



COMPTROLLER GENERAL OF THE UNITED STATES  
WASHINGTON, D.C. 20548

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The Honorable Bill Brock  
United States Senate

Dear Senator Brock:

In accordance with your request of August 27, 1974, we reviewed the situation surrounding the announcement by the Tennessee Valley Authority (TVA) that it may be forced to curtail electric power service to its customers this winter because of a coal shortage. We inquired into the reasons for the potential coal shortage, the plans made and actions taken by TVA, the possible effects, and additional steps which may be taken to avoid cutbacks in electric service.

Although coal production was up about 7 percent in the first half of 1974 compared with a similar period of the previous year, some of the increased production appears to be available at prices and with other contract terms which TVA generally has been unwilling to accept. In addition, a shortage of railroad hopper cars and barges and production difficulties have contributed to delinquent coal deliveries to TVA under existing contracts. Also, coal which should have been shipped to TVA under existing contracts has been diverted to others but the full extent of this diversion was difficult to determine. TVA told us, however, that there was no evidence that this diversion involves a significant amount of coal.

As a result of these situations, TVA coal stockpiles declined from a 100-day supply at the start of fiscal year 1974 to a 69-day supply at the end of the fiscal year. At September 30, 1974, the stockpile had further declined to a 45-day supply. TVA considers an emergency to exist when the coal stockpile at any one steamplant is insufficient for 60 days of continuous operation.

TVA was faced with the choice of paying coal prices (up to about \$50 a ton) and agreeing to contract terms (such as no quality guarantee and no TVA land reclamation requirements) which it considered unreasonable, or of allowing its coal stockpiles to reach unacceptably low levels with the resulting possibility of cutbacks in power this winter. In this situation, TVA adopted an approach of paying some of the higher prices--but not the highest prices--being requested for coal, refusing to change its coal quality guarantee and mining reclamation requirements, and taking alternative actions designed to reduce its coal consumption.

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In the first 3 months of fiscal year 1975, TVA's efforts to reduce its coal consumption and to obtain new coal supplies included

- purchasing \$25 million worth of electricity from neighboring utilities, almost twice as much as it purchased in fiscal year 1974;
- operating its high cost oil-burning turbine generators for longer periods than normal and attempting to obtain additional oil supplies;
- obtaining about 15 percent increased generation from its hydroplants by drawing down its reservoirs earlier than normal; and
- signing 18 contracts for about 5.8 million tons of coal, amending two existing contracts to purchase 2.6 million tons of additional coal, arranging to have additional coal mined from TVA-owned coal reserves, and continuing efforts to purchase coal in Montana and Wyoming.

In addition, TVA transferred coal from plants having large stockpiles to those having smaller stockpiles. TVA also instituted a program to reduce the energy used at its steamplants, offices, and other facilities and reported a 30-percent reduction in the use of electricity at these facilities.

On September 24, 1974, TVA requested that electric consumers in the TVA power service area voluntarily cut back about 20 percent in the use of electricity in order to conserve coal. TVA officials estimated that, if there is not a lengthy coal miners' strike starting in November 1974,<sup>1</sup> they can get through the winter without a power cut-back even if less than a voluntary 20-percent reduction in use is realized from all customers. This is important because TVA anticipates that it will be difficult for certain classes of customers, such as industry, to reduce their electric consumption 20 percent without causing serious economic problems.

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<sup>1</sup>The United Mine Workers of America Union contract with the bituminous coal operators expires November 12, 1974. Negotiations are underway for renewal of the contract.

TVA told us that, prior to announcing the voluntary reduction in use program, it contacted, or tried to contact, State energy officials to advise them of the program. Several State energy officials told us, however, that TVA had not adequately consulted with them and TVA told us that it will do more to consult and make plans with State and local government officials for implementing the program. There are indications that some State and local government officials in Tennessee are cooperating in the program.

TVA estimated in September 1974 that, without the voluntary reduction in use program and assuming no additional coal supplies under new contracts, it would start to close down units at its steam-plants in October 1974 and by April 19, 1975, would have a loss of about 10 percent of system capacity. If there is a coal miners' strike, however, and no coal is delivered after November 16, 1974, TVA estimated that there would be a cumulative loss of about 60 percent of total system capacity by January 24, 1975.

TVA has a task force working on a contingency plan which will be implemented if a mandatory cutback in power is necessary. TVA officials told us that they intend to consult with State energy officials in devising their contingency plan. Such consultation could be helpful to TVA by providing State input concerning priorities for cutbacks in power and in obtaining any State and local legislation that may be needed to implement the program. According to TVA, the contingency plan could include the elimination of all nonessential uses of electricity, certain mandatory reductions in use by all customers, and scheduled short-time interruptions of power on a rotational basis.

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The Federal Power Commission is considering a proposed regulation, and the Interstate Commerce Commission has promised to take action under certain conditions which could help avoid the need for a cutback in TVA electric service. These actions involve transferring electricity from other utilities and assigning railroad coal cars to serve TVA plants. Also proposed legislation has been introduced in the Congress, which is designed, in the long term, to increase production, transportation, and conversion of coal.

A more detailed discussion of these matters is presented in the enclosure.

As you requested, we obtained TVA's informal comments on this report and considered their views in preparation of the report. We

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do not plan to distribute this report further unless you agree or publicly announce its contents.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Thomas B. Aboody".

Comptroller General  
of the United States

Enclosure

POTENTIAL CURTAILMENT OF ELECTRIC POWER SERVICE  
BY THE TENNESSEE VALLEY AUTHORITY

INTRODUCTION

TVA supplies electric power in an area of about 80,000 square miles in portions of seven States having a population of about 6 million. As the Nation's largest power producer, TVA generates, transmits, and sells electric power to 160 distributors, 48 industries which have large or unusual electric requirements, and 11 Federal installations. TVA's power is distributed in Tennessee (63.1 percent), Alabama (15.5 percent), Kentucky (13.8 percent), Mississippi (5.6 percent), Georgia (1.2 percent), Virginia (0.5 percent), and North Carolina (0.3 percent).

About 78 percent of the total electric energy generated by TVA's power system is produced by 12 coal-fired steamplants. Nationally, electric utility plants use about 65 percent of the U.S. coal production and the coal burning plants provide about 46 percent of the electric energy.

Although TVA's scheduled completion by 1982 of 13 nuclear-powered generating units will reduce the percentage of electricity generated with fossil fuel, TVA said that a large and reliable supply of coal would continue to be vital to the TVA's power system and its power users for a long time. TVA's anticipated growth in the demand for electric power is expected to cause its annual coal consumption to increase from 37 million tons burned in fiscal year 1974 to a peak of 46 million tons before fiscal year 1980.

Traditionally, TVA has made term, spot, and emergency coal purchases. Both term and spot purchases are made under normal competitive bidding procedures. The delivery period is more than 6 months under term contracts and is 4 weeks or less under spot purchases. For emergency purchases, contracts are negotiated rather than advertised and the delivery period is usually 6 months or less. TVA considers an emergency to exist when the coal stockpiled at any one steamplant is insufficient for 60 days of continuous operation.

## ENCLOSURE

During fiscal year 1974, 43.8 million tons of coal were scheduled for delivery to TVA but coal received at TVA powerplants totaled 34.2 million tons, down 6 million tons from the previous year. Most of the decrease was in deliveries from surface-mining operations. TVA said that coal deliveries during the year would have been adequate if they had met the levels scheduled under existing coal supply contracts.

Coal deliveries to TVA continued to decline during fiscal year 1975 and, thus, TVA's coal stockpiles continued to decline--from a 69-day supply at June 30, 1974, to a 45-day supply at September 30, 1974.

As a result of its decreasing stockpiles and the difficulty it was having in obtaining new coal sources, TVA announced on August 15, 1974, that electric power curtailments might be required during this winter. Winter is the period of heaviest power demand in the TVA region, primarily because of the extensive use of electricity for space heating.

On August 27, 1974, Senator Bill Brock requested the General Accounting Office to investigate

- the extent to which TVA-stated reasons for the potential coal shortage are valid,
- the plans TVA has made to deal with the potential coal shortage,
- the effects of the potential coal shortage, and
- the steps that TVA can take to avoid curtailment of electric service and any legislative or administrative actions that could be taken to avoid cutbacks in such service.

### VALIDITY OF TVA-STATED REASONS FOR THE POTENTIAL COAL SHORTAGE

The reasons reportedly stated by TVA for a potential coal shortage are (1) coal production is down nationally, (2) there is a

shortage of railroad hopper cars to deliver coal, and (3) coal that has been purchased by TVA on long-term contracts is being diverted to the spot market.

#### Coal production and utility stockpiles

The Bureau of Mines, Department of the Interior, reported that coal production for the 6-month period ended June 30, 1974, was about 20.6 million tons, or 7 percent, more than for a comparable period of the prior year. About 7.6 million tons of this increase was in three States where TVA purchased about 95 percent of its coal in 1973. Production in 1973, however, was down about 4.4 million tons from 1972. The increased production in 1974 was used for increases in consumption, exports, and inventories. Inventories increased about 9.7 million tons from December 31, 1972, to June 30, 1974.

From July 1 through September 30, 1974, the increase in national coal production, over a comparable period of the prior year, was less than 1 percent--primarily because of a 5-day moratorium by coal miners in August 1974.

The Keystone News (a McGraw-Hill mining publication) reported that less than 0.5 percent of the 7 percent increase in coal production was by the 48 major coal producers and that most of the increase was by small and intermediate firms because of flexibility permitting them to take advantage of high prices being offered on the spot market. Officials of one of the major railroads shipping coal to TVA told us that the high prices being paid for coal permitted mine operators to reopen old nonunion mines which otherwise would not have been economically feasible.

TVA stated that 15 million tons of the 20.6 million tons of increased coal production was delivered outside the TVA region and that some of the increased coal production was used by consumers who converted from the use of oil to coal. TVA stated that many of the areas from which it normally purchases coal had little or no increase in production. Also, TVA indicated that the demand for coal exceeds production by several million tons, resulting in declining stockpiles and increasing prices.

The increase in national coal production is consistent with information published by the Bureau of Mines which shows that, during fiscal year 1974, electric utilities increased their stockpiles of coal. During the same period, however, TVA's stockpiles declined.

	<u>Days' supply in stockpiles</u>		<u>Change in days' supply</u>
	<u>June 30, 1973</u>	<u>June 30, 1974</u>	
All electric utilities	86	89	+3
TVA	100	69	-31

The Bureau of Mines estimated that on August 31, 1974, the total coal stocks held by all electric utilities represented a 76-day supply. On August 29, 1974, TVA reported a 50-day supply.

Several of the electric utility systems neighboring TVA told us in September 1974 that their coal stockpiles contained a larger number of days' supply than that reported by TVA for its system. These utilities, however, reported paying higher prices for coal than TVA paid. Also, some of the utilities said that they did not require a coal quality guarantee. The information provided to us by the utilities is shown in the following table.

September 1974 stockpiles

<u>Electric utility system</u>	<u>Days supply</u>	<u>Highest price paid per ton</u>	<u>Quality guarantee required (note a)</u>
TVA	45	\$30.53	Yes
American Electric Power Company, Inc. (note b)	70	51.00	Yes, long term purchases No, spot purchases
South Carolina Electric & Gas Co.	80	38.40	No
Carolina Power & Light Co.	70	45.00	No
Duke Power Co.	47	39.00	No
Southern Company (note c)	-	54.75	Yes
Mississippi Power Co.	60	-	-
Georgia Power Co.	52	-	-
Alabama Power Co.	49	-	-
Gulf Power Co.	32	-	-

<sup>a</sup>TVA's contracts provide for a price adjustment if delivered coal does not meet minimum coal quality standards governing moisture, ash, sulfur, heat content, ash-softening temperature, and volatile matter.

<sup>b</sup>A holding company which owns the common stock of 7 operating electric company subsidiaries.

<sup>c</sup>A holding company comprising the utility companies listed.

## ENCLOSURE

For selected utilities we used information reported to the Federal Power Commission to compare the cost of coal purchased in April and July 1974 as follows:

	Average costs in cents per million Btus <sup>1</sup>					
	TVA		Carolina Power & Light		Georgia Power	
	<u>4-74</u>	<u>7-74</u>	<u>4-74</u>	<u>7-74</u>	<u>4-74</u>	<u>7-74</u>
Contract purchases	41.3	50.4	54.7	57.0	47.4	57.6
Spot purchases	49.8	51.5	143.3	171.0	73.6	129.2
All purchases	41.4	50.4	122.2	161.0	48.1	69.7

Spot purchases had little effect on TVA's costs in April and July because TVA purchased such small quantities of coal on the spot market.

Because TVA's supply of coal appeared to be relatively less than that of the national electric utility supply and of neighboring electric utilities, we examined TVA's record of rejected coal offers. We found that TVA rejected offers for such reasons as high prices, low quality, inadequate land reclamation provisions, and inadequate coal reserves by the supplier. Nine offers, ranging in price from \$8.50 to \$32 a ton, f.o.b. mine, were reported from December 1973 to July 1974 as being rejected solely on the basis of price.

These offers were for a total of 685,000 tons with weekly deliveries of 22,300 tons. Of this amount, offers for 3,000 tons at a price of \$8.50 a ton and 520,000 tons at a price of \$11.40 a ton were rejected in December 1973 and an offer for 104,000 tons at a price of \$32 a ton was rejected in March 1974. TVA pointed out that at the time these offers were rejected it had a large coal stockpile and was negotiating for approximately 5.4 million tons of coal at prices lower than the \$11.40 a ton rejected in December. TVA stated that contracts for the 5.4 million tons were awarded in April 1974.

<sup>1</sup> A British thermal unit (Btu) is the amount of heat required to raise the temperature of one pound of water 1 degree Fahrenheit.

In September 1974, TVA paid its highest price for coal--\$30.53 a ton--but was unwilling at that time to pay the \$40 to \$50 a ton being asked by some suppliers and reportedly being paid by some utilities.

The coal prices rejected by TVA in the latter part of fiscal year 1974 (primarily \$11.40 to \$32 a ton) were much higher than the prices TVA said that it had paid in the fall of 1973 (\$8.50 to \$10.50 a ton). TVA had started fiscal year 1974 with a large stockpile--100 days' supply--and was not willing to pay prices it considered unreasonable. A TVA official stated this position in a speech on April 22, 1974, as follows:

"\* \* \* Our favorable inventory situation at the beginning of the current crunch has allowed us to be selective regarding the few offers we've had; however, as a consequence we have not been buying much coal lately."

TVA was faced with the choice of paying coal prices and agreeing to contract terms it considered unreasonable--and the resulting higher and higher rates to consumers for electric power--or of allowing its coal stockpiles to reach unacceptable low levels with the resulting possibility of cutbacks in power this winter. In this situation, TVA adopted an approach of paying some of the higher prices--but not the highest prices--being requested by coal suppliers, refusing to change its coal quality guarantee and mining reclamation requirements, as demanded by some coal suppliers, and taking alternative actions designed to reduce its coal consumption. These alternative actions are discussed starting on page 10.

#### Shortage of railroad hopper cars

TVA depends on railroad hopper cars to deliver about 50 percent of its coal, and the Louisville and Nashville Railroad Company (L&N) carries about 55 percent of that quantity. The other principal railroads serving TVA are the Illinois Central Gulf Railroad, Southern Railway System, and Burlington Northern.

From January 1 through September 7, 1974, TVA reported that its coal suppliers were about 4 million tons behind schedule in meeting the coal deliveries normally shipped by railroad cars.

TVA reported that the coal suppliers cited their inability to get railroad hopper cars as the reason for about 1.3 million tons of the deficient coal deliveries, of which about 917,140 tons were attributed to a shortage of L&N hopper cars. Some of the other reasons cited for these and other delinquent deliveries were barge shortages, labor strikes, mine closure due to violations of reclamation requirements, production difficulties, and reduced production resulting from compliance with the Federal Coal Mine Health and Safety Act of 1969 (30 U.S.C. 801).

Officials of the Interstate Commerce Commission (ICC), several electric utilities, the Association of American Railroads, and L&N, told us that there was a railroad hopper car shortage but that they were unable to estimate the amount of the shortage.

Nationally, the number of railroad hopper cars and their total carrying capacity has consistently decreased, as shown in the following data provided by the Association of American Railroads.

<u>Date</u>	<u>Number of hopper cars owned</u>	<u>Total carrying capacity in tons</u>	<u>Average tons per car</u>
1-1-40	779,036	43,516,951	55.86
1-1-50	573,023	33,006,125	57.60
1-1-60	490,020	29,420,801	60.04
1-1-70	394,204	28,207,421	71.56
1-1-74	354,608	27,152,335	76.57

The association reported that for the 12 months ended July 31, 1974, all railroads in the United States retired from service a total of 18,869 hopper cars while installing on their lines only 4,360 hopper cars. At August 1, 1974, 17,911 hopper cars were awaiting repairs.

For calendar year 1973, the National Coal Association reported:

	<u>Hopper cars installed</u>	<u>Hopper cars retired</u>	<u>Increase in average tons per car</u>
24 major coal-carrying railroads	4,790	21,166	.6
TVA carriers:			
L&N	308	2,439	.9
Illinois Central Gulf Railroad	100	271	.3
Southern Railway System	488	731	18.0
Burlington Northern	1,085	1,099	1.1

L&N officials told us that they recently had ordered about 3,000 new hopper cars and had reduced the number of cars awaiting repairs from 8.2 percent in January 1974 to 4.2 percent in October 1974.

According to an official of the Association of American Railroads, the reasons hopper cars have been decreasing in number as well as total carrying capacity are (1) railroads do not have capital available to replace older cars as they are retired and (2) manufacturers of new railroad cars are operating at 100-percent capacity and at least 1-year leadtime is required before orders are filled. L&N officials told us that they were experiencing a 2-year leadtime for new car orders.

Although we could not obtain an estimate of the total hopper car shortage, ICC told us that the Association of American Railroads reported for the week ended September 14, 1974, that the average daily shortage of hopper cars was 6,095 cars nationally and 2,185 cars in the southern district which serves TVA. The shortage in cars reported by the association represents cars ordered by customers less the number available and, according to ICC and L&N officials, is probably overstated about 30 percent because of the tendency of coal mine operators to order more cars than needed because they do not expect to receive the number ordered.

Another reason for the hopper car shortage, according to an L&N official, is the search for coal by electric utilities outside the coal-producing areas from which they normally buy coal and the increase in coal exports. L&N said that its cars were delivering coal over other railroads to New York and ports of export in larger quantities than ever before. As a result, the turnaround time (time a car leaves with coal until it returns) for its cars has increased. This situation is indicated by the fact that as of September 15, 1974, only 56.5 percent of L&N's cars were operating on its railway tracks.

ICC has taken certain actions to reduce the effect of the hopper car shortage on TVA. Among other things, ICC issued a service order--the latest amendment dated June 27, 1974--requiring other railroads to return L&N hopper cars. L&N officials told us that this order had been helpful and that they would have even fewer of their owned cars on line except for this order.

Diversions to the spot market

TVA often awards coal contracts covering periods of 15 years or longer. The price TVA paid under these contracts was much less than the current spot market price. For example, TVA reported that its average delivered cost of coal purchased in fiscal year 1974 was \$10.11 a ton. Recent prices on the spot market, however, have been quoted to us as being over \$50 a ton. This situation would make it more profitable to TVA coal suppliers if they could sell their coal on the spot market rather than delivering the coal under their long-term contracts with TVA.

Scheduled coal deliveries under TVA long-term contracts were about 35 percent short in September 1974. One reason coal suppliers gave for not meeting delivery schedules under TVA contracts was a shortage of railroad coal cars. Under the terms of the contracts, the supplier's inability to obtain coal cars is a valid reason for relieving the supplier from meeting delivery schedules.

TVA told us that it had attempted to verify whether a coal car shortage was the reason for not meeting coal deliveries under its contracts or whether a disproportionate number of cars available to its suppliers were being used to deliver coal to customers paying higher prices than TVA.

TVA has filed three cases in court alleging diversions of coal to other purchasers. In two cases the court enjoined the supplier from selling coal to others until deliveries are made to TVA. The other case was compromised. All three cases involve weekly coal deliveries to TVA totaling about 18,500 tons.

TVA officials told us that they believed this problem involved primarily small suppliers and that there was no evidence that a significant amount of coal was involved. TVA stated, however, that the full extent of the diversions was difficult to determine.

Conclusions

Although coal production increased this year compared with a comparable period in the prior year, the increased production appears

to be available at prices and with other contract terms which TVA generally has been unwilling to accept. Some neighboring utilities do not have as severe a coal supply problem as TVA, apparently because they have been willing to pay higher prices and agree to contract terms that TVA refused. In addition, a shortage of railroad hopper cars and barges and production difficulties have contributed to delinquent deliveries of coal to TVA under existing contracts. These are the principal reasons contributing to a potential coal shortage at TVA this winter.

Diversions to other purchasers of coal which should have been shipped to TVA under existing contracts have occurred, but TVA said that there was no evidence that a significant amount of coal was involved.

PLANS MADE AND ACTIONS TAKEN BY TVA  
TO DEAL WITH THE POTENTIAL COAL SHORTAGE

TVA is trying to obtain additional coal supplies, to redistribute its existing supplies, and to conserve coal. In September 1974, TVA officials estimated that they could get through the winter without a cut-back in power if (1) coal deliveries continued at recent levels, (2) their customers voluntarily reduced their use of electricity, and (3) there is not a lengthy coal miners' strike starting in November.

Additional coal supplies

Traditionally, TVA has purchased coal by obtaining competitive bidding based on formal advertising and public bid opening. Because of its declining coal stockpiles and the poor response to requests for competitive bidding, the Board of Directors of TVA, in October 1973, authorized the award of coal supply contracts by negotiation on an emergency basis. TVA procurement officials were authorized to obtain proposals and negotiate contracts for delivery of coal to any TVA powerplant for any length of time.

From October 23, 1973, to September 30, 1974, TVA accepted offers for about 12.8 million tons of coal, of which about 5.8 million tons were accepted under 18 contracts signed during the first 3 months of fiscal year 1975. These 18 contracts provide for average weekly coal deliveries of about 31,000 tons. One of the offers was accepted

on September 26, 1974, from the Pittsburg and Midway Coal Mining Company in Kentucky for 2.1 million tons of coal with 14,000 tons to be delivered weekly. The price agreed to was \$14 a ton. Also, during the first 3 months of fiscal year 1975, two existing contracts were amended to purchase about 2.6 million tons of additional coal with about 9,000 tons to be delivered weekly.

TVA has signed two new contracts to have coal mined from TVA-owned coal reserves and expects to receive weekly deliveries of about 5,000 tons under one of these contracts starting in about 2 months. Deliveries under the other contract are scheduled to begin at developmental levels in 1977 and to amount to 1.5 million tons annually by 1980. TVA procurement officials also have been negotiating for coal supplies in Montana and Wyoming.

#### Transferring coal supplies

About 50 percent of TVA's coal stockpiles are at two of its steamplants--the Paradise plant and the Cumberland plant. The Paradise plant is near a coal mine, and coal is delivered by trucks. The Cumberland plant receives coal primarily by barge from the TVA-owned Camp Breckinridge coal reserves. As other steamplants in TVA's system have reached critically low stockpile levels, TVA has transferred coal to them which otherwise would have been stockpiled at the Paradise plant. Such transfers totaled about 241,000 tons of coal during July and August 1974.

TVA considered these coal transfers necessary to obtain a better distribution of stockpiles and to keep all the steamplants operating.

#### Coal conservation

TVA is attempting to conserve its declining coal stockpiles by increasing the amount of electricity obtained from other than its coal-burning plants and by requesting a voluntary reduction in the use of electricity.

In the first 3 months of fiscal year 1975 (July 1 to Sept. 30, 1974), TVA reported that it

- purchased \$25 million worth of electricity from neighboring utilities, almost twice as much as it purchased in fiscal year 1974;
- operated its high cost oil-burning turbine generators for longer periods than normal and was attempting to obtain additional oil supplies; and
- obtained about a 15-percent increase in generation from its hydroplants by drawing down its reservoirs earlier than normal.

TVA also instituted a program to reduce the energy used at its steamplants, offices, and other facilities and reported a 30-percent reduction in the use of electricity at these facilities. On September 24, 1974, while our review was in process, TVA requested that electric consumers in the TVA power service area voluntarily cut back around 20 percent in the use of electricity "in order to stretch our scarce coal supply to meet the region's electric energy needs this winter."

TVA officials estimated that, if there is not a lengthy coal miners' strike starting in November 1974, they can get through the winter without a power cutback even if less than a voluntary 20-percent reduction in use is realized from all customers. This is important because TVA anticipates that it will be difficult for certain classes of customers, such as industry, to voluntarily reduce their electric consumption 20 percent without causing serious economic problems.

Because of the importance TVA attaches to the voluntary reduction in the use of electricity for avoiding a cutback in power service this winter, we visited the State energy offices in Alabama, Georgia, and Tennessee to inquire as to their plans for assisting in the voluntary reduction program. Energy officials at all three States told us that TVA had not adequately consulted with them before announcing the voluntary reduction program and that they had not been asked to formulate any plans for assisting in the TVA program.

An effort to cutback the use of electricity was undertaken in 1973 in Oregon because of a shortage of electricity in the State. State officials supported the conservation program, and the Governor of

Oregon made the program mandatory. The program resulted in about a 7-percent reduction in the use of electricity.

TVA officials told us that prior to announcing the voluntary reduction program, they contacted, or tried to contact, State energy officials. They stated, however, that they will do more to consult and make plans with State and local government officials for implementing the program.

Although TVA did not adequately consult with State and local government officials about the voluntary reduction program, we noted that some State and local officials in Tennessee were cooperating with the program. The Governor of Tennessee announced a conservation program for the State government designed to cut electricity consumption by 20 percent, and the Chattanooga City Commission announced a plan designed to reduce its use of power for street lighting by 30 percent. The Associated Press reported that the Memphis Light, Gas & Water Division said that a plan was being prepared to give everyone a target figure in kilowatt-hours to reach each month and that financial incentives were being considered for those who reach their goals.

### Conclusions

TVA has taken actions to obtain additional coal supplies and to conserve its existing supplies. In September 1974 TVA estimated that, if there is not a lengthy coal miners' strike starting in November 1974, it can get through the winter without a cutback in power service if it obtains reasonable success from its request for consumers to voluntarily reduce their use of electricity by 20 percent.

The chances of success for TVA's program to obtain a voluntary reduction in the use of electricity probably will be improved if State and local government leaders in the areas served by TVA support the program and set an example by implementing the program in all State and local government facilities. TVA told us that it will do more to obtain the support of such State and local government leaders.

### EFFECTS OF POTENTIAL COAL SHORTAGE

TVA estimated in September 1974 that, at the then-current rates of coal deliveries and assuming no lengthy coal miners' strike

in November, no additional coal supplies under new contracts, and no voluntary program for the conservation of electricity, it would start to close down units at its steamplants in October 1974 and by April 19, 1975, would have a system loss of about 2,216 megawatts of capacity--almost 10 percent of total system capacity. If there is a coal strike, however, and no coal is delivered after November 16, 1974, TVA estimated that by January 24, 1975, there would be a cumulative system capacity loss of 14,235 megawatts--about 60 percent of the total system capacity.

TVA estimated that it can get through the winter without a mandatory cutback in power if there is not a lengthy coal strike starting in November and if it obtains reasonable success from its request for consumers to voluntarily reduce their use of electricity by 20 percent.

Some of the variables which could improve the chances of getting through the winter without a mandatory power cutback are (1) mild winter temperatures, (2) better-than-normal hydro conditions, (3) improved coal deliveries under existing coal contracts, (4) coal deliveries that may be obtained under new contracts, (5) additional energy available from neighboring utilities, and (6) better-than-normal performance from generating plants (Paradise, Cumberland, and Browns Ferry) having the best fuel supply.

TVA has a task force working on a plan, however, which will be implemented if a mandatory cutback in power service is necessary. TVA officials told us that the mandatory curtailment plan could include the elimination of all nonessential uses of electricity, certain mandatory reductions in use by all customers, and scheduled short-time interruptions of power on a rotational basis.

TVA officials said that an idea of the type of actions it might take if a mandatory cutback in energy were needed could be gained from the actions anticipated under its existing plan for mandatory short-term cutbacks in capacity. The TVA capacity cutback plan provides, in addition to actions TVA has already taken, for:

1. Voltage reduction of 5 percent to distributors.
2. Curtailment, in stages, of firm deliveries to

- neighboring utilities,
  - TVA-served Federal installations,
  - TVA-served industries, and
  - distributor-served industries.
3. Reduction of one-third of the load at each distribution substation on a rotational basis.
  4. Disconnection of up to 50 percent of the TVA load by operation of automatic relays which are preset to operate when the power supply is inadequate.

TVA officials told us that they intend to consult with State energy offices and local electric distributors in the development of a contingency program for mandatory cutbacks in power as soon as preliminary guidelines are developed for discussion purposes. Such consultation could be helpful to TVA by providing State input concerning priorities for cutbacks in power and in obtaining any State and local legislation that may be needed to implement the program.

In addition to the potential effects on power supply, the actions taken and requested by TVA because of the coal supply problem will result in additional costs or reduced revenues which otherwise might not have been necessary. For example, some of the electricity TVA is purchasing from other utilities is costing an average of about 14 to 22 mills per kilowatt-hour for nonfirm and firm energy, respectively. TVA-generated power costs about 8 to 9 mills per kilowatt-hour. Also, additional costs are being incurred to transfer coal between steamplants and to operate high cost oil-fired turbine generator units more than normal. TVA, however, had not made an estimate of all these additional costs.

ADDITIONAL ACTIONS WHICH COULD BE TAKEN  
TO AVOID CUTBACKS IN ELECTRIC SERVICE

The Federal Power Commission is considering a proposed regulation, and the Interstate Commerce Commission has promised to take

action under certain conditions which could help avoid a cutback in TVA electric service. Also, proposed legislation has been introduced in the Congress, which is designed, in the long-term, to increase the production, transportation, and conversion of coal.

Proposed regulation by the  
Federal Power Commission

The Federal Power Commission issued a notice on August 26, 1974 (Docket No. RM75-3), that it was proposing regulations by which the Commission would administer the emergency electric power transfer authority set forth in section 202(c) of the Federal Power Act (16 U.S.C. 824a(c)).

The proposed regulation provides that in an emergency due to the shortage of, or inability to use, fuel or water for generating facilities, the Commission could require one electric utility to transfer power to another electric utility. Generally, the utility receiving the power would have to show that (1) it has only a 30-day (or less) stockpile of coal and a continued downward trend in the stockpile is projected and (2) its projected energy deficiency without a transfer from other utilities would equal or exceed 10 percent of its normal load. A utility would not be required to transfer power to another, however, if it would require that utility to reduce its net load by more than 10 percent or to drop loads of ultimate consumers.

Action promised by ICC

On October 9, 1974, an official of ICC wrote TVA expressing ICC's concern that the coal stockpile at any electric-generating plant should not deteriorate to a point where power to the consuming public would be affected and expressed ICC's readiness to do anything under its authority to prevent such a situation. Specifically, ICC told TVA that:

"\* \* \* in the event any of the mines serving a plant showing a drastic decline in its stockpile, are unable to obtain cars from the serving carrier, we will certainly consider the taking of action to have cars furnished that mine with a given number of cars for shipment to your facility."

To justify such action, however, ICC pointed out that it must have evidence from TVA as to the status of the supply at the station needing coal, along with specific data as to the source of supply, naming the mine, its owner, and the serving carrier.

Proposed long-term action

A bill (H. R. 12045) introduced in the Congress in December 1973, and pending as of October 17, 1974, before the House Committee on Interstate and Foreign Commerce, is designed to increase the production, transportation, and conversion of coal. The bill would create the Emergency Coal Administration within the Federal Energy Administration, which would be empowered to

- set goals for coal production,
- insure a market for the coal produced,
- give coal producers first claim on materials and supplies needed to increase production, and
- provide financial assistance to railroads to buy additional coal cars.