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# TVA ACT AMENDMENT—INCREASE BORROWING AUTHORITY

GOVERNMENT

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UNIVERSITY HEARING  
BEFORE THE  
COMMITTEE ON FLOOD CONTROL  
OF THE  
COMMITTEE ON PUBLIC WORKS  
HOUSE OF REPRESENTATIVES

NINETY-FIRST CONGRESS

SECOND SESSION

ON

## H.R. 18104 and H.R. 16061

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

JUNE 18, 1970

Printed for the use of the Committee on Public Works



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# TVA ACT AMENDMENT—INCREASE BORROWING AUTHORITY

THURSDAY, JUNE 18, 1970

HOUSE OF REPRESENTATIVES,  
SUBCOMMITTEE ON FLOOD CONTROL  
OF THE COMMITTEE ON PUBLIC WORKS,  
*Washington, D.C.*

The subcommittee met at 10:01 a.m., in room 2167, Rayburn House Office Building, Hon. Robert E. Jones (subcommittee chairman) presiding.

Mr. JONES. The Subcommittee on Flood Control is meeting today to consider bills to increase the borrowing authority of the Tennessee Valley Authority from \$1.75 billion to \$5 billion.

This legislation has broad support in the TVA area and is urgently required to meet the power needs of the entire area.

It is with particular pleasure that I preside at this hearing today. That pleasure is rooted in the fact that 11 years ago I was one of a group of Congressman who introduced legislation which first gave TVA the right to sell bonds to the general public.

When this committee reported the original self-financing bill out in 1959 we felt that the \$750 million ceiling on TVA bond financing would require a review and increase after a period of from 5 to 7 years. Thus, in 1966, as expected, we considered a request to increase the limit on TVA's authority to sell bonds to \$1.75 billion.

It should be emphasized that when this committee gave favorable consideration to that 1966 request, TVA had not actually sold all of the bonds that the law then permitted it to sell. However, much of the balance of its authority was committed to projects then underway, leaving a relatively small amount available to start the construction of additional projects.

As we consider these bills, we find a similar situation. TVA now has the authority to issue bonds in the amount of \$1,750 million. Counting bonds that were sold this week, TVA has issued a total of \$1,155 million in bonds and short term notes. However, it has under construction several major powerplant projects. Financing of these projects will essentially exhaust the borrowing authority now provided.

Thus, even without this legislation, TVA will be able to sell bonds for several years. However, an increase in its borrowing authority is needed if TVA is to start construction of new generating capacity. Powerplants of the size being built on the TVA system take at least 6 years to build. It can therefore be seen that to meet its responsibility to serve the power needs of its region in the latter part of the 1970's TVA needs the additional authority provided by the proposed legislation.

During today's hearings we shall review the use to which TVA has

put its existing bonding authority, as well as explore its need for additional authority. The 1959 amendment to the TVA Act, however, did not only give TVA the right to sell bonds, it also imposed certain duties on TVA.

When the 1959 legislation was enacted, \$1.2 million in appropriated funds had been invested in the TVA power system. The 1959 amendment to the TVA Act required that the power consumers of the Tennessee Valley region repay \$1 billion of this amount. The schedule established by Congress directed TVA, utilizing proceeds from the sale of power to these consumers, to pay \$10 million a year for the first 5 years, \$15 million a year for the next 5 years, and \$20 million a year thereafter. TVA has met this schedule, and as of the end of this month will have repaid \$125 million.

In addition to repayment of principal, the self-financing amendment required that a return on the appropriations invested in the power system be paid by TVA to the Treasury each year. Under this provision TVA will have paid a total of more than \$448 million by the end of this fiscal year.

Thus, the U.S. Treasury has received more than \$673 million from TVA in the 11 years since the self-financing amendment was passed. In this same period of time TVA has used its bonding authority to increase its generating capacity by almost 9 million kilowatts. The authority Congress gave to TVA in 1959 has been used to assure an ample supply of power to the homes and industries of the TVA region.

The proposed legislation is designed to increase this bonding authority, which was used well by TVA in the decade of the 1960's, in order to assure a continued record of growth and achievement on the decade of the 1970's.

Without objection, I will place in the record at this point copies of the bills H.R. 18104, H.R. 16061, and a report from the Bureau of the Budget on the legislation pending before this subcommittee.

(Bills and report referred to follow:)

91ST CONGRESS  
2D SESSION

# H. R. 18104

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IN THE HOUSE OF REPRESENTATIVES

JUNE 17, 1970

Mr. FALLON introduced the following bill; which was referred to the Committee on Public Works

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## 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.

1       *Be it enacted by the Senate and House of Representa-*  
2       *tives of the United States of America in Congress assembled,*  
3       That the first sentence of subsection (a) of section 15d of  
4       the Tennessee Valley Authority Act of 1933, as amended  
5       (16 U.S.C. 831n-4, Supplement IV), is amended by  
6       striking out "\$1,750,000,000" and inserting in lieu thereof  
7       "\$5,000,000,000".

I

91ST CONGRESS  
2D SESSION

# H. R. 16061

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## IN THE HOUSE OF REPRESENTATIVES

FEBRUARY 19, 1970

MR. ABERNETHY (for himself, Mr. ANDERSON of Tennessee, Mr. BEVILL, Mr. BLANTON, Mr. BROCK, Mr. CARTER, Mr. DAVIS of Georgia, Mr. DUNCAN, Mr. EVINS of Tennessee, Mr. FLOWERS, Mr. FULTON of Tennessee, Mr. JONES of Alabama, Mr. JONES of Tennessee, Mr. KUYKENDALL, Mr. QUILLEN, Mr. STUBBLEFIELD, Mr. WAMPLER, and Mr. WHITTEN) introduced the following bill; which was 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.

- 1        *Be it enacted by the Senate and House of Representa-*  
2        *tives of the United States of America in Congress assembled,*  
3        That the first sentence of subsection (a) of section 15d of  
4        the Tennessee Valley Authority Act of 1933, as amended  
5        (16 U.S.C. 831n-4, Supplement IV), is amended by  
6        striking out "\$1,750,000,000" and inserting in lieu thereof  
7        "\$5,000,000,000".

EXECUTIVE OFFICE OF THE PRESIDENT,  
BUREAU OF THE BUDGET,  
Washington, D.C., June 18, 1970.

HON. ROBERT E. JONES,  
Chairman, Flood Control Subcommittee, Committee on Public Works, House of  
Representatives, Washington, D.C.

DEAR Mr. CHAIRMAN: This is in reply to your request for the views of the Bureau of the Budget on H.R. 16061 which would 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 from \$1.75 billion to \$5 billion.

In 1959, the Bureau of the Budget supported legislation granting borrowing authority to TVA. That legislation was enacted by the Congress and a limit on borrowing authority was set at \$750 million. When that legislation was under consideration, it was recognized that it would be appropriate for a limit to be set so that the Congress and the President would have the opportunity for a periodic review of TVA's power program. Subsequently, in 1966, TVA having utilized most of that initial authority, sought an increase in its limitation. This was granted and the limit was increased to \$1.75 billion, the present level.

The TVA power program has grown since 1959 when its borrowing authority was first enacted. Initially the power needs were met by construction of hydroelectric and fossil fuel plants. In recent years TVA has begun the construction of nuclear power plants for additional generating capacity. TVA informs us now that the plans for future plants are based almost entirely on nuclear power which requires a longer lead time in planning and construction. The Administration recognizes TVA's need to plan for future power needs in its marketing area. However, because of the tenuous nature of projecting the growth of power demand in the Valley coupled with the uncertainty of AEC's future power needs which are serviced by TVA, we believe that an increase as large as \$3.25 billion should not be made at this time.

In recognition of the importance of TVA's power program to the people in the region and the financial flexibility that a corporation must have, we believe that a substantial increase could be utilized now to meet future program commitments. Accordingly, we recommend a doubling of TVA's present borrowing authority to a total \$3.5 billion. This will enable TVA, according to its plans and maximum projections, to initiate construction of plants to meet power demands through fiscal year 1978.

Based upon the above recommendation, a further reevaluation of future power demands and TVA's borrowing authority will probably be required in fiscal year 1973. At that time the Congress and the President will be in a better position to assess the impact of AEC requirements and distributor growth on the Valley's energy requirements. The Bureau of the Budget would have no objection to enactment of this legislation if amended as recommended above.

Sincerely,

JAMES R. SCHLESINGER, *Acting Director.*

Mr. JONES. We will now hear from our distinguished colleague and fellow member of the committee, the Honorable John J. Duncan of Tennessee. Mr. Duncan, you may proceed.

**STATEMENT OF HON. JOHN J. DUNCAN, A REPRESENTATIVE IN  
CONGRESS FROM THE STATE OF TENNESSEE**

Mr. DUNCAN. Mr. Chairman, H.R. 18104 and H.R. 16061 provide an increase to \$5 billion in the ceiling on TVA's authority to sell bonds and notes. As you know, TVA's headquarters are located in my home town of Knoxville.

I support this legislation because the record of TVA's accomplishments shows that with adequate financial backing TVA will serve not only its region, but the Nation.

I ask you to recall an earlier time in TVA's history. In 1942, our country was thrust into a great war in which many served. The country sorely needed to increase its defense production, and one of the basic ingredients in defense production was electricity.

Because TVA had plans and effective management, it was able quickly to accelerate the construction of generating units to feed electricity to war industries. At one time in 1942, TVA employment soared to over 41,000. Through efforts of these employees such feats were accomplished as completing Douglas Dam near Knoxville in less than 13 months after ground was broken. The electricity generated at this dam, and others whose completion was rushed, provided additional amounts of power to increase aluminum production at plants in east Tennessee.

The availability of this additional power prompted the Government to locate plants to produce the atomic bomb at Oak Ridge, Tenn.

Today, TVA capacity to generate electricity is still serving the Nation. Because the peak use of electricity in the TVA area is in the wintertime, TVA has more than enough capacity to meet this summer's needs in its area. The extra capacity available during the summer months will be used to help meet power problems faced this summer by utilities from the Gulf of Mexico to the Great Lakes and from Oklahoma to the Atlantic seaboard.

I urge passage of the proposed legislation so that TVA will have the financing to build the generating capacity to meet the needs of its region during peak-use seasons as well as to help with the power needs of other sections of the country in off-peak seasons.

Mr. JONES. Also I ask unanimous consent that I may receive and have printed in the record any statements that are pertinent to the question of bond financing or the bills before us even after the hearings have been concluded.

Our first witness today on behalf of the Tennessee Valley Authority is the Honorable A. J. Wagner, Chairman of the Board, Tennessee Valley Authority, and he will be accompanied by our former colleague, member of the subcommittee, the Honorable Frank Smith, I might say from Mississippi, but I think he claims membership in the football association called the University of Tennessee Football Club; Mr. Lynn Seeber, General Manager of the Tennessee Valley Authority; Mr. James Watson, Manager of Power for TVA; Mr. Robert Marquis, general counsel; Mr. G. O. Wessenauer, consultant, and a former Manager of Power; and Mr. Jacob D. Vreeland, Washington representative.

Gentlemen, if you would come forward, we would be pleased to receive your statements.

Mr. Wagner, we are pleased to have you. Mr. Wagner is just recovering from an operation, and we appreciate your making painful efforts to be here today.

It is always a great pleasure to have you, sir.

**STATEMENT OF HON. A. J. WAGNER, CHAIRMAN OF THE BOARD, TENNESSEE VALLEY AUTHORITY: ACCOMPANIED BY HON. FRANK SMITH, BOARD MEMBER; LYNN SEEBER, GENERAL MANAGER; JAMES WATSON, MANAGER OF POWER; ROBERT MARQUIS, GENERAL COUNSEL; G. O. WESSENAUER, CONSULTANT; AND JACOB D. VREELAND, WASHINGTON REPRESENTATIVE**

Mr. WAGNER. Thank you very much, Mr. Chairman. It is always a great pleasure for us to appear before this committee. We are here

today to present testimony in connection with H.R. 18104 and H.R. 16061.

We do appreciate this opportunity, Mr. Chairman, to review with the subcommittee the financial status of TVA's power program and our need for legislation increasing our borrowing authority as proposed in H.R. 18104 and H.R. 16061 so that we can continue to take care of the power needs of the area we supply.

The purpose of this legislation, as we understand it, is to continue in full force and effect all of the provisions of the 1959 amendments to the TVA Act which authorized us to issue revenue bonds, but to increase the ceiling on the amount of bonds that we can have outstanding at any one time.

The 1959 act has worked very well, both from TVA's standpoint, and, we believe from the standpoint of the Government generally and others who are affected by it.

Mr. Wessenauer, when he testifies a little later, will detail some of the results of its operation.

If it is agreeable with the committee, Mr. Chairman, I would like to proceed first with a brief review of TVA's resource development program, particularly as it is related to our electric power activities.

Mr. Wessenauer, who as you know was the manager of our power program for many years, including the period since the 1959 bond authorization was enacted, is prepared to review for you our experience operating under that authorization and the 1966 amendment to it, and Mr. Watson is prepared to describe the very massive growth in power loads which faces us and the urgent need for the passage of legislation granting additional borrowing authority to TVA.

For 37 years, TVA has worked in partnership with citizens of the Tennessee Valley, and in cooperation with other public agencies, in developing the resources of this region. Essentially, TVA has provided and is continuing to provide, the tools and a resource base that promote the welfare of the region, that build its economic strength, and consequently contribute to that of the Nation.

It is a far different, more prosperous valley today. Indeed, as we have said before, it is a "brand new valley with a new brand of opportunity."

The old, historical, resource problems of the region, such as life-taking floods, soil erosion, and wasteful forest practices, have on the whole been solved or brought under control; but some work remains to be done in this area.

The Tennessee River, the Nation's fifth largest in streamflow, is one of the most completely developed and controlled stream systems in the world. It is working, as the TVA Act intended, for the "good of man" as it courses its way from the mountains to the Ohio and Mississippi Rivers.

In effect, the task of TVA from the beginning has been to determine and use beneficially the relationship between water and land in the valley, building all of the region's resources, so that a large segment of the Nation's population, living in a once economically depressed area, could improve their condition in life and contribute more to the Nation's progress.

The wisdom of the act's unified approach toward development is today translatable into social advancement, economic gain, and new opportunity.

The rise in per capita income of the region's people, for example, has been dramatic—increasing to nearly three-fourths of the national average now, when in 1933 it was less than half. This relationship between regional and national averages is important, but perhaps more significant to the region's people are their actual income increases, chances for better jobs, and the wide variety of new opportunities that are now open for themselves and their children.

The per capita income in the region in 1968, the latest year for which data are available, was 14 times what it was in 1933; the national average multiplied about nine times in the same period.

In 1933, some 62 percent of the region's people depended on agriculture for a living; this has dropped to 11 percent. In 1933, only 12 percent of the region's employment was in manufacturing, today the figure is 33.4 percent.

#### GROWTH OF EMPLOYMENT

Growth was the most striking in the 1960's. For example overall employment in the region increased more in a 5-year period during the 1960's than in the previous 30 years. One feature of this growth in industrial jobs is that most of it taking place in the TVA region—about 90 percent in recent years—is taking place in the small towns and rural areas, rather than in the larger cities.

We think it is very significant because it is spreading where the people can work, it is taking the pressure off of the large population centers, and it is making for better utilization of more of our land.

I think it is significant and very closely related to the story of progress in the Tennessee Valley that last year the TVA power system generated 60 times as much electricity as was generated in the area in 1933 by the then existing powerplants. Generating capacity of the TVA power system is now 19.4 million kilowatts, nearly 23 times as much as the combined capacity of all generating stations in the same area in 1933.

Moreover, we are now in the midst of the largest power construction program in our history. This will be a tremendous task, one which challenges every resource, every capability of the TVA organization.

An integral part of this task is to see that the TVA power system is constructed and operated in such a way as to protect the quality of the environment. As the population, the industries, and the power system have grown, the problems of their impact on the environment have grown too.

TVA has a duty and a responsibility, both as a conservation agency and as the operator of a large power system, to insure that its powerplants do not harm the air and water. The problems of fly ash and sulfur dioxide contained in stack gases from coal fired steamplants must be solved.

Likewise the heated water discharged from both coal and nuclear plants must be controlled in such a way that aquatic life will not be harmed. Technology has already found the answer to some of these problems, such as the electrostatic precipitators which we are installing to remove 99 percent of the fly ash.

However, some precipitators installed earlier have not performed up to expectations and TVA and the manufacturers are now working to increase their efficiency. Technology can and will solve the other problems, such as how to remove the sulfur dioxide.

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

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

The task of keeping pace with the increasing demands for power has been made even more difficult by the effects of inflation. As I am sure you all know, costs of fuel, labor, materials, and money have all been rising rapidly. The average cost of the completed steam capacity now on our system is about \$125 per kilowatt. The capacity now being constructed is estimated to cost over \$140 per kilowatt. For future construction it is clear that the cost per kilowatt will be substantially higher. And this is true even though we are building larger units, which normally would mean lower costs per kilowatt.

Because of these unavoidable increases in costs, TVA had no alternative but to increase electric rates in 1967 and 1969. Continuing and accelerated cost increases are making it necessary for us to consider a further rate increase, and we are presently discussing this with our distributors.

#### AMOUNT OF TVA INDEBTEDNESS

At the present time, we have a total of \$1,155,000,000 of bonds and notes outstanding, out of the \$1,750,000,000 which is authorized. We now have under construction 10 million kilowatts of additional generating capacity. 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 in the Allen plant at Memphis; and a 1,350 megawatt pump storage plant at Raccoon Mountain west of Chattanooga. These units, together with provision of related transmission facilities and nuclear fuel requirements, will be financed partly from additional borrowings and partly from power proceeds, that is funds provided by operation of the system.

Virtually all of the \$1,750,000,000 borrowing authority will be required to complete the construction of these facilities now underway.

Meanwhile, we must begin promptly construction of additional capacity to meet projected further growth in power loads. In fact, we have just opened bids on two additional nuclear units, with options on two more. We will compare these with the cost of coal-fired units before deciding which to purchase. We cannot award firm contracts for any of these units without an increase in our borrowing authority.

With respect to the amount to which TVA's borrowing authority should be increased, you will recall that TVA wrote the committee a letter dated April 21, 1970, explaining that the administration recommends an increase in TVA's bond authority to \$3.5 billion. We estimate that the \$3.5 billion would require us to come back to Congress for a further increase in bond authority within 2 to 4½ years. This would take care of our needs for the near future; and we support the administration's recommendation.

Mr. Chairman, with your permission I would like to ask Mr. Wessenauer now to describe our experience operating under the provisions of the 1959 amendments and the 1966 addition to it.

Mr. JONES. Mr. Wessenauer, before you start, I would like to say that your departure from TVA was a painful one for those of us who have dealt with the agency throughout the years. I do not know of any person in the Civil Service who has been more useful, more knowledgeable and done as fine a job as you have done during your tenure as an employee of the Tennessee Valley Authority. You have given good direction, and you have given the Authority efficient operation.

Your vast skills and management abilities have made the TVA electrical power system so dependable in the Valley that many people tend to take it for granted and expect the power to be there when the switch is flipped.

Thoughtful observers know the key role you have played in bringing light and power to the most distant reaches of the Valley.

Your knowledge of the part that low cost power plays in developing a region and your grasp of the intricacies of power system management are evident when you discuss the financial needs of the TVA and its 80,000 square mile service area.

You have been a great source of pride to us because your example reminds us that we have such valuable people within the Government who can make execution of the laws to see that they are properly administered and properly guarded.

So, I would like to say that we all applaud your fine services throughout the years.

#### STATEMENT OF G. O. WESSENAUER

Mr. WESSENAUER. Thank you very much, Mr. Jones, for those gracious words. I can only say in response that I am grateful for them, but that what I have been able to accomplish could not have been done without the work of many associates of mine, and certainly not without the fine support we have had in TVA from members of this committee and other Members of Congress who provided us with the direction and means with which to carry it out.

I recall having spent a number of days and hours with this committee in discussing this bond amendment when it was considered in 1959. I believe I was also present when the amendment which increased the amount from \$750 million to \$1,750 million was considered. So I would like to take a few moments to talk a little bit about some of the accomplishments that have come about and something about the workings of this bond amendment insofar as financing TVA power programs are concerned.

As the subcommittee knows, Congress amended the TVA Act in 1959 to authorize TVA to issue revenue bonds for financing power facilities. That amendment authorized TVA to have outstanding up to \$750 million in borrowings. Also, the amendment contained provisions concerning the repayment and return on the Government appropriations invested in the power system, and provided that bonds issued by TVA would not be obligations of or guaranteed by the United States.

The amendment also provides that TVA shall charge rates for power which will produce gross revenues sufficient to cover all costs of opera-

tion, maintenance, and administration; to make payments to State and local governments in lieu of taxes; to pay the debt service on borrowings; to make repayments to the Treasury on the appropriation investment plus payments as a return on such outstanding investment; and to provide such additional margin as the Board may consider desirable for investment in power system assets and other purposes, having due regard for the primary objectives of the TVA Act, including the objective that power shall be sold at rates as low as feasible.

In 1966, Congress amended the act to increase the amount of bonds permitted to be outstanding to \$1.75 billion.

#### TEN YEAR RECORD OF BOND FINANCING

Just a few words about what has happened in the 10-year period of time since the Congress approved this amendment to the TVA Act. In 1959 the power system was producing or handled on the system about 62.5 billion kilowatt hours. Last fiscal year, that amount increased to 98 billion kilowatt hours. The system has expanded in order to provide for the increasing needs for power in the Tennessee Valley region.

Now, you might wonder why it has not increased even more than and it would have except that there were some major reductions in the use of energy at some of the large Government establishments of the AEC in the region.

If we look, for example, at the growth in power requirements by the other consumers of the Tennessee Valley—for example use by residential consumers has more than doubled from 9.5 billion kilowatt hours to 24.5 billion kilowatt hours. The average use of electricity in the homes of the Tennessee Valley has increased from 7,863 kilowatt hours in 1959 to 13,600 kilowatt hours for the fiscal year 1959 and at the present time it is at a yearly rate of over 14,000. The national average use of electricity in the homes is something less than half of this amount.

In business and industry the requirements for electricity have also grown, from 16.5 billion in 1959, when the act was amended, to 41.5 billion last year. Now, this reflects itself in increased economic activity in the Tennessee Valley region, as Mr. Wagner has indicated, increased employment for people in the Valley, less of them are moving out of the Valley, and it has reflected itself in a very encouraging development of this region of the country. It is a benefit not only to this region, but also to the whole Nation to have any of its regions grow and improve.

We have built in that period of time—in 1959 we had roughly 11 million kilowatts of capacity with about 1,700,000 more under construction, and at the present time there is over 19 million kilowatts of capacity in service, and there is almost 10 million kilowatts of new capacity under construction. So you see that this growth and the investment necessary, the funds necessary to provide this kind of growth in the power system to meet the needs of the people of the region was only possible because of the fact that this committee and the Congress gave TVA this authorization to provide some of the funds it needed from this additional source.

Our transmission system has also grown in the meantime. While

in 1959 we had about 12,000 miles of transmission lines with the highest voltage, 161 kilovolts, now there are 15,000 miles of which over 900 miles is extra high voltage, 500 kilovolts, with some 300 more miles of line under construction.

So, there have been developments and growth and progress in the valley which I think is the outcome, in my opinion, of a very wise course of action which was decided in connection with the bond amendment.

Now, turning back to my statement. The revenues from the sale of power continue to pay for all of the system's operating expenses and for some construction, but proceeds from borrowings provide a substantial portion of the capital needed for new facilities.

TVA's current net investment in power assets is approximately \$2.9 billion, made up of \$1.1 billion of appropriations, \$680 million of retained earnings, and \$1,155 million of outstanding borrowings, including \$100 million of long-term bonds sold on June 16. These outstanding borrowings include \$675 million of long-term bonds sold to the general public, \$330 million of short-term notes sold to the general public, and \$150 million of short-term notes sold to the Treasury.

#### INTEREST COST OF BONDS

When the first long-term bond issue was sold in 1960, the interest cost to TVA was 4.44 percent. The interest cost on 25-year bonds sold on June 16 was 9.29 percent. I do not think any of us contemplated such a development when we were talking about the bond bill 10 years ago. All of TVA's long-term bonds have received Moody's and Standard & Poor's highest ratings, and the difference between the 4.44 and the 9.29 percent reflects the increase in the cost of money over the last 10 years. I can say TVA bond issues have been favorably received in the market, generally the sales went well. In the case of the one the other day, after the sale was completed, the underwriters resold the bonds that they bought from us within the day. Generally speaking, our bonds have interest rates which are comparable to those of triple A utility systems and communication systems. I think that when we—I cannot avoid this “we” business, since I have been associated so long with TVA—when bonds were sold the other day at 9.29-percent cost to us, the interest rate for the purchaser was 9.25; that is the coupon rate. At the same time, a New Jersey Bell issue which also carried a triple A rating sold at 9.35 percent, so can you see the comparability in market acceptability.

For this fiscal year, 1970, the payments to the Treasury will amount to \$15 million as a repayment on the appropriations invested, plus \$57.65 million as a return. The return is determined each year by applying the Government's average interest rate payable on marketable Treasury securities at the beginning of the year to the net appropriation investment in TVA power facilities. In all, by the end of the current fiscal year, TVA will have paid to the Treasury from power revenues since the enactment of section 15d in 1959 a total of approximately \$573 million.

So the provisions of the 1959 amendment call for recognition of the previous investment of Treasury funds in the TVA system, and TVA has complied with requirements of the legislation by making repayments of that investment, at the rate of \$10 million a year for 5 years, and \$15 million for the next 5 years, and starting next fiscal

year at \$20 million and, in addition, making payments as a return on the investment that are equal to the average cost of money to the Federal Treasury.

Thank you very much.

Mr. JONES. Thank you, Mr. Wessenauer.

Mr. WAGNER. Mr. Chairman, at this point, if it is acceptable to the committee, I would like to ask Mr. Watson to talk about the planned growth that we have and the plans which will require the additional bond authority.

Mr. JONES. Mr. Watson.

#### STATEMENT OF JAMES E. WATSON

Mr. WATSON. Mr. Chairman, gentlemen. As you know, TVA is the power supplier for an 80,000-square-mile region which has a population of about 6 million people. TVA generates and transmits electricity to meet the needs of 161 distribution systems which retail power to their customers, and to serve directly 43 industries which have large or unusual power requirements and 11 Federal installations.

The distributors of TVA power include 109 municipalities and 50 rural electric cooperatives that are locally owned and operated, and two small private systems. These distributors purchase power at wholesale from TVA and, together, they serve more than 2 million electric customers—homes, farms, businesses, and the majority of industries.

Powerloads 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.

#### POWER CONSTRUCTION PROGRAM

As Mr. Wagner mentioned, and also Mr. Wessenauer, the generating capacity of the TVA power system is now 19.4 million kilowatts. We are building an additional 10.3 million kilowatts of capacity to be in service by the end of 1975. The total of 30 million kilowatts is the amount of capacity we forecast will be needed to serve the region's growing requirements by 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.

I might mention that increases of these proportions will be necessary despite TVA's efforts to minimize its capacity requirements through the use of power exchange agreements with other power systems.

The TVA power system interconnects at 26 points with neighboring power systems for the economical exchange of power and to further safeguard the reliability of power supply. As an example, we have agreements with interconnected groups of systems to the South and to the Southwest for the exchange of power on a seasonal basis. We exchange 1,800,000 kilowatts of capacity with these groups. These

systems receive power from TVA to help meet their peak loads 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. Thus, this exchange eliminates the need for equivalent amounts of generating capacity for TVA and for the connected systems. As you see, we are trying to take advantage of every opportunity for economical and reliable power supply.

The amount of leadtime required between the placing of orders for power equipment and the time when the generating capacity will be in service has increased drastically in the last few years. For example, just a few years ago, the leadtime for a large steamplant was around 4 years. Today the time required has stretched to around 6 years. We have just recently received the construction permit from the Atomic Energy Commission for our Sequoyah Nuclear Plant near Chattanooga, Tenn.; and this procedure alone required 22 months before we could even begin construction.

The new capacity of 10.3 million kilowatts being constructed by TVA will handle TVA's power loads only through 1975 and, because of the long leadtimes I mentioned above, it is necessary that TVA begin now to provide the capacity that will be required after 1975. If we do not start now, we will be faced with power blackouts and brownouts; and we know of no way that we could cut the required leadtime or to make up the lost time at a later date. If anything, we think that leadtimes are likely to get longer rather than shorter. We already have under consideration bids on the next units which we will need for the TVA power system in order to meet the loads after 1975. An increase in the bond ceiling in the TVA Act is urgently needed in order for us to proceed with the awarding of firm contracts for these and the other generating units that will be required.

Thank you.

Mr. JONES. Thank you very much, Mr. Watson.

Mr. Wagner.

Mr. WAGNER. Mr. Chairman, that completes our prepared statements. We will, of course, be glad to answer any questions you may have.

Mr. JONES. Before that, I ask unanimous consent to have printed in the record a copy of the "Survey of Electric Power Problems" issued by the Office of Emergency Preparedness, bearing the date of May 1970; also a statement from the Office of Emergency Preparedness issued on May 5, 1970; a statement from George A. Lincoln, Director of the Office of Emergency Preparedness, regarding electric power problems for 1970, as issued on May 5, 1970; also a statement by George A. Lincoln on May 6, 1970, of the same Office, and ask it be printed in the record at this point.

(The documents referred to follow:)

## SURVEY OF ELECTRIC POWER PROBLEMS—MAY 1970

### A. INTRODUCTION

The power supply situation in the eastern United States appears to be somewhat worse than last summer when we experienced voltage reductions, appeals to reduce use, and interruption of some industrial loads. At present, it appears that generating capacity is the major bottleneck.

This summer the entire eastern seaboard, except for New England and Florida, will face a tight power capacity problem even if normal summer temperatures

prevail, fuel supplies are adequate, and all of the system capacity performs as scheduled.

It should be recognized that some reserve capacity estimates are dependent on new large units whose reliability is uncertain, and a large number of small units which are past retirement age. The estimates also assume a normal summer. Peak loads could be several percent higher than utility estimates. A combination of an intense heat wave and poorer-than-expected power system performance could result in the elimination of reserve margins and a failure to meet peak loads.

Faced with limited stocks of fuel in localized areas and insufficient capacity in many areas, it appears advisable for the utilities and Government at the local, State, and Federal level to take immediate measures that might ease the situation in the potential problem areas and develop contingency plans rather than to accept the risks associated with treating the situation as an emergency arises.

## B. FUEL SUPPLY FOR ELECTRIC POWER GENERATION

### 1. Coal

The Department of the Interior currently estimates that domestic production of bituminous coal and lignite will total 571 million tons in 1970. This tonnage assumes that the industry will be operating at over 90% of its demonstrated productive capacity on a normal work schedule. Production could be moderately higher if conditions are generally favorable. It could be substantially lower if there are prolonged strikes in the mines or other disruptions.

The estimate gives consideration to the expected impact of the Federal Coal Mine Health and Safety Act to the extent it can be foreseen at this time. However, we have reservations as to the firmness of the estimate because of the uncertainty that currently exists as to the number of mines that will close rather than comply with the Act, as well as the loss of production likely to occur as companies take the measures necessary to assure compliance.

Safety standards went into effect on March 30; dust standards go into effect on June 30, 1970. It is too early to assess the effects of the Act on production but the effects could be substantial. Mine closures that have occurred to date do not affect substantial production and are not considered sufficient sample to indicate the overall impact.

The estimate of 571 million tons for the year also assumes that there will be no significant shifts in existing fuel consumption patterns and that high-sulfur fuel can continue to be burned in powerplants that presently utilize such fuels. It is our understanding that air pollution control regulations will not add to the fuel supply problem this summer but increasingly will be a factor unless technology to remove sulfur from powerplant stack gases and fuels is promptly developed and applied, and substantial additional supplies of low sulfur fuels are provided.

Domestic coal consumption plus coal exports for 1970 are estimated at 583 million tons. If the estimates are correct, there will be a short-fall of 12 million tons for the year. The electric utilities will consume 328 million tons or over 55% of total. Utility requirement for coal could be even higher if natural gas for utility use is in short supply. Of the non-utility coal, much of it is coking coal which is higher price than utility coal and coal already committed to export markets.

Electric utility coal stocks on January 1, 1970, were 62 million tons (66 days' supply). On April 1, they were estimated at 52 million tons (60 days' supply). The stock situation is expected to improve during the current quarter but then deteriorate in July when consumption plus exports are expected to exceed production by 12 million tons due to the miners' vacation period. A monthly low of 48 days' supply is expected at the end of July. Thereafter, total stocks are expected to gradually increase through October. However, consumption and exports in the last two months of the year will exceed expected production, and the stock position will slip.

Coal in the possession of electric utilities is expected to be about 53 days' supply at the end of 1970. That compares with 66 at the end of last year.

If these estimates hold true, coal supply in general should not be a bottleneck this summer. However, the supply is sufficiently tight that individual power companies might still experience shortages; and we should not overlook that possibility.

More troublesome is the prospect for this winter. Stocks are not being rebuilt; in fact, they are down as compared to 1969. We need to begin now to take measures to reverse this trend.

We stress that this analysis of coal production for the year is preliminary. Satisfactory experience under the Coal Mine Health and Safety Act is crucial

to the estimate. We are continuing to receive information from the utilities to point up trouble spots this summer and the extent of the fuel problem this winter.

### 2. Residual Fuel Oil

Utility consumption of residual fuel oil has increased rapidly in the last several years, particularly on the East Coast. Most plants which could benefit from the use of residual oil have already been converted or are in the process of conversion. It does not appear that there is significant coal-fired capacity which could be switched to residual oil this summer or even within the next year. Some capacity that is not equipped to fire residual oil might be converted at considerable expense. However, such conversion would require taking equipment off the line for extended periods. This does not appear practical in view of low levels of reserve generating capacity.

Additional supplies of imported residual oil may be available on the East Coast but transportation facilities to move the oil up the Mississippi River are not readily available.

Low sulfur oil is in short supply, and supplies beyond those now scheduled would probably originate in North Africa which would involve long tanker hauls and considerable advance planning.

For inland areas, domestic refineries could probably alter operations to increase residual oil supplies at substantially higher prices. However, the immediate capability of inland steam-electric plants to use residual oil is limited.

In summary, residual oil possibly can make a larger contribution to fuel supply but not by summer, or in any significant quantity, even by this winter.

### 3. Natural Gas

In the East and midwest some coal-fired plants burn natural gas during the summer when non-power gas loads are at a seasonal low. However, natural gas companies had drawn heavily on storage last winter, and several may not supply the expected volumes of gas to utilities this summer. To the extent that natural gas is not available as expected, the requirements for coal would be increased over our estimates. The possibility of using additional gas in lieu of coal is not a realistic alternative in view of the tight gas supply.

Looking ahead to the winter, we see a serious problem for those plants outside the Southwest that rely on natural gas in the winter months, a factor which adds to our concern over coal supply for the winter.

### 4. Transportation of Fuel

The ICC suggests that rail transportation for the movement of coal to electric utilities should not present a general problem for the summer. However, many utilities have experienced car shortages and still consider transportation a major bottleneck. The ICC has statutory authority to issue priorities on hopper cars for the movement of coal to alleviate bottlenecks. Procedures should be streamlined and actions taken to exercise such authority when problems are brought to their attention in a timely manner.

## C. ADEQUACY OF GENERATING CAPACITY FOR THIS SUMMER'S PEAK LOADS

It should be noted that reserves of 15% to 20% are considered normal to guard against unexpected equipment failures and higher peak loads than predicted. Although we mention in our discussion units becoming available after May 31, these are not counted as reliable units. There is great uncertainty as to their reliability in the early stages of operation.

### 1. New England

Not a serious problem area for this summer since it has 15% reserves in fairly reliable units.

### 2. New York State

Statewide reserves equal 18%, but *New York City reserves are not considered adequate*. Consolidated Edison's reserves would be largely eliminated if its largest unit (1000 Mw Ravenswood) goes out. Gas turbines, if available, may provide some peaking capacity reserves. Upstate New York has some ability to help New York City, but this has been reduced by the unavailability of a major nuclear plant (Nine Mile Point).

### 3. Pennsylvania-New Jersey-Maryland

*This area has insufficient reserve capacity*. It has reserves of 9.3% equivalent to the combined capacity of those large units which have been experiencing startup or continuing operating trouble: Conemaugh, Keystone, and Oyster Creek. If

these three units are out, the area has no reserves. It has a few gas turbines ordered and one new unit at the Morgantown generating station in Maryland, which possibly might add 2% to its reserves in July.

#### 4. *The Southeast*

This area has insufficient reserve capacity from Virginia through the Carolinas, Georgia, Alabama, and Mississippi. The CARVA pool (Virginia, North Carolina and South Carolina) has reserves of only 6.5%, more than 50% of which are in one unit. The Southern Company utilities serving Georgia, Alabama, Mississippi have reserves of only 8.6%. On the other hand, TVA and the Florida pool are in reasonably good position with reserves of upwards to 15% but one-half of TVA's reserves is equal to the rating of one unit, and there are tight power supply areas within the Florida pool (i.e., Jacksonville has only 10.6% reserves).

#### 5. *East Central*

This area, which includes Michigan, Ohio, Indiana, Kentucky, and West Virginia, is in reasonably good position with reserves in excess of 15%.

#### 6. *West Central*

Large regions of this area, including Wisconsin and Iowa, have good reserves but there are potentially critical spots which center in Chicago, St. Louis, and Minneapolis-St. Paul. Commonwealth Edison serving Chicago has only 5.5% reserves. Its large first-of-a-kind nuclear unit, Dresden 2, is scheduled for initial operation this summer, but this new unit can not be counted on for firm power during the initial months of operation. Union Electric serving St. Louis will have no reserves unless a new fossil unit, Labadie, scheduled for June is available. Northern States Power Company serving Minneapolis-St. Paul also has no reserves. Its new nuclear unit, Monticello, is scheduled for operation late this summer, but cannot be counted on for firm power during its initial operating period.

#### 7. *South Central and Western Regions*

There appear to be no serious capacity problems in these regions. However, the South Central region is depending on 1500 Mw, from TVA this summer. Without this, the South Central reserve is 12.7%.

TUESDAY, MAY 5, 1970.

### GOVERNMENT TAKING ACTIONS TO MEET SUMMER POWER NEEDS

In anticipation of a tight supply of power in many areas of the East and Midwest, the Federal Government is taking measures, in addition to the efforts of the utilities, to reduce or hopefully eliminate brownouts in the coming months.

George A. Lincoln, director of the President's Office of Emergency Preparedness and coordinator of federal response to non-military emergencies, today released a Survey of Electric Power Problems. In a statement, Lincoln listed the actions that the federal agencies are taking; the Survey contains information on the problems of inadequate electric generating capacity and fuel supply for this summer.

The statement and Survey are the result of a study that began in March by a committee comprising representatives of the Office of Science and Technology, Department of the Interior, Federal Power Commission, and other government agencies. Lincoln is committee chairman.

The Survey indicates that the power supply situation in the eastern United States appears to be somewhat worse than last summer: At present, it appears that generating capacity is the major bottleneck. Coal production for utility use during this summer should not be, in general, a major problem; however, the supply is sufficiently tight that individual power companies might still experience shortages. The coal supply situation is not expected to improve in the near future.

Lincoln announced the measures that federal agencies are undertaking to assist the utilities to meet the power situation:

"The Secretary of the Interior will develop legislation or other programs necessary to broaden our energy base consistent with our environmental and mineral needs.

"The Interior Department will continue to maintain close surveillance of the fuel supply situation for the coming months with special attention focused on programs of technical assistance and other measures to allow mines to facilitate compliance with the Federal Coal Mine Health and Safety Act with minimum disruption of coal production.

"The Interstate Commerce Commission will streamline procedures for taking prompt action to exercise statutory authority to accord priority for the use of hopper cars in the movement of coal to utilities on notification by utilities or coal suppliers of car shortages.

"The AEC will make arrangements to curtail production this summer at the AEC gaseous diffusion plants, which use large amounts of electricity. This could release coal supplies and generating capacity which could be used to assist in meeting fuel shortages and peak loads of the consuming public in parts of the interconnected system. The diffusion plants are being used, in part, to produce enriched uranium for future use in nuclear power plants.

"The Administrator of the General Services Administration and other agency heads will conserve, wherever possible, the use of electricity in civil government installations, and draw up plans for additional reductions, if necessary, during the summer peaks.

"The Secretary of Defense will take similar actions for defense installations."

Lincoln said that he is making available all information on power shortages to governors and mayors in the areas where shortages appear possible during the summer.

He emphasized that the Federal Power Commission will continue to work closely with the utilities and government agencies to maintain power supplies and suggested that state and local government agencies should review with utilities contingency plans for meeting summer power needs.

In an analysis of regional power resources and needs, the survey notes:

*New England.*—has no serious problem for the summer.

*New York State.*—reserves equal 18 per cent, but New York City reserves appear inadequate.

*Pennsylvania-New Jersey-Maryland.*—has an insufficient reserve capacity of 9.3 per cent. An additional 2 per cent in reserve might be added through installation of new gas turbines and a new unit at Morgantown generating station in Maryland.

*The Southeast.*—has an insufficient reserve capacity from Virginia through the Carolinas, Georgia, Alabama, and Mississippi. Utilities serving Georgia, Alabama, and Mississippi have reserves of only 8.6 per cent. The Tennessee Valley Authority and the Florida pool are in a reasonably good position, but there are tight power supply areas within the Florida pool.

*East Central.*—including Michigan, Ohio, Indiana, Kentucky, and West Virginia is called in reasonably good position with reserves in excess of 15 per cent.

*West Central.*—while large regions of this area, including Wisconsin and Iowa, have good reserves, there are potential trouble spots in the vicinities of Chicago, St. Louis, and Minneapolis-St. Paul.

*South Central and West.*—no serious capacity problems are anticipated but, if anticipated reserves from the Tennessee Valley Authority are not available, the South Central reserves will be only 12.7 per cent.

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STATEMENT BY HON. GEORGE A. LINCOLN, DIRECTOR OF THE OFFICE OF EMERGENCY PREPAREDNESS

We have recently studied the problems of electric power supply in various sections of the U.S. in the coming months, in cooperation with the Office of Science and Technology, Department of the Interior, the Federal Power Commission, and other government agencies.

We find that electric power plant generating capacity to meet peak loads this summer will be in tight supply in many areas in the East and Midwest. Furthermore, production of coal, the principal fuel for power generation, may be inadequate to rebuild stocks to normal levels. Moreover, some power companies have very low stocks and may face real coal shortages this summer. The coal supply problem is further compounded by the fact that natural gas is in short supply.

Electricity is the lifeblood of our high energy civilization. It is imperative that industry and government work together in order to avert disruptions to the consuming public. To assist in this effort, the following measures will be undertaken by the Federal government:

The Interior Department will continue to maintain close surveillance of the fuel supply situation for the coming months with special attention focused on programs of technical assistance and other measures to allow mines to facilitate compliance with the Federal Coal Mine Health and Safety Act with minimum disruption of coal production.

The Secretary of the Interior will develop legislation or other programs necessary to broaden our energy base consistent with our environmental and mineral needs.

The Interstate Commerce Commission will streamline procedures for taking prompt action to exercise statutory authority to accord priority for the use of hopper cars in the movement of coal to utilities on notification by utilities or coal suppliers of car shortages.

The AEC will make arrangements to curtail production this summer at the AEC gaseous diffusion plants, which use large amounts of electricity. This could release coal supplies and generating capacity which could be used to assist in meeting fuel shortages and peak loads of the consuming public in parts of the interconnected system. The diffusion plants are being used, in part, to produce enriched uranium for future use in nuclear power plants.

The Administrator of the General Services Administration and other Agency Heads will conserve, wherever possible, the use of electricity in civil government installations, and draw up plans for additional reductions, if necessary, during the summer peaks.

The Secretary of Defense will take similar actions for defense installations.

These steps, when combined with contingency plans of the utilities, should be successful in reducing or eliminating brownouts during the coming months. We will make available the information at our disposal to the Governors, State utility commissions, and mayors in the areas where shortages in power supply appear to be possible this summer. The State and local government agencies concerned should meet with the utilities in their respective service areas to review contingency plans for meeting loads during the coming summer. The Federal Power Commission will continue to work closely with the utilities and government agencies to maintain power supply.

We will, of course, continue to follow the situation closely and make any relevant information that may affect electric power capacity for this summer and the coming winter available to appropriate State and local authorities.

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#### STATEMENT BY HON. GEORGE A. LINCOLN

Ours is a coordinating role both in the study of the problem and in the implementation of measures to solve the problem. As you note from our study, the Committee, which I chaired, included representatives of the Atomic Energy Commission, Federal Power Commission, Department of Health, Education, and Welfare, Department of the Interior, Interstate Commerce Commission, and the Office of Science and Technology. Mr. David Freeman, Chief of the Energy Policy Staff of the Office of Science and Technology, chaired the Working Group.

Yesterday I sent letters to the Postmaster General, Secretary of the Interior, Secretary of Defense, Chairman of the Atomic Energy Commission, Acting Chairman of the Interstate Commerce Commission, Administrator of the National Aeronautics and Space Administration, and the Administrators of the General Services Administration and Veterans Administration with regard to follow-up actions which they should take now to reduce, or hopefully eliminate, brownouts next summer. I asked each of these officials to keep me advised of major problems and to provide me a progress report by May 29, 1970, and successively by the end of each month until further notice.

I also forwarded a letter to each Governor, sending him a copy of my statement and of the Survey of Electric Power Problems. The Chairman of the Federal Power Commission will, of course, continue his normal consultation with the Public Utilities Commissions of the States.

I sent letters to the Mayors of New York City, Chicago, St. Louis, Jacksonville, Minneapolis and St. Paul because each of these cities was mentioned in our survey as being in an area of tight reserve capacity. In addition, I sent a letter to Mayor Washington of the District of Columbia because the Pennsylvania-New Jersey-Maryland area, of which the District of Columbia is a part, has insufficient reserve capacity.

I also sent information copies of our materials to the Council of State Governments, to the National League of Cities, to the United States Conference of Mayors, and to the National Association of Counties. In this way the other local officials across the country will be reached.

I am also making distribution to Members of the Congress. Your copies should have been delivered this morning.

In my coordinating role, I shall continue to monitor the situation. This is

prudent preparedness and is a parallel to the actions which we have been taking in the field of disaster assistance in order to prevent and ward off crises wherever possible.

Mr. JONES. We will now hear from Hon. Thomas G. Abernethy, the distinguished Member from Mississippi. Mr. Abernethy, please proceed.

**STATEMENT OF HON. THOMAS G. ABERNETHY, A REPRESENTATIVE  
IN CONGRESS FROM THE STATE OF MISSISSIPPI**

Mr. ABERNETHY. Mr. Chairman, when I first came to Congress the Tennessee Valley Authority was not yet 10 years old. The town where I live, Okolona, had been receiving TVA power for only 8 years.

In those days we who were interested in TVA waited for the President's budget each January to see how the TVA system fared. In most years we did all right and TVA would have the money to build the generating units to supply the needs of our area.

But then in the 1950's it became apparent that an annual appropriation process would no longer do. The TVA system had to plan on more than a year-to-year basis. The industries, the farms, and the people of the area needed more assurance that TVA would be allowed to continue to meet their need for electric power.

In 1959, after several years of work, Congress gave this assurance to the people. We amended the TVA Act to permit the Authority to borrow money to meet the capital needs of its power system.

In 1959, I was privileged to enter the floor debate in support of the self-financing amendment. At that time I pointed to TVA's record of responsible service spanning 25 years. Today as we seek again to amend the act to raise TVA's borrowing authority to \$5 billion, I can point to an outstanding record extending for an additional 11 years.

In 1959, there were 1,500,000 consumers of electricity served by TVA. Today that number has grown to over 2 million. When I spoke in favor of the 1959 legislation I pointed out that after little more than 25 years of TVA existence its power system had reached a capacity of 10,572,000 kilowatts. In 11 short years that capacity has grown to over 18 million kilowatts. What is even more startling, TVA has under construction today over 9½ million kilowatts of new capacity—almost as much as was contained in the whole system in 1959.

This tremendous growth in the past 11 years more than meets the expectations of those of us who supported the self-financing amendment. More than that, this record of responsible stewardship requires us to make sure that TVA has sufficient borrowing authority to meet the needs of the continued economic growth that will surely occur in its region.

The bill which this committee is considering, and which I had the pleasure to introduce, increases the limit on TVA's borrowing authority from \$1.75 billion to \$5 billion. This may seem to some to be a large increase. However, we should keep in mind some basic facts about the power industry in general, and TVA in particular.

First, historically power demand in the Nation has doubled about every 10 years. Projections show that such a doubling of demand

will occur in the TVA area in the 1970's. This means that in the decade we are entering TVA will have to build as much generating capacity as it has built in the 37 years since it was organized. Such a massive construction program requires a high level of financing.

Second, inflationary pressures are just as applicable to the utility industry as they are to other sectors of the economy. A loaf of bread, an automobile, an hour of work, and an electrical generating plant all cost more today than they did 5 or 10 years ago.

Third, we have entered into a period of increased environmental concern. This legitimate drive for a quality environment causes increased costs in power systems operation. Devices to control emissions from smoke stacks, deal with warm water discharges, and handle other problems all must be incorporated in generating plants at considerable cost.

When we measure these factors we find that the \$5 billion proposed in H.R. 16061 will provide for TVA's financing needs for the next 5 to 7 years. I urge the committee to give prompt and favorable consideration to this bill so that TVA may continue to fulfill its duty to provide ample supplies of electrical power to the TVA region.

Thank you, Mr. Chairman.

Mr. JONES. I thank you, Mr. Abernethy, for your appearance here today and for your fine statement.

We will now hear from our good friend and colleague, the Honorable William R. Anderson of Tennessee. Please proceed, Mr. Anderson.

**STATEMENT OF HON. WILLIAM R. ANDERSON, A REPRESENTATIVE  
IN CONGRESS FROM THE STATE OF TENNESSEE**

Mr. ANDERSON. Mr. Chairman, it is a pleasure to appear before this committee in support of this worthwhile piece of legislation.

As you know, I served in the Navy and had the honor of commanding a nuclear-powered submarine. Therefore, I was extremely interested a few years ago when TVA announced it was going to use nuclear power to generate some of the power that is used in the TVA area.

The manner in which they made this decision tells a lot about the way TVA works. Of course they went out and took bids like most buyers would. But they did not take bids on nuclear plants alone; they also looked at the costs of a coal-fired plant.

They then compared the costs and decided that at that time a nuclear plant would be the best buy. But TVA didn't stop there. It felt that information it developed would be valuable to many segments of the American population. So, TVA published a booklet showing the cost figures, the calculations, and the assumptions upon which its decision was made.

Through this booklet TVA gave to the power industry, the nuclear industry, and the coal industry the full story of how the decision was made. I am sure this information was useful and valuable to people throughout the country.

I relate this piece of TVA history at this hearing to show the responsible nature of TVA's management. A management that is willing, even eager, to have its decision examined by the public can be trusted to use wisely and well the additional authority contained in H.R. 18104 and H.R. 16061.

I feel that after these hearings are completed, the committee will have a record that fully justifies favorable consideration for increasing to \$5 billion the borrowing authority of TVA.

Thank you, Mr. Chairman.

Mr. JONES. We appreciate receiving your presentation, Mr. Anderson. Now, our colleague and good friend, the Honorable Tom Bevill of Alabama. It is a pleasure to have you with us, Mr. Bevill. You may proceed.

**STATEMENT OF HON. TOM BEVILL, A REPRESENTATIVE IN  
CONGRESS FROM THE STATE OF ALABAMA**

Mr. BEVILL. Mr. Chairman, the boundary established by Congress in 1959 between areas in which the Tennessee Valley Authority could and could not be the primary source of power supply runs through the Seventh Congressional District, which I represent. Many of my constituents are consumers of TVA power, while the rest receive their electricity from a private utility in Alabama.

I appear here today in support of the bill to increase TVA's borrowing authority to \$5 billion not only as a representative of those who are TVA customers, but as a representative of all who live in my district.

This bill will provide TVA with authority to obtain financing to continue to meet its utility responsibilities within its area. There are many ingredients of a utility's responsibility, including the duty to make provisions for emergencies.

To meet emergency situations that may arise in its system, TVA has agreements with surrounding utilities, including those private ones in Alabama. Under these agreements, if there is an emergency on the TVA system, power from surrounding utilities will be used to help meet it.

Also these agreements are two-way streets. Thus if there is an emergency affecting the company which serves that portion of my district outside of the TVA area, TVA power will be used to help overcome it. This two-way agreement can be effective only if each utility has sufficient generating capacity to meet its own needs.

The additional borrowing authority provided by H.R. 18104 and H.R. 16061 will provide TVA the financial ability to insure construction of that generating capacity.

Thank you, Mr. Chairman.

Mr. JONES. Thank you for your fine statement, Mr. Bevill.

We now have with us the distinguished member from Tennessee, the Honorable Ray Blanton of Tennessee.

**STATEMENT OF HON. RAY BLANTON, A REPRESENTATIVE IN  
CONGRESS FROM THE STATE OF TENNESSEE**

Mr. BLANTON. Mr. Chairman, I appreciate the opportunity this committee is giving me to present a statement in support of H.R. 18104 and H.R. 16061.

This legislation increases the limit on borrowings which TVA may have outstanding at any one time from its present level of \$1.5 billion to a new limit of \$5 billion.

My home is in the middle of the TVA area, and I have a deep

appreciation of the improvements that TVA has helped bring to the people who live there. One of the benefits is an abundant supply of electricity to serve the area's homes, farms, and industries.

In order to continue to supply this electricity TVA must have the ability to borrow sufficient money to pay for increases in its generating capacity. It is noteworthy that this bill seeks authority for increased borrowing authority, and not increased appropriations.

These borrowings will not be a charge against the U.S. Treasury but will be paid back solely by those who use the power generated by TVA.

By this bill Congress is telling the people of my area that they can continue to have abundant electricity if they will pay for it.

Mr. Chairman, I ask this committee to give favorable consideration to this legislation and allow the people in the TVA area to continue to finance their own requirements for electricity.

Thank you, Mr. Chairman.

Mr. JONES. We appreciate your statement, Mr. Blanton, and we are glad to have it for the record.

Our next witness will be the Honorable William E. Brock of Tennessee. Mr. Brock, it is a pleasure to have you with us today. You may proceed.

#### STATEMENT OF HON. WILLIAM E. BROCK, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TENNESSEE

Mr. BROCK. Mr. Chairman, my home of Chattanooga is also the home of the Tennessee Valley Authority's Office of Power. This happy circumstance has given me the opportunity to become acquainted with the men who run TVA's power system and will have much of the responsibility for utilizing the increased borrowing authority provided for in H.R. 18104 and 16601.

The reputation of these officials for dedication, experience, and knowledge is well known in Chattanooga. Backing up this reputation is an outstanding record of achievement. An idea of the magnitude of this record can be obtained by looking at the generating plants TVA started in the short time that I have been in Congress.

I became a Member of Congress in January of 1965. In October of 1965 TVA started building a 1,150,000-kilowatt unit at Paradise steam plant in Kentucky. Browns Ferry, TVA's first nuclear plant having three units with a total capacity of 3,456,000-kilowatts was started in September of 1966. This was followed in March of 1968 by two-unit 2,600,000-kilowatt-capacity Cumberland steam plant. Finally, site preparation for TVA's second nuclear plant, Sequoyah near Chattanooga, was started in March of 1968. This plant will have a 2,441,160-kilowatt capacity.

Thus in 5 short years TVA has started construction on 7 generating units which, when completed, will have a capacity of more than 9,600,000 kilowatts. The managerial ability shown in the undertaking of this vast construction program warrants the increase we are seeking in TVA's borrowing authority.

The fact that so much generating capacity had to be started in this short period of time indicates that the increase in borrowing authority to \$5 billion provided in the proposed legislation is not only justified, but required. I ask that the committee give favorable consideration to this legislation.

Thank you, Mr. Chairman.

Mr. JONES. Thank you, Mr. Brock, for your excellent statement. We will now hear from our good friend the Honorable Tim Lee Carter of Kentucky—Mr. Carter, thank you for coming here today to present your testimony.

**STATEMENT OF HON. TIM LEE CARTER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF KENTUCKY**

Mr. CARTER. Mr. Chairman, in 1966 I introduced a bill to increase TVA's borrowing authority above the original ceiling of \$750 million. In that year we increased the authority by \$1 billion to its present level.

Today I am appearing as a cosponsor of H.R. 16061, a bill to increase again the limit on TVA's borrowing authority—this time to \$5 billion.

In preparing for today's appearance I looked over the Congressional Record covering the days when we last raised the ceiling. On those pages appears a speech I made, part of which I would like to quote now.

TVA is paying its own way, as a self-supporting agency so far as its power operations are concerned. I believe TVA should continue to use bonds issued in the private moneymarket, along with its power revenues, to finance needed power facilities in the Tennessee Valley.

I support the proposal to raise the ceiling on TVA's revenue bond authority to \$1,750 million.

The record of TVA during the last 4 years contains nothing that would change my mind. I still feel that the TVA power system should be financed through borrowings on the private bond market. This system has worked well since its inception under a law signed by President Eisenhower. I support the bills now before the committee because they give a sufficient increase in TVA's borrowing authority to enable it to meet its requirements for a reasonable length of time.

Thank you, Mr. Chairman.

Mr. JONES. It was good of you to come here today, Mr. Carter.

We now have as our next witness our distinguished colleague and good friend, the Honorable John W. Davis of Georgia.

You may proceed, Mr. Davis.

**STATEMENT OF HON. JOHN W. DAVIS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF GEORGIA**

Mr. DAVIS. Mr. Chairman, H.R. 18104 and H.R. 16061 will reaffirm the decision that Congress first made in 1959 that the TVA power system be self-financing. We are all aware of the accomplishments of TVA in the field of electric power development. Other aspects of the TVA program, although vital to the development of the Tennessee Valley area, do not receive the same wide publicity.

In one of these areas, navigation development, TVA's record is particularly outstanding. In the 1930's Congress instructed TVA to build a navigable channel from Paducah, on the Ohio River, to Knoxville, where the Holston and French Broad Rivers meet to form the Tennessee.

As recently as the end of the 1940's TVA's detractors were scoffing at the plan. These men of little vision said that the navigable channel would never carry the freight that TVA estimated it would.

Time and TVA's efforts have proven the worthlessness of the predictions made by the critics.

Although work on the navigation channel was started early in TVA's history, its completion was delayed by the intervention of World War II. It was not until 1945 that a minimum 8-foot depth was achieved throughout the 650-mile length of the navigation channel. And it was not until 1952 that the full 9-foot channel depth was completed.

In 1933, the year TVA was created, freight traffic amounted to 32.7 million ton miles on the river. Today, freight traffic on the Tennessee River totals more than two and a half billion ton miles, more than 80 times as much as in 1933.

Another way to measure the impact of this system is to look at the growth of water front private industry. Since 1933, private sources have invested \$1.8 billion in waterfront plants and terminals. Over half of this investment has been made since 1961.

The same vision and perseverance shown by TVA in its navigation development program appears in its power program. This is just one reason to support early passage of this legislation.

Thank you, Mr. Chairman.

Mr. JONES. Thank you for your very fine statement, Mr. Davis.

We now have for our next witness our very good friend from Tennessee, the Honorable Joe L. Evins. You may proceed.

#### STATEMENT OF HON. JOE L. EVINS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TENNESSEE

Mr. EVINS. Mr. Chairman, I want to strongly urge and recommend that the Committee on Public Works report favorably legislation to increase the bonding authority of Tennessee Valley Authority to \$5 billion. This increase is urgently needed to enable Tennessee Valley Authority to meet anticipated power demands in the future.

On Tuesday of this week the Tennessee Valley Authority raised \$100 million by selling bonds on the public market. The authority for TVA to raise money in this manner was first granted in 1959. At that time Congress limited the amount of bonds TVA could have outstanding at any one time to \$750 million.

The limit has since been raised to \$1,750 million, and—as I indicated—H.R. 18104 and H.R. 16061 propose that it be increased further to \$5 billion.

The need for this additional borrowing authority is underlined by the history and experience of TVA. In 1933, when Congress was considering the TVA Act, those opposing the legislation said that they could foresee no market for the power which would be produced by TVA.

At that time there were only 230,000 residential consumers of electric power in the area that is now served by TVA. Most of these customers were clustered around the cities and towns. Rural electrification had hardly begun to develop, and most farm families had to rely on kerosene for lighting and muscle power for other jobs that electricity now performs.

In that year those homes that had electricity used on the average 600 kilowatt-hours per year. The electrical generating capacity in

the area was only 855,000 kilowatts, and only 500,000 kilowatt-hours of electricity was generated.

The situation changed dramatically after TVA was organized. The TVA concept included utilization of low-cost power as a tool in regional development. Therefore, power rates were reduced, rural electrification was pushed, and exploration of ways in which electricity could better serve the farms and homes of the Tennessee Valley was begun.

The residential user of TVA electricity still pays, on the average, less than a penny per kilowatt-hour for his power. Before TVA, this cost was 5.7 cents per kilowatt-hour, and in 1969 the average for the United States as a whole was 2.11 cents.

The number of residential customers has grown to over 1,800,000.

Average residential use is now almost 14,000 kilowatt-hours per year, more than 20 times what it was in 1933.

Rural electrification has progressed to the point where all but a handful of farms in the TVA region enjoy the benefits of electricity. This great growth in rural service was achieved by TVA working in partnership with the 110 municipal and 50 cooperative systems which distribute TVA power.

This great growth in electrical use in the TVA area is the reason that H.R. 18104 and H.R. 16061 are so important. Skeptics of 1933 saw no market for TVA power. Realists of today see that additional investments must be made by TVA in new generating capacity to enable it to continue meeting the electricity requirements of its area.

These investments require money. In 1959 Congress decided that this money should no longer come from appropriations. Instead, funds for capital investment are to be raised on the private money market without backing from the U.S. Treasury.

TVA has under construction about 9 million kilowatts of generating capacity. These projects will exhaust the present authority of TVA to issue bonds. An increase in the ceiling on TVA bonds is required to enable it to start new generating capacity. H.R. 18104 and H.R. 16061 provide this increase, and by raising the ceiling to \$5 billion assures the people of the TVA area an ample supply of power for a reasonable period in the future.

I urge favorable action by the committee on this important legislation.

Thank you, Mr. Chairman.

Mr. JONES. Our next witness is the Honorable Walter Flowers, our good friend from Alabama. Please proceed, Mr. Flowers.

#### **STATEMENT OF HON. WALTER FLOWERS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ALABAMA**

Mr. FLOWERS. Mr. Chairman, in preparing to appear in support of H.R. 18104 and H.R. 16061, I examined this committee's favorable report in 1959 on the self-financing amendment to the TVA Act. That report stated that the \$750 million in borrowing authorized for TVA would last from 5 to 7 years.

Those of us who cosponsored the bill now before the committee understand the \$5 billion ceiling it imposes on TVA borrowing will enable TVA to operate for another 5 to 7 years. Thus we are showing

the same degree of confidence in TVA as Congress showed when it first enacted the self-financing provisions.

This confidence is not restricted to the sponsors of H.R. 18104 and H.R. 16061. On Tuesday of this week TVA sold \$100 million worth of bonds in New York. The two major rating services gave these bonds a AAA rating. This is the top rating possible and shows the confidence that the financial community has in TVA.

This confidence is grounded in the fact that under the provisions of the 1959 law TVA has met, on schedule, all payments due to the U.S. Treasury. Provisions of the act which allow these payments to be delayed for up to 2 years have never been used.

The confidence is also based upon TVA's proven record to economically build and efficiently operate the generating capacity needed to meet the power requirements of its area. With this record before it, Congress should do no less than increase to \$5 billion TVA's authority to borrow money.

Thank you, Mr. Chairman.

Mr. JONES. Thank you for your very fine statement, Mr. Flowers.

We now have as our next witness the Honorable Richard Fulton of Tennessee. Please proceed.

#### **STATEMENT OF HON. RICHARD FULTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TENNESSEE**

Mr. FULTON. Mr. Chairman, H.R. 18104 and H.R. 16061 will give to TVA increased authority to borrow funds from the private money markets to finance additional generating capacity to meet the power demands of the TVA region.

An interesting aspect of the TVA power program is the in-lieu-of tax payments which TVA makes to State and local governments. It may surprise some to learn that TVA is the largest taxpayer to the Tennessee State government. The \$8.3 million which TVA will pay to Tennessee this year is nearly as much as the State's combined general fund appropriation for game and fish, stream pollution control, strip mine reclamation, forestry, State parks, and water resource programs.

In addition to the payments to Tennessee, TVA will pay \$3.3 million to the State of Alabama, \$2.4 million to the State of Kentucky, and lesser amounts to other State and local governments. Payments in lieu of taxes made by TVA in fiscal year 1970 will total over \$16 million, which is more than \$1.6 million more than last year.

Distributors of TVA power will pay an additional \$24 million this year in taxes or tax equivalents. This total of \$40 million compares favorably with what a private utility would pay under similar circumstances. For example, last year the combined TVA-distributor payments amounted to 7.1 percent of the power bills paid by users of TVA electricity. Comparable State-local tax ratios for private power companies serving surrounding areas ranged from about 3.6 to 10.2 percent of their customers' power bills.

Thus TVA and its distributors have shown that they can supply low-cost power while paying their fair share of the cost of State and local government. And since 1959 they have been able to do this with funds that do not come from the U.S. Treasury.

The proposed legislation by increasing TVA's borrowing authority to \$5 billion will provide funds needed to enlarge the TVA's system's generating capacity. This will enable TVA to continue to meet the electric power needs of the residents of the TVA area.

Thank you, Mr. Chairman.

Mr. JONES. We appreciate your fine statement for the record, Mr. Fulton.

Our next witness will be the Honorable Ed Jones of Tennessee. We welcome you, Mr. Jones. You may proceed.

**STATEMENT OF HON. ED JONES, A REPRESENTATIVE IN CONGRESS  
FROM THE STATE OF TENNESSEE**

Mr. (ED) JONES. Mr. Chairman, I am here in support of H.R. 18104 and H.R. 16061, which if passed will authorize TVA to have \$5 billion of bonds and notes outstanding at any one time. The existing law places a limit on indebtedness to the public of \$1.75 billion.

The borrowings authorized by this bill will be used entirely for financing of the TVA power system. The TVA Board of Directors, who have ultimate responsibility for directing the operation of the power system, also have a similar responsibility for TVA's other programs.

It would seem profitable, therefore, to examine briefly one of the other parts of the TVA program and see what TVA has accomplished in it.

One of the basic jobs given to TVA by Congress in 1933 was to develop and promote new and improved fertilizers and more efficient fertilization practices throughout the United States. At the National Fertilizer Development Center at Muscle Shoals, Ala., TVA through the years has developed a wide array of fertilizer products and processes. Through its patent licensing program TVA has made these developments available throughout the country. To date, TVA has issued 526 licenses, under patents it has received, to 308 companies for 463 plants in 40 States.

To conduct an effective fertilizer development program takes more than scientists working in laboratories. It requires contact with the farmer in the field, both to find out his needs and to show what has been developed to meet those needs. It requires working with fertilizer manufacturers and distributors to assure that new products will not remain laboratory curiosities but will be manufactured in volume and distributed to the places they are needed.

TVA, recognizing these facts, has developed a network of activities including research projects, farm demonstrations, and distributor demonstrations reaching 44 States. The effectiveness of this program is indicated by the fact that in the last 20 years farmers' fertilizer costs have dropped while other farm costs have risen.

The effective TVA management in the fertilizer development area is one more indication of the effectiveness of the people we will entrust with the responsibility for administering the additional borrowing authority contained in the proposed legislation. I urge favorable consideration be given to this bill.

Thank you, Mr. Chairman.

Mr. (ROBERT) JONES. We are grateful for your presence here today, Mr. Jones. Thank you for coming.

We will now hear from the Honorable Dan H. Kuykendall of Tennessee. You may proceed, Mr. Kuykendall.

**STATEMENT OF HON. DAN H. KUYKENDALL, A REPRESENTATIVE  
IN CONGRESS FROM THE STATE OF TENNESSEE**

Mr. KUYKENDALL. Mr. Chairman, in the 37 years since TVA's formation, the areas served by TVA have become an important and rapidly expanding industrial area.

In 1933, 62 percent of those working in the Tennessee Valley region found their jobs on farms. By comparison, agriculture accounted for less than 30 percent of the national work force. With such a heavy emphasis on farming it is not surprising that the Tennessee Valley area could place only 12 percent of its workers in manufacturing industries in 1933.

By 1968, the picture in the area had dramatically changed. The percent of the work force employed in manufacturing enterprises had risen to over 33 percent, surpassing the national figure of 27 percent.

This striking shift from a farm-based economy to an industrialized society was made possible by a partnership involving TVA, State and local governments, and private industry. TVA developed the electric power resources of the area and built a modern navigable waterway. The State and local governments developed the services necessary to meet the requirements of an industrial society.

Private industry responded to these activities by investing uncounted millions of dollars in plants and facilities. H.R. 18104 and H.R. 16061 will provide TVA with the financial resources to build the electric generating capacity needed to continue supplying ample electricity for these industries.

These financial resources will not be in the form of appropriations. Instead TVA will be allowed to continue to sell bonds to the general public. The bonds are not backed by the Treasury, but must be paid from revenues derived by TVA from the sale of power. In effect, this bill will continue to allow the people of the TVA region to pay for the facilities needed to assure continued economic development of that region. For this reason I support passage of the legislation under consideration.

Thank you, Mr. Chairman.

Mr. JONES. It was a pleasure to have you with us, Mr. Kuykendall. Thank you for your excellent statement.

Our next witness is the Honorable James H. Quillen of Tennessee. Please proceed, Mr. Quillen.

**STATEMENT OF HON. JAMES H. QUILLEN, A REPRESENTATIVE IN  
CONGRESS FROM THE STATE OF TENNESSEE**

Mr. QUILLEN. Mr. Chairman, H.R. 18104 and H.R. 16061 seek to amend a section of the TVA Act which not only gave TVA the authority to borrow funds from the general public, but also established a definite repayment schedule for appropriations invested in power facilities.

In 1959, when section 15d of the TVA Act was written into law, appropriations invested in the power system amounted to \$1.2 billion.

The act provided that \$1 billion of this amount be paid back over a period of 54 years.

In addition to repayment of the principal, the law required TVA to pay each year a return on the balance of the appropriations invested in the power system. The return is determined by applying the computed average interest rate payable by the Treasury on its total marketable public obligations as of the beginning of a fiscal year to the appropriation investment balance at the beginning of that fiscal year.

Under this schedule TVA made its first payments in 1961. The return was computed using an interest rate of 3.449 percent. This year the computed average interest rate being used has risen to 5.232 percent.

It is interesting to note that the return in appropriation investment in 1961 totaled \$41,432,398. This year, after having paid back \$125,000, TVA will pay into the Treasury a return totaling over \$57 million. Over the years TVA has paid as a return on appropriation investment over \$448 million.

Incidentally, TVA's payments have always been made on time, although provisions of the law allow them to be deferred for up to 2 years. This record can be continued if TVA is given authority to borrow the money needed to finance needed additional generating capacity.

H.R. 18104 and H.R. 16061 provide this authority, and I urge passage of this legislation.

Thank you, Mr. Chairman.

Mr. JONES. Your presence here today is appreciated, Mr. Quillen.

Next, we will hear our very distinguished colleague and good friend, Hon. Frank A. Stubblefield of Kentucky.

Mr. Stubblefield, you may proceed.

#### **STATEMENT OF HON. FRANK A. STUBBLEFIELD, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF KENTUCKY**

MR. STUBBLEFIELD. Mr. Chairman, twice before since I have been in Congress I have supported bills enacted into law that gave TVA the authority to borrow money on the private money markets. Today, I am appearing in support of a third bill in this area.

When we passed the original section 15d of the TVA Act in 1959, there was long debate and protracted argument. Many questioned the ability of TVA to finance its program this way. The wisdom of allowing TVA to depart from the annual appropriations process was challenged.

We emerged from that debate with a good bill, but nevertheless a bill that was, in some respects, viewed as an experiment. TVA's authority to borrow was limited to \$750 million. Committee reports indicated that this sum would be sufficient to provide TVA with 5 to 7 years' experience before it would have to be increased. At that time it was expected Congress could look at TVA's record and determine whether or not it should be allowed to continue under this plan.

In 1966, a raise in the ceiling was required if TVA was to make commitments for needed new generating capacity. When the request for an increase came before Congress we did examine TVA's record. I am pleased to say we found it fulfilled all the expectations of the plan's supporters.

The debate in 1966 was considerably shorter than that in 1959. Upon its conclusion a bill was passed that increased TVA's borrowing authority to \$1.75 billion.

Today, only 4 years later, we are again looking at TVA's record under the self-financing plan. Today, we are again considering increasing TVA's borrowing authority—this time to \$5 billion. Because of growth in the size of the system, as well as inflation, this amount will last TVA for from 5 to 7 years—about the same length of time as the original ceiling.

Today, the record of TVA's accomplishments utilizing self-financing shows that the \$5 billion ceiling provided in H.R. 18104 and H.R. 16061 is a minimum we should provide. Nothing appears in the last 11-year record of self-financing to diminish our confidence in TVA management. Therefore, we should provide them sufficient authority to operate for at least as long a period of time as we did when the original self-financing amendment was passed.

Thank you, Mr. Chairman.

Mr. JONES. Thank you for your very fine statement, Mr. Stubblefield. We will now hear from the Honorable William C. Wampler of Virginia.

**STATEMENT OF HON. WILLIAM C. WAMPLER, A REPRESENTATIVE  
IN CONGRESS FROM THE STATE OF VIRGINIA**

Mr. WAMPLER. Mr. Chairman, H.R. 18104 and H.R. 16061 provides additional nonappropriation financing for the power system operated by the Tennessee Valley Authority. Most of the generating capacity of the Tennessee Valley Authority is fueled by coal, and coal mining is an important industry in my district.

Much of the coal in my area of southwest Virginia is recovered through strip mining. As you know, strip mining, like most other modern-day activities, has environmental problems associated with it.

A few people would have us stop mining the coal and leave it in the ground. However, TVA, at a site near Norton, Va., is demonstrating, in cooperation with the Virginia Division of Mined Land Reclamation and the New York Mining & Manufacturing Co., how strip mined land can be reclaimed.

This demonstration shows that with proper measures a strip mined area can become a haven for wildlife and an area which can be enjoyed by those who relish outdoor living. These measures of course cost money and, when adopted by mining companies, will increase the cost of the coal which TVA buys.

This strip mine demonstration is an example of TVA's concern for the environment as well as a reason for passage of the proposed legislation.

Proper environmental protection measures increase not only the cost of coal but of the facilities TVA uses to generate and transmit electricity. The price of building a steamplant increases with the installation of electrostatic precipitators to remove fly ash and of the hardware to handle properly warm water discharges. Transmission line construction costs increase when their location is determined on esthetic as well as engineering grounds.

These costs must and should be paid. This legislation, by increasing its bonding authority to \$5 billion, provides TVA with the financing

to meet these and other costs associated with supplying electric power to its area.

Thank you, Mr. Chairman.

Mr. JONES. Now we will receive our distinguished Member of the House from the State of Mississippi, Congressman Jamie Whitten.

Mr. Whitten has, over a period of many years, been one of the Tennessee Valley Authority's most effective supporters. He has been a tower of strength in advancing the interests of TVA, and through the work of this agency, the interests of the people of the Tennessee Valley and the Nation.

As a leading member of the House Appropriations Subcommittee on Public Works, Mr. Whitten has played a major role in securing adequate appropriations to fund properly the multiple-purpose program of the Tennessee Valley Authority. He has seen TVA not just as an electric power producer but as a resource development agency concerned with the maximum development of our water and land resources for the public good.

I can say with great conviction that Jamie Whitten's legislative skills and informed judgments have made major contributions to the advancement of TVA over the years, and without his efforts TVA would not today have the record it has attained.

#### **STATEMENT OF HON. JAMIE WHITTEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MISSISSIPPI**

Mr. WHITTEN. Mr. Chairman, I am particularly pleased to make a statement to this committee on the subject of the Tennessee Valley Authority, and its ability to obtain funds to finance its growing electric power program.

It is my pleasure to be a sponsor of H.R. 16061, because I view this bill—which would increase the ceiling on TVA's bonding authority to \$5 billion—as another step forward for an agency of the Federal Government that provides electric power to an important region of our Nation.

It was just about 4 years ago—on June 13, 1966—that the House of Representatives approved a bill to increase TVA's borrowing authority from \$750 million to \$1.75 billion. During the floor discussion of that bill, I had the opportunity to express my support of the measure, as essential to the continuation of the TVA power program.

The bill before your committee today is essential. Electric power loads are growing, doubling every decade. And I understand that loads in the Tennessee Valley are growing at a faster rate than in the Nation as a whole in recent years.

I have worked on TVA legislation for many years, since much of my district has been a part of the TVA power service area. I recall the debates in the 1940's and early 1950's over TVA's authority to use its power revenues for investment in power facilities, over the formula for TVA payments to the Federal Treasury, over the construction of steamplants by TVA.

Then in 1959 TVA shifted from dependence on congressional appropriations for its power program financing to the revenue bond method—bonds and notes issued in the private money market, with the interest thereon being federally taxable, and the borrowings not being obligations of the U.S. Government. At the same time Congress wrote into

law restrictions on the area in which TVA power might be marketed.

That revenue bond financing method has worked well. The people of the Tennessee Valley who use TVA-generated electricity are paying, through their monthly electric bills, enough money to cover all of the costs of operating TVA; the sizable TVA payments to the U.S. Treasury, now amounting to nearly \$73 million a year; and the principal and interest on TVA's borrowings.

H.R. 16061 says that we have reached the time when Congress must again review the effectiveness of this method of financing the TVA power program, and if we find the method to be working well, then we should—indeed, must—extend this authority for several more years.

Revenue bond financing has worked. The present authority of \$1.75 billion will be virtually exhausted by issuance of revenue bonds and notes to finance the electric generation and transmission facilities now under construction. These facilities now being built will meet TVA's powerloads through 1975. But there is today a 6-year timelag between placement of an order for electric generating equipment and the actual delivery and operation of that equipment.

So TVA now needs, and needs urgently, the financing authority that will enable it to place orders for additional power generating equipment. TVA has, in fact, already taken bids on additional generation, but cannot place orders until it has the necessary financing authority.

Therefore, I urge this committee to approve, as speedily as possible, the bill to raise the limit on TVA's borrowing authority to \$5 billion. And I thank you for allowing me to make this statement.

Mr. JONES. Thank you very much, Congressman Whitten, for this excellent and concise summary of the need for an immediate increase in the Tennessee Valley Authority's borrowing authority. TVA has no better informed, dedicated, and effective supporter than you, and we appreciate your statement. Mr. Duncan.

Mr. DUNCAN. Thank you, Mr. Chairman. I ask unanimous consent that a statement by Senator Baker be inserted in the record.

Mr. JONES. Without objection, it will be received and printed in the record at this point.

STATEMENT OF HON. HOWARD H. BAKER, U.S. SENATOR FROM THE STATE OF  
TENNESSEE

Mr. Chairman and members of the subcommittee, I regret very much that I could not appear here today as I wished to do. The matter under consideration by the subcommittee is of the greatest importance to the people of the State of Tennessee, as well as many other millions of people throughout the region served by the Tennessee Valley Authority.

As I believe every member of the subcommittee knows, the Tennessee Valley Authority has been responsible for promoting extraordinary economic growth in the eight-state region that it serves. Created in 1933 in the depths of the great depression, TVA has served as the principal catalyst for growth and progress in an area that had little hope at that time. One of the principal reasons for this success has been the broad mandate given by the Congress to TVA. Although there were many who bitterly challenged the authority given to TVA by the Congress in 1933, it is entirely clear in retrospect that nothing short of this mandate would have been sufficient to deal with problems of such magnitude.

In 1959 the essential autonomy of TVA was strengthened by the Congress when the agency was given self-financing or borrowing authority for its power program. Because TVA is specifically charged with the responsibility of anticipating and meeting the rapidly growing power needs of the eight-state region, this

self-financing authority granted by the Congress in 1959 gave the agency the kind of flexibility that is essential for it to fulfill its statutory responsibilities. Because of the very great lead time required in constructing power generating facilities that will be needed years later to meet the anticipated need, self-financing has proved to be far more efficient and flexible than the previous condition of annual appropriations by the Congress. The self-financing provision has also been a great benefit to the taxpayer, because section 15d of the Act provides that TVA shall make an annual payment out of power revenues into the Treasury. These payments include two amounts, one a repayment of the principal amount of the original appropriated investment in the power facilities of TVA, which as of June 30, 1969, totalled \$110,000,000, and a return on the unpaid principal, which as of the same date totalled \$390,597,000. This represents a total payment into the general fund of more than \$500,000,000 since fiscal 1961.

The purpose of the bills before the subcommittee today is to increase the authorized ceiling on TVA borrowings from \$1.75 billion. There is some disagreement about whether an increase of this magnitude is necessary. Based on the information that I have studied, I believe that the \$5.0 billion figure is wholly justified. But I am sure that the Committee will make a careful and independent judgment of the facts.

The financing of the power facilities already under construction or authorized for construction will exhaust the presently authorized \$1.75 billion of borrowings TVA is permitted to have outstanding. The total generating capacity of the system will then approach 30 million kilowatts.

Growth in electric loads in the nation have been requiring a doubling of capacity each ten years. The load growth of the farms, homes, institutions, businesses and industries in the TVA region has been exceeding that in the nation. The load growth in the TVA region is expected to require at least a doubling of capacity in the coming ten years. Thus in this decade 30 million kilowatts of additional capacity will need to be started or authorized.

Depending upon the future rate of inflation, revenues available for reinvestment, and other factors, it is now expected that this 30 million of \$5 billion (based on a cost of \$170 per kilowatt of generating capacity) to \$8 billion (based on \$250 per kilowatt). The \$3.25 billion of proposed additional borrowing authority is therefore expected to be sufficient for the next four to six years.

Mr. Chairman, there is increasing concern throughout the nation about the possibility of brown-outs and even black-outs in some areas this summer. Such concern exists in the Tennessee Valley area. Because the Congress exercises absolute control over the capacity of the Tennessee Valley Authority to meet the needs of the region, it seems to me that the Congress must bear any responsibility for inadequate power in the region in the years ahead, if TVA is not permitted to borrow funds sufficient to the needs of the region. Because of the lead time required in planning a construction program, the time factor is quite important. I hope that both houses of the Congress will act expeditiously on this necessary legislation.

Mr. DUNCAN. I understand we are running out of time in view of the House going into session at 11 o'clock this morning. I have some questions that I would like to submit for answers from Mr. Wagner. I can ask them or just submit them. I think he is familiar with most of them.

Most of them have actually been answered in the testimony of the witnesses this morning.

Mr. JONES. Is there objection? If there is no objection, the interrogatories will be propounded to you, Mr. Wagner, and you make the responses for the record.

(Interrogatories referred to follow:)

QUESTIONS PRESENTED BY CONGRESSMAN JOHN J. DUNCAN TO MR. JAMES WATSON, MANAGER OF POWER, TVA, AND REPLY

*Question. In 1959 Congress established a \$750 million ceiling on TVA borrowing. How long did that original authority last?*

*Answer. An increase in the ceiling became necessary in 1966, and it was raised to \$1,750,000,000 at that time.*

*Question. Were there any special occurrences that caused the original bonding authority to last that long?*

Answer. Yes, there were two such special factors. First, there was a substantial reduction during that period in the power loads of the Atomic Energy Commission's plants at Oak Ridge, Tennessee, and Paducah, Kentucky. Second, we concluded in that period an interchange arrangement with neighboring power systems to the southwest under which TVA supplies a million and a half kilowatts to them during the summer months when they have a heavy airconditioning load, and they return an equal amount to TVA in the winter months when we have heavy electric heating loads. This made it possible for them and for TVA each to avoid construction of a million and half kilowatts of capacity.

*Question. In 1966, Congress gave you an additional \$1 billion. Yet you are here requesting additional authority only four years later. Why did this \$1 billion last for a shorter period than the \$750 million?*

Answer. There are several reasons. Special factors like those mentioned in connection with the 1959-66 period were not present to anything like the same extent. Our system was larger and so was its growth in kilowatts of capacity. Lead times for construction grew longer. And the costs of labor, materials, and money increased substantially.

*Question. Do you foresee prices going down soon?*

Answer. No.

*Question. What will happen to construction lead time? Will it get longer or shorter?*

Answer. We expect it to grow longer.

*Question. How long would a ceiling of 5 billion dollars last?*

Answer. Present cost and load growth projections indicate that a 5 billion dollar ceiling would enable TVA to place orders for needed generating capacity during the next five to seven years. At that time we would have to seek another increase in the ceiling.

*Question. What if it lasted longer than that? Would you build capacity before it was needed?*

Answer. No, we would not start construction of new generating capacity sooner than required.

*Question. Would you sell bonds before they were needed?*

Answer. No, indeed.

*Question. The Bureau of the Budget in its letter to the Committee mentioned uncertainties about AEC loads as a reason to limit the ceiling to \$3.5 billion. When would you build capacity to serve AEC loads?*

Answer. We would undertake additional capacity installation for AEC only after obtaining a commitment from them to purchase the power.

*Question. How long would a \$3.5 billion ceiling allow TVA to operate before a request for additional authority would be needed?*

Answer. We estimate that under a \$3.5 billion ceiling, we would have to come back to Congress for a further increase in the ceiling in from two to four and one-half years.

*Question. What is this estimate based upon?*

Answer. This estimate is based on current projections of the costs of new generating capacity, of lead times for such capacity, and of the amount of capacity that will be needed to meet increases in loads on our system.

*Question. Assuming a \$3.5 billion ceiling, if your rate of growth is somewhat faster than you expect would you have any problems building needed generating capacity?*

Answer. If our rate of growth is faster than we expect, then we will have to accelerate the ordering and installation of generating capacity. We would of course be faced with the problem of obtaining a sufficiently high place on the order schedules of manufacturers of large units, who are few in number, to permit us to have the generating capacity installed in time; this would be especially difficult if there were a period a time, between the exhaustion of our borrowing authority and the enactment of additional legislation increasing such authority, when we could not place firm orders. A crash program of construction would also involve additional overtime work and other costs.

*Question. If lead times for construction lengthened would you have to come back sooner for additional bonding authority?*

Answer. Yes.

*Question. Is lead time in the electrical industry becoming longer or shorter?*

Answer. Lead times are increasing.

*Question. What factors are affecting lead time as far as TVA is concerned?*

Answer. The large units that we are installing today require more time to manufacture than the smaller units ordered in prior years. We are also faced with a backlog of orders in the hands of equipment manufacturers which requires that contracts for large components be made further in advance of the installation date than was the case three or four years ago. When we first ordered nuclear plants five years ago, we estimated that the process for obtaining a construction license from AEC would take about a year. For a variety of factors, many beyond the control of anyone either in AEC or TVA, we find that this process can consume almost two years, thereby having a significant effect on the length of lead time required in constructing nuclear generating plants.

*Question. Could factors arise so that with a \$3.5 billion ceiling you would be back here in 1972 for more authority?*

Answer. Yes. As already indicated, we estimate that with a \$3.5 billion ceiling we would have to come back to Congress for a further increase in the ceiling in from two to four and one-half years. If increases in lead time, in costs resulting from inflation, and in power demands on our system are in the upper part of the range we have estimated, we might well be seeking an increase in the ceiling in 1972. It is of course possible that the rate of increase in one or more of these factors might be above the range we have estimated.

*Question. In 1959 what was the AEC demand?*

Answer. 3,133 megawatts.

*Question. What was the AEC demand in later years?*

Answer. In October 1961 the AEC demand was reduced by 300 megawatts. In July 1964 the demand was reduced by an additional 360 megawatts. Other reductions resulted in the AEC demand reaching a low point of 1,340 megawatts in 1969. Recent action has led to increases which are scheduled to start in April 1971. Existing firm contracts between TVA and AEC will increase this demand to 3,165 megawatts in 1976.

*Question. When this AEC demand dropped did you change your schedule of steam plant construction?*

Answer. With the reduction in power use by AEC, TVA was able to adjust its construction program by rescheduling the installation dates of Widows Creek unit 8 from 1963 to 1964 and Bull Run unit 1 from 1964 to 1965, one year later than contemplated a year ago.

*Question. Did you change your rate of bond sales?*

Answer. Yes. We reduced our sales of bonds below the amount we would otherwise have issued.

*Question. Is it easier to speed up or slow down a construction program?*

Answer. It is easier to slow it down.

*Question. What are the problems with speeding up a construction program.*

Answer. One problem is getting the necessary equipment delivered in time. Another is the overtime work that is required, which means substantial additional costs. In the case of nuclear facilities, the required procedure for obtaining the necessary construction permits must be followed, and this is a time-consuming process which cannot be short-cut.

*Question. Is it more costly to undertake a crash construction program?*

Answer. Yes, it certainly is. A crash program means, for example, very large overtime costs for labor. It may also mean added costs to obtain earlier than normal deliveries of equipment, or use of less desirable equipment which may result in unusual construction costs and greater operating and maintenance expense.

*Question. What is the effect on lead times and costs of the increased concern about the environment?*

Answer. Installation of special equipment to avoid adverse effects on the environment adds to costs. Environmental considerations, including coordination with other agencies, also increase lead times.

Mr. JONES. By way of explanation, I did look over the questions. The questions were reviewed yesterday afternoon by Mr. Clausen and Mr. Duncan and myself, and so they are certainly consistent with the general statements that have been made by the witnesses.

Mr. DUNCAN. Mr. Chairman, one other brief statement. I would like to say that all the Members of the House from Tennessee from both political parties have joined in cosponsorship of this legislation and fully support it.

Mr. JONES. If there is no objection, I would like to have appear in the record at this point certain pertinent information about the TVA power system and the TVA area. Mr. Wagner, I have a list of the information, and I ask you to take the list and supply for the record the information requested.

(The information requested follows:)

1. List TVA's outstanding borrowings.

Answer:

BONDS

Sale date	Description	Amount (in millions)	Interest cost to TVA (percent)	Yield to investor (percent)
Nov. 15, 1960	1960 Series A 4.40s of 1985.....	\$50	4.44	4.40
June 28, 1961	1961 Series A 4.6s of 1986.....	50	4.69	4.64
Jan. 24, 1962	1962 Series A 4.1s of 1987.....	45	4.52	4.50
May 16, 1967	Series A 5.70s of 1992.....	70	5.77	5.70
Nov. 1, 1967	1967 Series B 6.3s of 1992.....	60	6.43	6.38
June 3, 1969	1969 Series A 8s of 1974.....	100	7.94	7.75
Oct. 7, 1969	1969 Series B 8.1s of 1994.....	100	8.32	8.25
Mar. 17, 1970	1970 Series A 9s of 1995.....	100	8.998	8.90
June 16, 1970	1970 Series B 9.1s of 1995.....	50	9.2897	9.20
Do.....	1970 Series C 8.6s of 1975.....	50	8.657	8.50

SHORT TERM NOTES

Sold to the public.....	\$333,000,000
Payable to the U.S. Treasury.....	150,000,000

2. What are the estimated costs to complete the power projects now under way?

Answer. The following projects are under construction: Browns Ferry 1-3, Cumberland 1-2, Sequoyah 1-2, Raccoon Mountain, and the Allen gas turbines. These involve 10.3 million kw of generating capacity. After June 30, 1970, \$960 million remains to be spent to complete these projects, including the generating units, the associated transmission connections, and first core fuel for each nuclear reactor. This will be financed from borrowings and proceeds from power system operations.

3. Furnish information with regard to growth in power use in the TVA area—residential, farm, business, AEC, and other Federal agencies.

The information requested is as follows:

## GROWTH IN POWER USE—TVA AREA

## A. RESIDENTIAL AND FARM

Calendar year	Energy use (millions of kilowatt- hours)	Average number of customers (thousands)	Average use (kilowatt- hours)	Heating degree days (3,410 normal)
1933.....	130	225	600	-----
1940.....	471	331	1,425	-----
1949.....	2,463	857	2,873	-----
1959 <sup>1</sup> .....	10,645	1,382	7,703	3,653
1967.....	20,382	1,730	11,784	3,435
1968.....	23,324	1,773	13,152	4,048
1969.....	25,654	1,820	14,093	3,842
1974 estimate.....	32,670	2,040	16,000	-----
1976.....	38,120	2,128	17,900	-----

<sup>1</sup> Includes Memphis.

(In percent)

Rate of energy growth	1959-69	1967-69
TVA.....	9.2	12.4
United States.....	8.5	10.9

## B. BUSINESS AND INDUSTRY

Calendar year	Energy use (millions of kilowatt- hours)	Average number of customers (thousands)	Calendar year 1969	
			Primary manufacturing	Billions of kilowatt hours
1933.....	1,200	50	Aluminum.....	7.9
1940.....	2,747	66	Ferroalloy.....	2.4
1949.....	8,745	135	Phosphorus.....	3.6
1959 <sup>1</sup> .....	21,193	179	Other chemicals.....	5.6
1967.....	38,878	218		
1968.....	41,505	223		
1969.....	45,849	227		
1974 estimate.....	67,700	254		
1976 estimate.....	76,550	265		

<sup>1</sup> Includes Memphis.

## C. TOTAL TVA AREA LOAD EXCLUDING AEC

Calendar year:	Energy use (millions of kilowatt-hours)	Demand in megawatts <sup>1</sup>
1933.....	1,500	320
1940.....	3,729	862
1949.....	13,763	2,425
1959 <sup>2</sup> .....	36,427	6,952
1967.....	67,234	13,311
1968.....	73,506	13,463
1969.....	80,612	15,457
1974 estimate.....	112,735	21,935
1976 estimate.....	128,695	25,185

<sup>1</sup> Represents winter peaks which sometimes occur in early months of the following calendar year.<sup>2</sup> Includes Memphis.

(In percent)

Rate of growth	1959-69		1967-69	
	Energy	Demand	Energy	Demand
TVA.....	8.3	8.3	9.5	7.8
United States.....	8.8	7.4	10.7	9.5

## D. AEC

Calendar year:	Energy use (millions of kilowatt-hour)	Demand in megawatts <sup>1</sup>
1933.....		
1940.....		
1949.....	1,854	194
1959.....	27,628	3,113
1967.....	18,205	1,955
1968.....	15,293	1,554
1969.....	12,578	1,340
1974 estimate.....	25,781	2,965
1976 estimate.....	25,852	2,965

<sup>1</sup> Monthly peak corresponding to winter peak demand for net power loads within the area.

## E. TOTAL TVA AREA LOAD

Calendar year:	Energy use (millions of kilowatt-hour)	Demand in megawatts
1933.....	1,500	320
1940.....	3,729	862
1949.....	15,617	2,619
1959 <sup>1</sup> .....	64,055	10,065
1967.....	85,439	15,266
1968.....	88,799	15,017
1969.....	93,190	16,797
1974 estimate.....	138,516	24,900
1976 estimate.....	154,547	28,150

<sup>1</sup> Includes Memphis.

## F. FEDERAL LOADS

	Peak loads (megawatts)		
	January 1970 <sup>1</sup>	Highest to date	Date
AEC, Oak Ridge.....	575	2,119	May 1957.
AEC, Paducah.....	765	1,586	July 1957.
AEDC (on peak).....	121	149	June 1967.
Columbus AFB.....	13	13	January 1970.
Fort Campbell.....	12	22	August 1968.
Millington NAS.....	11	18	July 1969.
Redstone Arsenal.....	55	69	July 1969.
U.S. Navy, Bristol.....	11	13	December 1962.
Voluntary Army Ammunition Plant.....	8	9	September 1969.

<sup>1</sup> Represents winter peaks which sometimes occur in early months of the following calendar year.

4. Furnish a summary of the repayable appropriation investment in the TVA power system together with the rate and the amount of the return on the appropriation investment for each year since section 15d of the TVA Act became effective. (Include estimates for fiscal year 1971.)

The information requested is as follows:

Fiscal year	Return on appropriation investment			Repayment of appropriation investment	Repayable appropriation investment as of June 30
	Total payments	Computed average interest rate	Amount		
1960.....					\$1,000,000,000
1961.....	\$51,432,398	3.449	\$41,432,398	\$10,000,000	990,000,000
1962.....	46,541,639	3.063	36,541,639	10,000,000	980,000,000
1963.....	48,874,543	3.285	38,874,543	10,000,000	970,000,000
1964.....	50,206,432	3.425	40,206,432	10,000,000	960,000,000
1965.....	52,599,978	3.659	42,599,978	10,000,000	950,000,000
1966.....	58,873,084	3.800	43,873,084	15,000,000	935,000,000
1967.....	62,124,973	4.134	47,124,973	15,000,000	920,000,000
1968.....	61,861,924	4.165	46,861,924	15,000,000	905,000,000
1969.....	68,082,239	4.757	53,082,239	15,000,000	890,000,000
1970.....	72,649,000	5.232	57,649,000	15,000,000	875,000,000
1971 <sup>1</sup> .....	80,000,000	5.500	60,000,000	20,000,000	855,000,000
Total.....	653,246,210		508,246,210	145,000,000	

<sup>1</sup> Estimated.

5. Furnish a statistical summary of the Tennessee River watershed and areas served by distributors of TVA power—include population, family income, and other relevant information.

The information requested is as follows:

SUMMARY ECONOMIC STATISTICS ON THE TENNESSEE VALLEY REGION<sup>1</sup>

	Years	Tennessee Valley region <sup>2</sup>	7 TV States	United States
Total personal income (millions).....	1929	\$1,566	\$6,543	\$85,881
Do.....	1933	\$864	\$3,796	\$47,122
Do.....	1968	\$16,513	\$72,409	\$683,702
Percent increase, 1929-68.....		954	1,007	698
Per capita personal income.....	1929	\$317	\$357	\$703
Do.....	1933	\$168	\$202	\$375
Do.....	1968	\$2,416	\$2,644	\$3,421
Percent increase, 1929-68.....		662	641	387
Percent of national average.....	1929	45	51	100
Do.....	1933	45	54	100
Do.....	1968	71	77	100
Number of employees in business-industry (thousands).....	1929	589	2,495	28,274
Do.....	1933	422	1,971	20,545
Do.....	1968	1,629	6,621	55,924
Percent increase, 1929-68.....		177	165	98
Number of employees in manufacturing (thousands).....	1929	222	978	10,702
Do.....	1933	170	785	7,397
Do.....	1968	740	2,665	19,740
Percent increase, 1929-68.....		234	172	84
Number of employees in trade and service (thousands).....	1929	306	1,276	14,988
Do.....	1933	231	1,020	11,595
Do.....	1968	776	3,427	32,320
Percent increase, 1929-68.....		154	169	116
Wages and salaries from business-industry (millions).....	1929	\$659	\$2,991	\$44,199
Do.....	1933	\$366	\$1,677	\$23,247
Do.....	1968	\$8,625	\$36,918	\$366,158
Percent increase, 1929-68.....		1,209	1,134	728
Wages and salaries from manufacturing (millions).....	1929	\$213	\$956	\$16,092
Do.....	1933	\$123	\$571	\$7,827
Do.....	1968	\$3,916	\$15,334	\$145,883
Percent increase, 1929-68.....		1,738	1,504	807

SUMMARY ECONOMIC STATISTICS ON THE TENNESSEE VALLEY REGION<sup>1</sup>—Continued

	Years	Tennessee Valley region <sup>1</sup>	7 TV States	United States
Wages and salaries from trade and service (millions).....	1929	\$388	\$1,758	\$23,993
Do.....	1933	\$217	\$989	\$14,048
Do.....	1968	\$3,995	\$18,221	\$187,541
Percent increase, 1929-68.....		930	936	682
Number of manufacturing establishments.....	1929	5,204	21,123	206,663
Do.....	1933	2,408	11,110	139,325
Do.....	1963	7,933	32,560	310,000
Percent increase, 1929-63.....		52	54	50
Distribution of employment (percent): <sup>2</sup>				
1933:				
Agriculture.....		62.0	56.5	29.9
Manufacturing.....		12.1	14.7	21.9
Trade and services.....		16.5	19.1	34.3
Civil government.....		6.5	6.5	9.4
Mining.....		1.7	1.8	2.2
Construction.....		1.3	1.3	2.4
1968:				
Agriculture.....		11.1	9.4	5.3
Manufacturing.....		33.1	29.8	27.4
Trade and services.....		34.7	38.3	44.9
Civil government.....		16.1	16.5	17.0
Mining.....		.7	.8	.9
Construction.....		4.3	5.1	4.5

<sup>1</sup> Figures are given for latest year available.

<sup>2</sup> Includes the Tennessee River watershed and TVA power service area.

<sup>3</sup> Figures may not add to 100 percent because of rounding.

Sources: The State and National statistics were compiled or derived from published and unpublished reports of the Bureau of the Census, Bureau of Labor Statistics, Bureau of Old-Age and Survivors Insurance, Office of Business Economics, other Federal and State agencies. Valley statistics were compiled from the same sources or estimated by distributing a portion of respective state totals to the Valley counties on the basis of county statistics from above and other sources.

## PERSONAL INCOME, TENNESSEE VALLEY REGION, AND UNITED STATES

[201 counties in the watershed and/or power service area]

Year	Total personal income			Per capita personal income		
	Amount in millions		Region as percent of United States (percent)	Amount		Region as percent of United States (percent)
	TVA region	United States		TVA region	United States	
1929.....	\$1,565.9	\$85,661	1.83	\$317	\$703	45
1933.....	864.4	47,122	1.83	168	375	45
1938.....	1,337.8	68,433	1.95	250	527	47
1939.....	1,432.6	72,753	1.97	263	556	47
1940.....	1,571.7	78,522	2.00	285	595	48
1941.....	2,094.9	95,953	2.18	374	719	52
1942.....	2,772.4	122,417	2.26	494	909	54
1943.....	3,516.9	148,409	2.37	628	1,102	57
1944.....	4,008.2	160,118	2.50	734	1,194	61
1945.....	4,231.4	164,549	2.57	784	1,234	64
1946.....	4,214.7	175,701	2.40	748	1,249	60
1947.....	4,480.5	189,077	2.37	782	1,316	59
1948.....	4,859.9	208,878	2.33	844	1,430	59
1949.....	4,737.4	205,791	2.30	818	1,384	59
1950.....	5,274.4	226,214	2.33	890	1,496	59
1951.....	5,987.8	253,233	2.36	996	1,652	60
1952.....	6,312.3	269,767	2.34	1,051	1,733	61
1953.....	6,626.8	285,458	2.32	1,107	1,804	61
1954.....	6,614.4	287,613	2.30	1,098	1,785	62
1955.....	6,098.4	308,265	2.24	1,151	1,876	61
1956.....	7,225.6	330,481	2.19	1,203	1,975	61
1957.....	7,571.0	348,462	2.17	1,258	2,045	62
1958.....	7,876.6	358,474	2.20	1,303	2,068	63
1959.....	8,506.7	380,963	2.23	1,390	2,161	64
1960.....	8,777.8	398,725	2.20	1,420	2,215	64
1961.....	9,329.6	414,411	2.25	1,494	2,264	66
1962.....	9,945.3	440,192	2.26	1,584	2,368	67
1963.....	10,595.6	463,053	2.29	1,678	2,455	68
1964.....	11,271.7	494,913	2.28	1,772	2,586	69
1965.....	12,259.4	535,949	2.29	1,903	2,765	69
1966.....	13,731.7	583,829	2.35	2,075	2,980	70
1967.....	14,938.8	625,642	2.39	2,235	3,162	71
1968.....	16,512.9	683,702	2.42	2,416	3,421	71

Note—U.S. figures include Alaska and Hawaii, beginning in 1960.

## MANUFACTURING EMPLOYMENT—TENNESSEE VALLEY REGION

[201 counties in watershed and/or power service area]

	Employees, 1966				1966 payrolls in region (millions)
	Number in region	Change from 1960		U.S. percent	
		Number	Percent		
All manufacturing.....	684,700	190,000	38	16	\$3,380.8
Apparel.....	125,200	42,700	52	16	387.4
Textiles.....	77,000	5,700	8	5	333.2
Chemicals.....	71,400	15,300	27	17	507.9
Food.....	52,200	5,400	12	1	261.2
Electrical machinery.....	46,600	24,500	110	31	220.8
Furniture.....	38,000	14,600	63	22	152.5
Primary metals.....	32,600	8,100	33	10	227.3
Fabricated metals.....	31,700	9,900	45	19	175.0
Lumber.....	30,900	300	1	1	108.5
Leather.....	27,900	9,200	49	3	110.7
Machinery, except electric.....	26,500	12,600	91	31	156.7
Miscellaneous.....	20,400	12,000	142	22	123.6
Rubber.....	19,900	7,100	56	35	131.0
Stone, clay, and glass.....	19,600	2,700	16	8	110.7
Printing.....	18,600	3,800	26	13	107.2
Paper.....	18,200	2,900	19	13	119.2
Transportation equipment.....	18,200	9,200	102	21	100.9
Instruments.....	6,500	3,400	106	22	32.3
Tobacco.....	2,000	100	7	( <sup>1</sup> )	8.4
Petroleum and coal products.....	1,200	600	90	-12	6.4

<sup>1</sup> Less than 1/2 of 1 percent.

Note.—Figures may not add due to rounding. U.S. figures are based on preliminary data for 1966.

Source: U.S. Bureau of Employment Security and State employment security agencies' tabulations. Includes only employees of firms covered.

## 1960 POPULATION AND FAMILY INCOME

	Total population				Percent change		Median family income		Families with incomes under \$3,000 (percent)
	Number, Apr. 1		1930		1950-60	1930-60	Amount	Percent of United States	
	1960	1950	1930	1930	1950-60	1930-60	Amount	Percent of United States	
<b>Tennessee Valley region:</b>									
Watershed (125 counties) <sup>1</sup> .....	3,662,852	3,544,543	2,924,016		3.3	25.3	\$3,727	66	41
Power service area (170 counties) <sup>2</sup> .....	5,348,548	5,062,427	4,260,913		3.7	23.5	3,674	65	42
Watershed and/or power service area (201 counties) <sup>3</sup> .....	6,181,524	5,912,186	4,965,066		4.6	24.5	3,673	65	42
<b>Southeastern States:</b>									
Tennessee Valley States:									
Alabama.....	3,266,740	3,061,743	2,646,248		6.7	23.4	3,937	70	39
Georgia.....	3,943,116	3,444,578	2,908,506		14.5	35.6	4,208	74	36
Kentucky.....	3,038,156	2,944,806	2,614,589		3.2	16.2	4,051	72	38
Mississippi.....	2,178,141	2,178,914	2,009,821		0.0	8.4	2,884	51	52
North Carolina.....	4,556,155	4,061,929	3,170,276		12.2	43.7	3,956	70	37
Tennessee.....	3,567,089	3,291,718	2,616,556		8.4	36.3	3,949	70	38
Virginia.....	3,966,949	3,318,680	2,421,851		19.5	63.8	4,964	88	28
Total, 7 States.....	24,516,346	22,302,368	18,387,847		9.9	33.3	4,073	72	37
<b>Other Southeastern States:</b>									
Arkansas.....	1,786,272	1,099,511	1,854,482		-6.5	-3.7	3,184	56	48
Florida.....	4,951,560	2,771,305	1,468,211		78.7	237.3	4,722	83	28
Louisiana.....	3,257,022	2,683,516	2,101,593		21.4	55.0	4,272	75	36
South Carolina.....	2,382,594	2,117,027	1,738,765		12.5	37.0	3,821	68	40
Total, 4 States.....	12,377,448	9,481,359	7,163,051		30.5	72.8	3,793	67	41
Total, 11 Southeastern States.....	36,893,794	31,783,727	25,550,898		16.1	44.4	4,124	73	36
United States (50 States and District of Columbia).....	179,323,175	151,325,798	123,202,624		18.5	45.6	5,660	100	21

<sup>1</sup>Data are for entire counties wholly or partly within the Tennessee River watershed. Population within the watershed boundary in 1960 is estimated to be 2,900,000.

<sup>2</sup>Counties wholly or substantially served by electric systems distributing TVA power; data are for entire counties so identified.

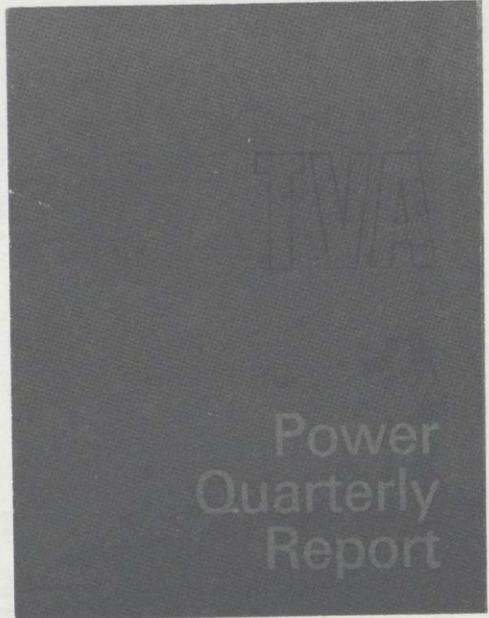
<sup>3</sup>Consolidated data for entire counties in watershed or power service area as defined above.

6. Furnish Power Quarterly Report for the latest quarter reported.  
A copy of the Power Quarterly Report covering nine months ended March 31, 1970 follows:

## POWER ASSETS AND LIABILITIES

	<i>At March 31</i>	
	<i>1970</i>	<i>1969</i>
	<i>(Thousands)</i>	
<b>ASSETS</b>		
<i>Property, Plant and Equipment</i>		
Completed plant; see note	\$3,166,863	\$2,910,678
Less accumulated depreciation	<u>908,496</u>	<u>840,595</u>
Net completed plant	2,258,367	2,070,083
Construction in progress	408,309	369,700
Nuclear fuel	24,154	—
Total property, plant, and equipment	<u>2,690,830</u>	<u>2,439,783</u>
Current Assets	220,762	135,302
Deferred Charges	<u>7,953</u>	<u>6,990</u>
<b>TOTAL ASSETS</b>	<u><u>\$2,919,545</u></u>	<u><u>\$2,582,075</u></u>
<b>LIABILITIES</b>		
<i>Proprietary Capital</i>		
Appropriation investment	\$1,103,403	\$1,116,048
Retained earnings	<u>680,860</u>	<u>658,146</u>
Total proprietary capital	<u>1,784,263</u>	<u>1,774,194</u>
<i>Long-Term Debt</i>	<u>575,000</u>	<u>275,000</u>
<i>Short-Term Notes</i>		
Payable to		
U. S. Treasury	150,000	100,000
Payable to public	<u>330,000</u>	<u>370,000</u>
Total short-term notes	<u>480,000</u>	<u>470,000</u>
<i>Other Current Liabilities</i>	<u>79,367</u>	<u>62,141</u>
Contributions	759	740
Deferred Credits	156	—
<b>TOTAL LIABILITIES</b>	<u><u>\$2,919,545</u></u>	<u><u>\$2,582,075</u></u>

Note: Total single-use power plant plus portions of multipurpose hydroelectric dams allocated to power. The total investment in multipurpose hydroelectric dams at March 31, 1970, was \$946 million, classified as follows: power, \$477 million; navigation and flood control, \$469 million.



nine months ended March 31, 1970

TENNESSEE VALLEY AUTHORITY

**Earnings**—Revenues continued at high levels during the third quarter of fiscal 1970, but increased costs held earnings below desired results. Revenues for the three quarters totaled \$364 million and earnings totaled \$65.8 million.

Sales were boosted by unusually large heating demands and by heavy demands in industry and commerce.

*Sales in Billions of Kilowatt-Hours*

	9 Months FY 1970	9 Months FY 1969	Percent Change
Municipalities and cooperatives	41.9	38.1	+ 10
Industries (directly served)	16.4	15.1	+ 9
Federal agencies	9.7	11.1	-12
Other	1.3	1.4	- 7
Total	69.3	65.7	+ 6

**Coal Supply**—Coal supply for TVA, as for many other electric systems throughout the Nation, has been tight for some time and conditions are not improving. Coal inventories at TVA steam plants have gradually declined for nearly a year and a half. Less than 18 months ago, inventories were at a desirable level of 6½ million tons compared with a current inventory of 3 million tons.

The decline resulted mainly from deliveries falling short of amounts scheduled under contracts by a greater margin than ever before. TVA has consistently had sufficient coal under contract to provide satisfactory inventories at its steam plants.

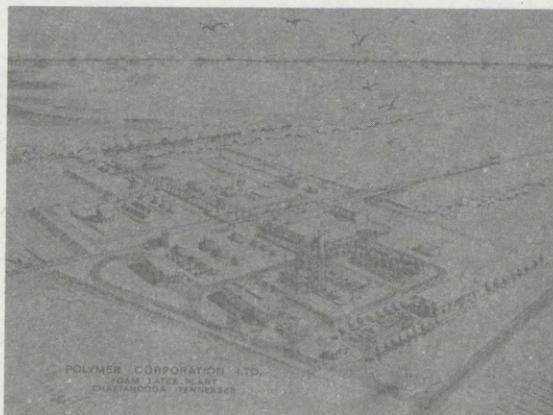
The reasons for the reduced deliveries have been many and varied, but they include a severe shortage of rail cars, a United Mine Workers strike prior to the signing of their last wage agreement, permanent closure of two large underground mines in western Kentucky, several wildcat strikes affecting suppliers and a four-day memorial period occasioned by the death of John L. Lewis.

TVA is not alone in this situation; other power systems also are short of coal. In large measure, TVA's coal supply problems are the result of the national shortage of coal and transportation equipment. During the past two years, coal production has failed to equal domestic consumption plus exports. The increase in exports is especially significant; one of the major reasons for the shortage of rail cars is that large numbers of them are held up at ports awaiting transfer of their coal to ships.

Vigorous steps have been taken to obtain additional coal, but results have been hindered by the extremely tight coal supplies. Recent responses to bid invitations have not provided sufficient coal to make up for past shortages. The results of emergency contracts negotiated directly with coal producers have not been encouraging. TVA has worked closely with producers in an effort to obtain additional production. Virtually all of them have been contacted and requested to increase their level of shipments.

**Extra-High-Voltage Interconnection**—TVA and the Georgia Power Company are planning a major

*Polymer Corporation of Canada, Ltd., will construct this \$15 million latex plant on a waterfront site at Chattanooga to supply the carpet, textile, bedding, paper and other industries. It will be the company's first manufacturing plant in the United States. Northwest Georgia and the Chattanooga area comprise the Nation's largest carpet manufacturing center and paper manufacture is one of the major industries of the Tennessee Valley region.*



new interconnection for which the two systems will build a 500,000-volt transmission line between TVA's proposed Sequoyah Nuclear Plant and Georgia Power's Etowah Generating Plant. This increases to six the number of extra-high-voltage interconnections with neighboring systems TVA has in service, under construction, or scheduled. The Sequoyah plant will be constructed on a site on Chickamauga Lake about 18 miles northeast of Chattanooga. The Etowah plant is now under construction near Cartersville, Georgia, northwest of Atlanta. The line will be about 75 miles long and is scheduled for completion in May 1972.

**Sale of Power Bonds**—A \$100 million issue of power bonds, maturing on March 15, 1995, was awarded to a nationwide underwriting group headed jointly by Halsey, Stuart & Co. Inc.; Equitable Securities, Morton & Co. Incorporated; Smith, Barney & Co. Incorporated; First National City Bank, New York; White, Weld & Co.; Morgan Guaranty Trust Company of New York; The Chase Manhattan Bank, N. A.; Chemical Bank; Merrill Lynch, Pierce, Fenner & Smith Incorporated; and The First National Bank of Chicago.

The successful bid was 100.015 for bonds bearing a 9 percent coupon, resulting in an annual net interest cost to TVA of 8.9985 percent. The bonds will be nonrefundable for five years.

An issue of TVA power notes was sold in each month of the quarter, each for a term of about

four months, as other issues became due. They were in amounts of \$90 million, \$50 million, and \$90 million and had interest costs of 8.940 percent, 7.887 percent, and 6.850 percent.

TVA is authorized by law to have up to \$1,750 million of power bonds and notes outstanding, but legislation increasing this maximum amount is now pending.

**Industrial Expansion**—The 1960's were an era of unprecedented industrial growth in the Tennessee Valley region, capped by 1969's record announcements of \$800 million industrial expansions. In the 1960-1969 period about 5,100 new industrial operations and plant expansions to use TVA power were announced, involving over 330,000 new jobs and private investment of about \$4 billion.

The largest investment total during the decade was \$1.1 billion for facilities in the chemical industry. Totals for other industrial groups included:

Primary metals (chiefly aluminum) .....	\$597 million
Wood products (paper and allied products, furniture, and lumber) .....	\$418 million
Textile mill products .....	\$291 million
Electrical machinery and equipment ..	\$257 million
Rubber and plastic products .....	\$218 million
Food and related products .....	\$208 million
Fabricated metal products .....	\$204 million
Nonelectrical machinery .....	\$174 million
Transportation equipment .....	\$165 million
Stone, clay, and glass products .....	\$138 million
Apparel .....	\$115 million

*Board of Directors, Tennessee Valley Authority*

AUBREY J. WAGNER, *Chairman*  
FRANK E. SMITH, *Member*  
DON MCBRIDE, *Member*

*Knoxville, Tennessee*  
*April 1970*

**NET POWER INCOME  
(And Retained Earnings)**

	<i>Nine Months Ended March 31</i>		<i>Twelve Months Ended March 31</i>	
	<i>1970</i>	<i>1969</i>	<i>1970</i>	<i>1969</i>
	<i>(Thousands)</i>		<i>(Thousands)</i>	
<i>Operating Revenues</i>				
Sales of electric energy				
Municipalities and cooperatives	\$221,188	\$167,273	\$276,150	\$212,663
Federal agencies	43,955	47,453	60,072	66,664
Industries	78,750	67,760	103,229	89,382
Electric utilities	4,672	4,667	7,309	6,530
Interdivisional	2,322	2,009	3,065	2,476
Total sales of electric energy	350,887	289,162	449,825	377,715
Rents and other revenues	13,148	10,631	17,698	14,364
Total operating revenues	364,035	299,793	467,523	392,079
<i>Operating Expenses</i>				
Production	182,043	154,857	237,490	204,998
Taxes and payments in lieu of taxes	13,921	12,517	18,112	16,249
Depreciation	54,966	53,713	72,925	72,275
Other	25,489	22,755	33,873	31,350
Total operating expenses	276,419	243,842	362,400	324,872
OPERATING INCOME	87,616	55,951	105,123	67,207
<i>Interest Charges</i>				
Interest on long-term debt	20,671	10,764	24,704	14,351
Other interest expense	24,600	16,891	31,633	20,564
Amortization of long-term debt discount, premium, and expense, net	52	65	70	87
Interest charged to construction	23,481*	10,153*	29,364*	12,173*
Total interest charges	21,842	17,567	27,043	22,829
Income before extraordinary item	65,774	38,384	78,080	44,378
<i>Extraordinary Item; see note</i>	—	—	—	10,283
NET INCOME	65,774	38,384	78,080	34,095
Retained earnings, beginning of period	643,911	646,303	658,146	674,023
	709,685	684,687	736,226	708,118
Payment of return on appropriation investment	28,825	26,541	55,366	49,972
RETAINED EARNINGS, END OF PERIOD	\$680,860	\$658,146	\$680,860	\$658,146

\*Deduct

Note: Power portion of loss from retirement of Hales Bar multipurpose dam.

**NET POWER PROCEEDS**

<i>From Power Operations</i>				
Income before interest charges	\$ 87,616	\$ 55,951	\$105,123	\$ 67,207
Depreciation	54,966	53,713	72,925	72,275
	142,582	109,664	178,048	139,482
<i>From Sale of Power Facilities</i>	149	364	338	590
TOTAL	\$142,731	\$110,028	\$178,386	\$140,072

Mr. JONES. Without objection, all the statements from members will be received, and also the Chair asks unanimous consent, as he did earlier, to receive statements and have them printed in the record pertinent to the resolution.

Now, are there questions?

Mr. Edmondson.

#### TVA INTERCONNECTIONS

Mr. EDMONDSON. Mr. Chairman, I have only one question. I do want to welcome our old colleague, Frank Smith, and the members of TVA who are here with the Chairman and Congressman Smith this morning.

Mr. Watson, in his statement, mentioned 26 points at which TVA's power system interconnects with neighboring power systems. Could you tell us how many States of the Union are affected in their power supply or potential power supply by these interconnections, interchanges?

Mr. WATSON. I have not counted the exact number, but we go as far west as Texas with our interconnected systems and as far north as the Great Lakes, so that you might say all the systems in one way or another, not directly, but through other systems that we are interconnected with are affected by the TVA power capacity.

Mr. EDMONDSON. Would it be a safe statement to say that more than half of the States, in case of power emergency or power crisis, would be directly affected through these interconnections by the capacity of TVA to produce power?

Mr. WATSON. Yes, sir.

Mr. EDMONDSON. More than half. How big a percentage?

Mr. WAGNER. We could supply a percentage for the record. I think it is about half.

Mr. SMITH. It is at least 30. We have direct interconnection with Oklahoma, and goes through Oklahoma as far as Kansas.

Mr. EDMONDSON. Thank you very much. I merely wanted to establish for the record the number of States that had a stake in the operation of TVA.

Mr. JONES. We would appreciate your identifying those States for the record, please, as a response to the inquiry from the gentleman from Oklahoma. We would appreciate your furnishing that for the record.

Mr. WAGNER. We would be glad to do that.

(Information referred to follows:)

The 32 states whose power supply situations are affected by TVA's ability to generate power fall into three categories:

1. States in which TVA distributors retail electricity. (Areas in these states not supplied by TVA are closely interconnected with TVA).

Alabama	Mississippi	Tennessee
Georgia	North Carolina	Virginia
Kentucky		

2. States in which service is provided by utilities which are members of groups having interchange facilities and contracts with TVA:

Arkansas	Louisiana	Oklahoma
Florida	Michigan	South Carolina
Illinois	Missouri	Texas
Indiana	Ohio	West Virginia
Kansas		

3. States in which service is provided by utilities which receive part of their power requirements from a pool into which TVA power is placed through the groups referred to in part 2, above:

New York	Connecticut	Delaware
Pennsylvania	Rhode Island	Maryland
Vermont	New Hampshire	New Jersey
Massachusetts	Maine	Wisconsin

#### SCOPE OF BILLS

Mr. JONES. Are there further questions?

Mr. Clausen.

Mr. CLAUSEN. I have a few questions.

In light of the question that was just asked, I am wondering if you can tell us whether or not the proposed legislation which is basically for an extension of the act and also the increase in the bonding capacity, does it in any way extend the area to be in service by TVA?

Mr. WAGNER. No, sir. The only effect is to increase the bonding authority. It does not affect the area in which TVA can supply power, which, as you know, was defined in the 1959 amendment. These interties are permitted under that amendment because we had interties with the systems with which we are directly connected, as of July 1, 1959, that is permitted.

The effect of the intertie is to increase reliability of service, both in our own area and in the other areas affected by the interties.

Mr. CLAUSEN. What percentage of the cost of future construction projects do you estimate will be for facilities to protect the environment?

Mr. WAGNER. This is very difficult to estimate, and I would not suggest that we have a good figure, Mr. Clausen. We have made some preliminary calculations, not in terms of construction costs, but in terms of the cost of electric power, which would indicate that simply the removal of fly ash, the question of taking care of thermal pollution, and the removal of sulfur dioxide—this is the most uncertain of all, since that technology is not yet perfected—but we think those three things alone might add as much as perhaps 20 percent to the cost of power to the ultimate consumer.

Now, there are other factors relating to the environment that are showing up, and it seems to me that as time goes on, the public generally is going to have to evaluate those matters to determine how much cost they are willing to put into environmental protection.

Mr. CLAUSEN. I was thinking more of the control of heat discharge and stack gases.

Mr. WAGNER. Well, this is a very preliminary figure, but it could add a fifth to the cost of electricity.

Mr. CLAUSEN. You say \$3½ billion will take care of your needs for the future. That is, that you would be coming back to Congress for further increases in bond authority in the next 2 to 4½ years. Is this a sufficient time frame for you to design your facilities?

Mr. WAGNER. Well, we have to place orders now as much as 7 years in advance of the time when we want to bring capacity on the line. And what the \$3½ billion would do is to let us go ahead and place the orders that we would be planning for over the next 2 to 4½ years, and following that we would have to come back for more.

Mr. CLAUSEN. Do you have a plan now for facilities that you will need after that 4½-year period?

Mr. WAGNER. Well, we make load projections that go far beyond that, of course. But we would not have to start buying those facilities at the present time.

Mr. JONES. Mr. Harsha.

Mr. HARSHA. Thank you, Mr. Chairman.

I want to welcome you before this committee again, certainly our good friend, former colleague, Frank Smith, many of us had the privilege of serving with him on this committee.

Just for my own information, Mr. Wagner, does 10 million kilowatts increase that you are now constructing, will be completed by 1975, is that included in this \$3½ billion increase, or do you already have sufficient funds for that authority?

Mr. WAGNER. The \$1,750 million ceiling that is now in effect will let us complete that capacity.

Mr. HARSHA. I see.

Mr. WAGNER. As I indicated earlier, we have already opened bids on additional generating capacity, and in order to place firm orders for that capacity, which we need to follow the capacity now under construction, we will have to have additional bonding authority. The capacity that is now underway will use up virtually all of the authority that we now have. So the matter is urgent for us.

Mr. HARSHA. Now, you indicated to Mr. Clausen that these ecological factors or environmental factors may increase the cost of power by about 20 percent. Can you give us some portion of this estimated or projected cost of increased capacity that you are allocating to the problem of environmental issues that we have to deal with?

Mr. WAGNER. I do not have in mind at the moment, Mr. Harsha, the proportion of capital costs that is chargeable to environmental factors.

Mr. HARSHA. Could you submit that at a later date for the record.

Mr. WAGNER. Yes. We will be glad to submit that.

(Information follows:)

The costs of environmental protection are difficult to express because the costs vary from site to site, due to varying conditions, and because technology to deal with some of the problems has not been commercially proved. The ultimate costs of such technology will not be known until it is so proved.

However, for planning purposes we are using the following estimates:

	<i>Dollars per kilowatt of capacity</i>
Air quality control.....	20 to 30
Water quality control.....	15 to 20
General esthetics (including transmission lines and substations).....	5 to 10
Total.....	40 to 60

Mr. HARSHA. And do I understand that you intend to meet these problems as you get into this expansion of construction?

Mr. WAGNER. Yes, sir; we certainly do. TVA is a conservation agency from the word go, and we have worked very hard to make the water resource fully usable in the region, and I can assure you that

we are not going to do anything to damage it. We would like at the same time to make sure that we are not wasting money. This is why we are engaged very heavily in research now to find precisely what is the point at which you should operate to avoid damage to the environment, and at the same time to avoid wasting money.

Mr. SMITH. We are spending close to \$200 million right now on these various environmental improvements.

Mr. HARSHA. Fine. Is TVA covered or subject to the Environmental Policy Act of 1969?

Mr. WAGNER. Yes, sir; we are.

Mr. HARSHA. Do you have to prepare detailed environmental statements relative to legislation and/or actions which may have a significant effect on the environment that is required by the act?

Mr. WAGNER. Yes, sir.

Mr. HARSHA. That is all I have, Mr. Chairman.

Mr. CLAUSEN. Mr. Chairman, one more question.

Mr. JONES. Yes, Mr. Clausen.

Mr. CLAUSEN. There is question which arises consistently, and this is in the area of thermal pollution. On page 4 of your statement you say: "likewise, heated water discharged from both coal and nuclear plants must be controlled in such a way that aquatic life will not be harmed."

Now, what is the state of the art as far as current technology is concerned? Are you able to control the thermal pollution problems or what sort of effect have you had based on your own experience?

Mr. WAGNER. As you know, we are already operating some large thermal plants, some of the world's largest coal burning plants, and we have had no problems with these on the Tennessee River.

We have one plant on the Green River, which is a much smaller river, and when we began operating there we found that there were some problems, and so we first of all curtailed the operation of the plant, and then installed cooling towers, and there are no problems on the Green River now.

We think that a great deal more needs to be known about the effects of temperature changes on aquatic life, and we have proposed at our Browns Ferry nuclear plant a \$2½ million research facility that we will operate jointly with the Federal Water Quality Administration to determine precisely what effects varying degrees of temperature changes and rates of temperature change and persistence of temperature change and so on will have on aquatic life in that area.

This is an area that we think needs a great deal more research, Mr. Clausen.

Mr. JONES. Are there further questions?

If not, the subcommittee will go into executive session, and, gentlemen, we thank you very much. You have been most helpful to us, and we appreciate your attendance.

(Whereupon, at 10:50 a.m., the subcommittee proceeded to executive session.)

(The following items were received for the record:)

NORTH CAROLINA STATE AFL-CIO,  
Raleigh, N.C., June 19, 1970.

Hon. GEORGE H. FALLON,  
Chairman, Committee on Public Works,  
Rayburn House Office Building, Washington, D.C.

DEAR SIR: Please be advised that the North Carolina State AFL-CIO supports H.R. 16061.

In order to meet the ever-increasing demands for power-generating facilities, this legislation is extremely vital to the welfare of our rural co-operatives in North Carolina. Eastern North Carolina is a rural area which needs additional power-generating facilities in order to attract industrial prospects.

Without these power facilities and the location of industrial plants, our rural migration to the ghettos will continue. We urge immediate passage of H.R. 16061.

With kindest regards, I am,

Sincerely yours,

WILBUR HOBBY, *President.*

ALABAMA RURAL ELECTRIC ASSOCIATION OF COOPERATIVES,  
Montgomery, Ala., June 16, 1970.

Congressman GEORGE FALLON,  
Chairman, Public Works Committee,  
Longworth Building, Washington, D.C.

DEAR CONGRESSMAN FALLON: We would like to urge your consideration of TVPPA's request to increase the debt limit for TVA to \$5 billion.

It is our understanding that this makes good business sense in that it will allow TVA to make longer range plans of which all of us in the utility industry are having to do.

We certainly appreciate your consideration of this request.

Sincerely,

DALE GIBBS, *Executive Manager.*

TENNESSEE ELECTRIC COOPERATIVE ASSOCIATION,  
Nashville, Tenn., June 17, 1970.

Hon. GEORGE FALLON,  
Chairman, House Public Works Committee, U.S. House of Representatives,  
Washington, D.C.

DEAR MR. CHAIRMAN: My name is J. C. Hundley. I am the executive manager of the Tennessee Electric Cooperative Association, which is the service organization of all twenty-two electric cooperatives in the State who serve one and one quarter million people. This Association is owned and controlled by these systems and by the people served. Its' Statewide offices are located at 710 Spence Lane, Nashville, Tennessee.

The Tennessee Valley Authority is our only supplier of wholesale electric power.

I wish to voice the support of our entire Association of electric cooperatives to the passage of H.R. 16061, which would raise the bonding authority of the Tennessee Valley Authority from the present limit of \$1,750 million, (authorized in August 1966), to authority to issue bonds up to and including \$5,000 million. This organization is particularly pleased to add our support to that of our seventeen Congressmen from the TVA area who are signers and co-sponsors of H.R. 16061.

We would greatly appreciate this letter being included in the record.

The reason we are urgently requesting passage of this Bill is quite simple. The TVA must have financing authorized by the Congress to make electric power construction plans at lease five years in advance of needs.

Some have suggested a smaller amount be authorized and for fewer years needs into the future. As we stated above, in our opinion, at the very least 5 years are needed to plan, build and get into operation the generating, switching, transmission and related power construction necessary to meet the demands of this growing region.

In the fiscal 1969 Annual Report TVA showed power construction expenditures were \$239 million, over \$47 million more than in 1968. Also that expenditures in 1970 are expected to reach \$300 million. TVA and the cooperative and municipal distributors of TVA power were investing last year in new plant at the rate of over

a million dollars a day. A \$100 million issue of power revenue bonds, maturing in 5 years, was sold in June 1969 at competitive bidding with an interest cost of 7.944 percent.

The point we are trying to make here is that the increased costs of doing business and the growth we are experiencing is using up the presently authorized limit at an increasing rate each year. It makes the request for an authorized limit of \$5,000 million a wise move and more particularly so since it will enable essential planning to go forward as it must.

TVA's being authorized by the Congress under H.R. 16061 to issue power revenue bonds on the open market in the amount of \$5,000 million is a wise approach not only as has been pointed out above but TVA's record of repayment and its bond rating is triple A. The TVA system can well support, under its excellent leadership and operation, the gradual issuance of power revenue bonds to provide adequate financing to meet its power supply commitments.

Respectfully submitted,

J. C. HUNDLEY,  
*Executive Manager.*

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NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION,  
*Washington, D.C., June 15, 1970.*

HON. GEORGE H. FALLON,  
*Chairman, Committee on Public Works,  
House of Representatives, Washington, D.C.*

DEAR CHAIRMAN FALLON: It has come to our attention that your Committee will soon begin active consideration of legislation which would increase the authority of the Tennessee Valley Authority to issue revenue bonds for the construction of electric power facilities.

This Association (NRECA) is the national trade-service organization of REA financed, consumer owned rural electric systems. These systems provide electric service to some 24 million people, mostly located in the sparsely populated agricultural areas of 46 states. More than 90% of all REA financed electric systems are members of NRECA. Such membership is entirely voluntary.

Throughout the Tennessee Valley, 55 rural electric distribution systems in Tennessee, Kentucky, Mississippi, Alabama, Virginia, and Georgia depend on TVA for their wholesale power supply. In much of this area TVA is the sole source of such power. The people served by these systems are, therefore, critically dependent on TVA and are anxious that TVA be afforded ample authority to finance expansion of its power system on a well-planned, economic schedule that will assure continuing availability of reliable electricity at minimum cost to the ultimate consumer, consistent with good business and proper regard for the environment.

We are advised that all of the 18 members of Congress from the Tennessee Valley, representing both major political parties, are jointly advocating enactment of H.R. 16061 which would expand the TVA electric system bonding authority to \$5 billion from its present level of \$1.75 billion. This would allow TVA to plan its power system financial commitments through 1977. With lead times running on the order of some six years on certain major electric system components, the \$5 billion figure would be the minimum authority necessary to realistically plan for system expansion.

The lower figure of \$3.50 billion approved by the Bureau of the Budget would substantially impede TVA's ability to keep pace with the explosive increase in the demand for electricity throughout its service area. TVA is the largest single power system in the United States. Certainly, in this brownout year of 1970 it would be rather inappropriate for Congress to impose restrictions on the capability of the TVA power system to meet its future responsibilities to the public of six states.

The rationale for TVA power system bond financing was the desire of Congress to free that system from dependence on annual appropriations of Federal funds, and to release Federal Treasury resources to serve other purposes. It logically follows, we believe, that if TVA is required to accept the burdens and costs of non-Federal, open-market financing, it should simultaneously be afforded the benefits of minimum Budget Bureau interference with its financial operations.

For the above-mentioned reasons, we urge approval of the original legislation embodied in H.R. 16061 which would raise the TVA power system bonding author-

ity to \$5 million, and we ask that this letter be made a part of the record of hearings to be held on June 18, 1970 by the Subcommittee On Flood Control concerning these matters.

With highest personal regards, I remain,  
Very sincerely yours,

ROBERT D. PARTRIDGE,  
*General Manager.*

VIRGINIA STATE A.F.L.-C.I.O.,  
Richmond, Va., June 16, 1970.

HON. GEORGE H. FALLON,  
*Chairman, Committee on Public Works, U.S. House of Representatives, Rayburn House Office Building, Washington, D.C.*

DEAR SIR: Our organization strongly favors H.R. 16061, which would increase the amount of bonded indebtedness allowed the Tennessee Valley Authority for the construction of much needed power generating facilities.

This, in our opinion, would insure continued growth of private industry in the area affected by TVA. Such industrial growth would provide increased employment and economic growth for this portion of our nation.

I respectfully urge favorable consideration of this measure.

Respectfully yours,

JULIAN F. CARPER, *President.*

SHEFFIELD, ALA.

HON. GEORGE H. FALLON,  
*Chairman, Committee on Public Works, House of Representatives, Washington, D.C.*

The Tri Cities Central Labor Union and its affiliated locals urge you to support H.R. 16061 bill to raise the ceiling on TVA bonding indebtedness.

DENNIS PINKSTON, *President.*

LOUISVILLE, KY.

HON. GEORGE FALLON,  
*Chairman, House Committee on Public Works, Rayburn House Office Building, Washington, D.C.*

Resolution: Be it resolved by the board of directors of Kentucky Rural Electric Cooperative Corp., in meeting assembled at Ken Bar Inn, Gilbertsville, Ky., this 16th day of June 1970 that we communicate our hope to the House of Representatives Committee on Public Works that the committee will approve an increase in the debt limit of TVA from \$1.6 billion to \$5 billion. We believe this action is essential to the needs of our membership and to the economic health of the entire area of the southeastern United States.

JOE MENG, *President.*

FLORENCE, ALA., June 15, 1970.

HON. GEORGE H. FALLON,  
*Chairman, Committee on Public Works, U.S. House of Representatives, Rayburn House Office Building, Washington, D.C.:*

Citizens of the Tennessee Valley urgently request your favorable consideration of H.R. 16061 permitting TVA to increase its bonded debt ceiling for construction of power generating facilities. Your favorable consideration will be deeply appreciated by millions of your fellow Americans who know the necessity for this action.

LOUIS A. ECKL,  
*President, Citizens for TVA.*

SHEFFIELD, ALA.

HON. GEORGE A. FALLON,  
*Chairman, Committee on Public Works, U.S. House of Representatives, Rayburn House Office Building, Washington, D.C.:*

H.R. 16061. Would like to encourage you to use your influence as chairman for this Committee to expedite Committee approval and House passage of this important piece of legislation since it is so essential to the continued development of the Tennessee Valley. Thanking you in advance for any assistance rendered.

JAMES H. HAYGOOD,

*FS and Business Manager Local Union 558 and State Representative.*

JACKSON MISS. June 16, 1970.

HON. GEORGE H. FALLON  
 Chairman, Committee on Public Works, Rayburn House Office Building,  
 Washington D.C.

Increased electric power supply is vital to continued economic growth of area serviced by TVA respectfully urge prompt committee approval of H.R. 16061.

THOMAS KNIGHT,  
 Secretary Treasury, Miss., AFL-CIO.

BIRMINGHAM ALA., June 15, 1970.

HON. GEORGE H. FALLON  
 Chairman, Committee on Public Works U.S. House of Representative, Rayburn  
 House Office Building. Washington D.C.

This is to inform you that the Bessemer Labor Council AFL-CIO strongly supports House Resolution H.R. 16061. Being in a TVA served area we are most aware of the necessity of continuing TVA under the present system. We urge you to use your influences to see that the services and expansion of TVA continues to boost our economy, service, and employment.

S. P. ROBINSON,  
 Secretary and Treasurer,  
 Bessemer Labor Council AFL-CIO.

BIRMINGHAM, ALA.  
 June 15, 1970.

HON. GEORGE H. FALLON,  
 Chairman, Committee of Public Works,  
 House Office Building, Washington, D.C.

Our organization strongly supports H.R. 16061 which would increase ceiling on bonded indebtedness for TVA to permit construction of much-needed power generating facilities. Additional power capacity imperatively needed to permit continued industrial growth of area.

BARNEY WEEKS,  
 President, Alabama Labor Council AFL-CIO.

STATEMENT OF ALEX RADIN, GENERAL MANAGER, AMERICAN PUBLIC POWER  
 ASSOCIATION, WASHINGTON, D.C.

The American Public Power Association is the national trade organization of local publicly owned electric utilities in 48 States, Puerto Rico, Guam and the Virgin Islands. Members of this Association include municipally-owned electric utilities, public utility districts, State-owned power districts, power and irrigation districts, and other local publicly owned electric utilities. There are more than 2,000 of these utilities across the country.

This statement is submitted in support of H.R. 16061, a bill introduced on February 19, 1970 by Representative Thomas Abernethy and 17 other members of the House, from both political parties.

The issue before this Committee is not whether to increase the authority of the Tennessee Valley Authority to finance needed power capacity through the issuance of revenue bonds and notes. There seems to be general agreement that it is imperative that TVA's revenue bonding authority must be increased promptly. The issue is by what amount to increase that authority.

Congress decided eleven years ago, in 1959, that TVA should use revenue bonds and notes as the principal means of financing new power generation and transmission facilities to meet the electric power requirements of the Tennessee Valley. In 1966, the Congress raised the initial ceiling on TVA's bonding authority from \$750 million to \$1,750 million, a \$1 billion increase.

*The Electric Power "Horse Race"*

Today, as your Committee again reviews the effectiveness of TVA's use of revenue bonds and notes, the nation's electric power picture is far different from that of 1959 to 1966. This may be a summer of power outages and brownouts, according to the predictions of such officials as the Chairman of the Federal Power Commission and the President's Science Adviser. Some experts are saying that the nation is facing an electric power crisis, and that the situation might get worse before it improves—a situation compounded by fuels shortages, delays in delivery of equipment by manufacturers, rising demand for electric power,

work stoppages, delays in power plant construction due to objections by environmentalists, differences of opinion over sites for power plants, and other factors.

TVA Board Chairman Aubrey J. Wagner, in a speech at the American Public Power Association annual conference in Memphis in April, said: "The public should be aware that a horse race is on between power supply and power demand nearly everywhere in the United States . . . The race will not end soon. I include the Tennessee Valley in this assessment. The Number One problem of the electric industry today—nationally and in the Tennessee Valley—is to meet the loads which now exist, and those which will mount tomorrow and next year and the year after."

#### *Plan Ten Years Ahead, Says FPC*

The Federal Power Commission is recommending that the nation's electric utilities plan *ten years ahead* on power supply. Indeed, such advance planning is essential today, because there is a six-year to seven-year time lag from the initial order for most electric generating equipment to its installation and operation. Thus, an order placed today for a major electric generating unit may not start additional kilowatts flowing before the spring of 1976 or 1977. Obviously, then, the nation's electric utilities must plan ahead as they have never done before.

This bill, H.R. 16061, cannot be considered in isolation from this national power picture, any more than TVA's giant power network can be operated in isolation from the other electric utility systems of the country.

TVA's highly efficient power generation and transmission system is today the nation's largest. And it is a key element in the national power picture.

TVA is interconnected at 26 points with neighboring power systems, for economical exchange of power, and to further safeguard the reliability of power supply. TVA exchanges nearly two million kilowatts, on a seasonal basis, with utilities in the Southwest; and will soon exchange about 1.5 million kilowatts with the American Electric Power Company system; it has executed or is negotiating reliability and coordination agreements with the Southern Company, Middle South Utilities, and other private power companies around the Valley.

Thus TVA, as a significant part of the nation's total power supply, needs to be able to plan ahead not only to meet the Tennessee Valley's needs, but also to be ready to aid its neighbors who may be power-short.

#### *APPA Supports \$5 Billion Limit*

The membership of the American Public Power Association, on April 29, 1970 at the APPA annual national conference in Memphis, Tennessee, approved a resolution supporting "enactment of legislation to increase the ceiling on TVA's revenue bond authority to at least \$5 billion, from its present level of \$1.75 billion, to enable the Authority to make long-range plans for power supply in the Valley, including wholesale power service to 108 municipal electric systems and 50 rural electric cooperatives."

TVA-generated electricity serves national security needs, and major industries in the Valley. But today its major loads consist of wholesale service to these 108 municipal electric systems and 50 rural electric cooperatives.

Today these consumer-owned utilities are the major users of TVS-generated electricity, buying TVA power at wholesale for distribution to some 2 million retail consumers. They have made large investments in electric distribution and sub-transmission facilities to serve their consumers. They purchase all of their power requirements at wholesale from TVA.

The loads of these consumer-owned utilities in the Tennessee Valley are growing rapidly. In 1959, when the initial TVA bonding authority legislation was approved by the Congress, the municipal and rural electric cooperative systems in the Valley purchased 17.7 billion kilowatt-hours of electricity from TVA; in 1969, these local utilities purchased 49 billion kilowatt-hours—almost three times as much electricity.

It is urgent that TVA's bonding authority be increased to at least \$5 billion, to give TVA the flexibility to plan ahead on power supply in order to meet the long-range power needs of this region.

The authorization of any lower limit on TVA's bonding authority would fall short of realistic needs, particularly at a time when the nation is power-short and badly needs all the electricity that can be put on the lines.

We urge your speedy approval of H.R. 16061. Thank you.

RESOLUTION OF THE AMERICAN PUBLIC POWER ASSOCIATION CONCERNING  
TENNESSEE VALLEY AUTHORITY BOND CEILING

WHEREAS, the Tennessee Valley Authority since 1959 has financed additional power supply facilities through issuance of taxable revenue bonds and notes, and

WHEREAS, this method of financing has enabled TVA to meet the growing power needs in the Tennessee Valley, including the wholesale power requirements of 108 municipal electric utilities and 50 rural electric cooperatives, and

WHEREAS, the present ceiling of \$1.75 billion on the amount of revenue bonds which TVA may have outstanding will soon be reached, and

WHEREAS, bills have been introduced in Congress, on a bipartisan basis, to increase the bond ceiling to \$5 billion, and such authority would permit TVA to make long-range plans to meet the growing power supply requirements in the Tennessee Valley;

NOW, THEREFORE, BE IT RESOLVED: That the American Public Power Association urges enactment of legislation to increase the ceiling on TVA's revenue bond authority to at least \$5 billion, from its present level of \$1.75 billion, to enable the Authority to make long-range plans for power supply in the Valley, including wholesale power service to 108 municipal electric systems and 50 rural electric cooperatives.

(Adopted by the membership of the American Public Power Association at the APPA annual conference, April 29, 1970, in Memphis, Tennessee.)

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STATEMENT BY J. WILEY BOWERS, EXECUTIVE DIRECTOR, TENNESSEE VALLEY  
PUBLIC POWER ASSOCIATION, CHATTANOOGA, TENN.

Mr. name is J. Wiley Bowers. I am Executive Director of the Tennessee Valley Public Power Association, an organization composed of the municipally and cooperatively owned electric utility systems which purchase electricity at wholesale from the Tennessee Valley Authority. Our headquarters office is located in the Pioneer Building in Chattanooga, Tennessee.

There are 108 municipal electric systems and 50 rural electric cooperatives which purchase all of their power supply at wholesale from the Tennessee Valley Authority (TVA). These locally-owned utilities in the twelve months ending March 31, 1970 paid TVA more than \$275 million for wholesale electricity—or about 60% of TVA's total operating revenues from its electric power program.

Therefore, these municipally and cooperatively owned electric utilities have a direct and significant concern with the ability of TVA to provide adequate amounts of electricity at wholesale, so these 158 locally-owned utilities can continue to meet the rapidly-growing electrical needs of the more than two million retail customers which they serve. These local utility systems have invested well over \$1.2 billion in electric facilities to distribute TVA-generated electricity to their customers.

Use of electricity in the Tennessee Valley continues to grow at a rapid pace. For example, at least five municipally-owned electric systems in the Valley have average residential use of more than 20,000 kilowatt-hours per year, better than three times the national average. And average home use in the Tennessee Valley continues to be more than double the national average.

*TVPPA Supports \$5 Billion Limit*

The Tennessee Valley Public Power Association strongly supports H.R. 16061, 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. This bill was introduced on February 19, 1970, by Representative Abernethy, for himself and Representatives Anderson of Tennessee, Bevill, Blanton, Brock, Carter, Davis of Georgia, Duncan, Evins, Flowers, Fulton of Tennessee, Jones of Alabama, Jones of Tennessee, Kuykendall, Quillen, Stubblefield, Wampler and Whitten.

H.R. 16061 would increase the borrowing authority of TVA from its present ceiling of \$1.75 billion to a new limit of \$5 billion.

The membership of the Tennessee Valley Public Power Association, at the Association's annual meeting on May 20, 1970, at Jekyll Island, Ga., adopted

the attached resolution supporting "legislation to increase the ceiling on TVA's bonding authority to \$5 billion, since such an increase will assist TVA in meeting the growing power demands in the Tennessee Valley."

#### *Bureau of the Budget Recommendations*

The Bureau of the Budget, we are informed, has recommended that TVA's bonding authority be raised to only \$3.5 billion.

It may be useful to the Committee to trace the history of the Budget Bureau's negative and short-sighted past recommendations concerning TVA's revenue bond authority.

It was in 1959 that the Congress first authorized TVA to issue revenue bonds, notes and other evidences of indebtedness, with a ceiling of \$750 million on the amount of bonds and notes that TVA may have outstanding at any one time. While it was realized that the \$750 million ceiling would have to be raised, the Congress felt this new method of TVA power financing should be placed on a trial basis in its initial authorization.

It is significant to keep in mind that, when the initial revenue bond bill was before Congress, the Bureau of the Budget recommended a ceiling of only \$200 million—only enough borrowing authority to last TVA for a couple of years. But Congress, fortunately, overrode the Budget Bureau's short-sighted recommendations, and President Eisenhower signed the bill into law, with a \$750 million ceiling.

In 1966, after seven years, the time came to raise the ceiling. Congress increased the ceiling to \$1.75 billion—an increase of \$1 billion over the original limit. But in 1966—this time with President Johnson in the White House—the Budget Bureau recommended an increase in TVA's bond ceiling of only \$250 million, an increase which would have lasted TVA only one or two years. So once again the Bureau of the Budget recommended a rise in TVA's bond ceiling which would have been unrealistic and unworkable, and would have had the effect of requiring TVA to come back every two years for an upward change in its bond ceiling. And once again the Congress took the sounder position, and increased TVA's bond ceiling by \$1 billion, instead of by the \$250 million recommended by the Budget Bureau.

In 1970, history is repeating itself. The Budget Bureau proudly announces that it favors an increase in TVA's bond ceiling to \$3.5 billion, double the present \$1.75 billion limit. But the Bureau admits that—with the rapid growth in electrical usage, and the rising cost of power generation and transmission equipment—TVA's borrowing needs would have to be reviewed by fiscal 1973, just three years away.

TVA officials believe the bond authorization may be used up by 1972, rather than by 1973. So again—for the third time in a row—the Budget Bureau has sent to Congress a recommendation about TVA's revenue bond authority that gives TVA only two to three years to reach a new ceiling.

And once again, it is up to the Congress to take the road of reason and sound policy. Congress must again view the Budget Bureau's recommendation as falling short of good national policy. Congress must approve the bill introduced by a bi-partisan group of 18 members of the House, to raise the ceiling on TVA's bonding authority to \$5 billion.

#### *Basic Facts*

Perhaps a few basic facts will help to put in perspective the shortsightedness of the Budget Bureau's recommendation for an increase to only \$3.5 billion in TVA's bond ceiling:

1. TVA bonds are not a part of the national debt, but are paid off, principal and interest, by the electric consumers of the Tennessee Valley through their electric bills. So TVA bonds are not a part of the Budget Bureau's concern over the national debt.

2. Raising the ceiling on TVA's bonding authority to \$5 billion will have no different fiscal impact than raising the authority to \$3.5 billion—nor raising the ceiling to \$35 billion, for that matter. TVA will issue the bonds only when its power needs demand more generating capacity.

3. This matter comes before the Congress at a time when the nation faces brownouts in several parts of the country. Today the nation's electric power supply is so intertwined that the failure of a major generator in the Tennessee Valley can have an effect on power voltage in Washington, D.C. It is foolish to prevent TVA—a large power network, whose supply of power generation directly affects many parts of the nation—from doing the kind of long-range power planning that is so badly needed today.

The lead time on power supply today is six to seven years—from the time an order for equipment is placed until the equipment is in operation. And before the order is placed, the authority to obtain the funds to pay for the equipment must be there. But how can TVA plan its future power supply with assurance, when it has only enough borrowing authority to last for two to three years?

The Budget Bureau, if it were to take a sound policy position, might well have recommended that the TVA bonding ceiling be raised to \$15 billion, or \$25 billion, to allow maximum power supply planning time for TVA.

But the choices before this Committee are between a \$3.5 billion ceiling—an increase that is better than nothing, but dangerously far from adequate—and a \$5 billion ceiling, the more realistic and progressive approach, an approach represented by H.R. 16061.

We strongly urge immediate approval of H.R. 16061, and we congratulate the members of both parties who introduced this legislation.

**TENNESSEE VALLEY PUBLIC POWER ASSOCIATION RESOLUTION ON TVA REVENUE  
BOND AUTHORITY**

WHEREAS, the Tennessee Valley Authority has reached the \$1.75 billion limit on its authority, established by the Congress, to issue revenue bonds in the private money market, and

WHEREAS, it is urgent that the ceiling on TVA's borrowing authority be greatly increased soon, to permit the Authority to place orders for new electric generating and other facilities to meet the Tennessee Valley's long-range power supply needs, particularly the growing loads of the Valley's 108 municipal systems and 50 rural electric cooperatives, and

WHEREAS, TVA revenue bonds are not a part of the national debt, but are paid off, principal and interest, by the electric consumers of the Tennessee Valley through their electric bills, and

WHEREAS, the urgency of long-range power supply planning—both inside the Tennessee Valley and in the surrounding areas—is critical in a time when parts of the nation face serious power supply problems and possible power shortages, and

WHEREAS, the TVA needs long-range financing authority to permit it to do effective long-range power planning, and to back up that planning with timely orders for equipment, in a period when it takes six to seven years of lead time from purchase order to installation of generating equipment.

NOW, THEREFORE, BE IT RESOLVED: That the Tennessee Valley Public Power Association supports legislation to increase the ceiling on TVA's bonding authority to \$5 billion, since such an increase will assist TVA in meeting the growing power demands in the Tennessee Valley; and

BE IT FURTHER RESOLVED: That the Association instructs its Executive Director to write to each member of Congress who has introduced legislation to increase the TVA bond authority ceiling to \$5 billion, commending each member individually for his dedication to adequate power supply for the people of the Tennessee Valley.

(Adopted by membership of Tennessee Valley Public Power Association on May 20, 1970 at annual meeting of the Association.)

HUNTSVILLE, ALA., June 17, 1970.

HON. GEORGE H. FALLON,  
*Chairman, Committee on Public Works, U.S. House of Representatives:*

The Tennessee Valley Trades and Labor Council requests your support and influence in the passage of H.R. 16061 bill to raise the bond ceiling for TVA operations.

W. R. LEWIS, *Secretary.*



