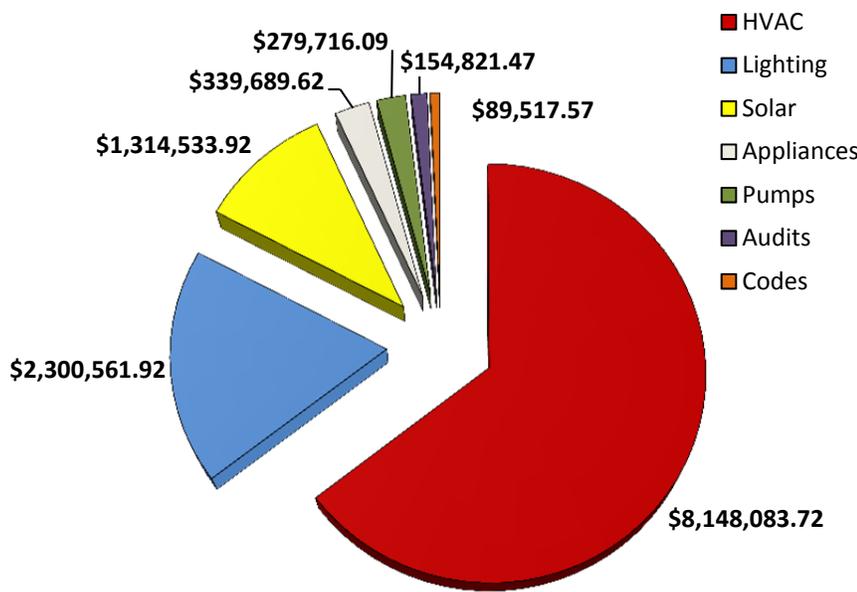


RESULTS OF THE EMPOWER LOUISIANA ENERGY EFFICIENCY AND CONSERVATION BLOCK GRANT PROGRAM

by
Billy Williamson, P.E., C.E.M

The Empower Louisiana Energy Efficiency and Conservation Block Grant (EECBG) Program is now completed. The Louisiana Department of Natural Resources (DNR) developed the EECBG program to provide funding for energy efficiency and renewable energy projects for municipalities and parishes. In total, DNR utilized \$13,773,530.24 in EECBG funding, including \$12,626,924.31 reimbursed to eligible parishes. This funding was authorized as part of the American Recovery and Reinvestment Act of 2009. Projects receiving this funding resulted in energy savings of 24,964 Million Btu per year and renewable energy generation of 638 Million Btu per year.

Figure 1. Spending By Project Type



Parishes identified eligible projects and upon receiving project approval from DNR began the necessary contract negotiations. Completed projects fell into 7 major categories: Codes, Audits, Pumps, Appliances, Solar, Lighting, and HVAC. The breakdown of spending by project type is shown in Figure 1.

Codes projects involved the education of staff and purchase of equipment for building energy code enforcement. *Audits* refer to commercial building energy audits performed on government-owned facilities to identify inefficiencies and develop energy reduction strategies. These audits can be

used to develop energy management plans for government campuses. *Codes* and *Audits* are both non-construction type projects that do not result in direct energy savings, but prepare local authorities for further, more comprehensive reductions in the future. However, these secondary energy savings are difficult to quantify and are not claimed as program savings by DNR.

Pumps and motors were replaced in several parishes. These projects were often the most cost effective option due to the inefficiencies and large capacities of existing pumps along with the newer equipment resulting in reduced maintenance costs. Many old pumps and motors are not able to reduce output when demand is decreased. As such, the motors runs at full power constantly and other controls are used to manage pressures and flows. Many pump projects involved the use of new motors along with variable frequency drives, or VFDs, which allow the pumps to be run at lower speeds and significantly reduced power inputs.

Appliances including refrigerators, freezers, ice makers, water fountains, clothes washers, and dishwashers were replaced with more efficient, Energy Star-qualified units in many parishes. These purchases were often simplified by a lack of Buy American requirements and the existence of state purchasing contracts. Many parishes used residual funding left over after completion of larger projects to replace appliances. This allowed the parishes to maximize the use of their funding allocation.

Solar energy systems provided all reported renewable energy generation. These projects fell into 3 different types. Solar photovoltaic (PV) systems (Figure 2) were installed in several parishes. These systems provide electricity directly to a public facility. The second common type of solar installation is solar lighting, which can provide lighting independent of the power grid. Finally, St. Helena parish installed a solar thermal system provide hot water necessary for the parish jail. This system was installed in conjunction with a solar PV system installed at the same facility.

Lighting projects were popular statewide. Due to constantly improving technologies, lighting projects often offered large energy savings. However, energy savings were just the beginning. In many offices visited by DNR representatives, employees noted significant improvements in lighting level and quality around workspaces. These changes should improve workplace efficiency and reduce fatigue in employees.

The majority of funds were spent on heating, ventilation, and air conditioning (*HVAC*) projects. HVAC systems typically account for around a third of a commercial building's total energy consumption. Due to Louisiana's hot-humid climate, this is often exaggerated in the hot summer months. As such, HVAC system efficiency is vital to a building's overall efficiency. Due to the varied nature of the building stock, system replacements ranged from replacement of typical residential type systems to replacement of chillers and system redesigns. The Town of French Settlement used their EECBG allocation to install a closed-loop geothermal heat pump at their Town Hall. This heat pump allowed the town to provide air conditioning to the Town Hall in the aftermath of Hurricane Isaac.

After completing large projects, some parishes had grant funding remaining while others had exceeded their original award amounts. DNR de-obligated the residual funds from parishes that underspent and made them available to those who had used parish or local funds to complete large projects whose costs were not covered completely by the grant. Thanks to these efforts, DNR ensured that \$13,773,530.24 (99.8%) of the \$13,805,700 grant was utilized.

Overall, DNR is pleased with the results of the Empower Louisiana Energy Efficiency and Conservation Block Grant Program. Through the combined efficiency improvements and renewable energy production, the program was able to reduce electrical utility loads in the state by 25,600 Million Btu and associated greenhouse gas emissions by an equivalent of 4,000 million tons of CO₂. The associated cost savings will provide agencies with lower, more stable utility costs and greater budget flexibility in the future.

Figure 2. Solar Photovoltaic System on Webster Parish Police Jury Annex

