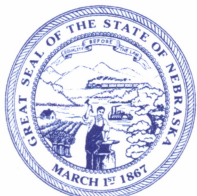




NEBRASKA ENERGY OFFICE ANNUAL REPORT 2014



STATE OF NEBRASKA



Pete Ricketts
Governor

NEBRASKA ENERGY OFFICE

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February 13, 2015

Patrick J. O'Donnell
Clerk of the Legislature
Room 2018
State Capitol
Lincoln, NE 68508

Dear Mr. O'Donnell:

Enclosed is the Nebraska Energy Office's Annual Report for Fiscal Year 2013-2014 as required by Nebraska State Statutes, Section 81-1607 (R.S. Supp. 1988). A copy of the Annual Report has also been posted at the agency's web site at:
http://www.neo.ne.gov/annual_report/NEOAnnualReport.pdf.

Sincerely,

A handwritten signature in blue ink that reads "David L. Bracht".

David L. Bracht
Director

Nebraska Energy Office



Table of Contents

The Programs

Low Income Weatherization Assistance Program	1
Oil Overcharge Funds.....	5
State Energy Program.....	8
Financial Activity	10

The Nebraska Energy Office Annual Report for 2014 does not contain a Trends and Needs section as prescribed by Nebraska Revised Statutes 81-1607. Statistical data for the Trends and Needs section was not available at the time of printing. An addendum containing the Trends and Needs section will be submitted to the Clerk of the Legislature at a later date.



The vision of the Nebraska Energy Office is to provide leadership that maximizes the benefits of energy efficiency and renewable energy through communications, outreach, technology and partnerships.

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.

The Energy Office accomplishes this mission by administering innovative programs, implementing projects and services that inform, educate and involve energy consumers and decision makers. The Energy Office also collects essential statistical energy data and is the State's lead Agency responsible for developing recommendation responses during energy related emergencies.

Goals:

- ❖ Expand opportunities to implement energy efficient projects through partnerships and collaborations.
- ❖ Develop and administer programs that promote efficient uses of energy resources in everyday lives.
- ❖ Support economic development activities including sustainable existing state businesses and attracting new energy investment to the state.
- ❖ Support a broad energy portfolio that meets the state's energy needs in a reliable, clean, cost-effective manner and integrates renewable options.
- ❖ Continue the compilation and analysis of energy statistics and information that identify emerging trends related to energy supply, demand and conservation.
- ❖ Provide objective perspectives on energy policy to the public and elected officials.

The Programs

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

- ❖ 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.

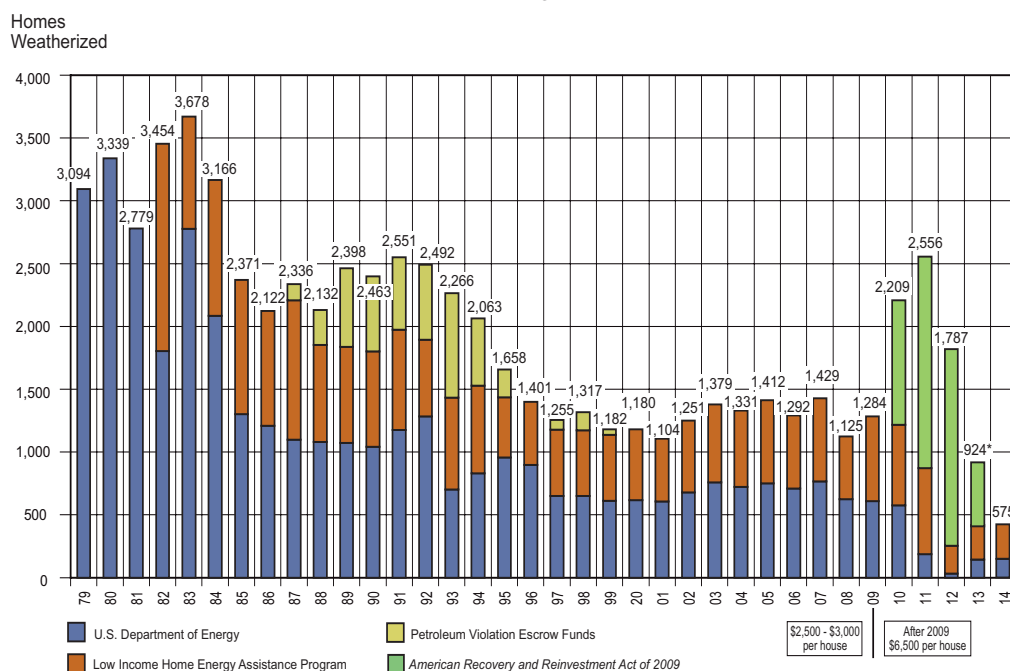
An overview of the 2013-2014 financial activity appears at the end of this section. The period covered by this report is from July 1, 2013 to June 30, 2014, except where noted.

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 crews or private contractors are responsible for completing the work on the homes. The Energy Office staff inspects a minimum of 30 percent of all completed homes to ensure the quality of work performed.

Number of Homes Weatherized by Source of Funds, 1979 - 2014



*The number of homes weatherized in 2012-2013 were revised from last year's Annual Report.

Source: Nebraska Energy Office

Figure 1

Weatherization Assistance Program

The Weatherization Assistance Program received funding from four sources during the reporting period:

- \$2,951,735 from the Low-Income Home Energy Assistance Program. 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.
- \$1,170,721 from the U.S. Department of Energy's Weatherization Assistance Program.
- \$422,377 from the *American Recovery and Reinvestment Act of 2009*. This is the final expenditure of these funds in this program.
- \$6,941 from *Petroleum Violation Escrow Funds* (Stripper Well).

More about how these funds have been spent throughout the state are in figure 3.

Between 2013-2014, 575 homes were weatherized with these funds as illustrated in figure 3.

The types of improvements may vary based on an analysis of the home and averages between \$4,000 and \$6,500 per home, excluding the cost of health and safety improvements such as furnace repairs. Prior to mid-2009, the average amount spent on homes ranged from \$2,500 to \$3,000. The average cost of a home is set by the U.S. Department of Energy. 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,

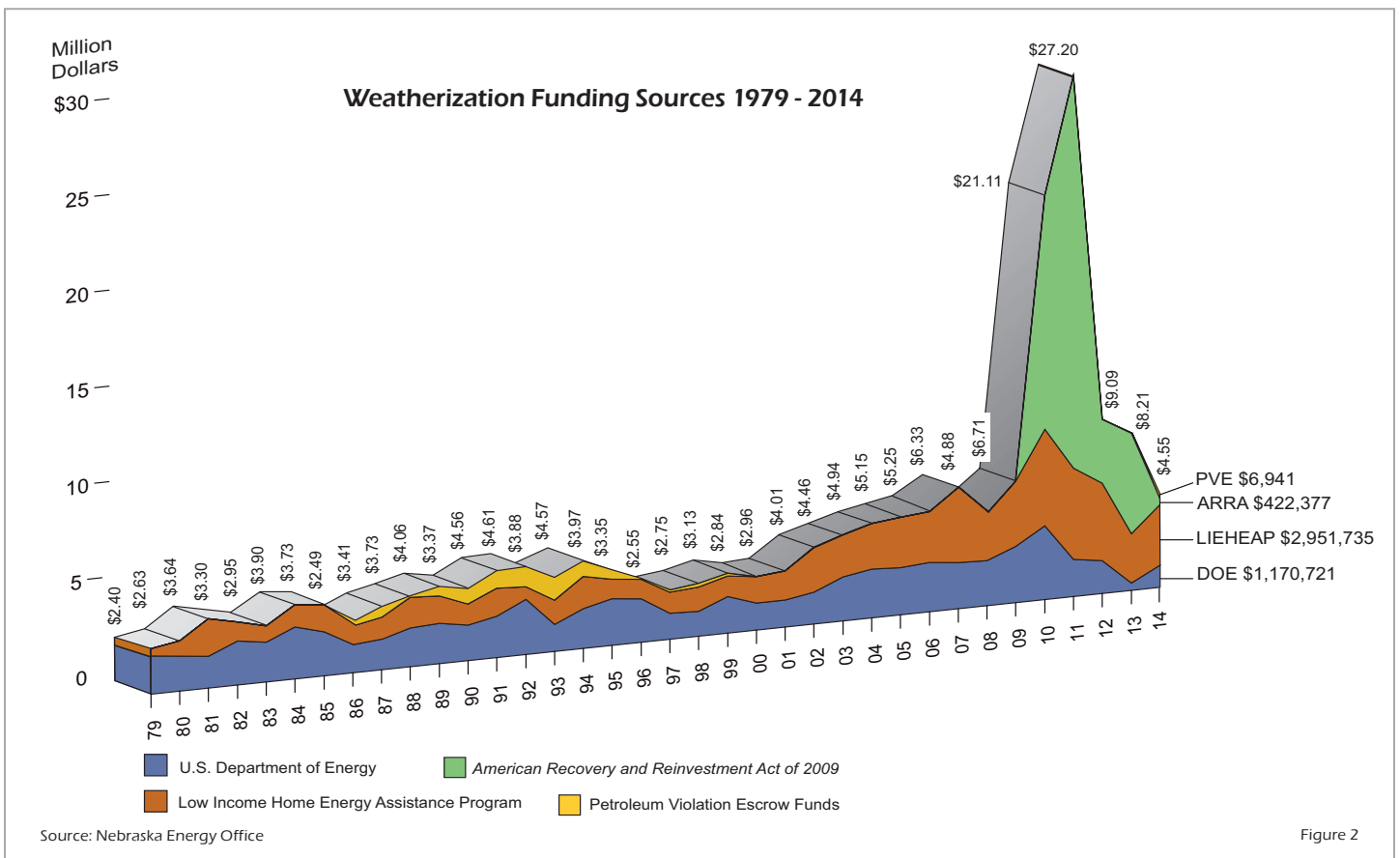


Figure 2

Weatherization Assistance Program

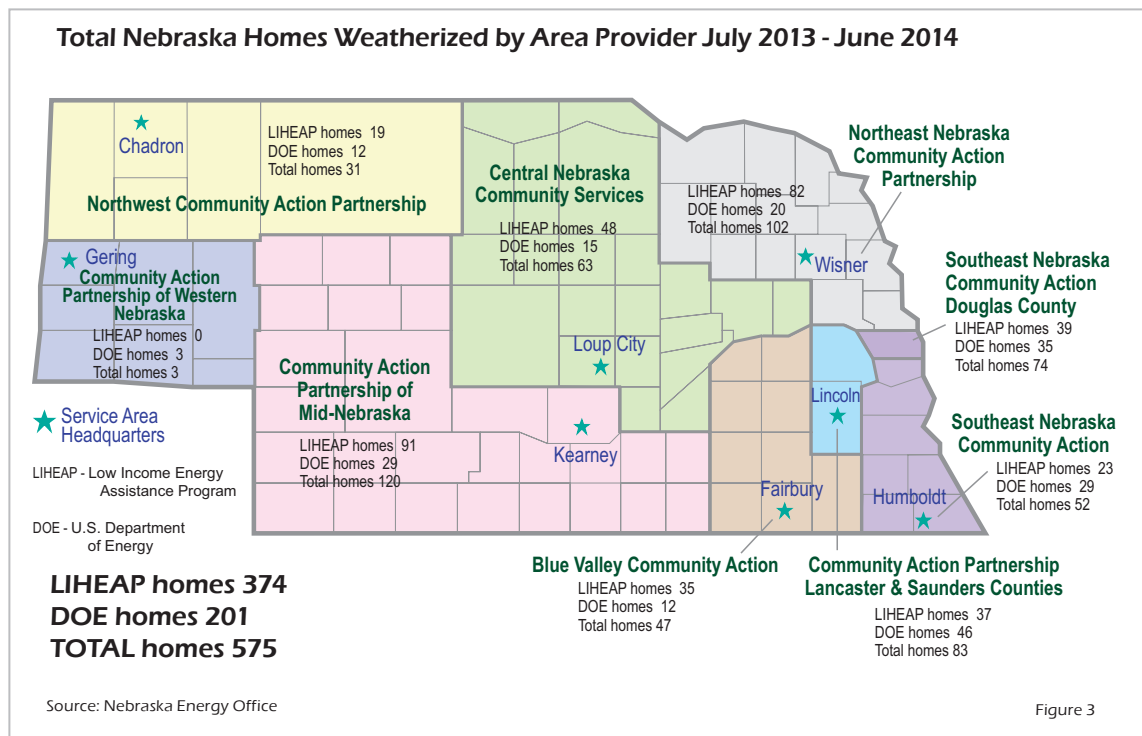
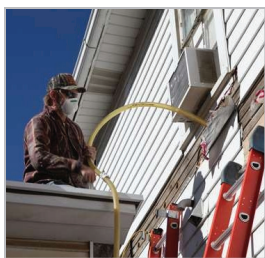


Figure 3

“Energy savings resulting from the energy efficiency improvements made to homes typically last 20 years or longer.”



The Weatherization Assistance Program integrates a whole-house approach to energy efficiency.

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, \$142.43 million has been spent to

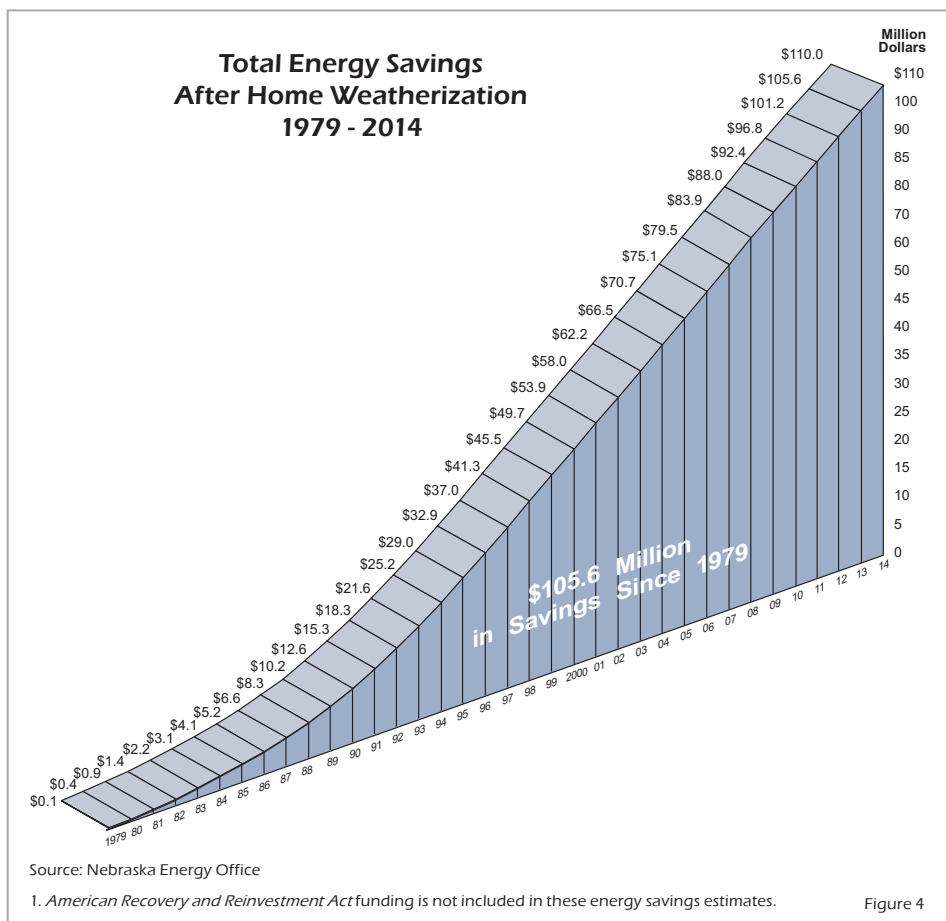
make energy efficiency improvements in 65,237 homes. In 2010, maximum household income levels were revised to 200 percent of the federal poverty guidelines, making free home weatherization available to thousands more Nebraskans than in prior years.

Energy savings resulting from the energy efficiency improvements made to homes typically last 20 years or longer and most have a one year pay-back. Conservatively, estimated energy savings for the 35 years total \$110 million. About \$4.4 million in new savings accrue annually as a result of the improvements made as illustrated in Figure 4.

Weatherization Assistance Program

In 2012, an extensive analysis quantified the energy, economic and environmental benefits of the Weatherization Assistance Program and these quantifiers are used today to determine the impact on the program.

Beginning in January 2014, data from Weatherization Assistance Program activities were entered into the database and the energy, economic and environmental benefits from the first nine months, through September 30, 2014 are illustrated in Figure 5.



Nebraska Energy Office Investment in the Weatherization Assistance Program January - September 2014	
NEO Investment (federal funds)	\$1,225,662
Energy Impacts	
Electric Dollar Savings	\$93,489
Natural Gas Dollar Savings	\$29,235
Annual Total Dollar Savings	\$122,724
Present Discount Value of Future Savings	\$733,575
Economic Impacts	
Output	\$850,064
Value-Added	\$571,943
Labor Income	\$571,101
Job-Years	17.14
Environmental Impacts (Pounds)	
Carbon Dioxide (CO2)	6,774,675
Sulfur Dioxide (SO2)	10,905
Nitrogen Oxide (NOX)	9,742
Particulate Matter < 2.5 micro-meters (PM2.5)	189.95
Volatile Organic Compounds (VOC)	199.66
Particulate Matter < 10 micro-meters (PM10)	304.61

Source: Nebraska Energy Office

Figure 5

Oil Overcharge Funds

Oil Overcharge Funds

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.

Nebraska Energy Settlement Fund
A Summary of Exxon, Stripper Well and Diamond Shamrock
Oil Overcharge Funds as of June 30, 2014

	Exxon	Stripper Well	Diamond Shamrock	Total
Funds Received	\$15,504,944	\$15,674,042	\$359,172	\$31,538,158
Interest Earned and Miscellaneous Income	\$12,394,726	\$11,070,310	\$256,516	\$23,721,552
Total	\$27,899,670	\$26,744,352	\$615,688	\$55,259,710
Funds Budgeted	\$27,899,670	\$26,399,525	\$615,688	\$54,914,883
Low Income Designated	\$0	\$15,527	\$0	\$15,527
Uncommitted Balance	\$0	\$329,300	\$0	\$329,300

Source: Nebraska Energy Office

Figure 4

Dollar and Energy Saving Loans
Total Dollars Invested and Number of Projects 1990-2014

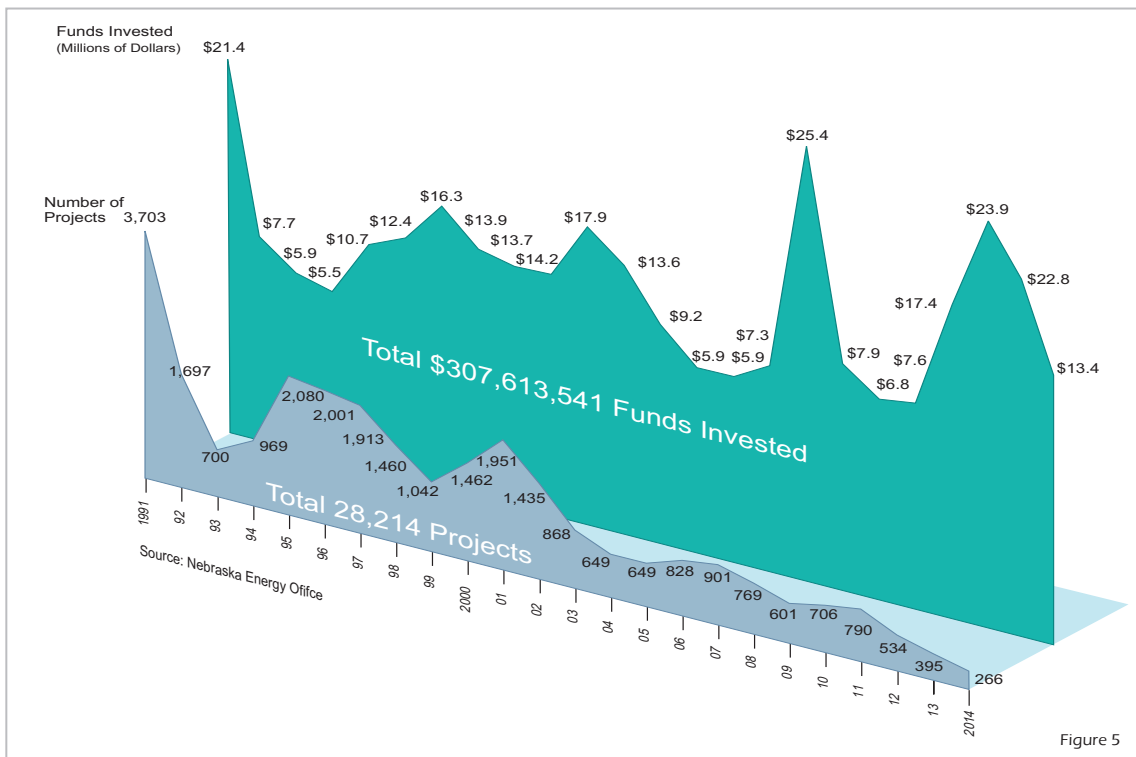


Figure 5

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 4.

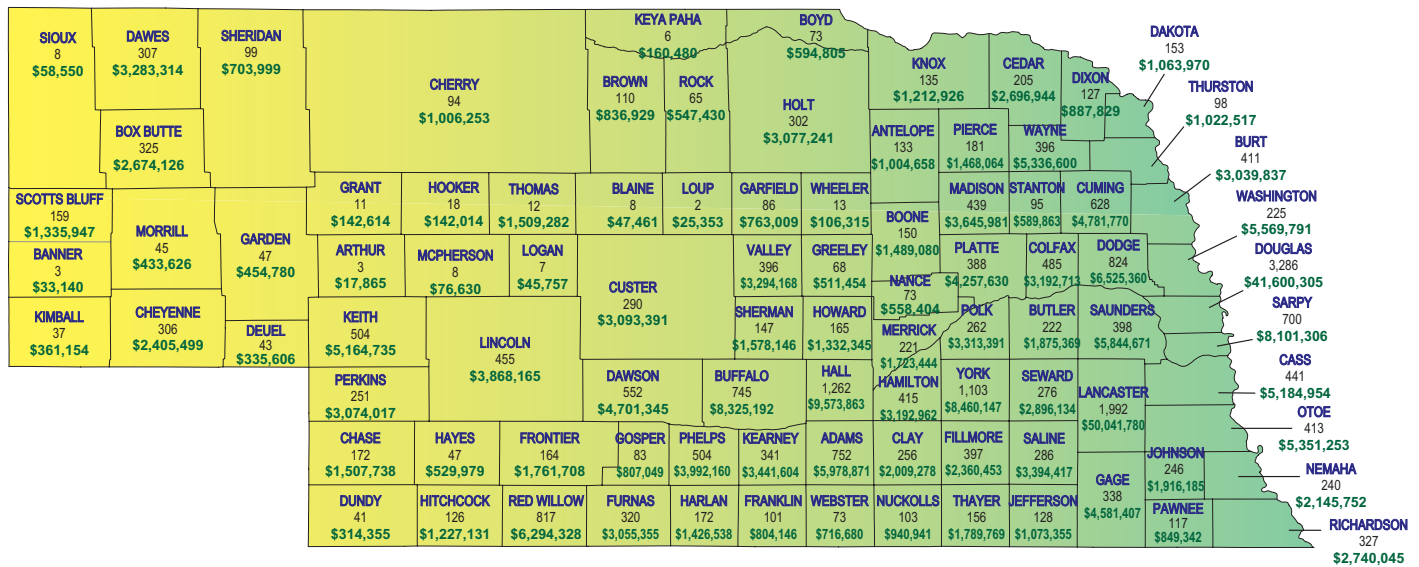
Dollar and Energy Saving Loans

The Dollar and Energy Saving Loan program was initially capitalized with oil overcharge funds, later augmented with *American Recovery and Reinvestment Act* funds and is continually re-charged with loan repayments from borrowers.

Source: Nebraska Energy Office

Oil Overcharge Funds

**Dollar and Energy Saving Loan Projects,
Number of Projects by County and Total
Dollar Amount of Projects as of June 30, 2014**



Source: Nebraska Energy Office

Figure 6

The Energy Office, in conjunction with 267 Nebraska lending institutions at 906 locations, continues to transform the energy market through access to statewide reduced interest rate loans. Energy efficiency, renewable energy and waste minimization projects in all sectors can be financed. Focus has been on homes, businesses and operating systems, alternative fuel vehicles, fueling facilities and equipment, telecommunications equipment, ENERGY STAR® certified home appliances and ENERGY STAR® five star plus homes. Interest rates ranged from 2.5 to 3.5 to 5.0 percent during 2013-2014 depending on the project eligible for financing and the lender, and one percent for schools willing to benchmark energy consumption through the life of the loan.

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 1.5 percent loans for air source, ground water or ground coupled heat pumps, qualifying thermostats and back-up natural gas or propane furnaces with a 95

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/loans1.5.htm).

From 1990 to June 30, 2014, 28,214 energy saving projects totaling more than \$307.61 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 \$142.42 million of the \$307.61 million has come from the agency's revolving loan fund. The state's participating lenders provided more than \$120.71 million. The balance, more than \$44.46 million, was spent by the borrowers on non-eligible related improvements.

Loans have financed projects in all of the state's 93 counties as illustrated in Figure 6. Douglas County with 3,286 projects totaling \$41.6 million tops the list with the most projects. Lancaster County co-anchors the top spot with the most dollars invested at \$50.04 million, albeit on fewer projects — only 1,992. Looking at a regional perspective, the Third Congressional District leads

“From 1990 to June 30, 2014, 28,214 energy saving projects totaling more than \$307.61 million have been financed with low-interest loans from the Energy Office and participating lenders...”

Oil Overcharge Funds

with 14,144 projects; First Congressional District with 9,950 projects still totaling and the Second Congressional District with 4,120 projects.

During this reporting period, 266 new projects totaling \$13.4 million were financed. The number of energy efficiency projects financed since 1990 are shown in Figure 5 and total 28,214.

Figure 7 quantifies loans in six different areas: residential, commercial/industrial, agricultural, transportation, wind, solar, fuel cell 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 7. Several of the largest categories are detailed as follows:

Residential

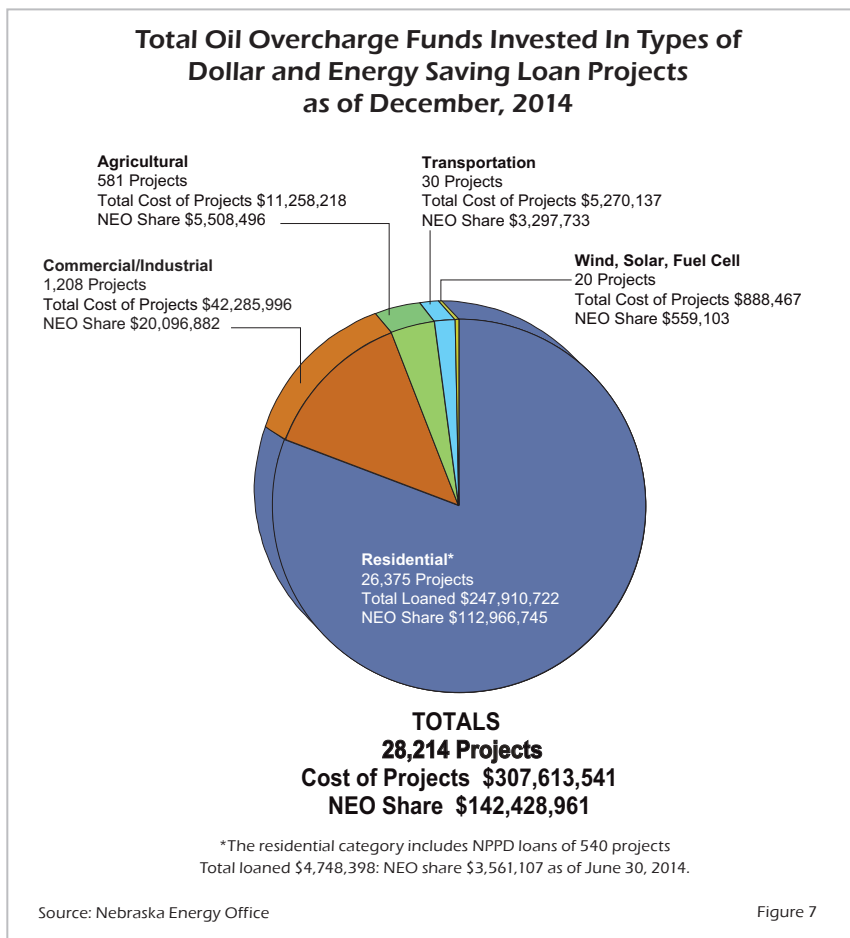
More than 93.4 percent of all the energy efficiency projects financed with loans from the agency are in the homes of Nebraskans. More than 80.59 percent of funds from all sources — \$247.91 million — has been used to finance residential energy saving improvements such as replacement of inefficient furnaces, air conditioners and heat pumps, replacement of windows and doors and insulation of walls and ceilings. New energy efficient housing construction is also included in the category. Since 1990, 26,375 residential energy efficiency projects have been undertaken by Nebraskans using loan program funds.

Commercial/Industrial

More than 13.74 percent of funds from all sources — \$42.28 million — has been used to make building and system improvements in 1,208 projects since 1990, ranking second-highest among all loan areas. Typical improvements in this category include replacement of heating and cooling equipment, installation of insulation, lighting upgrades and replacement of doors and windows.

Agricultural

Improvements in agricultural equipment and systems rank third in the use of low-interest financing. More than 3.65 percent of all improvement funding — \$11.25



State Energy Program

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, 581 projects have been financed with \$5.50 million from the Energy Office, \$5.36 million from participating lenders and \$383,670 from borrowers.

Nebraska Energy Office Investment/Dollar and Energy Saving Loans January - September 2014	
NEO Investment	\$1,665,427
Energy Impacts	
Electric Energy Savings (kWhs)	74,695
Natural Gas Energy Savings (therms)	24,752
Present Discount Value of Future Savings	\$1,551,455
Economic Impacts	
Output	\$1,700,769
Value-Added	\$1,000,228
Labor Income	\$756,636
Job-Years	19.76
Environmental Impacts (Pounds)	
Carbon Dioxide (CO2)	6,435,404
Sulfur Dioxide (SO2)	7,859
Nitrogen Oxide (NOX)	8,267
Particulate Matter < 2.5 micro-meters (PM2.5)	137
Volatile Organic Compounds (VOC)	302
Particulate Matter < 10 micro-meters (PM10)	219
Total Present Discount Value of Environmental, Comfort, Health and Safety	\$464,703

Source: Nebraska Energy Office

Figure 8

Energy, Economic and Environmental Impacts

In 2012, a study analyzing the energy, economic and environmental impacts of the Dollar and Energy Saving Loan program was completed. Beginning in January 2014, data from on Dollar and Energy Saving Loans were entered into the database and the energy, economic and environmental benefits from the first nine months, through September 30, 2014 are illustrated in Figure 8.

State Energy Program

In 2013-2014, Nebraska received \$365,660 for this federally-funded effort and supplied \$73,132 in state funds from oil and natural gas severance taxes, as required 20 percent 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 (neo.ne.gov/statshtml/index3c.html) and agency website (neo.ne.gov).

These funds also provide program support for a wide array of activities that include energy supply 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 activities.

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. The agency also performs inspections at the request of the occupant to determine compliance with the state-wide Building Code.

State Energy Program

Building Energy Codes Collaborative

In March 2013, the Energy Office established a Building Energy Codes Collaborative, using existing agency funding. The Collaborative was a group of more than 25 members that represent: state and local governments, homebuilders, utilities, architects, home energy raters, suppliers, banks, and advocacy groups including Midwest Energy Efficiency Alliance, Nebraska League of Municipalities and Association of General Contractors.

It's activities included:

- Conducted a Commercial Compliance Baseline Study of 38 buildings. The Collaborative helped to expand the study's original focus. Under a partnership with the University of Nebraska-Lincoln, the study was a service learning class. Students not only gathered the data for the study, but also reported back about their experiences. The Commercial Energy Code Compliance Report is at www.neo.ne.gov/home_const/iecc/documents/NebraskaCommercialComplianceStudyRept.pdf
- Hosted a Senator Information Session to explain the benefits of energy codes, current legislation and past training activities.
- Worked on the mechanics of financing code compliance activities as well as workshops and ways for utilities and local code jurisdiction staff to become involved.

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.

State Heating Oil and Propane Program

Between September 2013 and September 2014, the Energy Office began its 12th 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 which is required to be matched one-for-one using state cash funds. By the end of the reporting period, all funds were expended and the project was completed.

Nebraska Energy Extension Partnership — Agricultural Efficiency Nexus: Energy, Water and Food

With this U.S. Department of Energy grant, the Energy Office will work cooperatively with University of Nebraska Extension in several areas:

- Expand the water management demonstration network,
- Develop methodology for an irrigation energy efficiency rating system and
- Expand building energy codes and weatherization consumer education.

This competitive State Energy Project Special Projects funded grant was awarded \$186,195 in September 2011 and matched with \$37,239 in state funds. This project was originally scheduled for completion in 2014, but was extended by the U.S. Department of Energy until 2015.

“...With this U.S. Department of Energy grant, the Energy Office will work cooperatively with University of Nebraska Extension in several areas...”



Thermal camera test.

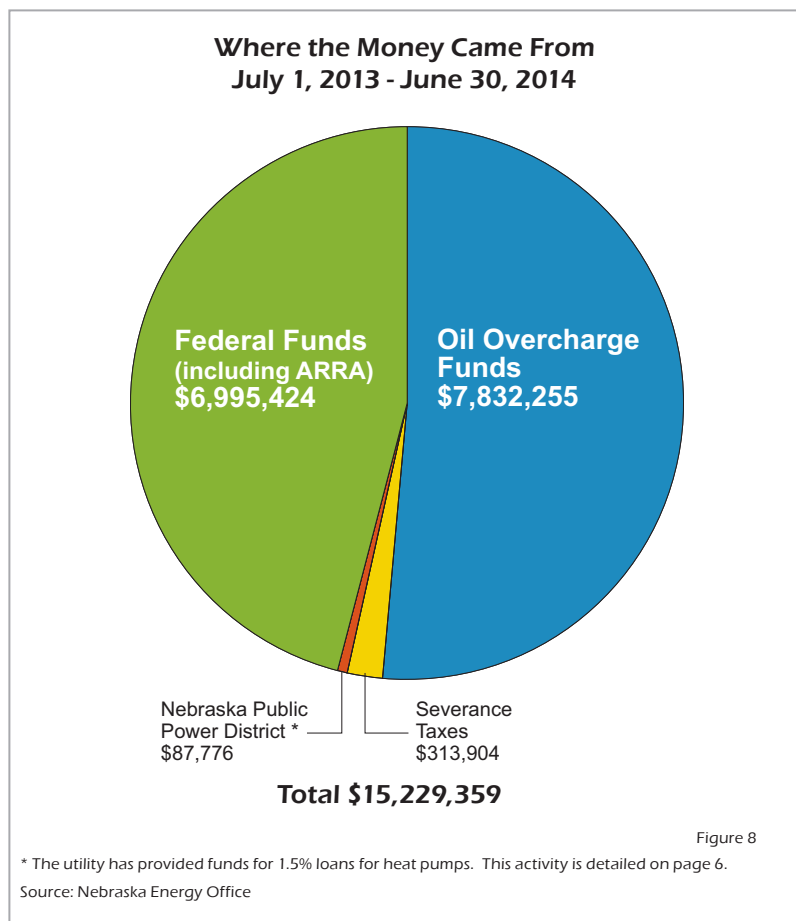
Financial Activity

Funds Received

In 2013-2014, funds received by the Nebraska Energy Office totaled \$15,229,359 which includes monies from federal, state, oil overcharge trust and miscellaneous funding sources. Funding decreased by \$13.30 million from the previous fiscal year, primarily because of the expenditure and completion of the *American Recovery and Reinvestment Act* funds.

The sources of funding for the agency are illustrated in Figure 8. More than 51.4 percent of all funds, \$7,832,255, came from Oil Overcharge funds.

Federal funds decreased as a percentage of all funds to 45.9 percent in 2014 from 49.6 percent in 2013.



Financial Activity

Funds Spent

More than 52.0 percent of all agency funds were spent as Oil Overcharge aid in the form of Dollar and Energy Saving Loans paid to local lenders for eligible projects to participating borrowers. This expenditure was only 39.7 percent in 2012-2013.

Federal aid expenditures were 34.1 percent in 2013-2014. Federal aid received by the agency is expended as federal program-specific activities such as the Weatherization Assistance Program and State Energy Program.

The remaining 13.89 percent of the funds paid for salaries and operations.

A complete listing of expenditures by category is illustrated in Figure 9.

Oil overcharge fund activity during the reporting period is located on page 5 of this report.

