK OF ECONOMIC DISASTER

The gravity of our current economic plight cannot be overestimated. Except for a brief period following World War II, prices have been soaring faster than in any other peacetime period in our nation's history.⁵ Yet, simultaneously, we are faced with burgeoning unemployment and declining output, signs all too reminiscent of the Great Depression of the thirties. It is no small wonder that men such as Arthur Burns have concluded that the economic crisis has placed the very future of our nation in jeopardy.⁶

It is because of the severity of the present economic crisis that HOUSE INFO respectfully requests that the FTC act with immediacy toward the promulgation of a trade regulation rule requiring affirmative disclosure in housing. The need for such a rule is obvious. Had the proposed rule been in effect in 1974, it could have saved American consumers a total of between \$42 million and \$170 million⁷ in energy bills. Such a reduction would be a great boon to the lowering of the life cycle costs in owning a home, thereby serving to help stem the tide of inflation. By reducing the true costs of owning a home, the proposed rule will also serve to stimulate a depressed housing industry and thus act to decrease unemployment.

The need for government action cannot be overemphasized. Almost all of the economists attending President Ford's economic mini-summit of October 1974 shared the following bleak outlook: business is not expected to pick up in the next ten to twelve months and profits are likely to drop; unemployment will rise sharply in 1975, while inflationary price increases probably will not fall below 10%.⁸

This economic crisis is having particularly disastrous effects upon America's housing industry. The nation is suffering the longest and most severe housing recession since the end of World War II.⁹ Unemployment in the construction trade is twice the national average.¹⁰ Problems in housing are compounded by rising fuel prices. The Federal Energy Administration (FEA) notes in its recent Project Independence Report that housing is one of the more vulnerable industries to the energy crunch.

The proposed rule will place a minimal burden upon the housing industry. The builder, upon completion of the house, should have all of the basic data which will enable him to easily disclose the information in simplified form to the consumer. The great advantage of the proposed rule is that it does not set any standards for the industry. The proposed rule does not place any rigid restrictions upon the builder nor does it provide for any government control over the manner in which the house is constructed. However, builders who fail to build low-cost, high quality homes will find themselves without customers. This is how a free market economy must function.

In spite of the present slump in the housing industry, the single-family home is the most popular living unit in America. In 1973 over one million single family homes were constructed.¹¹ This represented over 65% of all housing units which were built that year.¹² The destruction of this American institution would surely inflict severe emotional wounds on the American population.

It is HOUSE INFO's contention that disclosing warranty information and estimated heating and cooling costs will force builders to compete to reduce life cycle costs of the home to the minimum cost possible. The FEA has concluded that with known technology, up to thirty-six per cent of the energy utilized per annum in single-family homes could be preserved by altering present construction techniques. These savings could be accomplished without significantly altering the price of a new home or changing the occupant's life style.¹³ Action must be taken with immediacy for the very preservation of the housing industry is at stake.

⁵ U.S. News and World Report, Arthur F. Burns, "Warning on Inflation: Future of Our Country in Jeopardy," June 10, 1974.

⁶ Id.

⁷ *Supra* note 2.

⁸ U.S. News and World Report, Oct. 16, 1974.

⁹ President Ford's address Oct. 8, 1974, to Congress, *Washington Post*, Oct. 9, 1974.

¹⁰ Id.

¹¹ Dept. of Commerce, Construction Reports, "Characteristics of New One-Family Homes: 1973, p. 7.

¹² *Washington Post*, Nov. 20, 1974, "Toward Multiple Dwellings."

¹³ Federal Energy Administration, Project Independence A Summary, November 1974, p. 167.

President Ford, in his W.I.N. campaign, has called upon the American consumer to forge ahead as the bulwark of the country's fight against inflation. The President's plan of attack includes a request to all Americans to help drive down prices by being more intelligent consumers, by driving hard bargains and by conserving energy. He has urged all Americans to reduce driving by five percent, to decrease appliance usage and to use less heat in homes and offices.¹⁴

It is ironic that one of the central strategies of the W.I.N. program is for us to be better consumers,¹⁵ when consumer information needed to reach this goal is largely unavailable. Federal Trade Commissioner Mary Gardiner Jones finds that, at present, consumers are unable to exercise effective choices because of the inadequacy or inaccessibility of hard product information.¹⁶

The proposed rule comports perfectly with the gist of President Ford's economic message. What better way is there to aid consumers to use less heat in their homes than to provide them with the estimated heating costs of a house prior to purchase? If disclosures of how well the house is insulated and by what warranties the home is covered are required, the consumers will be able to evaluate the true value of the home. The only way to be a wise consumer is to be a fully-informed consumer.

In viewing a market economy from an economic vantage point, the failure to provide information to consumers is just as detrimental as supplying false or misleading information. Both act equally in hampering market efficiency. The manner in which the market is functioning today serves to deter sellers from supplying consumers with useful information. Manufacturers find security in relying upon their past reputations to maintain their competitive status, rather than providing the consumer with qualitative product information for comparative purposes. The public is blasted with advertisements stressing a sexy product slogan, instead of the product's true quality or value. Although it is difficult to discern the degree to which consumers would take advantage of increased product information, one study suggests that consumers could have increased their purchase satisfaction by 50 percent if the best sources of product information were utilized.¹⁷ Even if half of this figure is realized, the result would have a profound effect on American society. Consumer trust is a key element in the efficiency of the market place. If the efficiency of the marketplace could be increased by one-tenth of one percent, the amount saved would be one-half billion dollars.¹⁸ Certainly, the magnitude of potential savings compels decisive Commission action.

Essential purchasing information is particularly wanting in the housing industry and its harm is compounded in light of the large sum of money involved. In 1974, the average cost of a single-family home was \$34,748 and townhouses \$43,299.¹⁹ The lifetime costs of running a home will often represent 30 percent of a family's lifetime net income.²⁰ Because of the large downpayments required and the difficulty of procuring a mortgage, many families will only purchase one house. Thus, the information available to it at the initial purchase-period is crucial, for there is no room for trial and error experimentation.

The purchasing of a home is one of the most complex decisions that a consumer will ever make. The completed home represents a composite of the work and expertise of diverse groups of professionals and tradesmen. The average consumer is typically unable to research or ascertain all of the information necessary to make an educated decision. The placing of data crucial to an informed decision in an understandable form on a single standardized sheet will also serve to facilitate comparative home buying. The disclosure of energy-efficiency information will increase the builder's incentive to build higher quality homes. The disclosure of warranties will make builders utilize materials of greater durability and quality. Operating cost information will afford the consumer the opportunity to gain insight into the true costs of maintaining a home prior to the purchase.

¹⁴ U.S. News and World Report, Oct. 21, 1974.

¹⁵ President Ford's Address to the Future Farmers of America, Oct. 15, 1974.

¹⁶ Address before Advertising and Public Interest Workshop, American Marketing Association, p. 11.

¹⁷ Oxenfeldt, Consumer Knowledge—Its Measurement and Extent, 32 Review of Economics and Statistics 300 (1950).

¹⁸ This is a conservative estimate which HOUSE INFO has made based on the group's discussions with FTC personnel.

¹⁹ National Association of Home Builders Journal—Scope July 1, 1974, p. 66.

²⁰ Marketing Man's Guide to Housing and Light Construction, Professional Builder's Magazine, 1973, p. 7.

In response to the economic crisis, President Ford has called upon all Americans to become good consumers. The President has told us to seek the aid of government in our efforts to carry out this mandate. Due to the present state of the market system, certain information which consumers need to make non-inflationary purchases is not available. Prices are soaring and unemployment is steadily increasing. Effective federal agency action is a must.

IV. NATIONAL SECURITY IS THREATENED AS THE UNITED STATES HAS BECOME HOSTAGE TO THE WHIMS OF FOREIGN OIL MAGNATES

As of 1973, the United States was dependent on foreign oil for 35 percent of its total supply.²¹ The extent of our national vulnerability was clarified by the October, 1973 Arab oil embargo. By January, 1974, U.S. demand was 14 percent above the available supply, as imports slumped by over 2.1 million barrels per day. The Gross National Product plunged between \$10 billion and \$20 billion and 500,000 workers were forced out of work as a direct result of the embargo.²² Furthermore, during the embargo, there was a 9.8 percent increase in the consumer price index, a third of which can be directly attributed to the oil price hike.²³ It is not surprising that President Ford has established energy independence by 1980 as a national goal.²⁴

The urgency of this country's energy dilemma has been one of the prime motivating forces behind the proposed rule of HOUSE INFO. Nowhere is this energy crunch more critical and acutely felt than in the single-family home. In 1973, household markets alone consumed 22.4 percent of the total energy supply.²⁵ The home owner is at the mercy of foreign governments, and he can expect his monthly utility bills to soar concurrently with fluctuations in an already volatile international political scene. Moreover, a house constructed in an energy-inefficient manner will yield utility bills that will increase at a disproportionately higher rate than its energy-efficient counterpart.

The Federal Energy Administration's Project Independence Report, an evaluation of the nation's energy problems, outlines three distinct strategies the United States can employ to meet the energy crisis:

- (1) increase the domestic supply;
- (2) the institution of energy conservation measures; and
- (3) the creation of emergency stand-by measures. The focus of HOUSE INFO's proposed rule lies within the realm of the conservation option, as the FEA concludes that conservation action alone can reduce the growth of energy demand from four to five percent down to two percent per annum between 1974 and 1985.²⁶

One of the steps the FEA recommends to be taken in the development of a viable conservation program is the adoption of incentives for improved thermal design efficiency and thermal standards for homes and offices.²⁷ By taking such action along with the development of standards for more efficient automobiles, petroleum demand can be reduced by 2.2 million barrels per day by the year 1985.²⁸ Expected electric demands could also be reduced in about ten years from 12.3 quadrillion kilowatt hours to 11.0 quadrillion kilowatt hours.²⁹

If projected growth rates in the housing construction industry are met, there will be 88.8 million residential units by 1985, twenty-nine per cent of which will have been built after 1974.³⁰ The FEA states that with the use of known technology, up to thirty-six per cent of the energy utilized per year in single-family homes could be preserved by altering present construction techniques. Such construction changes might include using more and higher quality insulation and using double-glazing in windows and doors. While HOUSE INFO's proposed rule does not require the builder to alter his construction plans, the disclosure as to how energy-efficient he has made the house will enable consumers to reject shoddy workmanship.

²¹ FEA, Project Independence *supra*, p. 18.

²² *Id.*, p. 18.

²³ *Id.*

²⁴ *Id.*

²⁵ *Id.*, p. 164.

²⁶ *Id.*, p. 9.

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.*, p. 120.

The *Project Independence Report* includes estimates which indicate that through education and public information alone, there would, by 1985 be savings of between 42 and 47 quadrillion btu's, depending upon fuel prices.³¹ These savings are equivalent to between 298 and 340 billion gallons of oil. It is to be noted that the FEA does not specify the kind of information or the manner in which it is to be distributed. However, HOUSE INFO believes that its proposed information sheet (see Appendix B) is in line with FEA objectives and past successful programs sponsored by utility companies. Michigan Consolidated Gas Company's 1973-74 education and finance program achieved a 60 per cent increase in demand for attic insulation. An advertising and educational program established by the Philadelphia Electric Co. realized a 10 per cent increase in sales of high performance air conditioners.³² The FEA estimates that a government proffered advertising and marketing program in regard to home energy-efficiency would cost between \$2 and \$4 million in staffing and media expenditures.

In contrast, the adoption of HOUSE INFO's proposed rule would cut the above costs considerably. A program of disclosing the true costs of home ownership, as advocated by petitioners, will be less expensive to operate and have a greater effect on consumer habits than an affirmative advertising operation. First of all, the distribution of heating and cooling costs at the time the prospective buyer first shows an interest in a house maximizes the impact of such information. Furthermore, the disclosure and enforcement costs would be minimal.

Another strategy that was considered in the development of an energy conservation program is the imposition of mandatory standards for thermal efficiency in residential homes. However, the FEA warns that the introduction of such standards would require excessive regulation costing federal, state and local governments approximately \$150 million annually for inspection and enforcement.³³ Setting standards should also be discouraged due to the difficulty and costs in establishing valid and reliable ones.

Project Independence indicates that present government policies and practices concerning home builders have been focused on minimizing first costs of the energy component, not long-run operational expenses. For instance, the accessibility of mortgages is based upon dollars per square foot. Federal Housing Authority (FHA) Title 236 housing loans are also predicated upon first costs.³⁴ It is clear that there must be a shift in the emphasis of federal programs toward life-cycle costs, with an emphasis on fuel expenses. Future home owners cry out to the Federal Trade Commission to initiate such changes.

The national energy crisis is quickly reaching disastrous proportions. It has affected the lives of all Americans and is wreaking havoc upon our economy. The FEA has recommended energy conservation as one of the means of combatting the fuel shortage. Such a national energy conservation scheme requires long-range planning and systematic programming designed to increase awareness of energy consumption. The proposed rule supplies the required need for consumer education in energy conservation by showing in a "dollars and cents" format what effect quality insulation has on utility bills. Adoption of the rule by the FTC will be the first step in developing a workable federal program, which will sensitize prospective home buyers to energy awareness in their purchasing decisions.

V. THE PROPOSED INFORMATION SHEET DESIGNED BY HOUSE INFO WILL PROVIDE POTENTIAL HOME BUYERS WITH THOSE FACTS VITAL TO THE HOME PURCHASING DECISION IN A CLEAR AND CONCISE FORMAT

HOUSE INFO's proposed information sheet, which appears as Appendix B, is designed to be a single-paged leaflet which is to be given to all persons coming to inspect the home by the selling agent. No request for it by the buyers should be required. Upon receiving the sheet, the consumer will notice that the initial disclosures inform him of estimates of the annual heating and cooling costs for the home. The estimates, which are determined by the use of standard formulae adopted by the FTC, must be based on fuel prices, reported to the builder by the utility company no earlier than three months prior to the computation of the estimate.

³¹ Id. Appendix, p. 131.

³² Id., p. 135.

³³ Id., p. 169.

³⁴ Id. Appendix, p. 137.

The next disclosures will tell the potential buyer what types of fuels are used for the home's heating system and to heat water in the home. Knowledge of the types of fuels used will enable the potential buyer to consider the advantages and disadvantages of the fuels he will need to purchase.

The next section on the information sheet informs the potential buyer of how well the house is insulated. The seller must disclose what type of insulation has been used and the "R-values" of the insulation in the ceilings, walls and floors. The "R-value" is a measure of how efficient an insulator the material is, or, in other words, how well it retards the flow of heat. The higher the "R-value," the better the material is as an insulator. (See Appendix E for further explanation of R-value.)

Information will also be supplied as to whether the windows and doors have double-glazed panes, and, if so, how many of them do. Knowledge of this is important because double-glazing aids in the retarding the transmission of heat.

Finally, the material terms and conditions of the warranties on various systems, the roof, the entire structure, the basements, windows, and doors, and major appliances must be disclosed by the sellers in a simple format. HOUSE INFO suggests that the FTC refer to the new Consumer Product Warranty and Federal Trade Commission Improvement Act, should it desire to disclose additional warranty information.

At the time of settlement, the buyer must sign a statement which states that he has read the entire information sheet and that it was shown to him at the time he initially inspected the home. This signed statement, as well as a builder's file substantiating the validity of all disclosures made to the buyer in the information sheet, must be kept by the selling agent along with the sales contract for a period of three years. The substantiation file is designed to make enforcement of the rule by the FTC easier and less costly.

HOUSE INFO suggests that the implementation of its proposed rule be accomplished with the seller giving a single information sheet to the buyer for the following reasons: A single-sheet format will facilitate consumer comparisons between different homes. As practices presently exist in the housing market, the consumer is bombarded with multi-page documents as he enters each house. When he returns home he finds himself inundated with sufficient materials in order to write a book on the subject of housing. A single sheet consisting of concise material information will not only help the consumer to make a better-informed decision, but help the consumer to avoid much immaterial rhetoric. The following is the proposed rule:

Proposed rule

The Commission hereby promulgates as a trade regulation rule its determination that, in connection with the sale of any new home¹ in, or affecting, commerce, as "commerce" is defined in the Federal Trade Commission Act, it constitutes an unfair method of competition and an unfair and deceptive act or practice for the seller² to:

Section 1.—Fail to make available to any potential buyer,³ regardless of whether a request has been made by the buyer, during the initial inspection of the home or model, a standard form as prescribed by the FTC, containing the following information (see Appendix B):

(a) The estimated annual cost of heating the home, based upon a standardized formula as determined by the FTC;⁴

(b) The estimated annual cost of cooling the home, based upon a standardized formula as determined by the FTC;⁵

(c) The type of energy used for the home's heating system (e.g., oil, gas, electricity);

(d) The type of energy used to heat water in the home (e.g., oil, gas, electricity);

(e) The type of insulation used in the home (e.g., wood fiber, mineral wool);

(f) The "R-values" of the insulation in the ceilings, walls and floors, as described in Section 2;

(g) Whether the home has single or double-glazed windows and the relative number of each, as described in Section 2;

(h) Whether the home has glass doors with single or double-glazing and the relative number of each, as described in Section 2;

(i) The material terms and conditions of any warranty, expressed in number of years for both parts and labor, on:

1. the heating/cooling unit
2. the hot water heater
3. the roof
4. the structure
5. the basement
6. the double-glazed windows
7. the doors with double-glazing
8. major appliances such as the dishwasher, range, garbage disposal, and refrigerator

Section 2.—Fail to include on the information sheet, prescribed in Section 1, in a clear and conspicuous manner, the following explanations verbatim:

(a) The formulae used to determine the annual heating and cooling costs yield an estimate which may change with variations in occupancy, equipment efficiency, living habits and other factors. Because of these factors, the estimate may vary from the actual costs incurred. However, the seller must have reason to believe that the figures used to compute the formulae and the actual computations of the formulae are accurate and reasonable. The inside temperature of the house is assumed to be 70° F. during the heating season and 75° F. during the cooling season. Fuel prices are based on an anticipated cost of ———¢ per gal./therm./kwh. determined as of (date). The fuel prices used must be as recent as three months.

(b) Insulation is a type of material which retards the transfer of heat. The heat resistance of insulation material is indicated by an R-value, a measurement that takes into account not only the thickness of insulation but also the nature of the material. The higher the R number, the greater the effectiveness of the insulation in preventing heat from leaking out of or into the home. Most R-values range from R-7 to R-22.

(c) Double glazed glass used in windows and doors consists of two panes of glass separated by a thin air space and sealed around the edges. All conditions being equal, double-glazing is superior to single-glazing in retarding the transmission of heat, thereby aiding in energy conservation.

Section 3.—Fail to maintain a file for a period of three years from the time of settlement⁶ substantiating the validity of all information presented to the potential buyer in the sheet prescribed by Section 1.

Section 4.—Fail to obtain the signature of the buyer on a copy of the information sheet provided by the seller at the time of settlement, such signature certifying that the buyer has read the information sheet and was first provided with it at the time of his initial inspection of the home. This signed sheet shall be kept by the seller for a period of three years in the file designated in Section 3.

NOTE 1. A "new home" is any building or structure which is occupied as, or designed or intended for occupancy as a residence for one family and which has never been previously purchased and occupied. (The Commission may at its discretion enlarge the scope of the rule or parts of it to include multiple-family dwelling units and mobile homes.)

NOTE 2. A "seller" includes, but is not limited to, any builder, developer or realtor or any other person(s), partnership, corporation, organization, association, mutual company, joint-stock company, trust, trustee, receiver, fiduciary, or any other agents or representatives thereof, who is showing, offering to sell, or selling a new home to the public.

NOTE 3. A "buyer" includes, but is not limited to, a person(s), partnership, corporation, organization, association, mutual company, joint-stock company, trust, trustee, receiver, fiduciary or any other agents or representatives thereof, who personally comes to the home or model to inspect or purchase the home.

NOTE 4. It is recommended that the FTC adopt the formula developed by the *National Association of Home Builders Research Foundation* to compute the estimated annual heating costs in Section 1(a) herein, as follows:

Heating Costs, expressed in \$ per year

$$\frac{\text{Total Heat Loss} \times \text{Heating Index} \times 24}{\text{Temperature Differential} \times 100,000}$$

Where:

1. Total heat loss is expressed in terms of the number of btu's escaping from all areas of the home. (See Appendix D)

2. The heating index (gas) = Degree Days $\times$ Cost per therm.

Seasonal Efficiency of the system

$$\text{The heating index (oil)} = \frac{\text{Degree Days} \times \text{Cost per gallon}}{1.41 \times \text{Seasonal efficiency}}$$

$$\text{The heating index (electricity)} = \text{Degree Days} \times \text{Cost per kwh.} \times 20.75$$

(See Appendix D)

3. The temperature differential = Inside design temperature — Outside Design Temperature. (See Appendix D)

NOTE 5. It is recommended that the FTC adopt the formula developed by the National Association of Home Builders Research Foundation to compute the estimated annual cooling costs in Section 1(b) herein, as follows:

Cooling Costs, expressed in \$ per year

$$\frac{\text{Total heat gain} \times \text{Cooling Index}}{100,000}$$

Where:

1. Total heat gain is expressed in terms of the number of btu's leaking into the house or generated in the home by sources of heat. (See Appendix D)

2. The cooling index (electricity) = Cost per kw hr. $\times$ Operating Hours $\times$ 14.58
The cooling index (gas) = Cost per therm. $\times$ Operating Hours $\times$ 2.81 (See Appendix D)

3. Operating hours equal the number of hours when the outdoor temperature is 80° F. or higher.

NOTE 6. The time of settlement is that point in time when the sale of the home becomes finalized either by a contract of sale or any other legally recognized agreement between the seller and the buyer giving ownership of the home to the buyer.

VI. THE MANY BENEFITS THAT WILL ACCRUE TO THE HOME BUYER, THE HOUSING INDUSTRY AND THE NATION AS A WHOLE, AS A DIRECT RESULT OF THE ADOPTION OF THE PROPOSED RULE ARE MONUMENTAL IN COMPARISON TO THE MINIMAL COSTS OF ITS IMPLEMENTATION

The following discussion will demonstrate that the adoption of the proposed rule will yield great financial and social benefits, while costing very little to builders, consumers and the FTC. The rule will serve as a means of shifting the criteria of buying a home from a first cost to a life-cycle basis. While doing so, it will place energy consumption and warranties into the forefront of the home purchasing decision-making process.

At present the housing industry is a sizable market, influencing the lifestyles and pocketbooks of a great many Americans. While the industry is beset with financial worries and consumers must struggle with inflationary prices, houses continue to be built at a rate of approximately two times that of rental units.³⁵ An October 1974 report made by the National Association of Home Builders, estimated that of 933,000 sales units started in 1974, 825,000 of them were single-family units. Only 429,000 rental units during this same time period were started. Similar proportions will exist for 1975.³⁶

In 1973, the housing industry generated a potential sales figure of over \$36.8 billion.³⁷ This shows that the problem HOUSE INFO is concerned with is not a trivial one. Such a massive industry certainly merits close scrutiny by the federal government, especially so when it is functioning in a manner constituting a threat to the national well-being.

Petitioners have advanced the notion that both energy and money savings are concerns which go to the core of the disastrous situation facing us today. Accordingly, by providing information relating to the construction and warranties of the home, considerable savings will flow to the home buyer and society in: (1) direct savings in life-cycle costs to home owners and (2) savings in energy consumption for all of America.

The application of the formulae recommended by HOUSE INFO for determining heating and cooling costs has several advantages: (1) the formulae will yield a figure in dollars and cents which serves to facilitate comparative shopping; (2) comparing the estimated utility costs of two houses of equal size, in

³⁵ National Association of Home Builders Economics News Notes, January 1973.

³⁶ National Association of Home Builders Economics News Notes, October 1974.

³⁷ This assumes a total of 1,132,000 home starts at an average sales price of \$32,500.

similar climates and utilizing the same fuels, will provide the consumer with an excellent basis for evaluating the overall energy-efficiency of the home; and (3) comparing the relative heating and cooling costs of all homes will enable the consumer to discern the energy-efficiency of his entire purchase, with regard to home construction and type of fuel used.

Due to the expectation of rising fuel prices, HOUSE INFO believes that, in addition to operating costs, it is necessary to supply consumers with more direct information as to how well the house is insulated. Disclosing the type and quality of the insulation in the ceilings, floors and walls will enable the home buyer to take advantage of savings which accrue as a direct result of a well-insulated house. Aside from lower utility bills, the home owner will find that smaller heating and cooling units may be installed. For instance, higher quality insulation may mean as much as a half-ton difference in cooling equipment size.³⁸ Depending upon geographical location, the availability of unit sizes and installation fees, an extra half-ton of air conditioning equipment may cost as much as \$200, a figure greatly exceeding the cost of adding sufficient insulation obviating the need for the extra half-ton.³⁹ Increased insulation may also result in savings as a result of reductions in flue and duct sizes, in the number of ducts needed and in wiring costs.⁴⁰

The savings in operating costs realized merely by adding insulation can be calculated using the formulae recommended for determining heating and cooling costs. In a sample house with a wall area of 1,890 square feet, a ceiling area of 2,754 square feet, located in a moderate climate such as that of Washington, D.C., changing the insulation in the walls from R-7 to R-11 alone would result in savings of \$17.30 per year (see Appendix F). Changes in the insulation in other parts of the home would yield similar savings.

The current price of R-11 insulation is approximately \$.03/square foot more than R-7 insulation. The additional insulation costs for the above-described home would therefore be \$56.70. Using 1974 fuel prices, it would thereby take less than 3½ years for the home owner to recoup his original investment in extra insulation and begin to reap the advantages of an energy-efficient home.

Putting high quality insulation in the entire home would affect the purchase price to a small degree. According to figures compiled by the National Association of Home Builders Economics Department for 1972, the typical FHA single-family detached house costs \$14,083.14 to construct ("hard costs"), while insulation costs were only \$132.38 or less than 1 per cent of the total.⁴¹ It is, therefore, clear that additional insulation would only nominally affect the price of a new house. The price increase will be happily accepted by a well-educated consuming public.

The usage of double-glazing in windows and doors likewise provides protection against the escape of heat from the house in the winter and leakage of heat into the house in the summer. In a house with the same characteristics as the one described earlier, the addition of double-glazed windows and storm doors will yield savings in heating and cooling costs of \$49.44 per year (see Appendix G). While double-glazed windows, doors with double-glazed panes and storm doors cost more than single glazing, the added initial costs will again be well worth the higher price as an investment for future savings.

The disclosure of the type of fuel utilized in the heating and cooling systems as well as in the water heater, is aimed at making the potential home buyer aware of the fact that different fuels are available for him to use. It is hoped that once the potential buyer has knowledge of what fuel the home utilizes, this will encourage him to do some independent research in order to discover the advantages and disadvantages of each type of fuel. The following is a summary of the information HOUSE INFO has compiled on different energy sources. The discussion points out just how important knowledge of what fuel is used in the home can be to the home buyer.

On a national average, supplying energy in the form of electricity uses 3.34 times the primary energy required to supply the same amount of energy in the form of natural gas.⁴² Furthermore, natural gas is more than twice as efficient for

³⁸ Insulation Manual, National Association of Home Builders Research Foundation, Inc., September 1971, p. 7.

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ *Supra* note 35.

⁴² "Energy Shortage and Impact on Housing," Sumichrast, June 1974, p. 29.

space heating as is a conventional electric resistance heater.⁴³ Nevertheless, there is a strong trend toward the use of electric heating in residential homes; the number of electrically heated dwellings is projected to use from 4.2 million in 1970 to 12.5 million in 1980 and still further, to 24.0 million by 1990. Looking solely at single-family dwellings, in 1973, one study shows that 42% of them used electrical heating, 47% used gas, and 10% used oil.⁴⁴

Comparative operating cost data reveals that electrical heating and hot water systems are substantially more expensive to operate than gas. The following information was based on "Gas Facts," an American Gas Association publication dated 1971, for which 1970 residential gas prices were averaged at \$1.06 per million btu's and average electricity rates were computed at \$.021 per kilowatt-hours (with use rates over 1,000 kwh per month averaged at \$.018/kwh). Because these prices are outdated, it must be taken into consideration that the 1973 residential price of gas was as high as \$1.25 per million btu's, while the residential electricity price for the Washington area was as high as \$.0277/kwh. (during the summer months; somewhat less for winter months).

The following are the average annual energy costs to the homeowner, using 1970 fuel costs:

	<i>Costs</i>
Space heating:	
Electricity -----	\$362. 75
Gas -----	93. 01
Water heating:	
Electricity -----	126. 61
Gas -----	30. 53

From the above data, the financial advantages of gas utilization may be clearly seen. For both space heating and water heating, it costs approximately four times as much to use electricity as compared to gas (at 1970 prices). A potential home buyer who is aware of the tremendous cost differences among different fuels should weigh these characteristics against others such as cleanliness and safety, and based on personal needs and tastes, come to a fully-informed and reasoned purchasing decision.

The disclosures with regard to warranties will allow the home buyer to evaluate the life-cycle costs of various structures, systems and appliances in the home. With rising costs of home repairs, the cash savings on a product with a long-term, full coverage warranty could be very significant. The nature of the warranty would also indicate the value of the investment in anticipated useful life; the home buyer would therefore be better able to reasonably forecast future replacement and repair expenses. Furthermore, disclosures would make comparative shopping possible so that blatant variances could be spotted and mistakes avoided.

If house operating costs could be decreased by only a few dollars, the total savings to the country would be tremendous. In fact, P. Schmidt Homes, Inc., a homebuilding firm, has attempted to construct energy-efficient homes and reported that in a 2,000 sq. ft. ranch house model, for an additional initial cost of only \$600, home owners would be able to save \$280 per year in fuel bills! Schmidt stated:

What we really have accomplished is to turn an energy crisis into an energy advantage an advantage for us and also of course for our home buyers. The buyers will not only save money in fuel bills over the long haul, but they will also enjoy homes with greater resale value because of lower cost and the improved interior comfort conditioning.⁴⁵

Approximately 825,000 single-family homes are expected to be started in 1974. If only \$75 could be saved in heating and cooling costs in each home, the savings to the American public would be as high as \$61,875,000.⁴⁶ Between 1973 and 1982, a total of 28.2 million housing starts are expected.⁴⁷ If in each one of these homes, \$75 could be saved in heating and cooling costs, the total savings over the ten-year period would be almost \$3 million.⁴⁸ (It should be noted that a \$75 annual savings in total heating and cooling costs is a conservative goal.)

⁴³ Id., p. 33.

⁴⁴ U.S. Government Construction Reports, Characteristics of New One-Family Homes, September 1974.

⁴⁵ Properties, March 1974, "Cleveland, Ohio, The Energy Crisis: Our Plan for Action," R. F. Schmidt, p. 33.

⁴⁶ This is the product of 825,000 and \$75.

⁴⁷ Impact of Improved Thermal Performance in Conserving Energy, National Mineral Wool Insulation Assoc. Inc., April 1972.

⁴⁸ This is the product of 28.2 million and \$75.

It is estimated that household markets alone utilize 22.4 per cent of the nation's total energy supply. In a home in the Baltimore/Washington area, the heating system can account for up to one-half of the total annual energy consumption, while the cooling system accounts for 10-20 per cent of the total.⁴⁹ In light of the above statistics, it is obvious that what type of fuel is used by home owners will not only have a profound effect on their individual bills but on the capability of the entire nation to conserve energy. (See Appendix H for further studies on the construction of energy-efficient homes and its effects on the economy.)

While it is conceivable that the home buyer will ultimately pay for costs of disclosure it is advanced by the petitioners that such costs will be minimal. Compliance with the proposed rule should create no significant burden for builders. Using the suggested formula will be easy. Any reputable builder (or his engineer) will ordinarily compute the total heat loss and heat gain in order to determine the size of the heating and cooling units necessary. A simple telephone call to the local utility company will enable the builder to ascertain the fuel prices needed to compute heating and cooling costs. The remainder of the information necessary to compute heating and cooling costs may be found in ASHRAE's Guide and Data book (see Appendix C). All engineers are familiar with the use of this industry-wide accepted manual for heating, cooling and refrigerating information.

Obviously the builder will know what types of fuel are used in the home, what warranties come with the home, and whether double-glazing has been used. The builder or his engineer also will know the R-value (see Appendix E) of the insulation used in the ceilings, walls and floors. The contention that R-values are known to the builder is supported by the fact that the FHA requires all builders of FHA insured homes to meet specific R-value standards in order for the house to be approved for funds.

It is easily seen that the disclosure requirements of the proposed rule are a simple matter of passing already-known information from the builder to the selling agent, who in turn passes it on to prospective purchasers in an easily understandable format. In fact, the builder is often his own selling agent. This reduces costs almost down to the mere expenses involved in preparing the information sheet and xeroxing copies.

Finally, the enforcement of the rule by the FTC will be simplified by the use of a substantiation file. This substantiation file will include evidence from the builder that for all of the information given to the prospective buyers in the standard sheets, he has reason to believe that it is reasonably accurate. The file will also contain a signed copy of the information sheet in which the actual buyer certifies that he was given the sheet at the time of his initial inspection and that he has fully read the sheet. The selling agent will be required to keep the file on record in his office for a period of three years. This period of time was chosen because it gives the buyer a sufficient opportunity to discover inaccuracies on the sheet and at the same time does not place too great a burden on the selling agent.

The adoption of the proposed rule would provide greater honesty and openness in the housing market. Its many beneficial effects are, however, conditioned on the assumption that consumers want and will effectively use this information. The following study is a good example of what value consumers place in gaining access to energy-efficiency information: P.B.D. Architects, sponsored by Family Circle Magazine, constructed an "energy house" in San Diego, estimated to decrease heating, cooling and electric bills by 50 per cent using present day technology. Family Circle Magazine published a four-page story about this house and offered construction plans to its readers for \$10. Within three weeks, more than 3,000 readers had contacted the magazine to purchase the plans.⁵⁰ This episode demonstrates the great interest consumers have in gaining access to home energy-efficiency information. It is to be noted that the magazine involved had a limited circulation. It is difficult to imagine the size of the response had the article been read by all Americans interested in buying a home.

It is advanced by petitioners that at a time when our economy is forcing most families to struggle to make ends meet, the disclosures required in the proposed rule will prove invaluable to the prospective home buyer. In view of the fact that the costs of providing this information are minimal in comparison to the tremendous benefits that will be felt by every segment of our society, HOUSE

⁴⁹ Sumicrast article, *supra*, note 42, p. 33.

⁵⁰ Professional Builder and Apartment Business, Oct. 9, 1974, p. 41.

INFO calls upon the FTC, the one agency that has so often championed the cause of the consumer, to act with all deliberate speed toward the promulgation of the proposed rule.

VII. THE PEOPLE, THROUGH THEIR ELECTED REPRESENTATIVES IN CONGRESS, HAVE CALLED FOR ENERGY-CONSERVATION AND WARRANTY-PROTECTION MEASURES FROM THE FEDERAL GOVERNMENT

There could be no clearer example of Congress' great concern for warranty protection than the recent Consumer Product Warranties and Federal Trade Commission Improvements Act.⁵¹ Section 102(a) states:

In order to improve the adequacy of information available to consumers, prevent deception and improve competition in the marketing of consumer products, any supplier warranting a consumer product to a consumer in writing shall fully and conspicuously disclose in simple and readily understood language the terms and conditions of such warranty pursuant to any rules issued by the Commission in accordance with Section 109 of this Act . . .

Section 102(b) (1) A states:

The Commission shall prescribe rules, in accordance with section 109, requiring that the terms of any warranty on a consumer product be provided to the consumer (or prospective consumer) prior to the sale or lease of the product to him.

The above provisions constitute a clear Congressional mandate to the FTC to promulgate trade regulation rules which will abolish unfair or deceptive warranty practices. HOUSE INFO seeks to help the FTC begin the battle by preparing a greatly useful and workable rule for the housing industry. The proposed rule clearly conforms to two of Congress' suggestions to the FTC on what should be disclosed: [Section 102(a)]

(3) The products or parts covered.

(10) The time at which the warrantor will perform his obligations. The structures, systems and appliances which HOUSE INFO has chosen for disclosure are not to be considered an all inclusive list. They were chosen because repairs of these items constitute the largest and most common expenses to the home owner.

Now, more than ever before, it is incumbent upon the FTC to initiate a complex and broad program of warranty disclosures for the consuming public. The fantastic costs of purchasing a house and maintaining it make the housing industry an excellent place to start. It is time for the FTC to fulfill its destiny as protector of the free market system.

Congress has expressed its interest in the regulation of the housing sector through several bills currently pending. The Truth in Housing Act, S. 2028, June 20, 1973, provides for written disclosure with respect to substantial defects in dwellings offered for sale, including the estimated cost of eliminating such defects. The bill requires inspections by qualified personnel in order to discover and document defects in the home. The seller is to be reimbursed at the closing by the purchaser for costs incurred in any inspections related to the disclosure. Hearings were conducted before the Consumer Subcommittee of the Senate Commerce Committee on December 4 and 5, 1973, and no further action has been taken.

S. 2176, the National Fuels and Energy Conservation Act of 1973 (dated December 10, 1973) has been passed by the Senate and awaits House resolution. Section 8, "Truth in Energy," is of specific concern here. Its intent is "to assure, through a uniform national system, noncompliance with which shall be an unfair or deceptive act or practice, meaningful disclosure of the annual operating cost of certain products and systems, so that consumers can readily compare them to and thereby avoid purchasing those which unnecessarily waste energy." The section details an extensive procedure by which to identify major energy consuming household products and to determine annual operating costs.

The statute is on its face supportive of the goals outlined in the proposed rule. While the statute could accomplish similar objectives with respect to educating consumers regarding energy-consuming systems in the home, it is strongly urged that the FTC could accomplish the same result more effectively and expediently. The bill is currently pending in the House and will probably require at least

⁵¹ Supra note 3.

several months for passage. Furthermore, the timetable suggested for each step of the procedure would make it impossible for the ultimate consumer to obtain any information whatsoever for several years hence. A more immediate informational process is called for. The proposed rule seems to answer the Congressional plea for energy conservation while at the same time it serves to benefit the consumer more directly and immediately.

VIII. THE FTC HAS THE STATUTORY AUTHORITY TO PROMULGATE TRADE REGULATION RULES

The recent Consumer Product Warranties and Federal Trade Commission Improvements Act has reaffirmed the authority of the FTC to promulgate trade regulation rules defining unfair and deceptive trade practices. The new act amends Section 6(g) of the Federal Trade Commission Act⁵² to read:

The Commission shall also have power—(g) (1) from time to time to classify corporations and to issue (a) procedural rules, and (b) rules defining with specificity acts or practices which are unfair or deceptive to consumers and which are within the scope of section 5(a) (1) of this Act.⁵³

IX. THE FTC HAS JURISDICTION TO COMBAT UNFAIR AND DECEPTIVE ACTS OR PRACTICES IN THE HOUSE INDUSTRY

Section 5(a) of the FTC Act, 15 U.S.C. 41 et seq., now gives the Commission jurisdiction over "unfair methods of competition in or whose business affects commerce and unfair or deceptive acts or practices in or whose business affects commerce."⁵⁴

This jurisdictional change greatly expands the authority of the FTC. The Commission now has jurisdiction not only of those acts which are immediately in interstate commerce, but all of those local acts which affect interstate commerce. The housing industry may affect interstate commerce in any of the following ways:

(1) Housing construction involves the transportation of a large amount of materials across state lines.

(2) The advertising of homes may bring persons across state lines to inspect the homes.

(3) Unfair and deceptive practices in local housing markets prevents builders in other states to compete effectively.

(4) The pipes and conduits necessary for the flow of gas and electricity to homes are in interstate commerce.

(5) Unfair and deceptive practices in local housing markets may affect the transaction of interstate mortgage loans and insurance.

Because the statute expanding FTC jurisdiction has just been enacted, there are obviously no cases bearing on this issue. However, past cases involving anti-trust violations by real estate brokers may be used for analogy purposes because of the similarity between the jurisdictional provisions of the Sherman Act and the new FTC Act. See *U.S. v. Rubino Builders*,⁵⁵ *Goldfarm v. Va. State Bar*,⁵⁶ *U.S. v. Atlanta Real Estate Bd.*,⁵⁷ *U.S. v. Long Island Bd. of Realtors*,⁵⁸ *U.S. v. L.A. Realty Bd.*,⁵⁹ *U.S. v. Greater Pittsburgh Bd. of Realtors*⁶⁰ and *Mazur v. Behrens*,⁶¹ in which the several courts held that the deceptive and anti-competitive acts of the brokers were both "in commerce" and affecting commerce.

X. THE FAILURE OF SELLERS OF NEW HOMES TO DISCLOSE MATERIAL INFORMATION CONCERNING THE ENERGY EFFICIENCY OF, AND THE WARRANTIES ON, THE HOME CONSTITUTES AN UNFAIR AND DECEPTIVE TRADE PRACTICE OR ACT

A. *The Promulgation of Trade Regulation Rules Defining Deceptive Acts or Practices by the FTC Show that the Commission is Concerned With Enabling Consumers To Make Rational Purchasing Decisions and Protecting the Environment.*

⁵² 15 U.S.C. 41 et seq.

⁵³ Sec. 203.

⁵⁴ *Supra*, note 3.

⁵⁵ 1967 Trade Cases § 72,076.

⁵⁶ 1973 Trade Cases § 74,378.

⁵⁷ 1972 Trade Cases § 73,825.

⁵⁸ 1972 Trade Cases § 74,068.

⁵⁹ 1973 Trade Cases § 74,366.

⁶⁰ 1973 Trade Cases § 74,454.

⁶¹ 1974 Trade Cases § 75,070.

It is the contention of HOUSE INFO that the failure of sellers of new homes to disclose to potential purchasers the information contained in the proposed rule constitutes both an unfair and deceptive trade practice or act within the definition of Section 5 of the FTC Act. The deception arises primarily out of the omission of material facts which are vital to an intelligent purchasing decision. It may also occur as a result of misleading half-truths such as instances when the prospective buyer is given incomplete information. One such example occurs when the seller informs the prospective buyer that he has so many inches of insulation in the walls, but not what type of insulation. This may lull the buyer into a false sense of security as to the quality of the insulation in that the buyer does not know that thickness alone is not a measurement of the quality of insulation. Furthermore, the unfairness of present practices arises out of a blatant affront to the public interest by not affording consumers an opportunity to make money and energy-conserving decisions.

In the past, the Federal Trade Commission has taken a valiant stand in waging its war against unfair and deceptive acts or practices. The Agency's main plan of attack has been the promulgation of trade regulation rules. The recent Consumer Product Warranty and Federal Trade Commission Improvements Act may be viewed as an indication of Congress support for this line of action.

In the "Light Bulb Rule"⁶² the Commission enacted a strong regulation against the withholding of material facts necessary in the purchase of light bulbs. The rule declared it to be an unfair and deceptive trade practice or act to fail to disclose clearly and conspicuously: (1) the electrical power consumed by the bulb; (2) the light output; and (3) the average laboratory life expectancy. Contrary to public expectation, light bulbs of the same wattage were marketed by different manufacturers with varying expected lives and outputs, causing serious confusion as to the true value of any particular bulb. As a result, the Commission concluded that:

In this matter it is imperative to have disclosures which are significantly adequate to remove deception, to inform customers and to insure fair and equitable treatment among industry members. The consuming public is so accustomed to purchasing bulbs on the basis of wattage that the deception caused thereby can only be removed by large disclosures which are in immediate conjunction with the wattage rating . . .⁶³

The enactment of the "Light Bulb Rule" was primarily designed to enable consumers to make rational decision as to what bulbs to purchase. The FTC recognized that a decision based solely upon the initial purchase price was wrong. The disclosures required in the proposed rule of the estimated heating and cooling costs of, and warranties on, the home conforms perfectly with the "Light Bulb rule" rationale. With fuel prices soaring, knowledge of the monthly mortgage payments becomes only one factor in home maintenance costs. In order for a person to know whether he can afford to purchase a home he must have access to the true costs of maintaining it.

While the "Light Bulb Rule" was primarily motivated by the need of consumers to make informed purchasing decisions, the FTC has also enacted such rules as the "Minimum Octane Rating Rule"⁶⁴ in an effort to protect the environment. This rule makes it an unfair and deceptive trade practice or act to fail to disclose in a permanent manner on gasoline pumps the minimum octane rating of the gasoline being dispensed. The rationale underlying the rule is two-fold. First of all, the Commission found that consumers, due to the lack of octane information, were buying gasoline of a higher octane than was necessary. Secondly, the usage of gasoline with too high or too low an octane rating for a particular automobile was found to create excessive noxious emissions.

HOUSE INFO's proposed rule is concerned with ecological principles and is therefore directly on point with the "Octane Rule" rationale. By requiring disclosures of octane ratings, the FTC is protecting the public against air pollution and energy waste, problems steadily increasing in terms of national importance. Similarly, disclosures of the energy-efficiency of a home will promote public policies geared toward energy conservation.

When the Commission encouraged the promulgation of the "Phosphate Labeling Rule,"⁶⁵ it realized that many consumers are concerned about possible adverse

⁶² Trade Regulation Rule Relating to Incandescent Lamps (Light Bulbs), "Disclosure of Humans, Life, Cost and Other Data, Federal Trade Commission, Jan. 25, 1971, 16 C.F.R. 409.

⁶³ *Id.* at p. 12.

⁶⁴ 16 C.F.R. 422 (1972).

⁶⁵ Voluntary Detergent Labeling Rule 37 F.R. 23363, Nov. 2, 1972, CCH 50, 151, 1972.

effects on the environment of phosphate in detergents which contribute to water pollution. The FTC believed that many consumers would prefer to purchase and use only those detergents with little or no phosphate content, even if it would cost them a little more. Although this rule is presently a voluntary program, it is important to note that the FTC has recognized its responsibility toward protecting the environment. Nothing would be more advantageous to the preservation of our environment or the national well-being than an energy conservation program. When one realizes that residential homes utilize more than one-fifth of our energy requirements, one can only begin to appreciate the responsibility which has been placed in the hands of the FTC.

The proposed "Fuel Economy Rule"⁶⁶ is obviously predicated upon energy considerations, as the FTC has stated:

Shortages of the winter of 1973-74 and the ensuing substantial rises in price have made the level of gasoline consumption a critical issue for the American public, both in terms of the cost of obtaining gasoline for individual consumers and in terms of the cost to society of the depletion of the nation's resources.⁶⁷

The hearings which are to be held in relation to this rule mark the first substantial step which the Commission has taken in addressing itself to the energy crisis and inflation. By requiring automobile manufacturers to disclose the estimated gas mileage of their products, the Commission will enable consumers to appreciate the value of energy-efficient automobiles. Not only will the initial purchase price have more meaning, but the purchaser will be able to estimate a significant portion of his operating costs and the environmental effects of his purchasing decision.

HOUSE INFO's proposed rule is strikingly similar to the "Fuel Economy Rule." The information sought to be disclosed will clearly enable the prospective buyer to appreciate builders' efforts toward the construction of high quality, energy-efficient homes. Further, as the disclosure of estimated gas mileage will in the long run result in the manufacturing of more energy-efficient cars, so too will the proposed rule result in the construction of energy-efficient homes.

The crucial import of the fuel economy rule is evidenced by the fact that it is under serious consideration by the Commission prior to the time a formula for computing gas mileage has been universally accepted in the industry. In contrast, the formulae proposed by HOUSE INFO to be utilized in the computation of heating and cooling costs have not only been accepted in the housing industry, but the ASHRAE formula upon which they are based has been approved by such federal agencies as the General Services Administration and the Department of Housing and Urban Development (See Appendix C). It is also noteworthy that transportation consumes a smaller proportion of the nation's energy than does residential heating.⁶⁸

The rule proposed by HOUSE INFO also conforms with the principles of other regulations currently under consideration or enacted by the Commission. These regulations include:

(1) the disclosure of the power output of sound amplification equipment for home entertainment use to be specified in uniform terms.

(2) the disclosure of the energy-efficiency rating (E.E.R.) of air conditioners.

(3) the disclosure of the nutritional content of foods.

The above programs are similar to the one proposed by HOUSE INFO in that they all seek to present the consumer with essential purchasing information in a clear, concise format.

B. Past FTC Incursions into the Housing Industry Evidence the Power of the Commission To Regulate This Industry as Well as the Need for Such Regulation

Even prior to an affirmative Congressional grant of FTC jurisdiction over unfair and deceptive trade practices or act which affect interstate commerce, the Commission had enacted several trade regulation rules and guidelines for the housing industry. Many of them deal with warranty disclosure. For example, 16 C.F.R. 230 sets guidelines for the advertising of "shell homes." 16 C.F.R. 250 deals

⁶⁶ 39 F.R. 34382.

⁶⁷ Id.

⁶⁸ The Costs of Sprawl, Executive Summary, CEQ, HUD, EPA, 1974, p. 5.

with guidelines for the housing furniture industry. In addition, the Commission has recently been investigating unfair and deceptive practices in the sale of mobile homes. Most of the disclosures advocated by petitioners in regard to single family homes are also applicable to mobile homes. The FTC has also adopted trade regulation rules concerning the oil heating industry of the New England States⁶⁹ and the water heating industry.⁷⁰

By setting down rules and guidelines for segments of the housing industry, the Commission has displayed a willingness to exercise its powers in banning deceptive and unfair practices or acts. The Commission has demonstrated an especially keen interest in the full disclosure of warranties and the enactment of the Consumer Product Warranty and Federal Trade Commission Improvements Act indicates the Congress believes more work is necessary.

C. Sales Practices in the Housing Industry are Replete with Misleading Half-truths which Constitute Deceptive Acts or Practices

In Section 6 of the revised FTC Act, the Commission is given the authority to issue trade regulation rules defining unfair and deceptive acts or practices. Sales tactics in the housing industry which misrepresent or omit facts which are material to an informed purchase decision are injurious to consumers as well as to honest competitors. Some of the deleterious effects of non-disclosure are: (1) the continued construction of energy-inefficient homes; (2) continued waste of scarce energy resources; and (3) continued inefficiency of the market system in producing high quality homes.

It is important to distinguish between complete omissions of relevant facts and misleading half-truths both of which are rampant in the housing industry. A half-truth can serve to deceive the unsuspecting consumer in several ways. For instance, partial disclosures, even if literally true, may create false impressions of superior value which can only be exposed by comparative disclosures throughout the industry. Consumers must be taught to recognize that the neighborhood, initial costs, mortgage payments and taxes are not the only factors to consider in purchasing a home. Due to our scarcity of energy resources, every prospective home purchaser must ask himself, "What will be the effect of my purchase on the environment?"

The value of any particular home also includes the quality of workmanship and materials utilized in its construction. Without the benefit of the type of information sheet proposed by petitioners, most home buyers will be unable to make valid distinctions between different homes as to their respective energy-efficiencies. For example, the consumer must be informed that the reason HOUSE A may cost a little more than HOUSE B is because its floors, walls and ceilings have higher quality insulation than the latter. The respective disclosures of the estimated heating and cooling costs of the two homes will instruct the consumer that he will be able to regain the difference in initial investment in a relatively short period of time.

Another manner in which sellers utilize half-truth to the detriment of free trade is by making incomplete statements and allowing consumers to draw false conclusions from them. In the case of *P. Lorillard Co. v. FTC* (the Old Gold Case),⁷¹ the respondent advertised that a Reader's Digest survey had found its cigarettes to be lowest in tar and nicotine content. The statement, though truthful, was misleading in that it did not state that the survey results also showed that no cigarette, including respondent's brand, had significantly less dangerous tar and nicotine levels than other brands.

Similar misrepresentations may occur in the housing industry. For example, a potential home buyer who is told that he has four inches of insulation in the walls may be fooled into thinking that his home is well insulated. However, by not disclosing what type of insulation or its R-value (with an explanation), the information becomes fairly meaningless.

Even the common law of deceit recognizes that a half-truth could be as deceptive as an affirmative representation. This principle has been consistently applied under Section 5 of the FTC Act. It is now well settled that Section 5 proscribes any advertising matter whatsoever which creates a misleading impression in

⁶⁹ 16 C.F.R. 183.

⁷⁰ 16 C.F.R. 160.1.

⁷¹ 186 F.2d (4th Cir. 1952).

the mind of the ordinary purchaser. "The skillful advertiser can mislead the consumer without misstating a single fact."⁷²

Advertising occurring in large commercial markets is closely analogous to the "sales-pitch" made by the builder's selling agent. For the following two reasons, the ability of the FTC to deal with deceptive half-truths in advertising has become vitally significant to the commercial world: (1) much of modern promotional advertising focuses on distinctions between products that are virtually indistinguishable functionally and (2) advertising utilizes the "slogans and jingles" approach to purchasing decisions without supplying reasons for differences in costs among competitive brands.

The aforementioned factors create substantial problems for the prospective home buyer. Home buyers often base their purchasing decision on the initial, short-term price of the home, the taxes involved, the availability of financing, the surrounding community and the esthetic qualities of the home. As between two homes of approximately the same size in similar neighborhoods, the home buyer is unable to make comparative judgment based on functional or long-term cost differences.

Most of the essential information cannot be obtained upon inspection of the home. The buyer falls prey to high-level promotional campaigns which tend to appeal to his esthetic interests rather than to his good common sense. The home buyer is thus deceptively induced into the initial cost theory of decision-making without concomitant awareness that a low cost house built inefficiently can result in enormous operating cost during the lifetime of the house.

D. The Failure of Sellers to Disclose Material Life-Cycle Costs Constitutes a Deceptive Trade Practice or Act

It is well established by case law that deception made actionable by Section 5 of the FTC Act can arise from the silence of the seller as well as from his affirmative representations.⁷³ The failure to disclose essential consumer information is deceptive in the sense that the public assumes from this silence that a state of facts (i.e., that the product is durable, or can be cheaply maintained, or that it performs efficiently) exists, when, in fact, affirmative disclosure would reveal otherwise. Again, the housing industry serves as a good example. If the price of a home is low compared to other comparable ones, the consumer is likely to favor the lower-priced home, thinking that he is getting a bargain. However, it may be that the operating costs of the lower priced home are much higher than for other comparable homes. The disclosure of the estimated heating and cooling costs will enable the purchaser to make a decision based on the more meaningful life-cycle costs of owning a home rather than just on the initial purchase price.

Another area in which absolute silence as to a material fact may be deceptive is warranties. Many consumers assume that every product is guaranteed for a reasonable period of time. Many buyers will neither consider warranties existing on various parts of their homes nor understand the complex terms of each warranty prior to the purchase. Yet warranties are another factor that must enter into an optimal purchasing decision.

In light of our present economic situation, it is crucial that every purchasing decision, particularly one requiring a sizeable investment, be made on the basis of sufficient material information. This will serve to optimize the rationality of the ultimate purchasing decision. It is the contention of HOUSE INFO that material facts relating to utility expenses, energy-efficiency and warranties are vital to the home buying decision. Such data is not presently made available to the consumer while it is commonly known to the builder. A decision without this information becomes an emotional flip of the coin. The lack of the above information is clearly violative of the FTC Act which prohibits deceptive omissions. The courts have substantiated this theory in holding that a violation of the Act is

⁷² *D.D.D. Corp. v. F.T.C.*, 125 F.2d 679 (7th Cir. 1942); *Aronberg v. F.T.C.*, 132 F.2d 165 (7th Cir. 1942); *Sebrone v. F.T.C.*, 135 F.2d 676, 670 (7th Cir. 1943); *Caldwell v. F.T.C.*, 111 F.2d 889 (7th Cir. 1940); *Parker Pen Co. v. F.T.C.*, 159 F.2d 500 (7th Cir. 1946); *C. Howard Hunt Pen Co. v. F.T.C.*, 197 F.2d 273 (3d Cir. 1952); *Ford Motor Co. v. F.T.C.*, 120 F.2d 175 (6th Cir. 1941); *P. Lorillard Co. v. F.T.C.*, 186 F.2d 52, 53 (4th Cir. 1950); *Charles of the Ritz Dist. Corp. v. F.T.C.*, 143 F.2d 676, 679 (2d Cir. 1944); *Kalwajtys v. F.T.C.*, 237 F.2d 654, 656 (7th Cir. 1956).

⁷³ *Fisher and De Rites*, 49 F.T.C. 77 (1952); *Stupell Enterprises, Inc.*, 67 F.T.C. 173 (1965); *Bantam Books, Inc. v. F.T.C.*, 275 F.2d 680 (2d Cir. 1960); cert. denied, 364 U.S. 819 (1960).

established if the seller is silent with regard to a material fact which will lead consumers to make erroneous assumptions.⁷⁴

The disclosures proposed by HOUSE INFO are predicated to a large extent on the guidelines laid down by the Commission for the housing furniture industry.⁷⁵ Section 250.1(6) states that:

Material facts concerning merchandise which, if known to prospective purchasers, would influence their decisions of whether or not to purchase should be disclosed. This includes situations where deception may result from the appearance alone which, in the absence of affirmative disclosures, could have the capacity and tendency or effect of misleading or deceiving.

Furthermore, 16 C.F.R. 239 (Warranties) makes it evident that clear and conspicuous disclosure of the nature and extent of the guarantee is essential to the consumer. The warranty disclosures requested by HOUSE INFO are directly in line with FTC criteria:

In general, any guarantee in advertising shall clearly and conspicuously disclose:

(a) the nature and extent of the guarantee. This includes disclosure of:

(1) what product or part of the product is guaranteed.

(2) what characteristics or properties of the designated product or part thereof are covered by, or excluded from, the guarantee.

(3) what is the duration of the guarantee. . . .

In tying the case law on deceptive trade practices or acts together, it becomes clear that sales promotions which deter the consumer in his efforts to make more informed product purchasing decisions violate the antideception requirements of Section 5 of the FTC Act in two respects. First, an omission of a material fact may be made by the seller which gives the buyer the false impression that he has all of the relevant information which he needs. The silence may also lead the buyer to assume that a certain state of facts exists which in reality is untrue. Secondly, a misleading half-truth may create a false impression of superior value which can only be exposed by universal disclosures of relative worth. The controlling legal stand is a simple one: If the seller attempts to deceive the consumer in any particular which could influence the latter's buying choice; if, in other words, he uses any false inducement, he has committed a deceptive act or practice in violation of Section 5.⁷⁶

E. The Failure of Sellers of New Homes To Disclose Material Home Buying Information Constitutes an Unfair Trade Practice or Act.

The leading case defining what constitutes an unfair trade practice is *Sperry & Hutchinson v. FTC*.⁷⁷ This decision makes explicit the breadth of FTC powers under its unfairness jurisdiction and suggests a framework for analysis of "unfairness" of particular practices. In another landmark decision, *National Petroleum Refiners Assoc. v. Federal Trade Commission*,⁷⁸ the Supreme Court stated that in addition to enforcing the letter and the spirit of the anti-trust laws, the Commission has the added responsibility . . . "to protect the consumer from being misled by governing the conditions under which goods and services are sold to individual purchasers, regardless of the nature or quality of competitive practices or their effect on competition."⁷⁹

The Supreme Court in *Sperry and Hutchinson*⁸⁰ also approved the use of those factors enunciated in the "Cigarette Labeling Rule" used to determine unfairness, those being:

(1) whether the practice offends public policy . . .

(2) whether it is immoral, unethical, oppressive or unscrupulous . . .

(3) whether it causes substantial injury to consumers.

Sperry and Hutchinson suggests that it is not necessary for the Commission to find all of the Cigarette Rule factors prior to banning a practice. Where one factor is present to a large degree, and the countervailing interest is minimal, the practice will be unfair under Section 5.

⁷⁴ *Manco Watch Strap Co., Inc.*, 60 F.T.C. 495 (1962); *Mohawk Refining Corp.* 54 F.T.C. 1071 (1958).

⁷⁵ 16 C.F.R. 250.

⁷⁶ *FTC v. Raladam Co.*, 316 U.S. 149 (1972); *FTC v. Royal Milling*, 288 U.S. 212, 216-17 (1933); *FTC v. Algoma Lumber Co.*, 291 U.S. 67, 78 (1934).

⁷⁷ 405 U.S. 233 (1972).

⁷⁸ 432 F.2d 672 (1973).

⁷⁹ *Id.* at 685.

⁸⁰ *Supra* note 77.

1. The non-disclosure of material product information to prospective buyers offends public policy

The "Cigarette Rule" criteria propose that concealment of essential consumer information offends public policy whether or not a health safety factor is involved. Narrowly viewed, the rule requires the affirmative disclosure of the cancer risks assumed by the smoker for the purpose of providing consumers with information necessary to rational decision-making—to smoke or not to smoke—based on the knowledge of true "health costs" of doing so.

In a broader framework, the health warning is grounded on two assumptions of the marketplace: that the consumer has perfect knowledge of material information regarding the transaction; and that there exists perfect freedom of choice. Where the consumer acts with incorrect or inadequate knowledge, his decision will not truly reflect his judgment as to how to best allocate his resources and maximize his interests. In this sense, it is unfair as against public policy for the consumer to be subject to the results of poor choices because he lacked adequate information to make an informed choice.

It is difficult to imagine another product in the marketplace which is more interrelated with public policy than a new home. The purchase of a home is one of the largest expenditures a family will make. The American dream reflects years of savings in order to one day achieve home ownership. Furthermore, the state of the economy has managed to severely crimp house sales.

While the availability of information which is proposed in HOUSE INFO's rule may increase sales, supplying such information will also have the following beneficial effects: (1) It will aid potential home buyers in making more informed decisions; (2) It will allow the home buying public to know that the government is interested in protecting consumers; and (3) It will stimulate competition among home builders. As has already been mentioned, the rule is likely to increase housing construction by making homes cheaper to live in in the long run and more energy-efficient.

Another phase of public policy which is largely affected by the proposed rule is energy conservation. Present federal policies do little to encourage the construction of energy-efficient homes. Action taken by the FTC which will aid fighting the energy crisis is likely to bolster the public's faith in the ability of the federal government to effectively solve major socio-economic problems. The fact that dwellings use approximately one-fifth of the total energy consumption in the country shows that the FTC can really do something worthwhile for all Americans.

The Commission has also intimated that information concealment is a sound basis for invoking an unfairness ruling. In the *Pfizer Un-Burn*⁸¹ case, the Commission concluded that regardless of the truth of the claims, it is an unfair practice for an advertiser to make a claim without having in advance a reasonable basis for it. Relying on an unfairness analysis, the Commission asserted:

Given the imbalance of knowledge and resources between a business enterprise and each of its customers, economically it is more rational, and imposes far less cost on society, to require a manufacturer to confirm his affirmative product claims rather than impose a burden upon each individual consumer to test, investigate, or experiment for himself. The manufacturer has the ability, the know-how, the equipment, the time, and the resources to undertake such information by testing or otherwise; the consumer does not.⁸²

The above quote is perfectly analogous to the housing market. Not only does the builder have all of the relevant material information, but such information cannot be obtained by the buyer upon inspection. The *Pfizer* problem which involved claims without any substantiation is likely to occur frequently in the housing market. For example, there can often be an implied representation by the seller that the home is well constructed. In these times of soaring inflation and fuel prices, a well constructed home becomes one which is not only made of high quality materials but one which is also energy-efficient. The selling agent, unless he is supplied with relevant information from the builder, often has no reasonable basis for making claims to this effect.

2. The non-disclosure of material product information produces substantial consumer and competitive injury.

It is clear that there is a direct and substantial injury to consumers from the withholding of essential product information. Advertising techniques disseminate

⁸¹ In the Matter of Pfizer Inc., 81 FTC 23 (1972).

⁸² Id. at 62.

inadequate information to millions of consumers who in turn rely on such information in making their purchasing decisions.

In addition to large scale economic losses, there are other losses more difficult to quantify but which nevertheless are of significant importance. One such injury is the inconvenience, loss of time and resources which result from the purchase of products which do not conform with the false expectations created by inadequate product information at the time of purchase. Unfortunately, if a home buyer realizes that he has made a mistake, it is very difficult, if not impossible, to correct it. Another related type of injury is the frustration and the consequent aberration and cynicism which develop when sellers take advantage of the buying public.

Injury to other sellers is a further product of the withholding of information from consumers. Society has an interest in having the best, most efficiently produced goods thrive in the marketplace. Classical economic theory assumes that the market is the best mechanism for allocating society's limited resources. According to this model, if one product is of higher quality and less expensive than another, consumers will opt for that product over its inferior counterpart. It is imperative that builders who are able to sell their homes more cheaply because of poor workmanship, shoddy materials or few warranties not be able to profit from the lack of necessary disclosures. By requiring affirmative disclosures of housing information, the Federal Trade Commission could not only stimulate the construction of energy-efficient homes but could also discourage the continuance of unethical building practices or unfair advertising schemes in the housing industry. This would in turn help honest, high-quality builders to prevail over builders trying to pass off shoddy work onto the unsuspecting consumer.

Summarizing the unfairness approach, it has been argued that the failure of sellers of new homes to disclose material information constitutes an unfair trade practice clearly within the guidelines laid down in the Cigarette Rule. The lack of disclosures offends public policy in preventing the establishment of wise consumers (a goal of the President's W.I.N. campaign) and in not giving the public an opportunity to make those choices which will conserve our scarce energy reserves. The omission of material information causes great competitive injury in that the "shoddy" builder is given an economic advantage over the efficient builder who must charge a higher price for the higher quality workmanship. Finally, in the *Pfizer* decision, the court gives credence to the contention that the concealment by a seller of material information may in itself constitute an unfair trade practice. The FTC is now called upon by petitioners to save America's housing industry and in doing so to follow the judicial mandate of the *Sperry and Hutchinson* court when it stated that the FTC sits:

like a court of equity, considers public values beyond simply those enshrined in the letter or encompassed in the spirit of the anti-trust laws.⁸³

XI. THE ADOPTION OF HOUSE INFO'S PROPOSED RULE WILL TERMINATE MANY UNFAIR AND DECEPTIVE TRADE PRACTICES OR ACTS WHICH OCCUR IN THE HOUSING INDUSTRY TODAY

The petitioners submit that the proposed rule not only falls within the jurisdiction of the Commission, but is necessitated by the appalling state of affairs which our economy finds itself in. It is the duty of the Federal Trade Commission as "consumer champion" to comply with the recent mandates of the President to save energy and of Congress to fully disclose warranties.

Information concerning heating and cooling costs, the energy-efficiency of the home, the type of energy used for heating purposes and the warranties, with respect to major systems and appliances, will, for the first time, give consumers the vital tools to a rational purchasing decision. Depending upon what fuels are used, savings in energy bills may equal \$42—\$170 million. The effective regulation of an industry worth \$36.8 billion (in sales alone)⁸⁴ will clearly have a profound effect not only on curbing our spiraling inflation but in restoring public faith in the ability of the federal government to solve major economic crises and protect consumers from the evils of "big business" economy. Petitioners hereby call upon the Federal Trade Commission to answer the cries of all economically and ecologically "conscious" Americans by the adoption of the proposed trade regulation rule.

⁸³ Supra note 77 at 248.

⁸⁴ This represents the potential sales of 1.2 million homes at \$32,500.

APPENDIX A

141,000 btu's=1 gallon of oil
 149,000,000 gallons=21,009,000,000,000 btu's
 100,000 btu's=1 therm
 21,009,000,000,000 btu's=210,090,000 therms
 At 20¢/therm: 210,090,000 therms=\$42,018,000.00
 At \$.0277/kwhr.: 6,149,000,000 kwhr's=\$170,327,300.00

APPENDIX B

HOME BUYERS INFORMATION SHEET

A. HEATING AND COOLING SYSTEMS

1. Estimated annual cost of heating your home: \$-----
2. Estimated annual cost of cooling your home: \$-----
3. Type of energy used for heating system: -----
4. Type of energy used for hot water heating system: -----

Heating and cooling costs.—The formulae used to determine the annual heating and cooling costs yield an estimate which may change with variations in occupancy, equipment efficiency, living habits and other factors. Because of these factors, the estimate may vary from the actual costs incurred. However, the seller must have reason to believe that the figures used to compute the formulae and the actual computations of the formulae are accurate and reasonable. The inside temperature is assumed to be 70° F. during the heating season and 75° F. during the cooling season. Fuel prices are based on an anticipated cost of ¢ per gal./therm./kwh. determined as of (date) . The fuel prices used must be as recent as three months.

B. INSULATION

1. Type: -----
2. R-values: Ceiling: ----- Walls: ----- Floors: -----
3. Windows: Single-glazed: ----- Double-glazed: -----
- If both, state number of each: Single-glazed: ----- Double-glazed: -----
4. Doors: Single-glazed panes: ----- Double-glazed panes: -----
- If both, state number of each: Single-glazed: ----- Double-glazed: -----

Insulation.—Insulation is a type of material which retards the transfer of heat. The heat resistance of insulation material is indicated by an R-value, a measurement that takes into account not only the thickness of insulation but also the nature of the material. The higher the R number, the greater the effectiveness of the insulation in preventing heat from leaking out of or into the home. Most R-values range from R-7 to R-22.

Double-glazed windows and doors.—Double-glazed glass used in windows and doors consists of two panes of glass separated by a thin air space and sealed around the edges. All conditions being equal, double-glazing is superior to single-glazing in retarding the transmission of heat, thereby aiding in energy conservation.

C. WARRANTIES

1. Warranty on your heating/cooling unit: parts: ----- yrs; labor: ----- yrs.
2. Warranty on your hot water heater:
 - a. Controls parts: ----- yrs; labor: ----- yrs.
 - b. Tank parts: ----- yrs; labor: ----- yrs.
3. Warranty on your roof: parts: ----- yrs; labor: ----- yrs.
4. Warranty on the structure: parts: ----- yrs; labor: ----- yrs.
5. Warranty on your basement: parts: ----- yrs; labor: ----- yrs.
6. Warranty on double-glazed windows and doors: parts: ----- yrs; labor: ----- yrs.

7. Warranty on major appliances:

- a. Dishwasher: parts:-----yrs; labor:-----yrs.
 b. Range: parts:-----yrs; labor:-----yrs.
 c. Garbag disposal: parts:-----yrs; labor:-----yrs.
 d. Refrigerator: parts:-----yrs; labor:-----yrs.
 e. Freezer: parts:-----yrs; labor:-----yrs.
 f. Other ----- parts:-----yrs; labor:-----yrs.
 8. Major exceptions and exclusions from the terms of any warranty:

To be signed at the time of settlement by the buyer:

I was given a copy of this sheet at the time of my initial inspection of this home or a model thereof, and have read all of its provisions. I, furthermore, agree that the seller has reason to believe in the veracity of the information supplied.

Signature (buyer)

APPENDIX C

ASHRAE

The formulae which HOUSE INFO proposes to be used to estimate annual heating and cooling costs were developed by the National Association of Home Builders Research Foundation, Inc., located in Rockville, Maryland. Specifically, the formulae which were designed by Mr. Arthur Johnson of this association, are based on the conventional, industry-wide accepted formulae of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE). The basic formula for estimating fuel consumption as developed by ASHRAE appears, among other places, in Chapter 43 of the ASHRAE Guide and Data Book.¹

$$^1 F = U \times N_b \times D \times C_f$$

Where:

F = fuel consumption for the estimate period.

U = unit fuel consumption, or quantity of fuel used per (degree day)

(*building load unit*).

N_b = number of *building load units* (when available, use calculated hourly heat loss instead of actual amount of radiation installed).

D = number of degree days for the estimate period.

C_f = temperature-correction factor from Table 3.

ASHRAE is a corporation, as well as a professional and technical society, devoted exclusively to promoting the arts and sciences of heating, refrigerating, air-conditioning, ventilating and other allied technologies. Since 1894, it has grown to more than 30,000 members. Its membership is composed of persons from the United States, Canada and 89 overseas countries who share a common interest in the many aspects of human comfort and environmental control. In order to qualify for membership, one must be a professional engineer or technician. A formal application must be made and accepted by both an admissions committee and the board of directors.

The object of the society is to advance the arts and sciences of heating, refrigerating, air-conditioning, ventilating, and related human factors for the benefit of the general public by:

1. Stimulating technological progress for the good of mankind.
2. Maintaining a high professional standing among its members.
3. Encouraging the continuing education and professional advancement of its members.
4. Providing educational opportunities through its publications, research, seminars, chapter scholarships and meetings.
5. Conducting a program of basic and applied research through grants-in-aid to colleges and laboratories.
6. Developing codes and standards and cooperating with other organizations in developing standards.
7. Encouraging fellowship among engineers and industry leaders.

TABLE 3.—Correction factors for outdoor design temperatures ^a

Outdoor design temperature <i>F</i>	-20	-10	0	+10	+20
Correction factor-----	0. 778	0. 875	1. 000	1. 167	1. 400

^a The multipliers in table 3, which are high for mild climates and low for cold regions, are not in error as might appear. The unit figures in table 4 are per square foot of radiator or thousand Btu heat loss per degree day. For equivalent buildings and heating seasons, those in warm climates have lower design heat losses and smaller radiator quantities than those in cold cities. Consequently, the unit figure in quantity of fuel per square foot of radiator (degree day), is larger for warm localities than for colder regions. Since the northern cities have more radiator surface per given building and a higher seasonal degree-day total than cities in the south, the total fuel per season will be larger for the northern city.

The validity of ASHRAE's research and standards is greatly recognized not only in the industry, but by the public sector as well. Several federal agencies have cited ASHRAE's work in their reports on heating and energy conservation. Recognition of ASHRAE by the General Services Administration may be found in their recent report entitled "Energy Conservation Design Guidelines for Office Building." This report, published in January 1974, was specifically prepared for GSA by Dubin-Mindell-Bloome Associates, P.C., in cooperation with AIA Research Corporation Heery and Heery, Architects. It was designed to establish criteria by which federal buildings could be designed so as to use 20-30 per cent less energy.

ASHRAE's work has also been recognized by the U.S. Department of Commerce through its National Bureau of Standards. In its report "Design and Evaluation Criteria for Energy Conservation in New Buildings," published in February 1974, it refers to the use of ASHRAE standards in several different instances. Specifically, it approves of ASHRAE's work on winter design temperatures, degree days, and R-values. Recognition of ASHRAE was given by the Federal Energy Administration in its recent report entitled "Project Independence." This report, published in the winter of 1974, was designed to develop energy saving strategies for the United States. Furthermore, the Department of Housing and Urban Development recognized ASHRAE's formula in its publication, "Residential Energy Consumptions" (March 1973, p. 42).

APPENDIX D

THE FORMULAE

The formulae developed by the NAHB Research Foundation, Inc., are as follows:

$$\text{Heating Costs} = \frac{\text{Total Heat Loss} \times \text{Heating Index} \times 24}{\text{Temperature Differential} \times 100,000}$$

$$\text{Cooling Costs} = \frac{\text{Total Heat Gain} \times \text{Cooling Index}}{100,000}$$

HEATING COSTS

1. *Total heat loss.*—In order to figure the total heat loss, which is expressed in btu's, it is first necessary to estimate the number of square feet of window, door, wall and floor space. Once the number of square feet is known, this figure is multiplied by the U-value of the type of insulation used. The U-value is designated as the heat loss multiplier. U-values may be found in the ASHRAE Guide and Data Book. The resulting product is then multiplied by the temperature differential which is the difference between the inside design temperature and the winter design temperature. The inside design temperature is the temperature to be maintained within the structure. It is typically between 68° F. and 75° F., but for purposes of the formula, it is assumed to be 70° F. If the home owner wishes to keep the thermostat at 72° F., for example, he must be made aware that his heating costs will rise. However, the efficiency of the system, when the inside design temperature is moved further away from the outside temperature, is slightly increased.

The winter design temperature is not the lowest temperature recorded in each locality. It is the lowest temperature that can normally be expected during the winter. These figures have been computed by ASHRAE for the majority of large cities in the United States.

Added to the heat losses from windows, doors, walls and floors, must be the loss from ducts when they run through unconditioned (unfinished) spaces. The final sum is then designated "Total heat loss."

2. *Heating index.*—In order to figure the "heating index," the formula is:

$$\text{H.I. (gas)} = \frac{\text{Degree Days} \times \text{Cost per therm}}{\text{Seasonal Efficiency of System}}$$

$$\text{H.I. (No. 2 fuel oil)} = \frac{\text{Degree Days} \times \text{Cost per gallon}}{1.41 \times \text{Seasonal Efficiency}}$$

$$\text{H.I. (electricity)} = \text{Degree Days} \times \text{Cost per kwhr} \times 20.75$$

The degree day is a measure of the severity of a heating period (usually an entire heating season) based on climatic conditions. It is established by determining from local weather records the difference between 65° F. and the mean temperature for each day. The sum of the differences for all the days in the heating season is the degree days for that locality.

The 65° F. base was determined by the American Gas Association from records in the heating of residences which showed that the gas consumption varied directly as the degree days, or as the difference between 65° F. and the mean outdoor temperature. In other words, on a day when the mean temperature was 20° below 65° F., twice as much gas was consumed as on a day when the temperature was 10° below 65° F. Studies made by the National District Heating Association of the metered steam consumption of 163 buildings located in 22 different cities, substantiate the approximate correctness of the 65° F. base. The number of degree days for most large American cities has been estimated by ASHRAE and appears in several of the Guide and Data Books.

To find out the energy costs, it will be necessary for builders to call up their local utility companies. This information can easily be supplied by such companies.

The seasonal efficiency of a system is determined by the builder's engineer. It is the efficiency of utilization of the fuel over the calculation period that is wanted (not the heating unit efficiency). This estimate will vary depending upon the equipment efficiency, control arrangement, living habits and climatic conditions. Studies by the NAHB Research Foundation have shown that an estimate of 67% efficiency for a gas system is fairly reliable.

Once the total heat loss and the heating index have been computed, all that is left for the engineer to do is to substitute the figures into the formula. For example:

Total heat loss=45,288 Btu's

Heating Index=639

Temperature Differential=68

$$\begin{aligned} \text{Heating Costs} &= \frac{45,288 \times 639 \times 24}{68 \times 100,000} \\ &= \$102.14 \end{aligned}$$

COOLING COSTS

1. *Total heat gains.*—Procedures for estimating total heat gain are similar to those for estimating total heat loss. The first step is to calculate the number of square feet of window, door, wall and floor space. Depending upon whether the windows are single or double glazed and on the R-values of the insulation of the walls and floors, the U-value will again be used to determine heat gains expressed in terms of btu's. A standard figure of 1600 btu's for heat gain from appliances has been entered on the worksheet. The number of persons expected to occupy the home is to be multiplied by 400 btu's per person. To estimate total heat gain the preceding figures are to be multiplied by a duct multiplier (when ducts are in non-conditioned spaces).

2. Cooling index.—

$$\text{C.I. (electricity)} = \text{Cost per kw hr} \times \text{Operating hrs.} \times 14.58$$

$$\text{C.I. (gas)} = \text{Cost per therm} \times \text{Operating hrs.} \times 2.81$$

The cost of the energy can again be found by the engineer by calling up the local utility company. The operating hours per season are considered to be all hours when the outdoor temperature is 80° F. or higher. The multipliers at the end of the formulae are conversion factors dealing with matters related to the refrigeration cycle.

The above formula, as designed by the National Association of Home Builders Research Foundation is derived from ASHRAE's standard formula for estimating fuel requirements, which appears in ASHRAE Systems Handbook, Chapter 43 (1973). The following shows the mathematical derivation of this formula. It clearly shows that it is merely a simple modification of the basic ASHRAE formula designed to yield a result in dollars and cents instead of therms.

DERIVATION OF FORMULA SHOWN IN INSTALLATION MANUAL—NAHB

From ASHRAE Systems Handbook Chapter 43, 1973:

$$F = U \times Nb \times D \times Cf$$

Table 3 shows $Cf = 70/TD$ (Temperature Difference)

Table 4 shows $U = 0.003429/E$ (Efficiency)

= Fuel consumption in therms (100,000 Btu) per degree day per 1,000 Btuh design heat loss

= $342.9/E$ in Btu/degree day/1,000 Btuh

= $0.3429/E$ in Btu/degree day/Btuh

Substitute HL (Heat Loss in Btuh) for Nb (Heat Loss in thousand Btuh)

$$F = \frac{0.3429 \times HL \times D \times 70}{E \times TD} = \frac{24 \times HL \times D}{E \times TD}$$

Where cost (\$) is expressed per therm (100,000 Btu):

$$\begin{aligned} \$/\text{Year} &= F \times \$/\text{therm} \\ &= \frac{24 \times HL \times D \times \$/\text{therm}}{E \times TD \times 100,000} \end{aligned}$$

Let new term Heating Index

$$HI = \frac{D \times \$/\text{therm}}{E}$$

and rearranging:

$$D \times \$/\text{therm} = \frac{HI \times E}{D}$$

as shown in manual.

TABLE 4.—Unit fuel consumption constants

[Based on O F outdoor temperature, 70 F indoor temperature]

Fuel and units	Utilization efficiency (unit fuel consumption per degree day per 1,000 Btuh design heat loss)		
	60	70	80
Gas in therms ^a -----	0.00572	0.00490	0.00429
Oil in gallons ^b -----	.00405	.00347	.00304
Coal in pounds ^c -----	.0476	.0408	.0357

^a 1 therm is equal to 100,000 Btu.

^b Based on a heating value of 141,000 Btu per gallon.

^c Based on a heating value of 12,000 Btu per pound.

APPENDIX E

R-VALUE

R-value is a number used to describe the resistance of a material to the flow of heat (thermal resistance). The larger the R-value of a material, the more difficult it is for heat to flow through the material.

While the R-values of most materials have already been computed by ASHRAE and other organizations, there are scientific tests as described below used to compute the R-value of any material. The two most important characteristics of a material in determining its R-value are its composition and thickness.

In order to compute the R-value of any material, it is first necessary to find the thermal conductivity ("K") or conductance ("C") of the elements. Thermal conductivity ("K") is the amount of heat, expressed in btu's, transferred in one hour through one square foot of a homogeneous material one inch thick for a difference in temperature of 1° F. For example, the average "K" for mineral wool blankets is .27. This means that for one inch thickness, there is a heat transfer of .27 btu's per hour per square foot for each degree difference in temperature between its two surfaces. The conductance of a material ("C") is a similar measure to "K" except it may be used for nonhomogeneous materials:

$$R = \frac{1}{K} \text{ or } \frac{1}{C}$$

The American Society for Testing and Materials (ASTM) standards for computing thermal conductivity are as follows:

C 177—Method of Test for Thermal Conductivity of Materials by Means of the Guarded Hot Plate

C 236—Thermal Conductance and Transmittance of Built-up Sections by Means of the Guarded Hot Box

C 518—Thermal Conductivity of Materials by Means of the Heat Flow Meter

The above tests have been approved by the General Services Administration for use in all Federal agencies (see HH-I-521 E, July 24, 1972). The C 177 and C 236 tests have been used by ASHRAE in computing R-values for materials. The use of R-value is also recognized by the U.S. Department of Commerce, National Bureau of Standards in its publication, "Design and Evaluation Criteria for Energy Conservation in New Buildings."

Once the individual conductivities of the elements are known, the total resistance to heat flow through a flat ceiling, floor or wall is numerically equal to the sum of the resistances in series.

$$R \text{ Total} = R_1 + R_2 + R_3 + \dots + R_n$$

Where R , R_2 , R_n are the individual resistances of the wall components.

For a wall of a single homogeneous material of conductivity K and thickness X with surface coefficients f_1 and f_0 :

$$R \text{ Total} = \frac{1}{f_1} + \frac{X}{K} + \frac{1}{f_0}$$

For a wall with air space construction and consisting of two homogeneous materials of conductivities $K_1 + K_2$, thicknesses $X_1 + X_2$ respectively, and separated by an air space of conductance a :

$$R \text{ Total} = \frac{1}{f_1} + \frac{X_1}{K_1} + \frac{1}{a} + \frac{X_2}{K_2} + \frac{1}{f_0}$$

According to the GSA report, HHI 521 E:

$$R = \frac{1}{c} = \frac{t}{k}$$

Where:

t = thickness of insulation in inches

k = thermal conductivity value in btu in./hr. sq. ft. °F. at 75° F. mean temperature

c = thermal conductance value in btu/hr. sq. ft. °F.

Commercial thicknesses usually vary between two and seven inches.

APPENDIX F

1. Outside winter design temperature=16° F.

2. Degree days=4,200

3. Summer cooling hours=1,000

4. The heat loss through the walls with no insulation=26,536 btuh

The heat loss through the walls with R-7 insulation=10,206 btuh

The heat loss through the walls with R-11 insulation=7,144 btuh

Thus, by only increasing the insulation in the walls from R-7 to R-11, the heat loss is reduced a total of 3,062 btuh and the heat gain is reduced a total of 1,124 btuh. Incorporating these figures into the formulae designed to calculate heating and cooling costs results in the following energy cost savings:

$$\text{Heat cost savings} = \frac{(\text{Heat Loss}) (\text{Heating Index}) (24)}{(\text{Temp. Diff.}) (100,000)}$$

Total heat loss=3,062 btuh

$$\text{Heating Index} = \frac{\text{Degree Days} \times \text{Cost per therm}}{\text{Seasonal Efficiency of System}}$$

Average Cost per therm in Washington, D.C.=15¢/therm

Seasonal efficiency of unit is estimated at .67

$$\text{Heating Index} = \frac{4,200 \times .15}{.67} = 940$$

Therefore, annual heating cost savings would be:

$$\frac{(3,062) (940) (24)}{(54) (100,000)} = \$12.79$$

As to cooling cost savings:

$$\text{Cooling Cost Savings} = \frac{(\text{Heat Gain}) (\text{Cooling Index})}{(100,000)}$$

Total heat gain=1,124

Cooling Index=summer cooling hours over 80° F.×cost per kwh.×14.58

The current average cost of a kwh. of electricity is approximately 2.75¢.
Summer cooling hours over 80° F.=1,000

$$\text{Cooling Index} = 1000 \times .0275 \times 14.58 = 401$$

Therefore, annual cooling cost savings would be:

$$\frac{(1,124) (401)}{(100,000)} = \$4.51$$

Total heating and cooling cost savings=\$12.79+\$4.51=\$17.30/year (just from increasing wall insulation from R-7 to R-11).

APPENDIX G

In the sample house, having ceiling insulation of R-7 and no wall or floor insulation:

The heat loss with no storm doors and single-glazed windows

=60,806 btuh

The heat loss with storm doors and double-glazed windows=50,568 btuh

The heat gain w/no storm doors and single-glazed windows=33,884 btuh

The heat gain w/storm doors and double-glazed windows=32,221 btuh

Thus, merely by adding storm doors and double-glazed windows, while keeping the insulation constant, heat loss and gain reductions would result:

The heat loss is reduced a total of 10,238 btuh

The heat gain is reduced a total of 1,663 btuh

Applying the formula again to determine heating and cooling cost savings:

$$\begin{aligned}
 &51-440 \qquad \qquad \qquad 590 \\
 \text{Heat Cost Savings} &= \frac{(\text{Heat loss}) (\text{Heating Index}) (24)}{(\text{Temp. differential}) (100,000)} \\
 &= \frac{(10,238) (940) (24)}{(54) (100,000)} = \$42.77 \\
 \text{Cooling Cost Savings} &= \frac{(\text{Heat gain}) (\text{Cooling Index}) (1663) (401)}{100,000 (100,000)} = \$6.67 \\
 \text{Total heating and cooling cost savings} &= \$42.77 + \$6.67 = \$49.44/\text{year}.
 \end{aligned}$$

APPENDIX H

In a study sponsored by HUD, it was concluded that the annual energy consumption of a good quality, single-family residence could be reduced up to 40 per cent without affecting the life style of the occupants.¹ Analyses of the energy requirements of the various structural components of the HUD "Characteristic House" revealed that the greatest energy savings could be attained through reduction of air infiltration through windows and doors and the reduction of heat transfer through the walls and windows. The mere addition of storm doors and windows showed a 12% savings of primary energy.² The savings in primary energy were increased to 21% when the storm windows and doors were used in combination with a 12% increase in wall insulation value. The energy savings were further increased to 32% when the window area was reduced 25% and provided with additional shading.

The study evaluated the effects of various modifications of structural components. The "Characteristic House" was a two-story house, with 1,695 sq. ft. of floor area, 180 sq. ft. of window area, and 40 sq. ft. of patio door area, and a total computed primary energy consumption for heating and cooling of 143.2 million btu's per year. It was determined that the addition of full storm windows could save 18.9 million btu's per year. The combined effect of reduced window area (to 135 sq. ft. total) plus storm windows saved 22.9 million btu's, or a total energy savings of 27%. In addition, increased wall insulation from R-7 to R-11 could save another 4.8 million btu's, while insulation of an exposed basement wall could save 5 million btu's per year. Another Canadian survey of a much smaller home, a 1,000 sq. ft. bungalow with 100 sq. ft. window area, determined that by increasing the insulation from R-10 to R-21, 34 million btu's could be saved annually.³

The heating fuel for the "Characteristic House" was assumed to be gas. If the house had been heated electrically, the primary energy required for heating would be increased by a factor of about 2.2, (assuming a gas furnace efficiency of 70% and a pipeline loss of 3%, and an electric heating efficiency of 100% and a power plant plus transmission efficiency of 31%). The annual primary energy consumption for electrically heating the house would be 228.5 million btu's (as compared to 104.4 million btu's for gas), an increase of 119%.

The report concluded that the structural modifications necessary to conserve 50 million btu's of primary energy annually, or 19% of the total annual primary energy consumption of the "Characteristic House" (total consumption of 260.6 million btu's), were all items readily available within current construction practice, and the adaptation of these items would not interfere with the life style of the occupants.⁴ Assuming that only 25 million btu's could be saved annually in each of the 825,000 single-family dwellings started in 1974, it is readily apparent that the total 21 x 10⁹ btu savings in primary energy units would have widespread beneficial effects for society as a whole. Translated into other types of fuel, the total savings to society if the single-family homes started in 1974 were built energy-efficiently would be 149,000,000 gallons of oil⁵ or 1,750,000,000 pounds of bituminous coal⁶ or 6,149,000,000 kilowatt-hours of electricity.⁷

¹ See footnote 1.

² Primary energy is defined as the input energy to electrical plants or gas distribution centers.

³ Habitat, vol. 17, No. 2, 1974, p. 31.

⁴ See footnote 1.

⁵ 141,000 Btu = 1 gallon of furnace oil.

⁶ 12,000 Btu = 1 pound of bituminous coal.

⁷ 3,415 Btu = 1 kilowatt-hour of electricity.

STATEMENT OF NATIONAL RETAIL MERCHANTS ASSOCIATION

The National Retail Merchants Association ("NRMA") is pleased to submit this statement addressed to the energy labeling issues in three bills: S. 349, the "Truth in Energy Act of 1975," Title XII of S. 594, the "National Appliance and Motor Vehicle Energy Labeling Act of 1975," both of which are pending before the Senate Commerce Committee, and Title V, Part B, of the working draft of the energy bill now under consideration by the Subcommittee on Energy and Power of the House Interstate and Foreign Commerce Committee, (as Title XII and Title V are identical, they will be referred to hereinafter as Title XII/V).

NRMA is a non-profit voluntary national trade association with approximately 3,000 corporate members operating more than 30,000 general merchandising retail outlets throughout the United States. These stores account for approximately 80 billions of dollars in sales annually and range in size from large retail department stores to small specialty shops. Our members employ some two million people.

NRMA strongly endorses the principle of a national energy labeling program giving consumers an informational basis for choosing between products which vary in both energy efficiency and the amount of energy needed to operate them. With the close of the era of cheap energy, reducing household energy use has become extremely important to consumers, as well as important in reducing overall consumption of energy. An effective energy labeling program can help with both problems.

The ideal energy labeling program would provide energy information in a format most likely to stimulate consumer use of the information while creating the least possible increase in regulatory and distributional costs. Both considerations are critically important, for if the program is to work, the information must be genuinely useful to the consumer. Yet, at a time when consumer demand has stalled, it is equally imperative that any new regulatory program achieve its purposes without unduly raising costs of products to consumers. Otherwise, demand for the products covered by the program will further soften, and the program itself will be slightly inflationary.

NRMA believes that Title XII/V and S. 349 are appropriate foundations for a national energy labeling program. Nevertheless, S. 349's requirement that average annual operating cost be disclosed may thwart realization of its promise to consumers while levying an unacceptable toll on commerce and, eventually, the public. This problem could be cured by authorizing the Federal Trade Commission to select the required disclosure for each appliance from energy efficiency ratios, average annual energy use, or average annual operating cost, the approach utilized in Title XII/V, rather than confining the choice to average annual operating cost.

The "operating cost" straitjacket

NRMA is especially concerned about S. 349's limitation of the required energy disclosure for household appliances to "average annual operating costs," when either energy efficiency ratios or average annual energy use information would be equally useful to the consumer and less costly to deliver.

S. 349 would require a complicated process for determining estimated annual operating costs, as follows:

1. For each appliance, the FTC would define an average use cycle and determine how to measure the energy consumed during each cycle, § 20(a) (1).¹
2. Manufacturers would test their own products in accordance with the FTC procedures § 20(b).
3. The FTC would decide, for each appliance, whether cost data should be calculated regionally, nationally, or on some other basis, § 20(c).
4. The FTC would determine the average unit cost of electricity or other fuel under circumstances of use, § 20(c).
5. Manufacturers and importers would calculate a single figure (or range of figures) for estimated annual operating cost for each appliance and deliver the figures to dealers, § 20(d) (2).
6. Dealers would select an appropriate estimated annual operating cost from among those supplied, § 20(d) (3).

What distresses NRMA, and should be of concern to this Committee, is that this enormously complicated procedure can deliver accurate data only at a high cost and can deliver data inexpensively only if the data are inaccurate.

¹ Section references are to sections as they would be numbered in the Federal Trade Commission Act as amended by S. 349.

The inaccuracy of average costs

The cost of operating an appliance varies on a utility-by-utility basis and/or jurisdiction-by-jurisdiction basis, not necessarily by city or county or SMSA or by region. As an illustration, consider the Washington, D.C. area, where the District of Columbia the nearby Maryland suburbs, and the nearby Virginia suburbs, have at least four different rate schedules emanating from three different power companies. Thus, the regional average annual operating cost disclosed by a downtown Washington retailer will be wrong for all consumers who live in the area. Indeed, any average figure—national or regional—will be wrong for all but the relatively few consumers who live in areas where the cost of power happens to equal the average cost. Only a power company by power company disclosure for each jurisdiction would be exact. And, as discussed below, localizing the data down to the power company is far more expensive than the less accurate national or regional figure.

Also, the likely introduction in the near future of seasonal and time of day peak load pricing for residential customers of electric utilities will significantly affect the ratio between peak and off-peak charges, perhaps by as much as 2 to 1 or more. Thus, the accuracy of any cost figure will depend on whether the individual consumer uses a product at peak or off-peak times.

The high cost of an accurate disclosure

The defects inherent in average cost data could, of course, be solved by localizing or personalizing the disclosure. Dealers could be required to disclose the average annual cost for each nearby area. At the extreme, the bill could require each dealer to personally calculate costs for each prospective customer. But it should be clearly recognized that calculating cost data at the local level, even in accordance with instructions supplied by the manufacturer, will impose significant costs at the retail level. At a minimum, NRMA suggests that S. 349 be amended to delete § 20(d) (3), so that only the cost or range of average annual operating costs furnished by the manufacturer need be displayed. This step alone would reduce the costs of delivering information to consumers, at no loss of accuracy. But the preferred route is complete deletion of cost data.

A proposed solution

By using energy efficiency ratios ("EER") or average annual energy use data, as would be possible under Title XII/V, the pitfalls of S. 349 can be avoided. Either an EER or an energy use figure enables the consumer to compare competing products. At bottom, cost data adds nothing but a higher price tag to energy use data in achieving the goal of facilitating consumer comparison. This is so because average annual energy use figures (Number of Cycles X Energy Use per Cycle) for two similar appliances fully express the energy use relationship. Multiplying energy use figures for two appliances by the same energy cost per cycle does not change the relationship between the two; all it does is increase distributional costs because of the expense of the calculation.

Suppose, for example, that the FTC determines that the average washing machine runs 100 cycles per year that brand X uses 1.2 kw per cycle and that brand Y uses 1.3 kw per cycle. Multiplying number of cycles times energy per cycle yields an average annual energy use figure of 120 kw for brand X and 130 kw for brand Y. Multiplying by a cost figure of, say, \$.10 per kw would yield \$12 per year for brand X and \$13 for brand Y, but it would add nothing to accuracy or to ease of comparison. Furthermore, multiplying by cost figures might increase inaccuracy if the cost figures were wrong for the particular consumer, yet would increase the costs of providing information to the consumer.

Putting it another way, disclosing average annual energy use would eliminate 3 of the 6 steps required by S. 349, with a concomitant substantial saving of both the FTC's resources and the distributional cost of extra calculations, at no loss in accuracy or utility of consumer information. NRMA submits that the lower cost and higher accuracy of energy consumption data make them far preferable to energy cost data.

Procedure for establishing disclosure requirements

Whatever form the required disclosures ultimately take, the rulemaking process by which they are established will require utilization of detailed and complex technical data. Under such circumstances, the importance of requiring the Federal Trade Commission to allow full participation in the process is manifest. NRMA believes that the rulemaking procedures adopted by the Congress last year

in enacting Sections 18(a) (1) (B) and 18(b) and (c) of the Federal Trade Commission Act strike the appropriate balance between administrative efficiency and the need to insure that those liable for violations of any rule have a fair opportunity to be heard in its formulation.

Preemption

In order to avoid possibly conflicting requirements by States and localities, a clear Congressional statement of intention to supersede all State and local laws is necessary. NRMA urges the adoption of the strongest possible preemption provision.



The following is a list of the names of the persons who have been appointed to the various committees of the Board of Directors of the American Red Cross, for the year 1917-1918.

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