

Nebraska Energy Office

1993 Annual Report

So What's a B.T.U.?

"The energy tax is based on the B.T.U. content of different fuels. (It's British Thermal Units, not Buy Thermal Underwear.) As a common denominator, it's easier to use than calculating barrels vs. tons vs. cubic feet vs. kilowatts. It also makes more sense than taxing fuels simply on what they cost: \$100 worth of coal, for example, contains far more unreleased heat (measured in B.T.U.'s) than \$100 worth of natural gas or \$100 worth of gasoline. And a B.T.U. tax also would not penalize states that use one fuel instead of another.

"To discourage dependence, on imported oil, oil would be taxed at 60 cents per million B.T.U.s, whether it's refined into gasoline or jet fuel or burned to make electricity. Coal, natural gas and nuclear power would be taxed at 26 cents per million B.T.U.'s.

"Solar, geothermal, wind and other renewable sources would not be taxed. Oil used to make things like plastics, chemicals and tires would not be taxed."

*New York Times
February 21, 1993*

STATE OF NEBRASKA

EXECUTIVE SUITE

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January 31, 1994

E. Benjamin Nelson
Governor

Dear Nebraskans:

Over the past year, energy issues have captured the attention of Nebraskans in a variety of ways. Just twelve months ago, the nation was speculating about the impact of a federal tax on energy. At that time, I asked representatives from across Nebraska to discuss the effect of this proposal on their lives. In turn, I shared their concerns with President Clinton. While a broad-based energy tax did not survive, we were all made aware of how deeply ingrained energy is in our economy.

Throughout the year, we continued to make progress on the state's first energy action plan, issued in December 1992. I am proud of the accomplishments made to date which are identified in the agency's first year progress report.

I believe an important energy issue this year was our progress in moving from consumers to producers of ethanol. Midway through the year, Nebraska became a net exporter of ethanol. If current trends continue, the state will become a leading producer of this domestically produced renewable fuel.

That future, in great part, depends on the role ethanol will play in the reformulated gasoline program. Cleaner gasolines of the future will account for about one-quarter of all the transportation fuels sold in the country. Some project that ethanol production could nearly double with ethanol's inclusion in reformulated gasoline. Because the next six to twelve months are critical to ethanol, I agreed to return as chair of the 19-state Governors' Ethanol Coalition for the 1994 term. In many ways, this honors the staff of the Energy Office and the Ethanol Board which labor daily on these issues.

A continuing success story is the agency's Dollar and Energy Saving Loans. As of December 1993, we have made 6,534 loans totaling \$38.2 million. The loan fund's revolving nature and ability to leverage private funds allowed us to reach this goal while using only \$14.34 million in oil overcharge funds — plus loan repayments — for this endeavor. The oil overcharge dollars the state received as a result of a court settlement are nearly gone, yet the state has made the most of this one-time windfall by investing more than 40 percent of the money in these loans. This means Nebraskans will reap the benefits of the oil overcharge funds well into the future.

It is with pleasure that I present the Nebraska Energy Office's 1992-1993 Annual Report.

Sincerely,

A handwritten signature in cursive script that reads "Ben Nelson".

E. Benjamin Nelson
Governor

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This Annual Report is for the period July 1, 1992, through June 30, 1993, except where noted.

State Energy Conservation Program and Energy Extension Service Division

The Energy Office is responsible for administering two federally-funded programs created under the *Energy Policy Conservation Act* of 1975 — the State Energy Conservation Program and the Energy Extension Service. Both programs let the state use its discretion in providing energy conservation services, but the Energy Office must submit annual plans to the U.S. Department of Energy for review and approval.

In general, agency staff operate the two programs directly. Occasionally, the agency may work closely with outside contractors hired to perform specific projects. The Division is also responsible for preparing annual energy saving reports, *Nebraska Energy Statistics*, the agency's *Annual Report*, the *Nebraska Energy Quarterly* and federal or court reporting requirements on oil overcharge programs.

During calendar year 1992, the two federal programs produced annual energy savings of 5.257 trillion British thermal units, which is equivalent to over 42 million gallons of gasoline. Figure 1 shows estimated energy savings over the past eight years as a result of specific projects.

State Energy Conservation Program

Since the inception of the State Energy Conservation Program, the federal government has granted funds on an 80/20 matching basis to the states. In 1992-1993, Nebraska received \$108,800 in federal funds which were matched with \$21,760 in state severance tax funds.

In 1992-1993, State Energy Conservation Program projects included:

- Federally-mandated projects
- Oil overcharge project management
- Energy shortage management and emergency preparedness
- Energy policy implementation

Federally-Mandated Projects

According to the *Energy Policy Conservation Act*, the Energy Office must undertake mandatory projects in the specific areas of procurement, transportation, lighting standards, thermal standards and right-turn-on-red. The agency submits plans to the federal government for its review and approval of projected activities in these areas.

As part of the agency's efforts in compliance with federally-required activities, the Energy Office coordinates and publishes a rideshare roster for state employees seeking to carpool. More than 125 state workers are listed on the roster from communities surrounding Lincoln.

Oil Overcharge Project Management

The majority of oil overcharge projects are managed as State Energy Conservation

Program or Energy Extension Service projects (see pages 3-9 for a full description of projects financed by Petroleum Violation Escrow, or as more commonly known, oil overcharge funds).

Energy Shortage Management and Emergency Preparedness

During 1992-1993, energy emergency preparedness activities centered on ensuring the adequacy of energy supplies in the face of unusual weather conditions.

One of the coolest summers of the century combined with greater than normal rain during the fall prevented a bumper corn crop from maturing and drying properly. More propane was shipped into the state during November and December 1992, than at any time during the previous 40 years. However, the extraordinary demand placed significant strains on the distribution system and outages of propane were

Gasoline Equivalent Saved by State Energy Conservation and Energy Extension Service Programs, 1985-1992 (Millions of Gallons)

Project Type	1985	1986	1987	1988	1989	1990	1991	1992
Agricultural Energy Management	0.496	0.744	0.992	1.240	1.240	1.400	1.400	1.400
Dollar and Energy Saving Loan Program	0	0	0	0	0	0.134	0.739	1.232
Hundred Points of Light	0	0	0	0	0	0	0	0.247
Municipal Loan Programs	0	0	0	0	0	0.011	0.018	0.039
Nebraska Community Energy Management Program	0.248	0.336	0.384	0.384	0.392	0.392	0.392	0.388
Omaha Traffic Light Program	0	0	0	0	1.803	1.803	1.803	1.803
Public Buildings	0	0	0	0	0	0.003	0.083	0.083
Ride Share	0	0	0	0	0	0	0	0.032
Thermal Lighting Standards	11.072	14.904	18.768	22.368	26.080	30.144	33.304	36.840
Total Gallons of Gasoline Saved (in millions)	11.816	15.984	20.144	23.992	29.515	33.887	37.739	42.064

Source: Nebraska Energy Office

Figure 1

present until mid-January 1993. During this period, the agency coordinated with the propane supply and distribution system and the state's agriculture department in tracking propane supplies and needs.

The Energy Office's contingency plans developed in prior years provide the structure for any necessary energy emergency preparedness activities. The agency regularly tracks the status of energy supplies into the state and any conditions which might disrupt supplies.

Energy Policy Implementation

The Energy Office completed a comprehensive assessment of the feasibility, cost, effectiveness and potential savings of each of the recommendations in the *Nebraska Energy Policy Plan: Recommendations to the Governor* released by the Energy Policy Council in January 1992. In December of that year, Governor Nelson announced the first energy policy for the state — *An Energy Action Plan for Nebraska*. The Action Plan brought together recommendations from Nebraskans with goals, objectives and action plans which served as a strategy for Nebraskans to meet present and future energy needs. The Action Plan served as the first step in an on-going process to plan and implement effective programs to advance the conservation and efficiency of traditional, non-renewable energy sources; encourage the development of alternate and renewable energy sources; and further energy-related economic development activities.

The Energy Office began developing plans to implement the goals and objectives identified in the Action Plan. A summary of the goals and objectives of the plan appears in the box on this and the next page.

Energy Extension Service

Since the inception of the Energy Extension Service, the federal government

An Energy Action Plan For Nebraska

Initiative Affecting State Government

State government will lead by example to ensure the efficient, economic and environmentally responsible use of energy throughout state government.

Transportation

Goal: Increase substantially the number of alternate fueled vehicles operating within the state by the year 2000.

Objective 1: Beginning in 1993 (model year 1994), ten percent of the light duty motor vehicles (excluding law enforcement and emergency vehicles) purchased by the state will operate on alternate fuels. Minimum annual percentages for purchases will increase annually up to 75 percent for model year 2000 and thereafter.

Objective 2: Over the next two years, state government will make provision where necessary for the fueling of alternate fueled vehicles in its fleet.

Objective 3: Develop a comprehensive state alternate fuels and vehicle incentives plan designed to accelerate the introduction and use of such fuels and vehicles.

Goal: Achieve efficient use of transportation.

Objective 4: The rideshare roster developed by the Energy Office for use by state employees commuting from Omaha to Lincoln will be expanded to cover employees commuting to Lincoln from other locations such as Beatrice, Crete, Seward and York.

Objective 5: Increase state agency use of telecommunications in educational and conferencing activities to substitute for travel.

State Buildings

Goal: State government will achieve maximum efficiency of energy use in all its existing buildings.

Objective 6: Require agencies responsible for state-owned buildings to adopt a comprehensive energy efficiency program.

Landscaping

Goal: Reduce energy use in state-owned buildings, the maintenance cost of planted areas surrounding them and the maintenance cost of highway rights-of-way through the use of energy efficient, low maintenance plantings and xeriscaping techniques.

Objective 7: Over the next ten years, the land areas surrounding state-owned buildings will be converted to low maintenance plants and grasses in the course of regular maintenance and replacement. Trees and shrubs which are replaced will be situated to enhance energy efficiency in buildings. Mulch will be systematically used to reduce water use.

Objective 8: Over the next ten years, as part of the regular maintenance and replacement program, road rights-of-way will continue to be maintained in low maintenance plants. As rights-of-way are reseeded, low maintenance plants requiring little mowing will be used.

Interagency Coordination

Goal: Foster and promote interagency cooperation and coordination to increase state government efficiency and to achieve energy policy goals and objectives.

Objective 9: Identify state agencies whose activities are naturally related to energy and encourage them to integrate energy issues into their programs.

Continued on page 3

Initiative Affecting Private Businesses and Local Governments

State government will facilitate increases in energy efficiency in the private and local government sectors.

Transportation

Goal: Provide incentives for the purchase and conversion of vehicles to operate on alternate fuels.

Objective 10: State government will facilitate and/or provide incentives for local governments including public schools, for the acquisition of alternate fueled vehicles, installation of alternate fuel refueling facilities and conversion of vehicles to alternate fuels.

Objective 11: Provide low cost financing for the conversion of public and private fleet vehicles to operate on alternate fuels and the purchase and installation of required fueling facilities.

Objective 12: Establish an Alternate Fuels Advisory Committee to develop strategies which assist Nebraskans to decrease their use of petroleum products, thereby enhancing national security and reducing the state's reliance on imported petroleum. Using alternate fuels produced in this state also enhances economic development.

Objective 13: Increase private sector and local government participation in telecommunications throughout the state.

Buildings

Goal: Increase energy efficiency of new construction.

Objective 14: Formulate a state-developed energy building code for new and retrofit construction which is affordable, cost-effective, user-friendly and enforceable.

Objective 15: Through legislation, adopt the state-developed energy building code, establish an enforcement mechanism and establish a periodic update system.

Goal: Increase the energy efficiency of existing buildings.

Objective 16: Remove statutory language which impedes participation by public entities in state operated energy saving loan programs.

Objective 17: Increase the energy efficiency of public buildings owned and operated by local governments.

Education and Information

Goal: To provide timely and reliable information and education opportunities to help Nebraskans learn about energy and make good decisions regarding their energy costs and use.

Objective 18: Establish a Nebraska Energy Education and Information Center within the Nebraska Energy Office as a means to centralize, organize and disseminate energy education and information resources to the general public.

Economic Development

Goal: Utilize energy efficiency strategies to strengthen Nebraska's economy and contribute to the state's ability to compete in world markets.

Objective 19: Use the Dollar and Energy Saving Loan Program as an effective energy efficiency strategy and economic development tool.

Objective 20: Utilize the Nebraska Development Network to promote energy efficiency as an effective economic development tool.

has granted funds on an 80/20 matching basis to the states. In 1992-1993, Nebraska received \$56,600 in federal funds which were matched with \$11,320 in state severance taxes.

In adopting the *Energy Policy Act* of 1992, Congress eliminated the Energy Extension Service effective in fiscal 1994-1995. However, the goals of the service were added to State Energy Conservation Program.

In 1992-1993, projects in the Service included education and information services and oil overcharge project management.

Education and Information Services

Education is needed by consumers to make sound energy decisions. The Energy Office identified and delivered educational opportunities and information resources through a coordinated statewide effort.

The agency published and distributed the *Nebraska Energy Quarterly* to thousands of Nebraskans. The *Quarterly* highlights a variety of energy conservation projects and topics. Two mandated agency publications, the *Annual Report* and *Nebraska Energy Statistics*, were also produced.

Oil Overcharge Project Management

Some oil overcharge projects are also managed under this federal program. These Petroleum Violation Escrow-funded projects and others managed by other divisions within the agency are detailed on this and subsequent pages.

Oil Overcharge Funds

Since 1982, Nebraska has been receiving oil overcharge funds (also referred to as Petroleum Violation Escrow Funds) as a result of various court actions against oil companies that overcharged their customers during the period of federal price controls from 1973 to 1981. Since direct compensation to injured

consumers seemed unrealistic, the courts ordered that the money recovered from lawsuits be distributed to the states to fund programs that provide indirect restitution to injured energy consumers. States were directed to use the money, within parameters established by the courts, to fund energy assistance and conservation programs.

The agency's three programmatic divisions — Financing, State Energy Conservation Program and Energy Extension Service and Weatherization — manage projects financed by oil overcharge funds.

The Nebraska Energy Settlement Fund

The Nebraska Energy Settlement Fund was established by the Legislature for

Nebraska Energy Settlement Fund A Summary of Exxon, Stripper Well and Diamond Shamrock Oil Overcharge Funds as of June 30, 1993

	Exxon	Stripper Well	Diamond Shamrock	Total
Total Received	\$15,504,944	\$13,657,224	\$359,172	\$29,521,273
Interest Earned	7,555,415	3,704,772	162,238	11,422,425
Total	\$23,060,359	\$17,361,996	\$521,410	\$40,943,765
Funds Budgeted				
Contracts	\$3,736,177	\$6,577,000	\$0	\$10,313,177
Program Development	103,692	0	6,434	110,126
Monitoring/Evaluation	296,308	0	0	296,308
Education	251,824	0	0	251,824
Load Management	50,039	0	0	50,039
Attorney General Legal Fees	0	299,327	0	299,327
Bank Wire Fees	0	90	0	90
Low Income Weatherization	4,014,500	2,370,682	0	6,385,182
Emergency Preparedness	45,907	0	0	45,907
Dollar & Energy Saving Loan Program	11,344,097	2,995,903	0	14,340,000
Loan Program Delivery	475,970	0	0	475,970
Special Projects	353,775	0	0	353,775
Designated Interest	723,225	881,790	0	1,605,015
Oil Overcharge Administration	0	384,199	502,476	886,675
Direct Restitution Project	0	0	12,500	12,500
Governor's Overcharge Plan '90	100,000	0	0	100,000
Uncommitted Balance	\$1,564,845	\$3,853,005	\$0	\$5,417,850
Allocated to Low Income Programs	\$0	\$716,507	\$0	\$716,507

Source: Nebraska Energy Office

Figure 2

money paid to Nebraska from overcharges cases since March of 1986. Total funds (including interest) received as of June 30, 1993, were \$40.94 million: \$23.06 million in Exxon funds, \$17.36 million in Stripper Well funds and \$.52 million in Diamond Shamrock funds.

A total of \$5.4 million (\$1.56 million from Exxon and \$3.85 million from Stripper Well) remains in a reserve fund and has not been committed to any new or specific program or projects (see figure 2). Also, \$716,507 or 18 percent of the Stripper Well reserve are, by court order, allocated to low-income programs.

Specific Oil Overcharge Projects

Activity this year for each oil overcharge project financed by the Nebraska Energy Settlement Fund, reviewed by the Legislature and approved by the U.S. Department of Energy is described on the following pages.

College of Technical Agriculture Building Weatherization

The University of Nebraska College of Technical Agriculture at Curtis continued a \$250,000 project to weatherize campus buildings. During 1992-1993, the campus administration identified potential weatherization projects and solicited bids for the work to be performed. No Stripper Well funds have been spent to date since the college will request reimbursement when all of the individual projects are completed.

Dollar and Energy Saving Loan Program

Exxon funds totaling \$11.34 million and \$3.0 million in Stripper Well funds have

capitalized the Dollar and Energy Saving Loan Program, which provides low-interest loans to Nebraskans to finance home, building and system improvements. More than 340 participating lenders provide a maximum of five percent financing for up to ten years on loans for energy saving improvements.

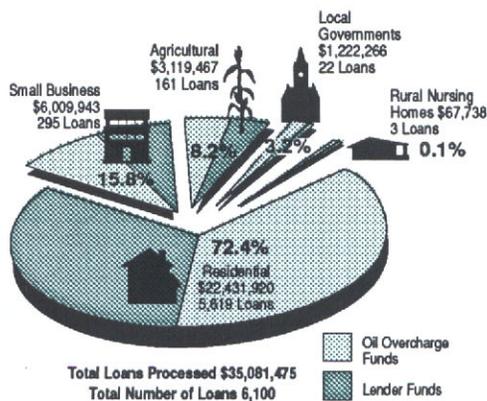
The most common improvements in homes, apartments and small businesses are replacing furnaces, air conditioners and windows.

Popular agricultural improvements include installing low-pressure irrigation systems, replacing irrigation pumps and motors, making well modifications and replacing grain dryers. City and county governments and schools are generally replacing boilers, furnaces and installing heat pumps.

Some energy-saving improvements require an energy audit before a borrower may be approved for a loan. These improvements may be financed for up to five, ten or fifteen years depending on the type of improvement, its cost and the amount of energy saved. Loans are also available directly from the Energy Office at no interest for energy audits.

Applicants obtain appropriate forms from the Energy Office or participating lenders. After obtaining bids, applicants then submit loan forms to participating

Oil Overcharge Funds Invested In Types of Dollar & Energy Saving Loans as of June 30, 1993



Source: Nebraska Energy Office

Figure 3

lenders at one of 631 sites across the state. Once a lender approves the loan application, a commitment agreement is submitted to the Energy Office for review. On final approval from the agency, the lender notifies the applicant to proceed with the energy improvement.

Since the loan program began over three years ago, 6,100 project loans have been made. Over \$19 million in oil overcharge funds (the original \$14.3 million plus loan repayments) have leveraged in excess of \$16 million from the state's private lenders. A total of over \$35 million in low interest loans have been used to finance energy saving projects (see figure 3).

Downtown Lincoln Commuter Trail

Exxon funds totaling \$97,000 were used to partially finance a \$402,800 commuter bike trail in downtown Lincoln, closing several gaps in the existing trail network. Construction of the Central Rock Island Downtown Commuter Trail was completed in April 1993. The city provided \$305,800 in matching funds for the project.

Electrical Load Management Resource Fund

Created in 1983, the Electrical Load Management Resource Fund is capitalized with \$50,000 in *Exxon* oil overcharge funds. Under contract, NMPP Energy manages the loan applications and repayments.

Oil Overcharge Contracts

Exxon

Category	Allocated Funds	Contracts Issued	Expenditures Through June 30, 1993
Energy Education	\$690,499	\$680,499	\$551,705
Financing Demonstrations	1,136,455	1,136,455	876,583
Agriculture	291,276	291,276	291,276
Feasibility Studies	188,448	188,448	152,507
Building Improvement Demonstration	729,499	729,499	729,499
Transportation	700,000	700,000	700,000
Load Management	50,039	50,039	50,039
Dollar and Energy Saving Loan Program	11,344,097	11,116,503	11,116,503
Low Income Weatherization	4,014,500	4,014,500	3,985,180
Total Exxon Contracts June 30, 1993	\$19,144,813	\$18,907,219	\$18,453,292

Stripper Well

Category	Allocated Funds	Contracts Issued	Expenditures Through June 30, 1993
Low Income Weatherization	\$2,370,682	\$2,370,682	\$837,771
State Buildings Energy Team	410,000	50,000	1,834
Local Government			
Energy Management Circuit Rider	400,000	400,000	352,126
Public Transportation	800,000	800,000	790,540
Energy Related Biotechnology, Solar and Conservation Outreach	2,000,000	2,000,000	1,500,748
Greenhouse Project	400,000	400,000	400,000
Innovative Energy Grants	100,000	0	0
Dollar and Energy Saving Loan Program	2,995,903	2,749,918	2,749,918
Indian Tribal Governments	77,000	51,333	42,805
University of Nebraska Building Weatherization	500,000	500,000	345,620
Nebraska State College System	1,500,000	1,500,000	1,031,777
Curtis Weatherization	250,000	0	0
Total Stripper Well Contracts June 30, 1993	\$11,803,585	\$10,821,933	\$8,053,139

Source: Nebraska Energy Office

Figure 4

The fund offers interest-free gap financing to the 90-plus Nebraska utility members of NMPP Energy to help them purchase, install or upgrade load management systems. These systems allow utilities to monitor and reduce peak demand, save energy and avoid being charged for expensive electricity produced during high use times.

Over the 11 years of operation, the initial capital investment of \$50,000 has revolved over seven times, savings ratepayers in the participating towns over \$4.58 million (see figure 5). Communities that install load management systems continue to earn additional savings during the lifetime of the equipment.

In 1992-1993, two previous loans were extended through a second peak load season and three new loans were made:

- Seward, \$6,000
- Indianola, \$6,000
- Gering, \$10,000

Emergency Preparedness

Exxon funds totaling \$95,000 were allocated for costs required to maintain the state's mandatory energy shortage management plan. Expenditures to date total \$45,900.

For the highlights of this reporting period's activities, see page 1.

Energy in Community Planning

The state's Department of Economic Development continued to work on the Energy in Community Planning project. Financial support for the *Nebraska Development Network* and development of a strategic planning component which integrates energy efficiency into traditional forms of economic development and community planning are included in this \$75,000 Exxon-funded effort.

In 1992-1993, work began on an energy resource guide and development of the strategic planning component was undertaken. At the end of June, \$31,238 had been expended.

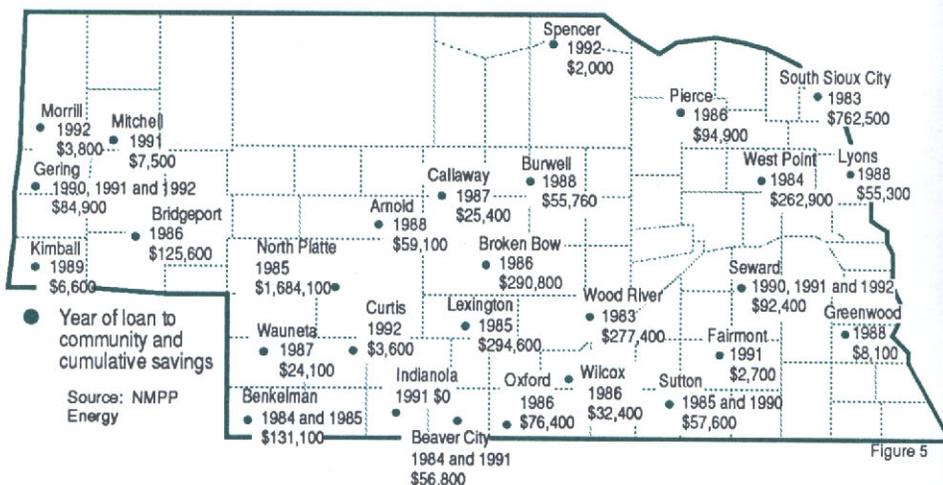
Energy Management Circuit Rider

Stripper Well funds totaling \$400,000 financed a pilot project to provide technical assistance to cities, counties, school district, hospitals and nursing homes in two areas of the state. The Circuit Rider Program operated within the jurisdictions of two community colleges — Central in Columbus and Mid-Plains in North Platte.

Over the past three years, circuit riders have helped institutions and communities develop self-supporting energy management programs, identify necessary energy improvements and utilize energy accounting systems. Participating facility managers have reported yearly cost savings between 10-40 percent after making energy use modifications.

Under contract, the program based in Columbus was extended as it transitions

Cumulative Savings of Communities Borrowing Electrical Load Management Resource Funds 1983-1993



Total Estimated Savings to Date \$4,578,360

itself to self-supporting status. An additional \$20,000 in Exxon funds have been provided to assist in the transition. Nebraska Public Power District and NMPP Energy have contracted with the program to provide training and conduct technical energy audits. An alternate fuels program has also been established as a component of the circuit rider effort.

The North Platte-based program concluded when the contract expired.

Of the \$420,000 in oil overcharge funds committed to this project, \$352,126 has been spent to date.

Green Lights

This project supplanted the State Buildings Energy Team and is financed with \$150,000 in *Stripper Well* funds and \$50,000 in Exxon funds (from the Hundred Points of Light effort).

Green Lights is a national U.S. Environmental Protection Agency effort focused on using state-of-the-art lighting technologies in commercial and governmental buildings to reduce energy, costs and pollution.

During this reporting period, architectural students have been conducting lighting surveys of a portion of the state's buildings identifying what lighting improvements would be the most cost-effective. A revolving loan program to help state agencies finance lighting conversions was also established with \$260,000 in *Stripper Well* funds (from the Innovative Energy Grant Program).

Hundred Points of Light

A quarter of a million dollars in Exxon funds was budgeted for subsidizing the replacement of incandescent bulbs with compact fluorescent lamps. Compact fluorescent bulbs require only one-quarter the energy to produce an equivalent amount of light. They are more expensive but last up to ten times longer, often paying for themselves in one or two years.



The state's two largest electric providers — Nebraska and Omaha Public Power Districts — operated this pilot effort in which these utilities sold subsidized compact fluorescents to their commercial customers. The five dollar subsidy was equally shared by the Energy Office and the utilities.

Of the \$250,000 provided for the effort, \$83,014 was spent before the projects concluded. Over 28,000 compact fluorescents were installed in the buildings of more than 860 commercial businesses.

The remaining \$166,985 has been divided accordingly:

- \$50,000 was allocated to the Green Lights program. For more information about this activity, see page 6.
- \$20,000 was awarded to a commercial lighting conversion demonstration project by Lincoln Electric System similar to that operated by the other utilities.
- \$96,985 remains of these funds remain uncommitted to a specific project.

Innovative Energy Grants

Stripper Well funds totaling \$500,000 were initially earmarked for grants to individuals for research and/or development of energy-related inventions. The Energy Office, along with the University of Nebraska's Technical Assistance Center, has developed evaluation criteria for project review.

In this program's four years, 28 preapplications have been received. Of those, ten have been invited to complete the full application. Four of the ten were reviewed by the University for technical feasibility. To date, no grants have been awarded.

During 1992-1993, \$400,000 was transferred from this fund. Green Lights received \$260,000 and the agricultural portion of the Dollar and Energy Saving Loan program received \$140,000.

Landlord Loan Program

This program, a component of the Dollar and Energy Saving Loan Program, was financed with \$50,000 in *Exxon* funds and \$50,000 from a 1991 U.S. Department of Energy incentive grant.

Since this program is operated by the Weatherization Division in the agency, a more complete report on this program appears on page 11.

Lincoln Energy Conservation Interest Subsidy and Rebate Program

This local subsidy and rebate program ended in 1991. Since some loans were retired earlier than planned, not all subsidies were fully utilized by the borrowers. Unused subsidies were returned to the Energy Office in 1992-1993 and totaled \$5,197.

Lincoln's Innovative Energy Technology

Lincoln and Lancaster County's District Energy Corporation received \$50,000 in *Exxon* funds to produce an educational campaign illustrating the city's innovative district energy system and thermal energy storage facility. The educational campaign includes a videotape, brochure, packet and scale model.

To date, \$10,000 have been spent. The city is providing \$8,455 as in-kind match and \$300 in cash to support the project. The project will be completed in 1994.

Low-Income Weatherization Assistance Program

A total of \$6.39 million in oil overcharge funds (\$4.02 million from *Exxon* and \$2.37 million from *Stripper Well*) have been allocated to the Low-Income Weatherization Assistance Program to assist low-income Nebraskans with residential weatherization to reduce energy use and costs. In 1992-1993, \$981,651 in *Exxon* and \$218,187 in *Stripper Well* funds were spent through the program.

The terms of the *Stripper Well* court order mandate that an equitable share of the funds be set aside for the state's low-income population. To date, \$837,771 in *Stripper Well* funds have been spent.

Interest accruing from *Exxon* funds earmarked for the Weatherization Assistance Program totaled \$59,886 and was approved for use by the federal government. It is anticipated these funds will be spent in future years.

For more detailed information about the Low-Income Weatherization Assistance Program, see pages 10 and 11.

Native American Tribal Governments

The *Stripper Well* court order requires the state to provide an equitable share of oil overcharge funds to Native American tribal governments. Based on the number of Native Americans in the state, \$77,000 have been set aside for eligible projects suggested by the tribal governments.

To date, \$42,805 have been spent from the fund, leaving \$34,195 for future projects. No activity occurred in 1992-1993.

Nebraska Recreational Trails Plan

Seventy-five thousand dollars in *Exxon* funds, under contract to the state's Department of Economic Development, is being used to research existing trails and potential trail corridors, prepare a state trails plan and determine the feasibility of implementing the plan. Nebraska must have a plan to be eligible to apply for available federal recreational trails funds. In 1992-1993, the state agency and its contractor completed an inventory of existing trails and began designing the state trails plan. This project is scheduled to be completed in 1994.

To date, \$25,462 have been spent. The state economic development agency is providing \$8,631 as in-kind match.

Nebraska State College System

A total of \$1.5 million in *Stripper Well* funds was allocated for energy conservation projects at the state colleges. To date, the college systems' Board of Trustees has designated funding for three projects: construction of a wood-fired boiler at Chadron State College which was completed in 1992, development of a comprehensive utilities plan for Peru State College and building weatherization at any of the three campuses.

In 1992-1993, the comprehensive utilities plan at Peru State was completed. Forty-five thousand dollars were allocated for this project. Campus officials identified the buildings to be weatherized at the campuses.

Of the \$1.5 million, \$1,031,777 have been spent. The balance of the remaining funds will be used for building weatherization. The State College System is also providing \$18,000 in matching funds.

Planning, Monitoring and Evaluating Oil Overcharge Programs

To comply with federal and court reporting regulations, \$384,199 in *Stripper Well* and \$400,000 in *Exxon* funds have been committed for planning, monitoring and evaluating programs funded with oil overcharge dollars. In 1992-1993, a total of \$71,271 (\$12,482 in *Stripper Well* and \$58,789 in *Exxon* funds) were spent.

Rural Revitalization: Public Transportation

A total of \$1 million — \$200,000 from *Exxon* and \$800,000 from *Stripper Well* — were used for two rural transportation projects: bus subsidies which ended in 1992 and the purchase of alternate fuel vehicles.

During 1992-1993, energy saving analysis of the 39 mini-buses and alternate fueled passenger vans purchased earlier continued. The study is being conducted by the University of Nebraska and the state's Department of Roads and will conclude in 1995.

Unexpended funds from the vehicle purchases will be used in 1993-1994 to upgrade fuel conversion equipment in the 25 vehicles operating on propane.

Rural Transportation Feasibility Study

The state's Rural Development Commission completed a review of Nebraska's existing transportation system and recommended future options including road, rail, air and telecommunications systems. The study also examined ways of decreasing dependence on low-occupancy, high-energy using personal vehicles.

The study was financed with \$5,000 in *Exxon* funds and \$7,930 in matching funds from the Commission. To date, only \$3,944 in oil overcharge funds have been spent.

Schuyler Energy Conservation Loan Program

Schuyler city government and its Energy Commission continued to operate a 3.6 percent interest energy conservation loan program for homes, businesses, nonprofits and governmental buildings.

The loan pool was capitalized with \$178,007 in *Exxon* funds and \$199,500 from local lenders. Program operations were financed with an additional \$56,993 in *Exxon* funds and accrued interest income.

To date, ten commercial loans totaling \$148,272 and 79 residential loans totaling \$222,227 have been made. The program is scheduled to operate through 1997.

Funds expended to date for program operations total \$38,821. The city has provided \$31,329 as in-kind match.

South Sioux City Energy Conservation Loan Program

The South Sioux City Area Chamber of Commerce completed its low-interest energy conservation loan program for commercial buildings during 1992-1993.

The loan pool was capitalized with \$132,000 in *Exxon* funds and \$66,000 from local lenders. An additional \$6,664 in *Exxon* funds was allocated for program operations. Nine projects were completed, using loan funds totaling \$77,332. Operating expenses totaled \$1,203. The local Chamber of Commerce provided \$2,200 as in-kind match. Loan repayments will continue through the year 2000. The portion of the loans being repaid to the Energy Office continue to accrue in the project's account until all loans are repaid.

State Buildings Energy Team

The State Buildings Energy Team was supplanted by the state's Green Lights effort. For more information about Green Lights, see page 6.

Statewide Energy Education

Two hundred thousand dollars in *Exxon* funds have been dedicated to coordinate statewide energy conservation instruction in grades kindergarten through twelfth grade. Entities involved in the effort include educational service units, educator professional organizations, the state's Department of Education and energy suppliers. The goal is to increase energy awareness and promote energy efficiency to future consumers.

The Energy Office joined with the Nebraska Statewide Systemic Initiative for Science and Mathematics in the development of a \$5.3 million proposal to the National Science Foundation. The initiative will reform elementary and secondary math and science

education. The Energy Office committed an additional \$500,000 of *Exxon* oil overcharge funds as a match to the proposal. A decision on the proposal is expected in the fall of 1993.

The Nebraska Department of Education's *Frameworks* project accepted an Energy Office proposal to use energy as one of four approved themes in its effort to develop curriculum-setting guidelines for kindergarten through twelfth grade mathematics and science education. The *Frameworks* project is to be submitted to the Nebraska Board of Education early in 1994 for final approval.

In 1992-1993, a contractor was selected to develop a plan for establishing an energy information and education center in the agency. As of the end of the fiscal year, \$4,946 had been spent on this contract.

Stuart Energy Conservation Loan Program

While this local commercial loan program ceased making new loans in 1991, repayments from the borrowers will continue beyond the beginning of the next century. The portion of the loan funds being repaid to the Energy Office continue to accrue in the project's account until all loans have been repaid.

University of Nebraska Building Weatherization

The University of Nebraska was selected to receive \$500,000 in *Stripper Well* funds to finance nine energy saving projects in buildings at three campuses — Lincoln, Omaha and the Medical Center. Two projects were completed and the remaining seven are in various stages of completion. The payback on the projects selected range from two to almost seven years.

To date \$345,620 have been spent on these building improvement projects.

University of Nebraska Energy-Related Research

The University of Nebraska received \$2 million in *Stripper Well* funds to further energy-related research. Projects selected must secure matching funds before qualifying for oil overcharge dollars.

The last of eleven research projects was selected in 1992-1993. Dr. David Jones of

the Biological Systems Engineering Department was selected to receive \$170,000 to study and perfect the use of ethanol stillage — unused fluids from the distilling process — as a binder for refuse-derived fuels. The goal is to produce compressed pellets of ground waste paper using the stillage as a glue.

Since the research projects began, \$1,500,748 in oil overcharge funds have been spent.

Other Energy Settlement Funds

Not all oil overcharge funds are part of the Nebraska Energy Settlement Fund. Some of these funds have been held in escrow by the U. S. Department of Energy and are distributed only when a plan is submitted by a state energy agency and approved by the federal energy agency's Office of Hearings and Appeals.

Oil overcharge settlement funds resulting from fines levied against *Amoco*, *Palo Pinto*, *Vickers* and other oil companies fall into this category. According to the Department of Energy, all future settlement funds received by the state will be classified as *Stripper Well* funds and not subject to review by the Office of Hearings and Appeals.

Specific Oil Overcharge Projects

The status of each oil overcharge project financed with these miscellaneous funds is described here.

BERT Loan Program In Omaha

Omaha's Benson neighborhood was one of the last participants in the agency's community energy management program which ended in 1987. As a result of that program, the Benson Energy Resource Team — BERT — was formed and launched a revolving loan program to help homeowners and businesses finance energy saving improvements. The loan program was capitalized with \$90,000 in *Amoco* oil overcharge funds.

The loan program ended in June, 1993, after issuing three loans totaling \$36,860. The remaining funds will be returned to the agency in early 1994. Repayment of the loans will also continue and be returned to the Energy Office.

Statewide Energy Information Service

In 1992-1993, the Energy Office began to develop energy information services to assist consumers to make decisions resulting in the efficient and economic use of energy. Funded with \$150,000 in *Amoco* funds, the agency began the process to develop and maintain a library collection. Displays on a variety of topics were developed or borrowed from other organizations. Informational materials were developed and distributed on energy topics at a variety of events. Energy information was also placed on *Nebraska Online*, a state-wide computer network. By the end of the fiscal year, \$20,263 were expended.

Weatherization Division

The Weatherization Division administers the Low Income Weatherization Assistance Program — a federally-mandated program for weatherizing homes to save money and energy. The Energy Office is responsible for inspecting about 35 percent of the homes — over 775 — that are weatherized and for monitoring and auditing the subgrantees — primarily community action agencies which actually make the home weatherization improvements.

1992-1993 Highlights

In 1992-1993, total funding for the program was \$3,905,219. The Department of Energy's Low Income Weatherization Assistance Program provided a total of \$1,426,629 and the Low Income Home Energy Assistance Program, administered through the Nebraska Department of Social Services, supplied a total of \$1,278,752. The balance of the funding came from petroleum violation escrow accounts — \$981,651 from *Exxon* and \$218,187 from *Stripper Well*.

Total funding for this activity declined about 16 percent from last year's level. The federal agency which provides the majority of the funding altered its grant award cycle, switching from a 12-month to a 15-month period. Funding increases from the Department of Social Services and an oil overcharge account were not sufficient to offset the decline. Figure 6 shows the funding amounts and sources for the past six years.

In June 1993, the agency received federal approval to use a site-specific audit, called the National Energy Audit, in lieu of the non-site-specific audit the agency had been using to determine which energy saving improvements to make in the home. This change allows local agencies to make the home improvements which save the most energy which was not always true in the past.

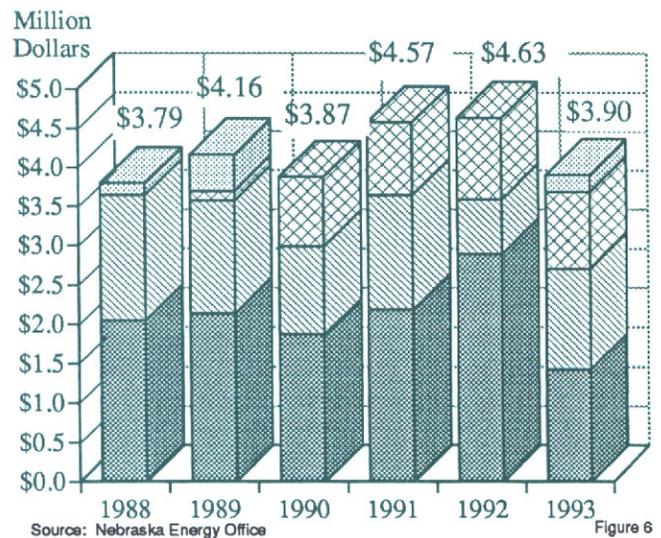
Nebraska was one of the first states in the country to receive permission from the federal government to use this new audit system.

Since 1979

Since the Low Income Weatherization Assistance Program began operation in the state in 1979, over \$52.5 million in federal and oil overcharge funds have been spent to weatherize the homes of low-income elderly, disabled and others.

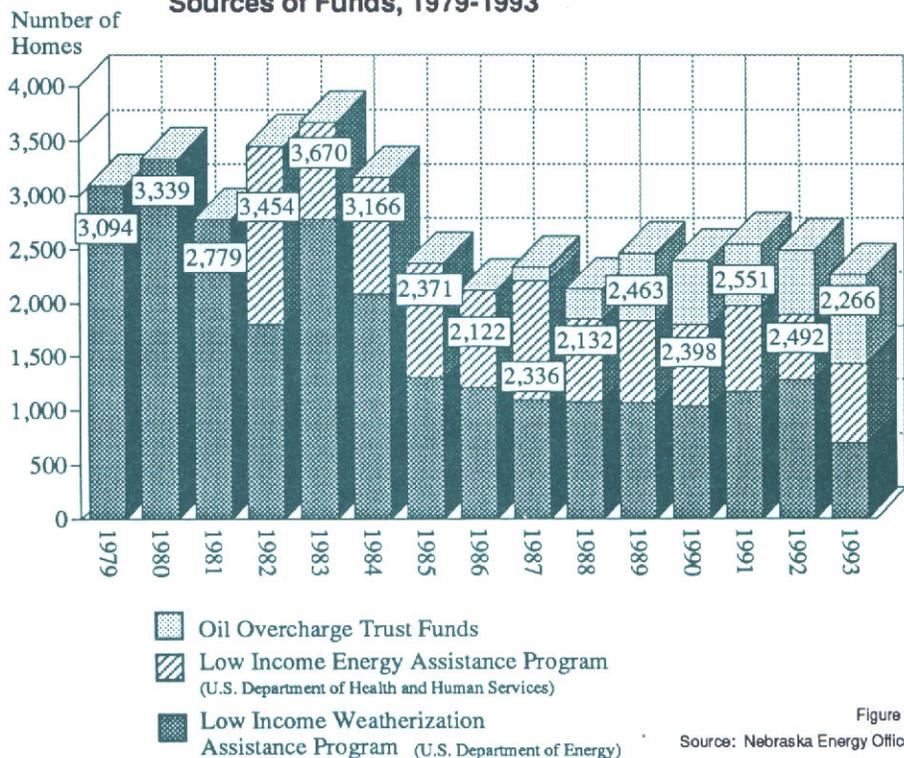
In the past fifteen years, a total of 40,633 homes have received free weatherization (see figure 7). Yet, an estimated 65,000 Nebraska homes remain eligible for this service.

Weatherization Funding Sources, 1988-1993



- Stripper Well Petroleum Violation Escrow Funds
- Exxon Petroleum Violation Escrow Funds
- Low Income Home Energy Assistance Program (U.S. Department of Health and Human Services)
- U. S. Department of Energy

Number of Homes Weatherized and Sources of Funds, 1979-1993



- Oil Overcharge Trust Funds
- Low Income Energy Assistance Program (U.S. Department of Health and Human Services)
- Low Income Weatherization Assistance Program (U.S. Department of Energy)

**Nebraska Weatherization Assistance Program
Service Areas and Homes Weatherized
July 1, 1992 - June 30, 1993**

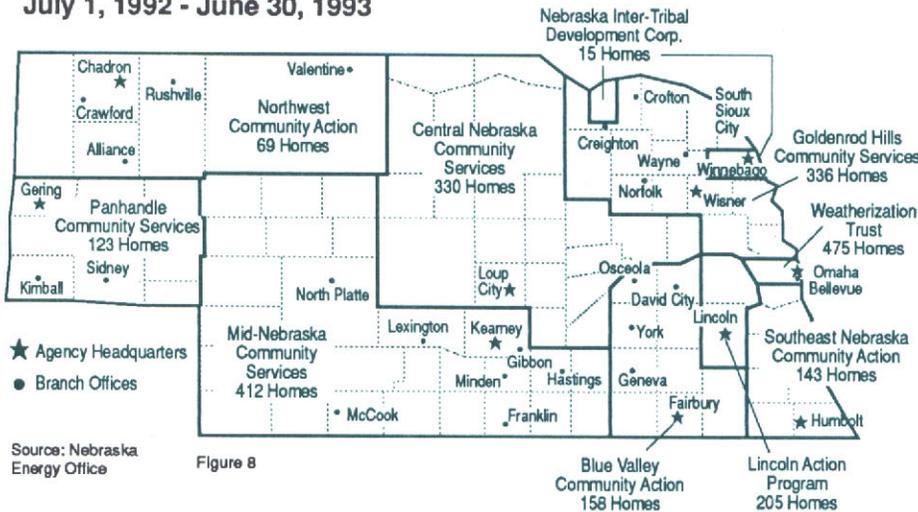


Figure 8

Number of Homes Weatherized

A total of 2,266 homes, down nine percent from last year, were weatherized in fiscal year 1992-1993. In keeping with the agency's priority to serve Nebraska's elderly community through the Low Income Weatherization Assistance Program, the division weatherized 732 elderly households, or 32 percent of all homes improved during this period.

The map above, figure 8, shows the ten Weatherization Assistance Program service areas and the number of homes weatherized in each area from July 1, 1992, through June 30, 1993.

Home improvements made through the program saved Nebraskans a total of \$270,412 in avoided energy costs during 1992-1993. The home improvements represent a one-time investment that most likely will yield a rate of return for at least twenty years.

Omaha Housing Authority

In the fifth year of a cooperative arrangement between the Energy Office and the Omaha Housing Authority, the Energy Office continued to provide funds for purchasing weatherization materials and the housing authority contributed funds for installing them. Annually, up to \$250,000 are made available to the Weatherization Trust for the

replacement of windows, caulking, weatherstripping and ceiling insulation in housing authority buildings. The housing authority uses federal rehabilitation funds to pay the labor costs. Since 1989, 677 housing units have been weatherized of which 7.5 percent or 51 homes were done in this fiscal year.

Oil Overcharge Projects

The Energy Office was awarded a \$50,000 federal incentive grant, during the previous reporting period, to establish an innovative loan program for landlords as a part of the Weatherization Assistance Program. To these funds, the agency added \$40,000 in Exxon oil overcharge funds and \$10,000 in Exxon Special Projects (oil overcharge) funds.

Because of modifications in the program's rules, landlords owning multi-family housing (two or more units in the same building), were required to pay half the cost of weatherization improvements.

To provide financing for landlords who may need assistance in sharing the costs, the \$100,000 Landlord Loan Program was created and is operated in conjunction with the Dollar and Energy Saving Loan Program. Replacement furnaces in single-family rental homes may also be financed under the program. To date, no loans have been requested.

Regional Issues Grant

In June 1993, the agency received a \$10,000 training and technical assistance grant from the regional U.S. Department of Energy for professional and program development. This is the sixth year a training grant has been received by the agency. Annually, the weatherization program staff from Nebraska, Iowa, Kansas and Missouri gather to explore issues of mutual concern. The 1992 Lincoln conference was devoted to field testing energy audits.

Weatherization Program Gains National Honor

"The U.S. Department of Energy recently recognized Goldenrod Hills Community Services Weatherization Program and staff for excellent work in a 14-county area in northeast Nebraska.

"In their letter to Jim Deltloff, Executive Director of Goldenrod Hills Community Services, the individual monitor stated:

"my experience as a weatherization monitor has taken me to the offices of over 370 agencies in 19 states and 20 Indian reservations, I have never encountered staff with more competence and professionalism than the one you have."

Wayne Herald
December 15, 1992

Energy Financing Division

The Energy Financing Division operates federal, state and local programs which finance energy improvements in homes, businesses, farms and ranches, nursing homes, government buildings, schools and hospitals:

- Nebraska School Weatherization Program
- Institutional Conservation Program
- BERT Loan Program
- Dollar and Energy Saving Loan Program

Full reports on the Dollar and Energy Saving and BERT Loan Programs are found on pages 4 and 9, respectively.

Collectively, these programs are designed to reduce the cost and use of energy in buildings and systems. During the time these programs have been in existence, Nebraskans have saved millions of dollars through more efficient use of energy resources.

Nebraska School Weatherization Program

In 1981, the Nebraska Legislature created the School Weatherization Program — the first on-going state-

supported program to weatherize kindergarten-twelfth grade public schools in the nation. For the first four years, only matching grants for energy conservation building improvements were given. In 1985, grants of up to \$2,500 per school for engineering studies were added. Beginning in 1986, the energy conservation improvements portion of the program was converted from grants to no-interest loans.

For the first 11 years, state oil and natural gas severance taxes financed the program. Since 1991, the program has been self-supporting, making loans from a revolving fund capitalized from loan repayments and interest earnings.

Through June 1993, over \$27 million in grants and loans have been made to the state's public school systems to finance energy saving studies and building improvements.

Energy Office staff review applications for engineering study grants and energy improvement loans, conduct technical reviews of the planned improvements, monitor the progress of the building modifications, collect loan repayments and analyze energy consumption reports filed by the schools.

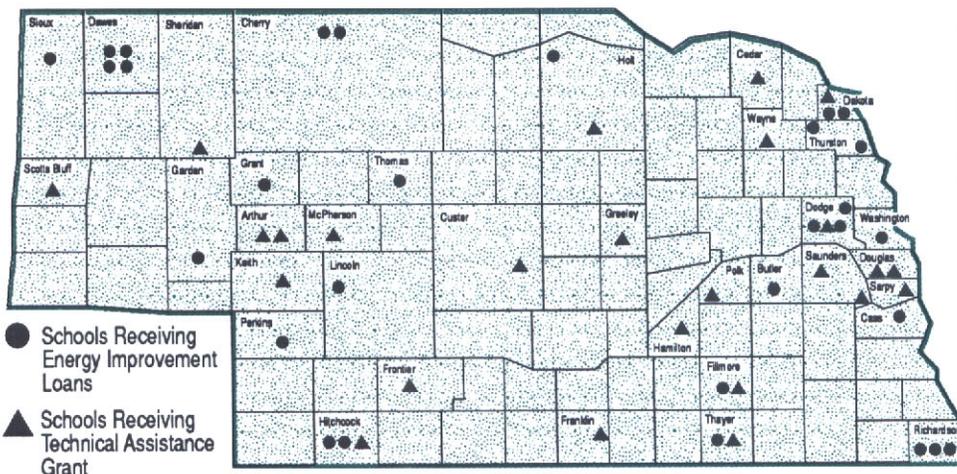
No Interest Loans

From December 1986, through June 1993, over \$9.2 million in no-interest loans have been made for 283 projects across the state.

The loan portion of the program is designed so a school district retains half the savings resulting from an energy improvement, while the balance goes toward repayment of the loan. This structure allows a school to immediately share in the return on its investment.

At the end of the reporting period, June 30, 1993, the program's loan pool contained \$13.1 million of which \$4.9 million was still available for loans and \$155,091 for engineering study grants.

School Weatherization Loans and Grants and Institutional Conservation Program Grants by County, 1992-1993



Source: Nebraska Energy Office

Figure 9

School Weatherization Program July 1, 1992 - June 30, 1993 Energy Improvement Loans

School	No. of Bids	Amount
Arcadia Public Schools	1	\$19,677
Beemer Public Schools	1	\$9,177
Elkhorn Public Schools	1	\$66,314
Emerson-Hubbard Public Schools	2	\$18,326
Filley Consolidated Public Schools	1	\$6,244
Geneva Elementary School	1	\$57,302
Gibbon Public Schools	1	\$53,879
Harvard Public Schools	1	\$26,628
Hemingford Public Schools	1	\$5,978
Henderson Community Schools	1	\$6,384
Hildreth Public Schools	1	\$9,387
Holt County School District 60	1	\$802
Humboldt Public Schools	1	\$2,655
Lincoln County School District 56	1	\$25,948
Lincoln Public Schools	2	\$110,439
Madison Public Schools	1	\$5,600
Minden Public Schools	1	\$23,009
Neigh-Oakdale Public Schools	1	\$10,800
North Bend Elementary School	1	\$1,246
Platteview Public School	1	\$60,235
St. Paul Public Schools	1	\$19,467
Wakefield Public Schools	1	\$6,888
Wayne Public Schools	1	\$7,827
Wisner-Piager Public Schools	1	\$6,420
TOTALS	26	\$560,632

Inquiries

School	No. of Bids	Amount
Burwell Elementary School	1	\$11,857
Genoa Public Schools	1	\$54,372
Holt County School District 60	1	\$862
Lakeview Public School	1	\$16,309
Leigh Public Schools	1	\$63,000
Omaha Public Schools	16	\$358,837
Palmer Public Schools	1	\$7,125
Uehling Elementary School	1	\$3,314
TOTALS	23	\$515,676

Being Reviewed

School	No. of Bids	Amount
Ashby Elementary School	1	\$6,454
Auburn Public Schools	1	\$161,005
Cedar Rapids Public Schools	1	\$11,571
Lincoln Public Schools	3	\$118,855
Marquette Public Schools	1	\$43,890
Neigh-Oakdale Public Schools	1	\$10,800
TOTALS	8	\$352,575

Currently, 131 school districts have 256 loans in repayment, totaling \$8.3 million. In 1992-1993, the agency approved loans for energy improvements for 26 buildings in 24 school districts amounting to \$560,632 and \$515,676 has been set aside for 23 more projects in eight school districts. Applications and inquiries are currently under review for eight buildings in six school districts amounting to \$352,575.

Projects funded through the loan program must have an anticipated payback period of less than their expected life. The loan period may be up to fourteen years.

The table on page 12 lists the school districts receiving loan funds in this period.

Engineering Study Grants

The School Weatherization Program also provides grants up to \$2,500 per building to finance an engineering study and report on the building and its energy-using systems. A registered professional engineer or architect must conduct the study, which identifies all potentially cost-effective conservation improvements, as well as energy-saving changes in operation and maintenance procedures.

During 1992-1993, the Energy Financing Division issued engineering study grants totaling \$45,000 to 13 school districts for studies in 18 buildings. The table below lists grant-receiving schools and figure 9 on page 12 identifies the location of the schools receiving the grants.

Since the grant portion of the program began in 1985, 364 grants totaling \$802,264 have been awarded to public school systems in the state.

School Weatherization Programs July 1, 1992 - June 30, 1993

Engineering Study Grants

School	No. of Bldgs	Amount
Adams Central Jr/Sr High School	1	\$2,500
Arapahoe Public Schools	2	\$5,000
Arcadia Public Schools	2	\$5,000
Auburn Public Schools	1	\$2,500
Clearwater Public Schools	2	\$2,500
Gibbon Public Schools	1	\$2,500
Lakeview High School	1	\$2,500
Lawrence Public Schools	1	\$2,500
Nickarson Public Schools	1	\$2,500
Papillon-LaVista Public Schools	1	\$2,500
Platteville Public School	1	\$2,500
St. Paul Public Schools	3	\$7,500
Wayne Public Schools	1	\$2,500
TOTALS	18	\$45,000

No new taxes needed for new heating system

"The cost of redoing the heating system and installing air conditioning at Platteville High School didn't cost the taxpayers any money thanks to an energy loan.

"Assistant Superintendent Steve Coleman said the district was approved for a \$60,000 to \$70,000 interest free-loan from the Nebraska Energy Office. The money will cover most of the cost for the new heating and air conditioning. The other part will come from lease purchase, he said.

"For these types of projects, South Sarpy District 467 has been taking about \$100,000 each year from the building fund, Coleman said.

"Through the loan purchase and energy loan, hopefully we won't have to use the building fund for that, but instead to upgrade our buildings," he said."

Gretna Breeze
October 8, 1992

Institutional Conservation Program

The Institutional Conservation Program provides 50/50 federal matching grants to hospitals and public and private schools, either for engineering studies to identify cost-effective, energy-saving building improvements or for making energy improvements in the buildings. The Energy Office provides program information to applicants, reviews and ranks applications, submits project proposals to the U.S. Department of Energy for final review and monitors the progress of approved projects.

Nearly \$9.3 million in federal funds have been awarded to the state's schools and hospitals since the program became operational in 1980.

Institutional Conservation Program July 1, 1992 - June 30, 1993

Energy Improvement Grants

School	No. of Bldgs	Amount
Ashland-Greenwood Pub. Schools	1	\$6,414
Falls City Sacred Heart School	1	\$7,494
Geneva Public Schools	1	\$9,188
Genoa Public Schools	1	\$9,271
Gothenburg Memorial Hospital	1	\$36,172
Kearney Good Samaritan Hospital	1	\$9,899
Kimball County Hospital	1	\$34,502
Leigh Community School	1	\$2,259
Winnepago's Nebraska Indian Comm College	1	\$7,414
Omaha Boys Town	2	\$19,365
Omaha Opportunities Industrial Center	1	\$2,397
Pender Community Hospital	1	\$8,550
Sutherland Public Schools	1	\$20,805
University of Nebraska at Curtis	2	\$9,658
Watafoo Public Schools	1	\$3,137
TOTALS	17	\$186,525

Engineering Study Grants

School	No. of Bldgs	Amount
Blair's Dana College	1	\$1,750
Crawford's Community Hospital	1	\$1,750
Creighton University	5	\$23,034
Grant's Perkins County Hospital	1	\$2,350
Hastings Catholic Schools	1	\$1,890
Hooper's Immanuel Lutheran School	1	\$690
Lawrence Public School	1	\$2,582
Lindsay's Holy Family School	1	\$1,500
North Platte Mid-Plains Community College	1	\$4,500
Omaha Cardinal Spellman School	4	\$2,099
Omaha College of St. Mary	2	\$5,450
Omaha Grace College of the Bible	1	\$750
Osceola's Jeffrey Hospital	1	\$1,760
Plainview Public Hospital	1	\$500
University of Nebraska-Lincoln	4	\$19,550
Wahoo's Saunders County Care Center	1	\$1,250
TOTALS	27	\$71,405

Latest Grants

In August 1992, the U.S. Department of Energy awarded \$257,930 — \$71,405 for engineering studies on 27 buildings and \$186,525 for energy conservation improvements in 17 buildings. The projects being funded are expected to cost \$365,457, but are expected to save \$58,851 yearly in avoided energy costs. The table above lists recipients of both engineering study and energy improvement grants.

In January 1993, 12 schools and hospitals applied for \$53,944 for engineering study grants in 24 buildings. Eleven schools and hospitals applied for grants to fund energy saving building improvements estimated to cost \$428,527 in 16 buildings. However, only \$290,379 was available for projects and studies. Grants will be awarded by the federal government in August 1993.

Natural Gas Technical Assistance

About 30 percent of the state's natural gas consumers receive their service from one of 14 municipally-owned natural gas utilities. The remaining 70 percent receive natural gas from one of four different investor-owned natural gas utilities — KN Energy, Midwest Gas, Northwest Public Service and Peoples Natural Gas Company.

Natural gas is imported into the state to the investor-owned and municipally-owned utilities primarily through major pipelines operated by Northern Natural Gas Company and KN Energy.

Municipal Natural Gas Regulation Act

Nebraska is one of only two states in the nation to regulate investor-owned natural gas suppliers at the local level. Village boards and city councils review rate requests under the state's *Municipal Natural Gas Regulation Act*. The Energy Office administers the Municipal Natural Gas Revolving Loan Fund, created by the Act and provides technical assistance to communities as they perform their regulatory duties.

Revolving Loan Fund

The Municipal Natural Gas Revolving Loan Fund was initially capitalized with \$350,000 in oil and natural gas severance

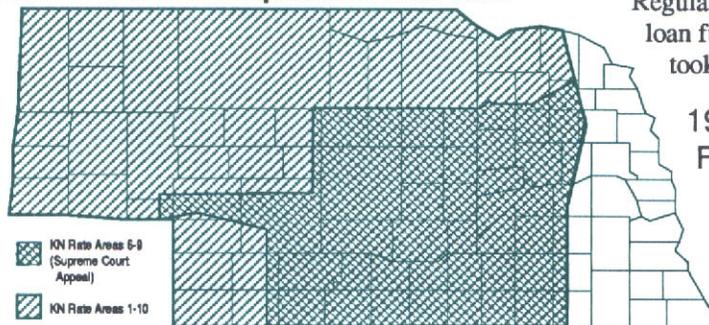
tax revenues. The fund finances local review of utility-initiated general rate requests and judicial review, if necessary. Groups of communities borrow from the fund to finance the rate studies and the fund is replenished in the same amount by the utilities, which in turn recover the cost of regulation from the ratepayers.

Regulations governing the loan fund were adopted and took effect in 1987.

1992-1993 Loan Fund Activities

In 1992-1993, a general rate filing for a natural gas rate increase and an appeal of a lower court's decision to the Nebraska

Areas Receiving or Appealing Natural Gas Rate Requests in 1992-1993



Source: Nebraska Energy Office

Figure 10

Supreme Court of a 1990 general rate increase filing were the only activities financed with loans.

In February 1993, KN Energy notified all its Nebraska service territory — 189 towns — that an increase in general rates was being requested. The rate request was, geographically, the largest since passage of the Act.

The communities are divided into rate areas for regulatory purposes. The ten rate areas served by the utility requested loans totaling \$230,522. The state's rate regulation process in a general rate filing lasts 180 days from the date of filing. The utility's filing was still under consideration at the end of June 1993.

Also during the year, a 1990 general rate request continued through the judicial portion of the regulatory process. Nearly 90 central Nebraska towns served by KN Energy prevailed in an Appeals Court decision which sent the rate case back to the Lancaster County District court for re-trial. However, in January 1993, the Supreme Court, acting on a request from the utility, agreed to hear the case. The towns comprised four of the utility's ten rate areas and requested loans totaling \$45,001.

A total of \$40,506 was disbursed from the Municipal Natural Gas Revolving Loan Fund to pay for expenses related to the 1990 and 1993 rate requests.

Technical Assistance

Throughout the reporting period, the Energy Office provided assistance to municipal officials during all phases of the regulatory process as mandated by statute.

Typical kinds of assistance include organizing and providing support services for rate area committees, publishing periodic issues of *Natural Gas Rate Regulation Update* in each utility's service area, issuing requests for proposals for professional services, providing informational broadcasts and responding to specific inquiries regarding the regulatory process and statutes.

"The Federal Energy Regulatory Commission's [FERC] deregulation of natural gas pipelines probably won't work out the way it was intended.

"FERC's Order 636 sets the final ground rules for interstate pipeline companies to follow in the deregulated natural gas marketplace, a movement started in the energy-sapped 1970s that ignited well exploration and, in turn, lowered gas prices.

"Order 636 will add millions of dollars in costs up and down the line. That means 'unbundling' could add a bundle to what the consumer pays in monthly gas bills.

"FERC, trying to grease the slide, agrees that the new rules will result in 'cost shifts between classes of customers' but claims the overall costs of gas will decrease.

"The American Public Gas Association sees it a different way. It says the 'shift' will fall squarely on the shoulders of the consumers in northern states who use large amounts of gas to heat their homes in the winter.

"How much? Who knows?

"Walt and see is the key here."

Editorial, *Hastings Tribune*
November 10, 1992

Grants and Legislation

Grants

During the current reporting period, the Energy Office received several one-time or project-specific grants. Collectively, the grants totaled \$120,000 in 1992-1993. They are detailed here and in specific sections as indicated.

U.S. Department of Energy Grant

The Energy Office received a \$100,000 grant from the federal energy agency on behalf of the Governors' Ethanol Coalition to demonstrate the use of ethanol as an aviation fuel. For more information about this grant, see page 17.

U.S. Departments of Energy and Agriculture Grant

The agency continued to administer a \$44,535 grant from these two federal agencies to the Governors' Ethanol Coalition. This grant was originally received in 1991-1992. For more information about this grant, see page 17.

U.S. Department of Energy Regional Grants

The Energy Office received one grant, awarded competitively within the four-state federal region, from the Kansas City office of the federal energy agency. The activity associated with a grant received in 1991 was also completed.

For the sixth year, the U.S. Department of Energy gave the state's Energy Office \$10,000 to conduct training sessions for the Low-Income Weatherization Assistance Programs in the four-state region. For more information on this grant, see page 11.

In September, 1991 — the prior reporting period — the agency received \$28,034 from the federal energy agency to conduct lighting surveys in the state's public and private schools, train student interns and provide information to the schools on available financing opportunities to make the lighting improvements. The Energy Office matched the grant with \$7,359 in in-kind services and materials.

The lighting systems in 270 school buildings were surveyed and over 1,500 improvements were recommended. On average, the improvements in each building would cost \$7,722 and \$1,529 in yearly electricity savings would be realized. The cost of the improvements, if made, would be paid for in five years because of electricity savings.

Western Regional Biomass Energy Program Grant

The Western Regional Biomass Energy Program is one of five regional projects across the country designed to develop short-term, cost-effective uses for biomass resources — renewable organic matter, including forest residues, agricultural crops and wastes, wood and wood wastes, animal wastes, livestock operations residues, aquatic plants and municipal wastes. Nebraska's region is administered by the Western Area Power Administration.

Two agency representatives serve on program advisory boards, which direct the regional program as well as specific projects.

A \$10,000 grant was awarded under this federally-funded program to the Energy Office for a pre-feasibility study of the potential of ethanol production from mixed waste paper. The March 1993 report recommended the agency begin development of a model for small-scale, closed-loop production of fuel ethanol from municipal solid waste.

Legislation

Energy legislation affecting Americans and Nebraskans was considered or adopted by federal and state policymakers.

Federal

Both Houses of Congress considered implementing a tax on energy — commonly called a Btu tax — as part of the federal budget. Proposed in February by the President, a modified version of the broad-based tax was approved by the House of Representatives in May. The Senate, however, balked at a tax on all forms of energy, but agreed to an increase in the gasoline tax in June. Later in the year, both Houses approved the Senate version of the tax. The gasoline tax of 4.3 cents per gallon became effective October 1, 1993.

In October, the *Energy Policy Act* of 1992 passed both houses of Congress. This far-reaching law will have its greatest effect in the next few years as key provisions for generating and using electricity and use of alternate fuels become effective. Before certain parts of the law can be activated, funding will have to be allocated — which, as of now, is uncertain.

State

Three pieces of energy legislation passed the state's Unicameral this year:

- Utility subsidization from appliance sales by retail natural gas companies was prohibited. This modification of the *Municipal Natural Gas Regulation Act* had been sought by investor-owned natural gas companies and heating and plumbing contractors.
- The School Weatherization Program was modified to include financing of the purchase or conversion of alternate-fuel vehicles and the installation of fueling stations. Among the alternate fuels eligible are compressed natural gas, electricity, ethanol, methanol and propane.
- The maximum amount of loans offered by publicly-owned electric companies to their customers was increased from \$3,000 to \$10,000.

Ethanol and Other Alternate Fuels

Historically, the role of the Energy Office in the development of alternate transportation fuels has been that of advocate and demonstrator. Starting in 1987, the Governor requested the agency, in its role of energy policy advisor, to take a more active role in coordinating the development and use of ethanol-based fuels, not only in the state, but around the country as well. In the past several years, the agency has been very successful in securing favorable policy treatment for ethanol and in locating funding for municipal and county transportation systems using alternate fuels.

1992-1993 Highlights

A number of issues and activities involved the agency as it fulfilled its role in fostering the growth of alternate transportation fuels.

America's Quest for Cleaner Transportation Fuels

With the passage of the amendments to the *Clean Air Act* in 1990 and the subsequent passage of the *Energy Policy Act* in 1992, cleaner burning fuels of all types became a national priority. Generally, the transportation fuel types considered "alternate" are biofuels, electricity, ethanol, methanol, natural gas and propane.

For almost two years, various fuel producers, including the petroleum industry, have focused on the fuels and additives to be used in the carbon monoxide and ozone nonattainment areas of the country which will be required to use cleaner burning transportation fuels.

In October 1992, President Bush announced that ethanol would receive a waiver from meeting certain conditions of the *Clean Air Act*, enabling the fuel to be used to clean-up the air in the nation's smoggiest cities.

In January 1993, the Clinton Administration decided to review the entire situation surrounding the rules associated with the cleaner burning gasolines. A decision on the issue is expected in late 1993.

Nebraska's Quest for Cleaner Transportation Fuels

On the state level, the Governor's *Energy Action Plan* devoted almost half of its objectives to transportation issues. All but two of the transportation objectives dealt with alternate fuels. Within government, the agency was directed to substantially increase the number of alternate fueled vehicles operating within the state. Outside of government, the Energy Office was to find ways of providing incentives for the purchase and conversion of vehicles to operate on alternate fuels.

By June 1993, several objectives in the *Action Plan* had been accomplished:

- 54 flexible fuel cars capable of operating on up to 85 percent ethanol were ordered for the state's fleet, meeting the 1993 objective of ten percent of the new vehicle purchases being alternately fueled.



AN ENERGY
ACTION PLAN
FOR NEBRASKA

- Up to four fueling facilities for the vehicles were being planned across Nebraska, meeting another objective.
- A rideshare roster for state employees was coordinated by the agency and operating by June 1993.
- With the passage of amendments to the School Weatherization Program allowing the financing of alternate fueled vehicles and fueling facilities, part of another objective was reached. Financing for public school districts should be available in early 1994.
- A 26-member Alternate Fuels Committee was appointed by the Governor in April 1993. This group's goal was to create a mechanism to promote the use of alternate transportation fuels.
- The agency also joined the Mid-States Natural Gas Vehicle Coalition and the Natural Gas Vehicle Zone which coordinates the promotion and use of natural gas transportation fuels throughout the region and the nation.

State Ethanol Developments

Ethanol developments in the state during the reporting period included:

- Cargill selected Blair as the location for its first Nebraska corn wet milling plant. The company is expected to produce up to 100 million gallons of ethanol annually at the plant, making it the state's largest.
- A new 25 million gallon plant will be located in York, according to High Plains Corporation. The future plant's equipment is being relocated from Louisiana.

With these latest announcements, over \$500 million in new or expanded ethanol plant construction was underway. The state's Ethanol Board estimated that after all of the plants are operational, in excess of 230 million gallons of ethanol will be produced annually in the state, quadrupling current production. By 1998, it is estimated the state will likely rank third in the country in ethanol production.

In 1993, Nebraska, for the first time, became a net exporter of ethanol. A slight decline in in-state consumption, coupled with a substantial increase in production accounted for the change.

A Western Regional Biomass Energy Program financed a study of a 25-county area stretching from Lexington to Seward and from Broken Bow to the Kansas border which indicated that over 200 million gallons of ethanol could be produced yearly from corn stubble. The University of Nebraska study also examined other factors such as transportation, economics, storage and collection. A final report is expected in 1994.

A second study funded by the same federal source examined the ethanol production potential of mixed waste paper in the state's landfills. The 1993 study suggested that small scale, closed-loop systems held the best economic potential. Further areas of research were also suggested.

Governors' Ethanol Coalition

In September 1992, Governor Nelson's term as the first Chairman of the 19-state Governors' Ethanol Coalition ended. Governor Edgar of Illinois succeeded Nelson and itemized his 1993 goals for the organization:

- Quantify the science and economics of ethanol
- Remain an active player in the development of the nation's clean fuels programs
- Keep ethanol production and engine technology moving forward

Governors' Ethanol Coalition Member States

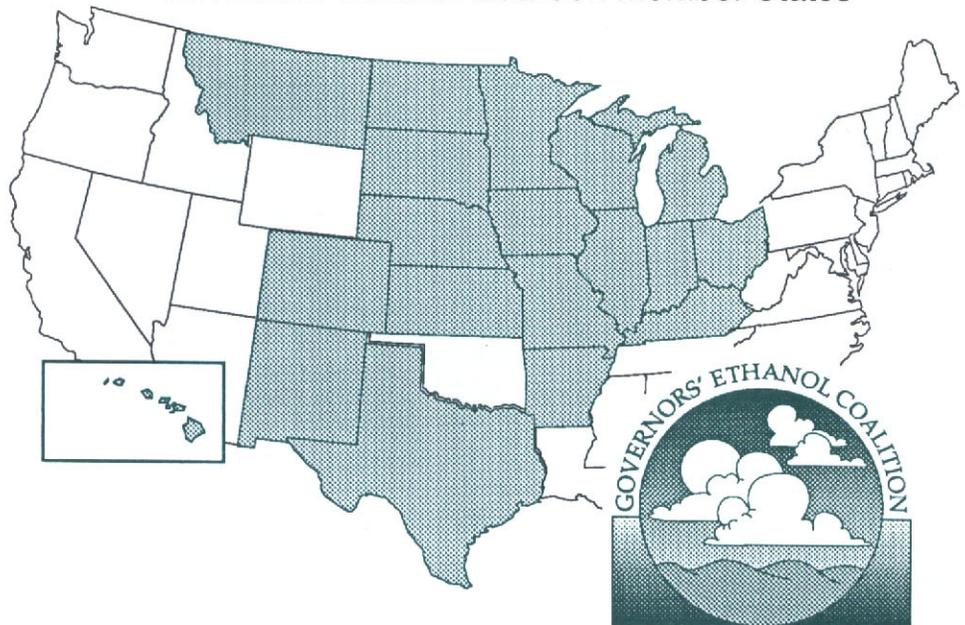


Figure 11

Nebraska was assigned the task of documenting the economic benefits of ethanol. The work is currently underway. The Energy Office director is the Governor's representative on the Coalition and the agency has agreed to serve as the administrative headquarters for the group.

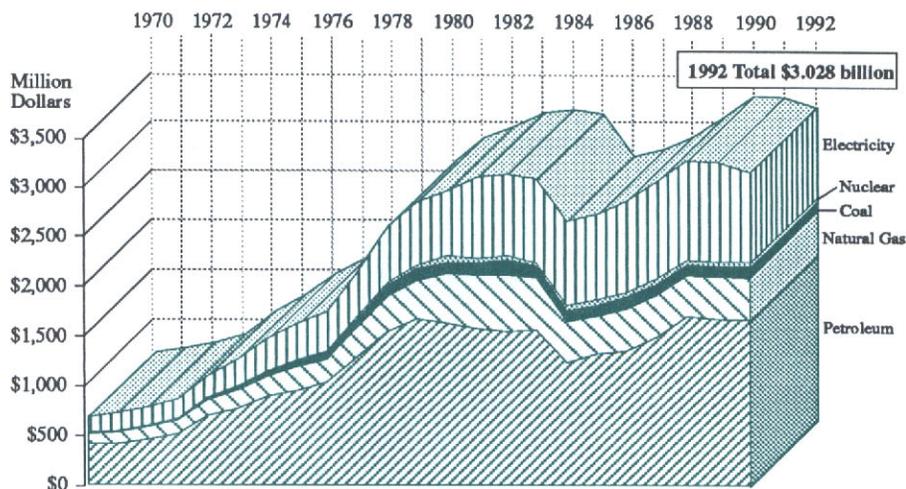
During the period, the Energy Office, on behalf of the Governors' Ethanol Coalition, received a \$100,000 U.S. Department of Energy grant to demonstrate the viability of ethanol as an aviation fuel. The coalition selected a Baylor University professor and aviation expert to demonstrate ethanol's potential. As planned, the work will consist of a series of aerial demonstrations in coalition member states, the production of a brochure, videotape and mobile display. The project is scheduled for completion in 1994.

The Energy Office also continued to administer a \$44,535 grant from the U.S. Departments of Agriculture and Energy for the Governors' Ethanol Coalition. These funds are used by the group to develop educational and informational materials and programs on ethanol transportation fuels.

Issues and Trends

For the third consecutive year, Nebraska's total energy bill surpassed \$3 billion — precisely \$3.028 billion — a decline of 2.1 percent from 1991 (see figure 12). The state's petroleum dependence and ensuing cost were again evident — over half of all energy expenditures in 1992 were for petroleum and its refined products.

Total Energy Expenditures, Nebraska, 1970-1992



Source: Nebraska Energy Office

Figure 12

Energy consumption and cost trends have remained largely unchanged over the past several years.

One energy issue did dominate the public airwaves for almost half a year — a proposed energy tax. Other trends and issues from years gone by continued unabated — site selections for low and high level nuclear waste, relicensing of hydropower projects and implementation of the *Clean Air* and *National Energy Policy Acts*. On this and successive pages, the status of current trends and issues are chronicled.

A Tax on Energy

In mid-February 1993, people overnight became familiar with a heretofore obscure energy measurement — the British thermal unit. The President, in presenting his five-year budget plan, proposed creation of an energy tax based on a fuel's energy content which is measured in British thermal units.

Basing an energy tax on the British thermal unit content of different fuels, is easier to use than other forms of measurements. Secondly, the tax would not penalize states that rely on one fuel instead of another. The proposal attempted to discourage the dependence on imported oil since petroleum would be taxed at more than twice the rate of other fuels. Alternate forms of energy such as solar, geothermal and wind would not have been taxed. Oil used in manufacturing processes would have also been exempt from the tax.

As estimated by the Energy Office, the phased-in energy tax would have cost an average Nebraskan a total of \$42.38 in the first year, \$84.76 in the second year and \$127.14 in the third year. The tax was scheduled to go into effect in July 1994.

Collectively, the state's residents would have paid \$67.8 million in the first year, \$135.6 million in the second year and \$203.4 million in the third.

In the following months, various modifications were considered to limit the effects of the tax on certain industries such as agriculture. Other modifications were also weighed: at what point the tax should be assessed and whether certain fuels such as ethanol and heating oil should be exempted. Also, Nebraska's Governor hosted a roundtable of the state's leaders

An Energy Tax: Nebraska Voices

"Energy taxes, for instance, are beneficial three times. They raise revenues, they encourage conservation and they help achieve core environmental goals."

Editorial, *Kearney Hub*
January 29, 1993

"The energy tax proposed by President Clinton in his economic address is not a bad idea, even though it would hit agriculture hard."

Editorial, *Omaha World Herald*
February 22, 1993

"It stands to reason that an energy tax will hurt farm states such as Nebraska more than others. Nebraska's number one industry is agriculture, which is highly energy dependent."

Editorial, *McCook Gazette*
June 7, 1993

"The idea was to both pay down the nation's deficit and to improve our energy efficiency and environment. The House passed a bill that would tax most fuels at 25.7 cents per million Btu and oil — except for heating oil and farm fuels — at 61 cents. The higher rate on petroleum Btu was designed to reduce our dependency on foreign oil and to reduce pollution by encouraging use of cleaner alternate fuels."

"But oil state senators, aided and abetted by a variety of special interests and heavy-handed scare tactics, have succeeded in muddling the issues to kill the idea."

Editorial, *Lincoln Star*
June 10, 1993

to solicit opinions on all the proposals included in the President's budget.

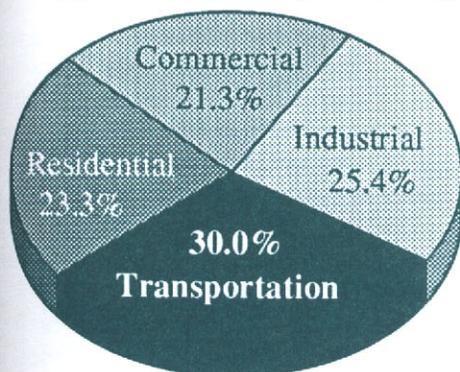
At the end of May, the House of Representatives narrowly passed a budget which included an energy tax only slightly different from the one proposed by the President. Next, the budget was considered by the Senate. By the end of June, the budget — with a vastly altered energy tax — was adopted by the Senate. Only resolving the two differing budget bills and their respective approaches to an energy tax remained for resolution.

In the end, only the gasoline/diesel fuel portion of a broad-base energy tax prevailed after debate in Congress. The new fuel tax would be effective October 1993 and would raise less than a third of the revenues originally projected. The final new tax imposed a 4.3 cents per gallon increase in the cost of gasoline and diesel transportation fuels.

Transportation

The state's dependency on imported energy for transportation use remained largely unchanged. More energy is used

Energy Consumption by Sector 1992

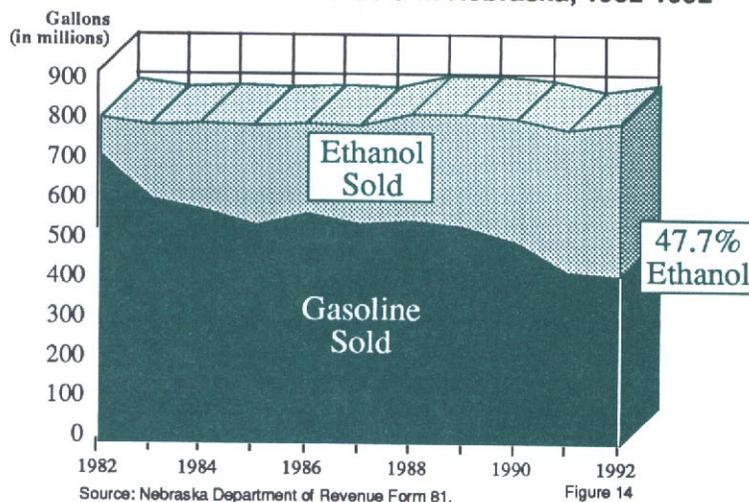


Source: Nebraska Energy Statistics 1960-1992 Figure 13

by this sector than any other — nearly 30 percent of all energy consumed in the state is used for transportation (see figure 13). Most transportation fuels used in the state come from refined petroleum products. Transportation fuel costs in 1992 in the state stayed relatively constant at nearly \$1.3 billion.

The only bright spot in the state's near total reliance on imported fuels was

Ethanol and Gasoline Sold in Nebraska, 1982-1992



The state's Ethanol Board predicted that sometime during 1993, the state would no longer be a net importer of ethanol.

Changes Coming?

Starting in 1994 and increasingly over the following six years, businesses, energy companies and governmental bodies will be required to add alternately-fueled vehicles to their fleets. These requirements are a result of passage of the *Clean Air Act* amendments of 1990 and the *National Energy Policy Act* of 1992. Because of the quality of the state's environment, Nebraska is largely exempt from most of the alternate fuel fleet provisions of the two laws. However, growth in the use of ethanol, natural gas and propane as transportation fuels can be expected over the next decade. And this trend could be seen even in 1993:

- Fremont proceeded with its goal of converting the 35 vehicles in its municipal fleet to operate on natural gas over the next five years.
- As part of its conversion from defense work, Lincoln's Brunswick Composites began manufacturing lightweight, high performance pressure fuel tanks for natural gas vehicles.
- Over the next year or two, Hastings will analyze performance and cost savings from two city vehicles converted to operate on compressed natural gas.
- Governmental agencies in the state ordered 58 flexible fuel cars capable of operating on up to 85 percent ethanol.
- Lincoln converted seven transit vans to operate on natural gas.
- Of the 20 points in the state's Energy Action Plan (see pages 2-3), nine dealt with transportation issues and two-thirds of those issues called for increasing the use of alternate fuels.
- The state's first alternate fuels conference, hosted by Central Community College, was held.

Our country needs to continue exploring new avenues for cleaner, more efficient fuels. Nebraska has many of the tools needed to produce and promote some of these alternate fuels..."

Editorial, *Columbus Telegram*
November 12, 1993

- Omaha Public Power District began using a 20 percent soydiesel and 80 percent regular diesel blend fuel in 20 vehicles. Soydiesel can be made from soybean oil and is biodegradable. Other advantages of the fuel include fewer pollution emissions and no engine modifications are needed, which is not the case with other fuels. However, the fuel can be costly — \$2.50 per gallon.

- Animal fat, a packing plant by-product, could be mixed with diesel fuel to produce a more environmentally-benign fuel for diesel engines according to University of Nebraska research.

Rural Transportation Issues

Outside of the state's metropolitan areas, nearly 900,000 people occupy over 76,000 square miles of land — less than 12 people per square mile. Many people live more than 100 miles from a city with 5,000 population.

Because of this lack of population density, energy and cost-efficient transportation services in rural areas are a continual issue. During the last 15 years, one-third of the state's counties and 130 towns have lost bus service. Reversing these trends will be difficult.

Train service in the state is also declining. In December, 1992, the Chicago and North Western rail service between Norfolk and Chadron ended. The end of the rail service had been expected for several years.

face limited options when new generating capacity is need. Excluding small peaking units, the utilities currently expect few obstacles until after 2010. Around that time, the two nuclear facilities are expected to close and rising electric demand may force the utilities to consider other non-polluting generation options such as efficiency, wind, solar or geothermal.

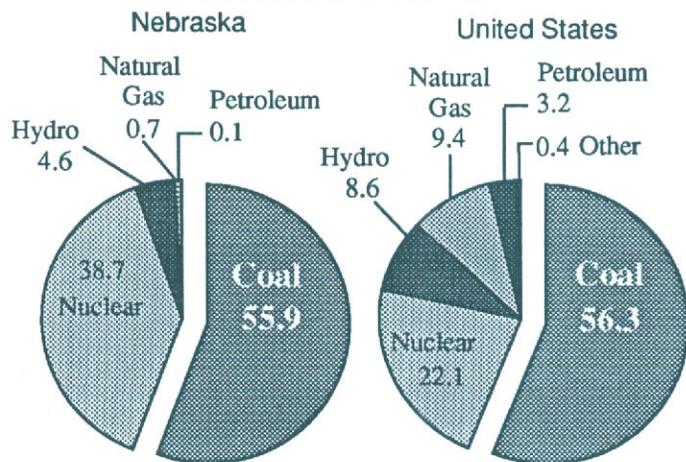
Another factor in the utilities' future may be the role of independent power producers. The *Energy Policy Act* of 1992 mandated that utilities must become common carriers, in essence, opening their transmission lines to other producers similar to what has evolved in long-distance communications and natural gas systems. According to industry sources, independent electricity generators have been adding more capacity than utilities since 1991. One such independent, California Energy, is located in Nebraska. In 1992, the company produced 250 megawatt-hours of power and plans to increase that to 1,500 megawatt-hours by 2000. Comparatively, the state's generating units collectively are capable of producing between 5,500 and 5,700 megawatt-hours.

Investing in energy efficiency solutions is also becoming common as utilities from New England to the Northwest and as close as Wisconsin are investing between 1.4 and 6.4 percent of their annual revenues to reduce electrical consumption according to the National Resources Defense Council.

Kingsley Dam Relicensing

The nine-year struggle to obtain a 30-year renewal of the dam's operating license from the Federal Energy Regulatory Commission continued. Relicensing involves balancing seemingly

Percent of Fuels Used to Produce Electric Power, Nebraska and U.S. 1992



Sources: Nebraska Energy Statistics 1980-1992 and Anderson & Anderson & Co., Cambridge Research Associates

Figure 15

Electricity

In 1992, energy use by the state's utilities decreased 2.1 percent from the all-time high set just a year earlier. Decreases in coal, natural gas and petroleum were partially offset by increases in nuclear and hydroelectric generation. Natural gas and petroleum, used primarily in generators producing electricity during

the summertime peak, declined by almost half. Cooler than normal summer weather accounted for the decline in fuel use.

Electricity generated from coal remained dominant in Nebraska. Nearly 60 percent of the electricity generated in 1992 came from coal, paralleling national trends. Nationally, electricity from coal was more than 56 percent in 1992 (see figure 15). Nuclear power in the state accounted for over 38 percent of the electricity produced.

The Near Term Future

The state's big three utilities — Nebraska and Omaha Public Power Districts and Lincoln Electric System — will be encountering increasing regulatory constraints over the next decade or two because of changing public attitudes, recently passed federal legislation and a reshaping of the national utility landscape.

As the new portions of the *Clean Air Act* become operational, the state's utilities will

"The emergence of a plan in which a number of Nebraska interests find things to praise is especially significant."

Editorial, *Omaha World Herald*
October 2, 1993

competing interests — irrigation, power generation, recreation, fish and wildlife welfare, municipal interests and flood control. The 1941 license expired in 1987.

In July 1992, the Federal Energy Regulatory Commission called for a revised environmental impact statement from the parties involved. The state in the revised impact statement proposed establishing a flexible "water account" system for the benefit of wildlife habitat. Most of the parties involved in the relicensing effort supported the water accounting system. The state's plan is one of six being considered by the federal regulatory agency. A decision on the plan is expected in 1994.

Revenue Ups and Downs

The state's weather — predictably unusual — impacted the utilities during the summer of 1992 as a wet and cold summer was recorded in the weather annals. The state's electrical utilities normally reach peak generating capacity during this period and, as a result of the weather, failed to meet revenue projections. By August, Omaha Public Power District revenues were down more than ten percent from projections and Lincoln Electric System's revenues were off 16.7 percent. Nebraska Public Power District's revenues were also below projections.

Electricity sales over the long-term looked better however. The state's largest power generator, Nebraska Public Power District, negotiated contracts for future electricity sales. Revenues for 1993 from these types of sales are expected to top \$12 million, up \$11 million from 1988. Sales are projected to remain above \$10 million annually through 2000.

Production Cost Efficiencies

According to the Utility Data Institute, several of the state's power plants ranked as the most economical in the country. Ranking first in the nation was Laramie River which is partially owned by Lincoln Electric System. In 1991, electricity was produced at the plant for \$9.79 per megawatt-hour. Tying for second with a

North Dakota plant was Omaha Public Power District's Nebraska City plant which produced electricity for \$10.21 per megawatt-hour. Coming in eighth in the country was the city-owned plant in Grand Island. The state's largest coal-fired plant, Gerald Gentleman located near Sutherland, ranked 17th in the country.

New Technologies

The tire burning experiment at Nebraska Public Power District's Sheldon Station continued during the period. A second test mixing coal with five percent shredded tires was started in July. The test burning planned to use 4,500 tons of shredded tires. A permanent license to burn the tires was also sought from the local health department. The department ultimately denied the request for a license, indicating that emission tests were still needed. The utility estimated the cost of the tests at \$35,000. It was uncertain if the utility or other sources would pay for the tests.

Territorial and Service Issues

With over 300 separate electrical systems in the state, jurisdictional and servicing issues can be expected. Ideally, many are resolved at the state level before the Power Review Board. However, conflicts between utilities are seemingly becoming more difficult to resolve. Several utilities have appealed decisions by the Power Review Board to the state's Supreme Court.

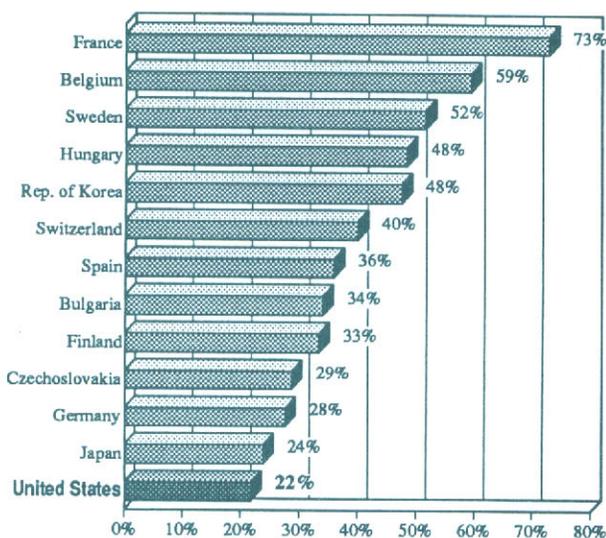
One of the more contentious issues between two utilities involved the state's largest generator, Nebraska Public Power District, and the largest irrigation district, Central Nebraska Public Power and Irrigation District, over a billing dispute for the purchase of hydroelectric power.

"Hard feelings between basic public resource agencies that were cooperating partners for a half-century does Nebraska no good."

Editorial, *Lincoln Journal*
March 10, 1993

Nuclear Power and Nuclear Waste

Percent of Electricity Produced by Nuclear Power Around the World



Source: *New York Times* - William J. Broad & Matthew L. Wald

Figure 16

The amount of nuclear-generated electricity consumption in Nebraska in 1992 increased by 8.1 percent over 1991 and was the third highest on record. In 1982, the record year, nearly 48 percent of all electricity in the state was nuclear generated. In 1992, less than 39 percent of the electricity came from nuclear power plants. Nuclear generation tends to fluctuate more than other fuel types because of planned and unplanned outages.

The 50-Year Milestone

December 1992, saw the 50th anniversary of the first sustained nuclear reaction made by man which occurred December 2, 1942, on a converted squash court at the University of Chicago.

In 1951, an experimental reactor in Idaho lit a few bulbs, generating the first electricity from nuclear power. By 1973, the U.S. nuclear industry reached its zenith when 41 power plants were ordered. Eventually, all but nine were cancelled. Over the next five years, 39 more plants were ordered, but all were cancelled.

Around the world, 1991 figures indicated that nine countries generated a third or more of their electricity from nuclear sources. The U.S. generated only 21.7 percent in that year (see figure 16).

Nebraska Nuclear Facilities

In July, one of the state's two nuclear facilities, Fort Calhoun Nuclear Station, shut down, declaring an alert when two components failed. It was the most serious occurrence at the plant in its 20-year history. Omaha Public Power District's Fort Calhoun is one of the oldest commercial nuclear facilities in the country.

Staff from the Nuclear Regulatory Commission assisted local utility personnel in the review of the plant's operations. The plant was shut down for 20 days during the investigation. A second, less serious shutdown involving the same malfunctioning equipment at the plant occurred just six weeks later. This second shutdown lasted from August 22 to September 9, 1992.

Cooper Nuclear Station near Brownville operated by Nebraska Public Power District was notified in March 1993, that a \$200,000 fine would be imposed on the utility by the Nuclear Regulatory Commission for safety problems. Shortly after a planned 58-day routine maintenance and refueling outage in March, problems developed causing Nuclear Regulatory Commission staff to conduct two inspections in April and May. After a rare open meeting with utility officials on June 22, utility officials assured regulators that problems uncovered would be corrected. Utility officials had hoped to restart the plant in early July, two months beyond the original date for restart.

The cost of decommissioning both plants was recalculated by the two utilities which operate the state's nuclear facilities. Both expect to have \$1 billion or more available to decommission each of the power plants when their operating licenses expire. Construction costs for each of the plants, which began operation in the early 1970s, was between \$300-\$400 million.

National Trends

Of the nation's 109 currently operating nuclear power stations, one of the younger ones, Portland General Electric's Trojan plant, will close in 1996 after only 20 years of service. Utilities also announced the forthcoming closure of two other nuclear plants in 1992.

To date, 20 commercial nuclear reactors have ceased operation in the U.S. according to *Electric Utilities*. One of the 20 is in Nebraska, Hallam Nuclear Power Facility, southwest of Lincoln. In deciding to close a nuclear plant, most utilities cite cheaper alternates to plant modernization as being one of the primary reasons for closure.

Nuclear Waste

The majority of the nuclear waste produced in Nebraska comes from the state's two nuclear power plants. For storage purposes, radioactive material is classified as high or low level waste depending on the length of time it remains radioactive.

High-level waste is spent nuclear fuel and has primarily been stored on site at the nuclear power plants, awaiting construction of a national repository. Both power plants have storage capabilities through 2003.

Permanent High-Level Waste Storage

Three different storage options are currently in varying stages of development — the Waste Isolation Pilot Plant in New Mexico, a permanent storage facility at Yucca Mountain in Nevada and a monitored retrievable storage facility at a site yet to be selected.

Waste Isolation Pilot Plant

The furthest developed storage facility, the Waste Isolation Pilot Plant, was begun in 1983 near Carlsbad, New Mexico. Designed to store radioactive wastes resulting from the production of nuclear weapons, it is also a test of a 40-year old theory using prehistoric salt beds to entomb the wastes. The wastes will remain radioactive for 240,000 years — deadly to humans through the 2,000th century.

However, the \$1 billion plant has been plagued by technical, legal and political problems. While Congressional approval transferring the land to the U.S. Department of Energy was secured, five conditions attached to the transfer could prevent the plant from ever opening. Perhaps the most daunting condition is that the U.S. Environmental Protection Agency must establish new standards for the disposal of radioactive wastes. It is also possible that the originally-planned five year initial test of the facility may never happen since any waste stored at the site must be able to be removed, if necessary, after the test is completed. Current costs to maintain the empty storage facility are \$14 million a month.

Yucca Mountain

Under the 1982 *Nuclear Waste Policy Act*, utilities have been paying one-tenth of a cent per kilowatt-hour produced by the reactors to finance a repository to store the radioactive wastes. By 1998, the U.S. Department of Energy was supposed to start picking up the waste, moving it to a permanent repository.

In 1987, Congress selected Yucca Mountain, Nevada, as the most likely site, if found suitable, for permanent storage of high-level waste from the nation's 100-plus nuclear reactors. Since the selection

of Yucca Mountain, the federal energy agency has faced both technical problems and local opposition. Site suitability testing of Yucca Mountain continues, but the new opening date, 2010, may not be met.

The Edison Electric Institute estimates that approximately 35 plants will exhaust their on-site storage of the radioactive wastes by 2007.

As of April 1993, \$6 billion have been collected from the utilities and \$3.2 billion have been spent — \$1.2 billion alone on the Yucca Mountain site.

Monitored Retrievable Storage

The 1982 law also called for the establishment of a temporary storage site if the permanent facility had not opened before on-site storage capacity was reached by the nuclear power plants.

According to *Nuclear Waste News*, the Department of Energy received 21 requests for feasibility assessments. Six feasibility grants have been awarded, two of them near Nebraska — Fremont County in Wyoming and the Prairie Island Indian Reservation in Minnesota.

However, at this time, no site appears likely to be selected in time to meet the 1998 deadline.

Transporting Nuclear Waste

Whether high-level nuclear waste is civilian or military, it must be transported from temporary storage to permanent repositories when those facilities open. Because most of the nuclear power plants are east of Nebraska and the likely permanent storage facility is in Nevada, Nebraska's rails and interstate highways will probably be corridors for shipments of spent nuclear fuel.

Through participation on the High-Level Waste Transportation Committee of the Western Interstate Energy Board, the Energy Office monitors current developments relating to future transportation issues which may affect the state.

According to the Nebraska State Patrol, there are periodic shipments of high-level nuclear waste crossing the state. Patrol escorts are provided only from the Iowa border to 50 miles outside Lincoln.

Permanent Low-Level Nuclear Waste Storage

Nebraska belongs to one of nine regional compacts in the country formed to develop storage facilities for low-level radioactive waste. Low-level waste is generally composed of clothing, filters, resins, tools, and other items from nuclear power plants and hospitals. The U.S. Department of Energy said electric utilities in the country generated 56.2 percent of the low-level waste in 1990.

Boyd County Radioactive Waste Storage Facility and Related Issues

Since Boyd County, Nebraska, was selected by its regional compact, the Central Interstate Low-Level Radioactive Waste Commission, and the developer, U.S. Ecology, the building of a low-level radioactive waste facility has progressed along a predetermined number of stages.

In August 1992, the only existing low-level waste facility available to the state's radioactive waste generators, Barnwell, South Carolina, decided to continue receiving waste generated in Nebraska and other regional commission members for 18 more months. But, the cost per cubic foot of waste stored in South Carolina will increase from \$40 to \$260. Yet less than six months later, the owners of the South Carolina facility threatened to close access to Nebraska because of perceived efforts to slowdown or stop the construction of a storage facility in Nebraska.

As of February 1993, \$46 million had been spent on siting the facility, third highest in the country after Illinois and North Carolina. In September 1992, the latest cost estimates for the Boyd County facility were pegged at \$117 million — three times the original cost. The latest target date for opening the facility in Nebraska is late-1996.

The issue of "community consent" continued to dog the proposed site in Boyd County. In December 1993, the most recent effort to measure local acceptance of the planned facility was gathered in a straw poll of the county's voters. The results of the poll were a 93 percent rejection to siting a low-level waste storage area near Butte.

In January 1994, the state's Department of Environmental Quality notified the storage facility's developer, US Ecology, that the state intended to deny the application for development because minimum state standards were not met since the proposed site contained wetlands. However, the technical and scientific reviews of the application would continue.

Natural Gas

After peaking in 1973 at more than 230 trillion British thermal units, Nebraska's natural gas consumption has plummeted by over 50 percent — 1992's level was only 106.2 trillion units. Two sectors, industrial and electric utility, account for most of the recent decline in natural gas use.

Natural gas expenditures in the state totaled over \$419 million in 1992, a marked departure from the 1984 peak of \$567 million.

While a small amount of natural gas is mined in the state — slightly more than one percent of that used in a year — a sharp uptick in production occurred in 1992. Ten new natural gas wells in Cheyenne County were added to the state's total, nearly doubling the number of producing wells. This new well field reversed a four-year decline in natural gas production in the state.

"Although Nebraska is not attracting much attention these days from oil and gas explorers, there is a ray of optimism in Cheyenne County...of a major natural gas producing field. It is the biggest surge in drilling we have seen since the bloom went off the 'oil boom' in the 1960s.

"Industry observers say it has long been known that the area being developed had the potential of becoming one of the west's important gas fields."

Editorial, *Sidney Telegraph*
December 8, 1992

National Trends

Nationally, the picture was markedly different. Demand for natural gas has increased over the past 12 years while prices have remained stable. As a result, drilling has fallen from 1981 levels, marking a decline in proven natural gas reserves.

All these factors culminated on September 19, doubling spot market natural gas prices in less than six months — reaching a high of \$2.328 per thousand cubic feet.

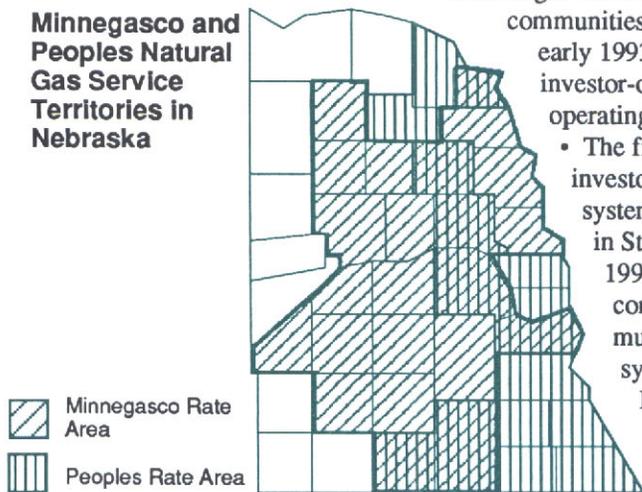
Some experts said they expected long-term trends to stabilize the market in the future.

State Trends

Developments at the state level, in some ways paralleled national trends:

- Concentration of the retail natural gas industry continued in the state when Minnegasco sold its 63-city system to Peoples Natural Gas Company, which provides natural gas service in 50 Nebraska communities. The purchase, finalized in early 1993, made Peoples the largest investor-owned natural gas retailer operating in the state.

Minnegasco and Peoples Natural Gas Service Territories in Nebraska



Source: Nebraska Energy Office

Figure 17

• The first forced takeover of an investor-owned retail natural gas system in 31 years was completed in Stuart in September 1992. In 1990, 90 percent of the community voted to municipalize the natural gas system owned and operated by KN Energy. Over the next 2 1/2 years, negotiations and court action delayed municipal ownership.

- Municipalization of natural gas systems votes were held in two towns, Wahoo and Wood River, in November 1992. The issue failed in both towns.

Petroleum Production, Nebraska, 1960-1992

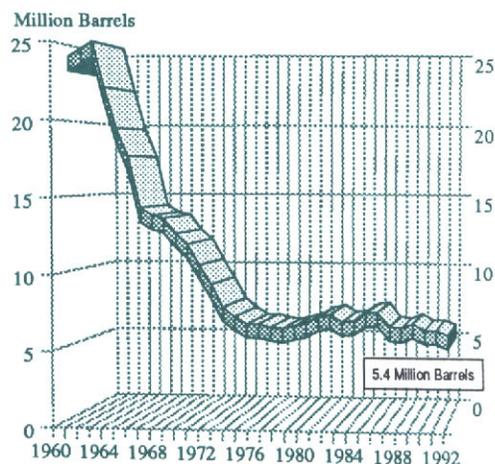


Figure 18

Sources: *Basic Petroleum Data Book, Petroleum Industry Statistics*. American Petroleum Institute, Washington, D.C. May 1992. *Nebraska Oil Activity Summary, Annual Report*. Nebraska Oil and Gas Conservation Commission, Sidney, Nebraska.

since 1961. Domestic oil drilling wasn't any better — fewer rigs were at work in 1992 than since record keeping began, 50 years ago. Presently, about two-thirds of oil exploration and development dollars are spent in foreign countries.

Throughout 1992 and 1993, the country debated taxes — gas, broad-based and other types, settling on an increase in the gasoline tax — to about 19 cents per gallon. All states impose taxes on gasoline as well. Nebraska generally ranks among the five highest state-levied gasoline taxes in the country. Comparatively, America taxes gasoline less than any other country in the world — about 34 cents per gallon on average (including federal and state taxes). Italy has one of the highest gasoline taxes at \$3.56 per gallon — more than ten times America's tax.

Other Highlights

- Oil tanker spills grabbed the headlines in 1992 and 1993. Three different spills — off the Spanish coast, the Shetland Islands and the coast of Indonesia — spewed over 45 million gallons of oil into the ocean and on shorelines. Collectively, these three spills easily dwarfed the Exxon Valdez spill of 11 million gallons. However,

Petroleum

State Production and Consumption

Nebraska, like America, is addicted to oil. The U.S. now imports roughly half of the petroleum it needs. Nebraska, on the other hand, is even more dependent — only about one-sixth of the petroleum used each year is pumped from the state's aging and increasingly less productive oil fields. The remaining 84 percent comes from other states and countries. Fewer than 5.5 million barrels of oil were produced in Nebraska in 1992, about one-fourth of the peak reached in 1962.

One optimistic note was struck when the U.S. Department of Energy announced in April 1993, that Beard Oil of McCook had been selected to receive up to \$1.5 million to test new methods for extracting hard-to-get oil in aging fields like those found in the state.

Petroleum expenditures in the state have stabilized over the past several years, remaining at just over half of the \$3 billion spent every year for energy. Generally, over three-quarters of all petroleum is used for transportation purposes.

National Trends

The American Petroleum Institute said in July 1992, that oil imports were at their highest level since 1978 and domestic oil production had plunged to levels not seen

the largest spill on record, 250 million gallons, was a result of Iraq's destruction of the main Kuwaiti oil terminal.

Alternate Energy

Recent efforts to develop clean, abundant and affordable alternates to fossil fuels have been aided by increasingly stringent environmental laws. A parallel factor affecting the growing viability of alternates is technological progress. An update on the five most viable alternate or renewable energy sources — biomass, geothermal, hydropower, solar and wind appears in this section.

Biomass

According to the National Renewable Energy Laboratory, American agriculture may be the great untapped energy resource of tomorrow. Farmers may soon move from producing food and feed to growing energy crops. These types of energy crops are called biomass — generally grasses and trees — and are capable of being converted into clean-burning fuels and electricity. Technological progress has been made in this area. When the laboratory started developing this conversion process, every gallon of ethanol produced cost \$3.60. Today, the cost is only \$1.27 per gallon. In just seven years, the cost per gallon is expected to be cut in half.

Biomass sources don't have to be designer trees or grasses, but could be common corn stubble. Under a federal grant, the University of Nebraska examined a 25-county area near Kearney for its corn stubble-to-ethanol potential. An earlier 15-state study identified this area of Nebraska as having the best potential in this portion of the country. The University study found enough crop wastes to produce over 200 million gallons of ethanol annually. The University study, which includes other issues such as storage, transportation and costs, should be completed in 1994.

Geothermal

The geothermal energy projects of today are not at all like those envisioned a decade ago. In 1982, the state established a \$100,000 annual grant program for geothermal projects since studies indicated adequate resources of this type existed in the western two-thirds of the state. Only one grant was ever made. Ultimately, the funds were returned to the state since the estimated \$800,000-\$1,000,000 in additional funding needed for the project could not be secured.

Today, geothermal projects are much smaller in scale and cost — ranging from schools to businesses to homes. The largest project in the state using geothermal resources is the school in Amherst. Primarily, the projects involve utilizing vertical tubing extending 200 feet into the ground and coupling the tubing to heat pumps. While the initial costs are higher than conventional heating and cooling systems, the dollar and energy savings are considerably higher.

Hydropower

Hydropower in the state comes from two sources — 11 hydroelectric dams in or on the border of the state and power supplied to Nebraska by Western Area Power Administration. The Power Administration transfers hydroelectric power produced in western states to state agencies, municipalities and public power districts. Taken together, all hydroelectric sources met over 15 percent of the state's electricity needs in 1992. Nationally, about eight to ten percent of the country's electricity needs are met through hydropower annually.

At this time, it is not anticipated that other sources having hydroelectric potential will be developed in the state. In fact, it is likely that these resources will decline with time.

Solar

While solar or photovoltaic technology continues to improve, it remains economically viable only in certain situations. One of those situations is using solar power to meet electrical needs where the cost of running transmission lines is prohibitive.

Several rural electricians in the state are encouraging or subsidizing the use of solar powered livestock water pumps and other systems in remote areas where the cost of installing power lines is not justified.

Wind

Electrical generation from wind in the state relies primarily on windmills from earlier times and is used primarily for irrigation pumping. However, the winds of change are blowing.

Wind generation technology shows signs of realizing its early promises of the 1980s. First generation wind generators could produce no power unless wind speeds reached 14 miles per hour and would shut down at 45 miles per hour. The latest wind generators are capable of operating in winds of only nine miles per hour and work up to 60 miles per hour.

Regionally, Iowa appears to be in the forefront of utilizing the latest wind technology. Construction started on Iowa's first commercial wind farm in 1992 in the northwest part of the state near Sibley. Other wind projects included power for a radio station and a school near Spirit Lake.

In early 1993, the Union of Concerned Scientists released a wind and biomass assessment of the country indicating that given new wind technology, one-quarter of the state's land had sufficient wind resources to generate 100 times the amount of electricity used each year by Nebraskans.

The Energy Office continues to seek wind generation projects for demonstration or commercial uses.

Fiscal and Organizational Notes

Financial Review

The accompanying figures illustrate the Energy Office's budget from July 1, 1992, through June 30, 1993, which amounted to \$10,251,088 and includes federal funds, state funds and petroleum violation escrow or oil overcharge funds.

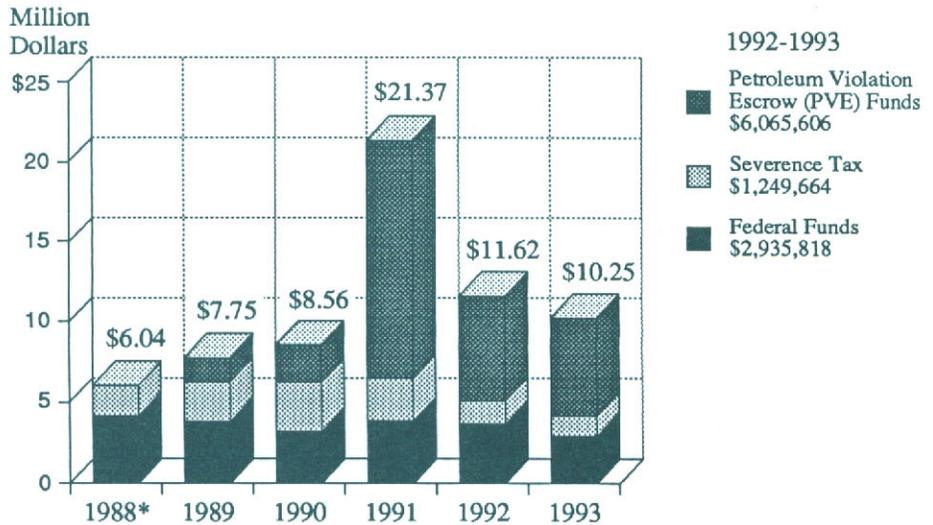
Approximately 59 percent of the agency's funding came from petroleum violation escrow funds, a marginal increase from the previous year. Additionally, federal funds and state severance taxes decreased for the second year in a row. State funds came almost exclusively from severance taxes. No General Funds have been appropriated to the Energy Office since 1983.

Over 55 percent of all expenditures were used for petroleum violation escrow aid and contracted projects such as the Energy Management Circuit Rider and others listed in the Oil Overcharge Funds section starting on page 3. Over 81 percent of all federal funds were expended as aid in the Low-Income Weatherization Assistance Program. In excess of 56 percent of all state severance taxes were spent as aid under the School Weatherization Program.

A full accounting of the Energy Office funds appears in figures 19 and 20. Overall, the agency spent state, federal and petroleum violation escrow funds in eight different ways. Aid, which makes up the largest portion of the agency's expenditures, consists of money from the three sources which is received and passed on to delegate agencies or directly to beneficiaries such as schools, hospitals, small businesses, local governments and individuals. Money spent for operations pays travel, telephone, computers, salaries and other office expenses.

A more detailed accounting of the petroleum violation escrow funds appears on pages 4 and 5.

Where The Money Came From, 1988-1993

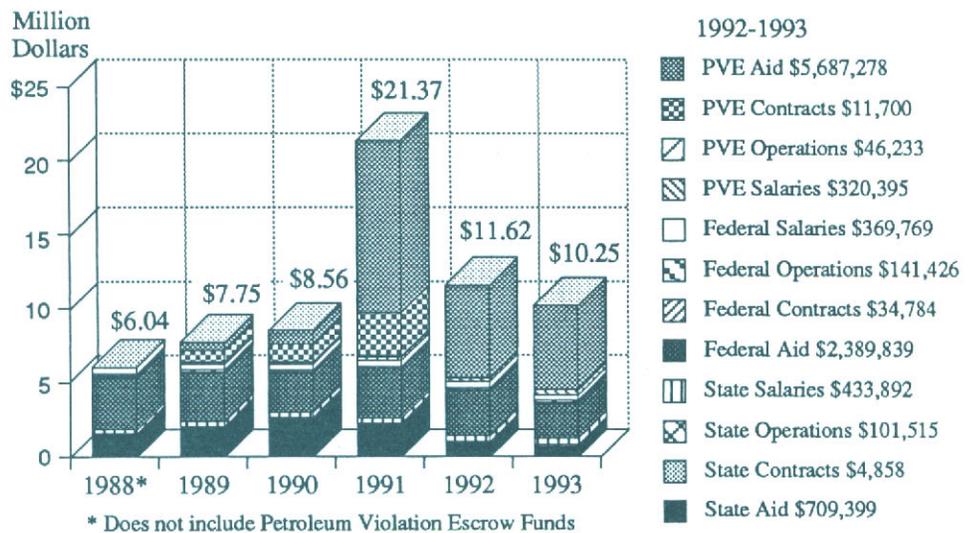


* Does not include Petroleum Violation Escrow funds

Source: Nebraska Energy Office

Figure 19

Where The Money Went, 1988-1993



* Does not include Petroleum Violation Escrow Funds

Source: Nebraska Energy Office

Figure 20

Organization

The Energy Office was created in November 1973 as the Fuel Allocations Office, a division of the Nebraska Department of Revenue. The agency had independent status from 1977 to January 1987, when it became by Executive Order of the Governor, a division of the Governor's Policy Research Office.

The organizational chart below shows the functional structure of the Energy Office during the reporting period.

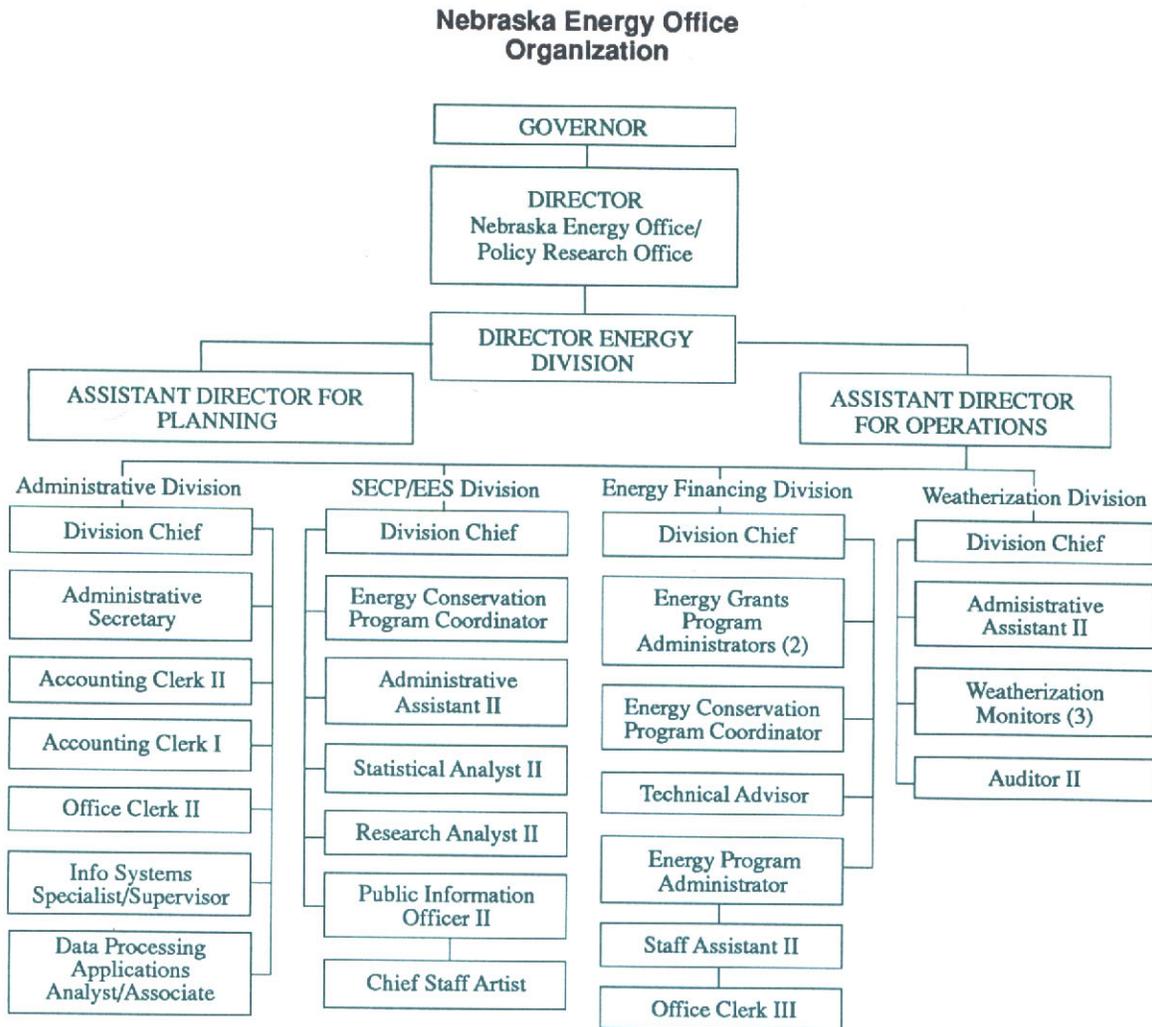


Figure 21

The Energy Office logo found on the back cover is from the "Genius of Creative Energy" floor mosaic by Hildreth Meiere located between the vestibule and foyer inside the north door of the State Capitol in Lincoln.

This *Annual Report* is for the period July 1, 1992, through June 30, 1993, except where noted.

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Copies of *Nebraska Energy Statistics, 1960-1992* are also available from the Energy Office

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