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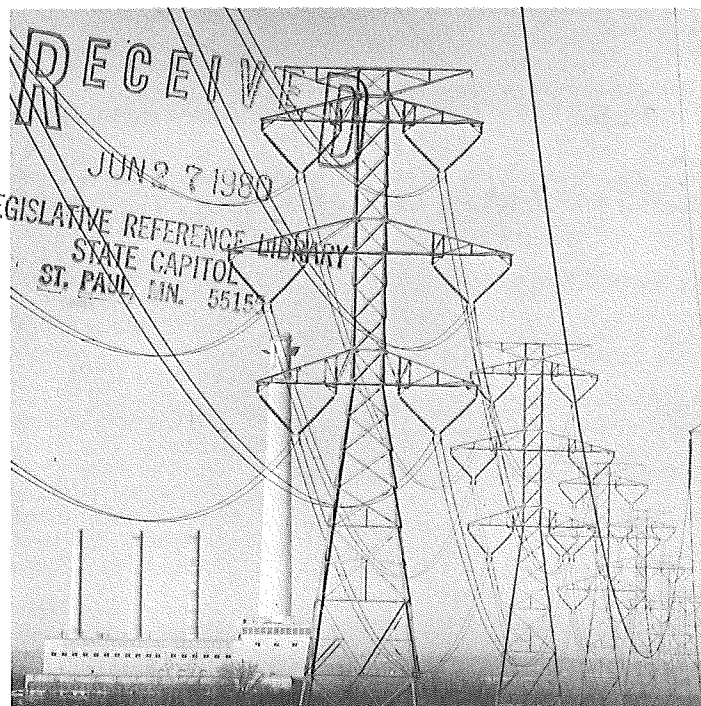
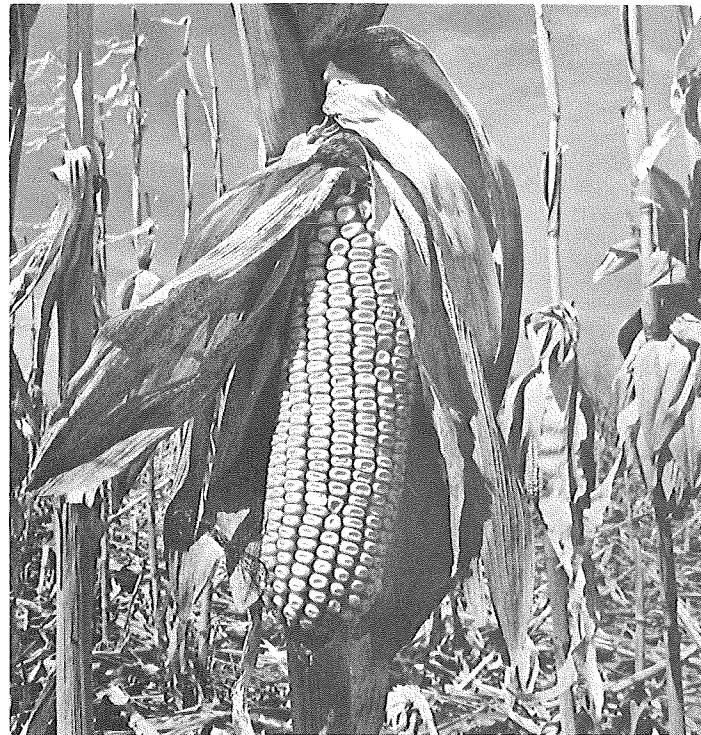
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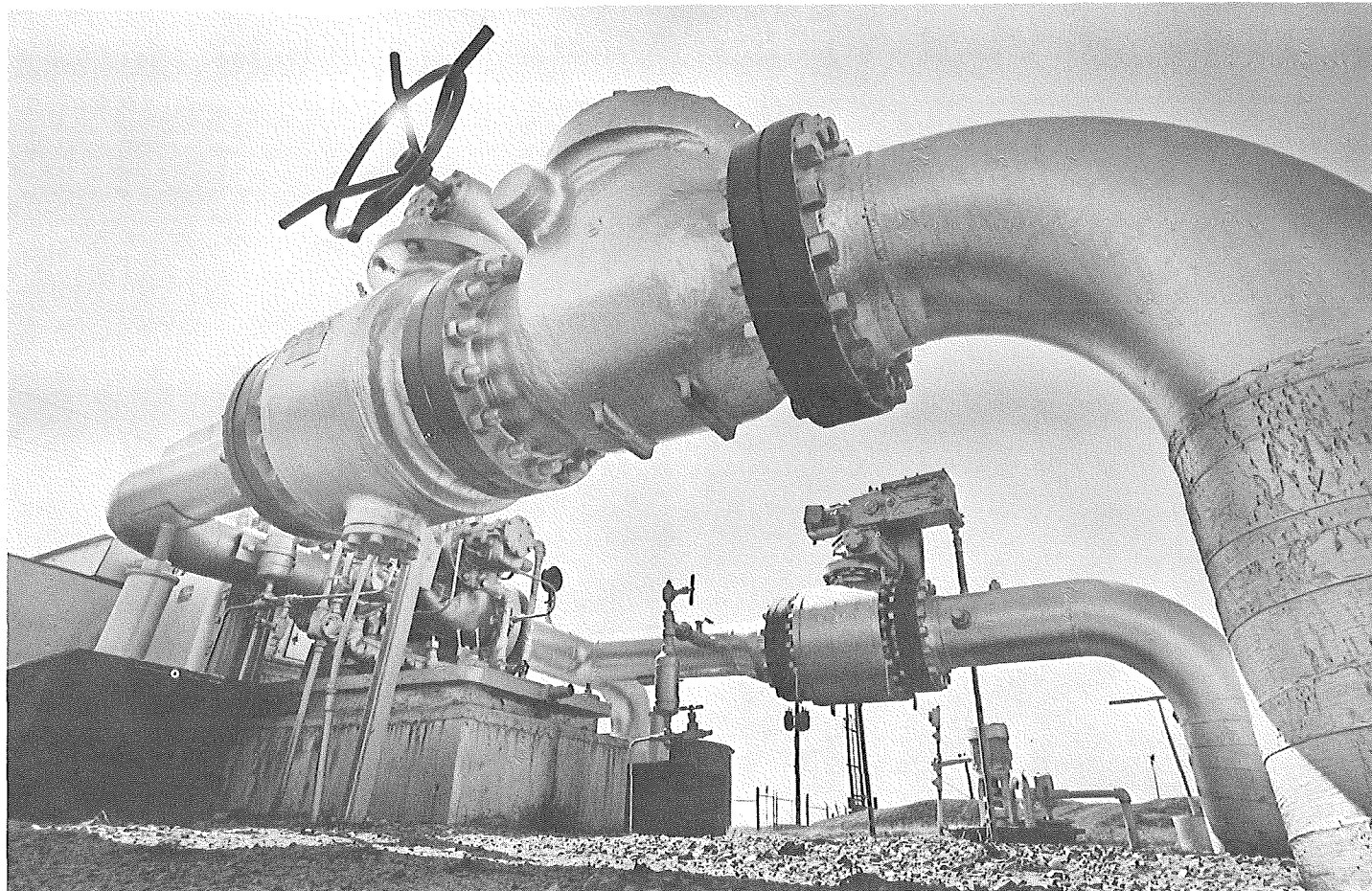
APRIL, 1980

Perspectives

A Publication about the Minnesota State Senate



Energy: The challenge of the 1980's



This auxiliary pump at the Minnesota Pipeline metering station in Cottage Grove would be used to pump stored Canadian and North Dakotan crude oil to nearby refineries if the pipeline temporarily shut down.

Senators grapple with energy issue

by Bruce L. Singleton

Minnesota, probably more than any other state, faces an energy debacle.

Plain and simple, the state produces no oil, gas or coal and is even a net importer of electricity. Minnesota is energy dependent in an energy dependent region and nation.

The state Senate this session has actively assaulted the area of energy assistance, including weatherization, but is left cold when energy dependence is the issue. There are simply no quick, easy answers.

The pipelines

Certainly, the area of greatest concern is the crude oil situation. The existing pipeline

system reflects Minnesota's dependence on outside oil. The Lakeland pipeline from Edmonton, Alberta and the Williams line from Tulsa, Oklahoma are the heaviest suppliers at this time.

The Canadian oil is slated to be severed next year. And two major pipelines on the drawing board, the Northern Tier from Washington state and the Northern Pipeline connecting to pipelines carrying oil from the Gulf face certain long and complicated processes.

Last month, the Northern Pipeline, designed to carry 156,000 barrels of crude oil per day into the state, ran into an obstacle when the Iowa Resources Council rejected three of the four sites proposed to carry the line across the border from Illinois. The pipeline, owned by Koch

Refinery in Pine Bend, Minn. is scheduled to pass through Iowa, southeastern Minnesota and on to the Twin Cities. Although an appeal is certain, a delay is inevitable.

Sen. Nancy Brataas (R-Rochester), although emphasizing the pipeline does not directly run through Rochester, is concerned because "We are in a very precarious situation. We are definitely an energy dependent state and we should do what is required to bring it (the oil) in."

The proposed Northern Tier Pipeline, which is scheduled to channel Alaskan and foreign crude oil from Port Angeles, Washington to Clearbrook, Minn. is also in doubt. In spite of a green light from President Carter earlier this year, the line faces severe opposition in the port region,

general regulatory questions and financial complications. Sen. Roger Moe (DFL-Ada), representing the pipeline destination, believes the line should be constructed but fears there are problems.

"I support the Northern Tier, and from what I can tell there is a definite need for the line. The question is whether or not the line can be built. There are many environmental questions in the port region," said Moe.

Sen. Jerald Anderson (DFL-North Branch), chairman of the Energy and Housing Committee, figures the Northern Tier and the Northern Pipeline are doomed.

"The federal government and not the private sector would have to subsidize the Northern Tier. The line is not economically feasible." He insists no private investor will invest in a line when supplies are in doubt and it appears that Alaskan oil will go to Japan and not the United States.

Anderson also doubts the construction of the Northern Pipeline from Illinois because "that line runs through the governor's old congressional district and he doesn't want to offend anyone."

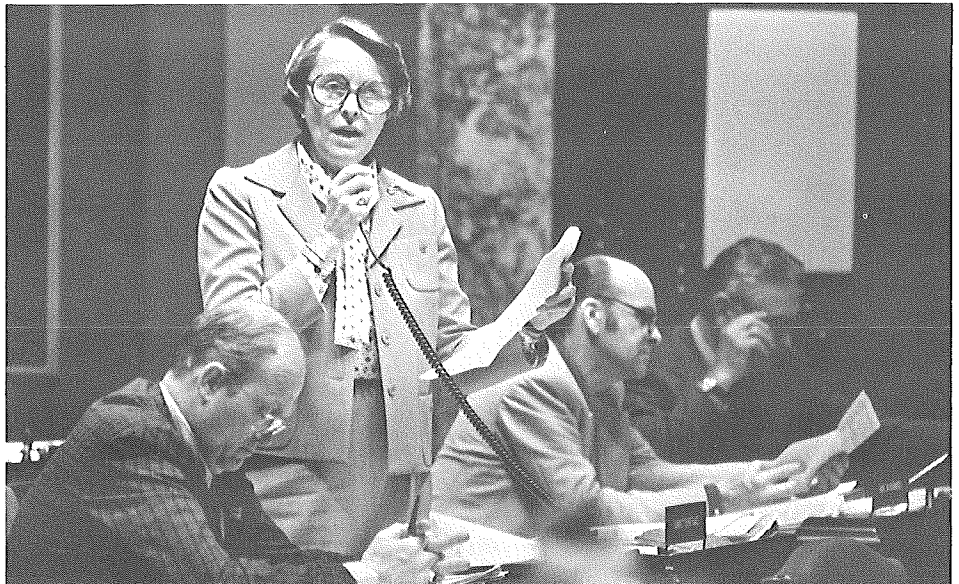
In the area of natural gas supplies, Minnesota fairs better. A new pipeline, the Northern Border, planned to carry Canadian and Alaskan natural gas to the Midwest and East, is scheduled for partial completion next year. The line would cross the southwestern part of the state passing through Lincoln, Lyon, Murray, Cottonwood, Jackson and Martin counties.

Though the Northern Border is expected to bring immediate relief to the region, experts predict new sources to meet future needs must be located soon.

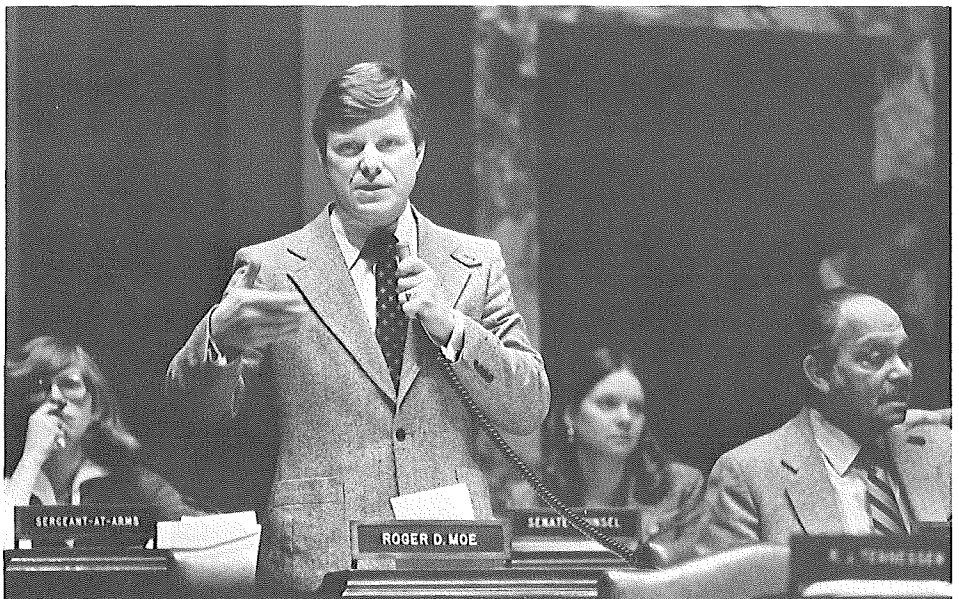
The powerlines

Currently, 8,632 megawatts (MW) of generating capacity exist in Minnesota, including 5,367 MW of coal-fired capacity, 1,755 MW of nuclear, 1,358 of oil and gas, and 152 MW of hydro power. An additional 1,300 MW of coal-fired is planned for service by 1985. The projected annual growth rate of electrical energy is 4.3 percent between 1980 and 1985, followed by a small decline thereafter for a few years. Current peak and projected needs mandate the state go elsewhere in search of power.

Minnesota is a peak importer of electrical energy, averaging about 1,700 MW per day in 1979. To meet the demand during peak periods, the state is an importer of



Brataas: "We are in a very precarious situation. We are definitely an energy dependent state and we should do what is required to bring it (the oil) in."



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electricity and an exporter at other times. In the winter and summer, Minnesota imports from the west, generally from North and South Dakota, and in the spring and fall exports primarily to Wisconsin and Illinois and north to Canada. Regardless, the state must import to meet its needs.

One of the more controversial lines is the line running from the Coal Creek plant (Cooperative Power Association and United Power Association) in Underwood, North Dakota to Minnesota, entering the state through Traverse County. The line currently supplies the state with 490 MW per day, with an additional 490 MW expected this fall.

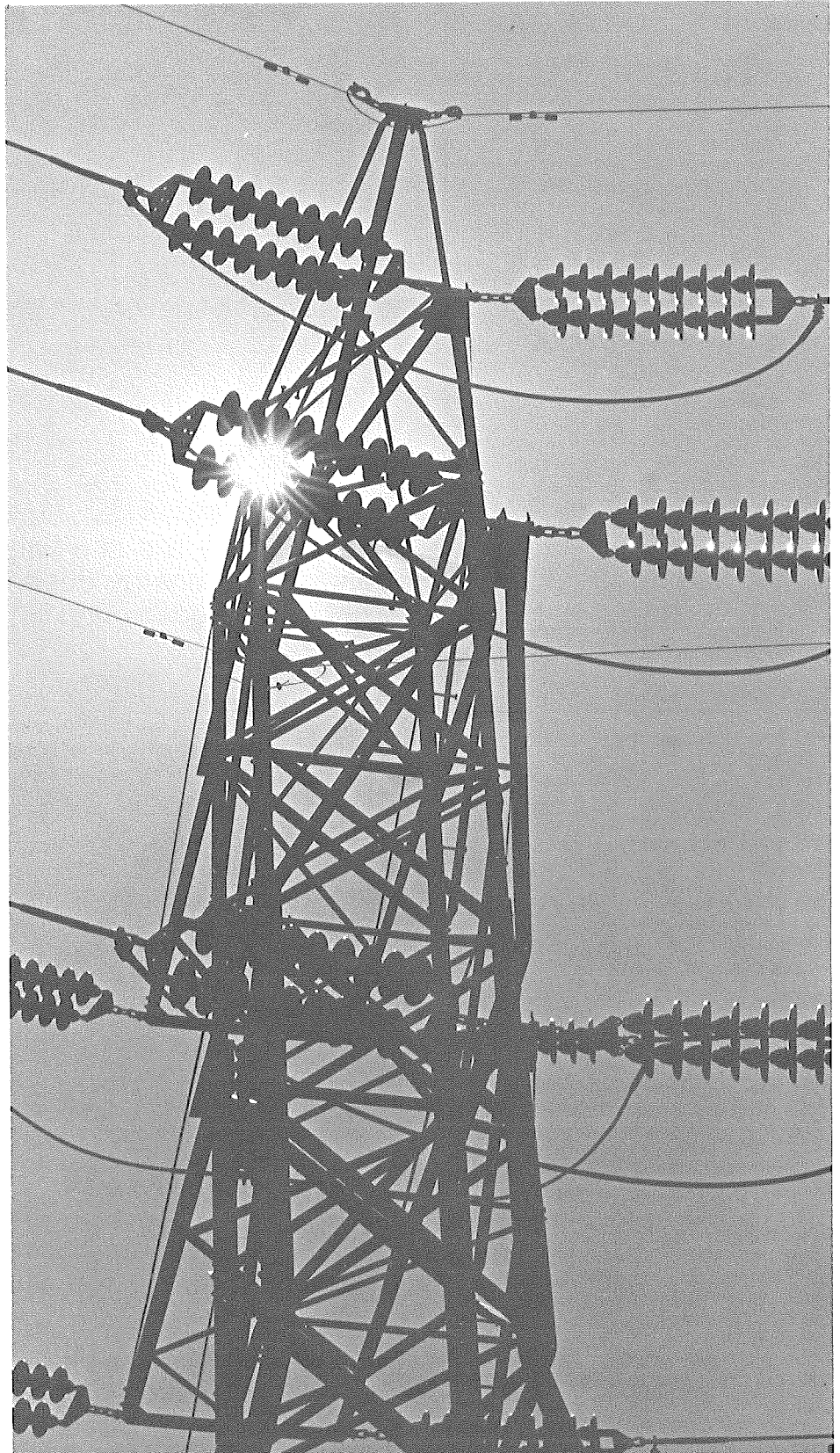
Sen. Wayne Olhoft (DFL-Herman, Traverse County) realizing the state's dependence upon this power, has no major quarrels with powerlines but only if certain criteria are met. He feels the state has "significantly improved" the laws governing power plant siting and powerlines, removing "unnecessary frustration."

"It is important to prove the plants and line are necessary and needed. Once this is achieved, then to be assured the design of the line being built has no unacceptable health hazards. We need to have the active public participation in locating these facilities," said Olhoft.

Nuclear energy supplies approximately one-quarter of the state energy needs. Often a sensitive issue, Sen. Steve Engler (R-Randolph and representing the area where the Prairie Island nuclear plant is located) believes with proper safety precautions nuclear energy is a viable alternative.

"This is a very, very energy dependent state. We are always the one to bear the brunt of the crisis. People generally are not aware of how much power is coming from these plants. Any kind of energy development has its share of risks. Even the acquisition of coal disturbs the balance of the environment," said Engler.

Coal-fired plants supply 5,367 MW of power to the state, well more than half the total energy demands. It is estimated that the state now imports approximately 18 million tons of coal per year, generally from the west, delivered by coal train. This consumption is expected to rise significantly to about 32 million tons by 1995, mostly burned at electrical generating plants similar to those at the Sherco plants. Increased quantities of coal are also anticipated to be burned directly, especially by large industries.



Under a Senate proposal low-income Minnesotans would receive financial assistance to help meet their home heating needs including fuel oil bills.



Photo by Mark M. Nelson

ASSISTANCE, TAX CREDITS

Senate works to ease home fuel bills

On Friday, March 21, Gov. Al Quie vetoed the compromise energy bill, accusing it of being too expensive and unnecessary. The governor objected to a number of specific provisions of the measure including the energy conservation tax credit and the energy assistance income eligibility levels.

by Anita L. Neumann

"Food or fuel?" That is a question facing an increasing number of Minnesota families because of rapidly escalating fuel costs and a decreasing availability of conventional fuel supplies.

In an attempt to reduce the number of those presently forced to make this choice and to diminish the probability of such choices having to be made in the future,

state lawmakers are wrestling with various plans which seek not only to provide immediate relief, but also look toward the future in tailoring programs which will allow the state to meet its energy requirements during the next decade and beyond.

The state Senate has spearheaded this broad-based effort by introducing proposals ranging from funding for emergency home-heating assistance to tax incentives for earth-sheltered housing.

Home-heating assistance

By far the most prominent piece of energy legislation to come out of the Senate this session is a comprehensive home-heating assistance plan, which in its original form would have provided some \$52.8 million in

funding for fuel assistance and energy conservation programs. This package, which differed substantially from one passed in the state House of Representatives and a plan advocated by the governor, was sent to a Senate-House conference committee where a \$43.5 million compromise was devised. The Senate somewhat reluctantly approved the compromise measure on March 18.

The proposal (S.F. 1670), sponsored by Sen. Hubert Humphrey III (DFL - New Hope), is a two-year plan which also contains provisions for energy conservation tax credits, home weatherization and an energy conservation grant fund.

The compromise version appropriates \$14

million over a two-year period which may be used for emergency heating assistance grants to eligible households.

The bill's eligibility limits are designed to pick up where federal assistance leaves off and extend up to a point which includes the state's 'working poor'.

This upward extension of the eligibility standard is accomplished by means of an earned income offset. Based on take-home pay rather than gross pay, the provision is designed to offset fixed costs like taxes, social security payments and extraordinary medical expenses; "things which can't be prevented, even if you're starving," said Humphrey.

According to Sen. Gerald Willet (DFL-Park Rapids), chairman of the Senate Agriculture and Natural Resources Committee, "Those people earning income are hit just as hard. It's incumbent on us to encourage those people to keep working and keep paying taxes."

Tax credit

An amendment by Sen. Neil Dieterich (DFL-St. Paul), which was added to the bill during floor debate significantly broadens the scope of the measure by proposing a residential energy credit for household energy conservation measures. The amendment is, according to its author, "aimed at encouraging home energy conservation by all Minnesotans." Specifically, it allows a 15 percent credit for the first \$2,000 spent on household energy conservation measures to be deducted from state income taxes.

If enacted, this provision would complete a state parallel of existing federal tax credits for energy conservation expenditures and renewable energy source expenditures such as earth-sheltered dwellings, biomass conversion equipment and expenditures for passive solar energy systems.

"The whole thrust of this program is to make homes more energy efficient and eventually get away from assistance," Willet said during floor debate of the bill.

Weatherization

In addition to the approximately \$10.5 million that could be spent under the above amendment provisions, the compromise proposal, like the original Senate version, authorizes another \$12 million to be spent on the weatherization of existing residences within the state. The Minnesota Housing Finance Agency (MHFA) would further be given \$5 million for the purpose of making emergency energy conservation grants to qualifying households.

Future residential energy proposals

Although state law currently allows zoning ordinances and variances to be formulated to ensure access to direct sunlight for solar energy systems and to allow and encourage earth-sheltered housing and other energy conserving mechanisms and designs, substantial opposition, primarily from outstate areas, has arisen against any state action specifically requiring certain energy conservation or energy efficiency

standards in a statewide building code. An attempt to require those standards was thwarted by legislation passed in 1979 which allows a municipality to exempt itself from compliance with the state building code.

The difficulty with such an approach appears to be, in the words of Sen. Franklin Knoll (DFL-Mpls.), "an underlying resistance to state government telling local government what to do."

According to Sen. Harmon Ogdahl (IR-Mpls.), a member of the Senate's Energy and Housing Committee, the Senate must focus its attention on developing measures that "will motivate people to do energy conserving things on their own initiative; otherwise it will come back down to the argument of government trying to jam things down their throat."

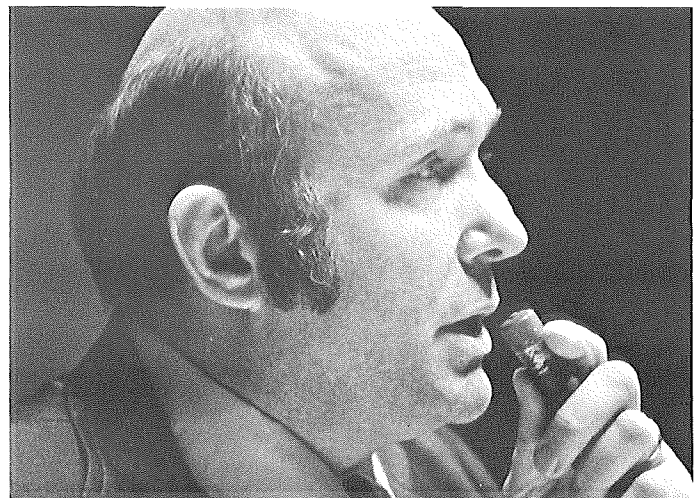
Motivational approach

One such motivational approach that has been circulating throughout the Senate this session is S.F. 1631, sponsored by Humphrey who is chairman of the Energy and Housing Subcommittee on Energy. This proposal would allocate \$2 million to local governments for analysis of community energy needs, uses and resource planning.

The legislature in the upcoming years must focus on encouraging local governments to "analyze individual community resource uses and tailor available energy resources to the diverse functions indicated," Humphrey said. "The greatest efficiency (of government action and funding) is



Sen. Hubert Humphrey III



Sen. John Bernhagen

encouraging the individual to make the necessary energy conscious changes. Self-reliance is the key," he added.

Humphrey praised the city of Granite Falls which has been undertaking extensive community planning in order to ensure the most efficient use of the available resources. He regards the city's efforts as an example of what all state communities could be doing.

Unfortunately, however, the current energy situation "has to be much worse before it can get better," according to Sen. Ogdahl. Speaking specifically to the problems of securing statewide duplications of such an effort Ogdahl said, "We haven't convinced them completely of just how dramatic and serious the energy problem is.

"People in rural areas are more economy minded than energy conscious at this point," he said. "Government ought to interfere when some peoples' energy wastes are hurting the rest of the people," he added.

Energy education

An emphasis on education is advocated as a possible approach to this problem.

A bill introduced by Sen. John Bernhagen (R-Hutchinson), also a member of the Energy and Housing committee, would allow the state to provide energy conservation information, that could be incorporated into building standards and designs, to architects, engineers and contractors.

"This is a good role of government," he said, "because it allows the private sector to eventually take over. Educating rather than mandating should be the state approach."

In addition, Bernhagen said he supports legislation which would provide resources to maintain the three state information dissemination centers presently in existence. He also advocates setting up similar centers throughout the state, perhaps at AVTI's since they are geographically located.

Several other approaches to the question of how to get private individuals to make the necessary changes are being discussed in preparation for the introduction of formal legislation which, because of the brevity of the current session, will not be ready for introduction until next year.

'Up-front incentives'

Knoll, who is chairman of the Energy and Housing Subcommittee on Housing, advocates certain "up-front" incentives in addition to conventional tax credits.

As explained by Knoll, the state could appropriate money to an agency such as the MHFA for an interest rate "write down" on construction financing. Under the terms of this type of plan, the state monies would effectively be used to substantially reduce the interest rate on a contractor's construction financing loan. In return, the contractor would have to commit himself to demonstrate the "feasibility and efficiency" of alternative energy source technology.

Such an incentive, said Knoll, would encourage energy efficient housing developments like earth-sheltered housing which are currently very hard to finance because most lending institutions consider them "high risk" due to their relative newness. Such projects could be developed as tract housing which could incorporate the economies of scale, he said.

Private lending institutions could also be encouraged to provide loan money for energy conscious designs and home improvement plans, according to Humphrey. State incentives such as lending guarantees could be extended to encourage the lending institutions to establish loan preferences for energy conscious residential housing construction like earth shelters, passive solar and biomass conversion systems, he said.

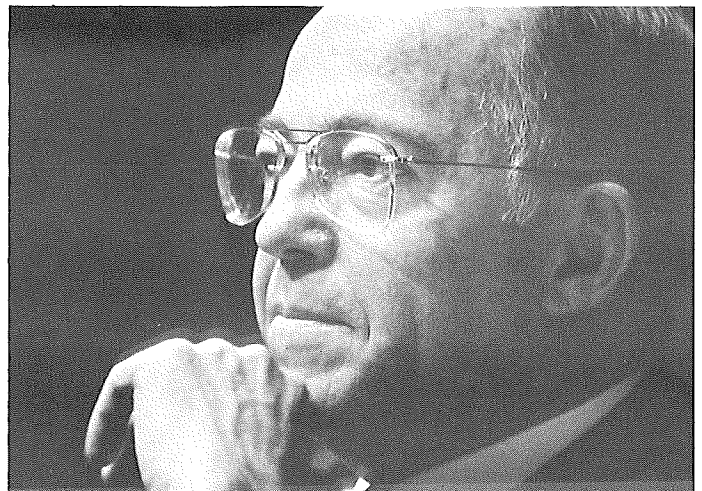
Similar prioritizing of public funds, like those available from MHFA, however, could run into problems, according to Knoll. "Prioritizing would have an automatic negative response on the security of those (revenue) bonds that would result in a direct, negative effect on the bond rate," he said.

Other bonding alternatives may be devised, however, to allow at least limited circumvention of such difficulties. At any rate, in a state such as Minnesota, where approximately 70 percent of the energy consumed for residential purposes is utilized for space heating, it is, as stated by Humphrey, "Absolutely critical that the state redouble its energy conservation efforts each year for the next ten years."

Photos by Mark M. Nelson



Sen. Neil Dieterich



Sen. Harmon Ogdahl

Recent proposals promote ways to convert state's resources into new fuels

by Judith M. Strobel

Tremendous potential exists in Minnesota's agricultural resources to meet the state's energy needs.

Recent technological breakthroughs in the use of these resources have spurred legislative proposals that encourage experimentation in alternative fuel production.

Senators Mike Menning (DFL-Edgerton) and Robert Schmitz (DFL-Jordan) have authored bills to help farmers distill grain and convert biomass into usable fuels.

Menning believes "alcohol is the fuel of the future" and has authored a bill to allow industrial development for agricultural products in towns throughout the state. Schmitz isn't so sure that alcohol is the most cost-effective answer and has sponsored a bill to facilitate the conversion of biomass into methane gas.

Biomass production

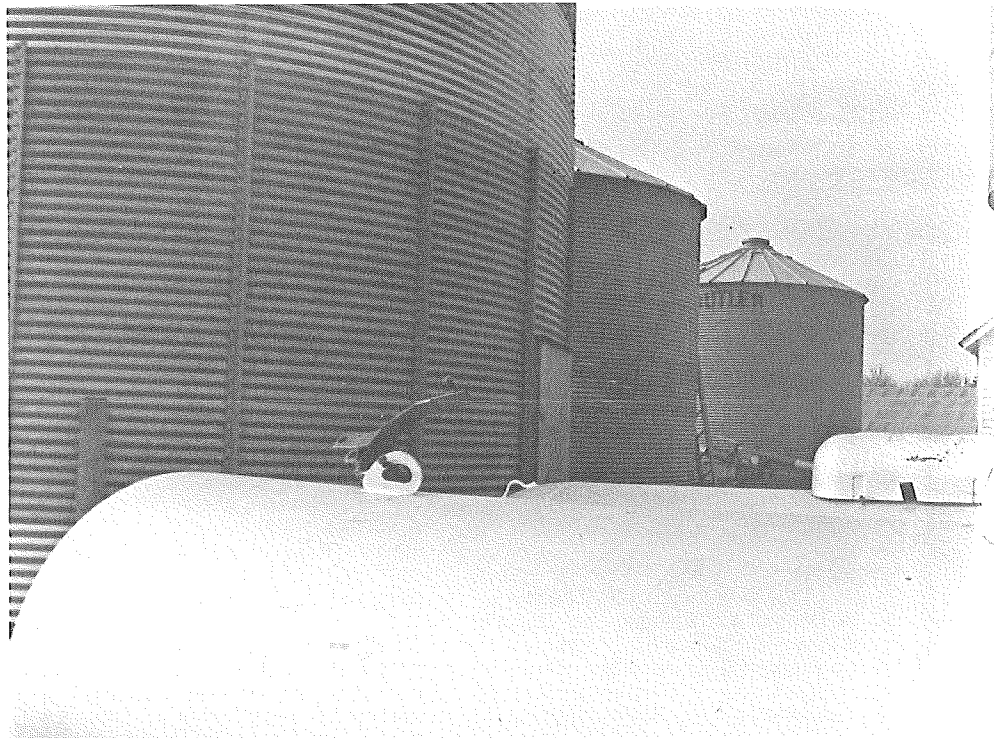
"I would like to see a poultry or cattle livestock enterprise take animal waste and put it in a generator so the farmer could capture enough methane gas to heat his home and dry his grain."

He said he spends at least \$8,000 per year on liquid propane gas to dry the grain and soybeans on his farm to prevent spoiling.

His bill, S.F. 1903, would ease the way for biomass production by modifying certain zoning and planning laws. "It won't circumvent any of the ordinances now in place but encourage the tremendous potential for farms to become self-sufficient in the area of energy."

He said the legislature should go on record encouraging this method of energy production. The disadvantages "won't be any different than allowing a load of manure to be spread on the fields as fertilizer."

"Too often we overlook the importance of assets such as the pulp from sugar beets and stalks from corn which have usually been considered waste products," said Sen. Steve Engler (IR-Randolph). "These resources have great potential in the production of alcohol."



Sen. Robert Schmitz (DFL-Jordan), who farms 800 acres, believes farmers could reduce their liquid propane gas costs by drying grain with methane gas.

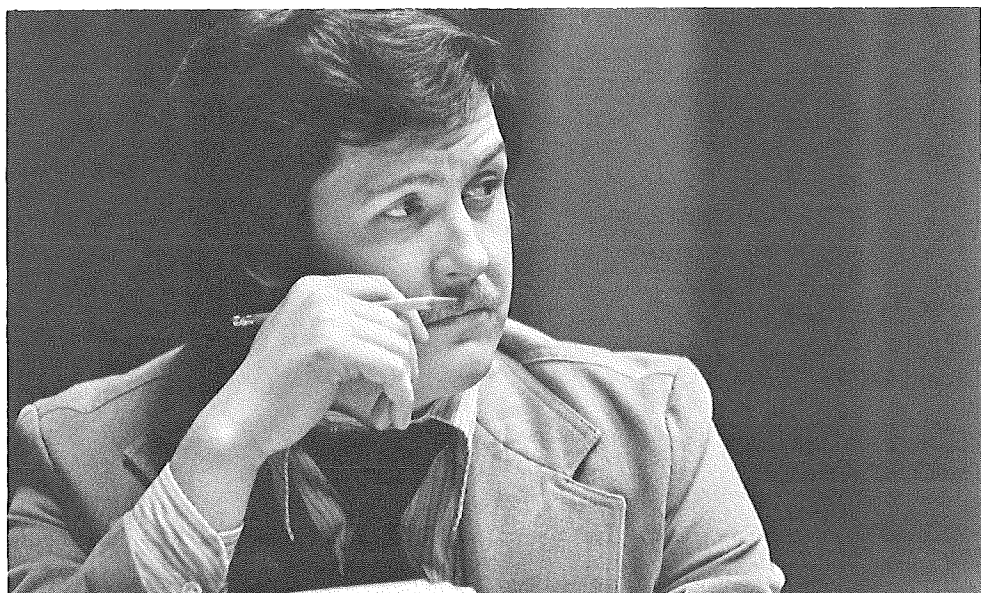
Alcohol production

Menning has come up with legislation that would authorize the installation of an alcohol-producing still at the University of Minnesota at Morris. The construction blue prints would be made available at cost to the public.

This proposal was included in the omnibus energy bill, sponsored by Sen. Jerald Anderson (DFL-North Branch), chairman of the Energy and Housing Committee. Menning said "there wasn't much time to get the information together so this is an example where the legislation is more important than the authorship."

Two of Menning's proposals were eliminated this session by the Finance Committee because it is an off-budget year. One proposal was to select individuals to be trained as alcohol production specialists to teach courses in AVTI's and prepare an instruction manual for interested persons. The other proposal asked the state to pick up the funding for an alcohol fuel information telephone line at Southwest State University in Marshall. The toll-free number is operating under federal funds which expire on May 1, 1980.

Menning said he plans to continue working on



Senator Steve Engler



d propane fuel bills by producing methane gas from agricultural waste through biomass conversion.

future alcohol production proposals by holding hearings this summer and preparing legislation next session.

One of Anderson's provisions was also dropped from the omnibus energy bill this session. The provision would prohibit manufacturers from selling motor vehicles and farm equipment without a choice of engines after 1983. Manufacturers would be required to offer choices such as diesel fuel, gasohol and gasoline if they plan to continue selling their products in the state.

Menning said the language "raises the flag to

let companies know we mean business." He said the technology for producing cars with a variety of engines is already available. In fact, according to Mike Pete, a consultant on alcohol and synthetic fuels for the Department of Energy, such engines are now being made for Brazil to comply with its governmental regulations.

Pete told members of the Energy and Housing Committee that the merits of alcohol fuels will become more popular when "the wholesale price of gas and the wholesale price of alcohol meet." He projects that to happen within the next year and a half.

"I think we're all so interested in energy because it is so important to agriculture which in turn is so important to our state," said Engler.

Woodburning incentives

One of Engler's bills that passed last session encourages the maximum utilization of diseased shade trees as firewood while insuring that the trees are properly debarked to prevent further spread of the disease. He also coauthored S.F. 1277 that would require that trees removed from certain property are offered to the public for use as firewood. The bill, sponsored by Sen. Doug Johnson (DFL-Cook), was passed this session as an amendment to Schmitz' bill on biomass production.

Two other senators have amended the language of their energy conservation measures onto other bills in order to move them to the Senate floor. S.F. 1640, sponsored by Sen. Robert Ashbach (IR-Arden Hills), which would exempt the purchases of wood-burning appliances from the state sales tax, was attached to the so called "garbage bill", a supplemental omnibus appropriations bill from the Finance Committee.

Sen. John Bernhagen (IR-Hutchinson) put an amendment on the omnibus tax bill that would provide a \$25 tax credit to persons who receive at least 50 percent of their home heat from firewood.

These amendments and proposals demonstrate the Senate's continuing efforts to encourage the innovative use of waste resources in response to Minnesota's energy needs.



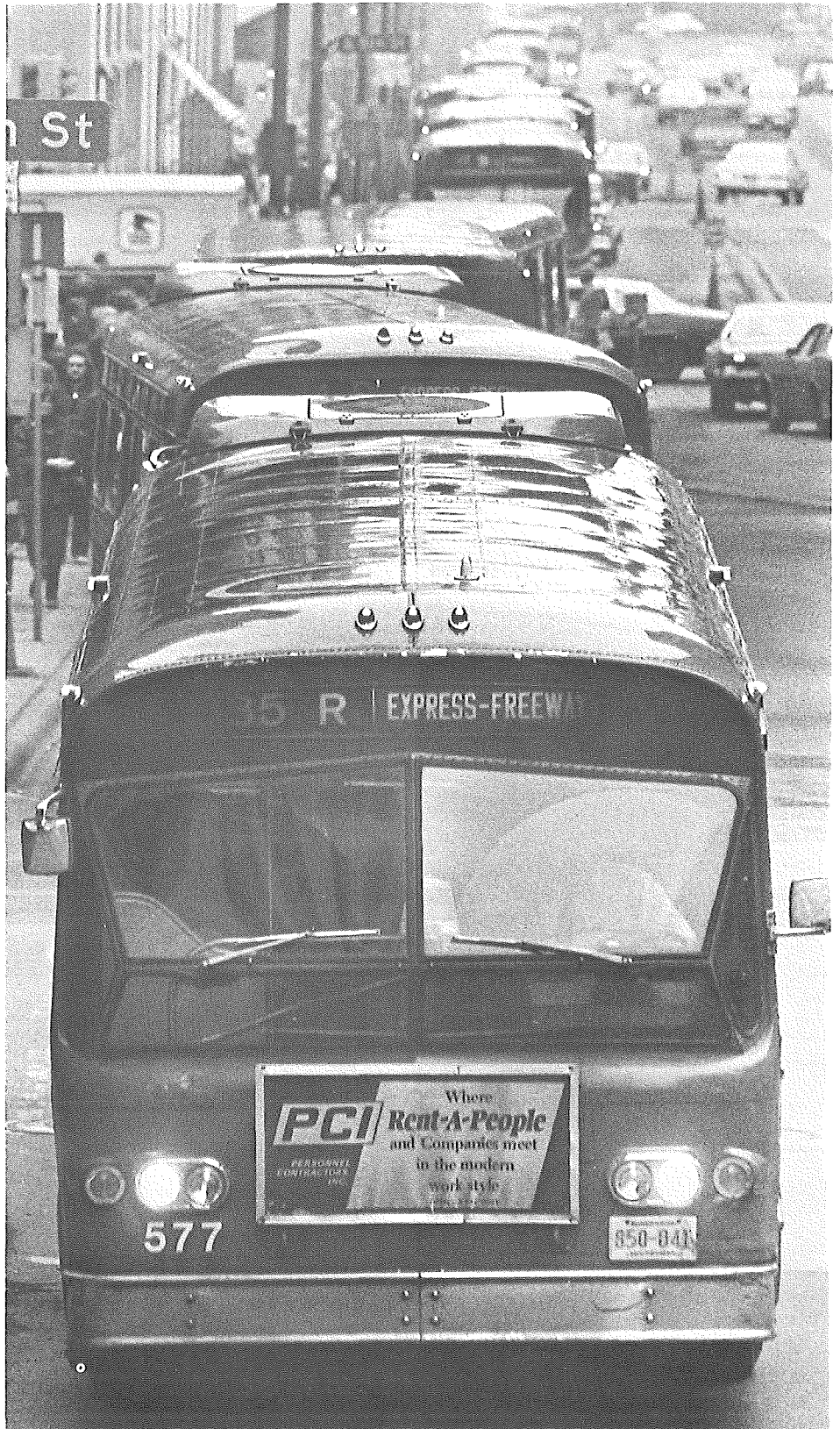
Senator Mike Menning

Purfeerst:

“High fuel costs and changing times (due to the energy crisis) have made the present nine-cent per gallon gasoline tax revenues obsolete.”

Engler:

“We want to develop some consistency in the state system because we know it’s important for rural areas to have good roads and it’s important for cities to have good transit.”



HIGHWAYS VS. MASS TRANSIT

State's transportation needs examined

by Judith M. Strobel

Minnesota's transportation system needs some legislative repair this session to prevent a head-on collision with the energy crunch.

Cities need assistance in improving their mass transit systems because the soaring costs and shortage of gasoline have encouraged many Minnesotans to ride buses rather than drive cars. At the same time, rural areas need heavier tonnage roads and bridges to transport crops and livestock to market in this state where agriculture plays a major role in the economy.

The problem facing the legislature is how to divide a limited amount of state funds between the deteriorating highway system and the Metropolitan Transit Commission (MTC), both of which face budget deficits.

The new surge of transit riders has increased the operating costs of the MTC and contributed to its projected \$23.6 million budget deficit. The MTC has had to use more buses, hire more drivers and buy more diesel fuel to serve a ridership that has increased by almost seven percent since 1979.

A decrease in driving has also lowered the amount of gasoline tax revenues that fund the state highway system. The Minnesota Department of Transportation (Mn/DOT), which is confronted by high road maintenance and construction costs, expects its biennial budget to fall short by \$126 million.

Legislative tune-up

In an effort to give the state's transportation system a much-needed tune-up, rural and urban senators have been working throughout the session to come up with proposals of assistance. Many of these proposals have been incorporated into an omnibus transportation bill sponsored by Sen. Clarence Purfeerst (DFL-Faribault), chairman of the Transportation Committee.

S.F. 2097, which was approved on March 10 by the Transportation Committee, would

give some immediate financial relief to the MTC which vastly underestimated its 1979 biennial budget and to the highway system in order to protect the state's existing investment.

A major provision of S.F. 2097 would create an interim study commission to examine the existing sources of revenue for the state's transportation system. The commission would be composed of five senators, five House members and five governor's appointees. The members would also analyze the financing difficulties of mass transit, railroads and highways.

Sen. A.O.H. Setzepfandt (DFL-Bird Island) supports the creation of an interim study commission because "we need to find out why the transportation department is having so much more trouble keeping up with inflation than the other departments."

Purfeerst said he would like the commission to come up with some new ideas because "high fuel costs and changing times (due to the energy crisis) have made the present nine-cent per gallon gasoline tax revenues obsolete."

Gasoline tax

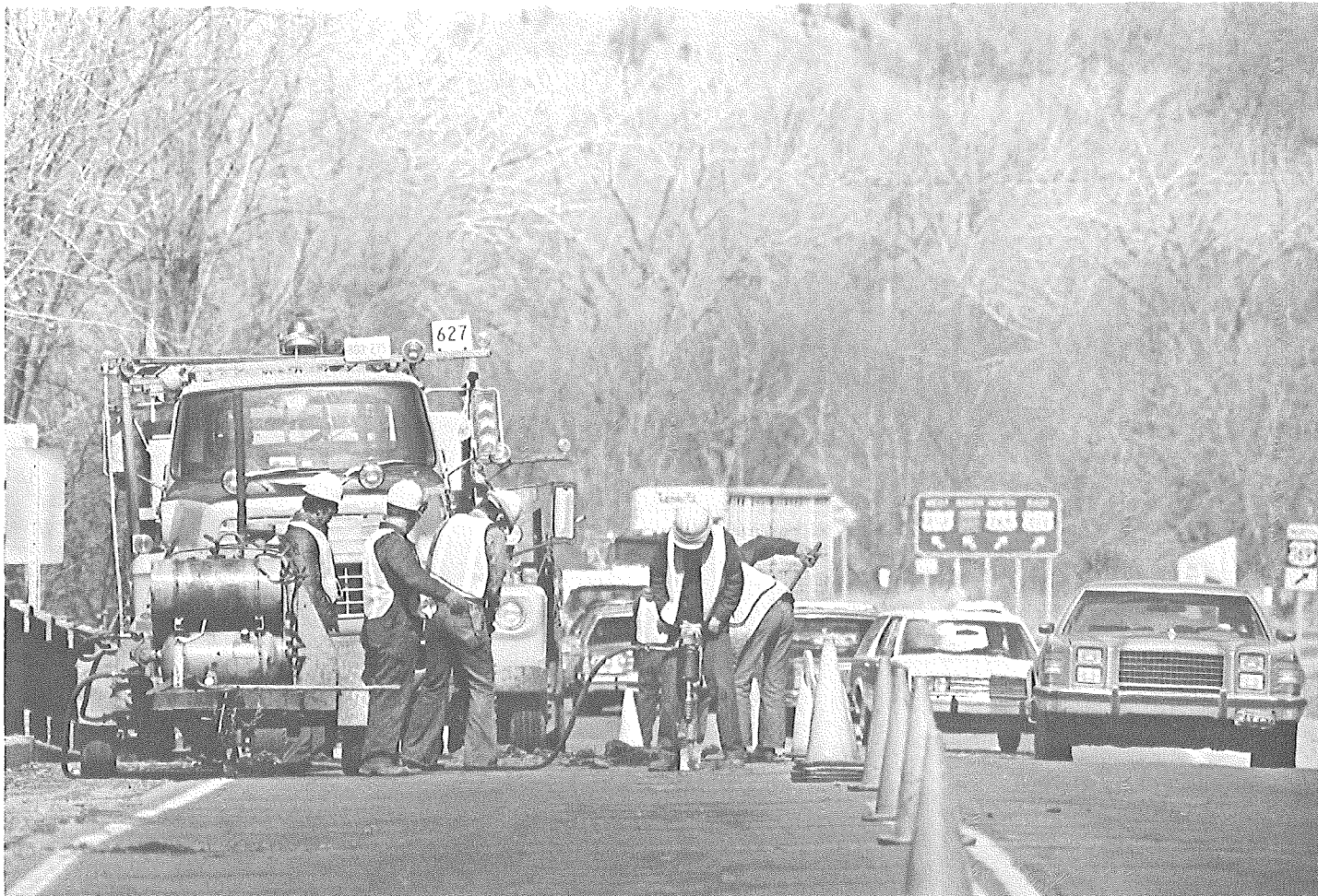
Although Purfeerst's bill does not include a gasoline tax increase, the Senate approved a two-cent hike as an amendment to the omnibus tax bill. Senate Majority Leader Nicholas Coleman (DFL-St. Paul) recently called for the tax hike because "there seems to be no other recourse. There isn't enough money in the general fund to transfer to help the highway system."

The two-cent per gallon gas tax increase would create about \$42 million of assistance toward Mn/DOT's \$126 million deficit. The state would receive 62 percent, the counties 29 percent and the remaining nine percent would go to municipalities with more than 5,000 residents. The tax would have to jump at least five or six cents per gallon in order to meet the department's entire deficit.

The reason for these last minute maneuvers stems from the fact that the state's anticipated general fund surplus is much lower than earlier projections. Therefore, it is unlikely that there will be



Senator Clarence Purfeerst (DFL-Faribault) sponsored the omnibus transportation bill that works to solve the problems of the state's highway system and metropolitan mass transit.



A highway maintenance crew patches potholes caused by the spring thaw on a heavily-traveled 10-ton road south of the Twin Cities.

any transfers involving the general fund to aid the highway system.

Highway renovation

One of Purfeerst's proposals was to transfer \$32 million out of the general fund to the highway fund to pay for the State Patrol and the Division of Motor Vehicles and Driver's License Services. This transfer would have freed up \$32 million in the highway fund to spend on highway maintenance and construction.

S.F. 2097 also proposed to give Mn/DOT the authorization to issue \$50 million in bonds to build nine-ton roads in rural areas to improve the access for farmers to transport their commodities to market.

Both proposals were cut from the bill during a March 14 review by a Finance subcommittee which formulates transportation funding policies. The

subcommittee approved the two remaining Mn/DOT provisions which include a study to identify state towns which aren't serviced by a railroad or nine-ton road. These "landlocked" communities would be considered first for future construction and upgrading of nine-ton roads.

The subcommittee members also approved a provision to give Mn/DOT \$25 million in bonding is sufficient for this year because the deadline to receive federal monies is not up until 1986.

The senators are hesitant to use bonding as a tool to help the transportation system because it is a method of postponing payment much like using a credit card.

Metropolitan transit

The Transportation Committee would like to give the MTC \$9 million in bonding authorization in order to match federal

funds for expansion purposes. This provision can give the MTC about \$45 million to buy new buses, build new garages and make maintenance improvements in existing garages.

The Finance subcommittee did back two other S.F. 2097 provisions which would give the MTC a \$5 million grant from the general fund which receives the majority of its monies from the state income and sales taxes. The MTC received \$32 million in state subsidies last year.

The subcommittee members also agreed with a provision to increase the property tax in the special metropolitan transit district from 1.72 mills to 2 mills. This tax hike would create \$3 million in additional funds for the MTC. However, levy limits are set for this year so the \$3 million won't be collected until 1981. Purfeerst said the increase will cost about \$2-3 more per household.

S.F. 2097 would also instruct the MTC to submit its budget proposals to Mn/DOT for an accuracy review of its projected costs and base figures. Many senators believe this provision will encourage the MTC to take a longer look at its budget before asking the legislature for future subsidies and grants.

The bill limits the MTC's ability to raise bus fares to once per year. This provision would take effect in July, 1981. The MTC commissioners recently announced a 10-cent fare increase that will go into effect on April 1, 1980. This increase will push the fare up 10 cents for all transit riders except senior citizens, handicapped persons and some students. It will create a total of \$9 million which includes \$7.5 million from farebox revenues plus \$1.5 million in state subsidies for social fares.

Bus fares

At present, there is a bill to repeal the 10-cent social fare that senior citizens, handicapped persons and some students pay during off-peak travel hours. Some senators believe they should continue to pay this "token fare". They also believe that transit riders should pay more than one-third of the cost of their ride. The state presently subsidizes approximately 60 percent of the cost for each rider.

Sen. Steve Engler (IR-Randolph) said he would like to see bus fares at 60 cents because his constituents, who aren't serviced by the MTC, are helping to pay for the system by paying taxes into the general fund. He said they are bothered by the fact that at present fares a full bus doesn't even pay for itself.

Setzepfandt thinks it's ridiculous that transit riders can travel from downtown St. Paul to downtown Minneapolis for 40 cents when it would cost them more to park their cars without even counting the cost of gasoline.

Many of the proposals to help the state transportation system may be changed, dropped or put into different combinations before the end of session. But, according to Engler, both urban and rural senators want to do their best to put the transportation system back into good running order.

"We want to develop some consistency in the state system because we know it's important for rural areas to have good roads and it's important for cities to have good transit."



Senator A.O.H. Setzepfandt

Pipelines from page 4

Sen. Robert Dunn (IR-Princeton and representing the area of Sherco I & II, and the Monticello nuclear plant) believes the high capital costs of construction of both coal-fired and nuclear plants, coupled with environmental questions, and general plant heat loss waste, will force energy developers in the future to consider alternatives — such as hydro and biomass. Until that time, Dunn believes conservation is the best alternative.

Energy alternatives

"A lot of people really want to do what is right. But, they must have the motivation to conserve and realize a crisis does exist. No one likes to curb their own lifestyle. A lot more can be done to conserve. We have barely scratched the surface on carpooling and then there is home insulation. Much more can be done," said Dunn.

Just what if the two major pipelines, the Northern Tier and the Northern, are held

up by derelict delays, and Canadian oil is curtailed, then what? Moe believes the best alternative is negotiating some extension agreement with Canada.

"Our major thrust should be with Canada. Due to heavy Canadian crude, our plants are equipped to refine the Canadian oil, unlike their plants. I believe some swaps could be worked out."

Anderson feels the best alternative, and the most likely, is the expansion of the existing Williams line from Oklahoma. Anderson feels a new 24-inch could substantially increase supplies and, unlike the other pipelines would be built quickly perhaps within one year.

Regardless, Anderson believes the future is questionable. "We are all right for the next winter due to the mild season this year. If the 1982-83 winter is severe we are definitely in for shortages. Decisions will have to be made very soon. Time is running out."

Loan program to help cities finance district heating plans

by Judith M. Strobel

Today's shortage of traditional fuels has prompted an abundance of legislative proposals to further the development of future renewable resources.

Several state senators have been searching for solutions this session to aid Minnesotans who are confronted with climbing heating costs and a cold climate. They hope to provide some financial assistance for the more efficient use of existing resources and tax incentives for the implementation of alternative energy ideas.

District heating

One proposal, which would help communities develop or improve district heating systems, is sponsored by Sen. Franklin Knoll (DFL-Minneapolis). S.F. 1890 would authorize the state to issue \$49,600,000 in bonds to provide loans to start steam or hot water plants throughout the state.

Knoll said "the concept of district heating isn't new but its applicability is demanded by the times." Presently, there are 14 systems operating in the state. Many of these systems were built before 1930 and have lost much of their ability to compete

with oil and natural gas heat, according to Ronald Sundberg, district heating projects manager for the state energy agency.

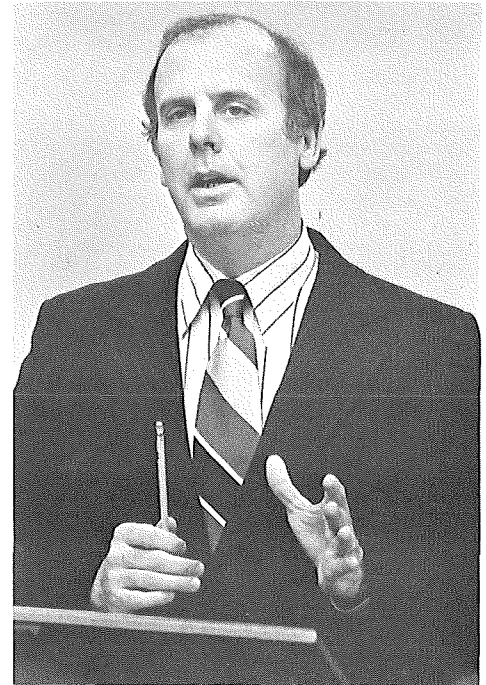
Knoll believes that new or improved district heating facilities would allow communities to use less gas and oil to heat homes and businesses without sacrificing life styles and economic growth. "District heating maximizes the efficiency of existing power plants through cogeneration."

Cogeneration is the joint production of thermal and electric products by using waste heat from an electric generating plant.

According to Sundberg, "electric generating plants use only about one-third of the energy in the coal burned to produce electricity. Nearly two-thirds of the energy is lost to the environment. A large portion of this reject heat can be used to heat water or steam, which is transmitted to buildings in the commercial and industrial sector of the community."

Knoll said he would like to see cogeneration used in as many power plants as possible because the energy savings is so significant.

In fact, a district heating plant in Uppsala, Sweden (40 miles north of Stockholm)

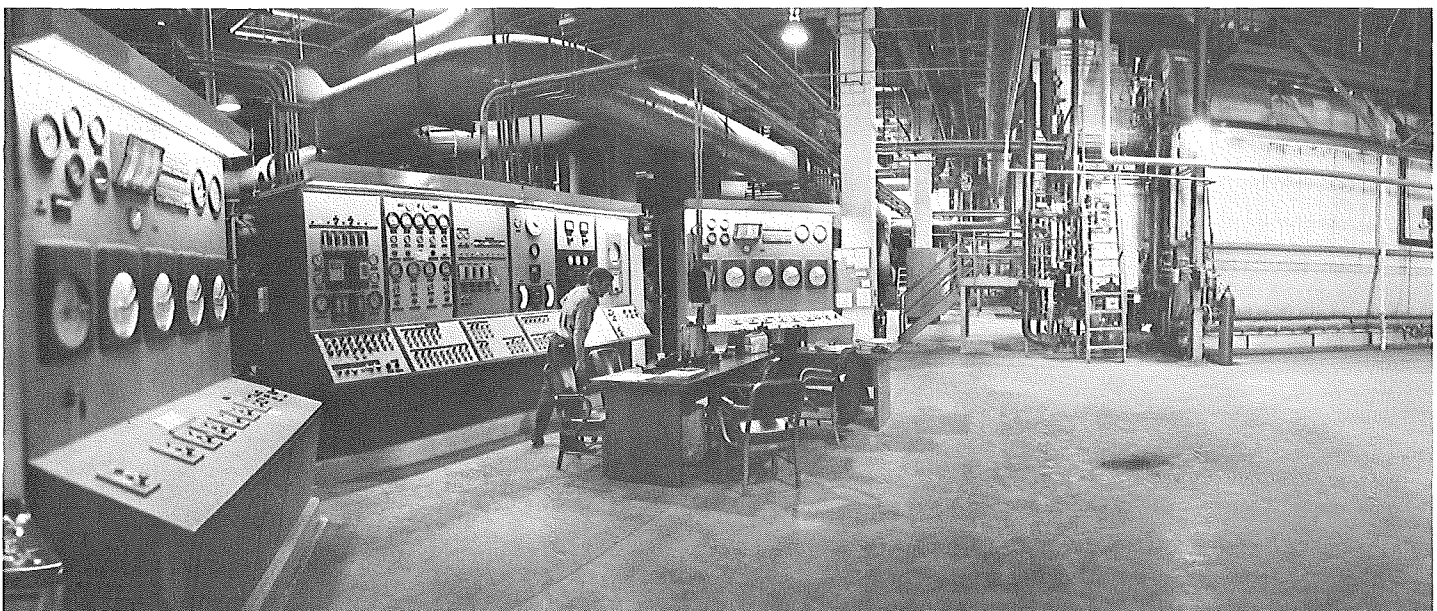


Senator Franklin Knoll

produces 80 percent of the heat and all of the electricity for the town of 140,000 people.

Hans Nyman, the plant's chief engineer, told members of the Energy and Housing Committee that the plant has been operating since 1962. Ironically, it started as a district heating plant and didn't add the capacity to make electricity until 1972.

Nyman is temporarily working for the city of St. Paul to help with the planning and



Minnegasco's Energy Center in Minneapolis is a district heating plant that produces steam to heat a large number of downtown buildings.

construction of a \$51 million district heating plant to be completed in 1986. The plant will produce enough heat to serve the Capitol complex, downtown area and local hospitals.

"Many people have the mistaken idea that district heating uses nothing but waste heat," said Ed Glass, director of planning and research for Northern States Power Company. "However, the heat for the St. Paul plant will come directly from boilers for the first few years until the units are modified to use about 70 percent waste heat and 30 percent useful heat."

Although the 30 percent useful heat is quite expensive because the electric generator is no longer working at its full capacity, Glass said NSP is enthused about district heating. "More energy is being gained from a pound of coal and for that basic reason district heating appears to be very timely."

Hot water systems

According to a St. Paul district heating study, the hot water systems are advantageous for consumers as well as cities. It said they could provide greater reliability in heat delivery, a reduction in maintenance costs and more building space since the system takes up less room. They could also reduce the sooting problems associated with burning oil and the number of workers needed to supervise individual boilers.

According to Glass, hot water systems can transmit and distribute district heating greater distances because "it's easier to pump hot water than it is to push steam" through the pipes.

Nyman said systems that use hot water are cost effective and environmentally safe because they throw less pollution into the air. More importantly, he said, they can use a variety of fuels to produce the hot water which produces the steam in the system.

In fact, Uppsala supplements its traditional fuels with six percent garbage. "Solar power is already in use in Sweden," he said, "and plants may also be fueled by coal, uranium, peat, biomass and waste wood."

Sundberg said the state energy agency is funding and assisting a "preliminary feasibility assessment of district heating systems fueled with waste wood for Aitkin and Bagley.

"We are also organizing a project to determine the feasibility of converting the Detroit Lakes district heating system to a biomass fueled system," he said.

Existing systems

The bill is also designed to help cities improve their existing district heating plants. Virginia, Minn., for example, wants to upgrade and change its steam heating plant that has been operating for the past seven years.

Ed Kozan, director of Virginia's Public Utilities, testified at a recent Energy and Housing Committee meeting that the steam plant's energy loss of 46 percent could be reduced to six percent if it was converted into a more modern hot water system.

Kozan said "the savings of 40 percent on our system means we could finance 65 percent of the conversion to hot water and only need 35 percent from federal grants and someplace else."

Kozan said the switch would permit the city to expand its coverage to outlying areas as well as the residential and commercial buildings in town.

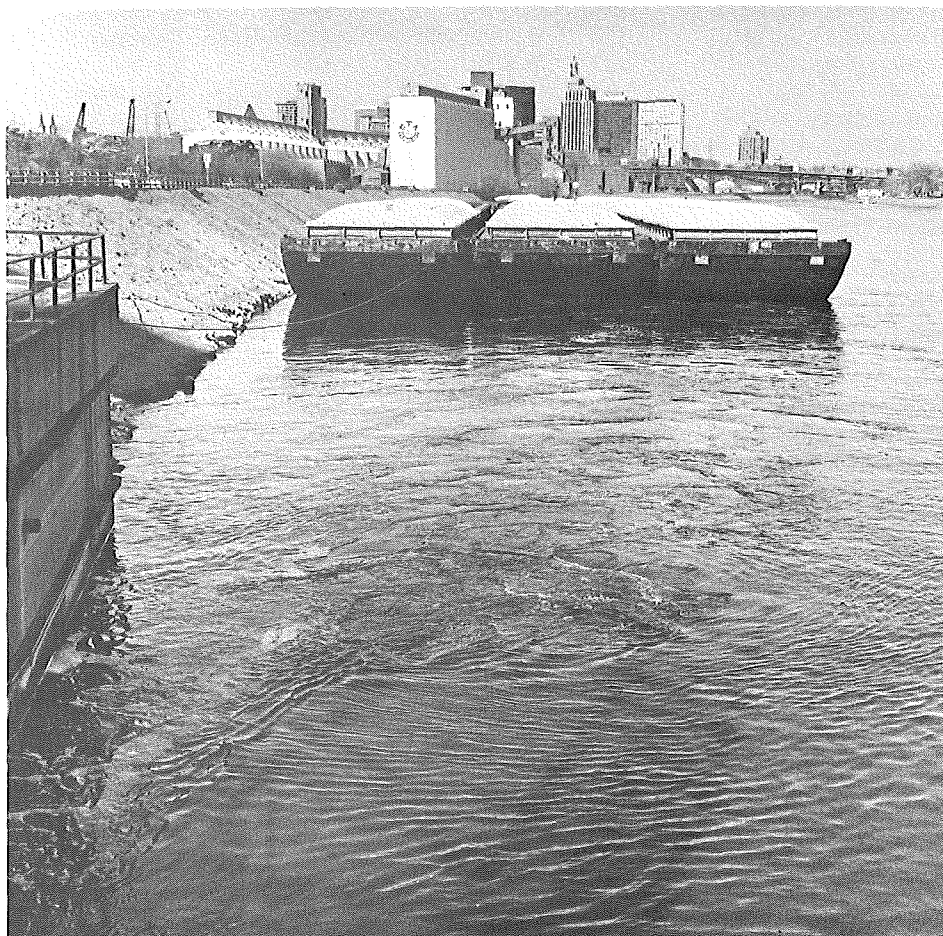
Sundberg said three existing systems are

in danger of closing: Owatonna, Worthington and Mountain Iron. He said the agency is doing a study to see "what we can rearrange to make them economically viable in the short run and what we can do to make them really better in the long run."

The bill, which was approved by the Energy and Housing and Finance Committees, now goes to the Senate floor where it needs a 60 percent majority vote.

The Finance Committee recommended that seven cities receive bonding appropriations: St. Paul, \$30,600,000; Moorhead, \$10,000,000; and Red Wing and Minneapolis, \$8,000,000. The commissioner of finance would also distribute \$1,000,000 between Aitkin, Bagley and Virginia.

Knoll is confident that the bill will be approved because "it has bipartisan support." He hopes S.F. 1890 is just the start of the bonding program because several more cities are anxious to start district heating systems of their own.



Hot water is discharged into the Mississippi River from NSP's High Bridge electrical generating plant. This waste heat, produced during the electrical generating process, would be recycled to help heat downtown St. Paul, the Capitol complex and nearby hospitals under St. Paul's district heating plan.

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