



OFFICE OF  
**INSPECTOR  
GENERAL**  
UNITED STATES POSTAL SERVICE

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# **Integrating Sustainable Energy in Facilities**

## **Management Advisory Report**

December 19, 2011

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**Report Number DA-MA-12-001**



# HIGHLIGHTS

**IMPACT ON:**

U.S. Postal Service Facility Energy Management and Sustainability

**WHY THE OIG DID THE AUDIT:**

Our objective was to identify opportunities for the Postal Service to use state-of-the-art alternative energy technologies at its facilities.

**WHAT THE OIG FOUND:**

We found that the Postal Service has not measured the performance of currently installed alternative energy systems. As the Postal Service continues to explore alternative energy technologies it needs to ensure that performance metrics for assessing success are established.

We also found that additional alternative energy projects might not be economically viable for the Postal Service at this time, because alternative energy is currently more costly than energy generated by nuclear or fossil fuel sources. Also, the Postal Service is facing many challenges in today's environment including rightsizing its network and limited capital funding. However, there might be future opportunities to integrate state-of-the-art alternative energy technologies to provide potential savings and other benefits. These opportunities could exist for those facilities owned by the Postal

Service where there is a long-term commitment to retain the property.

**WHAT THE OIG RECOMMENDED:**

We recommended the vice president, Facilities and the chief sustainability officer, establish and monitor performance metrics for any new alternative energy systems and continue to monitor opportunities and economic feasibilities for additional systems.

**WHAT MANAGEMENT SAID:**

Management agreed with the recommendations and will establish and monitor performance metrics on any new alternative energy system. Management will also continue to investigate future opportunities that provide a good return on investment in a reasonable timeframe while also considering budget limitations and facility optimization efforts.

**AUDITORS' COMMENTS:**

Management's comments are responsive to the recommendations in the report.

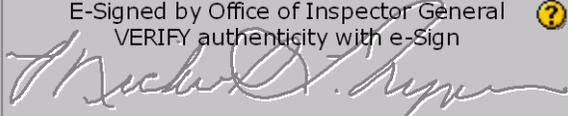
[Link to review the entire report](#)



December 19, 2011

**MEMORANDUM FOR:** TOM A. SAMRA  
VICE PRESIDENT FACILITIES

THOMAS G. DAY  
CHIEF SUSTAINABILITY OFFICER

E-Signed by Office of Inspector General  
VERIFY authenticity with e-Sign   


**FROM:** *for*  
Judith Leonhardt  
Acting Deputy Assistant Inspector General  
for Support Operations

**SUBJECT:** Management Advisory Report – Integrating Sustainable  
Energy in Facilities  
(Report Number DA-MA-12-001)

This report presents the results of reviewing integration of renewable energy technologies in facilities operated by the Postal Service (Project Number 11YG032DA000).

We appreciate the cooperation and courtesies provided by your staff. If you have any questions or need additional information, please contact Brian Newman, acting director, Facilities, Environmental and Sustainability or me at 703-248-2100.

Attachments

cc: Ronald A. Stroman  
Megan J. Brennan  
Corporate Audit and Response Management

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## Introduction

This report presents the results of reviewing integration of sustainable energy in U.S. Postal Service facilities (Project Number 11YG032DA000). The report is a self-initiated review to identify opportunities for the Postal Service to use state-of-the-art alternative energy technologies. This review addresses financial and operational risks. See [Appendix A](#) for additional information about this audit.

The Postal Service has a facility network of more than 33,000 facilities, which consumed about \$605 million in energy cost<sup>1</sup> during fiscal year (FY) 2010. In the past, the Postal Service has integrated alternative energy systems into select facilities to provide energy savings.

In recent years, the federal government has sought to implement a suite of policies to make its agencies the leaders in sustainability and early adopters of renewable and alternative energy. While many of the federal policies generally do not apply to the Postal Service, there are certain specific provisions of the policies that do apply. For example, the Energy Independence and Security Act (EISA) of 2007<sup>2</sup> requires the Postal Service to reduce building energy use by 30 percent by 2015, which it has nearly met.<sup>3</sup>

The Congress also passed the Energy Policy Act (EPACT) of 2005,<sup>4</sup> which requires government agencies to increase their use of renewable energy by 7.5 percent by 2013. Although this act does not apply to the Postal Service, we reviewed it to determine whether the Postal Service should pursue further integration of alternative energy into its facility network. Specifically, we evaluated solar photovoltaic (PV),<sup>5</sup> geothermal ground source heat pump (GSHP),<sup>6</sup> and fuel cell technologies,<sup>7</sup> to determine whether they can offer the Postal Service an opportunity to further reduce energy costs.<sup>8</sup>

## Conclusion

We determined that the Postal Service has installed alternative energy systems in the past but has not measured the performance of those systems. The Postal Service needs to establish and monitor performance metrics for any new alternative energy

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<sup>1</sup> Facility energy costs consist of costs for electricity, water, natural gas, fuel oil, steam, and propane.

<sup>2</sup> EISA of 2007- PUB. L. No.110-140 §431.

<sup>3</sup> As of FY 2010, the Postal Service had reduced its building energy use by 29.4 percent based on a FY 2003 baseline.

<sup>4</sup> EPACT of 2005 - PUB. L. No.109-58 §203.

<sup>5</sup> A solar PV system is an array of connected solar cells that convert light energy into electricity.

<sup>6</sup> A GSHP is a central heating and or cooling system that exchanges heat with the ground instead of with the outside air.

<sup>7</sup> Fuel cells convert the energy in a source of fuel, most commonly natural gas, directly into electricity through a chemical reaction.

<sup>8</sup> Although other renewable energy technologies are available that could also benefit the Postal Service at some of its facilities including distributed wind generation, bio-fueled combined heat and power (CHP) generation, and solar water heating, those other renewable energy technologies were not the focus of this review.

systems they implement; otherwise, they will be unable to determine whether these systems are successful.

We also determined that additional alternative energy projects might not be economically viable for the Postal Service at this time. Renewable energy generally costs more than electricity generated by either nuclear or fossil fuel plants. Also, the Postal Service is facing challenges regarding limited availability of capital funding and right sizing its facility network to reflect current operational needs. However, there might be future opportunities to integrate state-of-the-art alternative energy technologies to provide potential savings and other benefits.

Future opportunities for integration of alternative energy technologies could exist for those facilities owned by the Postal Service where there is a long-term commitment to retain the property. A possible solution to avoid capital funding and costs is third-party ownership of alternative energy systems through power purchase agreements (PPAs). Alternative energy technologies, including solar PV, geothermal, and fuel cells, can potentially control and reduce energy costs, as well as decrease carbon emissions from electricity generated from fossil fuels. Additionally, if the Postal Service continues to explore alternative energy technologies it will need to ensure performance metrics for assessing success are established and monitored.

### **Performance Metrics Not Established for Existing Alternative Energy Systems**

The Postal Service currently has 14 alternative energy systems, including 10 solar PV and four fuel cell CHP systems, installed in 11 facilities. These systems were installed under shared savings contracts,<sup>9</sup> which also included other energy savings measures, such as lighting upgrades. The Postal Service evaluated these contracts on a simple payback basis, and performance was not guaranteed.

At the time of our review, four of the 14 systems, including two fuel cell CHP and two solar PV systems, were not operational due to damaged or worn out parts that needed repair. Specifically, one of the inoperative fuel cell co-generation systems is awaiting repairs to bring it back into operation. The remaining systems have inoperative parts that are no longer manufactured.

Based on our discussions with maintenance and energy managers, as well as supply management staff, we were informed that energy reductions were not measured specifically for the 14 alternative energy systems currently installed. Therefore, we were unable to determine the amount of energy savings resulting from those systems. These systems were installed as part of larger energy savings projects that were approved based on a simple payback method and were designed to reduce energy consumption with no measurement and verification required. Without measuring performance, the

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<sup>9</sup> Shared energy savings contracts rely on third party energy service companies to fund and install equipment that will provide energy savings. Such partnerships could allow the Postal Service to pay for the systems over a 10- to 25-year period and would require little or no upfront costs from the Postal Service.

Postal Service is unable to determine whether these systems are successful and would be unable to measure the success of any future systems as well.

### Fossil and Nuclear Fuel Less Costly Than Alternative Energy

We determined that alternative energy is currently more costly than energy generated by nuclear or fossil fuel sources. The cost per kilowatt-hour (kWh) of energy generated from renewable sources<sup>10</sup> is generally higher than that of energy generated from coal, oil, nuclear, or gas<sup>11</sup> (See Appendix B, Chart 1). The lowest estimated costs for renewable energy examined in this review are equal to the commercial utility rates in the highest electricity cost states. For example, solar PV costs ranges from 13.4 to 19.2 cents per kWh, which cost more than the average commercial utility rates in 41 states and the District of Columbia. As capital costs for these technologies decrease and efficiencies increase, generation costs are likely to become more comparable to prevailing electricity costs in more regions of the country.

To maximize solar output, solar PV systems are better suited for facilities in southern states, especially in the southwest U.S., due to the higher levels of solar irradiance in those areas. However, in those areas where there is less irradiance, costs may be offset by the value of Solar Renewal Energy Certificate (SRECs)<sup>12</sup> and other incentives that might be available to solar power projects. As a result, solar PV can be a prudent investment that will lower energy costs in many states in other areas of the U.S., such as the Northeast. GSHPs have high upfront costs and might need a secondary heat source in colder climates. Fuel cell systems remain substantially more expensive than conventional on-site generation technologies. The greatest discrepancy between fuel cell generation systems and conventional on-site generation systems is the upfront cost. For further detail on the alternative technologies studied, see Appendix B.

### Postal Service Challenges

The Postal Service is facing many challenges in today's environment, including the limited availability of capital funding, the lack of flexibility to adjust its business model, and difficulty in determining how to right size its facility network to meet current operational needs. The Postal Service has invested in alternative energy technology in the past and continues to consider these technologies for possible future investment. However, alternative energy technologies are less reliable and cost prohibitive in the current environment. Generally, renewable energy costs more than electricity generated by either a nuclear or a fossil fuel plant. Therefore, alternative energy projects require either a long-term commitment or considerable upfront capital funding to cover the

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<sup>10</sup> Renewable sources include wind, hydroelectric, and solar.

<sup>11</sup> Wind and hydroelectric energy is less costly than electricity generated from natural gas. However, these resources have considerable geographic limitations.

<sup>12</sup> A SREC is a certificate representing the 'green attributes' of 1 megawatt-hour of electricity generated from solar energy. In states with an SREC market, solar PV owners can generate revenue by selling the SRECs they accumulate. The value of an SREC is determined by the market subject to supply and demand constraints. SRECs can be sold to electricity suppliers needing to meet their solar renewable portfolio standard requirement.

costs. Considering these conditions, renewable energy is too costly for the Postal Service without large incentives.

As an independent government agency, the Postal Service is generally ineligible for many of the incentives currently available to owners of alternative energy projects. Investment tax credits and accelerated depreciation, both of which can significantly enhance the value to investors in these projects, are not of benefit to the Postal Service, as the Postal Service does not have a tax liability. This, coupled with the current lack of available investment capital within the Postal Service, means that it is unlikely the Postal Service can directly invest in alternative energy technology projects. However, alternatives providing third-party ownership options, including leasing equipment and PPAs,<sup>13</sup> could provide a possible solution.

### Third-Party Ownership Options

The Postal Service might be able to lease alternative energy equipment from a third-party that can take advantage of available credits and rebates. However, the Postal Service could be required to operate and maintain the equipment and the savings achieved may not completely recoup the total expense incurred. PPAs, on the other hand, offer both the benefits of third-party ownership and operation, as well as payment only for energy delivered. With PPAs, the Postal Service does not take any equipment performance or operational risk. However, there is a risk if facilities are closed before the PPA term expires. Therefore, PPA projects are best suited for facilities the Postal Service anticipates will remain open for the long term.

If the Postal Service decides to pursue opportunities to further integrate alternative energy technologies in the future, it should consider establishing performance metrics for these systems, the relative costs of alternative energy systems, the economic challenges the Postal Service currently faces, and the various third-party ownership options.

### Recommendations

We recommend the vice president, Facilities and the chief sustainability officer:

1. Establish and monitor performance metrics for new alternative energy systems.
2. Continue to monitor opportunities and economic feasibilities for alternative energy systems.

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<sup>13</sup> PPAs allow federal agencies to fund on-site renewable energy projects with no upfront capital costs incurred. With a PPA, a developer installs a renewable energy system on agency property under an agreement that the agency will purchase the power generated by the system. After installation, the developer owns, operates, and maintains the system for the life of the contract.

## Management's Comments

Management agreed with our recommendation to establish and monitor performance metrics for new alternative energy systems. Management stated they will ensure that any new alternative energy system investment has performance metrics.

Management also agreed with our recommendation to monitor opportunities and economic feasibilities for alternative energy systems. Management noted that current budget limitations and corporate emphasis on facility optimization creates challenges in making long-term investments in alternative energy systems. However, they will continue to investigate future opportunities that provide a good return on investment in a reasonable timeframe. See [Appendix C](#) for management's comments, in their entirety.

## Evaluation of Management's Comments

The U.S. Postal Service Office of Inspector General considers management's comments responsive to the recommendations, and corrective actions should resolve the issues identified in the report.

## Appendix A: Additional Information

### Background

The Postal Service's facility energy costs for FY 2010 was about \$605 million. This cost alone encourages the Postal Service to reduce its energy use; however, numerous federal laws and executive orders direct government agencies to reduce energy consumption as well. In most cases, executive orders do not pertain to the Postal Service unless specifically mentioned. Postal Service compliance with these orders is voluntary. EISA indicates the Postal Service reduce its facility energy consumption by 30 percent from a 2003 baseline. According to the Postal Service's 2010 Sustainability Report, the Postal Service has achieved a 29.4 percent reduction in energy consumption from the 2003 base.

With more than 33,000 facilities in the Postal Service's facility network, the Postal Service has a large impact on the environment. Over the years, the Postal Service has received more than 75 major environmental awards for its efforts. The Postal Service has adopted a policy in which its priority is to identify efficiency opportunities first and then review alternative and renewable energy sources for economic and operational viability. Continuing efforts will be limited, because the Postal Service's energy budget has been reduced from \$125 million in FY 2010 to no funding for energy reduction measures in FY 2012.

Renewable energy and green alternative energy technologies enjoy significant public support in the U. S. A July 2011 survey by Rasmussen Reports found that 63 percent of respondents believe that investing in renewable energy is a better long-term investment for America than fossil fuels, while only 27 percent believe that fossil fuels are a better option. These results have not shifted significantly since an earlier survey done in January 2010.<sup>14</sup>

### Objective, Scope, and Methodology

Our objective was to identify opportunities for the Postal Service to use state-of-the-art alternative energy technologies. To accomplish our objective we reviewed prior alternative energy projects that include solar and fuel cell technology, reviewed laws and executive orders, met with U.S. Department of Energy officials, talked to representatives of private industry and consulted with subject matter experts to evaluate the best technologies to include, but not limited to, solar and geothermal.

We conducted this review from May through November 2011 in accordance with the Council of the Inspectors General on Integrity and Efficiency, *Quality Standards for Inspection and Evaluation*. We discussed our observations and conclusions with management on November 8, 2011, and included their comments where appropriate.

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<sup>14</sup> Rasmussen Reports. (2011). Energy Updates. Retrieved from [http://www.rasmussenreports.com/public\\_content/politics/current\\_events/environment\\_energy/energy\\_update](http://www.rasmussenreports.com/public_content/politics/current_events/environment_energy/energy_update).

We did not rely on Postal Service system data to complete our review. We relied upon the work of a management and technology consulting firm to provide subject matter expertise and analysis. We obtained evidence of the qualifications and independence of the consulting firm’s members. In addition, we assessed the reliability of the consulting firm’s data through review of their research report and examination of supporting documentation. We determined that the data from the aforementioned sources were sufficiently reliable for the purposes of this report.

Prior Audit Coverage

Report Title	Report Number	Final Report Date	Monetary Impact	Report Results
<i>Sustainability: Promoting Energy and Recycling Compliance</i>	DA-MA-09-001	6/12/2009	\$3,619,171	Although the Postal Service established guidance for energy conservation, improvements are needed to increase energy awareness in the field as only two of the 90 sites visited met basic energy standards. The Postal Service could increase energy efficiency through complying with low cost or no cost measures. Management agreed with recommendations to issue memorandums, directives, checklists, or other written guidance to installation managers to reinforce energy and recycling policies. They also agreed to provide periodic service talks and briefings to employees on energy and recycling practices.
<i>Sustainability: Promoting Energy and Recycling Compliance Fiscal Year 2009</i>	DA-MA-10-001	1/28/2010	None	In this review, seven of 88 sites visited met basic energy standards, showing some improvement for energy awareness. Management agreed with recommendations to develop standards and pilot systems to allow building management, measurement, and control, issue written guidance to installation managers and provide periodic service talks and briefings to employees to reinforce energy and recycling policies.

## Appendix B: Alternative Energy Technologies Studied

### Solar PV

Research and development in the U.S. and around the world has been focused on PV materials, manufacturing and design techniques, and project construction approaches. As a result, the technologies and materials used in solar PV components and systems have improved significantly in efficiency and performance. Component reliability and expected equipment life have also increased and overall capital costs have come down significantly. Solar PV uses solid-state devices to directly convert sunlight into electricity. Solar PV generating systems range in size from the small, single solar cell PV systems used to power calculators and wristwatches, to large solar PV arrays used in multi-megawatt utility scale plants. Plants used to power larger loads and or connect to the grid can be roof mounted, ground mounted, mounted on parking canopies, or integrated into building structures as part of the architecture. The performance characteristics of a solar PV system are important to consider when assessing the viability of on-site solar PV generation. Solar PV electricity generation is driven by the intensity of solar irradiance, which is a function of geographic location. Electricity generation is also affected by additional factors such as cloud cover, precipitation, and temperature, to name a few.

One of the main advantages of solar PV is that it provides consistently priced electricity over the life of the system. The constant price facilitates long-term planning and reduces the customer's exposure to fluctuations in the cost of grid-sourced electricity, which is subject to changes in environmental regulations, government policies, rate base capital costs, and fluctuations in fuel costs. Solar PV systems are also very flexible in terms of physical layout, require limited maintenance, and systems require no fuel. Additionally, federal incentives coupled with state and utility incentives can greatly lower the cost of solar PV systems for commercial developers.

Solar PV has gained significant market penetration throughout the U.S. in the past few years. This penetration is especially pronounced in areas of high solar irradiance (for example, in the southwest U.S.) and areas where financial incentives have supported the installation of PV projects (such as in the Northeast U.S.). There was an unprecedented capacity expansion in 2010, which was largely driven by expectations that the U.S. Department of the Treasury's grant program would expire at the end of 2010. However, the program was extended to 2011.

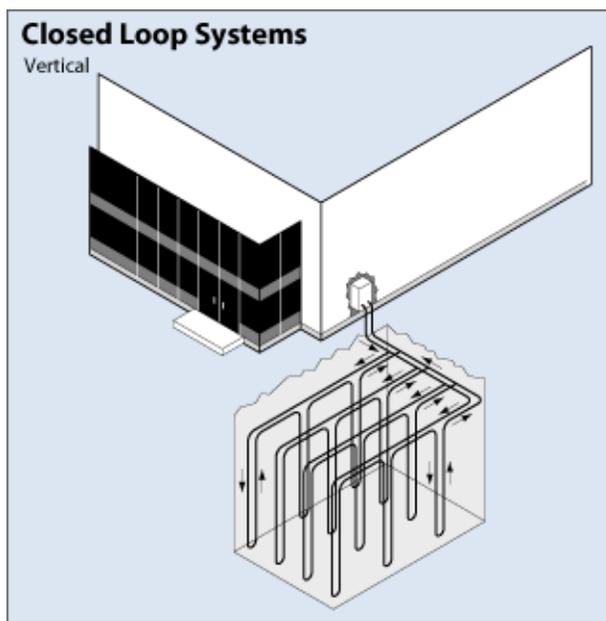
### Geothermal

The second alternative energy technology studied was geothermal energy. Geothermal energy usage can be split into two related but separate areas: electricity generation (geothermal electric) and thermal energy production (GSHP). Geothermal electric is not considered to be a suitable alternative energy technology for the Postal Service because its potential is often in areas of little population and requires facilities much larger than what the Postal Service would need to be cost effective. Also, geothermal

electric projects have a high cost of development. However, usage of geothermal energy through GSHPs is a viable and suitable technological approach for the Postal Service.

GSHPs use the constant subsurface temperature of the ground to provide heating and cooling. A GSHP can provide heating in cold weather and cooling in hot weather with efficiencies that result in 25 to 50 percent less electricity use than conventional heating and cooling systems. Geothermal heating and cooling is the fastest growing geothermal technology in the U.S. and worldwide. It is applicable to all sizes of facility, from residential and small commercial to large office parks and industrial facilities, wherever space heating and or cooling are required. It is also a technology that is applicable throughout the U.S. Figure 1 depicts a common vertical closed-loop system. The vertical closed-loop system is the preferable system type for commercial applications, because it occupies less space than other system types.

**Figure 1: Vertical GSHP for Commercial Buildings**



## Fuel Cell

Fuel cells were the third alternative energy technology we examined. Fuel cells convert the energy in a source of fuel (most commonly natural gas) directly into electricity through a chemical reaction. They also produce waste heat in the form of hot water, which can be used in a CHP application for space heating and cooling, domestic hot water, or for process uses.

Fuel cells are quiet, clean, and efficient. However, systems have a high capital cost and, in the past, have had issues of life expectancy of the system's main component, the fuel

stack,<sup>15</sup> and in their general maintenance. As a result, they have not gained widespread market acceptance or achieved widespread market penetration. There has been an increase in the installation of this technology in facilities designated as ‘places of refuge’ that provide secure power during grid emergencies, and in other locations as the capital costs are reduced. The Postal Service has installed a few fuel cells in the past and has experienced some of these challenges regarding cost and maintenance. However, because of overall system efficiencies, current fuel cell technology does offer the potential to help the Postal Service reduce and manage energy costs and carbon footprints in facilities where electrical and thermal energy can be used on a constant basis.

### Comparative Costs of Alternative Technologies

As a result of increased worldwide awareness of energy costs and the environmental impact of fossil fuel combustion, all three of the above alternative energy technologies have seen extensive research and development activity over the past few years. With this research and development investment, and a wide range of policies and incentives to promote installation of these technologies, all three technologies have experienced a combination of improved efficiency and performance, as well as lower capital and operating costs. As a result, all three technologies have become more attractive investments over the past few years. Projections also indicate that these trends in improved efficiency and performance and reduced costs will continue for the near future.

The lowest estimated costs for electrical generation technologies examined in this review equal the commercial utility rates in the highest electricity cost states; however, they are more costly than the electric rates in the other states. Location specific characteristics; however, can affect the effective generation costs, as can state and other incentives as well as state and local policies. Incentives and policies can effectively lower the cost of generation and make these technologies applicable in more areas with lower electric prices. In addition, as capital costs for these technologies decrease and efficiencies increase, generation costs are likely to become even more comparable to prevailing electricity costs in more regions of the country. However, the potential impact of government incentives and subsidies varies by technology and state. For example, if all subsidies were lost, the total cost of solar PV could increase by 100 percent or more in some states.

The cost per kWh of energy generated from renewable sources is generally higher than that of energy generated from either coal, oil, nuclear, or gas. As depicted in [Chart 1](#), hydroelectric is the most cost effective energy source at a cost of about 3 cents per kWh. However, geographical and environmental constraints limit the feasibility of hydroelectric energy. Nuclear and coal cost about 4 cents per kWh, gas is about 10 cents per kWh, while wind and solar are about 8 cents and 22 cents per kWh, respectively. These costs include construction, production, and decommissioning costs.

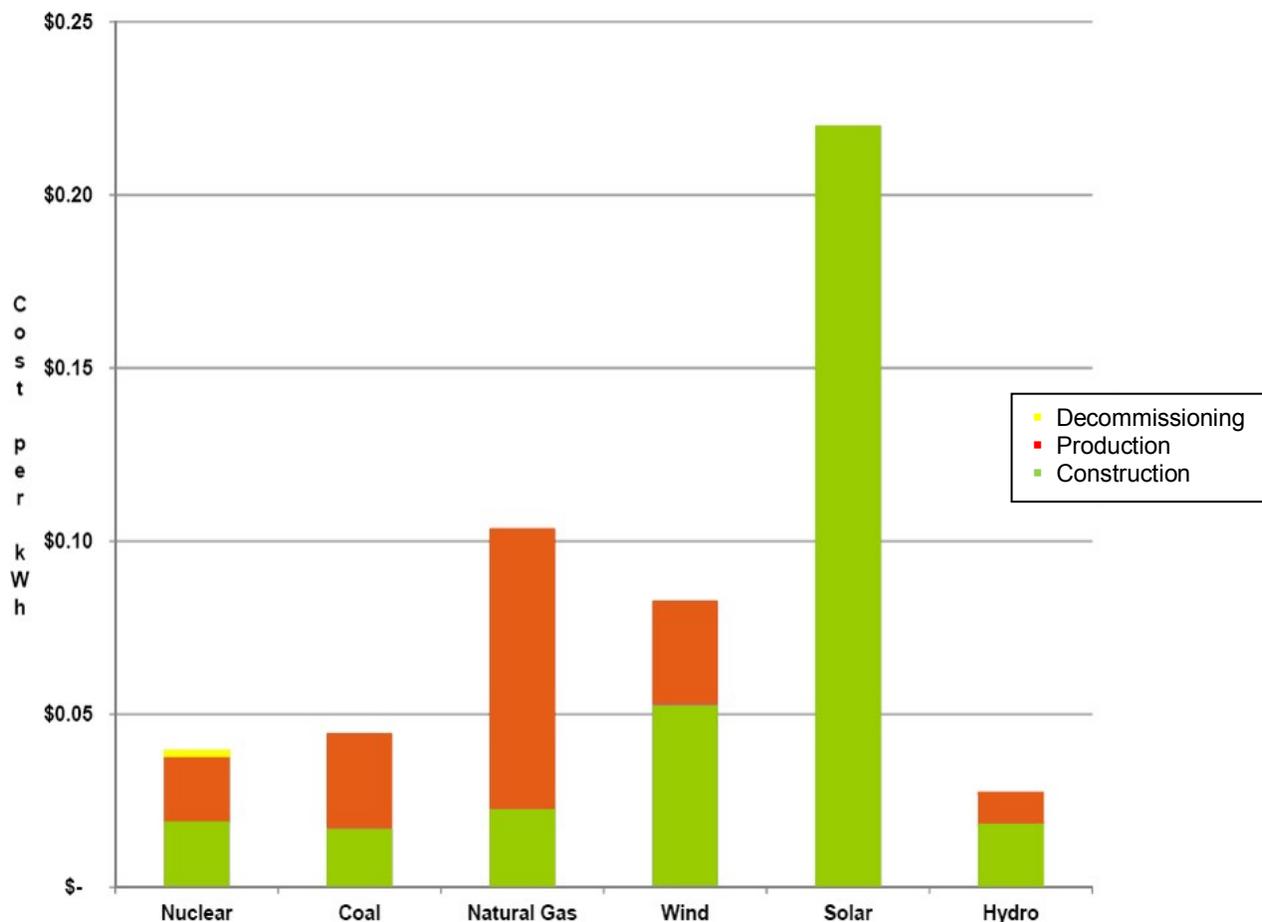
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<sup>15</sup> Based on information from three fuel cell manufacturers, the overall fuel cell equipment has an expected lifespan of about 20 years, but the lifespan of the fuel cell stack itself ranged from only 2 to 10 years.

Construction costs refer to the costs to build the energy production plant, and production costs refer to the costs to produce the energy. Decommissioning costs apply only to nuclear power plants, and refer to the costs related to decommissioning the nuclear power plant. When a power company decides to close its nuclear power plant permanently, it must decommission the facility by safely removing it from service and reducing residual radioactivity to a level that permits release of the property and termination of the operating license.

Incentives such as grants and federal and state tax rebates could reduce the costs for renewable energy systems. Because the Postal Service is generally not eligible for such incentives, the Postal Service might be able to partner with private developers who are eligible for the incentives. Such partnerships could allow the Postal Service to pay for the systems over a 10- to 25-year period and would require little or no upfront costs from the Postal Service.

**Chart 1: Total Cost of Electricity per kWh**



In addition to alternative energy systems that generate electricity, GSHPs, can use the constant subsurface temperature of the ground to provide heating and cooling. GSHPs can reduce electricity consumption by 25 to 50 percent by using the earth as an

exchange medium rather than outside air. However, upfront costs associated with GSHPs tend to be higher than the upfront costs of conventional heating, ventilation, and air-conditioning systems due to drilling costs and loop development.

## Appendix C: Management's Comments



December 14, 2011

SHIRIAN B. HOLLAND

SUBJECT: Draft Management Advisory Report—Integrating Sustainable Energy in Facilities  
(Report Number DA-MA-12-DRAFT)

In response to your memorandum of December 2, 2011, we are providing the status for the use of alternative energy systems within the U.S. Postal Service.

**Recommendations:** We recommend the vice president, Facilities and the chief sustainability officer:

1. Establish and monitor performance metrics for new alternative energy systems.

USPS response: We agree with this recommendation and will ensure that any new alternative energy system investment will provide performance metrics.

- 2: Continue to monitor opportunities and economic feasibilities for alternative energy systems.

USPS response: We agree with this recommendation. Current budget limitations and corporate emphasis on facility optimization create challenges to making long term investments in alternative energy systems. We will continue to investigate future opportunities that provide a good return on investment (ROI) in a reasonable timeframe.

If you or your staff would like to discuss this matter, please contact Carolyn Cole at (202) 268-4136.

Sincerely,

A handwritten signature in black ink, appearing to read "Tom A. Samra".

Tom A. Samra  
Vice President, Facilities

A handwritten signature in black ink, appearing to read "Thomas G. Day".

Thomas G. Day  
Chief Sustainability Officer

cc: Sally Haring