DELIVERING GLOBAL ENERGY SOLUTIONS
SMART ENERGY

Imagine having power when other systems fail, to have the ability to operate as part of a larger utility grid or to independently provide constant, uninterrupted energy no matter the conditions; to have the ability to manage existing power supplies to be energy efficient. In the near future, energy from a mix of traditional and alternative sources will need to be smartly and securely managed and distributed to consumers.

Energy Efficiency Programs

Energy customers depend on Lockheed Martin’s energy engineering, IT and project management expertise to design and deliver comprehensive, cost-effective efficiency programs for commercial, industrial and residential property owners. As one of the largest implementers of utility energy efficiency programs, Lockheed Martin provides marketing, customer recruitment, contractor management and technical services. Driving energy efficiency on a broad scope and scale, we implement technologies that address the energy needs of U.S. businesses – from offices and warehouses, to data centers and hospitals, military bases and manufacturing plants.

Energy Performance Contracting

As a company founded in technology innovation, Lockheed Martin offers a unique energy performance contracting service with design and build capabilities. We are helping customers develop, finance, install and maintain facilities, infrastructure and operations upgrades that dramatically reduce energy usage and improve energy reliability.

Under the Department of Energy’s Energy Savings Performance Contracts (ESPC) vehicle, we assist federal customers in reducing energy costs and environmental impact through increased energy efficiency, additional use of renewable energy and improved utility management decisions at federal sites. These projects are accomplished through the use of third-party financing that enables projects to be funded using the savings realized by implementing efficiency programs.

Green IT and Operations

Lockheed Martin works with customers to help them meet their energy efficiency and cost savings goals by implementing sustainable IT practices, such as data center consolidation, cloud computing and virtualization. We can transform legacy labor-intensive systems into a single, powerful platform so customers can dedicate personnel to their organization’s mission – providing energy.
Lockheed Martin’s Tactical Demonstration area features wind turbines, solar panels, power generators, modular small shelter systems and associated Environmental Control Units that together illustrate the Integrated Smart Basic Expeditionary Airfield Resource.

Power Management
Lockheed Martin can support utility companies by providing enhanced management of power supply, demand and distribution with less generating capacity or off-grid power purchases. Utilities and regulators increasingly look to implement demand response as a more cost effective and environmentally responsible way to meet peak load requirements. Our Smart Energy Enterprise Load (SEEload™) provides a single operational view that allows utilities to precisely optimize load, and Lockheed Martin’s Smart Energy Enterprise View (SEEview™) provides accurate, timely and actionable information to facility managers.

Smart Grids
The Smart Grid will fundamentally transform how energy is managed, transmitted and consumed. However, this transformation will require the seamless integration of a utility’s power, IT and communications networks. We understand the challenges facing utilities moving through their Smart Grid evolution, and we have extensive experience helping complex enterprises transition into nimble, ‘net-centric’ organizations with best-in-class operational capabilities while maintaining the highest levels of system reliability and customer service.

Intelligent Microgrid Solutions™
By optimizing renewable and traditional power sources, Lockheed Martin’s Intelligent Microgrid Solutions reduce costs and guarantee continuous power to critical operations. Distributed and central controls ensure immediate response to any energy source or demand changes, and enable grid-tied or islanded modes. Our operational microgrid solutions are expanding globally as we perform monitoring and grid assessment studies to help our military and commercial customers minimize electricity and fuel costs, and increase savings from renewable energy integration.

Environmentally Responsible Aircraft
The sky is not the limit when it comes to minimizing environmental impacts. Lockheed Martin’s Skunk Works is invested in the technologies that will make possible clean, quiet and fuel-efficient flight. Our various platforms explore new configurations, power sources and advanced materials that have the potential to decrease weight and increase efficiency of an aircraft, as well reduce noise pollution to that of a vacuum cleaner.

Ocean
The ocean represents the largest untapped power source on Earth, collecting 80 percent of the energy Earth receives from the sun. In the next decade, Lockheed Martin believes that there is the potential for terawatts of ocean energy to be installed around the world.

Lockheed Martin is the industry leader in the development of Ocean Thermal Energy Conversion (OTEC) technology - a process that generates electricity by leveraging the temperature difference between warm surface water and deep cold water – holding 19 related patents. In 2013, Lockheed Martin announced plans to work with Beijing-based Rigenwood Group to build the world’s largest OTEC power plant.

Lockheed Martin is leveraging its experience and expertise with marine systems to design and develop wave and tidal power systems. We are pursuing strategic partnerships and making technology investments in leading wave and tidal energy companies with the goal of increasing the manufacturability and commercial viability of the technology. In the tidal space, we work with Atlantis Resources Ltd.

Bio
As a global security company, Lockheed Martin sees energy as a national and global security issue, and offers solutions for waste conversion and biomass applications that utilize non-food feedstock and waste. With more than 7 billion people on Earth, sustainable waste disposal and secure, clean energy are vital to quality of life. Lockheed Martin provides the ability to successfully engineer, procure and build industrial and utility scale waste-to-energy and biomass plants.

Lockheed Martin and Concord Blue USA, Inc., have teamed to offer an advanced waste conversion system to address waste disposal, energy security and climate control issues. Advanced waste conversion is an emerging technology that uses gasification processes to convert waste products to electricity, heat and synthetic fuels. This solution addresses the current burden on landfills, conventional incineration and fossil fuels, as well as the desire for green baseload energy. Unlike other waste-to-energy technologies, the Concord Blue Reformer is non-polluting because it uses heat transfer, instead of incineration, to convert waste to fuels and electricity.

Using our biomass innovations, Lockheed Martin built and operates a biomass plant at its Owego, N.Y, facility. The plant has helped reduce the site’s heating and cooling bills by 50%, saving approximately $1 million in fuel costs annually.

It has long been known that conventional energy sources cannot keep up with our 21st century demands and beyond. So imagine if we could harness the natural energy provided by sustainable, renewable bio resources or capture the power of the earth’s movement all around us to create a world powered by its own natural resources. Natural energy is not new, but the technology to harness, store and moderate these resources at a global scale could revolutionize the clean energy movement. As we continue to advance our technologies and partner with the best, our clean, sustainable future could be just around the corner.

Natural Energy
Smart Grids

Power Management

Intelligent Microgrid Solutions™

Environmentally Responsible Aircraft

Ocean

Bio

Lockheed Martin’s Tactical Demonstration area features wind turbines, solar panels, power generators, modular small shelter systems and associated Environmental Control Units that together illustrate the Integrated Smart Basic Expeditionary Airfield Resource.

Power Management
Lockheed Martin can support utility companies by providing enhanced management of power supply, demand and distribution with less generating capacity or off-grid power purchases. Utilities and regulators increasingly look to implement demand response as a more cost effective and environmentally responsible way to meet peak load requirements. Our Smart Energy Enterprise Load (SEEload™) provides a single operational view that allows utilities to precisely optimize load, and Lockheed Martin’s Smart Energy Enterprise View (SEEview™) provides accurate, timely and actionable information to facility managers.

Smart Grids
The Smart Grid will fundamentally transform how energy is managed, transmitted and consumed. However, this transformation will require the seamless integration of a utility’s power, IT and communications networks. We understand the challenges facing utilities moving through their Smart Grid evolution, and we have extensive experience helping complex enterprises transition into nimble, ‘net-centric’ organizations with best-in-class operational capabilities while maintaining the highest levels of system reliability and customer service.

Intelligent Microgrid Solutions™
By optimizing renewable and traditional power sources, Lockheed Martin’s Intelligent Microgrid Solutions reduce costs and guarantee continuous power to critical operations. Distributed and central controls ensure immediate response to any energy source or demand changes, and enable grid-tied or islanded modes. Our operational microgrid solutions are expanding globally as we perform monitoring and grid assessment studies to help our military and commercial customers minimize electricity and fuel costs, and increase savings from renewable energy integration.

Environmentally Responsible Aircraft
The sky is not the limit when it comes to minimizing environmental impacts. Lockheed Martin’s Skunk Works is invested in the technologies that will make possible clean, quiet and fuel-efficient flight. Our various platforms explore new configurations, power sources and advanced materials that have the potential to decrease weight and increase efficiency of an aircraft, as well reduce noise pollution to that of a vacuum cleaner.

Ocean
The ocean represents the largest untapped power source on Earth, collecting 80 percent of the energy Earth receives from the sun. In the next decade, Lockheed Martin believes that there is the potential for terawatts of ocean energy to be installed around the world.

Lockheed Martin is the industry leader in the development of Ocean Thermal Energy Conversion (OTEC) technology - a process that generates electricity by leveraging the temperature difference between warm surface water and deep cold water – holding 19 related patents. In 2013, Lockheed Martin announced plans to work with Beijing-based Rigenwood Group to build the world’s largest OTEC power plant.

Lockheed Martin is leveraging its experience and expertise with marine systems to design and develop wave and tidal power systems. We are pursuing strategic partnerships and making technology investments in leading wave and tidal energy companies with the goal of increasing the manufacturability and commercial viability of the technology. In the tidal space, we work with Atlantis Resources Ltd.

Bio
As a global security company, Lockheed Martin sees energy as a national and global security issue, and offers solutions for waste conversion and biomass applications that utilize non-food feedstock and waste. With more than 7 billion people on Earth, sustainable waste disposal and secure, clean energy are vital to quality of life. Lockheed Martin provides the ability to successfully engineer, procure and build industrial and utility scale waste-to-energy and biomass plants.

Lockheed Martin and Concord Blue USA, Inc., have teamed to offer an advanced waste conversion system to address waste disposal, energy security and climate control issues. Advanced waste conversion is an emerging technology that uses gasification processes to convert waste products to electricity, heat and synthetic fuels. This solution addresses the current burden on landfills, conventional incineration and fossil fuels, as well as the desire for green baseload energy. Unlike other waste-to-energy technologies, the Concord Blue Reformer is non-polluting because it uses heat transfer, instead of incineration, to convert waste to fuels and electricity.

Using our biomass innovations, Lockheed Martin built and operates a biomass plant at its Owego, N.Y, facility. The plant has helped reduce the site’s heating and cooling bills by 50%, saving approximately $1 million in fuel costs annually.

It has long been known that conventional energy sources cannot keep up with our 21st century demands and beyond. So imagine if we could harness the natural energy provided by sustainable, renewable bio resources or capture the power of the earth’s movement all around us to create a world powered by its own natural resources. Natural energy is not new, but the technology to harness, store and moderate these resources at a global scale could revolutionize the clean energy movement. As we continue to advance our technologies and partner with the best, our clean, sustainable future could be just around the corner.

NATURAL ENERGY

Power Management

Intelligent Microgrid Solutions™

Environmentally Responsible Aircraft

Ocean

Bio

Lockheed Martin’s Tactical Demonstration area features wind turbines, solar panels, power generators, modular small shelter systems and associated Environmental Control Units that together illustrate the Integrated Smart Basic Expeditionary Airfield Resource.
Climate Monitoring
Lockheed Martin’s Solar Ultraviolet Imager instrument monitors the sun and is essential for identifying solar eruptions that may cause geomagnetic storms, which could disturb the Earth’s magnetic field. The Solar Ultraviolet Imager instrument will allow the National Oceanic and Atmospheric Administration (NOAA) Space Weather Prediction Center to provide early space weather warnings to electric power companies, telecommunication providers and satellite operators.

We’re also helping the world capitalize on wind energy by utilizing WindTracer®, the world’s most powerful long-range Doppler lidar system, to assess hazardous wind conditions and improve air traffic safety at airports.

Innovating Traditional Energy
Bringing minds together through strategic partnerships with university and energy industry leaders has forged a new path towards a new era of energy responsibility. We are finding underground fuel through gravity gradiometer technology by measuring the differences in the earth’s density fields. And we are leveraging our cryogenic tank capabilities to store and transport Liquefied Natural Gas.

SAFE ENERGY

What if we increased the safety of operating one of the most powerful commercial energy sources known today? Combining the best of what we do with the brightest minds can take nuclear energy into an era of safe functionality — where safety is first. With limitless power demands in our future, securing the world’s most powerful energy supply is technology at its finest.

Nuclear Energy Control Systems & Solutions
For more than 50 years, Lockheed Martin has provided the U.S. Navy, and now the commercial nuclear industry, with qualified products, safety-critical systems and secure technologies, providing total system integration and services for secure, safe and efficient operations of nuclear power plants. Lockheed Martin develops state-of-the-art digital controls and instrumentation and control system technologies that improve situational awareness. We use human factor engineering expertise to develop configurations that maximize efficiency, safety and data collection.

Cyber Security
Protecting our customers’ critical energy infrastructure in the digital age requires a holistic approach that addresses complex cyber issues and vulnerabilities. In addition to basic monitoring software, Lockheed Martin’s Palisade™ integrates with each client’s unique security environment to deliver enterprise-wide visibility, awareness and alerting capability that provides security operations analysts with actionable security intelligence to defend and maintain critical operations.

Training
The right training empowers workers and enterprises to succeed. At Lockheed Martin, our Energy Training Solutions are developed by industry experts, and we utilize the most current, widely available technology to deliver them. New training applications are available on tablets, giving the workforce mobility so they can gain knowledge while managing tasks. For nuclear power, as well as oil and gas, having a workforce with up-to-date skills is critical for managing high-risk energy sources. Well-trained employees improve safety outcomes and reduce costs for the enterprise.

Production Asset Protection
Our technology, people and process help organizations in oil and gas, power generation, utilities and renewable energy protect their production assets. That protection comes from helping operators effectively manage asset integrity via tightly managed process safety key performance indicators; it comes from better management of the large volumes of information required to avoid exposure to risk, inefficiencies and ensure legislative compliance; and it comes from better protection of SCADA (supervisory control and data acquisition) and industrial control systems through energy industry specific cyber expertise. Our offerings have been developed through decades of experience in the global energy market.

Dubai International Airport is the first in the Middle East region to install the WindTracer® lidar system. The airport will have three systems to assist in collecting data on turbulence arising from approaching and departing aircraft.

The first NASA Solar Ultraviolet Imager (SUVI) flight unit for the GOES-R series of satellites is being inspected at the Lockheed Martin STAR Labs in Palo Alto, California.