Lockheed Martin -
ESCO Qualification Sheet
DOE Super ESPC

Introduction to Lockheed Martin

Global climate conditions, increased demands, and advances in technology are changing our energy environment. By tapping into the unparalleled engineering and project management expertise used to design some of the world's most advanced products and services, Lockheed Martin is helping our energy customers respond to dynamic business requirements. Lockheed Martin has been increasingly supporting energy and climate solutions over the last 50 years for government, commercial and industrial customers. We are proud to bring more than 112,000 innovative minds to help solve our nation's energy and climate challenges—from efficiency and management, to alternative energies and climate monitoring.

As one of the nation's largest implementers of energy efficiency programs for utility customers, Lockheed Martin has a long history of providing a full range of energy solutions to government, commercial, and industrial sectors as well as state entities and utilities. Our turnkey Performance Contracting solutions enable federal agencies to comply with all federal government energy mandates including the President's Commitments and Executive Actions to Advance Solar Deployment and Energy Efficiency.

At Lockheed Martin, we're putting into practice the advice we give our customers. We strive to use alternative energy sources whenever possible, including the sun, wind, moving water, organic plant and waste material (biomass), and the earth's heat (geothermal). In 2008, the Corporation began operating its first biomass boiler system, a project that was initiated to reduce business costs and has yielded tremendous environmental benefits as well. Today, the biomass boiler system provides steam for heating and process needs at the 1.8-million-square-foot Lockheed Martin facility in Owego, N.Y. The system has decreased the facility's carbon footprint by 9,000 metric tons a year. Across the country at a Lockheed Martin facility in Sunnyvale, California, an on-site solar plant designed to reduce energy usage is generates savings of 1.3 million kilowatt-hours of energy per year. In 2015 the completion of a solar parking lot installation at their Clearwater, Florida facility will reduce 45,865 metric tons, making it the largest private installation in FL.

Lockheed Martin ESPC Approach

Lockheed Martin is a technology-neutral systems integrator. A wide array of best-of-class energy savings products and subcontractors become part of our solution. In addition, we have developed extensive procedures to quickly identify, engage and manage subcontractors in contract. Our ESPC approach includes three key areas of emphasis:

- **Mission, Mission, Mission**. As a leading mission partner to federal military and civilian organizations, Lockheed Martin understands and embraces our customer's mission. Whether it's managing a space voyage or sustaining advanced aircraft, Lockheed Martin makes the mission our own. As federal agencies and military commands face the challenges of compliance and surety, Lockheed Martin will be right there to find every opportunity, explore every prospect, and craft a strategy that meets the goal and advances the mission.
- **Fence to Fence Approach.** When we partner with a federal facility to achieve energy goals, we will take a fence-to-fence look. We won't isolate one-off projects or favor the easy or quick-payoff projects. We will provide leadership with a comprehensive, complete, and compliant approach that addresses buildings, power, infrastructure, and process operations. Since we are experts and partners in federal missions from A to Z, we can address not only the surroundings, but the very core of the activity, to take out waste, cost, and time, emphasizing unnecessary energy usage and cost. Our world-class LM-21 Quality Management process is the basis of our complimentary Preliminary Assessment methodology, and ensures that customers get the benefit of this operational paradigm.

• **Efficiency, Renewables, Surety.** Our approach is to lead by maximizing efficiency, since the cheapest, cleanest, surest, and least regulated kWh is the one not used. We have over 25 years' experience as leaders in energy efficiency. Our nation's strategic concerns dictate that renewable energy sources be worked into the plan, and our team offers the best in class renewable energy providers in Photovoltaic, Solar Thermal, Wind, Biomass, Landfill Methane, and Ground Source Heat Pumps. Because surety is top on the list of many federal facility managers nationwide, we offer world class micro-grid configuration technology that isolate critical loads, add reliability and power quality, and configure backup assets that will keep your key functions running under any grid-vulnerability scenario.

Lockheed Martin ESPC Approach via Case Study: U.S. Embassy in Nicaragua

In 2014, Lockheed Martin completed an ESPC at the U.S. Embassy in Nicaragua that will achieve a 54% energy reduction across nine buildings. This project was unique as it achieved deep energy savings in relatively new buildings despite challenges inherent in international embassies (management rotates every two years) and a lack of local utility incentives for renewables. An additional project phase currently in development will build toward net-zero energy use.

Despite an average building age of seven years, project engineers were able to find significant savings through integrated design and by installing higher efficiency equipment. Because embassy management turns over every two years, maintaining a consistent knowledge base and ensuring continuity of communication and project management were particularly challenging. With a diverse set of stakeholders based in both the U.S. and abroad, keeping an active line of communication open was central to achieving each entity's goals. Both Lockheed Martin and the State Department attributed the project's success to the OBO project manager, who addressed communication concerns by developing a memorandum of agreement (MOA) that memorialized approvals and allowed knowledge about the project to live beyond staff turnover.

KEY ENERGY CONSERVATION MEASURES (ECMs):

- Chiller-plant optimization with staged loading
- Variable-refrigerant, multistage, direct-expansion cooling systems
- Building-automation-system retro-commissioning and sequence optimization
- High-efficiency transformer upgrades
- 2,238 LED replacements
- 956 kW high-efficiency solar PV

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Project Snapshot:	
Location	Managua, Nicaragua
Building Size	193,000 ft^2 (9 buildings)
Original Construction	2007
Development & Construction Length	34 Months (2012 - 2014)
Investment Value	$15 million
Appropriated Funds	$0
Contract Term	25 years
Cost Savings**	$1.6 million/yr
Energy Savings	8,760 MMBtu/yr (54%)
ESCO	Lockheed Martin

Lockheed Martin's ESPC process is built to deliver guaranteed, deep energy savings through a collaborative partnership with our customers. We bring innovation to all that we do and have been doing so for over 100 years.

As a technology-neutral ESCO, we bring a wide array of best-of-class energy-savings products including:

1	Energy Audit	The Lockheed Martin team will work with your agency to conduct a comprehensive energy audit to identify potential energy saving improvements, at no cost to your agency.
2	Design	Our engineering specialists focus on system innovation in mechanical, electrical and structural design, lighting and building controls, mechanical and HVAC systems, water systems and power generation and distribution through renewables and combined heat and power systems.
3	Savings	Through increased energy efficiency, additional uses of renewable energy and improved utility management decisions, these projects will generate savings sufficient to pay for the project over the term of the contract.
4	Financing	Lockheed Martin's investment grade rating can be leveraged to help secure competitive interest rates on projects.
5	Construction	Our team provides construction management services for retrofitting existing infrastructure in federal buildings and campuses.
6	Full Measurement & Verification (M&V) Plan	For every site-specific measure, Lockheed Martin will perform with 100 percent compliance to the Federal Energy Management Program's stringent MEV Guide-book and IPMVP Protocols.
7	Continuous Monitoring	Using 15 minute demand observations, Lockheed Martin will guarantee that savings promised are savings delivered.
8	Focus on Renewable Energy Alternatives	The path to the future involves a mix of energy efficiency and renewable energy alternatives. We have created a world class team to bring more renewable energy projects to the federal government building energy infrastructure.

Lockheed Martin Supports a Full Range of Green & Smart Building Technology Categories:

Boiler Plant Improvements	Energy/Utility Distribution Systems
Chiller Plant Improvements	Water and Sewer Conservation Systems
Building Automation Systems (BAS)/Energy Management Control Systems (EMCS)	Electrical Peak Shaving/Load Shifting
Heating, Ventilating and Air Conditioning, Lighting Improvements	Energy Cost Reduction Through Rate Adjustments
Building Envelope Modifications	Energy Related Process Improvements
Chilled Water, Hot Water and Steam Distribution Systems	Commissioning
Electric Motors and Drives	Advanced Metering Systems
Refrigeration	Appliance/Plug-Load Reductions
Distributed Generation	Future ECMs (Non-Building Applications)
Renewable Energy Systems (Photovoltaic, Solar Thermal, Wind, Landfill Gas, Organic Waste and Geothermal)	

Our solutions will provide superior workplaces for federal customer agencies at good economies for the American taxpayer

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