INCREASE IN STATUTORY LIMITATION OF TVA TO ISSUE BONDS

HEARING

BEFORE THE

SUBCOMMITTEE ON CONTROL—RIVERS AND HARBORS

OF THE

COMMITTEE ON PUBLIC WORKS

UNITED STATES SENATE

NINETY-FIRST CONGRESS

SECOND SESSION

ON

H.R. 18104 and S. 3967

BILLS TO AMEND SECTION 15d OF THE TENNESSEE VALLEY AUTHORITY ACT

AUGUST 14, 1970

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INCREASE IN STATUTORY LIMITATION OF TVA TO ISSUE BONDS

FRIDAY, AUGUST 14, 1970

U.S. SENATE,
SUBCOMMITTEE ON FLOOD CONTROL, RIVERS AND HARBORS,
OF THE COMMITTEE ON PUBLIC WORKS,
Washington, D.C.

The subcommittee met at 10:18 a.m., pursuant to call, in room 4200, New Senate Office Building, Senator B. Everett Jordan (member of the subcommittee) presiding.

Present: Senators Young (chairman of the subcommittee), Jordan, Cooper, and Baker.

Also present: Richard B. Royce, chief clerk and staff director; J. B. Huyett, Jr., assistant chief clerk and assistant staff director; M. Barry Meyer, counsel; Bailey Guard, assistant chief clerk, (minority); Thomas C. Jorling, counsel (minority); Richard W. Wilson, Adrien Waller, and Harold H. Brayman, professional staff members; and William R. Haley, legislative counsel to Senator Cooper.

Senator JORDAN. The subcommittee will please come to order.

The purpose of this hearing is to consider H.R. 18104, an act passed by the House of Representatives to amend section 15d of the Tennessee Valley Authority Act of 1933 to increase the amount of bonds which may be issued by the Tennessee Valley Authority, and S. 3967, a bill introduced in the Senate for the same purpose.

(The act and bill follow:)

91ST CONGRESS
2D SESSION

H. R. 18104

IN THE SENATE OF THE UNITED STATES

JULY 31, 1970

Read twice and referred to the Committee on Public Works

AN ACT

To amend section 15d of the Tennessee Valley Authority Act of 1933 to increase the amount of bonds which may be issued by the Tennessee Valley Authority.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the first sentence of subsection (a) of section 15d of the Tennessee Valley Authority Act of 1933, as amended (16 U.S.C.. 831n–4, Supplement IV), is amended by striking out "$1,750,000,000" and inserting in lieu thereof "$5,000,000,000".

Passed the House of Representatives July 30, 1970.

Attest: W. PAT JENNINGS,

Clerk.

II

91ST CONGRESS
2D SESSION

S. 3967

IN THE SENATE OF THE UNITED STATES

JUNE 15, 1970

Mr. BAKER (for himself, Mr. ALLEN, Mr. COOK, Mr. EASTLAND, Mr. GORE, Mr. SPARKMAN, and Mr. STENNIS) introduced the following bill; which was read twice and referred to the Committee on Public Works

A BILL

To amend section 15d of the Tennessee Valley Authority Act of 1933 to increase the amount of bonds which may be issued by the Tennessee Valley Authority.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the first sentence of subsection (a) of section 15d of the Tennessee Valley Authority Act of 1933, as amended (16 U.S.C. 831n–4, Supplement IV), is amended by striking out "$1,750,000,000" and inserting in lieu thereof "$5,000,000,000".

II

Senator JORDAN. This bill, H.R. 18104, was passed by the House of Representatives on July 30, 1970, and would increase the amount of bonds which could be sold by the Tennessee Valley Authority from the present limitation of $1.75 billion to $5 billion.

Our witness this morning is the Honorable Aubrey J. Wagner, Chairman of the Tennessee Valley Authority, and we have also some other distinguished guests, including Mr. Frank Smith, a TVA member.

We are glad to have you with us, Mr. Smith. You are one of our favorites around here, and have been for a long time. Thank you for being with us.

Mr. SMITH. Thank you, Senator Jordan.

Senator JORDAN. Senator Cooper, do you have any remarks?

Senator COOPER. No; I am just glad they are here.

Senator JORDAN. Senator Baker, do you have anything to say?

Senator BAKER. Mr. Chairman, only that I, too, am delighted to have the distinguished representatives of the Board and the staff of TVA here on this hearing on H.R. 18104, which is identical to S. 3967, which I introduced on June 15 of this year, together with Senators Allen, Cook, Eastland, Gore, Sparkman, and Stennis as cosponsors.

Thank you.

Senator JORDAN. Thank you.

Mr. Wagner, you may proceed as you wish, sir.

STATEMENT OF A. J. WAGNER, CHAIRMAN, BOARD OF DIRECTORS, TENNESSEE VALLEY AUTHORITY; ACCOMPANIED BY FRANK SMITH, MEMBER, BOARD OF DIRECTORS, TVA; JAMES E. WATSON, MANAGER OF POWER, TVA; ROBERT MARQUIS, TVA GENERAL COUNSEL; JACOB VREELAND, TVA WASHINGTON REPRESENTATIVE

Senator JORDAN. Will you introduce your associates?

Mr. WAGNER. Yes, sir; I will be glad to do that.

We have this morning Mr. Frank Smith, a member of the TVA Board, Mr. James Watson, who is TVA's manager of power, Robert Marquis, TVA's general counsel, and Jake Vreeland, our Washington representative.

Mr. Chairman, we do appreciate this opportunity to review with the subcommittee TVA's need for an increase in its power revenue bond authority as proposed in S. 3967 and H.R. 18104. These bills, which as Senator Baker said are identical, would continue in effect all of the basic provisions of the 1959 bond financing amendment to the TVA Act, but would increase the ceiling on the amount of bonds we are permitted to have outstanding.

The 1959 bond amendment, which is incorporated in section 15d of the TVA Act, authorized us originally to issue power revenue bonds up to a maximum amount of $750 million outstanding at any one time. Section 15d provides specifically that the bonds are not obligations of or guaranteed by the United States, but are backed solely by TVA's power revenues.

In additions to authorizing our issuance of bonds, section 15d provides for two types of payments by TVA to the U.S. Treasury. One of these is in reduction of the appropriation investment in the TVA power system which stood at $1.2 billion when section 15d was enacted. The payments required by section 15d in reduction of this appropriation investment were $10 million a year for the first 5 years and $15 million a year for the next 5 years, and will be $20 million a year hereafter until a total of $1 billion has been paid.

The second type of payment required by section 15d is a return or dividend. Such payments are determined by applying to the appropriation investment outstanding as of the beginning of each fiscal year the computed average interest rate payable at that time by the Treasury on its total marketable public obligations.

Last year, for example, we paid to the Treasury $15 million in reduction of the appropriation investment and $57.6 million as a

return. In all, since the 1959 amendment was enacted, we have made payments to the Treasury of $125 million in reduction of the appropriation investment and $448.2 million as a return, a total of $573.2 million.

It was recognized when the 1959 legislation was enacted that power demands in the area TVA supplies would continue to grow, and that the $750 million bond authorization for which the legislation provided would be sufficient for only a relatively few years and would thereafter need to be increased.

In 1966 the ceiling was accordingly raised to $1.75 billion, again with the expectation that further increases would be required as power demands in the area and the amount of generating capacity required to supply them continued to increase. Such demands and capacity needs have grown and are continuing to grow, and that is why we are appearing before you today.

TVA's power program is a part of its overall regional economic development program. This overall program involves supplying basic economic tools—economical transportation on the Tennessee River and connecting waterways, protection against major floods, an abundant supply of electric power, improved fertilizers for use in a soil-conserving type agriculture, opportunities for recreational and other development—which the people of the region can use in developing their economy.

We believe the program has been highly successful. The region in which we operate is in many respects far different that it was in 1933 when TVA was created.

There are many factors at work in the TVA area besides TVA's own operations, but in the period since 1933, per capita incomes have increased from less than half the national average to nearly three-fourths of it today. Employment has shifted for its reliance from an agricultural base to an industrial base. We are delighted to be able to report to you that in recent years particularly, much of our industrial development is taking place in the smaller communities and in the rural areas, rather than in the metropolitan areas with their population and industrial concentrations.

The region for which TVA is a power supplier contains 80,000 square miles and 6 million people. TVA furnishes power at wholesale to 110 municipalities, 50 rural electric cooperatives and one small private company which own and operate distribution systems representing assets of over $1 billion. These 161 distributors resell the power to over 2 million electric customers—homes, farms, businesses, and most of the industries.

TVA also supplies power directly to 11 Federal installations, including the atomic energy plants at Oak Ridge, Tenn., and Paducah, Ky., and to 43 industries which have large or unusual power requirements.

Power loads in the Nation have been growing at an average annual rate of approximately 7 percent. This means that loads are doubling about every 10 years. In the Tennessee Valley region, power requirements of the homes and farms and businesses and industries have grown at an average annual rate of about 8 percent in recent years. The load growth in the region is expected to require at least a doubling of capacity in the coming 10 years.

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The generating capacity of the TVA power system is now 19.4 million kilowatts, and we have an additional 10.3 million kilowatts of capacity under construction. This includes three nuclear units of 1,150 megawatts each at our Browns Ferry plant near Athens, Ala.; two coal-fired units of 1,300 megawatts each at our new Cumberland plant west of Nashville; two additional nuclear units of 1,220 megawatts each at the Sequoyah site north of Chattanooga; 16 gas turbine units having a total of 350 megawatts to be installed at the Allen Plant at Memphis; and a 1,350 megawatts pump storage plant at Raccoon Mountain west of Chattanooga.

These units now under construction are scheduled for completion on various dates, but all of them are scheduled to be in service by the end of 1975. The 30 million kilowatts of capacity which we will then have on our system is the amount which our forecasts indicate will be needed by the end of 1975 to supply the region's growing power requirements then.

Meanwhile, we need to begin promptly construction of additional capacity to meet projected further growth in power loads beyond 1975. During the 1970's we face the need for beginning an additional 30 million kilowatts of new generating capacity in order that we may continue to meet the growing demands for electric power in the region.

Large amounts of capital obviously will be required to finance this kind of construction program. Some of the funds required can be provided from power proceeds, but the greater portion will have to come from additional borrowings.

At the present time, under the authority of the 1959 amendment, we have a total of $1,106 million of such borrowings outstanding out of the total of $1.75 billion which is authorized. This includes $675 million of long-term bonds sold to the general public, $331 million of short-term notes sold to the general public, and $100 million of short-term notes sold to the Treasury.

These borrowings have helped finance the 8.4 million kilowatts of generating capacity additions we have made to the power system since the 1959 amendment to the TVA Act and the work done thus far on the 10.3 million kilowatts of additional generating capacity now under construction and to be in service by the end of 1975.

Virtually all of the remainder of the $1.75 billion of borrowings now authorized will be required to complete the 10.3 million kilowatts of capacity now under construction, together with the related transmission facilities and nuclear fuel requirements. I think this is important to understand, because when we start a new generating unit, we must have available to us the authority to borrow whatever funds will be needed to complete its construction, so that while we have not yet completely exhausted or borrowed the $1.75 billion, we are commited to work which will use it up.

We have just opened bids on two additional nuclear units, with options on additional units, and we will need an increase in our borrowing authority in order to award firm contracts for these units. The leadtime for constructing new generating units is now about 6 years as compared with 4 years only a few years ago.

So we should make awards without delay for the two new units if they are to be completed in 1976 when they will be needed. The need for an increase in our bond ceiling is therefore of the utmost urgency to us and to the region.

As to the amount by which TVA's borrowing authority should be increased, the administration has recommended an increase in the ceiling to $3.5 billion, and we of course support the recommendation. We estimate that with such an increase we could go forward from 2 to 4½ years before coming back to Congress with a request for a further increase in our borrowing authority.

I should perhaps make clear why a doubling in our bond ceiling to $3.5 billion would provide funds only for the period of time I have indicated, that is, 2 to 4½ years. A number of factors are responsible. First, with power use doubling every 10 years, we are having to provide larger and larger capacity additions each year to keep up with the demands. Second, as I have already noted, the lead-time on new units is now about 6 years and we need enough bond authority to finish units before we begin constructing them.

Third, construction costs per kilowatt of capacity have increased drastically, despite the efforts we have made to take advantage of economies of scale by constructing large-size units. The average cost of the completed steam capacity now installed on the TVA system is about $125 per kilowatt. We estimate that the capacity now under construction will cost considerably more than this, and the cost of future capacity will be still greater—perhaps double the cost of presently completed capacity, so that our dollars do not go as far as they did 10 years ago.

The increased costs of generating units reflect increases that have taken place in the costs of labor, materials, and money. Another factor is the costs which result from the need to protect the environment. TVA has a responsibility, both as a conservation agency and the operator of a large power system, to assure that its powerplants do not adversely affect the air or water and their quality.

The problems of fly ash and sulfur dioxide contained in stack gases at coal-fired plants must be solved, and heated water discharged at both coal and nuclear plants must be controlled so that aquatic life will not be harmed. Technology has found the answers to some of these problems, as in the case of the electrostatic precipitators which we are installing—incidentally, at a cost of about a hundred million dollars—to remove 99 percent of the fly ash at our coal-fired plants, and we are confident that technology will ultimately solve these other problems as well.

Although the exact costs which will be required to protect the environment are not known, it is clear that both TVA's capital and operating costs will be greatly increased by these requirements and that this, in turn, will increase our need for additional borrowings.

We are deeply committed to the principle that our operations shall not damage the environment, and believe the added costs of assuring that they do not do so must be accepted, whatever those costs turn out to be.

One final point I would like to mention is the need for providing adequate generating capacity in the Tennessee Valley region not only for its own benefit but to assure that we do our part in providing power reliability for the Nation as a whole. The TVA power system interconnects at 26 points with neighboring power systems for the economical exchange of power and to safeguard the reliability of power supply.

For example, we have agreements with interconnected groups of systems to the south and west for the exchange of power on a seasonal basis. We exchange 1,800,000 kilowatts of capacity. These systems receive power from TVA to help meet their peakloads during the summer air conditioning season. In winter, TVA gets back similar amounts of power to help meet peak demands that result from electric heating.

In the case of an emergency, it is possible, through transfers of power under exchange arrangements between adjacent and interconnected power systems, in effect to ship power hundreds of miles from one system that has a reserve supply to another that may have experienced a failure at one or more of its plants and is in dire need of an additional supply.

This is, of course, what happened a couple of weeks ago when several systems, including TVA, began making power available to Consolidated Edison to meet the emergency situation which developed in New York. Transfers of this kind are possible only if there is reserve capacity available, as well as adequate transmission interconnections.

This is one more reason why TVA, as well as other systems, must provide adequate generating capacity in their respective areas if they are to fulfill their responsibilities as power suppliers.

I should add that these interconnection arrangements and these seasonal interchanges also effect very substantial economies for both partners in the interchange arrangements. They eliminate the necessity for building generating capacity on each system that otherwise would be necessary, and they are a real efficiency device in the operation of a system.

Mr. Chairman, that completes my statement. We will be glad to answer your questions, of course.

Senator JORDAN. Mr. Wagner, what is the highest voltage that you are transmitting now?

Mr. WAGNER. Our highest voltage now is 500,000 volts, Mr. Chairman.

Senator JORDAN. I just wondered if you had reached that voltage capacity—if that had become necessary for long-range transmission, for instance, to New York City.

Mr. WAGNER. Some of it went on high voltage transmission. The transmission to New York City was really a displacement of power—we were providing power to our neighbors, they to their neighbors, and so on.

Senator JORDAN. Are you having any problem getting coal?

Mr. WAGNER. Yes, sir; we are having a very serious problem getting the coal, due to quite a number of factors, and we are distressed by the fact that our stockpiles are now down to about a 10-day supply, in spite of everything that we can do to get coal. We are paying prices at the present time that are aproximately double what we were paying as recently as a year ago, and we still are not able to get as much as we need.

There is also a problem of getting coal delivered, even though we have it bought, and it is available at the mines. There is a shortage of railroad cars that we have tried to get corrected, but so far, we have not succeeded. This problem is a serious one. I think it is a serious one not only for us, but for the entire electric utility industry.

Senator JORDAN. Are you using any gas at any of your plants?

Mr. WAGNER. One of our plants is equipped to use gas, but it is off-peak gas, and the plant burns gas or coal intermittently. We can't always get the gas when we want it.

Senator JORDAN. Well, is it gas and coal or gas and oil?

Mr. WAGNER. Gas or coal.

Senator JORDAN. Gas or coal. Well, I know a number of the power companies are seriously affected by a shortage of coal, partly due to the vast amount we are exporting, and there is an effort being made here now to see if that can't be corrected in one way or another. I also understand that a number of the coal mines, particularly small ones, have been unable to meet some of the requirements set up under the Mine Safety Act, and have just closed down, rather than try to do it. That is also contributing to the shortage.

Mr. WAGNER. Yes, sir; that is correct.

On the matter of export coal, we have had at least one instance in which coal where we were buying under a contract that lasted for several years, for a price of about $5 a ton, was not available to us when the contract expired. It was sold instead for the export market at a price of something over $11 a ton.

The costs involved in that $11 were greater; coal had to be washed, while we were buying it unwashed, but nevertheless, it was denied to us.

The export coal problem also ties up numbers of rail cars. The coal moves to the ports, and then because the demurrage charges on rail cars are very low, it is stored in the cars for days, and there are trainloads of coal sitting at the ports, whereas the cars, if they were available for moving coal for use in this country, would help to alleviate the coal shortage.

The mine safety laws to which you referred have caused several of the smaller producers who have been supplying us with coal to close down. The costs involved for them would have been too great in relation to their total operations, and these requirements are adding to the costs of coal that we are getting from some of our larger producers.

Now I should say that we favor mine safety, Mr. Chairman, and whatever is required for realistic mine safety, we believe must be borne as a part of the cost of producing and selling the coal. It is true, however, as you have said, that this legislation now has added both to the scarcity of supply, by stopping it from some of the smaller mines, and to the cost of the coal supply, by adding to the costs from the larger suppliers.

Senator JORDAN. Of course, I am hearing that same thing from Duke and Carolina Power, in my own State. They have got the same problem.

Mr. WAGNER. Yes; this is a nationwide problem for the electric utilities business.

Senator JORDAN. It is a nationwide problem, which we are going to have to solve. I know something about the reason for this shortage of coal cars too. It is cheaper to let the coal sit in the cars at what they are charging for demurrage, than it is to have a storage basin——

Mr. WAGNER. Unfortunately, that is true.

Senator JORDAN (continuing). Established wherever they happen to be shipping from; that is, the large ports.

Mr. WAGNER. That is true. Demurrage charges need to be legally established on a more realistic basis.

Senator JORDAN. Senator Cooper?

Senator COOPER. I will yield to Senator Baker for the time being.

Senator BAKER. Thank you, Mr. Chairman. I have a strange feeling that the Senator from Kentucky just wants the last word.

Mr. Chairman, you spoke a moment ago about export coal, and certain supplies that you have been deprived of because of their commitment, after a contract expired, to the export market.

Do you know of substantial reserves of unmined coal that have been acquired by companies, formerly under contract to domestic users, for foreign interests, especially Japanese interests?

Mr. WAGNER. Senator, I do not know, but Mr. Watson might.

Do you want to comment on that?

Mr. WATSON. Well, Senator Baker, as you are aware, with your know ledge of the coal industry, most of the coal in our area is not low-sulfur enough to be in the metallurgical market, so you have to get into the southern Tennessee coals, or the really——

Senator BAKER. Southwest Virginia coal.

Mr. WATSON. Yes, southwest Virginia, and we draw very little of our coal from southwest Virginia. Really the only coal in our region that had low enough sulfur for the metallurgical market was in the southern Tennessee area, and that is the coal we just lost. Our biggest problem with export coal is the fact that it ties up rail cars for weeks at a time, that could make a round trip from our normal sources of supply to our plant and back, in, say, 2 days or something like that.

Senator BAKER. The reason I asked the question is because I have reports from time to time—which I am careful to say I have not verified—that not only is the export trade calling heavily on reserves of metallurgical quality coal, but that foreign interests, especially Japanese interests, have advanced substantial sums of money for the construction of new plants, largely for the mining of metallurgical grade coal, but also tying up vast expanses of unmined coal, both metallurgical and nonmetallurgical, which might be then beyond the reach of the domestic steam coal market.

Do you know of any such situations?

Mr. WATSON. Well, in the particular case that Mr. Wagner was talking about, where we had been buying the coal for about 10 years, the Japanese offered to supply $2.6 million interest-free——

Senator BAKER. $2,600,000 interest free?

Mr. WATSON. To build a washing plant, and they are approximately doubling the output of the mines. This in effect drains off the reserves of this company twice as fast as before.

Senator BAKER. And this was coal that you have used for the general TVA steam requirement?

Mr. WATSON. It all went to the Widows Creek Steamplant.

Senator BAKER. And $2.6 million was advanced by the Japanese Government, interest-free, in order to process it and wash it to make it available to them as metallurgical coal.

Mr. WATSON. To reduce the sulfur content to something around a half of 1 percent. It normally runs in the neighborhood of about seven-tenths to eight-tenths of a percent.

Also, washing removes some of the ash, so they don't have to ship it to Japan.

Senator BAKER. On a slightly different subject: You were speaking of a reduction in the availability of hopper cars or coal cars by reason of their standing in the export cities. Has the unit train concept reduced the availability of mine cars, especially for the smaller operators?

Mr. WATSON. No, I really think the unit train concept makes more cars available. Usually unit trains, like the one that I am sure you are familiar with, that comes out of Hazard, Ky., and goes to Bull Run Steamplant, which is right close to your hometown there; are made up of cars that were all provided especially for that movement. They are hundred-ton cars, special automatic dumping equipment, and really do not have any effect on the car supply situation.

The fact remains, however, that the railroads, the principal railroads that serve our area, have approximately the same number of cars now that they had 5 years ago.

Senator BAKER. Including the unit train.

Mr. WATSON. Including the unit train.

Senator BAKER. Well, the recurrent complaint comes to my office that the railroads tend to favor and supply the unit train operators, and tend either not to replace or not to expand the supply of coal cars available to non-unit train operators.

Mr. WATSON. Well, I think both the railroads and the utilities feel that a unit train is dedicated to a certain movement, and should be kept in that movement.

Senator BAKER. Well, I think it should, too, but the point of the matter if, if you have the same number of cars now that you had a few years ago, and if you have now dedicated a great number of those cars to unit train operation, then you probably have fewer cars that are non-unit train cars than you had, say, 10 years ago.

Mr. WAGNER. Senator, I think the situation of understanding here is that these unit trains are usually specially designed and built at the time they are established. They don't take old coal cars and set them up in a unit train, and the problem has been that the standard type coal cars, in normal operation, have not been replaced as they should, nor has the fleet been added to as it should have been in view of the expanding market and need for them.

Senator BAKER. I think that is right, Mr. Chairman, and the point I am struggling to establish is that while unit trains are not made up of old coal cars, thus depriving other operators of their use, it is nonetheless true, is it not, that since the total number of cars of all types available is roughly the same as it was a few years ago, there are relatively fewer conventional cars available to nonunit train operators than there have been in the past?

Mr. WAGNER. That is correct.

Senator BAKER. Well any way you put it—we have managed to get that fairly complex, but any way you put it, there is a coal car shortage. Is that right?

Mr. WATSON. There certainly is. For coal that originates on railroads for delivery to our plants, we have been averaging between a hundred thousand tons and one hundred thirty thousand tons shortage every week, for more than a year.

Now you can't say that this was all due to the rail car shortage, because maybe there were cars placed too late in the evening to be

loaded, or the coal producer had problems at his mine that day, or something like that, but most of that is due to a shortage of coal cars.

Senator BAKER. On another subject: it is my observation in Tennessee that since the passage of the mine safety bill, there has been a great resurgence of interest in very large stripping operations. There has been a great deal of activity in exploration and prospecting and the like.

Does TVA have any policy with respect to restraint or conditions on the nature of coal stripping operations as a condition to accepting the coal?

Mr. WAGNER. Yes, Senator Baker, we do have. We require in our contracts with coal producers who supply us with strip mine coal that the land be reclaimed, and we believe that this program has been working very satisfactorily. We now have reclamation provisions in all of our coal contracts that we entered into in the last 5 years, at least, and this means 154 contracts that require reclamation, and under those contracts, more than 8,000 acres of land have been reclaimed, and, of course, all of it that is being strip mines for us now will be reclaimed.

The program we believe is working very well, and we keep watching it and looking for methods to improve reclamation, so that the land is not only preserved, but returned to useful purposes.

Senator BAKER. Is the degree of restoration required by your coal purchase contract comparable to the requirement of, say, the Kentucky Statute for restoration of strip mines?

Mr. WAGNER. It is generally comparable with Kentucky. Kentucky has, we believe, a very good statute. In most of the States where we operate, I believe our requirements are more stringent than the State requirements. We are mining some coal reserves now that we bought several years ago, doing this in an effort to try to get coal at lower prices; and in that area, we are trying some new ideas that would reach even higher standards of reclamation than we are requiring in our general contract.

We want to try these out, and see if they are practical and feasible, and if they are they would be written into our new contracts.

Senator BAKER. This is another observation that was suggested to me in Tennessee recently, in connection with stripping: that in years past, when there were few, if any, restrictions on the nature of coal stripping, a great deal of damage was done in terms of potential restoration, in that after a coal strip pit stands for a few years, it is virtually impossible to do much with it, seed it, or drain it effectively, or the like.

Therefore, the suggestion has been made in some quarters that one of the most practical restoration steps that might be taken for old strip pits, especially in mountain areas, is to hope that they might be re-stripped now in a more controlled manner, with an opportunity to start afresh with the restoration.

Do any of you have any comment on that?

Mr. WAGNER. Well, I don't know about that as a general policy, Senator Baker. There are some instances where I am sure it would provide an opportunity for better restoration than you otherwise might get. We have two places where the coal is being stripped in areas that have been previously opened, and there we are getting

reclamation to new standards. It is true that it is much easier to do a good reclamation job, and at much less cost, if you have it in mind at the time you mine the coal.

At the same time, while it is difficult to go back to some of these old areas, we believe that it should be done, and can be done at reasonable cost. We have some proposals that we are working on in that direction.

Senator BAKER. Well, this is a subject that I won't burden the committee with further, nor you, Mr. Chairman, but it is a subject that I intend to give a great deal more attention to in the future. I feel that a Federal policy on the restoration of strip pits and the manner of the recovery of coal by stripping must be examined, and possibly enacted into standards.

Mr. WAGNER. We have a number of research and demonstration projects in this direction. On the specific point that you mention, some of these coal reserves that we own and are now mining have been stripped in the past, and we are working in those areas. This operating and cost experience is valuable in determining the feasibility of this kind of operation and we will have it.

Senator BAKER. This last question, Mr. Chairman, if I may.

On the particular subject at hand, which is of course, the amendment to the TVA Act to increase your bond authorization, the bill I introduced, together with cosponsors, and the bill passed by the House, provide for an authorization increase from $1,750 million to $5 billion, which is, frankly, my preference, because I feel that on the basis of projected power needs for the future, and on the basis of our national underestimate of our power needs for the last several years, that we ought to put TVA in a position to commit or be in a position to commit its generating and transmission capacity, without having to come back at an early date for additional authority.

I don't ask you to comment on that, but I would simply say that notwithstanding the fact that you are here asking for $3.5 billion, I would urge, Mr. Chairman, that the committee approve the full authorization of $5 billion.

Thank you very much.

Senator YOUNG (presiding). Mr. Chairman, it is with regret that I was not able to be here at 10 o'clock, and I know that Senator Jordan from North Carolina feels the same, because he and I were both over in the Senate Chamber, working, at 10 o'clock. Fortunately, he was able to leave earlier than I, and now I am very glad to be here and it is my intention to read your testimony very thoroughly, and may I say that it is a very happy personal recollection that in the first administration of Franklin D. Roosevelt, my vote helped create the Tennessee Valley Authority, and during years following service in the House of Representatives, I was also glad to vote for legislation supporting the TVA.

Mr. WAGNER. Well, thank you very much, Mr. Chairman. We know of your long interest and support for TVA, and the interests of the great Tennessee Valley region, and we know that you gentlemen are busy. We were delighted to wait for the few moments that were required, and it is good to see you again.

Senator YOUNG. Senator Cooper, do you have questions?

You may proceed.

Senator COOPER. Yes, Mr. Chairman.

Senator Baker has mentioned that $5 billion was authorized by the House, and that his bill, S. 3967, would call for $5 billion instead of the present authorization level of $1,750 million. Is that correct?

Mr. WAGNER. Yes, sir, that is correct.

Senator COOPER. Do you still hold to that position? I understand that $5 billion is the amount you require?

Mr. WAGNER. Senator Cooper, our position is that $3.5 billion will permit us to continue for 2 to 4½ years, depending on the way some of the loads grow.

As long as we have authorization when we need it, this is the important thing to us. As I indicated in my statement, the administration has felt that the doubling of the present authorization of $1,750 million to $3.5 billion is sufficient for this time, and we support that position.

Senator COOPER. The last increase was for $1 billion; is that correct?

Mr. WAGNER. That is correct; yes.

Senator COOPER. Has all of that amount been obligated?

Mr. WAGNER. It has been obligated to the extent that to complete the capacity which we now have started and under construction will take all of this authorization to do that, so that if we wanted to start, or we want to place a firm contract, as we must have soon, for some additional generating capacity, we would need to have the additional authorization available, so that we would know we could sell the bonds needed to complete that capacity.

Senator COOPER. You mentioned certain facilities that are now being constructed—nuclear plants, and, I believe, one coal-fired plant. Do you have an authorization sufficient to borrow the money, to complete the construction of these facilities?

Mr. WAGNER. Yes; the authorization that we have now would enable us to complete the construction of facilities that are now under construction. It would not permit us to start construction of additional facilities.

Senator COOPER. I note that Mr. Shultz, in his letter, states:

> Now because of the tenuous nature of projecting the growth of peak demand, coupled with the uncertainty of AEC's future power needs which are served by TVA, we believe that an increase as large as 2.35 billion should not be made at that point.

Do you consider that your estimate of future TVA power needs may be of a tenuous nature?

Mr. WAGNER. Well, Senator Cooper, any estimate is an estimate. You can't be sure that it is going to come out the way you anticipate, but we make these estimates based on fairly firm data. We have the trends of the past, and we know something about the plans of our existing customers for their expansions in the future, and the estimates are as good as we can make them.

Our experience in the past has been more often that we have underestimated than overestimated, I believe. It goes both ways, but in general, our estimating has been pretty good.

One of the criticisms being leveled nationally at the electric utilities industry now is that it is not doing or has not done its advance planning. We have tried to do that in TVA, and so far, quite successfully.

And this is where our estimates fit in. It is why we have the capacity now that we need; it is why we need the additional bonding authority, so that we can start the capacity now that we are going to need in 1976 and the years beyond.

The question of the amount of leadtime that is required is a little hard to estimate. At the present time, we think it will be 6 years. Not very long ago, 4 years was enough but this is a problem that affects the estimates.

Another problem that affects them is what will happen to interest rates, and that affects not only us but consumers in the region.

Senator COOPER. Well, your statement noted that TVA is providing power for 11 Federal plants. I assume that the largest would be the AEC plants at Oak Ridge and at Paducah?

Mr. WAGNER. That is correct.

Senator COOPER. Do you have a term contract to provide those installations with power for a number of years ahead?

Mr. WAGNER. Yes; we have contracts with them, and we start capacity to serve them only when we have firm contracts at hand.

Now, they do indicate to us what their planning is for the future, and when I said that the $3.5 billion would last us from 2 to 4½ years, a part of that range is accounted for by this situation. If AEC continues to take power only under the present contracts, the longer period of time would be applicable, somewhere in the neighborhood of 4.5 years.

If, however, they should require power to meet the largest planning programs that they have discussed with us, we could run out of bonding authority in 2 years or a little more.

Senator COOPER. I have information that you are currently providing 1,340 megawatts to Oak Ridge and Paducah, and that this load will increase by the spring of 1976 to 3,165 megawatts. Is that correct?

Mr. WAGNER. Yes; that is correct.

Senator COOPER. Well, there is a steady increasing demand for power from those two plants.

Mr. WAGNER. That is correct. And the capacity that we now have under construction will enable us to meet that demand.

Senator COOPER. Will the facilities you intend to construct to meet your future power requirements be all atomic plants?

Mr. WAGNER. No, sir; we have under construction two large atomic plants, a large coal-burning plant, and we are beginning construction of a pump storage facility. Those are the large ones that are now under construction.

Senator COOPER. From here on out, do you expect to build only nuclear plants?

Mr. WAGNER. I didn't get the question, sir.

Senator COOPER. Looking ahead, with respect to new facilities that must be built to supply power, will they be only nuclear plants?

Mr. WAGNER. I don't think we would say that at this point, Senator. It depends on what the relative competitive position is. We will build whatever kind of plant that will provide energy for the consumers at the lowest cost.

When we undertook our first large nuclear plant at Brown's Ferry, we took alternate bids on a coal-burning plant and its fuel supply and a nuclear plant and its fuel supply, and in that instance, the nuclear plant came out cheaper, and so we went nuclear.

Subsequently, when we looked at our next nuclear plant, the costs were about a standoff, and in view of our capacity need, we started to build both a nuclear plant and a coal-burning plant.

We now have bids before us for two more nuclear units, with options for additional units. At the time we took those bids, we also invited bids on a coal supply, to see if we could make a comparison again. We got no bids for the coal.

So the direction we go in the future will depend on the availability of alternate sources of fuel, and the relative cost. I think it is generally believed that nuclear technology, being relatively new, will improve, can be improved to a greater extent than fossil fuel technology, and that consequently, a substantial part of the additions in the future will be nuclear plants, but at this point in time, and looking at the figures that come to us, I don't think you can say positively it is going one way or the other.

Senator COOPER. Congress has passed strict legislation dealing with water pollution.

Mr. WAGNER. Yes, sir.

Senator COOPER. And soon will pass a bill much stricter than any we have had thus far.

Mr. WAGNER. Yes.

Senator COOPER. Let me turn to thermal pollution. Are you taking any steps now to refit or reequip your existing facilities so that they will meet these standards?

Mr. WAGNER. On thermal pollution, did you say?

Senator COOPER. Yes.

Mr. WAGNER. Or on general pollution?

Senator BAKER. Thermal.

Mr. WAGNER. On the question of thermal pollution, our existing plants have not created any problem. We did have some difficulty at the Paradise plant in western Kentucky, and there we added cooling towers, so that the water temperatures in the river would not be raised to a harmful degree. With our new plants, we are going to great lengths to deal with warm water, and we believe that these will take care of the problem adequately.

If they don't, we will do whatever it takes to take care of it.

Senator COOPER. Concerning the expenditures required to reequip the old plants, do the funds come from operating revenues or from the sale of bonds?

Mr. WAGNER. Well, the money to equip our old plants, and there we are doing some reequiping by putting in electrostatic precipitators to clean the air out, and we will utlimately, I am sure, develop some equipment to take the sulfur oxides out. That equipment will be paid for partly from power revenues and partly from borrowed funds both, but the bulk of our funds for capital improvements of that kind now must come from borrowings, Senator Cooper, so that as we run into these added costs for environmental protection, both atmospheric and water, it will add substantially to our needs for borrowing authority.

Senator COOPER. I have some questions concerning coal.

Normally, what reserves of coal stock does TVA have on hand?

Mr. WAGNER. Well, we would like to have a 60-day supply in our stockpiles, so that if we run into difficulties of any kind, we can keep going.

Senator COOPER. What is your current supply?

Mr. WAGNER. The supply now is down to 10 days, if we had it uniformly distributed between our plants, but at some plants we are down to 4 days.

Mr. WATSON. The lowest one is 3.1.

Mr. WAGNER. Mr. Watson reminds me that as of this morning we are down to 3.1 days at one plant, 4.1, 5.1, 4.7, and 5.5 days at others.

Senator COOPER. Do you have any assurances that you will be able to get enough coal to keep these plants running?

Mr. WAGNER. Well, this is where you hope and pray, I think, Senator.

Senator COOPER. You mean you haven't contracted for all your requirements?

Mr. WAGNER. We have contracts, but let me tell you, when we get word that a rail strike is threatened, or that there is trouble in any of our coalfields, our blood pressure goes up considerably. We are in a very tenuous position in this regard.

Senator COOPER. Would you say, then, you do not have contracts to provide you with sufficient coal?

Mr. WAGNER. Oh, yes, sir, we have the contracts, but we are currently getting about 70 percent—is it, Mr. Watson?—of the coal that we have under contract.

One of the problems is that the railcars are not available to deliver it, and another problem is that it just doesn't come out of the mines, for one reason or another.

Senator COOPER. Didn't the TVA bring a suit against one coal company to require them to live up to their term contract and provide the coal?

Mr. WAGNER. Yes, sir, we did.

Senator COOPER. What does it state?

Mr. WAGNER. Let me ask Mr. Marquis.

Mr. MARQUIS. That case was settled, Senator, and we are now getting coal deliveries from that company, after they first stopped. But we are not getting as much coal from them as we once did.

Senator COOPER. I believe that the TVA is the largest purchaser of coal in the United States; is that correct?

Mr. WAGNER. I think that is correct, yes, sir.

Senator COOPER. Your testimony will be very helpful in giving us information on what you consider are the reasons for this short supply of coal. Now we have had problems in securing adequate numbers of coal cars ever since World War II. Every time there has been a coal shortage, we talk about insufficient cars.

Do you consider that as one element contributing to the coal shortage?

Mr. WAGNER. Yes, sir; and in the immediate picture, a very important element.

Senator COOPER. Does the TVA own any cars?

Mr. WAGNER. No, sir; we do not own any coal cars.

Senator COOPER. You do own coal reserves?

Mr. WAGNER. Yes, sir.

Senator COOPER. I recall the last time that you came before the committee when you testified that the TVA owned about 129,000 acres of coal reserves. Have you added to the reserves since then?

Mr. WAGNER. We have only two large reserves, Senator, one in east Tennessee and one in western Kentucky, and——

Senator COOPER. The old Camp Breckenridge?

Mr. WAGNER. Yes, sir; we bought those reserves on a competitive bidding basis when the General Services Administration sold them, and we are moving now to get those reserves mined.

Senator COOPER. The last time you testified, you stated that TVA owns about 129,000 acres of coal reserves. You state you are getting ready to have this coal mined on the old Camp Breckenridge site?

Mr. WAGNER. That is correct, we have a contract for it with the Peabody Coal Co., and they will open the mines and mine the coal.

We also are mining some of the coal in east Tennessee, on the former Koppers property, and I should add that we are continuing to look for coal reserves. They are extremely hard to find. And this gets to another one of the long-term problems in the coal supply.

Senator COOPER. Is the Paradise steam plant operating in Muhlenburg County?

Mr. WAGNER. Yes, sir, the Paradise steam plant is operating, and we have there a very good coal supply.

Senator COOPER. Would this coal from the Camp Breckenridge site be transported to the Paradise steam plant?

Mr. WAGNER. No, the Camp Breckenridge coal will essentially go to the new plant that we are building at Cumberland City. This is the one that is now under construction.

Senator COOPER. Where is that?

Mr. WAGNER. It is on the Cumberland River, in Tennessee, near the town of——

Mr. WATSON. Fifty miles west of Nashville.

Senator COOPER. Are there any other reasons why you can't get coal?

Mr. WAGNER. Yes.

Senator COOPER. Have a number of small mines closed down in eastern Tennessee?

Mr. WAGNER. Some of the small mines have closed down because they were unable to meet the requirements of the mine safety legislation. The larger mines are meeting it. It is adding to their cost, and also, it is reducing the rate at which they can produce coal for us.

There is another important factor, we think; when we used to buy coal, we would invite bids, and if we were going to buy a hundred thousand tons a week, we would get offerings of maybe two, three, four, or five times that amount, and we would take the low bids, and go on.

We have reached a point now, though, as in the case I indicated where we were trying to buy coal to assess the competitive position of nuclear and coal for these new units we are weighing, we invite bids and we don't get any bids, or we get just a very small amount offered. One of the problems that we think is contributing to this is that the coal companies, the large ones, are being bought up by oil companies and a couple of large metal companies. Eight of the 10 largest coal-producing companies in the country now are owned by either oil companies or large metal companies.

And we are told by some of their management that they are not interested in selling coal at profit margins that were considered satisfactory by the old coal companies, that they want profit margins that

are more comparable with what they are making on their other products. As a consequence of that, coal which was costing us, a year ago, maybe $4.50 a ton, is now offered to us on a negotiated basis at $7 or $8 or $9 a ton, and with our stockpiles as low as they are, you can see that we we have no alternative but to buy it.

In other terms, Senator Cooper, we operated for years at coal costs of about 18 to 19 cents per million B.t.u. We buy our coal on a heat content basis. This gradually crept up through normal price rises and inflationary pressures to about 21.5 cents last year. Now for coal we recently had to buy we paid 35 cents a million B.t.u. for some of it, and 38 cents for some more of it.

We bought some yesterday at 40 cents, and we even had one offer, which we are not going to accept, at 68 cents.

Now we have some general ideas about what has happened to the cost of producing coal. We have them because of our work on mining the reserves that we own ourselves, and also because under a gross-inequities provision in some of our long-term contracts, we have had to go back and renegotiate prices. The companies in these cases have to demonstrate to us what their increased costs are.

Now, excluding the mine safety costs, those costs have gone up, and we have had to add maybe 50 or 75 cents a ton, but not $3 or $4 or $5 a ton. Mine safety costs will add more money; we don't know at the moment how much. We are getting demands anywhere from 75 cents to $1.40.

We have not yet been able to examine those claims to see how much fat there may be in them, but even those, added to the 50 or 75 cents a ton that we have renegotiated, do not justify, in our minds, the kind of prices that we are being asked to pay now.

We think this is extremely important, not only to TVA but to the whole Nation, because this country lives and breathes on electric energy. We have looked at alternate sources of fuel—oil, gas, uranium. The oil companies, of course, own the oil and gas reserves now, and they are buying into uranium reserves and urnaium fuel processing. This is a situation which can become very difficult, and which concerns us, Senator.

Senator COOPER. I beg the indulgence of the committee, in taking up this subject of coal supplies. I know Senator Baker is, very interested in this matter. Your testimony will give us a good chance to find out what some of the causes are for the present of coal shortage.

Now, first you have noted the old question of shortage of coal cars. Secondly, some mines are shut down, because of the Mine Safety law. I know that has happened in my State.

Third—and I am very glad you brought this out—I have heard comments about this, too—that a great number of the big coal companies are now owned by oil companies, and there is a serious question, whether those companies want to increase their production of coal, or whether they want to limit production because of their oil business.

I think it is a subject that will have to be investigated, and should and should be investigated by the Congress.

Concerning the effects of the Mine Safety Act on coal production I must state that what we predicted has come true, particularly in Kentucky and Tennessee, where we have what we call nongassy mines. Many of these small mines have closed down, because it

wouldn't be economically possible for them to re-equip the mine as required by the new law. And now many of them have gone into strip mining which is what I predicted would happen.

Senator Baker questioned you about the provisions you place in your contracts with mining companies from whom you purchase coal requiring them to reclaim the land. This policy has been in effect since 1965, hasn't it?

Mr. WAGNER. That is correct.

Senator COOPER. I know that you require that the supplier reclaim the land within a period of 24 months after the contract is completed.

Mr. WAGNER. Yes, sir.

Senator COOPER. Now, what means do you have of enforcing that contract?

Mr. WAGNER. Well, all I can say is that so far we have been able to get compliance. It is written into the contract. Generally, these contracts require the contractor to provide a performance bond. No doubt this would provide TVA considerable leverage in obtaining compliance with the reclamation provisions. Moreover, the State strip mine reclamation laws require the operator to post a bond as a condition of obtaining a mining permit.

We could refuse to take subsequent bids from operators who violate the reclamation clauses in future instances. I would say, Senator, that fortunately, we have not had to resort to those methods. I think that we have found that the coal producers, if they realize they are going to be paid for it, are willing to do the job.

Senator COOPER. Can you state to the committee that the coal companies have carried out these provisions of their contracts and have reclaimed the land?

Mr. WAGNER. I asked the man who inspects reclamation. He is a very able individual who is not in our office of power, but is a conservationist in our forestry organization, so that we have a sort of an independent check on this thing.

He says that the reclamation results so far vary all the way from poor to excellent, but the ones that are poor, we are working on, and even there, we are getting, by what is normally understood to be reclamation, pretty good results. This is adding to the cost of coal.

Senator COOPER. It ought to.

Mr. WAGNER. Yes, sir; that is right.

Senator COOPER. Under the Kentucky law, which is considered to be one of the best in the country, the State authorities carry on a continuing inspection of these operations.

Does the TVA carry on a continuing inspection to see that the companies are living up to the contract?

Mr. WAGNER. Yes, we do. Yes, sir.

Senator COOPER. And they close them down in Kentucky, if they are not. Do you ever cancel a supplier's contract of he isn't living up to his contract?

Mr. WAGNER. We have not yet canceled any because of reclamation violations. I should point out that these are long-term contracts, and a contractor usually gets equipment committed for the life of the contract. If we look at the mined area and say, "Look, you have got to do some more work here," he generally does it.

Senator COOPER. Does he reclaim the land as he proceeds with his stripping operations?

Mr. WAGNER. As closely following it as can be done; yes, sir, and a part of it, you realize, is done almost as a part of the mining operations. For instance, one of the requirements is that the strip bench be graded so that the water that falls on it will flow toward the high wall, and is then carried to the natural drains, down the mountainside.

He is required to cover the iron pyrites promptly so that sulfuric acid isn't formed, and you don't get acid drainage. The extent to which material can be dumped over the outside bank is controlled, and then he is required to revegetate this area quite promptly.

Senator COOPER. In 1966, you testified and provided the committee with a statement describing the requirements for reclamation included in your contracts. Would you furnish the committee with this information together with a list of companies the contracts of which contain this information?

Mr. WAGNER. Yes, sir; I will be glad to.

Senator COOPER. What I am saying is that if you do not enforce these provisions day by day, or at least period by period, over the life of your contracts—which are long-term contracts—then the damage will be done. It will certainly be done as far as the water levels are concerned.

Mr. WAGNER. We will be glad to provide you with a copy of the requirement in the contract, and I would want to add that we do make continuing inspections, Senator, and we work also with the States on this, very closely.

(The information subsequently furnished follows:)

RECLAMATION PROVISION IN TVA COAL PURCHASE CONTRACT

Strip Land Reclamation. Contractor agrees to perform in accordance with the following standards and to the satisfaction of TVA reclamation and conservation work upon all the lands which are affected by the strip mining (including surface auger) of any coal supplied under this contract.

a. Contractor shall, as closely as practicable following the mining operation, cover coal faces and bury all toxic materials including coal wastes and strongly acid shales.

b. Contractor shall seal off any breakthrough to former underground mines.

c. Contractor shall conduct the mining in such a manner as to keep the drainage free of spoil.

d. Contractor shall control water from the mines and haul roads by:

(1) Channeling runoff into drainages either naturally non-eroding or made that way through construction of checks, or

(2) By impoundments, or

(3) A combination of (1) and (2).

e. Contractor shall cover all holes at the face that have been made by augers.

f. Contractor shall grade the spoil banks as necessary to provide for the re-establishment of vegetation.

g. Contractor shall conduct mining and reclamation so that any spoil placed on the slope below the bench will be handled with the objective of preventing landslides. This provision will generally control the bench width of the first cut in relation to the steepness of slope, the total volume of overburden which may be cast downslope, and the natural and proposed drainage pattern.

h. Contractor shall revegetate the disturbed area with trees (but with TVA's approval grasses, legumes, and shrubs may be substituted) so as to ensure that the disturbed area will be covered by vegetation well distributed throughout the entire area.

i. To the maximum extent practicable, the foregoing work shall be performed at the same time the mining operation is taking place, and all the above work shall be completed no later than 24 months after the delivery of all the coal supplied under this contract unless TVA agrees to a longer period of time.

TVA shall have the right to inspect the Contractor's mining operation and the lands involved from time to time to determine the Contractor's compliance with

the foregoing standards. TVA shall at all times be the sole judge as to whether Contractor is complying with the standards above set out. TVA, in its discretion, may accept as fulfillment of the requirements of this contract compliance by the Contractor with applicable reclamation laws having standards comparable to the foregoing.

Terms and Conditions. The attached Terms and Conditions and Conditions of Bid constitute parts of this contract.

COAL SUPPLIERS COVERED BY TVA RECLAMATION REQUIREMENTS

Contractor	County	Mine
Tennessee, Southeast:		
Allen Bros. Coal Co	Van Buren, Sequatchie, Bledsoe	No. 7, No. 9.
Arnold Coal Co	Van Buren	Arnold, Van Buren.
C. R. & B. Coal Co	do	No. 11.
L. P. Phipps & Son	Grundy	Commando.
Walden Ridge Coal Co	Van Buren, Bledsoe, Sequatchie	No. 1, No. 2.
Waters Coal and Construction Co	Van Buren	R-8.
Tennessee, East:		
Blue Diamond Coal Co	Campbell	Sou. Imperial, Emerald.
Abe Cofer Coal Co	do	Abe Cofer.
Crass Coal Co	Anderson	Crass.
Dean Coal Co	Campbell	Red Ash.
Farco Co., Inc	do	Farrell.
G. & F. Coal Co., Inc	Morgan	G. & F.
Kew Mining Co	do	Kew.
H. & B. Construction Co	do	H. & B.
H. & B. and Lueking Coal Co	Morgan, Anderson	Lueking.
Jackson Mining Co	Anderson	Jackson.
Lueking Coal Co	Anderson, Morgan	Lueking No. 2.
Mountain Mining Co	Anderson	Mountain.
Price Coal Co	Morgan, Campbell	Price.
Radar Coal Co	Anderson	Radar.
W. B. Spradlin	Campbell	W. B. Spradlin
Tedder Coal Co	Morgan, Cumberland	Tedder.
Tennco, Inc	Anderson	Tennco.
Tennessee Auger	do	New River.
Fred Walt Coal Co	Morgan	Fred Walt Nos. 3, 4.
Wolf Ridge Coal Co	Anderson	W. & S.
W. R. Coal Co	Anderson, Morgan	W. R.
Premium Coal Co., Inc	Anderson	Premium.
Alabama:		
Ramsey Coal Co., Inc	Jackson	No. 1.
Farco Co., Inc	do	Fies No. 1.
Arch Mineral Co., Inc	do	Do.
Kentucky:		
Adventure Coal Co	Bell	No. 1 ,No. 2.
Carbon Coal Co., Inc	Bell, Ohio	Carbon.
Kentucky Oak Mining Co	Perry, Letcher, Breathitt, Knott, Leslie.	Various.
Pioneer Fuel Sales	Bell	Do.
Scotia Coal Co	Letcher	Sou. Imperial.
PeeWee Mining Co	McCreary	West.
West Coal Corp	do	Do.
West Kentucky:		
Arel Coal Sales, Inc	Hopkins	Arel.
Burge Coal Co	Ohio	Burge.
Cherokee Coal Co	do	Do.
Hazel Creek Coal Co	Muhlenberg	Hazel Creek.
Island Creek Coal Sales Co	Hopkins	Boone, Pleasant View, Shamrock.
Cimarron Coal Co	do	Volunteer.
Kirkpatrick Coal Co	Muhlenberg	Wright, Caney Creek.
Pittsburg & Midway	Hopkins, Muhlenberg	Colonial, Paradise.
Peabody Coal Co	Muhlenberg, Ohio	Sinclair, River Queen, Ken, Homestead, Gibraltar.
O'Keefe Bros. Coal Co	Ohio	Salem.
Randall Fuel Corp	do	Williams Creek.
Royal Fuel Corp	Hopkins, Christian	Arel.
Russell Badgett, Jr. Coal Co	Hopkins	Little Jose.
Walker & Sons	Ohio	Walker.
Weskol Mining Co	Hopkins	Weskol No. 2.
American Metal Climax	Muhlenberg	Ayrgem.
Illinois:		
Peabody Coal Co	Gallatin	Eagle.
Eads Coal Co	Jefferson	Eads.
Virginia:		
Blair Fork Coal Co	Wise	Sou. Imperial.
Kentucky-Virginia Coal Co	Lee	No. 1.
Wright Mining Co	do	Wright No. 1.
Victory Coal Co	Wise	No. 2.
Dean Jones Coal Co	Lee	No. 5.

Senator COOPER. Is the Paradise plant on the Green River, considered to be the largest of its type in the world?

Mr. WAGNER. The generating station, you mean?

Senator COOPER. The Peabody Coal Co. stripped acres and acres of land there before your conservation requirements came into effect in 1965.

Mr. WAGNER. That is correct.

Senator COOPER. I don't know that I can say that it is your fault, but one of the purposes, as I understand it, of the TVA is that it deals with conservation and tries to make a better environment. Yet in Muhlenberg County and Ohio County, where Peabody Coal strip mines—I think it is the second-largest coal company in the United States—those counties look like what we once thought the surface of the moon would look like—terrible. And the TVA did take that coal, and did nothing about reclamation or conservation.

Is there any way you can help now to repair the damage that was done in those two counties?

Mr. WAGNER. Senator, let me take just a few minutes on that point. We did not buy all of that coal. We bought some of it. One of the reasons that we did not require reclamation in our contracts until 1965 was because in the States where we bought coal—at the time we were buying only about 17 percent of the total strip-mined coal, and we felt that what was required was State legislation that would go to all of the coal that was stripped for all consumers. We felt that if TVA required it, people would say the problem was solved, and it wouldn't be, so we worked very hard to try to get State regulations to require reclamation.

Now some of it was strip mined for us, that's correct. All I can say is that at the present time we do require reclamation there and everywhere else. We have made some proposals, and will continue to make proposals, for reclamation of the strip-mined areas.

Our current proposal does not go to west Kentucky, but certainly work should be done there, and we agree that that land ought to be reclaimed, and ways must be found to do it.

Senator COOPER. One other subject: TVA is announcing an increase in its rates.

Mr. SMITH. Senator, if I may interrupt at that point, one of the reasons that the reclamation clause is in the TVA contract is because of some discussions that you had with some of the members of the TVA Board.

Mr. COOPER. Well, I would hope the clause has had some effect. I am going to look at it again.

Mr. WAGNER. I hope we got into it what you wanted, Senator.

Senator COOPER. I will repeat what I said, when you set up your requirement procedures, then—and I do want to study them—is there any way we can protect these areas and be sure that reclamation has been performed as required by the contract? I think we ought to do it. I am talking about my own State. I know that you don't get all your coal from Kentucky. I also know there is going to be a lot of coal mined at the site of Camp Breckenridge. I recall the long dispute among the residents there as to who owned the coal rights.

Mr. WAGNER. Camp Breckenridge coal will be produced by underground mining, Senator. It is not going to be strip mining.

Senator COOPER. Now TVA has recently announced an increase in its power rates, quite a large increase, as I recall.

Mr. WAGNER. That is true.

Senator COOPER. Is it about 26 percent?

Mr. WAGNER. It is about a 23-percent average increase, Senator. This increase is not as large in comparison with other figures as one first might think. The percentage is as large as it is because our base rates are so low now.

Electricity in the Tennessee Valley costs the average residential consumer about a cent a kilowatt-hour. In the Nation as a whole, it costs about 2 cents, or a little better, for a kilowatt-hour, so if we were applying the TVA increase to the national average electric bill, it would be an 11½-percent increase instead of a 23-percent increase.

Senator COOPER. How do your dates compare with the privately owned companies in the area?

Mr. WAGNER. The average cost to the residential consumer for electricity before this increase has been about 1 cent per kilowatt-hour in TVA, about 2.1 cents in the Nation. So our rates are about half, and they will still be substantially below, even after this increase goes into effect.

Senator COOPER. Will you supply to the committee a statement comparing your rates with the rates of other utilities in the area?

Mr. WAGNER. Yes, we will be glad to do that, Senator.

(The information later supplied follows:)

COMPARABILITY OF TVA RATES WITH THOSE OF UTILITIES IN SURROUNDING AREA

The three attached tables contain a summary comparison of TVA's rates for residential and general power consumers with those applied by neighboring utilities.

RESIDENTIAL RATE COMPARISON

Table 1 shows a comparison of residential consumer costs for selected monthly and annual energy uses. Costs under the TVA middle schedule (R–4) after the August and October 1970 increases are compared with those under the rates now being applied by neighboring utilities. Over half of the residential consumers in the Tennessee Valley are being served on this or a lower rate schedule.

INDUSTRIAL POWER RATE COMPARISON

Table 2 compares the unit power costs to industrial customers using a range of load sizes and load factors. For the Tennessee Valley costs were determined under the basic TVA general power rate (C–2) after the August and October 1970 increases. This schedule was selected for comparison purposes because all TVA schedules are identical for loads in excess of 5,000 kw and this schedule also applies to directly served customers with prevailing rate contracts. The currently effective rates of neighboring utilities were used and information is included on the amount of fuel adjustments that were included in the unit price calculations.

INCREASES PROPOSED BY NEIGHBORING UTILITIES

Table 3 contains detailed data concerning proposed rate increases by neighboring utilities during fiscal year 1970. The last line indicates comparable data for TVA.

TABLE 1.—COMPARISON OF RESIDENTIAL POWER COSTS—TVA AND NEIGHBORING UTILITIES—BASED ON RATES PUBLISHED IN FPC NATIONAL ELECTRIC RATE BOOK OR LATER RATES OBTAINED FROM STATE UTILITY COMMISSIONS

Use kilowatt-hour	Tennessee Valley Authority		Alabama Power Co.	Appalachian Power Co.	Carolina Power & Light Co.	Georgia Power Co.	Kentucky Utilities Co.	Mississippi Power Co.	Mississipp Power & Light Co.
Designated rate schedule	R–4		FD	R.S.[1]	R–4B [1]	A–12 [1]	RS–1	R–2	RS–18C [1]
Effective date of schedule	Feb. 1969	Sept. 1970 [2]	Sept. 1968	Nov. 1966	Dec. 1965	Dec. 1968	July 1967	Jan. 1970	Feb. 1970
A. Monthly bills:									
50	$1.38	$1.65	$2.15	$2.31	$1.95	$2.03	$2.70	$2.45	$2.44
100	2.56	3.04	3.25	3.84	3.40	3.58	4.20	4.17	4.24
250	5.18	6.16	6.25	7.01	6.50	6.16	7.40	7.66	6.97
500	7.71	9.21	9.65	10.80	9.00	8.76	11.90	10.69	9.50
750	9.60	11.46	12.65	12.79	12.00	11.37	15.65	13.50	12.05
1,000	11.48	13.71	15.65	16.08	15.38	14.48	19.40	16.28	14.58
1,500	15.25	18.21	21.65	22.16	22.13	21.74	26.90	21.89	19.66
2,000	19.02	22.71	27.65	28.04	28.88	28.48	34.40	27.48	24.74
3,000	26.56	31.71	39.65	38.19	42.38	41.96	49.40	38.67	34.89
4,000	34.10	40.71	51.65	48.35	55.88	55.44	64.40	49.87	45.04
Designated rate schedule	R–4		FDE	R.S.[1]	R–2E	TE–2	FERS–1	RA–2	RS–17E
Effective Date of schedule	February 1969	September 1970	June 1969	November 1966	December 1965	December 1968	July 1967	January 1970	February 1970
B. Annual bills (All-electric home): 24,000	$228.21	[2] $272.52	$329	$328.21	$304.30	$326.75	$376.80	$298.72	$269.02
Fuel and money cost adjustments used:									
Cents per Kilowatt-hour	0.074	----------	----------	0.01575	----------	0.02	----------	0.0664	0.00625
Date of adjustment	[3]	----------	----------	[4]	----------	[5]	----------	[6]	[7]
Other adjustments used									

[1] Includes water heater and/or high use discounts.
[2] Modified rates effective Oct. 2, 1970.
[3] August 1970.
[4] December 1969.
[5] April 1970; rate 2.172 percent (Dec. 18).
[6] August 1970; tax 0.262 percent (August 1970).
[7] August 1970; tax 0.9 percent (August 1970).

TABLE 2.—COMPARISON OF INDUSTRIAL POWER COSTS—TVA AND NEIGHBORING UTILITIES, BASED ON RATES PUBLISHED IN FPC NATIONAL ELECTRIC RATE BOOK OR LATER RATES OBTAINED FROM STATE UTILITY COMMISSIONS [1]

[In mills per kilowatt-hour]

		Tennessee Valley Authority		Alabama Power Co.	Appalachian Power Co.	Carolina Power & Light Co.	Georgia Power Co.	Kentucky Utilities Co.	Mississippi Power Co.	Mississippi Power & Light Co.
PEAK DEMAND 1,000 KILOWATTS AND 1,176 KILOVOLT-AMPERES										
Designated rate schedule		C-2	C-2	LPL	LCP	G-2D	C-9	HLF	LP-2	C-11i
Effective date of schedule		February 1969.	September 1970.	Sept. 1, 1968.	Nov. 1, 1966.	Feb. 4, 1965.	Dec. 16, 1968.	Jan. 1, 1967.	Jan. 20, 1970.	Feb. 1, 1970.
Percent load factor	100	5.62	6.78	7.19	7.86	7.60	8.47	7.91	9.72	8.15.
Do	90	5.87	7.12	7.52	8.20	7.89	8.73	8.37	10.02	8.52.
Do	80	6.18	7.54	7.93	8.61	8.25	9.04	8.92	10.40	8.98.
Do	70	6.58	8.07	8.46	9.15	8.72	9.45	9.58	10.89	9.58.
Do	60	7.09	8.75	9.16	9.86	9.31	9.99	10.46	11.54	10.40.
Do	50	7.79	9.07	10.15	10.85	9.97	10.75	11.65	12 46	11.08.
Do	40	8.84	11.13	11.63	12.68	10.97	11.88	13.36	13.80	12.12.
Fuel cost adjustment used		0.29		0.02	0.21		0.27	0.30	0.664	0.0625.
Money cost adjustment used		[2] $0.15								
Effective date of adjustments		August 1970		April 1970	December 1969.	July 1969	April 1970	April 1970	August 1970	August 1970.
PEAK DEMAND 5,000 KILOWATT AND 5,790 KILOVOLT-AMPERES										
Designated rate schedule		C-2	C-2	LPL	LCP	HLF-1D	C-10	HLF	LP-2	C-11
Effective date of schedule		February 1969	September 1970	Sept. 1, 1966.	Nov. 1, 1966.	Feb. 4, 1965.	Dec. 16, 1968.	Jan. 1, 1967.	Jan. 20, 1970.	Feb. 1, 1970.
Percent load factor	100	5.26	6.42	6.40	7.18	6.81	7.13	7.66	8.91	7.13.
Do	90	5.47	6.71	6.65	7.44	7.12	7.40	8.09	9.13	7.53.
Do	80	5.73	7.08	6.95	7.76	7.51	7.74	8.62	9.40	8.02.
Do	70	6.06	7.55	7.34	8.17	8.01	8.18	9.23	9.74	8.65.
Do	60	6.51	8.18	7.86	8.72	8.68	8.76	10.05	10.20	9.40.
Do	50	7.13	9.05	8.58	8.50	9.62	9.44	11.16	10.84	10.23.
Do	40	8.07	10.36	9.68	10.98	11.02	10.24	12.75	11.81	11.33.
Fuel cost adjustment used		0.29		0.02	0.21		0.27	0.30	0.664	0.0625.
Money cost adjustment used		[2] $0.15								
Effective date of adjustments		August 1970		April 1970	December 1969	July 1969	April 1970	April 1970	August 1970	August 1970.

PEAK DEMAND 20,000 KILOWATTS AND 21,579 KILOVOLT-AMPERES

Designated rate schedule		C–2	C–2	LPL	LCP	HLF–ID	C–10	HLF	LP–2	C–11.
Effective date of schedule		February 1969.	September 1970.	Sept. 1, 1968	Nov. 1, 1966	Feb. 4, 1965	Dec. 16, 1968	Jan. 1, 1967	Jan. 20, 1970	Feb. 1, 1970.
Percent load factor	100	4.92	6.08	6.22	6.66	6.71	6.63	7.23	8.75	6.95.
Do	90	5.12	6.37	6.45	6.86	7.01	6.85	7.61	8.95	7.24.
Do	80	5.37	6.72	6.73	7.11	7.38	7.13	8.08	9.19	7.78.
Do	70	6.68	7.17	7.08	7.43	7.86	7.48	8.62	9.51	8.38.
Do	60	6.11	7.77	7.56	7.86	8.51	7.94	9.33	9.93	9.24.
Do	50	6.70	8.62	8.23	8.46	9.41	8.60	10.29	10.52	10.03.
Do	40	7.59	9.87	9.23	9.67	10.76	9.58	11.67	11.40	11.65.
Fuel cost adjustment used		0.29		0.02	0.21		0.27	0.30	0.664	0.0625.
Money cost adjustment used		[2] $0.15								
Effective date of adjustments		August 1970		April 1970	December 1969.	July 1969	April 1970	April 1970	August 1970	August 1970.

[1] The above rates were computed on the basis of a 730-hour month, and minimum power factors permitted under TVA's C–2 rate without penalty so as to be more comparable to TVA's rate. The lowest rate was used for comparison in cases where 2 or more rates might apply to industries of the same size load.

[2] Kilowatts.

TABLE 3.—RATE INCREASES PROPOSED BY NEIGHBORING UTILITIES DURING FISCAL YEAR 1970

Utility	Date announced	Reported amounts (millions)	Percent increase	Installed capacity (megawatts)	Sales billions (kilowatt-hours)	Customers (thousands)	Increase mills/kilowatt-hours (sales)
Mississippi Power Co	Jan. 19, 1970	1.9	3.70	887	3.0	132	0.6
Duke Power Co	May 26, 1970	55.64	18.00	5,053	24.6	1,005	2.3
Georgia Power [1]	June 4, 1970	12.2	34.00	3,510	4.8		2.5
Carolina Power & Light	June 4, 1970	23.5	14.00	2,671	11.3	525	2.1
Virginia Electric & Power	June 11, 1970	22.4	9.00	4,039	17.0	946	1.3
Cincinnati Gas & Electric	June 5, 1970	6.7	14.00	1,560	7.2	398	.9
Missouri Public Service Co	July 28, 1969	5.3	20.00	177	1.1	92	4.8
Kansas City Power & Light	Aug. 4, 1969	7.3	7.20	1,108	3.2	207	2.3
Union Electric	Nov. 10, 1969	10.2	4.90	2,986	13.2	682	.8
Tennessee Valley Authority	July 17, 1970	[2] 99.4	24.3	19,395	98.0	2,100	1.3

[1] Applicable to wholesale customers only.
[2] Increase effective October 1970—reported amount is for 9 months ending June 1971.

Sources: Electrical World, FPC News Digest, Wall Street Journal, Congressional Record, Utility Reports, other trade and news publications. Statistics from FPC reports and McGraw-Hill Directory of Electric Utilities.

Senator COOPER. I understand that the TVA Act itself requires that your rates shall be sufficient to cover operations and maintenance, payments in lieu of taxes, debt service, payments to U.S. Treasury, and a certain margin. Was this rate required to meet the provisions of section 15d(f)?

Mr. WAGNER. Yes, sir; this rate increase is precisely required to meet that requirement of the TVA Act.

Senator COOPER. The second requirement of section 15d(f) provides that a 5-year aggregate net power income at least equal the total of your Treasury dividend payments during the same 5 years.

Mr. WAGNER. If this rate increase is granted, we will be able to meet both requirements.

Senator COOPER. While not a part of the law, I understand that you have a covenant in the bonds themselves which requires before you can issue additional bonds that your net power income over the preceding 5 years must at least equal $200 million, plus $15 million for each one-quarter percent that the U.S. Treasury interest costs averages in excess of 3¼ percent?

Mr. WAGNER. That is correct.

Senator COOPER. Now will you be able to meet this requirement?

Mr. WAGNER. Senator Cooper, preliminary figures that we have for 1970, the year just back of us, indicate that we apparently failed to meet that test by a very narrow margin.

Senator COOPER. Having failed you would not be able to sell bonds in fiscal 1971?

Mr. WAGNER. Yes, sir. But if the final audited figures confirm that, they will indicate that we did fail on that test, in the past year. And this again is one of the matters that concerns us very greatly.

Senator COOPER. I will ask that you submit for the record the past results and your estimates concerning these three tests or requirements together with the applicable provision of the statute or bond covenant.

Mr. WAGNER. Yes, sir; we will be glad to do that.

(The information requested follows:)

Rate Test (Section 15d(f) TVA Act and Section 3.2 of Bond Resolution)

The Corporation shall charge rates for power which will produce gross revenues sufficient to provide funds for operation, maintenance, and administration of its power system; payments to States and counties in lieu of taxes; debt service on outstanding bonds, including provision and maintenance of reserve funds and other funds established in connection therewith; payments to the Treasury as a return on the appropriation investment pursuant to subsection (e) hereof; payment to the Treasury of the repayment sums specified in subsection (e) hereof; and such additional margin as the Board may consider desirable for investment in power system assets, retirement of outstanding bonds in advance of maturity, additional reduction of appropriation investment, and other purposes connected with the Corporation's power business, having due regard for the primary objectives of the Act, including the objective that power shall be sold at rates as low as are feasible. (16 U.S.C. sec. 831n–4.)

	1965	1966	1967	1968	1969	1970	[1]1971
Revenues	$296.0	$326.8	$351.1	$383.7	$403.4	$479.6	$523.5
Less:							
Operation and maintenance excluding depreciation	165.7	197.2	216.8	222.5	243.7	282.7	352.2
Payments in lieu of taxes	9.1	10.4	11.9	13.1	14.5	16.1	20.0
Debt service	14.6	17.8	23.5	30.2	41.2	60.7	118.4
Treasury payments:							
Dividend	42.6	43.9	47.1	46.8	53.1	57.7	66.1
Repayment	10.0	15.0	15.0	15.0	15.0	15.0	20.0
Margin	54.1	42.5	36.8	56.1	35.9	47.4	(53.2)

[1] 1971 estimates are without rate increase scheduled for Oct. 1, 1970.

Protection of Bondholder Investment Test (Section 15d(f) TVA Act and Section 3.3 of Bond Resolution)

In order to protect the investment of holders of the Corporation's securities and the appropriation investment as defined in subsection (e) hereof, the Corporation, during each successive five-year period beginning with the five-year period which commences on July 1 of the first full fiscal year after the effective date of this section, shall apply net power proceeds either in reduction (directly or through payments into reserve or sinking funds) of its capital obligations, including bonds and the appropriation investment, or to reinvestment in power assets, at least to the extent of the combined amount of the aggregate of the depreciation accruals and other charges representing the amortization of capital expenditures applicable to its power properties plus the net proceeds realized from any disposition of power facilities in said period. (16 U.S.C. sec. 831n–4.)

In effect this requires that successive (beginning with FY 1961) five-year aggregate of net power income be at least equal to the total of Treasury dividend payments during the same five-year period.

1. This test applies in successive five-year periods. Following is a table showing the results of the five-year block ending in 1970. The next time this test will be controlling will be in 1975.

[In millions of dollars]

Fiscal year	Return on appropriation investment	Net power income
1966	$43.9	$47.9
1967	47.1	40.7
1968	46.9	59.1
1969	53.1	50.7
1970	57.6	74.6
Total	248.6	273.0

In the five-year period ending in 1970 the margin under this test was $24.4 million.

2. Although the test will not be applied until 1975, following is the estimated result of the first year (Fiscal 1971) of that five-year block. The estimate does not include income from the rate increase proposed for October 1, 1970.

	Millions
Net power income	$16.3
Less return on appropriation investment	−66.1
Margin	−49.8

Thus without the rate increase TVA would start the next five-year period under this test with a minus balance.

Limitation on Issuance of Additional Bonds

(Section 3.4 of Bond Resolution)

"The amount of Bonds outstanding may not be increased at any time unless, as evidenced by a certificate of the Comptroller of the Corporation filed with the Trustee, net power income (after interest expense and depreciation charges but before payments as a return on or in reduction of the Appropriation Investment) for the latest five fiscal years has aggregated at least $200,000,000, plus $15,000,000 for each ¼ percent or major fraction thereof by which the average for those five years of the computed average interest rate payable by the United States Treasury upon it total marketable public obligations as of the beginning of each of such years has exceeded 3¼ percent." ("Bonds" as used in this test means bonds of equal rank to those issued under authority of this resolution.)

I. Application: FY 1969 (governs ability to sell bonds in FY 1970):

1. 5-year average U.S. interest:

	Percent
Cost	4.103
Less	3.250
Excess of average interest cost over 3¼ percent	.853

0.853÷¼ percent=3.4; 3 increments.
$200 million+3×15=$245 million net power income required.

2. 5-year net income (millions of dollars):

Fiscal year:	*Net power income*
1965	55.0
1966	47.9
1967	40.7
1968	[1] 59.1
1969	50.7
Total	253.4

[1] Adjusted to exclude Hales Bar Writeoff.

3. Margin: $253.4 million−$245 million=*$8.4 million.*

II. Application: FY 1970 (governs ability to sell bonds in FY 1971):

1. 5-year average U.S. interest:

	Percent
Cost	4.418
Less	3.250
Excess of average interest cost over 3¼ percent	1.168

1.168÷¼ percent=4.67+; 5 increments.
$200 million+5×$15 million=$275 million net power income required.

2. 5-year net income (millions of dollars):

Fiscal year:	*Net power income*
1966	47.9
1967	40.7
1968	[1] 59.1
1969	50.7
1970	74.6
Total	273.0

[1] Adjusted to exclude Hales Bar Writeoff.

3. Margin: $273.0 million—$275 million=*$(2.0) million.*

III. Application: FY 1971 (governs ability to sell bonds in FY 1972):

1. 5-year average U.S. interest:

	Percent
Cost	4. 855
Less	3. 250
Excess of average interest cost over 3¼ percent	1. 605

1.605 percent÷¼ percent=6.42; 6 increments.
$200 million+6×$15 million=$290 million net power income required.

2. 5-year net income (millions of dollars):

Fiscal year:	*Net power income*
1967	40. 7
1968	[1] 59. 1
1969	50. 7
1970	74. 6
1971	[2] 16. 3
Total	241. 4

[1] Adjusted to exclude Hales Bar Writeoff.
[2] Estimated (without rate increase scheduled for Oct. 1, 1970).

3. Margin: $241.4 million—$290.0 million=*$(48.6) million.*

Senator COOPER. Mr. Chairman, I have taken a long time, and I certainly thank you for your indulgence.

Senator YOUNG. Senator Jordan? Do you have some questions?

Senator JORDAN. Just two or three, Mr. Chairman.

Senator YOUNG. Take your time.

Senator JORDAN. Who determines the rate that you do charge? You put this increase in, and I am certain it is justified. Let me go back. North Carolina has a utilities commission, and the power people recently applied for a rate increase under the coal clause, and I believe the utilities commission turned it down. Now who sets yours?

Mr. WAGNER. Well, under the provisions of the TVA Act, the rates are set by the TVA Board. This is done after extensive consultations with our distributors, and of course, the advice and calculation by our distributors, and of course, the advice and calculation by our own power people. We operate essentially on a non-profit basis. The requirements of the law, as Senator Cooper has cited, say that we must meet certain costs, and in order to meet those costs, we know where the rate level has to be set, and the TVA Board has under the law final responsibility for setting those rates.

Now this has occasioned some comment, I might say. It seems to us that the final test of the effectiveness of any rate-setting device or rate regulation is the cost to the consumer, since the purpose of regulating rates is to protect the consumer interest. It seems to me that the fact that rates are still about half the national average in the Tennessee Valley would indicate that the control device is working.

Senator JORDAN. Well, there is no question about the rates being way lower in Tennessee than they are in North Carolina. No argument about that, I know that.

Mr. WAGNER. I should add, Senator Jordan, that the TVA Act says that we shall set these rates, with due regard for the primary objectives of the act including the objective that power shall be sold at rates as low as are feasible, so that we have a legal compulsion to sell power at the lowest feasible rates.

Senator JORDAN. But you are supposed to break even on your power.

Mr. WAGNER. We have to.

Senator JORDAN. Yes. When you sell these bonds, do you have to compete with the private power companies in the interest rate that these bonds bring?

Mr. WAGNER. We sell them in the same market that they do, and generally, our interest rates will be just a shade below what they pay.

How much below, Mr. Watson?

Mr. WATSON. Well, the last $50 million issue of 25-year bonds, we sold at a cost to us of about 9.3, and on the same day, the New Jersey Bell Telephone Company sold one at 9.35, so they are very comparable.

Senator JORDAN. You are comparable.

Mr. WAGNER. Yes.

Senator JORDAN. You sell them to the same people?

Mr. WAGNER. That is correct.

Senator JORDAN. Well, I presume your increase in rates which you are now putting in or proposing to put in is due largely to your coal cost?

Mr. WAGNER. It is due largely to our coal cost. About 60 percent of it is coal cost. About 18 percent of it is interest costs, money costs, our payments to Treasury, and our interest on our bonds. Fifteen percent of it is due to delay in getting one of our large nuclear plants into operation. We had trouble with deliveries of equipment there, and so we have to buy more power to replace what that plant would have produced. And about 9 or 10 percent of it is general cost increases in equipment and materials and labor, and so forth.

Senator JORDAN. The Federal Power Commission sets the price at which the oil companies can sell or the gas people can charge for their gas. Is that correct?

Mr. WAGNER. Wholesale prices.

Senator JORDAN. I am talking about wholesale prices, at the wells.

Mr. WAGNER. That is correct.

Senator JORDAN. If I am not mistaken, the Utilities Commission of North Carolina—I know they were up here, because they met with me and some others—is trying to get more gas. There is a shortage of gas in North Carolina as well as in some other places, too, and the reason that the oil companies or the gas companies say they can't supply more or won't supply more is that the Federal Power Commission won't grant an increase in rate to them. They are just not going to produce gas just for the fun of producing it, and I can understand that thoroughly. I am just wondering if the Federal Government is getting in the way of the consumer that they are claiming to protect.

Mr. WAGNER. I don't know whether I am qualified to give you a comment on that, Senator. I know that there are pressures to increase the price of gas. I have read just recently a statement, I believe it was in the August 1 issue of Business Week, that the people in the gas business were saying that they were not willing to sell gas unless they could get the prices up to where their profit margin was comparable with what they were making on other commodities. I don't really have the facts to know where truth and justice lie in this instance, but from our standpoint, we regret any increase in the cost of raw energy sources of any kind used in the production of electric power, which is essential to the growing economy and the security of this country.

Senator JORDAN. Well, I think there is no question about that. As long as wages are increasing and costs are rising for everything you buy, the consumer is going to have to pay for it or else Uncle Sam is going to have to dig it up out of his taxes. because you can't do that under your contract.

Now you spoke about some of these oil companies buying big coal mines. I am certain they are just like any other individual that has got a business; they are not going to mine coal and sell it at a loss, or not make any money. They would be plain foolish and stupid to do that.

Mr. WAGNER. I am sure that is right.

Senator JORDAN. So I think some effort has got to be made to see that they are not tied down to the extent that they don't make any profit. The same thing with gas. I am sure they would produce all the gas everybody wanted it they could sell it at a profit. It is a natural, ordinary way to run a business.

That is all I have, Mr. Chairman.

Senator YOUNG. Senator Baker, do you have any further questions?

Senator BAKER. Mr. Chairman, thank you very much. Senator Cooper very kindly let me put my questions before he proceeded with his very excellent line of questions, and I have no further questions, except to say that I am impressed with the thoroughness with which Senator Cooper explored the reasons for the increase of coal costs, and the understanding of the general situation that the distinguished Chairman of TVA has shown in his testimony.

I would make this final observation, apropos the remarks by Senator Jordan. Frequently there are unintended results of Federal legislation, and as Senator Cooper pointed out in his questioning a moment ago, there are only a few of us on the floor of the Senate who warned of adverse consequences of some of the provisions of the Mine Safety Act. Everybody is for mine safety, but some of the provisions of the Mine Safety Act are so uncertain, so vague, and, in some cases, so impossible of performance, that many, many coal operators, to my own certain personal knowledge, have simply gone out of the coal business, rather than try to comply with the impossible or uncertain situation.

I put this last question. Would it be fair to say, Mr. Chairman, that the increases in the costs of coal are attributable in whole or in part to these factors? No. 1, as Senator Cooper said, a shortage of mine cars; No. 2, the dedication of some coal reserves, and the export of coal, to foreign markets; No. 3, the Coal Mine Health and Safety Act, with its uncertainty and rigid requirements; No. 4, the requirements for restoration of strip coal production; No. 5, general inflation; No. 6, the failure of delivery of nuclear capacity on schedule. Would those generally encompass the factors that contribute to the increase in coal prices?

Mr. WAGNER. That, as well as concentration of coal ownership, certainly gets the major ones.

Senator BAKER. Is the uncertainty or the difficulty of performance of provisions of the Mine Safety Act a significant factor in the increases of the costs of coal and the shortage of coal?

Mr. WAGNER. The Mine Safety Act?

Senator BAKER. Yes, sir.

Mr. WAGNER. It is a significant factor; yes, sir. Certainly it is a significant factor in the availability of coal. We don't yet know precisely what it will add to costs, but as I indicated earlier, the requests that we have before us run from 50 cents to $1.40 a ton, something like that.

Senator BAKER. Thank you, Mr. Chairman.

Senator JORDAN. Mr. Chairman, may I ask one more question?

Senator YOUNG. Yes.

Senator JORDAN. For my own information—and I think the Congress in general would like to know—is it your opinion that Congress should take some action to restrict the amount of coal that can be exported? To anybody. I know what has happened to the large tonnage of coal just leaving. I know that, because you are not the only people that are in trouble because of the shortage. I am seriously concerned about what is happening to the coal that is being exported while our own people are doing without power.

Mr. WAGNER. Well, Mr. Chairman, I wouldn't be so presumptuous as to try to advise the Congress, and my knowledge of all the problems related to coal and export market is limited, of course. I can say that from the standpoint of producing the electric power requirements of this country, the coal that is being exported is limiting the ability of TVA and other utilities to meet those demands, and if the coal going into export was available here for use in this country, we would have less of a problem with fuel supply than we have.

Now as I say, whether you limit exports or not, I am sure, depends on factors that I am not familiar with, and with which you are familiar, so I could only advise you from our standpoint.

Senator JORDAN. Well, this is no factor that is entirely your problem. It is a problem to all the people who are producing power by steam. Is that correct?

Mr. WAGNER. Yes, sir.

Senator JORDAN. All of them?

Mr. WAGNER. Yes, sir; that is correct, and I think to many of them it is a greater problem than it is to us.

Senator JORDAN. I am sure of that, because I have been into that situation with the people who are consumers of coal in the vast quantities which you are familiar with, and it is a very serious situation. I don't think that we ought to shut off air conditioning units in this country and cut out lights to light something up in Japan. I am just not sold on that, up to this point. I think we ought to look after ourselves first, and then if we have got some to spare, let them have it.

Senator BAKER. Mr. Chairman, may I make a remark in that respect? It is really not a question to the Chairman of TVA, because I am sure he doesn't want to get embroiled in this, but I point out that Senator Jordan and I have had similar and mutually supporting words about the restraint of imports into the United States, expecially of textiles, but now exports are a little different horse, and what we have here is a reflection of the nationwide hunger for fuel and energy, and the fact that somebody abroad will buy our coal, at a high price, or that they will loan money, interest-free as the Japanese Government is doing, in order to get coal from the United States, really reflects the fact that the law of supply and demand is making the cost of energy go up and up. The answer to it, it seems to me, is not neces-

sarily to restrict output, or export, but rather to get the volume of energy up, by increasing capacity, so that we won't have that choice.

Senator JORDAN. Well, of course, I am just as interested in our exports, because that is where we get dollars.

Senator BAKER. We are both fond of them.

Senator JORDAN. That is right. But I can't believe that we should export anything that we have to the extent we are seriously hurting the economy of this country or the people of this country. The same thing goes for the imports.

Senator YOUNG. Chairman Wagner, Senator Thomas Eagleton of Missouri, a member of the Public Works Committee, will address a number of questions in writing to the TVA and as soon as you receive those questions, the Chair expresses the hope that you and your associates will answer them as promptly as possible, so that we may complete this record.

Mr. WAGNER. I can assure you we will be prompt, Mr. Chairman, because this legislation is of urgent importance to us.

Senator YOUNG. And then at that time, should there be anything further you wish to add to the testimony given today, you may just include that in that communication.

Mr. WAGNER. Thank you very much.

(Subsequent to the hearing the following exchange of correspondence occurred:)

U.S. SENATE,
COMMITTEE ON LABOR AND PUBLIC WELFARE,
Washington, D.C., August 19, 1970.

Hon. AUBREY J. WAGNER,
Chairman, Tennessee Valley Authority,
Washington, D.C.
(Attention: Mr. Jacob Vreeland).

DEAR MR. CHAIRMAN: I regret that previous commitments made it impossible for me to clarify the matters raised in this letter with representatives of TVA at the hearing before the Subcommittee on Flood Control and Rivers and Harbors of the Public Works Committee on the proposed amendments to Section 15(d) of the Tennessee Valley Authority Act.

The matters which I would appreciate your clarifying for me relate to the recent transfers of TVA electric power to the Consolidated Edison Company of New York City and the Commonwealth Edison Company of Chicago, and reported transfers to other privately-owned utility companies. However, they may take on a broader significance in terms of the allocation and distribution of benefits from publicly-owned facilities, if the low reserve situation which reportedly exists in those and other privately-owned power systems persists or worsens, and requests are made of TVA for power to serve the customers of privately-owned systems in the future.

Under Section 12 of the TVA Act, surplus TVA power which is not sold to preference customers defined in section 10 of the Act may be sold to persons or corporations engaged in the distribution and resale of electricity for profit. Section 12 provides, however, that any such sales shall be on condition that any resale of such electric power by such persons or corporations shall be made to the ultimate consumer of such power at prices that do not exceed a schedule fixed by the Board of Directors of the Tennessee Valley Authority as just, reasonable, and fair. Contracts between the Board and the distributor of such electricity are made voidable at the election of the Board if a person or corporation charges the ultimate consumer of TVA power rates in excess of those fixed by the Board.

The final proviso to section 12 also authorized the Board to contract with other power systems for the mutual exchange of unused excess power, upon suitable terms, for the conservation of stored water, and as an emergency or breakdown relief.

Taking the transfer of power to Consolidated Edison as an example, I understand that there was no contract between Consolidated Edison and TVA for the power made available to that company, but that the power was transmitted

through the Appalachian Power Company and Allegheny Power Company systems and the Pennsylvania-New Jersey Power Pool to Consolidated Edison Company pursuant to the existing interconnnection agreement between Appalachian Power Company and the Tennessee Valley Authority.

The agreement between Appalachian Power and TVA defines the types of emergency situations with which it deals as "any temporary conditions on the system of the party affected arising from causes beyond its control which interfere with or jeopardize its ability to meet adequately the requirements of *its system.*" (Emphasis supplied.) In your view, then, was the transfer of power to Appalachian Power for the ultimate benefit of Consolidated Edison the kind of "emergency" situation contemplated by the agreement between Appalachian Power and TVA?

Remarks attributed to Mr. Donald C. Cook, President of the American Electric Power Company (which is the parent company of the Appalachian Power Company), suggest that there was no power shortage situation in his companies' systems at the time of the transfer of TVA power to Consolidated Edison Company Moreover, he is reported to have said that there was at that time sufficient reserve capacity existing in the privately-owned power pools from which Consolidated Edison can draw power to serve Consolidated Edison's power needs with an acceptable safety reserve.

In view of the foregoing, I would appreciate your views as to whether the tsansfer of power to Consolidated Edison should have been conditioned upon its sale to the ultimate consumer at rates no higher than those approved by the Board of Directors of TVA. If it is your conclusion that the transfer was an emergency transfer of power within the meaning of secton 12 of the TVA Act and the agreement between TVA and the Appalachian Power Company or that the transaction otherwise was exempt from the requirements of the third proviso of section 12 of the TVA Act, I would appreciate your describing the basis for that conclusion.

I would also appreciate your views as to whether the provision of service to Consolidated Edision Company indirectly through Appalachian Power Company and intervening systems is fully consistent with the letter and spirit of both the restrictions on sales and delivery and on exchanges of power contained in section 15(d) of the TVA Act, as amended.

Press accounts of the transfer of TVA power to Consolidated Edision indicate that some or all of the power furnised to Consolidated Edison was diverted from Atomic Energy Commission facilities. I understand that the reduction in power to the AEC facilities may have resulted in some decrease in the operating efficiency of those facilities and that AEC may seek recourse against TVA for resulting losses which may have been incurred by AEC or its contractors. If the AEC or its contractors should bill or otherwise seek recourse against TVA for any losses incurred as the result of reductions in power available to the AEC facilities, I would appreciate your identifying the source against which any such bill or charge would be satisfied. Would the charge be passed on to Consolidated Edison under the interchange agreement with Appalachian Power, or would it be charged against TVA's operating revenues, or would it be satisfied in some other way?

In view of recent reports that the Bureau of Reclamation may have reduced the amounts of electricity available to its preference customers in order to assist a power-short private power company in the midwest, I would appreciate your advice whether any of TVA's preference customers sustained power reductions at the time power was being transferred to Appalachian Power Company for the ultimate benefit of Consolidated Edison Company.

Additionally, I would appreciate your identifying the specific authority under the applicable portions of section 12 or any other pertinent sections of the TVA Act under which the classes of power to be furnished by TVA pursuant to the Service Schedules attached to the TVA-Appalachian Power Company Agreement will be made available to Appalachian Power.

The authority for Service Schedule A seems clear, but I am unclear about the authority for transfers under Service Schedule B (which deals with "Economy Interchange" and "Non-replacement energy"), Service Schedule C (which deals with "short-term power"), and Service Schedule D (which deals with "Diversity Capacity power"). I am particularly interested in the authority for Service Schedule D in view of its section 3.7 which indicates that each party's (including TVA's) obligation to make diversity capacity and energy associated with it available under the Schedule is deemed to be equivalent to such party's obligation to supply power and energy to its firm power consumers.

Finally, I have been unable to find in the TVA-Applachian Power Company contract any reference to the condition concerning rates to ultimate consumers of surplus TVA power made available to persons and corporations engaged in the

distribution and resale of electricity for profit which is contained in the third proviso to section 12 of the TVA Act. Is there no "surplus power" being sold by TVA to Appalachian Power?

I realize that power interchanges are complex transactions, and I greatly appreciate your assistance in clarifying these matters for me.

Sincerely,

THOMAS F. EAGLETON, *U.S. Senator.*

(Mr. Wagner's response follows:)

TENNESSEE VALLEY AUTHORITY,
OFFICE OF THE BOARD OF DIRECTORS,
Knoxville, Tenn., August 25, 1970.

Hon. THOMAS F. EAGLETON,
U.S. Senate,
Washington, D.C.

DEAR SENATOR EAGLETON: This is in response to your letter of August 19, 1970, requesting clarification of TVA's power exchange arrangements with privately owned utility companies, particularly from the standpoint of the use of such arrangements to meet recent emergency power needs of Consolidated Edison Company of New York City and power needs of Commonwealth Edison Company of Chicago. We are pleased to have this opportunity to furnish you information about our power exchange arrangements and the legal basis for such arrangements. We believe that some discussion of the pertinent provisions of the TVA Act to which you referred in your letter will be helpful in clarifying the matters which you have discussed.

Section 10 of the TVA Act authorizes TVA to enter into long-term contracts for sales of power to states, counties, municipalities, corporations (which would include utility companies), partnerships, or individuals, but both section 10 and section 12 of the Act place certain restrictions upon such sales contracts with private companies purchasing power for resale. Such contracts must provide for cancellation by the TVA Board upon five years' written notice and must require that the resale of such power to the ultimate consumers be at prices determined by the TVA Board to be reasonable, just, and fair. Following these provisions of sections 10 and 12 of the Act which relate specifically to long-term contracts for sales of power, there is a further specific proviso in section 12 which authorizes TVA to enter into contracts with other power systems for exchanges of unused excess power upon suitable terms, for the conservation of stored water, and as an emergency or breakdown relief. This authorization for exchange power arrangements is separate from that for power sales contracts and there is no requirement that an exchange power arrangement include the resale provisions referred to above. In fact, the inclusion of such provisions would not be practicable. A privately owned company could hardly be expected to bind itself to maintain specific rates in exchange for those benefits which it might derive from an exchange arrangement with TVA.

Section 15d of the TVA Act (16 U.S.C. Sec. 831n–4), which was added to the Act in 1959, recognized and reaffirmed this distinction between power sales contracts and exchange arrangements, while at the same time placing limitations on TVA's entering into such contracts and arrangements. This section provides in part:

"Unless otherwise specifically authorized by Act of Congress the Corporation shall make no contracts for the sale or delivery of power which would have the effect of making the Corporation or its distributors, directly or indirectly, a source of power supply outside the area for which the Corporation or its distributors were the primary source of power supply on July 1, 1957 * * *.

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"Nothing in this subsection shall prevent the Corporation, when economically feasible, from making exchange power arrangements with other power-generating organizations with which the Corporation had such arrangements on July 1, 1957 * * *.

We think it is clear from the above-quoted provisions that Congress recognized that TVA's participation in exchange power arrangements and the use by privately owned companies of the power received from TVA under such arrangements do not have the effect of making TVA "directly or indirectly" a source of power supply outside the area to which TVA service is limited by section 15d.

TVA's power exchange arrangements with neighboring utility companies have effected savings of millions of dollars to the parties, and to their ultimate con-

sumers, by enabling TVA and the companies to avoid construction of additional generating capacity to meet summer or winter peak loads on their systems. In addition, mutual savings have also resulted from interchanging power produced by the most economical generating units on the interconnected systems and from assistance to each other during emergencies so that each will need less reserve capacity for that purpose.

When the loss by Consolidated Edison of its 275-mw Indian Point unit and its 1,000-mw Ravenwood unit caused a projected shortage of power in Consolidated Edison's area, the Atomic Energy Commission received a request from the Office of the President of the United States that it reduce its loads at Oak Ridge, Paducah, and Portsmouth to release power for transfer to the New York area In response to this request, AEC and TVA arranged for a reduction in the AEC loads served by TVA and for the delivery of equivalent amounts of power to the Appalachian Power Company to facilitate the transfer of power by Appalachian Power Company to other companies with which it is interconnected. Thus, TVA's exchange of power is with Appalachian Power Company, not Consolidated Edison. This arrangement is implemented by the delivery of TVA power to Appalachian Power Company as nonreplacement energy under Article IV of Service Schedule B of the interchange agreement between TVA and Appalachian Power Company. Under the circumstances, we believe that it is appropriate to deliver such power to Appalachian Power Company under this service schedule and that such deliveries are fully consistent with the letter and spirit of the pertinent provisions of the TVA Act. Such deliveries certainly do not constitute the kind of long-term sales of power which are subject to the restrictions on term and resale rates discussed above.

We are unfamiliar with the factual situation relating to Mr. Cook's statements about the availability of sufficient reserve capacity in privately owned pools to relieve the capacity shortage of Consolidated Edison. We can only assume that if the private companies had so informed Consolidated Edison or the Office of the President, that the request for AEC load reductions would not have been made.

We understand, as your letter suggests, that the reduction in AEC's load has resulted in a decrease in the operating efficiency of its facilities, resulting in financial losses to AEC. However, TVA's arrangements with AEC do not in any way obligate TVA to pay for these losses. It was our understanding that the losses would be picked up by Consolidated Edison and TVA's obligation is limited to paying over to AEC any payments received with respect to such losses.

With regard to your further questions about the effects of the transfer of power to Consolidated Edison upon the consumers of TVA power, no customers of TVA with the exception of AEC's reduction, or TVA's municipal or cooperative distributors sustained reductions or curtailments of power supply in any way caused by or related to the delivery of power to Appalachian Power Company in connection with the transfer of power to Consolidated Edison.

The transfers of power to Commonwealth Edison Company referred to in your letter also have been handled by transferring the power from one interconnected system to another. In this case, however, the available blocks of power existed on the system of Public Service Company of Oklahoma instead of the TVA system. TVA's position in connection with this transaction is much the same as Appalachian Power Company's position in the transfer to Consolidated Edison.

Finally, you have requested that we establish the specific authorization for the various service schedules attached to the TVA-Appalachian Power Company exchange agreement. The authorization for the agreement and service schedules is, as indicated above, the last proviso of section 12 of the Act as reaffirmed by section 15d. TVA has always interpreted these provisions of the TVA Act as authorizing participation in all of the types of power exchange arrangements used in the utility industry generally. We believe the legislative history of these provisions establishes that Congress intended to authorize such exchange arrangements. Without such authorization TVA's ability to contribute to the development of arrangements for the reliability of bulk power supply would be seriously hampered. Moreover, we believe that power exchange arrangements such as TVA now has are appropriate because they result in benefits to the TVA power system and its consumers and enable us to achieve the objectives of providing an abundant and reliable supply of electricity at the lowest possible cost. The purpose of the provision in Schedule D which equates the parties' obligations thereunder to their obligation to supply energy to their firm power consumers is for the specific purpose of indicating the extent to which the parties expect to rely upon one another for exchange of seasonal capacity. This reliance is necessary if the agreement is to

accomplish the desired purpose of avoiding the necessity of construction of additional generation facilities.

We hope that we have answered to your satisfaction the questions which you have raised. We appreciate, as you do, that power exchange arrangements are complex transactions. We will be happy to provide you with further information if you should desire it.

Sincerely yours,

AUBREY J. WAGNER, *Chairman.*

Senator YOUNG. If there is nothing further, this committee will adjourn subject to call.

(Whereupon, at 11:47 a.m., the committee adjourned, subject to the call of the Chair.)

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