2010 ANNUAL REPORT

Nebraska Energy Office

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This *Annual Report* is organized into three sections:

- Federal and state recurring programs, including Oil Overcharge funds
- *American Recovery and Reinvestment Act of 2009* programs
- Energy Trends and Needs

American Recovery and Reinvestment Act-funded activities are reported separately from annual federally-funded programs — some of which have the same program name — because they are reported, monitored, and subject to compliance provisions in the *Davis-Bacon Act, Buy American Act, National Environmental Policy Act of 1969*, and *National Historical Preservation Act* and the funds cannot be co-mingled with any other programs.

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The vision of the Nebraska Energy Office is for Nebraskans to have reliable and affordable sources of energy that support a cleaner environment and a more secure energy future.

The mission of the Nebraska Energy Office is to promote the efficient, economic and environmentally responsible use of energy. The agency's principles are that we value teamwork, are customer oriented, and are committed to excellence, creativity and innovation.

In support of the agency mission, the following goals have been adopted:

❖ Maximize the efficient use of traditional energy resources.

❖ Encourage Nebraskans to adopt energy efficiency through low cost financing.

❖ Encourage the development and use of renewable energy resources.

❖ Advise the executive and legislative branches of state government on energy policy and security.

T H E P R O G R A M S

The Nebraska Energy Office operates several different annually-funded federal and state programs. These programs are:

- ❖ Low-income Weatherization Assistance Program
- ❖ State Energy Program and special projects
- ❖ Oil overcharge-funded activities, primarily Dollar and Energy Saving Loans
- ❖ Statutorily-required state activities such as data collection and reporting.

Low Income Weatherization Assistance Program

The Energy Office administers the federally-funded program for weatherizing homes to save energy and money for those with limited incomes. The agency is responsible for inspecting the homes that are weatherized and for monitoring the sub-grantees, primarily community action agencies, that are responsible for the home weatherization improvements. Community action agency staff or private contractors are responsible for completing the work on the homes. The Energy Office staff inspects a minimum of 20 percent of the newly weatherized homes to ensure the quality of work performed.

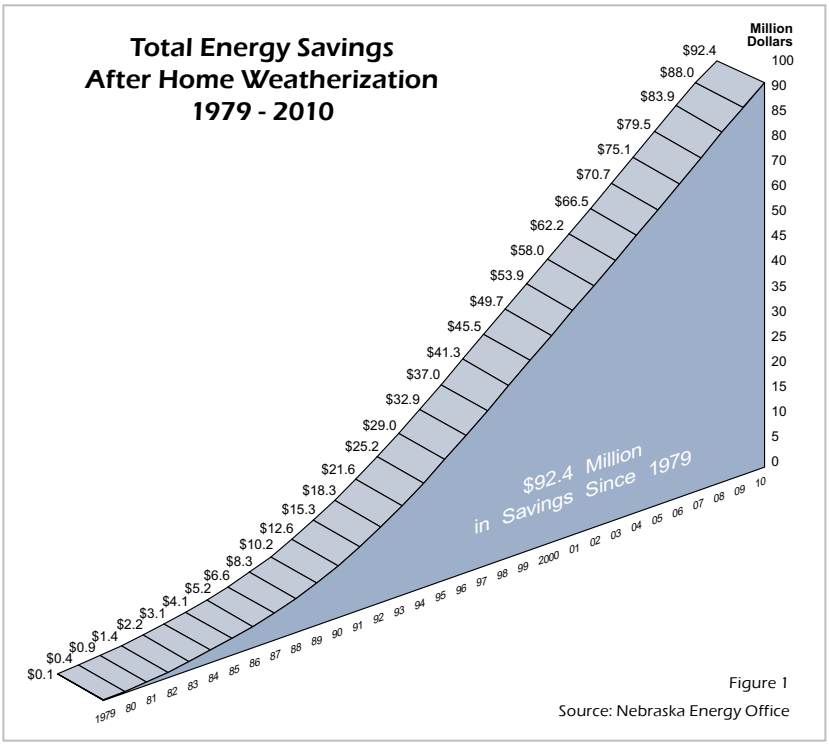


Figure 1

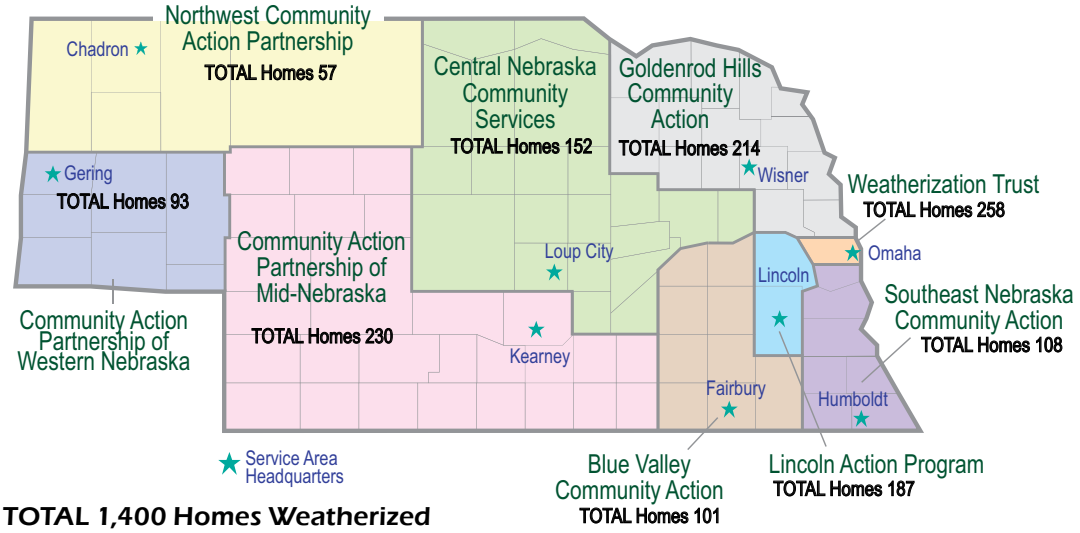
Source: Nebraska Energy Office

This program received funding from two sources: $3,862,690 from the U.S. Department of Energy's Low Income Weatherization Assistance Program and $5,057,492 from the Low-Income Home Energy Assistance Program — a total of $8,920,182. Annually, the Nebraska Department of Health and Human Services transfers a portion of the funds received to pay utility bills to the agency to weatherize homes so that the need for utility bill paying assistance is reduced or eliminated.

In 2009-2010, 1,400 homes were weatherized with the federal funds.

LOW INCOME WEATHERIZATION ASSISTANCE

Total Nebraska Homes Weatherized by Type and by Area Provider
July 2009 - June 2010



TOTAL 1,400 Homes Weatherized

Source: Nebraska Energy Office

Figure 2

"Energy savings resulting from the energy efficiency improvements made typically last 20 years or longer. Conservatively, estimated savings for the 30 years total $92.4 million."

A contractor installs insulation during weatherization work.

The types of improvements may vary based on an analysis of the home and averages between $4,000 and $6,400 per home, excluding the cost of health and safety improvements such as furnace repairs. The kinds of improvements made to homes vary by the home type: frame, mobile or multi-family. In a frame home, the most common improvements generally are: adding insulation to attics and walls, insulating box sill areas and crawl spaces, replacing or repairing the furnace, and replacing a primary door. In mobile homes, the most frequent improvements are: replacing a primary door, replacing a primary window, replacing or repairing the furnace, insulating the underbelly and replacing or repairing the water heater. In multi-family homes, the two most common improvements are: adding insulation to the attic and replacing a primary window. Most homes that are weatherized also receive low-cost improvements such as caulking, weatherstripping, pipe wrap and, in some instances, water heater jackets.

Since the Weatherization Assistance Program began in 1979, $118.39 million has been spent to make energy efficiency improvements in 63,769 homes. In 2010, maximum household income levels were revised to 200 percent of the federal poverty guidelines, making free home weatherization available to thousands more Nebraskans than last year. As illustrated in Figure 2, 1,400 homes were weatherized during the reporting period.

Energy savings resulting from the energy efficiency improvements made typically last 20 years or longer. Conservatively, estimated savings for the 30 years total $92.4 million. About $4.4 million in new savings accrue annually as a result of the improvements made as illustrated in Figure 1.

Oil Overcharge Funds

Nebraska Energy Settlement Fund
A Summary of Exxon, Stripper Well and Diamond Shamrock
Oil Overcharge Funds as of June 30, 2010

	Exxon	Stripper Well	Diamond Shamrock	Total
Funds Received	$15,504,944	$15,674,042	$359,172	$31,538,158
Interest Earned and Miscellaneous Income	$11,601,086	$9,741,976	$251,611	$21,594,673
Total	$27,106,030	$25,416,018	$610,783	$53,132,831
Funds Budgeted	$27,106,030	$25,027,200	$610,783	$52,744,013
Low Income Designated	$0	$140,054	$0	$140,054
Uncommitted Balance	$0	$248,764	$0	$248,764

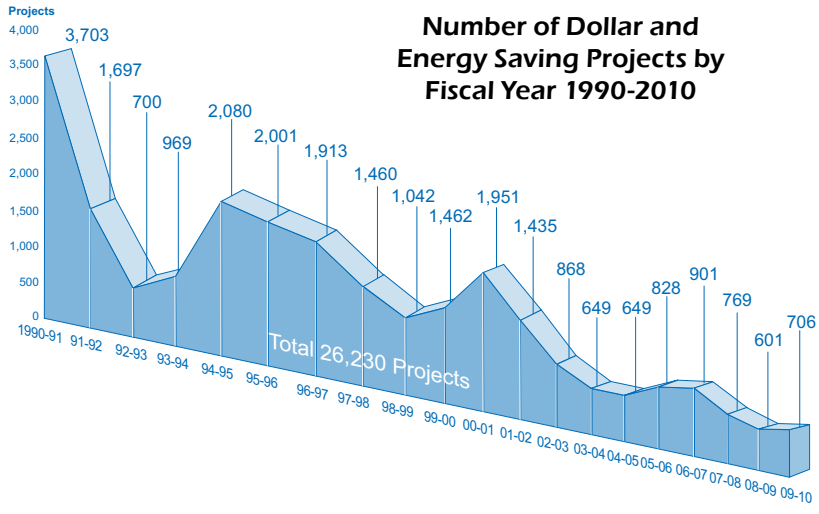
Source: Nebraska Energy Office

Figure 3

Beginning in 1982, Nebraska received oil overcharge – or petroleum violation escrow – funds as a result of several court actions against oil companies that overcharged their customers during the period of federal price controls from 1973 to 1981. Since direct restitution to injured consumers was not practical, the courts ordered the money be distributed to the states and used, within parameters established by the courts and a federal regulator, to fund energy assistance and efficiency programs. The final petroleum violation escrow payment from the U.S. Department of Energy to the Energy Office was received September 7, 2007.

"The final petroleum violation escrow payment from the U.S. Department of Energy to the Energy Office was received September 7, 2007."

The Legislature requires the Energy Office to annually report on the disposition of these funds. A summary of the Nebraska Energy Settlement Fund activities and expenditures is detailed in this section and in Figure 3.



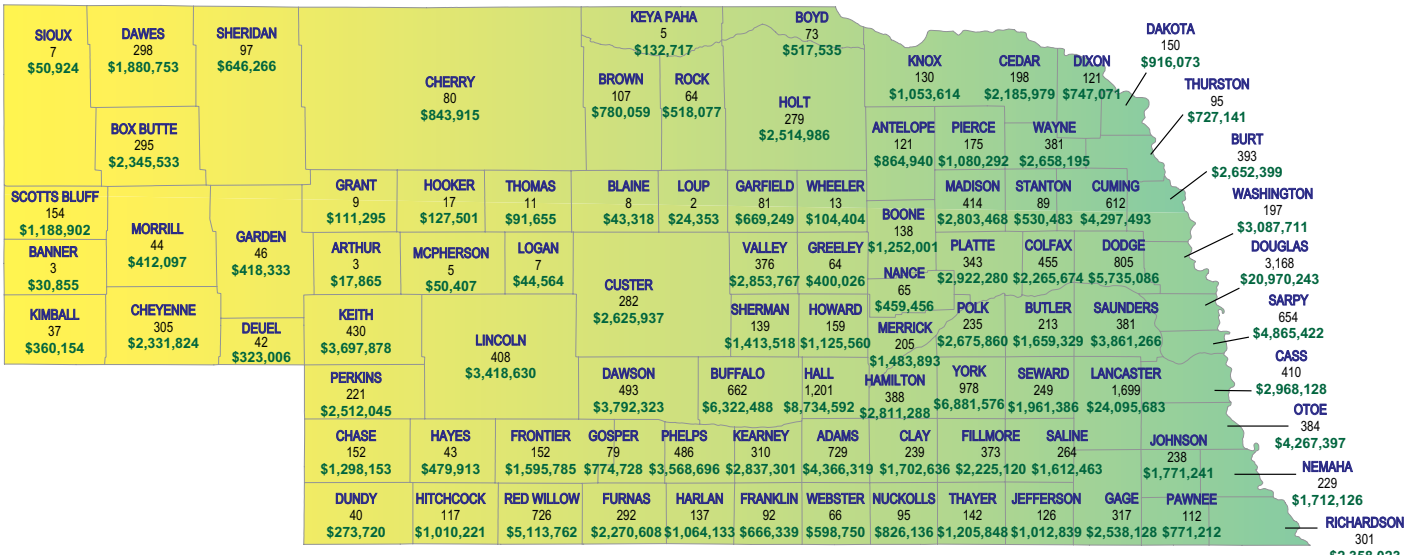
Source: Nebraska Energy Office

Figure 4

Dollar and Energy Saving Loans

The Dollar and Energy Saving Loan program was capitalized with oil overcharge funds and is re-charged with loan repayments from borrowers. In 2009, $11 million in *American Recovery and Reinvestment Act* funds were

**Dollar and Energy Saving Loan Projects,
Number of Projects by County and Total
Dollar Amount of Projects as of June 30, 2010**



Source: Nebraska Energy Office

Figure 5

also added to the loan pool. These low-interest loans are provided to Nebraskans to finance home, building, transportation and system improvements that reduce energy use.

In March 2009, Nebraska Public Power District added $500,000 — and provided a second $500,000 in January 2010 — to the agency's Dollar and Energy Saving Loan program to finance 2.5 percent loans for air source and ground water or ground coupled heat pumps, qualifying thermostats and back-up natural gas or propane furnaces with a 90 AFUE rating or higher for the utility's retail and wholesale customers. More information about these loans may be found at the Energy Office's website (www.neo.ne.gov/loan/loans2.5.htm).

Nebraskans apply for Dollar and Energy Saving Loans through their local lenders. Presently, there are 292 Nebraska banks, savings and loans and credit unions at 894 locations that are eligible to provide 5 percent or less interest rate financing for up to ten years on loans for energy efficiency improvements, waste minimization and alternative fuel projects.

In October 2009, the interest rate was lowered from 5 percent to 2.5 percent allowing lenders the option of offering the lower interest rate.

From 1990 to June 30, 2010, 26,230 projects totaling more than $229.861 million have been financed with low-interest loans from the Energy Office and participating lenders and funds from borrowers for non-eligible improvements. More than $100.757 million of the $229.861 million has come from the agency's revolving loan fund. The state's participating lenders provided more than $101.975 million.

OIL OVERCHARGE FUNDS

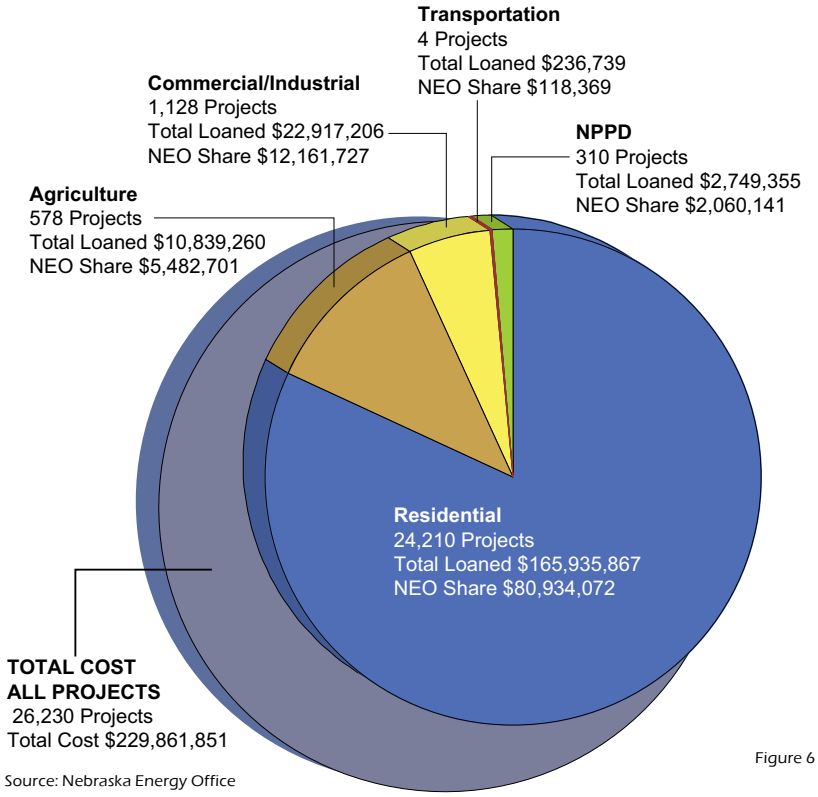
The balance, more than $27.129 million, was spent by the borrowers on non-eligible related improvements. These totals do not include loans financed with *American Recovery and Reinvestment Act* funds.

Loans have financed projects in all of the state's 93 counties as illustrated in Figure 5. Douglas County with 3,149 projects totaling $23.24 million tops the list with the most projects. Lancaster County co-anchors the top spot with the most dollars invested at $24.095 million, albeit on fewer projects — only 1,699. Looking at a regional perspective, the Third Congressional District leads with 12,678 loans; First Congressional District with 9,110 loans and the Second Congressional District with 3,936 loans.

During this reporting period, 706 new projects were financed. The number of energy efficiency projects financed since 1990 are shown in Figure 4.

Figure 6 quantifies loans in five different areas: residential, commercial/industrial, agriculture, transportation and Nebraska Public Power District. The number of projects by category and the total amount of the loans in each category also appear in Figure 6. Several of the largest categories are detailed as follows:

Oil Overcharge Funds Invested In Types of Dollar and Energy Saving Loan Projects as of June 30, 2010



Source: Nebraska Energy Office

Figure 6

Residential

More than 92.29 percent of all the energy efficiency projects financed with loans from the agency are in the homes of Nebraskans. More than 72.18 percent of funds from all sources – $165.93 million – has been used to finance residential energy saving improvements such as replacement of inefficient furnaces, air conditioners and heat pumps, replacement of windows and doors and insulation of walls and

"More than 92.29 percent of all the energy efficiency projects financed with loans from the agency are in the homes of Nebraskans."

The home of Joe Methe in Kearney was one of the first energy efficient homes completed using the mortgage loan program.

ceilings. Since 1990, 24,210 residential energy efficiency projects have been undertaken by Nebraskans.

Commercial/Industrial

More than 9.96 percent of funds from all sources – $22.917 million – has been used to make building and system improvements in 1,128 projects since 1990, ranking second-highest among all loan areas. Typical improvements in this category include replacement of heating and cooling equipment as well as installation of insulation and replacement of doors and windows.

Agriculture

Improvements in agricultural equipment and systems rank third in the use of low-interest financing. More than 4.71 percent of all improvement funding – $10.83 million – has been used to finance projects such as low-pressure irrigation systems, replacement of irrigation pumps and motors, replacement of grain dryers and well modifications. Since 1990, 578 projects – 2.20 percent of all projects – have been financed with $5.48 million from the Energy Office, $5.35 million from participating lenders and $380,844 from borrowers.

State Energy Program

In 2009-2010, Nebraska received $241,000 for this federally-funded effort and supplied $48,200 in state funds from oil and natural gas severance taxes, as required matching funds. These funds are used to provide energy efficiency services to consumers and other small energy users, and include the publication of this Annual Report and the Nebraska Energy Quarterly as well as maintenance of the state's energy database (www.neo.ne.gov/statshtml/index3c.html) and agency website (www.neo.ne.gov).

These funds also provide program support for a wide array of activities that include energy shortage tracking and management and emergency preparedness, education and information, Dollar and Energy Saving Loan operations, support of renewable energy activities and residential and commercial building energy efficiency.

The Energy Office also reviews state-financed affordable housing plans to ensure compliance with the Nebraska Energy Code. Periodically, the agency performs on-site inspections of completed homes, to verify compliance as a stipulation of the funding source.

Other Projects

A number of activities are grouped under the State Energy Program, because the federal funds come through that U.S. Department of Energy program. The activities that occurred under each special project grant during the reporting period are documented in this section.

30% Better – Nebraska's Advanced Commercial Building Energy Code

In 2008, the Energy Office was awarded a $303,065 State Energy Program Special Projects grant to work to establish a commercial building code that is 30 percent beyond the building and lighting requirements set forth in ASHRAE 90.1-2004 and 2006 International Energy Conservation Code and a code that meets the mechanical system requirements of the Energy Star® program or the consortium for energy Efficiency's High-Efficiency Commercial Air Conditioning and Heat Pump Initiatives. Nebraska will not develop its own commercial building energy code, but will expand on existing standards and energy efficiency programs with the intent on becoming an early adopter and implementer of the advanced building proposals and design guides currently being considered by the ASHRAE and International Code Council.

The project has three primary tasks: 1) evaluate the components that would comprise a commercial code 30 percent above current standards, 2) work to adopt such a commercial building energy code that would accomplish that goal, and 3) schedule and host a regional conference that demonstrate how other states and localities can achieve similar success with upgraded codes and enhanced enforcement techniques.

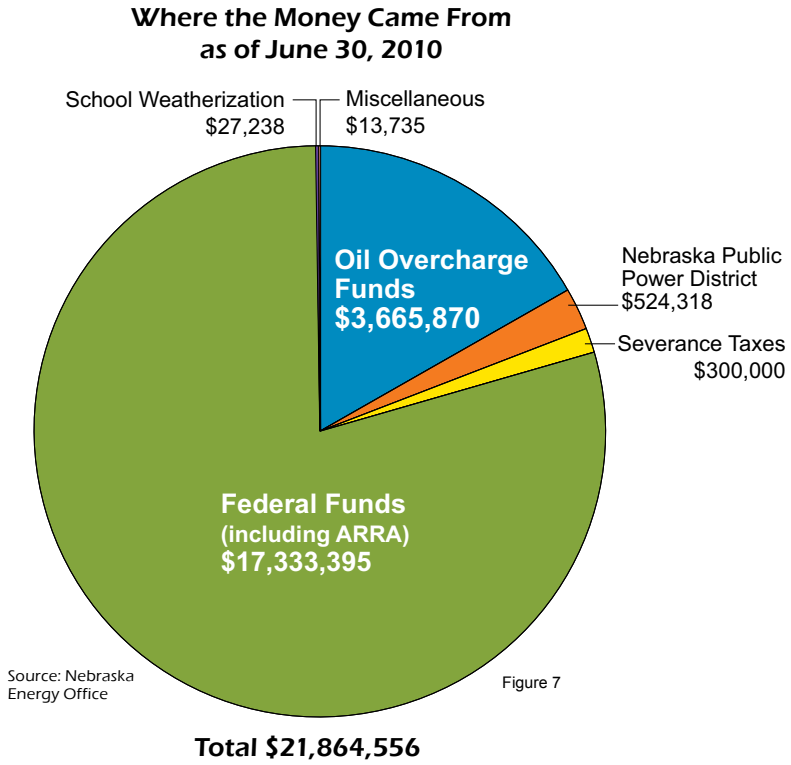
In November 2009, the Energy Office released Nebraska-specific Advanced Commercial Building Energy Code Study (on the web at www.neo.ne.gov/home_const/iecc/documents/NebraskaEnergyStudyFinalReport.pdf) that met the objectives of the first task.

The work on this grant continued throughout the reporting period and will likely conclude in 2012.

State Heating Oil and Propane Program

During the reporting period, the Energy Office began its ninth year of participation in the U.S. Department of Energy's State Heating Oil and Propane Program. This activity collects price information from a sampling of Nebraska suppliers selected by the Energy Information Administration from October through March which, in turn, is shared with the Energy Information Administration and then posted on the agency's website (www.neo.ne.gov/statshtml/86.html and www.neo.ne.gov/statshtml/87.html).

U.S. Department of Energy provided a grant of $6,000 for this activity. By the end of the reporting period, all funds were expended and the project was completed.



Financial Activity

In 2009-2010, the expenditures for the Nebraska Energy Office totaled $21,864,556 which includes monies from federal, state, oil overcharge trust and miscellaneous fund-

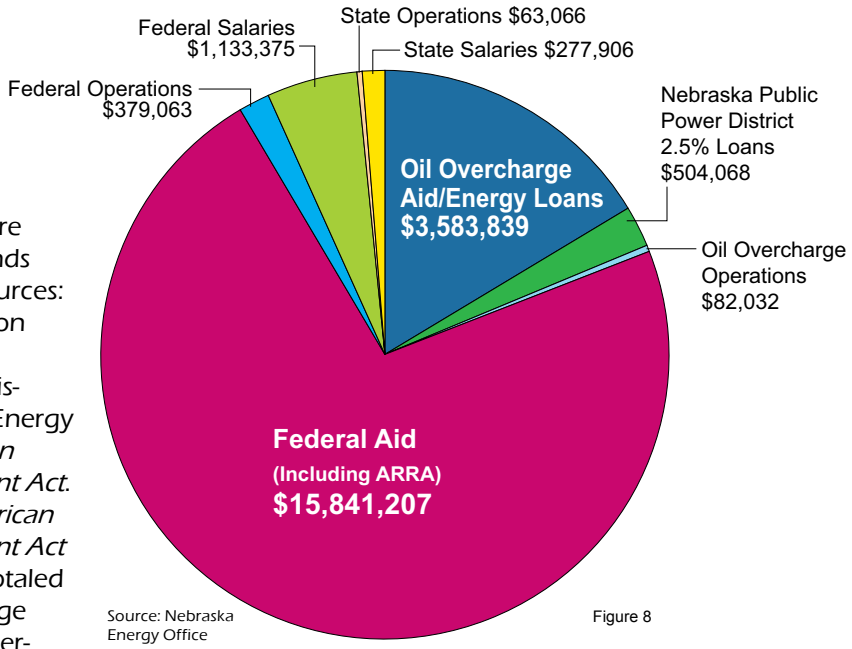
ing sources. Funding increased by $10.546 million from the previous fiscal year, primarily because of receipt of *American Recovery and Reinvestment Act* funds.

The sources of funding for the agency are illustrated in Figure 7. More than 79 percent of the funds came from four federal sources: Low-Income Weatherization Assistance Program, Low-Income Home Energy Assistance Program, the State Energy Program and the *American Recovery and Reinvestment Act*. As of June 30, 2010, *American Recovery and Reinvestment Act* funds from all programs totaled $7,938,404. Oil Overcharge trust funds declined as a percentage from 36.4 percent in 2009, to 16.7 percent in 2010.

More than 72.4 percent of all agency funds were spent as federal aid under the Low-Income Weatherization Assistance Program and Dollar and Energy Saving Loans and State Energy Program using *Recovery Act* funds. Federal aid expenditures were only 53 percent in 2009. Oil overcharge fund activity during the reporting period is located on page 3 of this report. *American Recovery and Reinvestment Act* fund activity during the reporting period begins on page 9.

A complete listing of expenditures by category is illustrated in Figure 8.

Where the Money Went as of June 30, 2010



Source: Nebraska Energy Office

Figure 8

Total $21,864,556

AMERICAN REINVESTMENT AND RECOVERY ACT

In 2009, Congress passed the *American Recovery and Reinvestment Act* providing the largest single increase for energy efficiency programs. Funding under *the Recovery Act* was directed to five programs totalling $84,222,593. Below is a breakdown of funds in the five programs:

- Low Income Weatherization Assistance Program $41,644,458
- State Energy Program $30,910,000
- Energy Efficiency and Conservation Block Grants $ 9,593,500
- State Energy Efficiency Appliance Rebate Program $ 1,711,000
- Energy Assurance Capabilities and Planning for Smart Grid $ 363,635

In November 2010, another *American Recovery and Reinvestment Act* grant was received:

- Provide code training to professionals, builders and code officials $ 276,417

The activities in each program from receipt of the grant through December 31, 2010, (except where noted otherwise) are detailed below and on subsequent pages. The U.S. Department of Energy has oversight of the funds and issued regulations and guidelines for the states to follow.

Low Income Weatherization Assistance Program

The Low Income Weatherization Assistance Program, as a part of the *Recovery Act,* received $41.6 million over 36 months. The *Recovery Act* funding is to scale-up existing weatherization efforts in the state, create jobs, reduce carbon emissions and save money for low-income families

Subgrantee Allocations May 19, 2009			Subgrantee Progress as of December 31, 2010	
Subgrantee	Contract Amount	Minimum Number of Homes to be Weatherized	Number of Homes Weatherized	Dollars Spent*
Blue Valley Community Action	$2,155,007	249	101	$795,896.04
Central Nebraska Community Services	$4,537,623	536	200	$1,338,230.11
Goldenrod Hills Community Action	$4,531,004	535	193	$965,225.81
Community Action Partnership of Lancaster and Saunders	$4,378,781	517	98	$755,394.55
Community Action Partnership of Mid Nebraska	$5,077,021	601	281	$1,709,492.64
Northwest Community Action Partnership	$1,254,907	140	74	$279,057.59
Community Action Partnership of Western Nebraska	$1,777,758	203	114	$752,577.32
Southeast Nebraska Community Action Council	$2,082,204	240	89	$562,622.43
Weatherization Trust Inc.	$8,197,586	979	889	$4,718,551.46
Energy Office Administration	$1,233,141			$114,917.36
Training, Evaluation and Technical Assistance	$4,567,183			$209,725.55
• Weatherization Training Development and Delivery, Metropolitan Community College $565,626 plus $36,000 cost share	$565,626			
• Weatherization Training Development and Delivery, Central Community College $787,148	$787,148			
• Evaluation of Weatherization Assistance Program, University of Nebraska-Lincoln $499,469	$499,469			
TOTAL	$41,644,458	4,000	2,039	$12,201,690.86

** Weatherization providers submit requests for reimbursement for the previous month's production. Reimbursement requests are reviewed by agency staff for program compliance and allowable costs for materials and equipment in each unit.*

by improving energy efficiencies. Nebraska's plan is to weatherize 4,000 homes across the state. Households with annual income at or below 200 percent of the federal the poverty level are eligible for assistance.

In May 2009, the state submitted a plan for use of the Weatherization Assistance Program funds that projects the estimated number of houses that will receive energy efficiency improvements and the amount of funding each service provider will receive. A summary of that plan is available on the agency website (www.neo.ne.gov/ARRA/documents/ARRAsubgrantee2.pdf).

The table on page 9 depicts the subgrantees' progress as of December 31, 2010. Updated data appears monthly on the agency website showing total production and funds expended by each provider.

State Energy Program

Under the *Recovery Act*, Nebraska received $30,910,000 in State Energy Program funds to be spent from 2009 through March 2012. The following summary encompasses the elements of the State Energy Program plan submitted to the U.S. Department of Energy for review on May 11, 2009 and approved June 10, 2009:

Dollar and Energy Saving Loans

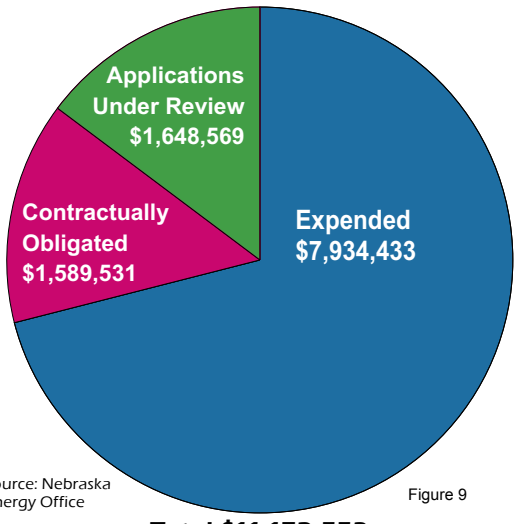
Recovery Act Funds: $11,000,000 Leveraged Funds: $4,000,000

The Nebraska Energy Office operates the Dollar and Energy Saving Loan program, a revolving loan program for Nebraskans to make energy efficient improvements in homes, farms, ranches, business, industrial, alternative fuel vehicles, schools and others. The loan program is operated with the state's financial institutions. The Energy Office invests in these loans by purchasing 50 to 75 percent of the loan at zero interest, which lowers the interest rate to the borrower to 5 to 2.5 percent, respectively, and leverages lender funds of 25 to 50 percent of each loan. Loans are available at more than 890 lending sites across the state.

With $11 million in *Recovery Act* funds, the Energy Office raised the loan pool to $36 million. The interest rate was lowered to 2.5 percent and the loan limit on a case-by-case basis has been lifted from the $750,000 cap.

As of January 31, 2011, $7,934,433 has been expended for loans and $1,589,531 have been obligated for loans. In addition, $1,639,589 in loan applications is currently under review by agency staff. Some of the loans under review may be financed with Oil Overcharge funds or with *Recovery Act* loan repayments since the total, $11,172,553, exceeds the allocation for this activity.

Dollar and Energy Saving Loans



Source: Nebraska Energy Office

Figure 9

Total $11,172,553

AMERICAN REINVESTMENT AND RECOVERY ACT

Advanced Renewable Energy Projects

Recovery Act Funds: $5,000,000 Leveraged Funds: $750,000

The objectives of the Advanced Renewable Energy Project are to:

- Increase renewable energy generation in Nebraska
- Demonstrate the use of renewable energy technology in new ways
- Deploy cutting edge renewable technologies
- Generate energy from renewable resources on or before March 2012
- Avoid greenhouse gas emissions
- Leverage funds and create jobs.

A solicitation for proposals for Advanced Renewable Energy Projects was issued on July 24, 2009, and Letters of Intent were due on September 3, 2009. By the deadline, 112 applicants listed projects totaling more than $135 million. On November 3, 2009, formal project applications were due. At that time, 49 of the original 112 submitted detailed information about projects totaling more than $41.06 million. Under the solicitation's guidelines, all proposed projects were reviewed for State Energy Program compliance and suitability under the *National Environmental Policy Act* by the U.S. Department of Energy. The projects listed below were selected for funding after technical review and federal approval was received.

Advanced Renewable Energy Project Grants						
Applicant	Renewable Energy Type	Project Location	Contract Amount	Match Amount	Total Project Cost	Funds Expended as of February 10, 2011*
AGP Corn Processing, Inc.	Biomass	Hastings/Adams County	$275,000	$50,000	$325,000	$247,500.00
Allen Fleischman	Solar	Tekamah/Washington County	$106,250	$17,000	$123,250	$95,625.00
Bluestem LLC	Wind	Springview/Platte County	$2,300,000	$4,338,000	$6,638,000	$1,545,636.23
David DeBoer	Solar	Ft. Calhoun/Washington County	$11,223	$1,981	$13,204	$5,469.74
Design Plastics, Inc.	Wind	Omaha - Fremont/Douglas - Dodge Counties	$148,000	$26,800	$174,800	$4,071.21
Ho-Chunk CDC	Solar	Winnebago/Thurston County	$249,780	$40,000	$289,780	$171,230.00
Morrissey Engineering	Solar	Omaha/Douglas County	$72,884	$12,862	$85,746	$65,595.60
NE Public Power District	Solar	Norfolk/Pierce County	$344,958.13	$70,654.07	$415,612.20	$344,958.13
		TOTALS	$3,508,095.13	$4,557,297.07	$8,065,392.20	$2,480,085.91

** Some of these projects are complete, but payment claims have not been submitted to the agency. Some projects are awaiting shipment of materials to begin construction. Total expenses indicated in the chart are based on a cost-reimbursement basis. For each project, five percent is withheld until all contractual obligations, including monitoring of the project by agency staff, have been completed.*

AMERICAN REINVESTMENT AND RECOVERY ACT

Renewable Energy Curriculum

Recovery Act Funds: $1,910,000

The objectives are to:

- Develop renewable energy curricula for use at Nebraska technical community colleges
- Create new jobs and increase productivity to spur economic growth and community development by providing training and instruction in renewable energy methods and technologies
- Implement renewable energy curricula that will result in increased energy generation from renewable technologies in Nebraska
- Evaluate and assess the outcomes and impact of the renewable energy climate.

Under a solicitation issued in January 2010, the six community colleges will each receive up to $318,333 to develop renewable energy curricula to train Nebraskans in renewable energy technologies. As shown in the table, five community colleges — Central, Mid-Plains, Northeast, Southeast and Western — combined their curricula efforts.

Renewable Energy Curriculum				
Eligible Entities	Contract Amount	Cost-Share and other Amount	Total Project Cost	Funds Expended as of December 31, 2010*
Central Community College	$1,591,665	(cost-share) $47,369 (other) $205,876	$1,844,910	
Mid-Plains Community College				
Northeast Community College				
Southeast Community College				
Western Community College				
Metropolitan Community College	$318,333	$76,000	$394,333	
TOTALS	$1,909,998	$329,245	$2,239,243	

** Payment for each project's costs are based on a cost-reimbursement basis and five percent is withheld until all contractual obligations, including monitoring by agency staff, have been completed.*

Building Energy Code Training and Enforcement

Recovery Act Funds: $315,000

The Energy Office will provide information on residential and commercial building energy codes, and conduct training and certification of city and county code officials and members of the construction industry.

- Update the state's building energy codes as appropriate.
- Upgrade the state's efforts on building energy code compliance and inspections.

State Building Energy Efficiency

Recovery Act Funds: $10,000,000

- $6 million will fund energy efficiency building improvements on the University of Nebraska, State and Community College campuses.
- $4 million will fund energy efficiency improvements in state government buildings under the management of the Administrative Services State Building Division.

Projects listed below and on the next page have been selected for funding and the work has commenced.

University of Nebraska Campuses					
Applicant	Project Location	Project Details	Contract Amount	Total Project Cost	Funds Expended as of December 31, 2010*
University of Nebraska Medical Center	Energy Efficient Building Retrofits	Upgrade Chilled Water and Heating, Ventilating and Cooling Systems	$860,000	$4,750,000	
University of Nebraska Lincoln	Energy Efficient Building Retrofits	Install Occupancy Sensors to Control Lights and Heating Ventilating and Cooling Systems in 12 UNL Buildings	$339,050	$686,100	
	Hamilton Hall Energy Efficient Retrofits	Replace 16 Constant-Volume Lab Hoods with Variable-Volume Hoods	$92,240	$186,900	
	Scott Engineering Center	Convert Constant-Volume Dual Duct System to Variable-Volume.	$247,910	$501,700	
	Othmer Hall	Room Occupancy Sensors and Room Controls Upgrade	$145,990	$295,800	
	Beadle Center, Bessey Hall and Home Economics Buildings	Upgrade Fluorescent Lights	$136,810	$277,300	
Nebraska College of Technical Agriculture Curtis	Biomass Boiler	Install New Biomass Boiler and Steam Lines to Campus Buildings	$400,000	$1,530,700	
University of Nebraska at Omaha	Allwine Hall. Replace Windows	Replace Windows	$308,300	$440,300	
	Eppley Administration Building	Replace Windows	$334,000	$454,000	
University of Nebraska at Kearney	Mantor Hall	Replace Windows	$216,000	$486,200	
	Randall Hall	Replace Windows	$120,001	$256,192	
	Cushing/Ryan Library	Replace Lighting in Cushing Coliseum and Ryan Library	$75,040	$95,040	
	Chilled Water Controls	Install Chilled Water Controls in Various Buildings	$282,000	$679,200	
$3,600,000 Available		TOTALS	$3,557,341	$10,639,432	

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Applicant	Project Location	Project Details	Contract Amount	Total Project Cost	Funds Expended as of December 31, 2010*
State College Campuses					
Chadron State					
Peru State					
Wayne State					
$600,000 Available; $200,000 to Each State College		TOTALS	$600,000	$600,000	
Community College Campuses					
Central Community College	Adams Building Geothermal Heat Pumps	GSHP System Will be Installed Including 21-Bores at 300 Foot Geothermal Loopfield to Serve the Heat Pump Loop	$360,000	$676,600	
Mid-Plains Community College	McDonald Belton Building	Retrofits to Increase Energy Efficiency in McDonald Belton Building at North Platte Community College	$360,000	$360,000	
Metropolitan Community College Omaha	South Campus – Mahoney Building and Ft. Omaha Campus – Building 10	Perform and Implement Comprehensive Energy Studies for Two Campus Buildings	$360,000	$360,000	
$1,800,000 Available		TOTALS	$1,080,000	$1,396,600	
State Government Buildings					
Nebraska State Patrol Norfolk	Troop B Building	Replace Heating/Cooling System With Geothermal Heat Pump and Replace Windows	$426,202	$426,202	$14,588.10
Nebraska State Patrol Grand Island	Troop C Building	Replace Heating/Cooling System With Geothermal Heat Pump and Replace Windows	$426,313	$426,313	$33,973.40
Nebraska State Patrol North Platte	Troop D Building	Replace Heating/Cooling System With Geothermal Heat Pump and Replace Windows	$547,643	$547,643	$64,395.00
Youth Rehabilitation and Treatment Center Geneva	Burroughs Cottage	Replace Heating/Cooling System With Geothermal Heat Pump	$270,437	$270,437	$22,098.60
Youth Rehabilitation and Treatment Center Geneva	Sandoz Cottage	Upgrade Heating/Cooling System With Geothermal Heat Pump Using ECO 24/7 Process	$277,635	$277,635	$73,719.76
Youth Rehabilitation and Treatment Center Geneva	Sacajawea Cottage	Replace Heating/Cooling System With Geothermal Heat Pump	$302,992	$302,992	$35,688.61
Youth Rehabilitation and Treatment Center Geneva	Central Plant	Replace Boilers	$1,490,625	$1,490,625	$95,361.30
Administrative Services, Building Division	Executive Building - Lincoln	Add Lighting Control Panels and Upgrade Light Fixtures	$71,765	$71,765	$6,932.50
Administrative Services, Building Division	State Office Building - Lincoln	Replace Heating/Cooling Equipment and Install Programmable Thermostats	$104,650	$104,650	
Administrative Services, Building Division	State Office Building - Omaha	Design of Upgraded Lighting System	$27,200	$27,200	
Administrative Services, Building Division	State Office Building - Lincoln	Add lighting Control Panels Throughout the Building	$81,736	$106,355	
$4 Million Available		TOTALS	$4,027,198	$4,051,817	$346,757.27

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AMERICAN REINVESTMENT AND RECOVERY ACT

Consumer Information on Energy Efficiency and Renewable Energy

Recovery Act funds: $585,000

Energy Detective Kits for 5th Grade Students

After a competitive solicitation, the Energy Office awarded a contract to design, produce and administer an educational based program that features a blend of innovative education, comprehensive implementation services and hands-on activities to put energy efficiency knowledge to work in the classrooms of Nebraska fifth grade students. The curriculum includes Energy Detective Kits containing high-quality efficiency devices to be installed as part of the science and math-based educational program.

Elementary students learn about energy conservation through the eyes of an "Energy Detective"

An estimated 24,000 students in the state could participate in this voluntary program. The effort is a cost-shared activity between the Energy Office and a number of electric utilities and one natural gas utility in the state and up to $377,577 has been allocated. The program began in August 2010, and concludes in the 2010-2011 school year. The program may be offered in the 2011-2012 school year should funding and student needs remain.

As of January 31, 2011, 14,911 student and teacher kits had been reserved for use and $116,892 was spent.

Wind for Schools

The Nebraska Energy Office has issued contracts using SEP *Recovery Act* funds to six public school districts in Nebraska for $5,000 each. The funds will be used to pay for part of the cost of a 2.5KWH wind turbine in conjunction with the Wind for Schools projects. A total of $50,000 is available for a total of 10 schools.

- Bancroft/Rosalie Public Schools. Contract approved December 29, 2009.
- Norris Public Schools. Contract approved December 29, 2009.
- Loup City Public Schools. Contract approved December 29, 2009.
- Papillion/LaVista South School District. Contract approved May 20, 2010.
- West Holt Public School. Contract approved January 3, 2011.
- Creighton Community Schools. Contract approved January 10, 2011.

Administration, Evaluation, Monitoring and Reporting

Recovery Act Funds: $2,100,000

The Energy Office will administer *Recovery Act* funds, monitor grants and report on required activities. The Energy Office will make on-site inspections to funded projects to document progress and compliance with federal regulations and contracts.

- The University of Nebraska-Lincoln will measure the impact of the Dollar and Energy Saving Loan Program to quantify economic impacts and energy and greenhouse gas emission savings under a $453,514 contract.

AMERICAN REINVESTMENT AND RECOVERY ACT

Energy Efficiency and Conservation Block Grants

The Energy Efficiency and Conservation Block Grant program provides funding to eligible entities that implement strategies that:

- Reduce fossil fuel emissions in a manner that is environmentally sustainable and maximizes benefits for local and regional communities
- Reduce the total energy use of eligible entities
- Improve energy efficiency in the building sector and other appropriate sectors

Under the *Recovery Act*, the Energy Office received $9,593,500. Following a plan submitted to the U.S. Department of Energy on June 19, 2009, and approved September 14, 2009, the agency on December 3, 2009, issued a request for proposals from the approximately 83 counties and 500 towns and villages in the state that did not receive a direct allocation of block grant funds. Grants of up to $250,000 for street and traffic lighting projects, building retrofits, and renewable energy projects were available. A 20 percent cash match by the grantee was required.

The Energy Office received 121 applications proposing 208 individual projects, and was able to fund 87 percent of the municipalities and 76 percent of the counties that applied. The award of $8,799,052 in grant funds was announced on June 8, 2010, to 96 city and county governments with 176 individual projects, varying in size and scope from $198 up to $250,000. More than $3.968 million in matching funds were committed to these projects which are to be completed by January 5, 2011.

Of the projects receiving EECBG funds, one renewable energy technology project will build a 20 kW wind generator in Banner County, 19 will replace inefficient traffic signals and street lighting, with the remainder being energy efficiency retrofits for replacing outdated and inefficient windows, doors, interior lighting, insulation, and heating and cooling systems.

Details on the 95 grants and 175 projects and funds spent as of January 5, 2011, are listed below and on subsequent pages.

2010 Energy Efficiency and Conservation Block Grant (EECBG) Funded Projects					
Applicant Name	Project Details	Contract Amount	Match	Total Project Cost	Funds expended as of January 5, 2011*
Adams County	Courthouse Lighting, Window Seals, HVAC Flex Connectors, T-stat	$ 71,216.00	$ 17,804.00	$ 89,020.00	
	Office Building Lighting, T-stat, & Storms	$ 71,702.40	$ 17,925.60	$ 89,628.00	
Alma	City Auditorium Boiler & Insulation	$ 41,515.00	$ 10,379.00	$ 51,894.00	
Arthur County	County Courthouse Lighting, Water Heater, T-stats, Windows & Solid Panels	$ 34,800.00	$ 8,700.00	$ 43,500.00	
Atkinson	Old Library Lights, Insulation, & Water Heater	$ 3,087.20	$ 771.80	$ 3,859.00	
Auburn	Street Lighting	$ 12,415.20	$ 3,103.80	$ 15,519.00	

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2010 Energy Efficiency and Conservation Block Grant Funded Projects (Continued on next page).

Applicant Name	Project Details	Contract Amount	Match	Total Project Cost	Funds expended as of January 5, 2011*
Aurora	Library Lighting & Exit Signs	$ 29,027.00	$ 7,257.00	$ 36,284.00	
	Fire Hall Heaters & Lighting	$ 23,024.00	$ 5,756.00	$ 28,780.00	
	City Maintenance Shop Heaters & Lighting	$ 21,136.00	$ 5,284.00	$ 26,420.00	
	Parks Garage Bldg. Heaters & Lighting	$ 10,741.00	$2,686.00	$ 13,427.00	
	Cemetery Shop Heater & Lighting	$ 9,852.00	$ 2,464.00	$ 12,316.00	
	Wastewater Treatment Plant Lighting	$ 2,462.00	$ 616.00	$ 3,078.00	
Banner County	20kW Wind Turbine	$ 82,360.00	$ 20,590.00	$ 102,950.00	
Bassett	Fire Hall HVAC, Overhead Door, Lighting, & Fans	$ 13,198.40	$ 3,299.60	$ 16,498.00	
	City Hall HVAC, Insulation, & Lighting	$ 6,955.20	$ 1,738.80	$ 8,694.00	
	Business Incubator HVAC	$ 6,250.40	$ 1,562.60	$ 7,813.00	
Beatrice	Municipal Auditorium Lighting & Exit Signs, Roof & Insulation	$ 157,170.00	$ 60,000.00	$ 217,170.00	
Blair	Street Lighting	$ 248,686.21	$ 80,165.79	$ 328,862.00	
Broadwater	Village Hall HVAC & Insulation	$ 60,360.00	$ 15,090.00	$ 75,450.00	
Broken Bow	Street Lighting	$ 151,664.00	$ 37,916.00	$ 189,580.00	
Burt County	Courthouse Boiler, Lighting & Exit Signs, Insulation, Window, & Door	$ 150,542.40	$ 37,635.60	$ 188,178.00	$ 1,740.00
Butler County	Courthouse Windows, Wall Panels, & HVAC	$ 118,645.00	$ 80,000.00	$ 198,645.00	
Callaway	Village Office/Shop Lighting, Heat Pump, & T-stat	$ 24,328.80	$ 6,082.20	$ 30,411.00	
Cambridge	City Hall Refrigerators	$ 1,792.00	$ 448.00	$ 2,240.00	
	Senior Center Lighting, Insulation, & Windows	$ 8,075.00	$ 2,019.00	$ 10,094.00	
	Library Lighting	$ 3,718.00	$ 930.00	$ 4,648.00	
	Hospital Boilers & Chiller	$ 236,415.00	$ 148,330.00	$ 384,745.00	
Central City	Street Lighting	$ 179,088.00	$ 56,748.00	$ 235,836.00	
Chadron	City Hall Lighting	$ 6,071.00	$ 1,518.00	$ 7,589.00	
	Street Shop Lighting	$ 2,566.00	$ 642.00	$ 3,208.00	
	Fire Hall Furnace & Lighting	$ 8,395.00	$ 2,099.00	$ 10,494.00	
	Water Department Lighting	$ 1,838.00	$ 460.00	$ 2,298.00	
	Police Department Lighting	$ 4,382.00	$ 1,095.00	$ 5,477.00	
	Library Lighting	$ 3,556.00	$ 889.00	$ 4,445.00	
	Cemetery Shop Heating, Insulation, & Lighting	$ 10,168.00	$ 2,542.00	$ 12,710.00	
	Airport FBO Bldg Insulation & Lighting	$ 22,078.00	$ 5,519.00	$ 27,597.00	
Clarks	Village/Fire Hall Lighting, HVAC, & T-stats	$ 16,464.00	$ 4,116.00	$ 20,580.00	
	Library Lighting	$ 674.00	$ 169.00	$ 843.00	
	Villa Apartments Lighting & Exit Signs	$ 756.00	$ 189.00	$ 945.00	
Clay County	Courthouse Lighting	$ 6,298.40	$ 1,574.60	$ 7,873.00	
	Roads Department Lighting	$ 2,672.00	$ 668.00	$ 3,340.00	
	Service Building Lighting	$ 3,267.20	$ 816.80	$ 4,084.00	
	Weed Control Building Lighting	$ 198.40	$ 49.60	$ 248.00	
	Jail & Sheriff's Department Lighting	$ 851.20	$ 212.80	$ 1,064.00	
Coleridge	Nursing Home Insulation	$ 59,560.00	$ 14,890.00	$ 74,450.00	
Colfax County	Courthouse Windows	$ 39,194.00	$ 9,799.00	$ 48,993.00	$ 560.00
Cortland	Community Center Windows & Doors	$ 6,000.00	$ 1,500.00	$ 7,500.00	

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2010 Energy Efficiency and Conservation Block Grant Funded Projects (Continued on next page).

Applicant Name	Project Details	Contract Amount	Match	Total Project Cost	Funds expended as of January 5, 2011*
Cuming County	County Courthouse HVAC, Lighting & Exit Signs	$ 250,000.00	$ 114,378.00	$ 364,378.00	
Dakota City	Fire Hall Lighting, HVAC, Windows	$ 11,264.00	$ 2,816.00	$ 14,080.00	
	Water Treatment Plant Lighting	$ 1,835.20	$ 458.80	$ 2,294.00	
Dawes County	County Courthouse Windows	$ 180,000.00	$ 80,000.00	$ 260,000.00	$ 13,766.56
Diller	Community Bldg/Fire Hall HVAC & T-stats	$ 19,556.00	$ 4,889.00	$ 24,445.00	$ 19,556.00
Dodge County	Judicial Center HVAC & Building Automation	$ 152,834.40	$ 38,208.60	$ 191,043.00	
Elwood	Village Office HVAC & Lighting	$ 7,369.00	$ 5,287.36	$ 12,656.36	
Fairfield	City Hall Lighting	$ 3,111.00	$ 778.00	$ 3,889.00	
	Fire Hall Lighting & Exit Signs	$ 3,173.00	$ 794.00	$ 3,967.00	
	Maintenance Shop Overhead Door & Lighting	$ 4,093.00	$ 1,024.00	$ 5,117.00	
	Library Lighting	$ 1,364.00	$ 342.00	$ 1,706.00	
	Auditorium Lighting	$ 1,692.00	$ 424.00	$ 2,116.00	
Fairmont	Nursing Home Lighting & Exit Signs, Doors, & Windows	$ 41,232.80	$ 10,308.20	$ 51,541.00	$ 29,174.40
Franklin	Senior Center Lighting, Insulation & Ceiling	$ 22,297.60	$ 5,574.40	$ 27,872.00	
Frontier County	County Jail Window, Door, Appliances, & Insulation	$ 7,276.96	$ 1,819.24	$ 9,096.20	
	Curtis Shop Furnaces	$ 7,832.00	$ 1,958.00	$ 9,790.00	
	Eustis Shop Furnace	$ 2,604.00	$ 651.00	$ 3,255.00	
	Courthouses Furnace	$ 7,092.00	$ 1,773.00	$ 8,865.00	
	Maywood Shop Furnaces	$ 4,868.00	$ 1,217.00	$ 6,085.00	
Garden County	Treasurer's Office Heat Pump	$ 4,444.44	$ 1,111.11	$ 5,555.55	$ 3,848.00
	Courthouse Annex Heat Pump	$ 5,239.08	$ 1,309.77	$ 6,548.85	$ 4,536.00
Giltner	Fire Station HVAC & Lighting	$ 9,116.00	$ 2,279.00	$ 11,395.00	
	Ball Field Lighting	$ 14,028.00	$ 3,507.00	$ 17,535.00	$ 11,960.00
Gordon	Auditorium Lighting, Windows, & Insulation	$ 93,206.00	$ 23,301.00	$ 116,507.00	
Gothenburg	Street Lighting	$ 206,080.00	$ 51,520.00	$ 257,600.00	
Greeley County	County Courthouse Windows & Doors	$ 68,451.20	$ 17,112.80	$ 85,564.00	
Hamilton County	Courthouse HVAC & Lighting	$ 116,208.00	$ 29,052.00	$ 145,260.00	$ 25,445.00
	Roads Maintenance Shop Lighting	$ 3,821.00	$ 956.00	$ 4,777.00	
Harlan County	Courthouse Boiler & Chiller	$ 250,000.00	$ 89,500.00	$ 339,500.00	
Hartington	City Hall Lighting, Windows & Doors	$ 46,567.20	$ 11,641.80	$ 58,209.00	
	City Auditorium Windows	$ 19,088.00	$ 4,772.00	$ 23,860.00	
Hayes County	County Courthouse HVAC, Lighting, Windows & Doors	$ 55,500.00	$ 15,000.00	$ 70,500.00	
Hazard	Community Building Heating, Insulation, Windows, & Doors	$ 13,340.00	$ 3,335.00	$ 16,675.00	
Hemingford	Village Office Lighting, Insulation, & Windows	$ 28,497.00	$ 7,719.00	$ 36,216.00	
	Street Lighting	$ 165,238.00	$ 44,762.00	$ 210,000.00	
	Nursing Home Lighting & Exit Signs	$ 24,202.00	$ 6,556.00	$ 30,758.00	
	Shop Door	$ 3,553.00	$ 962.00	$ 4,515.00	
Holdrege	Street Lighting	$ 250,000.00	$ 73,312.28	$ 323,312.28	

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2010 Energy Efficiency and Conservation Block Grant Funded Projects (Continued on next page).

Applicant Name	Project Details	Contract Amount	Match	Total Project Cost	Funds expended as of January 5, 2011*
Hooker County	Nursing Home Boiler, Windows & Doors	$ 47,200.00	$ 11,800.00	$ 59,000.00	
Humboldt	Nursing Home Lighting, Windows & Doors, HVAC	$ 54,488.42	$ 13,622.11	$ 68,110.53	
	Library Windows	$ 4,210.53	$ 1,052.63	$ 5,263.16	
	City Hall Windows & Door	$ 5,473.68	$ 1,368.42	$ 6,842.10	
	City Auditorium Windows & Lighting	$ 13,952.56	$ 3,488.16	$ 17,440.72	
Kimball	City Hall HVAC, Doors & Windows	$ 53,716.74	$ 13,429.19	$ 67,145.93	
La Vista	Traffic Signals	$ 40,154.00	$ 10,039.00	$ 50,193.00	
Lexington	Opportunity Center Roof & Insulation	$ 250,000.00	$ 102,500.00	$ 352,500.00	$ 175,924.43
Malmo	Well House Windows & Doors	$ 1,920.00	$ 480.00	$ 2,400.00	
McCook	Library Boiler & Chiller	$ 64,400.00	$ 16,100.00	$ 80,500.00	
	City Shop Lighting, Insulation, & Windows	$ 20,326.00	$ 5,081.00	$ 25,407.00	
McCool Junction	Village Hall HVAC, Doors & Windows	$ 19,846.40	$ 4,961.60	$ 24,808.00	
Mead	Community Bldg. HVAC & Lighting	$ 18,315.20	$ 5,012.80	$ 23,328.00	
Mitchell	City Office HVAC & Insulation	$ 80,000.00	$ 25,000.00	$ 105,000.00	
Mullen	Street Lighting	$ 5,959.52	$ 1,489.88	$ 7,449.40	
Nebraska City	City Hall Lighting, HVAC, & Windows	$ 17,723.40	$ 4,430.60	$ 22,154.00	
	Public Restroom A/C	$ 4,035.20	$ 1,008.80	$ 5,044.00	
	Public Properties HVAC	$ 4,154.40	$ 1,038.60	$ 5,193.00	
	Wastewater Treatment Plant HVAC	$ 9,527.20	$ 2,381.80	$ 11,909.00	
	Street Lighting	$ 66,464.80	$ 16,616.20	$ 83,081.00	
Nelson	Street Lighting	$ 5,364.00	$ 1,341.00	$ 6,705.00	$ 3,890.00
	City/Fire Hall Lighting	$6,179.00	$1,546.00	$7,725.00	
	City Auditorium Lighting & Exit Signs	$7,257.00	$3,943.00	$11,200.00	
	City Library Lighting	$3,047.00	$763.00	$3,810.00	
Nemaha County	County Courthouse Lighting & Windows	$ 133,326.32	$ 33,331.57	$ 166,657.89	$93,091.58
	Law Enforcement Lighting & Exit Signs	$ 2,510.32	$ 627.58	$ 3,137.90	$ 2,259.29
	HHS Building Lighting	$ 1,237.89	$ 309.47	$ 1,547.36	$ 1,114.10
Ogallala	City Hall HVAC, Windows, & Insulation	$ 21,110.08	$ 5,277.52	$ 26,387.60	
	Fire Hall Lighting	$ 3,067.87	$ 766.97	$ 3,834.84	
	Library Lighting	$ 15,998.50	$ 3,999.62	$ 19,998.12	
	Water Department HVAC, Lights, & Insulation	$ 41,782.11	$ 10,445.53	$ 52,227.64	
Orleans	Fire Hall Furnace, Insulation, & Lighting	$ 18,920.80	$ 4,731.20	$ 23,652.00	
Osceola	City Shop Lighting, HVAC, Door	$ 7,200.00	$ 1,800.00	$ 9,000.00	
	Fire Hall Lighting & Exit Sign	$ 1,920.00	$ 480.00	$ 2,400.00	
Otoe County	Courthouse Boilers	$ 101,053.00	$ 25,263.00	$ 126,316.00	
Pawnee County	Courthouse Lighting	$ 2,442.11	$ 610.53	$ 3,052.64	
	Maintenance Building Lighting	$ 2,557.47	$ 639.37	$ 3,196.84	
Paxton	Community Center Bldg. HVAC, Windows & Doors, Insulation	$ 14,554.00	$8,436.00	$ 22,990.00	
Perkins County	County Hospital Lighting, Windows & Doors	$ 230,832.00	$ 57,708.00	$ 288,540.00	

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2010 Energy Efficiency and Conservation Block Grant Funded Projects (Continued on next page).

Applicant Name	Project Details	Contract Amount	Match	Total Project Cost	Funds expended as of January 5, 2011*
Petersburg	Fire Hall Door & Insulation	$ 7,670.27	$ 1,917.57	$ 9,587.84	
	Maintenance Building Windows, Overhead Door, & Insulation	$ 13,543.36	$ 3,385.84	$ 16,929.20	
Phelps County	Courthouse Lighting & Windows	$ 53,815.64	$ 13,453.60	$ 67,269.24	
Pilger	Village Clerk's Office HVAC & Lighting	$ 4,349.50	$ 1,087.38	$ 5,436.88	$3,914.55
	Library Lighting & Exit Signs	$ 896.26	$ 224.06	$ 1,120.32	
	Fire Hall Lighting	$ 1,448.99	$ 1,492.64	$ 2,941.63	
	Filter Plant Lighting	$ 425.52	$ 106.38	$ 531.90	
	Street Lighting	$ 29,522.81	$ 20,013.05	$ 49,535.86	
Polk	Housing Authority Apts. HVAC & Storm Doors	$ 67,536.00	$ 16,884.00	$ 84,420.00	$ 929.08
Potter	Municipal Building Insulation, Heaters, & Lighting	$ 28,455.20	$ 10,218.80	$ 38,674.00	
Prague	Street Lighting	$ 46,579.20	$ 11,902.80	$ 58,482.00	
Red Willow County	Nursing Home HVAC	$ 250,000.00	$ 507,900.00	$ 757,900.00	
Rock County	County Hospital Windows, HVAC, Water Heater, Lighting	$ 162,937.00	$ 54,313.00	$ 217,250.00	
Saline County	County Courthouse Boiler & Windows	$ 249,972.00	$ 395,950.00	$ 645,922.00	$ 4,133.97
Scribner	Street Lighting	$ 225,189.00	$ 56,297.00	$ 281,486.00	
Seward	Wastewater Treatment Plant Roof & Insulation, HVAC, Windows, Man Doors, Overhead Doors, Lighting, Digester	$ 185,467.38	$ 256,121.62	$ 441,589.00	
	City Hall Lighting, Window Sealing, & Insulation	$ 12,207.00	$ 5,679.00	$ 17,886.00	
	Various Building Lights	$ 49,234.00	$ 22,120.00	$ 71,354.00	
Shelton	Offices/Community Bldg. Windows & HVAC	$ 16,873.65	$ 4,218.42	$ 21,092.07	
	Health Center Windows & HVAC	$ 18,893.52	$ 4,723.38	$ 23,616.90	
Sherman County	Courthouse Windows	$ 79,070.00	$ 19,767.00	$ 98,837.00	
Silver Creek	Fire Station Windows & Doors, Insulation & Ceiling	$ 52,793.60	$ 13,198.40	$ 65,992.00	
South Sioux City	Badger Building Lighting & Insulation	$ 239,802.00	$ 147,610.00	$ 387,412.00	
	Public Works Lighting	$ 2,165.00	$ 771.00	$ 2,936.00	
	Fire House North Lighting	$ 1,454.00	$ 518.00	$ 1,972.00	
	Fire House South Lighting	$ 851.00	$ 303.00	$ 1,154.00	
	Riverview Facility Lighting	$ 1,558.00	$ 554.00	$ 2,112.00	
	Maintenance Shop Lighting	$ 1,439.00	$ 512.00	$ 1,951.00	
	Sign & Bus Shop Lighting	$ 635.00	$ 226.00	$ 861.00	
	Gas Shop Lighting & T-stats	$ 918.00	$ 326.00	$ 1,244.00	
	Water Shop Lighting	$ 1,178.00	$ 419.00	$ 1,597.00	
Springfield	City Hall Windows & HVAC	$ 27,200.00	$ 6,800.00	$ 34,000.00	
Stromsburg	Fire Hall Insulation	$ 18,880.00	$ 4,720.00	$ 23,600.00	
	Senior Center Windows	$ 10,400.00	$ 2,600.00	$ 13,000.00	
Superior	Street Lighting	$ 246,240.00	$ 61,560.00	$ 307,800.00	
Tecumseh	Community Center Lighting, Furnaces, & Insulation	$ 74,527.00	$ 31,940.00	$ 106,467.00	
	Street Lighting	$ 149,563.00	$ 37,391.00	$ 186,954.00	

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2010 Energy Efficiency and Conservation Block Grant Funded Projects (Continued on next page).

Applicant Name	Project Details	Contract Amount	Match	Total Project Cost	Funds expended as of January 5, 2011*
Utica	Village Shop Door	$ 3,200.00	$ 800.00	$ 4,000.00	
Valentine	Community Center/Gymnasium Lighting, Windows, Doors, & Boiler Steam Traps	$ 174,400.00	$ 43,600.00	$ 218,000.00	
Verdigre	Village Office HVAC, Windows, Lighting & Insulation	$ 10,000.00	$ 2,515.00	$ 12,515.00	
Wahoo	City Hall Heat Pumps	$ 78,800.00	$ 19,700.00	$ 98,500.00	
Wakefield	City Hall HVAC	$ 3,748.00	$ 937.00	$ 4,685.00	
	Fire Hall HVAC	$ 5,152.00	$ 1,288.00	$ 6,440.00	
Walthill	Street Lighting	$ 132,846.00	$ 33,211.00	$ 166,057.00	
	Village Office Bldg. Windows & Weather Stripping	$ 7,662.40	$ 1,915.60	$ 9,578.00	
Waverly	Public Works Bldg. Insulation & Windows	$ 35,641.60	$ 8,910.40	$ 44,552.00	
Wayne	Municipal Power Plant Cooling Tower	$ 250,000.00	$ 383,596.00	$ 633,596.00	
Wilber	Street Lighting	$ 122,145.40	$ 30,536.60	$ 152,682.00	
York County	Courthouse Boiler & Lighting	$ 158,611.00	$ 52,870.00	$ 211,481.00	$ 1,624.55
	Supervisor's Office Lighting	$ 5,255.00	$ 1,751.00	$ 7,006.00	
	Maintenance Shop Lighting	$ 4,618.00	$ 1,538.00	$ 6,156.00	
	Totals:	$ 8,810,715.31	$4,048,127.44	$ 12,858,842.75	$ 97,477.51

** Projects in governmental buildings are more complex and generally lengthy in duration. Some projects may involve construction which has been delayed by winter weather. Required local procurement policies and Buy American provisions also impact project timelines and payment requests. Payment for project costs are based on a cost-reimbursement basis and five percent is withheld until all contractual obligations, including monitoring by agency Staff, have been completed.*

State Energy Efficiency Appliance Rebate Program

In August 2009, the Energy Office submitted a pre-application under the *Recovery Act's State Energy Efficiency Appliance Rebate Program*. In October 2009, the agency submitted a plan that detailed how the state would implement an appliance rebate program. On December 14, 2009, the U.S. Department of Energy approved the plan for $1.711 million and $205,320 in state matching funds.

The program was structured to provide rebate claims after an eligible appliance had been purchased from six appliance categories: dishwashers, clothes washers, refrigerators, heat pumps, furnaces and central air conditioners. Rebates ranged from $100 to $250 for each appliance with a limit of two per household.

In May 2010, the agency selected a contractor to assist the agency in providing information to consumers and sellers, verifying rebate claims and issuing payment to Nebraskans.

On July 6, the Nebraska Appliance Rebate program opened. By noon on July 10, all rebate funds had been obligated, pending submission of documentation by the purchasers. By December 31, 2010, a total of 9,019 rebates had been approved and payment issued in the following categories:

- Air source heat pumps 159
- Central air conditioners 89
- Clothes washers 2,251
- Dishwashers 2,725
- Furnaces 334
- Refrigerators 3,461

As of December 31, 2010, all federal funds had been spent and this program was closed in February 2011.

AMERICAN REINVESTMENT AND RECOVERY ACT

Enhancing State Government Energy Assurance Capabilities and Planning for Smart Grid Resiliency

Under the *Recovery Act*, the Energy Office received $363,635 over three years to strengthen and expand state and local government energy assurance planning and resiliency efforts by incorporating response actions for new energy portfolios and Smart Grid applications and build in-house state and local government energy assurance expertise. A Management Plan was submitted on October 13, 2009, and was approved by the U.S. Department of Energy on November 5, 2009. A Workforce Development Plan was submitted on November 12, 2009, and was approved by the federal energy agency on November 13, 2009.

In May 2010, AMEC Earth and Environmental was hired to develop the *State Energy Assurance Plan*. The *Assurance Plan* will include primary state energy use, information pertaining to vulnerability and risk, and identification of impending energy problems. Development of the *Assurance Plan* will meet a requirement of the grant. During the reporting period, activities began to create state level expertise on energy assurance planning and resiliency, focusing on Smart Grid application and vulnerabilities, critical infrastructure interdependencies, cyber security, energy supply systems, energy data analysis and communications. At the end of 2010, the first draft of the *Assurance Plan* was submitted by AMEC to the agency and interested parties for review.

The Energy Office prepared the *Energy Supply Tracking Process and Energy Supply Disruption Tracking Process* and submitted the document to the U.S. Department of Energy in August 2010. The document fulfills a grant requirement to have a process or procedure for tracking the duration, response, restoration and recovery time of energy supply disruption events.

In September 2010, the Energy Office and the Nebraska Emergency Management Agency conducted a statewide exercise focusing on an earthquake causing a pipeline leak. The exercise satisfied a grant requirement to complete an intrastate training/exercise and to include players from state agencies, local governments and industry and Federal partners.

Under this activity are two contracts: $244,995 with AMEC Earth and Environmental and $10,000 with Nebraska Emergency Management. As of December 31, 2010, $60,420 out of $363,635 had been spent.

AMERICAN REINVESTMENT AND RECOVERY ACT

Building Energy Code — Adoption, Training and Compliance

On September 30, 2010, the Energy Office submitted a competitive proposal for $276,417 for *Recovery Act* Building Energy Code funding to Pacific Northwest National Laboratory. Under the proposal, the Energy Office would perform a number of tasks related to increasing the state's building energy codes:

- Assess code compliance,
- Measure the economic value of code compliance,
- Information on current building codes in comparison to Nebraska,
- Provide code training to professionals, builders and code officials and
- Develop code compliance strategies.

As of January 31, 2011, more than 400 code officials, architects, engineers and building contractors had registered for six workshops scheduled in February, March and May. Four workshops using professionals from the International Code Council will focus on critical concepts of the 2009 International Energy Conservation Code highlighting essential code components for designing energy-efficient structures for all members of Nebraska's construction industry. Another two workshops from a Building Science Corporation professional will focus on advanced building science topics.

On October 22, 2010, the agency's proposal was selected for funding by the national laboratory. As of December 31, 2010, a total of $6,780 had been spent. This activity will conclude in June 2011.

State Capitol Entrance Hall

(1) In February each year, the Director of the State Energy Office shall transmit to the Governor and the Clerk of the Legislature a comprehensive report designed to identify emerging trends related to energy supply, demand, and conservation and to specify the level of statewide energy need within the following sectors: Agricultural, commercial, residential, industrial, transportation, utilities, government, and any other sector that the director determines to be useful.

(2) The report shall include, but not be limited to:

(a) An assessment of the state's energy resources, including examination of the current energy supplies and any feasible alternative sources;

(b) The estimated reduction in annual energy consumption resulting from various energy conservation measures;

(c) The status of the office's ongoing studies;

(d) Recommendations to the Governor and the Legislature for administrative and legislative actions to accomplish the purposes of sections 70-625, 70-704, 81-161, 81-1602, 81-1606, and 81-1607; and

(e) The use of funds disbursed during the previous year under sections 81-1635 and 81-1641. The use of such funds shall be reported each year until the funds are completely disbursed and all contractual obligations have expired or otherwise terminated. *Nebraska Revised Statutes 81-1607*

TRENDS AND NEEDS

The Nebraska Energy Office tracks trends in different energy sectors as part of its mission. These trends can forcast future energy use. In all cases, the most current energy data has been used in the *Annual Report*. Energy statistical data required by statute to be maintained by the Energy Office can be found on the agency's website at http://www.neo.ne.gov/statshtml/index3c.html

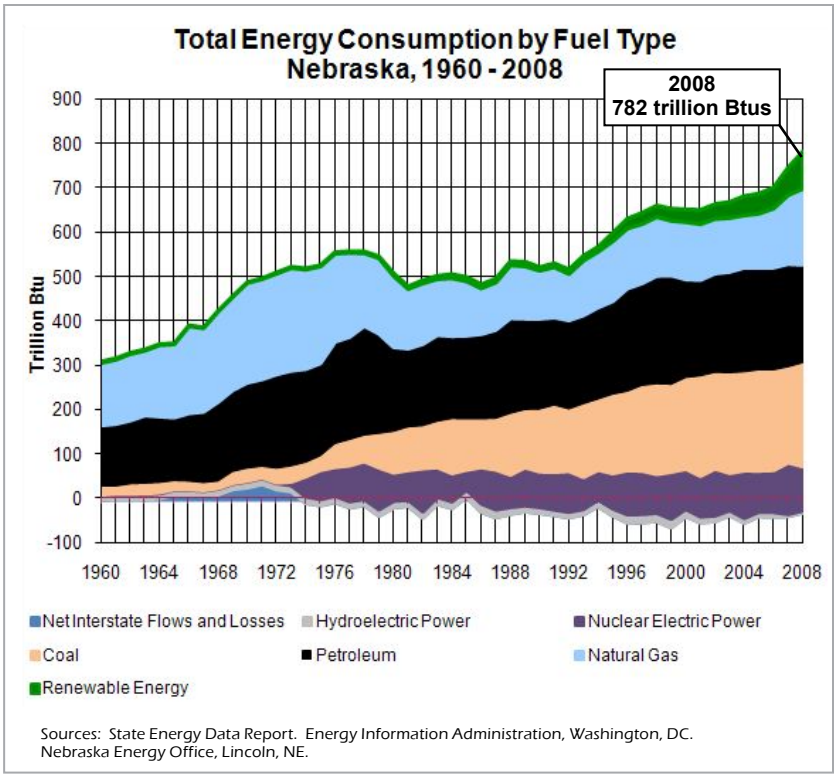
STATE-WIDE ENERGY NEED AND COST

Need

2008. Nebraska's total energy consumption was 782 trillion British thermal units (Btus), an increase of 89.1 trillion Btus — 4.8 percent — over 2007 and the highest since recordkeeping began in 1960, and one of the highest percentage increases in years. A British thermal unit is a standard measure of heat energy. It takes one Btu to raise the temperature of one pound of water by one degree Fahrenheit at sea level. Overall, the use of coal, petroleum and hydro declined while natural gas and nuclear increased. Among all the states, Nebraska ranked 16th lowest in total energy consumption in the nation.

1960-2008. Energy use over the past 48 years has changed markedly. Overall, total energy consumption has more than doubled from 308.3 trillion Btus in 1960 to 781.9 trillion Btus in 2008.

- Coal use has increased more than eleven-fold from 20 trillion Btus to 234.6 trillion Btus between 1960 and 2008. Peak use of coal was reached in 2008 at 234.6 trillion Btus, surpassing the high set in 2005. Virtually all of this growth is attributable to coal used to generate electricity.
- Natural gas consumption has both increased and declined during the 48 years from 140.4 trillion Btus in 1960 to 169.4 trillion Btus in 2008. Natural gas consumption peaked in 1972 at 226.3 trillion Btus. The rise, fall and recent rise in consumption of natural gas is a result of increased equipment efficiency, fewer homes using natural gas as a primary heating source and electric utilities using



Sources: State Energy Data Report. Energy Information Administration, Washington, DC. Nebraska Energy Office, Lincoln, NE.

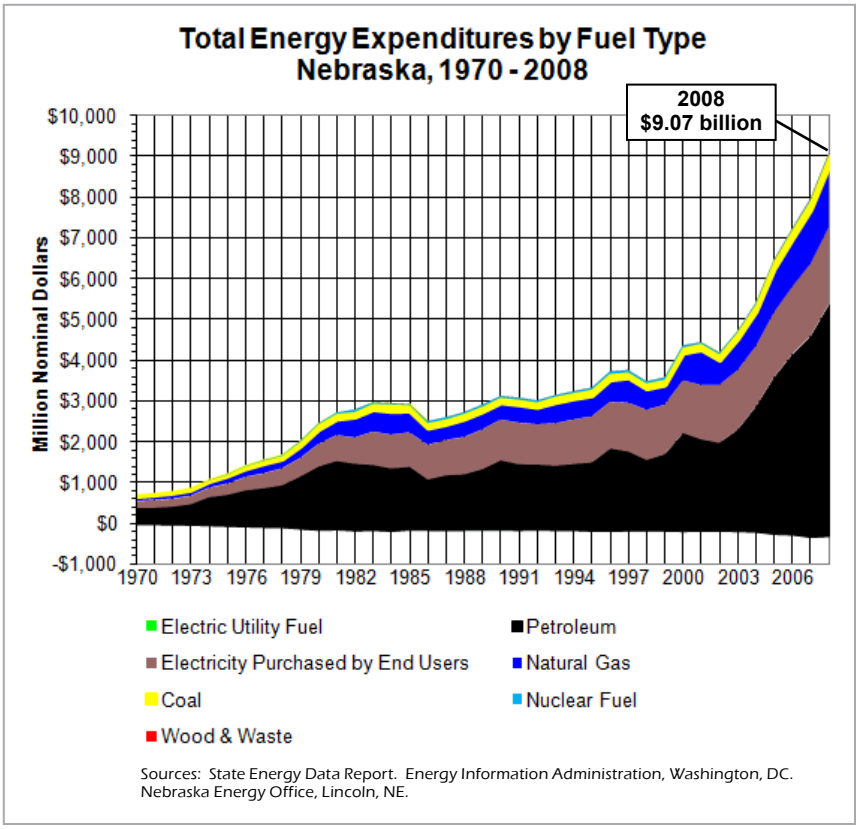
"Nebraska's total energy expenditures increased 13.8 percent to $9.07 billion in 2008, an increase of $1.1 billion over 2007."

natural gas for peak power production.

- Use of refined petroleum products nearly doubled over the past 48 years from 136.5 trillion Btus in 1960 to 221.3 trillion Btus in 2008. Gasoline and distillate fuel oil – primarily diesel fuel – comprise the bulk of refined petroleum products consumed. Both types of refined petroleum products increased between 1960 and 2008. Diesel fuel consumption quadrupled from 24.2 trillion Btus in 1960 to 93.7 trillion Btus in 2008. This increase is attributable to increased trucking and agricultural use. Gasoline consumption only increased by a quarter during the period from 78.8 trillion Btus in 1960 to 100.6 trillion Btus in 2008. Gasoline consumption peaked in 1978 at 115.9 trillion Btus, just before the second Oil Price Shock. Changes in gasoline consumption can be traced to increased fuel efficiency of vehicles, relative lack of population growth and recent little change in miles traveled annually. Motor vehicle miles traveled increased from 11.53 billion miles a year in 1979 to 19.14 billion miles a year in 2009. Petroleum consumption peaked in 1978 at 246.1 trillion Btus.
- Nuclear power was not generated commercially in the state until 1973-1974. Nuclear consumption has increased significantly over the period, rising from 6.5 (1973) and 44.6 (1974) trillion Btus to 99.1 trillion Btus in 2008. Nuclear consumption peaked in 2007 at 115.7 trillion Btus.
- Hydroelectric consumption from 1960 to 2008, rose and fell over the decades from 10.3 trillion Btus in 1960 to 3.4 trillion Btus in 2008, a new record low. Hydro production peaked in 1999 at 17.6 trillion Btus. Fluctuations in hydro consumption are generally attributed to drought conditions which result in reduced hydropower production and maintenance outages.

Cost

2008. Nebraska's total energy expenditures increased 13.8 percent to $9.07 billion in 2008, an increase of $1.1 billion over 2007. Petroleum products – primarily gasoline and diesel – accounted for $739.9 million of the increase and natural gas accounted for an increase of $197.3 million, together accounting for 85 percent of the increase. Among the states, Nebraska ranked



Sources: State Energy Data Report. Energy Information Administration, Washington, DC. Nebraska Energy Office, Lincoln, NE.

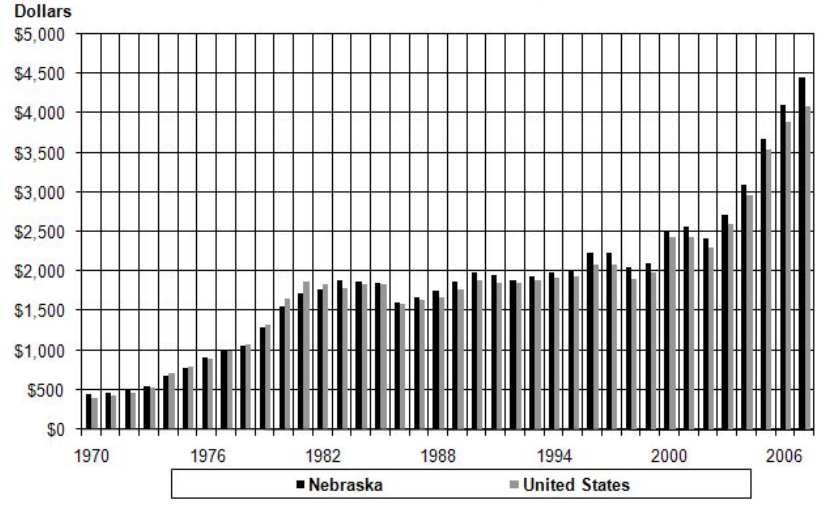
"Nebraskans spent more than 13 times the amount on energy in 2008 as was spent in 1970. However, the percentage share of personnel income has not varied as much: In 1970, 11.8 percent was spent on energy and in 2008, 11.7 percent was spent on energy."

37th in energy expenditures in 2008. Expenditures for petroleum products in 2008 accounted for 62.6 percent of all energy expenditures, retail electricity, 20.8 percent and natural gas, 16.8 percent. On a per capita basis, Nebraska ranked 20th in energy expenditures per person among the states at $5,094 in 2008. Alaska ranked first with a per capita expenditure of $10,913. Arizona ranked last with a per capita energy expenditure of $3,479. The United States' average of energy expenditures per capita in 2008 was $4,639.

2008 prices for different types of energy, as compared to the other 49 states and the District of Columbia, shows that Nebraskans paid the lowest price for coal in the nation at 95 cents (measured in nominal dollars per million British thermal units). Maryland paid the highest at $3.63 per million Btus. At the other extreme, Nebraskans paid the 15th highest price for petroleum at $25.15 in nominal dollars per million British thermal units. Prices for natural gas in Nebraska of $9.59 in nominal dollars per million British thermal units ranked 40th when compared to other states. Retail electricity prices in the state at $19.27 in nominal dollars per million British thermal units were the sixth lowest, ranking 46th. Prices for motor gasoline, which include ethanol-blended fuels, in Nebraska at $24.94 in nominal dollars per million British thermal units placed the state at 45th among the states.

Looking at the prices differently and in more common units of measurement, the state ranked accordingly by fuel type:

- Residential electricity: 34th, at 10.21 cents/kilowatt-hour
- Residential natural gas: 28th, at $14.95 per thousand cubic feet
- Retail gasoline: 18th, at $2.26/gallon

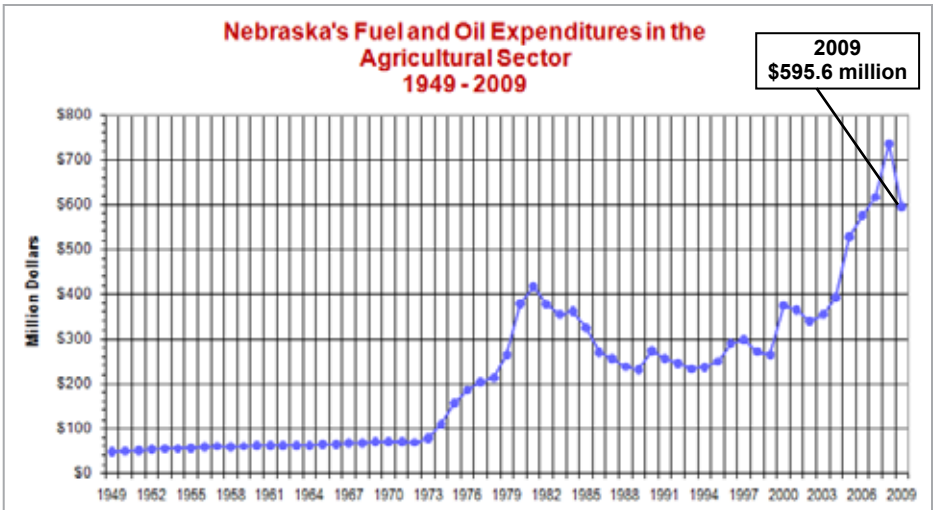


Sources: State Energy Price and Expenditure Report. Energy Information Administration, Washington, DC. Nebraska Energy Office, Lincoln, NE.

1970-2008. Total energy expenditures in 1970 were $667.8 million and had increased by more than ten-fold 38 years later in 2008 to $9.077 billion. The peak in expenditures by fuel type was reached in 2008 for all types listed below, except nuclear which was $63.4 million in 1996. Nebraskans spent more than 13 times the amount on energy in 2008 as was spent in 1970. However, the percentage share of personnel income has not varied as much: In 1970, 11.8 percent was spent on energy and in 2008, 11.7

percent was spent on energy. The peak percentage occurred in 1980 at 17.0 percent.

- Coal expenditures increased from $9.8 million in 1970 to $222.6 million in 2008.
- Natural gas expenditures increased more than 14-fold from $104.1 million in 1970 to $1.524 billion in 2008.
- Petroleum expenditures also increased more than 14-fold from $405.7 million in 1970 to $5.688 billion in 2008.
- Nuclear expenditures soared from $1.1 million in 1973 – the first partial year of operation of one of the state's two nuclear plants – to $47.1 million in 2008.

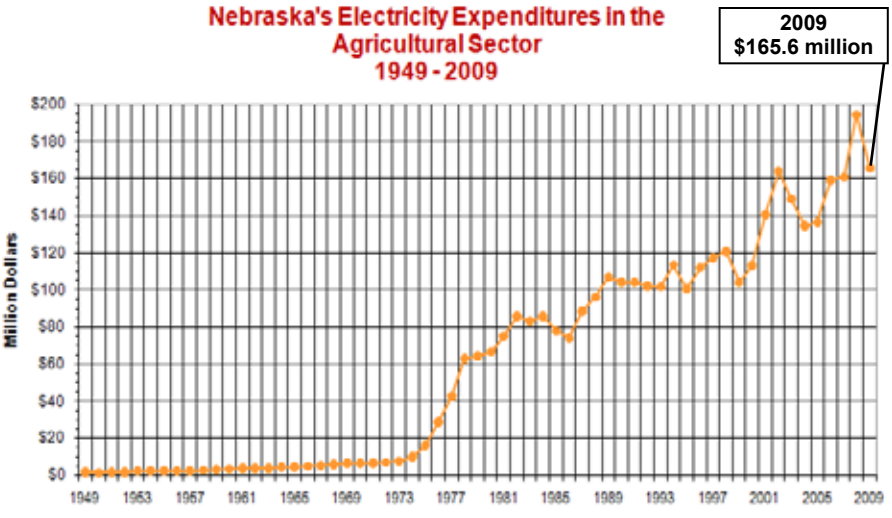


Sources: United States Department of Agriculture. Nebraska Energy Office, Lincoln, NE.

- Electricity purchased by end users totaled $170.3 million in 1970 and rose to $1.894 billion in 2008.

Agricultural

According to the National Agricultural Statistics Service, there were 47,200 farms and ranches on 45.6 million acres in Nebraska in 2009 encompassing about 92 percent of the state's total land area. In 2008, the average farm size contained 962 acres. In 2008, 14,812 farms irrigated 8.365 million acres. Agricultural energy data is aggregated with other data in the Industrial sector. As such, separate agricultural energy data is not always available on a consistent or annual basis.



Sources: United States Department of Agriculture. Nebraska Energy Office, Lincoln, NE.

Energy Supply

Energy supplies for the state's agricultural sector have been met. Over the years, any energy supply problems have been limited to infrequent shortfalls of petroleum products or fertilizer – reliant on energy inputs – usually during periods of peak demand or energy shortfalls because of worldwide demand.

"High diesel prices have motivated farmers to adopt conservation tillage practices, resulting in reduced cultivation on crop land, and to switch from using diesel to electricity to power irrigation systems."

Energy efficient irrigation system in Banner County

Demand

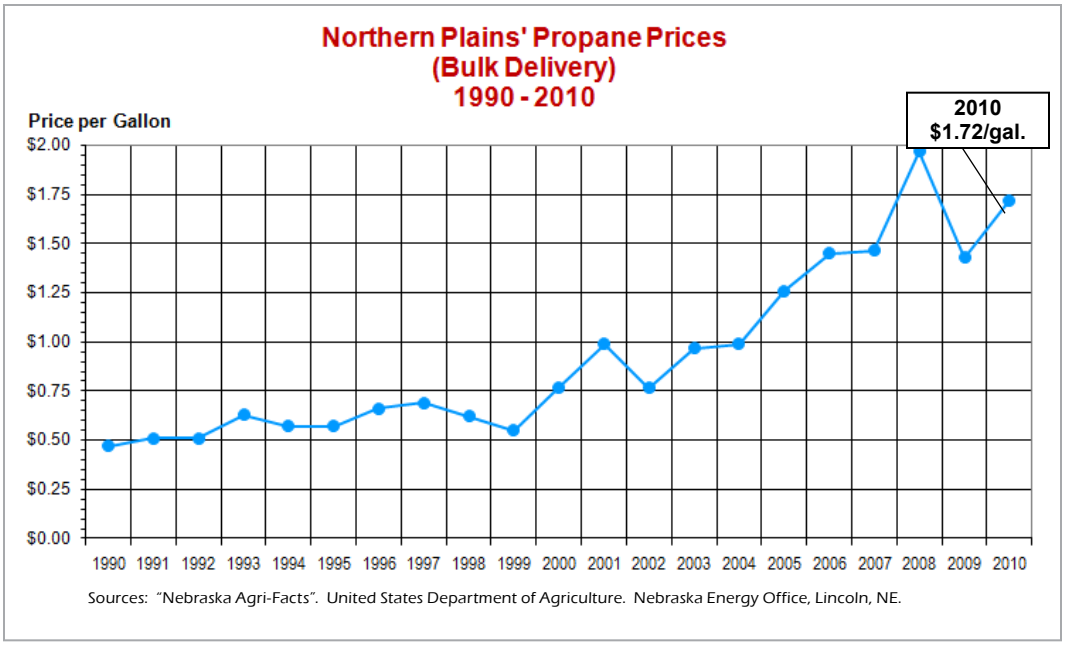
As indicated earlier in this section, energy demand information for the agricultural sector is not available on a consistent or annual basis. One of the primary tracking tools, the Census of Agriculture, is only conducted every five years. National energy databases commingle agricultural demand with data from the industrial sector.

Conservation

As with most consumer behavior, high fuel costs or limited availability of energy resources induces demand for efficiency practices in this sector. For example, record high prices for natural gas have caused farmers to alter practices such as when and how much anhydrous ammonia fertilizer – a natural gas product – is used. High diesel prices have motivated farmers to adopt conservation tillage practices, resulting in reduced cultivation on crop land, and to switch from using natural gas and propane to electricity to power irrigation systems.

As energy costs have increased, the state's agricultural producers – with assistance from the agricultural extension agents and research – have adopted a variety of practices that have reduced energy use: conservation tillage and irrigation pump efficiency testing, scheduling and load management practices. For example, the Energy Office provides low-cost financing for irrigation efficiency projects that demonstrate energy savings such as low-pressure pivots and replacement pumps and motors. Low-interest loans have also been used to finance grain dryers, no-till equipment, dairy vacuum pumps and similar equipment. Over the past several years, U.S. Department of Agriculture's Rural Energy for America Program grants have partially financed hundreds of irrigation efficiency improvements that also included switching fuel sources from diesel and natural gas to electricity. As long as federal funding remains available and diesel prices remain high, this trend in irrigation is likely to continue.

In 2008, the U.S. Department of Agriculture issued a report that found farmers have adopted energy conservation practices: Since the 1970s, farm energy consumption has fallen 26 percent as farm output has increased 63 percent.



Sources: "Nebraska Agri-Facts". United States Department of Agriculture. Nebraska Energy Office, Lincoln, NE.

Energy Need

Energy need in the ag sector can be influenced by the cost of inputs such as energy, which are a significant factor in modern farming. Over the decades as farms have increased in size, energy has replaced labor, allowing fewer people to produce larger harvests of agricultural goods. Another long-term trend has been the increase in irrigation. In 1966, only 3.1 million acres were irrigated, but by 2008, 8.365 million acres were under irrigation

on 14,812 farms. The fuel used to power the irrigation pumps in 2008 was diverse (2003 figures in parentheses): electricity, 54.17 percent (45 percent); diesel, 28.68 percent (27 percent); natural gas, 10.55 percent (16 percent); propane, 6.56 percent (12 percent) and gasoline/ethanol, .03 percent (less than 1 percent). The fuel shifts over the past five years show the near ten percent increase in electricity came at the expense of natural gas and propane.

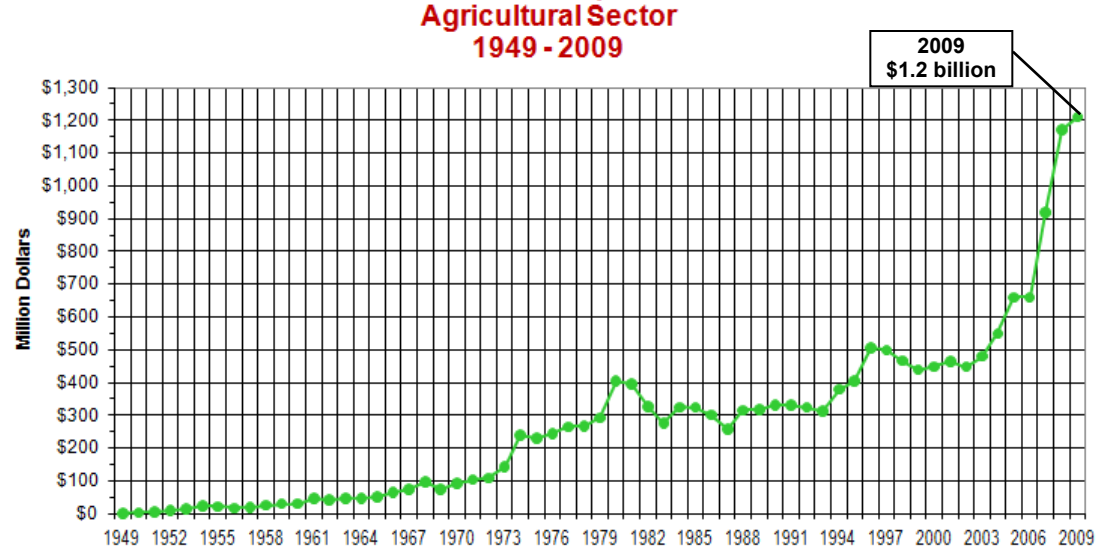
In 2006, (the latest information available), direct energy expenditures in agriculture accounted for between five to seven percent of farm expenditures. That year, the ag sector's energy consumption by fuel type was: diesel, more than 50 percent; gasoline, 16 percent; electricity, 13 percent; natural gas, 9 percent; propane, 9 percent; and other fuels, 2 percent. Indirect energy consumption from fertilizers and pesticides accounted for 9-10 percent of farm expenditures. According to the U.S. Department of Agriculture, Nebraska farm expenditures in 2008 totaled $1.7 billion for fertilizer, lime and pesticides and $665 million for fuel, oil and electricity.

Since 1949, Nebraska's fuel and oil, electricity and fertilizer expenditures by the agricultural sector have been tracked. Between 1949 and 1973-1974, energy prices were stable and showed mostly marginal increases over time. However, after the impact of the first Oil Price Shock in the early 1970s, agricultural energy expenditures deviated markedly from historic patterns, becoming far more erratic and costlier.

- Fertilizer expenditures in the state have shown the most substantial change between 1949 and 2008, rising from $2.1 million to $1.21 billion. The increase in the cost of fertilizer and the impact of oil prices is illustrated between 1973 and 1974, when expenditures in 1973 totaled $142.6 million and only a year later totaled $239.9 million. Since 2004, except for 2008-2009, fertilizer expenditures have increased at least $100 million a year, and between 2006 and 2008 increased $260 million.
- Fuel and oil expenditures have also shown a dramatic increase, peaking in 2008 at $735.9 million. In 1949, fuel and oil expenditures totaled $47.5 million. By 2008, those expenditures had risen to $730 million.

"Since 2004, except for 2008-2009, fertilizer expenditures have increased at least $100 million a year, and between 2006, and 2008, increased $260 million."

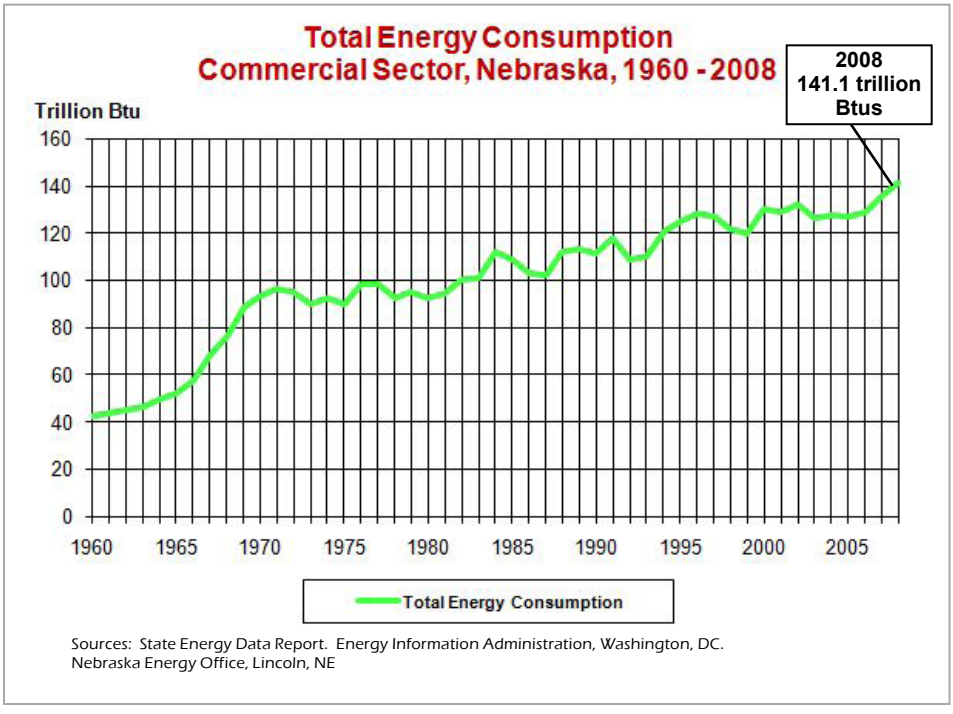
Fertilizer application near Friend, Nebraska



Sources: United States Department of Agriculture. Nebraska Energy Office, Lincoln, NE.

- Electricity expenditures in the agricultural sector in the state peaked in 2008 at $195.7 million. In 1949, electricity expenditures only totaled $1.6 million.
- Two widely used fuels in the ag sector, propane and diesel, have increased markedly. Bulk delivery prices for propane in the Northern Plains rose from 47 cents a gallon in 1990 to $1.43 a gallon in 2009, down from a record high of $1.97 a gallon in 2008. Bulk delivery price of diesel fuel in the Northern Plains rose from 78 cents a gallon in 1990 to $1.66 a gallon in 2009, down from a record high of $3.54 a gallon in 2008.

The energy needs of the state's agricultural producers can fluctuate substantially from one growing season to another. For example in 2001, a 30 percent increase in petroleum use was primarily due to increased irrigation use because of drought conditions in parts of the state.



Sources: State Energy Data Report. Energy Information Administration, Washington, DC.
Nebraska Energy Office, Lincoln, NE

Fuel substitution, or conversion to other types of fuel, is very difficult for this sector to utilize without costly changes in equipment. Agricultural and residential sectors may be the least able to engage in fuel substitution.

Commercial

The commercial sector, which includes non-manufacturing business establishments, closely parallels consumer energy use and economic activity in the state. Energy use by local, state and federal governments is also included in this sector.

Energy Supply

2008. In 2008, nearly 94 percent of the energy used in the commercial sector came from only two sources: natural gas and electricity, after accounting for electric system energy losses. Supplies of both energy resources have been sufficient with only brief periods of supply tightness, primarily due to weather or damaged transmission lines.

1960-2008. Supply trends over time indicate a continued dominance of natural gas and electricity in this energy use sector.

Demand

2008. Just 18 percent – 141.1 trillion British thermal units – of the state's total energy demand was consumed by the commercial sector in 2008. The increase in demand from 2007 to 2008 was 5.67 trillion British thermal units, an increase of 8.3 percent.

1960-2008. When data collection began in 1960, the commercial sector demand was 42.16 trillion British thermal units, less than one-third of the amount of energy used in 2008. The peak year of demand in this sector was 2008, surpassing the 135.4 trillion British thermal units of energy used in 2007.

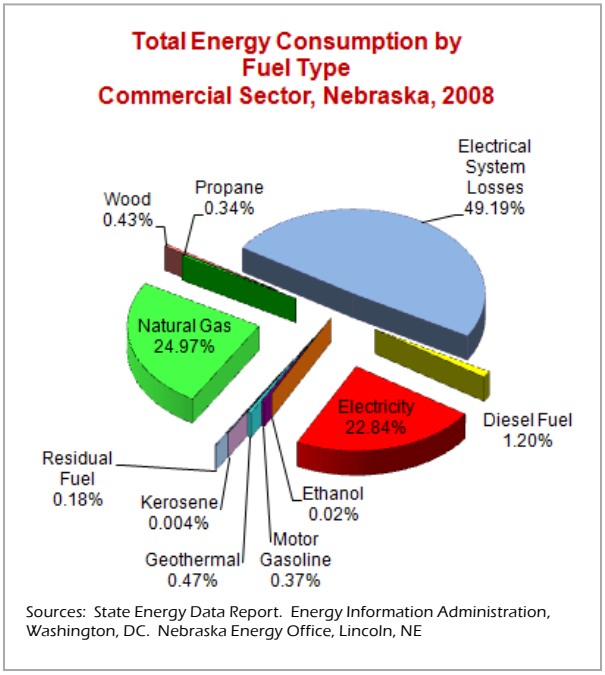
C O M M E R C I A L

Conservation

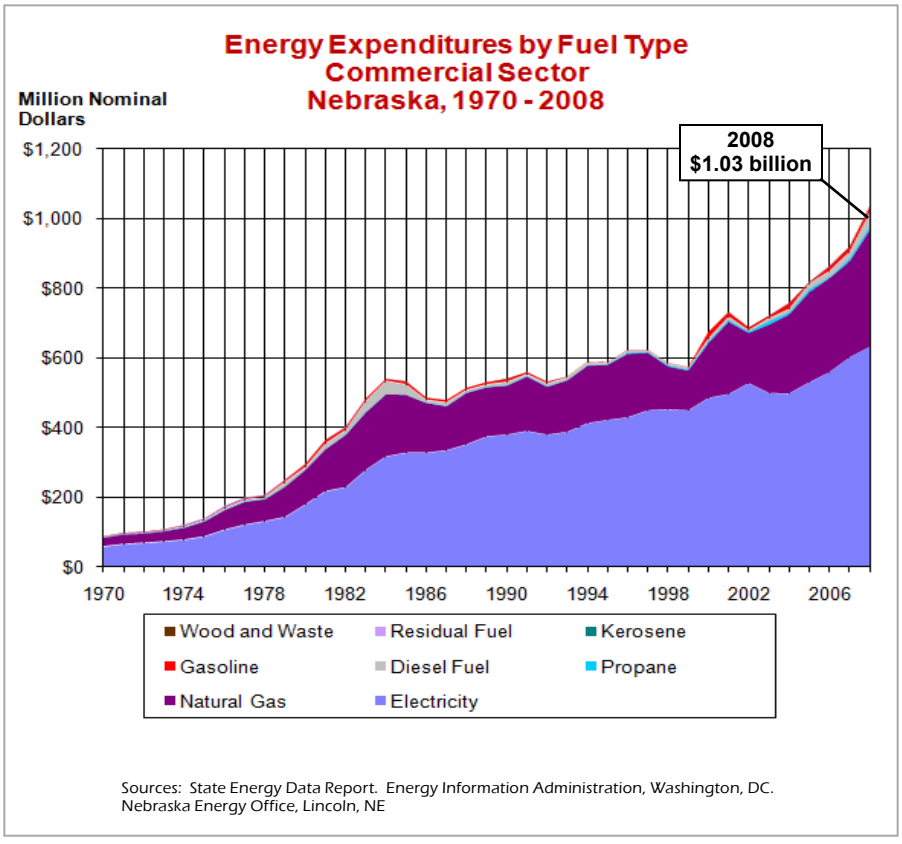
Efforts to conserve energy use tend to be economically driven, especially when fuel prices rise above historic levels. Reduced energy use often results from economic downturns in the larger economy. For example, energy use in this sector declined by almost 10 trillion British thermal units from 1991-1992, which paralleled a national recession. The economic decline that started in late 2008 and continued in 2009, is likely to show a similar decline in energy use in this sector when the data becomes available.

Energy Need

Since the primary needs of the commercial sector are confined to readily available supplies of natural gas and electricity, no issues relating to energy need are foreseen since supplies of both fuel types are ample.



Sources: State Energy Data Report. Energy Information Administration, Washington, DC. Nebraska Energy Office, Lincoln, NE

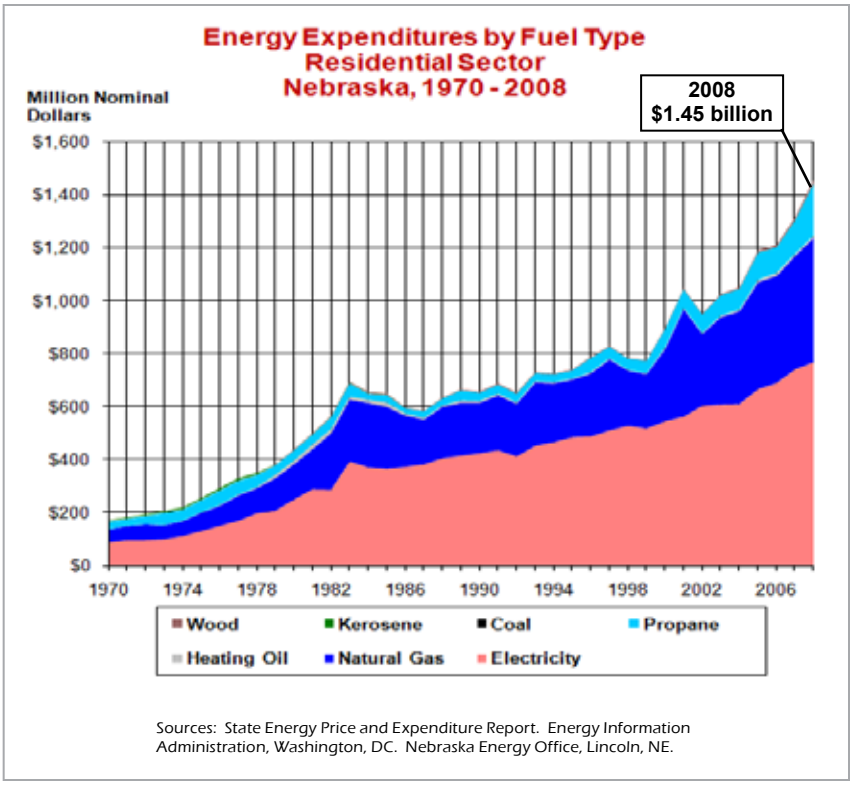


Sources: State Energy Data Report. Energy Information Administration, Washington, DC. Nebraska Energy Office, Lincoln, NE

2008. Energy prices for the two primary fuel sources – natural gas and electricity – both moved higher in 2008. Natural gas increased from $9.00 (measured in nominal dollars per million British thermal units) in 2007 to $9.51 in 2008. Electricity increased from $18.73 (measured in nominal dollars per million British thermal units) in 2007 to $19.59 in 2008. The annual average increased from $14.11 (measured in nominal dollars per million British thermal units) in 2007 to $14.67 in 2008.

1970-2008. One factor of need is price. A commercial business' need for energy can differ markedly, if the price of energy doubles in a short period of time. Expenditures in the commercial sector have changed markedly over the 38-year period. In 1970, the commercial sector's energy expenditures totaled $88.4 million (in nominal dollars). The peak

year for expenditures in this sector occurred in 2008 at $1.036 billion (in nominal dollars), nearly a 12-fold increase over the decades-long reporting period.

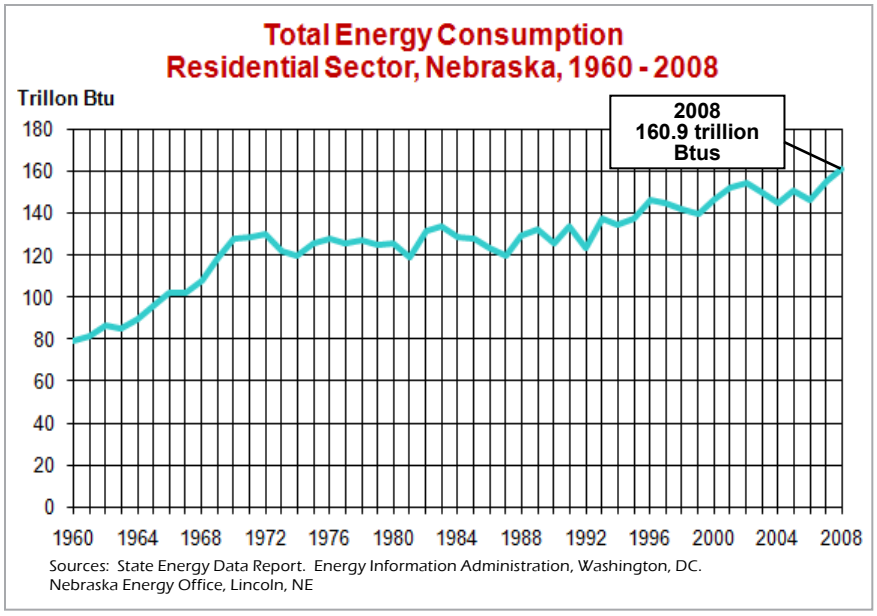


Sources: State Energy Price and Expenditure Report. Energy Information Administration, Washington, DC. Nebraska Energy Office, Lincoln, NE.

Residential

Energy Supply

2008. More than 85 percent of the energy used in the residential sector in 2008 came from only two sources: natural gas and electricity. Nearly half the energy used – 48.10 percent – in this sector came from natural gas in 2008. Natural gas use in this sector is used primarily for home heating and minor household uses such as water heating, clothes drying and cooking. Electricity is used throughout the home for heating, cooling, water heating, appliances, lighting and miscellaneous activities and equipment. Supplies of both natural gas and electricity are readily available.



Sources: State Energy Data Report. Energy Information Administration, Washington, DC. Nebraska Energy Office, Lincoln, NE

1960-2008. Supply trends and fuel types used in the residential sector have not changed substantially over 48 years of data collection, with the exception of a slow decline in natural gas and an equally slow rise in electricity use.

Demand

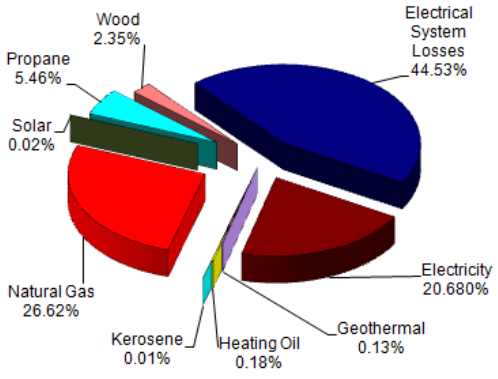
2008. More than 21.5 percent – 160.9 trillion British thermal units – of the state's total energy demand was consumed in the residen-

tial sector in 2008. The increase in demand from 2007 to 2008 was 5.8 trillion British thermal units and increases occurred in renewable energy (5.5 percent), petroleum (31.5 percent), natural gas (9.0 percent) and electricity (.02 percent).

1960-2008. Total energy consumption in 1960 in the residential sector was 78.88 trillion British thermal units, of which slightly more than half – 40.87 trillion British thermal units came from natural gas. By 2008, the total energy consumption in this sector had more than doubled to 160.9 trillion British thermal units.

Changes in how and how much this sector uses energy becomes clear over the 48-year span. In 1960, electricity use totaled only 6.51 trillion British thermal units, but by 2008 electricity demand totaled 33.26 trillion British thermal units, a historical peak. Natural gas demand was 40.87 trillion British thermal units in 1960, peaked at 60.86 trillion British thermal units in 1972 and has generally declined by about a third since then, clocking in at 42.82 trillion British thermal units in 2008. Propane demand in 1960 was 7.84 trillion British thermal units, peaked in 1972 at 16.37 trillion British thermal units and declined to 8.78 trillion British thermal units in 2008. Electric system line losses are accounting for a larger share of the energy used in this sector as electrical use increases. In 1960, electrical line losses accounted for 16.09 trillion British thermal units, but by 2008 amounted to 71.63 trillion British thermal units, approximately 44.5 percent of all the energy used in this sector in 2008.

Total Energy Consumption by Fuel Type, Residential Sector Nebraska, 2008



Sources: State Energy Data Report. Energy Information Administration, Washington, DC. Nebraska Energy Office, Lincoln, NE.

Conservation

Conservation in the residential sector is influenced by price, weather and efficiency actions. Like most sectors, residential users are extremely responsive to dramatic price rises. Increases in the price of natural gas, at various times over the decades, have resulted in reduced average annual consumption. Higher than normal heating bills have propelled homeowners to make energy saving improvements such as replacing aged furnaces with new efficient models or efficient electric heat pumps, adding insulation and replacing windows and doors with more energy efficient ones.

Energy Need

2008. In 2008, energy prices for the two primary fuel types in the residential sector, natural gas and electricity, rose compared to 2007 levels. Specifically, natural gas increased from $10.95 in nominal dollars per million British thermal units in 2007 to $10.99 in 2008 and electricity increased from $22.25 in nominal dollars per million British thermal units in 2007 to $23.06 in 2008. The annual average also increased from $16.29 in nominal dollars per million British thermal units in 2007 to $16.83 in 2008. Among the states, Nebraska ranked 40th lowest in natural gas prices in 2008 at $9.59 measured in nominal dollars per million British thermal units.

Using a more common measurement, residential natural gas prices at $12.77 a thousand cubic foot, ranked 30th among the states in October 2010.

R E S I D E N T I A L

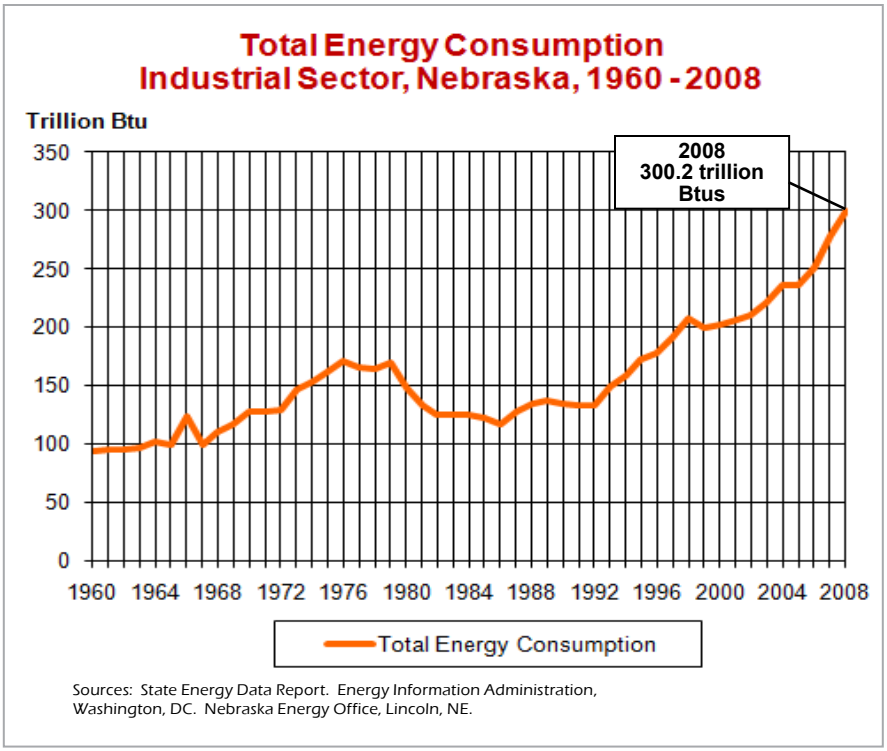
1970-2008. Price is a factor determining energy need. A household's energy needs can differ considerably if the price of a necessary fuel increases dramatically in a short period of time. The energy needs of the residential sector come from two major fuel types: natural gas and electricity. Those needs are likely to be determined in predictable ways: severity of winter and summer weather conditions and price volatility. In several of the first years of the 21st century, winter weather that was colder than the norm, combined with high gas prices to lower demand by residential users. In 2000-2001, residential natural gas prices rose from $6.40 to $8.57 in nominal dollars per million British thermal units. A similar situation happened in 2002-2003 when residential natural gas prices rose from $6.13 to $7.77 in nominal dollars per million British thermal units. Similar rises were recorded in 2004 ($8.97) and in 2005 ($10.58). As a result, consumers replaced inefficient heating equipment with high-efficiency models reducing energy consumption and switched fuels from natural gas to electricity by installing an efficient heat pump.

In the 38 years since records have been kept, residential electricity prices have increased from $6.21 in 1970 to $23.06 in nominal dollars per million British thermal units in 2008, nearly quadrupling in price. Residential natural gas prices have risen from 84 cents in 1970 to $10.99 in nominal dollars per million British thermal units in 2008, a more than 13-fold increase in 38 years far surpassing the price rise in electricity prices. The annual average has also risen from $1.83 in 1970 to $16.73 in nominal dollars per million British thermal units in 2008.

Annual residential energy expenditures totaled $170.0 million in 1970. By 2008, total expenditures had risen to $1.454 billion, a more than eight-fold increase.

Industrial

The industrial sector includes manufacturing, construction, mining, agriculture and forestry operations. This sector relies on more diverse fuel types than the other sectors of the economy. Natural gas, renewable energy, electricity, coal and a variety of petroleum products – gasoline, asphalt, road oil, propane and diesel – are the primary fuel types utilized in industrial sector operations.



Sources: State Energy Data Report. Energy Information Administration, Washington, DC. Nebraska Energy Office, Lincoln, NE.

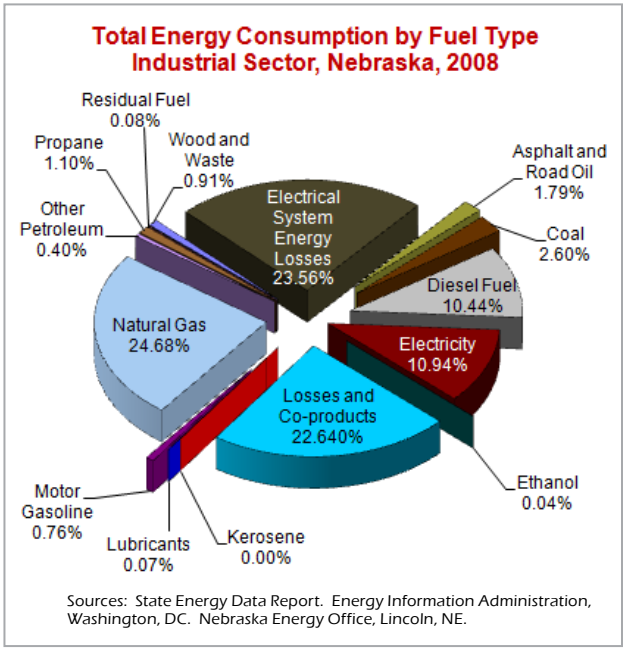
I N D U S T R I A L

Energy Supply

2008. In 2008, natural gas continued to be the dominant fuel consumed in the industrial sector. More than 32 percent of net energy consumption came from natural gas, followed by renewable energy — including losses and coproducts — at 31 percent, petroleum products at 19 percent and electricity at 14 percent.

Generally, supplies of these fuel types have been readily available to industrial users.

1960-2008. Trends in fuel types used in the industrial sector illustrate the dynamic needs of this sector and how industries can switch fuel types over time. The emergence of new industries such as ethanol plants can also alter fuel use patterns. For example, natural gas use in 1960 was 38.27 trillion British thermal units and soared in 1973 to 73.72 trillion British thermal units. Subsequent energy price spikes and other factors reduced natural gas consumption to 19.88 trillion British thermal units by 1986. Natural gas has fluctuated considerably over the past 19 years. A new historical peak occurred in 2008 at 74.07 trillion British thermal units. Consumption of distillate fuel more than doubled from 1960 to 2008, rising from 14.01 trillion British thermal units to 31.32 trillion British thermal units. Motor gasoline consumption dropped by nearly 80 percent between 1960 and 2008 from 11.27 trillion British thermal units in 1960 to 2.28 trillion British thermal units. The growing use of electricity in this sector is demonstrated by the more than ten-fold increase from 3.03 trillion British thermal units in 1960 to 32.83 in 2008.



Sources: State Energy Data Report. Energy Information Administration, Washington, DC. Nebraska Energy Office, Lincoln, NE.

Demand

2008. More than 38.3 percent of the state's total energy consumption – 300.2 trillion British thermal units – was used in the industrial sector in 2008. The 7.6 percent increase in demand from 2006 to 2008 totaled 22.8 trillion British thermal units, larger than the increase from 2006 to 2007.

1960-2008. In 1960, the industrial sector was the second largest energy user after transportation, 93.0 trillion British thermal units to 94.2 trillion British thermal units, respectively. By 2008, the industrial sector was the largest energy using sector at 300.2 trillion British thermal units, surpassing the transportation sector by 120.4 trillion British thermal units.

Conservation

The industrial sector is more pre-disposed to making energy efficient system, lighting and building improvements than other sectors. If energy costs are a significant factor – and rising – industrial sector users are likely to find ways to reduce the costs and impacts of energy on their operations. The roller coaster consumption of natural gas over the past 47 years noted in the energy supply section is an indicator of the impact of conservation of use, fuel switching or a combination of both..

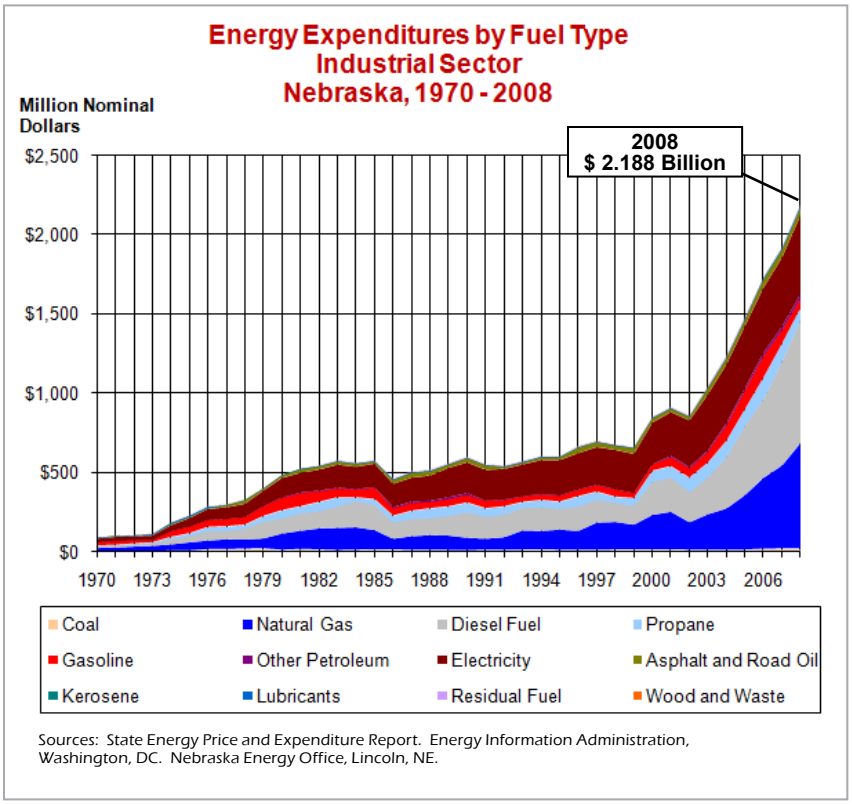
" More than 32 percent of net energy consumption came from natural gas, followed by renewable energy — including losses and coproducts — at 31 percent, petroleum products at 19 percent and electricity at 14 percent. "


Kinder Morgan natural gas pipeline in western Nebraska

I N D U S T R I A L

Energy Need

Energy need in the industrial sector is subject to the ebb and flow of business cycle and national, regional and local economic trends which can cause a spike or reduction in energy need and demand. As noted earlier, the surge in ethanol industry growth in the state added to this sector's energy needs for electricity and natural gas. The phenomenal growth in the renewable energy category — which includes ethanol, losses and coproducts, and wood and wood waste — is the story of the rise of ethanol production in Nebraska. In 1985, losses and coproducts accounted for 0.58 trillion British thermal units. By 2008, losses and coproducts had soared to 67.95 trillion British thermal units, second only to natural gas in this sector. "Losses and coproducts" are measurements of ethanol feedstock minus fuel ethanol production, excluding denaturant.



Sources: State Energy Price and Expenditure Report. Energy Information Administration, Washington, DC. Nebraska Energy Office, Lincoln, NE.

2008. Price can be a need-altering factor in the industrial sector, which is more adept at fuel switching and conservation practices than other sectors. In 2008, the industrial sector spent $2.118 billion in nominal dollars for energy, an increase of $267.2 million in nominal dollars over 2007.

1970-2008. In 1970, the industrial sector spent $92.4 million in nominal dollars, 13.8 percent of total energy expenditures for all sectors. In 1970, industrial sector energy spending ranked third among the four sectors. By 2008, industrial sector expenditures of $2.188 billion in nominal dollars had risen to 24.1 percent among all sectors, and now ranked second after transportation among energy-using sectors.

Just nine years ago in 1999, expenditures in the industrial sector totaled only $659 million in nominal dollars. In those nine years, spending in the industrial sector has increased by more than $1.528 billion in nominal dollars. The most dramatic price increases in those eight years were in refined petroleum products: propane prices more than doubled, gasoline prices nearly tripled and diesel prices nearly quintupled. Natural gas prices nearly tripled during that period while electricity prices increased about 50 percent. Annual average prices between 1999 and 2008 rose from $5.31 in nominal dollars per million British thermal units to $13.78 in 2008.

Transportation

Traditional methods of transportation such as public and private vehicles, railroads, aircraft and boats are included in the transportation sector as well as energy used to transport oil and natural gas through pipelines.

Energy Supply

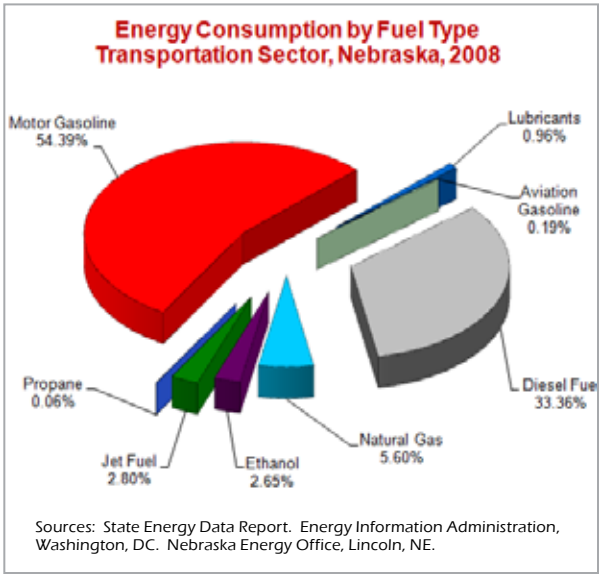
2008. In 2008, nearly 92 percent of energy used – 164.96 trillion British thermal units out of

TRANSPORTATION

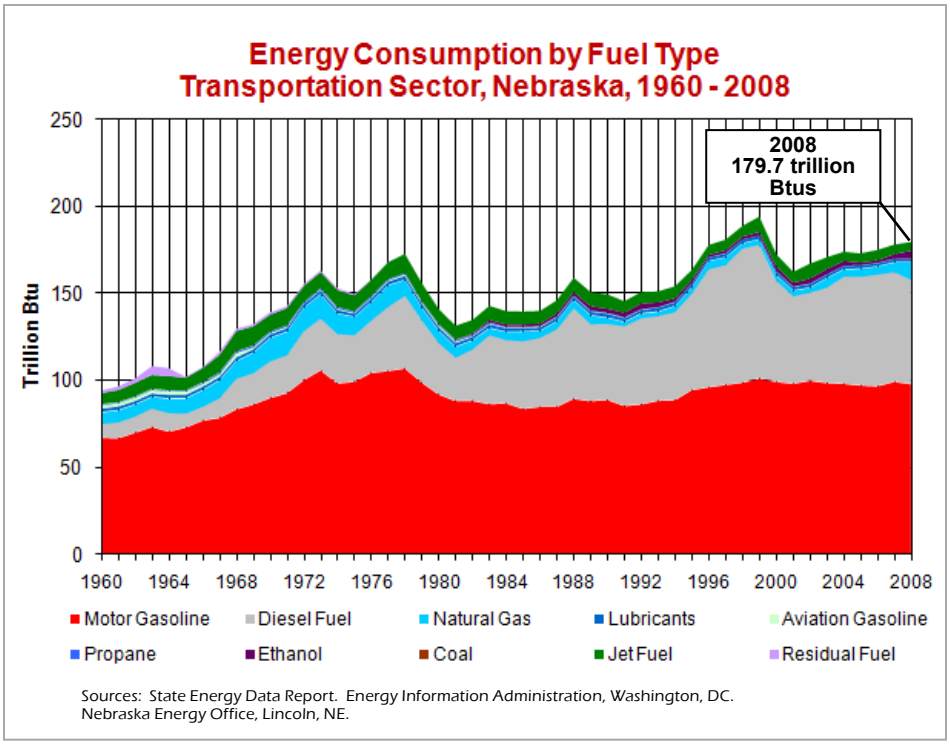
179.79 trillion British thermal units – in the transportation sector was in the form of petroleum products, especially distillate oil (e.g. diesel) and gasoline. The next two fuel types of any consequence were natural gas at 10.06 trillion British thermal units and ethanol at 4.76 trillion British thermal units.

Generally, supplies of these fuel types have been readily available to transportation users.

1960-2008. Trends in fuel types used in the transportation sector illustrate the static nature of this sector and how modes of transportation have changed little since 1960. The transportation sector was nearly totally dependent upon petroleum-based fuels in 1960 and remained almost as dependent in 2008. The changes that occurred in the 48-year period primarily related to increased use. Renewable fuel, specifically ethanol, use began marginally in 1981 at 0.28 trillion British thermal units and hit a new historical peak of 4.76 trillion British thermal units in 2008. Diesel fuel use in 1960 was 8.16 trillion British thermal units, peaked in 1998 at 77.19 trillion British thermal units and then declined to 59.97 trillion British thermal units in 2008. Motor gasoline use in 1960 was 67.07 trillion British thermal units, peaked in 1978 at 106.77 trillion British thermal units and by 2008 had declined to 99.78 trillion British thermal units.



Sources: State Energy Data Report. Energy Information Administration, Washington, DC. Nebraska Energy Office, Lincoln, NE.



Sources: State Energy Data Report. Energy Information Administration, Washington, DC. Nebraska Energy Office, Lincoln, NE.

Demand

2008. More than a fifth – specifically 22.99 percent of the state's total energy consumption – 179.8 trillion British thermal units – was used in the transportation sector in 2008. The increase in demand from 2007 to 2008 totaled 1.5 trillion British thermal units, the smallest rise since 2005.

TRANSPORTATION

1960-2008. In 1960, the transportation sector was the largest energy using sector at 94.2 trillion British thermal units. By 2008, the transportation sector had been eclipsed as the largest energy using sector by the industrial sector.

Conservation

The transportation sector is particularly resistant to conservation efforts. Over the decades, a variety of approaches by the state and federal governments have been tried to make this sector less dependent upon petroleum products: mandated Corporate Average Fuel Efficiency standards, reduced highway speed limits, introduction of efficiency technology in vehicles and driving modifications such as right-turn-on-red light and carpooling/ridesharing.

"The increase in demand from 2007 to 2008, totaled 1.5 trillion British thermal units, the smallest rise since 2005."

Omaha traffic

Recent trends in this sector — such as sport utility vehicles and large trucks used for personal transportation — have thwarted conservation efforts. However, fuel price rises can induce conservation behavior.

Rising pump prices for petroleum-based fuels since 1999 have had an impact on demand. Peak total energy consumption in this sector was reached in 1999 at 194.4 trillion British thermal units. The precipitous decline in transportation sector use from 1999 to 2000 – from 194.4 trillion British thermal units to 172.8 trillion British thermal units — continued into 2001 and was caused by dramatic price increases. Since 2001 when demand was 162.6 trillion British thermal units, demand has marginally inched upwards nearly every year.

Energy Need

Trends in price and vehicle technology as well as federal government initiatives such as more efficient vehicles are expected to have an impact on energy use in this sector in the near term, leading to declines in consumption. An offsetting trend has been the gradual increase in the number of motor vehicle miles traveled nearly every year since 1979, when the annual total was 11.53 billion miles. By 2008, that figure was 19.6 billion miles traveled. The impact of hybrid and electric vehicles is marginal at this time, but could have a significant impact if consumer acceptance of the technologies is high.

2008. In 2008, the transportation sector spent $4.398 billion in nominal dollars for energy, an increase of $577 million in nominal dollars over 2007.

1970-2008. In 1970, the transportation sector spent $317.0 million in nominal dollars, more than 47.5 percent of total energy expenditures for all four end-use sectors, and ranked first. By 2008, transportation sector expenditures of $4.398 billion in nominal dollars had risen to 48.4 percent among all sectors, and still ranked first among the four end-use sectors.

The 38-year span of energy prices in this sector provides dramatic illustrations of the financial impact of petroleum dependency on Nebraskans' wallets. In 1970, diesel fuel was $1.14 in nominal dollars per million British thermal units, but by 2008 diesel fuel was $26.71, rising an eye-popping $5.69 between 2007 and 2008. Motor gasoline was $3.03 in nominal dollars per million British thermal units in 1970 and $24.94 in 2008. The most dramatic rise occurred in propane: $1.09 in nominal dollars per million British thermal units in 1970 and $31.59 in 2008.

Electric Utilities

Information in this section consists exclusively of supply, demand, conservation and need by the state's electric utilities.

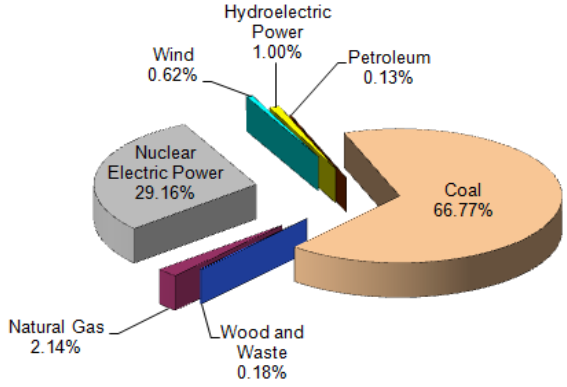
Energy Supply

2008. In 2008, 66.77 percent of the electric utilities energy supplies came from coal, 226.84 trillion British thermal units out of a total of 339.75 trillion British thermal units. The second most used

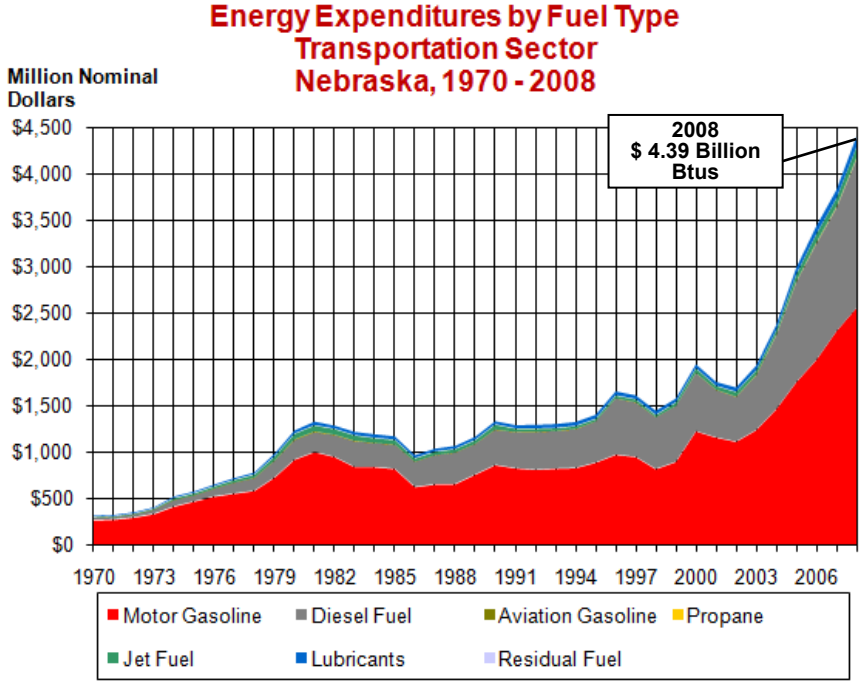
fuel in this sector, nuclear, supplied 29.16 percent, or 99.08 trillion British thermal units. Three lesser fuel sources supplied nearly all the balance: hydropower, 1.0 percent, or 3.41 trillion British thermal units; natural gas, 2.14 percent, or 7.27 trillion British thermal units; and wind, approximately 0.62 percent, or 2.11 trillion British thermal units.

Generally, supplies of these fuel types have been readily available to consumers served by the state's electric utilities.

1960-2008. Trends in fuel types used by the state's electric utilities illustrate how the industry has evolved over 48 years. In 1960, 63.8 percent of the electricity generated came from natural gas, with hydropower (20.54 percent) and coal (21.61 percent) supplying most of the balance. The experimental nuclear reactor that was located at Hallam operated between 1963-1964 and generated only marginal amounts of power before being deactivated. Coal use in this sector peaked in 2008 at 226.84 trillion British thermal units, natural gas used peaked in 1973 at 53.11 trillion British thermal units, nuclear power use peaked in 2007 at 115.77 trillion British thermal units, hydropower peaked in 1999 at 17.57 trillion British thermal units and wind use peaked in 2006 at 2.59 trillion British thermal units.



Sources: State Energy Data Report. Energy Information Administration, Washington, DC. Nebraska Energy Office, Lincoln, NE.



Sources: State Energy Price and Expenditure Report. Energy Information Administration, Washington, DC. Nebraska Energy Office, Lincoln, NE.

Demand

2008. The demand in the state's electric utility sector in 2008 totaled 339.75 trillion British thermal units, a decrease of 0.7 percent, or 2.44 trillion British thermal units, over 2007 demand. Among the changes in fuel used to generate electricity in 2008 were increased use of coal, and reductions in petroleum, natural gas, nuclear and renewable energy.

Electricity purchases generated by hydropower for use by Nebraska utilities from the Western Area Power Administration in 2008 totaled 2.035 million megawatt hours at an average price of .0298 cents per kilowatt

"The demand in the state's electric utility sector in 2008, totaled 339.75 trillion British thermal units, a decrease of 0.7 percent,."

Cooper Nuclear Station near Brownville

hour. The total cost of the power purchased in 2008 was $60.6 million. In 2007, the amount of power provided from Western Area Power Administration met seven percent of the electricity demand in the state

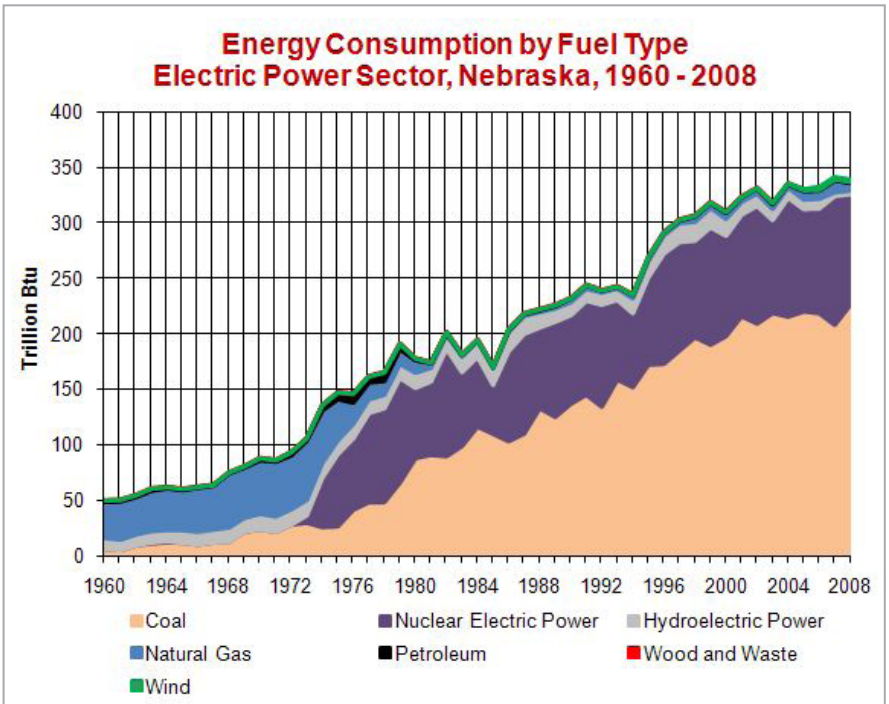
1960-2008. In 1960, the state's electric utilities' demand was 50.2 trillion British thermal units. By 2008, the demand in this sector had increased nearly seven-fold to 339.75 trillion British thermal units.

Conservation

Energy efficiency efforts in the electric utility sector generally result from technological advances in the generation and transmission of power.

One on-going target of efficiency improvements is reducing electricity transmission line losses. While technological breakthroughs can lessen the problem, other improvements can be made. Local utilities estimate standard line loss at seven percent, but in some cases actual losses can be considerably higher — more than double the seven percent – if preventative maintenance is not performed on a regular basis on utility lines. An example of future technologies being developed: The copper wires used in typical transmission lines lose a percentage of the electricity passing through them because of resistance, which causes the wires to heat up. But "superconductive" materials have no resistance, and if they are used to transmit electricity in the future, very little of the electricity will be lost.

Another transmission technology in development by the U.S. Department of Energy's Office of Electric Delivery and Energy Reliability is overhead conductors. Research is underway on a high-strength, high temperature overhead conductor, called the Aluminum Conductor Composite Reinforced, which can increase the current-carrying capacity of a transmission line by 1.5-3 times over that of conventional conductors now in use without the need for tower modification or re-permitting. Adoption of ACCR technology would lessen the need for new transmission lines



Sources: State Energy Data Report. Energy Information Administration, Washington, DC.
Nebraska Energy Office, Lincoln, NE.

"Consumer behavior, also known as demand side management, can be a source of conservation from which the electric utility sector will benefit since the cheapest kilowatt is the one that doesn't have to be produced."

LED (Light Emitting Diode) street lights installed by OPPD from 45th to 46th on Woolworth Street in Omaha

in Nebraska that could be used to export wind generated electricity.

Smart grid technology has garnered a great deal of attention. Smart electrical grids and accompanying communications infrastructures enable end-use efficiency and deployment of this technology in Nebraska is just getting underway, in part, because of several *American Reinvestment and Recovery Act* funded rural electric utility projects. One knowledgeable utility board member predicted that smart grid technology could save up to half of the energy currently wasted because of outdated transmission infrastructure.

Consumer behavior, also known as demand side management, can be a source of conservation from which the electric utility sector will benefit since the cheapest kilowatt is the one that doesn't have to be produced. For example, Nebraska utilities have been very proactive in the past several years in encouraging Nebraskans to utilize new lighting technologies, especially compact fluorescents and light emitting diodes. Some electric utilities have provided discount coupons, free light bulbs or financial incentives for larger commercial, industrial or governmental operations.

Energy Need

Nebraska's electric utilities more than met their customers' needs, continuing to export electricity to customers outside the state. Between 1990 and 2008, electricity exports varied from a low of 9.4 percent of generation in 1994 to a high of 23.9 percent in 1999. In 2008, 11.0 percent of the electricity generated in Nebraska was sold for use outside the state's borders, a decline of 8.5 percent from 2007 and the lowest percentage of net generation since 1994.

Trends in price as well as efficiency gains — offset by fuel switching by customers — are expected to have an impact on energy use in this sector in the near term. If growth continues in this sector, additional generation will be needed. New base load plants — primarily coal — have recently become operational. Smaller generation asset options have also been identified, especially those using wind.

2008. In 2008, electrical utility sector expenditures totaled $316.74 million in nominal dollars for energy, a decrease of 7.6 percent over 2007 and the first decline since 2001. The decline in expenditures in 2008 was primarily due to very large percentage declines for the secondary and tertiary fuel sources: natural gas, a 44.7 percent decline and nuclear, an 11.4 percent decline.

Nationally in 2008, the statewide average price for all sectors from all electric utilities in Nebraska was the seventh lowest rate in the country at 6.58 cents a kilowatthour. Nationally, the average price for electricity is 48 percent more, 9.74 cents, than it costs in Nebraska. Hawaii at 29.2 cents pays the highest, while West Virginia pays the lowest, 5.61 cents.

From a different and more recent perspective, residential electricity rates in October 2010 were the sixth cheapest in the nation at 9.06 cents a kilowatthour in Nebraska.

1970-2008. In 1970, the electric utility sector spent $22.27 million in nominal dollars, less than 7.03 percent of what was spent in 2008, $316.74 million in nominal dollars. In the 38 years since 1970, coal expenditures increased from $8.47 million in nominal dollars to $204.94 million in nominal dollars in 2008, natural gas from $12.77 million in nominal dollars to $54.11 million in nominal dollars in 2008, and nuclear fuel from nothing in 1970 to $47.13 million in nominal dollars in 2008. Minimal expenditures were made for

petroleum and wood and waste wood fuels.

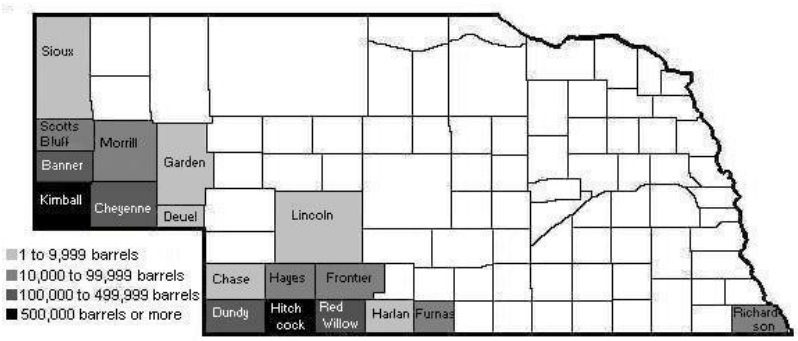
State Energy Resources Assessment

Nebraska is not a state rich in traditional fossil fuel resources.

Oil

Oil has been produced in the state since 1939. Oil production peaked in 1962 at 24.893 million barrels, and has declined precipitously since that time. In 2009, crude oil production decreased slightly from 2008 to 2.238 million barrels from 2.393 million barrels, returning to a slow decline after two years of small increases in production. Nationally, Nebraska ranked 21st among the states in oil production in 2008. In 2009, the Energy Information Administration estimated the state's crude oil reserves – an economic calculation – at 9 million barrels, about 1/10th of one percent of the nation's total crude oil reserves.

Crude Oil Production By County in Nebraska, 2008

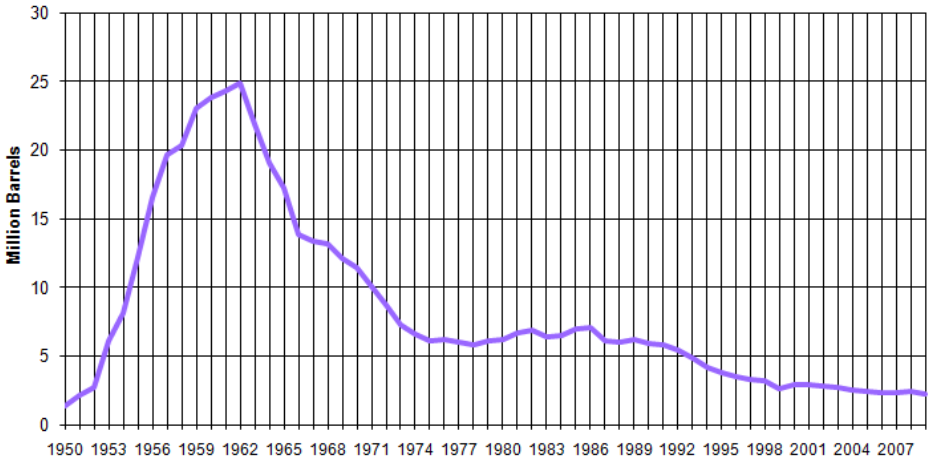


Sources: "Nebraska Oil Activity Summary." Nebraska Oil and Gas Conservation Commission, Sidney, NE. Nebraska Energy Office, Lincoln, NE.

In 2009, there were 1,077 active oil producing wells in the state. Drilling permits issued for exploratory wells (both oil and natural gas) fell by 80 percent from 2009 over 2008. Drilling permits for development wells also decreased almost 80 percent from 2009 to 2008. A favorable oil and natural gas price environment in 2008 changed dramatically in 2009 and accounts for the precipitous decline.

Production of oil in the state is concentrated in two areas: the southwest, particularly Hitchcock County and in the Panhandle, especially Kimball County. In 2009, these two counties produced more than half the oil mined in the state. The top five producing counties in 2009 (in rank production order): Kimball, Hitchcock, Red Willow, Cheyenne and Dundy.

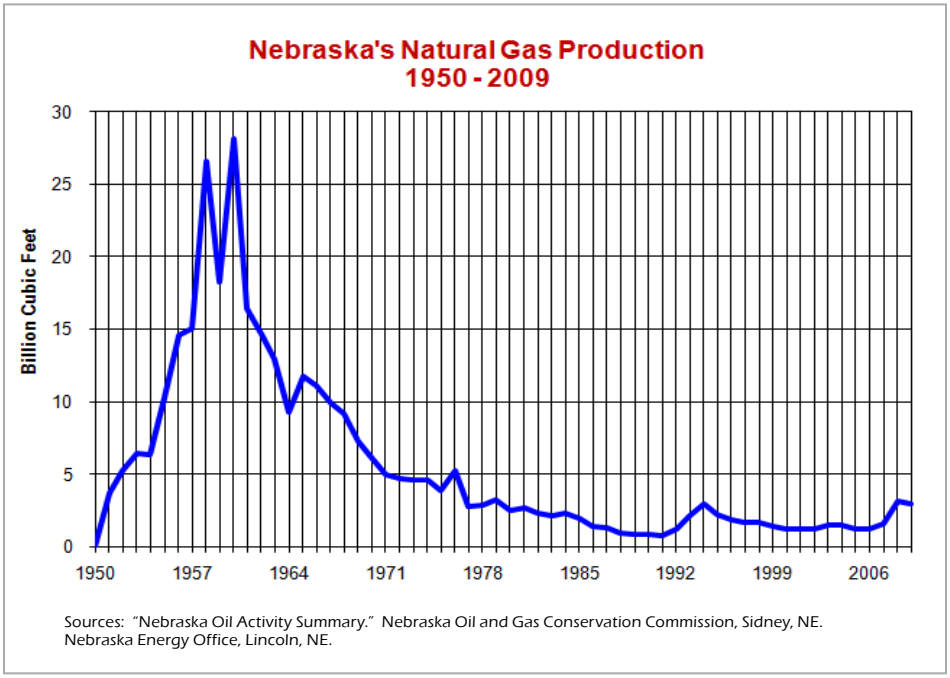
Crude Oil Production in Nebraska, 1950 - 2009



Sources: "Nebraska Oil Activity Summary." Nebraska Oil and Gas Conservation Commission, Sidney, NE. Nebraska Energy Office, Lincoln, NE.

STATE ENERGY RESOURCES ASSESSMENT

In 2008, Nebraska's crude oil production represented about 5.3 percent of the petroleum products used in the state that year.



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"Drilling permits for development wells decreased almost 80 percent from 2009 to 2008. A favorable oil and natural gas price environment in 2008, changed dramatically in 2009, and accounts for the precipitous decline."

Test drilling in Southwestern Nebraska

Natural Gas

Natural gas has been produced in Nebraska since 1950. Natural gas production peaked in the state in 1960 at 28.189 billion cubic feet and has declined since that time. There have been several infrequent, yet minor, increases in production over the years. In 2009, natural gas production was 2.916 billion cubic feet, a decrease of five percent from 2008.

In 2008, Nebraska's natural gas production represented only one percent of the natural gas consumed in the state in that year.

In 2009, Nebraska natural gas production ranked 25th among the states, just ahead of South Dakota.

Coal

The state's coal resources are insignificant and not economical to mine. However, the state's proximity to low-sulfur coal beds in the Powder River Basin in Wyoming allows Nebraska ready access to coal resources used in the production of electricity.

Uranium

Uranium has been mined in the state since 1991 at a site near Crawford, but must be sent outside the state's boundaries for processing.

Alternatives

In Nebraska, there are five viable alternate energy sources available: biomass, geothermal, hydropower, solar and wind. The U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy provides a brief overview of the state's electricity and renewable energy historical data and trends at http://apps1.eere.energy.gov/states/electricity.cfm/state=NE .

In 2007 (the latest year available), 2.78 percent of the state's energy consumption – 19.29 trillion British thermal units out of 692.95 trillion British thermal units – was met using renewable resources according to the Energy Information Administration. This was a decline from 2006 due

to a 37 percent decrease in hydroelectric power consumption.

Renewable energy use peaked in 1996 at 26 trillion British thermal units, 4.21 of total energy consumption that year.

Biomass

In 2007, wood and wood waste provided 10.26 trillion British thermal units, accounting for nearly 53.1 percent of the generation in the renewable energy category. Wood and wood waste increased by about 10.5 percent over 2006.

Biodiesel

Commercial scale biodiesel production began in Nebraska in 2006 and production was estimated to be around 2.4 million gallons in 2008. However, the price of soybeans used for feedstock seriously damaged this budding industry in the state in 2008 and both commercial scale plants in Arlington and Scribner are closed. If both plants would reopen, production capacity is estimated at 5.4 million gallons a year.

Ethanol

The growing biomass energy resource in the Nebraska continues to be ethanol that is produced from corn and grain sorghum. Ethanol production began in Nebraska in 1985 when 8.5 million gallons were produced at the state's first ethanol facility in Hastings. According to the Renewable Fuels Association as of December 2010, Nebraska has the second largest ethanol nameplate capacity (1.764 billion gallons) and the second largest ethanol operating production (1.739 billion gallons) in the nation. Approximately 13 percent of the nation's ethanol capacity is in Nebraska.

In 2010, the state firmly asserted its national ranking in ethanol production. In January, while the state ranked second nationally in nameplate capacity, Nebraska was third in operating production after Iowa and Illinois. Iowa, the long time leader had operational capacity of 3.183 billion gallons a year in January 2010 followed by Illinois at 1.383 billion gallons, with Nebraska at third with 1.311 billion gallons. But, by February, Nebraska had new capacity coming on line and overtook Illinois; Nebraska rose to 1.674 billion gallons a year followed by Illinois at 1.226 billion gallons. By December 2010, Nebraska added even more operational production, reaching 1.739 billion gallons a year.

The state's Ethanol Board estimated that nearly one-third of Nebraska's corn crop and the equivalent of three-quarters of the state's grain sorghum crop are used in the production of ethanol.

Ethanol consumption in the state comes mainly in the form of E10 blended gasoline – 10 percent ethanol and 90 percent gasoline. Smaller quantities of E85 – 85 percent ethanol and 15 percent gasoline – are also sold. Ethanol-blended fuel consumption in 2009 was 556.77 million gallons, out of a total of 817.99 million gallons. Ethanol's share of the fuel market in 2009 declined from the peak in 2008; 68.1 percent of all fuel sold in 2009 was an ethanol blend. The previous high of more than 73.2 percent was set in 2008.

Landfill Gas and Methane

A small, but slowly increasing amount of electricity is being generated from methane at former landfills: OPPD's Elk City Station; and wastewater sewage facilities: Lincoln's Teresa Street Treatment Plant and Omaha's Missouri River and Papillion Creek Treatment Plants. Other sources include a commercial processor in Butler County and one livestock anaerobic digester in Cuming County. Energy production from biogas resources has been tracked since 1995 when 1.06 million kilowatt hours was produced. In 2008, reporting Nebraska production facilities produced 68.46 million kilowatt hours of electricity.

"In 2010, the state firmly asserted its national ranking in ethanol production. In January, while the state ranked second nationally in nameplate capacity, Nebraska was third in operating production after Iowa and Illinois."

A blended ethanol pump opened in Ord, Nebraska in September 2010

"Growth in the use of geothermal heat pumps that can discharge waste heat into the ground in hot weather and extract heat from the ground in cold weather appears strong and is a technology that is being promoted by the state's larger electric utilities."

Cavett Elementary School in Lincoln uses geothermal heat pumps

Geothermal

There are two types of geothermal resources that can be utilized for energy: hydrothermal fluid resources and earth energy. According to the Energy Information Administration, there are two pockets of high-temperature hydrothermal fluid resources in the north central and northern Panhandle of the state. The Geo-Heat Center at the Oregon Institute of Technology has identified nine collocated communities in the state. A collocated community is one being within eight kilometers of a geothermal resource with a temperature of at least 50 degrees Celsius. In Nebraska, the nine towns meeting that standard are located in just four counties: Cheyenne – Brownson, Huntsman, Lodgepole, Ordville, Potter and Sidney; Keya Paha – Burton; Kimball – Kimball; and Scottsbluff – Gering. Resources in these areas might be suitable for development, but that prognosis appears unlikely in the near term.

Earth energy can be used directly to provide heat in a variety of applications, such as geothermal heat pumps and appears to offer Nebraskans the most economical and practical way to utilize this resource. Growth in the use of geothermal heat pumps that can discharge waste heat into the ground in hot weather and extract heat from the ground in cold weather appears strong and is a technology that is being promoted by the state's larger electric utilities.

In 2007, 0.115 percent of the state's total renewable energy consumption – 0.79 trillion British thermal units – came from geothermal resources and an historic high. That was a slight increase over the 0.73 trillion British thermal units in 2006.

Hydropower

The electricity consumed in Nebraska from hydropower resources came from two sources: the 11 dams in or on the border of the state and from purchases of Western Area Power Administration electricity. Usually the amount of electricity produced is relatively constant from year to year, unless affected by drought conditions or a facility is off line. As the state's energy need continues to grow, less and less of the need will be met by the relative constant amount of hydropower produced.

In 2008, 3.43 trillion British thermal units of hydropower were consumed in Nebraska which accounted for 0.496 percent of all renewable energy consumed that year, and was the lowest since recordkeeping began in 1960. The precipitous decline in hydroelectric consumption was attributed to drought conditions during that period of time. In 2006, 8.86 trillion British thermal units came from hydropower and represented 38.7 percent of the all renewable energy consumed that year.

Studies of the state's hydropower resources were conducted in 1981 and again in 1997. For the most part the studies concluded that nearly all of the potential hydro resources had been developed, and that even under the most optimistic scenarios, less than 150 MW of additional power could be produced from existing or new hydro resources. It is appears unlikely that any additional conventional hydropower resources will be developed within the foreseeable future. However, there are indications that micro-hydroelectric dams would be feasible in a number of settings accross the state.

Solar

According to an assessment by the Energy Information Administration, Nebraska has "good" solar resources, especially in the western part of the state. Nebraska is ranked among the states with great energy potential from solar power, according to the National Renewable Energy Laboratory.

There are two types of solar collectors: concentrating collectors and flat panels. Solar collectors

"In the fall of 2010, Nebraska Public Power District, with an ARRA grant from the Energy Office, constructed a 45 kilowatt photovoltaic array at its Norfolk Operations Center."

Solar array at Norfolk Operations Center

are simply flat panels that can be mounted on a roof or on the ground. Called flat plate collectors, these are typically fixed in a tilted position correlated to the latitude of the location. This allows the collector to best capture the sun. These collectors can use both the direct rays from the sun and reflected light that comes through a cloud or off the ground. Because they use all available sunlight, flat plate collectors are the best choice for many northern states such as Nebraska. For flat plate collectors, Nebraska has good, useful resources throughout the state. For concentrating collectors, Nebraska has useful solar resources, especially in the western region of the state.

Presently, solar technologies are marginally deployed in great part because it is difficult for solar technologies to be cost competitive with the state's low electric rates. Where solar does make sense economically are in meeting the needs of cattle ranchers in remote regions where photovoltaic systems are less expensive than installing new transmission lines. Omaha Public Power District has operated two solar photovoltaic panels at its Elkhorn facility since 2002. In 2007-2008, 5,899 kilowatt hours were produced from these panels.

In the fall of 2010, Nebraska Public Power District, with a *Recovery Act* grant from the Energy Office, constructed a 45 kilowatt photovoltaic array at its Norfolk Operations Center. Energy production data from this system should be available in 2010.

In 2007, solar energy accounted for 0.03 trillion British thermal units of all renewable energy consumed in the state, the same amount as in 2006.

Wind

The U.S. Department of Energy's Wind Powering America program indicates that Nebraska has wind resources consistent with utility-scale production of electricity. Maps of the state's wind resources at different heights are located at http://www.neo.ne.gov/renew/wind.htm as well as a wealth of other wind informational tools. Other wind energy assessments have suggested the state could produce as much as 7,800 MW of new electricity from wind resources annually. The American Wind Energy Association ranks the state 6th in the nation with the greatest wind energy potential. Another study has placed Nebraska 3rd in wind energy potential.

In 2009, 400 million kilowatt hours were generated by utility-scale wind energy in Nebraska. Nebraska has 73 operational turbines with a total capacity of 152.88 megawatts. The average annual output from the turbines is sufficient to provide power to about 46,500 homes for a year. A complete list of sites and generation is available at http://www.neo.ne.gov/statshtml/89.htm .

Omaha Public Power District and Nebraska Public Power District added to their generation assets before the end of 2010:

Omaha Public Power District

- Flat Water with 60 megawatts near Humboldt in Richardson County

Nebraska Public Power District

- Laredo Ridge with 81 megawatts near Petersburg in Boone County

Nebraska Public Power District also plans to add an 80 megawatt facility near Broken Bow in Custer County in 2012.

In 2007, wind energy produced 2.14 trillion British thermal units, less than one-half of one percent of all energy consumed in Nebraska and slightly less than produced in 2006.

As of January 2010, the state ranked 25th

among all states with 213 megawatts installed wind energy capacity and 81 megawatts under construction according to the American Wind Energy Association.

Estimated Energy Consumption Reduction

Several evaluations have been conducted in the past by the Energy Office that quantified energy consumption reductions that resulted from activities sponsored by the agency:

- A typical home weatherized under the agency's federally-funded program achieves a 25 percent or greater reduction in space heating needs, and saves an estimated $152 a year in energy costs.
- Replacement natural gas fueled furnaces installed and financed with Dollar and Energy Saving Loans from the agency realized a 10.7 percent reduction in energy use for 80 percent efficient furnaces and a 19.2 percent reduction in energy use for 90 percent efficient furnaces.
- In 2010, the agency began two separate evaluations on energy savings resulting from program activities in the Low-Income Weatherization Assistance Program and on Dollar and Energy Saving Loans. These studies are expected to be completed in 2012.

Status of Ongoing Studies

The Nebraska Energy Office had no ongoing studies underway during this period.

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