

Commercial Buildings Integration and Deployment

Summary of Technology Identification Activities

The Technology Identification project was implemented in FY 2009 to (1) seek out innovative and new technologies—which might be unrepresented in the industry—for direct deployment to the Commercial Building Energy Alliances (CBEA); and (2) create market action. This report presents the technologies that were submitted to DOE for CBEA members to consider implementing. Companies need to do their own investigations, pilots, and demonstrations, and should communicate best practices and results to CBEA.

CBEA members, manufacturers, and other industry players were invited to use an online nomination form on the DOE BTP website to submit energy-efficient products for consideration. Each submitter provided product descriptions (228 products in 6 technology groups), which were accepted starting in FY 2009 through the beginning of FY 2011 (see Table 1 for the product distribution and Appendix A for a complete list and description of each product). The descriptions provided in Appendix A were supplied directly from the submitters of the products.

Table 1: Product Nominations

Technology Grouping	Nominated
Envelope	43
Renewables, Conversion, and Storage	7
Lighting	46
HVAC	74
Controls	13
Other	45
Totals	228

Appendix A

Product Name	Manufacturer	Brief Description (Submitted to DOE; Claims Not Verified)	End Use
Infometrics	Cimetrics	Infometrics continuous, monitoring-based commissioning enables savings of 15%-20% for building owners without capital cost. Continuous optimization of building systems and metering equipment are provided. We connect to the existing building automation system and other devices and collect large quantities of otherwise discarded data. An Infometrics analyst performs monthly complex fault detection and diagnostics on these data using our algorithmic-based technology. The result: we expose previously undetected issues with the BAS and other systems. The Infometrics analyst then develops a report for the building owner/manager that includes the following: List of issues/problems, corresponding recommendations for repair, an energy calculation for each problem to prioritize the issue by dollar value, a carbon calculation per issue, and backup data/how we developed our assessments. Infometrics reports provide clients with predictive maintenance, sustainability, and savings.	HVAC
Strategos rooftop units with MSAV (Multi-Stage Air Volume) supply fan technology	Lennox International Inc.	MSAV technology stages blower motor to match demand for cooling. For example, when there is a low demand for cooling and one compressor is running, the unit will reduce airflow to save energy. As the cooling demand increases, and the unit adds additional compressors, the unit will increase airflow to provide more cooling capacity.	HVAC
Optimum TRAV	Optimum Energy, LLC	Optimized control strategy for direct digital controlled (DDC) variable air volume (VAV) air handling systems.	HVAC
Energy Recovery of Ventilation Air	Airxchange, Inc.	Rotary enthalpy wheel recycles exhaust air heat/cool energy to supply air, reducing the heating/cooling energy to condition this air by 70% or better.	HVAC
PureTrac Building Performance Software	PureChoice, Inc.	PureTrac is an Internet based data acquisition and information reporting platform providing building owners/stakeholders a tool for managing the performance of their building(s).	Controls and Diagnostics
Power-e Glass	Radiant Glass Industries	Power-e Glass turns industry standard Insulated Glass units (IG) into radiant heat sources by running dc current through a low-e coating. The glass needed for the product is off-the shelf Tec-15 glass from Pilkington. This can be the primary heat source for virtually all buildings with any significant ratio of windows to external wall square footage. Simulations run at Kansas State University indicate this heating system uses 35-45% less energy than forced air natural gas convective systems.	Envelope
Quantum Cool Green Efficiency Products	Endothermic Solutions	Endothermic Reactive Solutions Endothermic Chamber Technology, Endothermic Reactive Solutions, work with existing coolers and freezer systems, but reduce kWh by 60% and maintenance by 25% while maintaining lower average temperature and reduced humidity.	Refrigeration
Heat Pipes	Heat Pipe Technology	These heat pipes are used in commercial and industrial HVAC systems: 1. to save energy by transferring sensible heat and 'cooling' from the exhaust air to preheat or precool the incoming outside air 2. to save energy in facilities that are already using reheat to maintain temperature and humidity by replacing the reheat and reducing the cooling load 3. to reduce the humidity in a space by reducing the Sensible Heat Ratio of the equipment and, in DX systems, reducing the leaving dewpoint from the AHU	HVAC
XPS223 POWER SQUARE	Xedia Technologies	This is a Power Factor Optimizer. It works on 3PHASE wiring. It reduces kva and kvar therefore reducing kilowatts consumption.	Electric Energy Storage

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Ayus Technology	Ayus Technology	Utilizing natural low energy high impedance frequencies to treat water is a unique approach introduced from advances in nano-technology and quantum physics. The treatment increases water's carrying capacity significantly reducing scaling, surface tension, and wetting angle. This has a very wide range of significant affects from increased efficiency in heat transfer, reduced water required for irrigation, reduced water required for soluble chemical (fertilizer) dispersion, personal hydration, fuel economy, etc.	Water Systems
Turbo Wind Mill 5000 for urban buildings	Windation Energy Systems Inc	Wind turbine with a 5KW generator rating, permits and installs like a commercial AC on commercial building roof tops, safe to wild life and humans with no exposed moving parts, and connect to the building grid with high quality 60Hz 220V or 440V connection. Pays back in 5 to 8 years. Weight is 2200 lbs and produces 10800KWhr per month at 16 mph wind. Multiple units can be installed as a roof top wind farm to increase the clean energy output. Contact www.windation.com	Electricity Generation
Capture-Jet	Halton	Technology for commercial kitchen exhaust hoods that enables the use of typically 30% to 40% less exhaust volume for complete capture and containment of convected heat and effluent.	HVAC
MARVEL	Halton	Demand Control Technology for commercial kitchen exhaust hoods that lowers exhaust volume based on cooking load and ensures complete capture and containment of convected heat and effluent.	HVAC
Solar Power Signage	The Sign Center	A new system for light any type of signage by solar power	Outdoor Lighting
Frigitek	Energy Control Equipment, Inc.	Refrigerator evaporator fan controller which saves energy in walk-in and drive-in refrigerators.	Refrigeration
Radiant Panels and Active chilled beams	Twa Panel Systems	Radiant Panels and Active chilled beams use higher cooling temperature water for cooling and lower temperature water for heating for low energy systems. They also work with dedicated outside air systems to minimize fan energy use in a building.	HVAC
Energy Information Systems	Multiple	EIS technologies are used by large owners to organize and track whole-building electricity use, changes in energy use over time, perform M&V from retrofit analysis, track energy costs, carbon, and other related metrics.	Controls and Diagnostics
Restaurant application of ERV (Energy Recovery Ventilation)	RenewAire LLC	RenewAire proposes a unique, simple and reliable application design for our commercially available ERV products that will cut restaurant ventilation loads by 50-70%. The application provides exhaust and fresh air supply to the dining area and makeup air to the vicinity of the exhaust hood in the kitchen. The air flows can be easily balanced to provide slightly positive pressure in the dining area and slightly negative pressure in the kitchen. The need for a rooftop unit dedicated to makeup air is eliminated in most climate zones which covers a significant portion of the cost of the ERV system.	HVAC
Interior glass storm panel fabricated with a pyrolytic low emissivity coated glass	Pilkington North America, Inc. (Pilkington Energy Advantage)	Pilkington Energy Advantage Low-E Glass is produced by depositing microscopically thin layers of metallic oxides by the chemical vapor deposition process during float glass manufacturing. This on-line pyrolytic hard coating process produces extremely durable coated products with low emissivity that can easily be handled, transported and processed. The glass is glazed within a framing system (aluminum or other) to create the storm panel assembly. This storm panel is then glazed along the interior room side adjacent to the existing window with the low-e coated surface facing the existing glass. The heat loss through the finish storm panel assembly will be reduced due to the lower overall U-factor of the complete assembly. The Pilkington Energy Advantage Low-E Glass Storm Panel becomes a cost efficient and energy efficient	Envelope

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		alternative to removing and replacing the entire window.	
Techna-Duc	PTM Manufacturing	Techna-Duc is a pre-manufactured panel system. It is manufactured as a (4) four piece-interlocking panel. The interlocking panels are constructed with Dow Thermax Polyisocyanurate Insulation, laminated in (2) two layers which equal R-16 @ 2 thickness. The insulation is jacketed with .032 embossed aluminum and sealed with vapor barrier compound. All joints interlock to insure a thermal seal. Panels are secured with #10 self-tapping stainless steel screws with weather seal washers.	Exterior Structures
Tehna-Duc Enclosure Box	PTM Manufacturing	The all weather outdoor enclosure is specifically designed to protect the duct smoke detector from harsh elements. This enclosure provides protection in outdoor installation against rain, sleet, snow or indoors against dripping water and provides a thermal insulation break when installed on insulated a/c duct systems.	Exterior Structures
Modulating Capacity Scroll Compressor in Refrigerant Systems	AAON	Modulating capacity scroll compressors in a high efficiency direct expansion refrigeration system allow the system to modulate its capacity from 10-100%. This eliminates cycling losses, increases part load efficiency, and improves humidity control. Modulating capacity compressor eliminates the need for hot gas bypass.	HVAC
Modulating Capacity Scroll Compressor in Chillers	AAON	Modulating capacity scroll compressors in a high efficiency water chiller system allow the system to modulate its capacity from 5-100%. This eliminates cycling losses, increases part load efficiency, and improves water temperature control. Modulating capacity compressor eliminates the need for hot gas bypass and reduces water system capacity requirements.	HVAC
Energy Recovery Wheel in Rooftop Units and Air Handling Units	AAON	Energy recovery wheels in a high efficiency direct expansion refrigeration system allows the system to save energy because the entering outside air is preconditioned by the wheels. Energy recovery wheels can preheat, pre-cool, dehumidify, and humidify the ventilation outside air depending on the conditions.	HVAC
Direct Drive Backward Curve Plenum Fans in Rooftop Units and Air Handling Units	AAON	Systems with direct drive backward curved plenum supply fans save energy because no energy is lost to belts or fan housings. Backward curved fans are more efficient and durable that forward curved fans.	HVAC
Double Wall Foam Panel Construction of Rooftop Units and Air Handling Units	AAON	Systems with double wall foam panel construction save energy because less energy is lost through the cabinet of the unit. Two inch foam panel cabinet construction can provide a minimum of R-13 insulation to the unit.	HVAC
Pyrolytic low e glass in an interior storm panel.	AGC Flagt Glass North America Inc.	Comfort E2 is a pyrolytic [hard coat] coating in the glass surface. This is formed while the glass is manufactured. Metallic gases are deposited and form the coating while the glass is still in a semi-molten state. The glass is glazed into an aluminum frame with the low e coating facing the existing window. The interior Comfort E2 storm panel is then glazed adjacent to the existing window. This combination of framing system and energy efficient glass reflects the radiant heat back into the building during the winter months and helps keep the building cooler during the summer months. The Comfort E2 storm panel becomes an energy efficient alternative to replacing the entire window.	Envelope
Evaporative-Cooled Condenser in Refrigerant	AAON	Evaporative-cooled condenser in a high efficiency direct expansion refrigeration system allows the system to save compressor energy because less compressor work is required. Condenser rejects heats to the ambient wet bulb temperature providing significant energy savings	HVAC

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Systems		at dryer ambient conditions.	
Energy Optimizing Control Demonstration for Commercial Buildings	United Technologies Research Center	Demonstrate a commercially realizable demand response control methodology for commercial buildings capable of achieving 15%-20% peak load reduction during an electrical energy curtailment event while maintaining a safe and comfortable building environment	HVAC
StrionAir A130 System	StrionAir, Inc.	StrionAir provides a highly efficient filtration system that meets the minimum LEED filtration requirements of MERV 13. It does this at a substantially low pressure drop, which directly correlates to fan energy savings. We have modeled building fan energy savings of up to 15%/year.	Envelope
High Efficiency Reduced Emissions Boiler Systems for Steam, Heat, and Processing	United Technologies Research Center	Simplified means of retrofitting and improving the operating efficiency of legacy boiler systems without complete boiler replacement.	Interior Structures
Knauf KoolDuct HVAC System	Knauf Insulation & Kingspan Insulation-Joint US Venture	KOOLDUCT is a Phenolic Foam board used for HVAC interior / exterior duct systems that combines the duct fabrication with the insulation process while providing less than 1% air leakage, a 25/50 Flame and Smoke rating UL 181, an R-6.0 @ 7/8 thickness and R-8.0 @ 1 3/16 thickness meets SMACNA class 6 requirements. KoolDuct on average is also 85% lighter and 10%-15% less expensive than standard insulated sheet metal and saves approximately 6-8 inches of ceiling grid space. KOOLDUCT is also more thermal efficient, LEED approved and helps prevent mold and mildew due to its special formulated anti-microbial silicone. EISI also provides a 2 year warranty on materials and labor.	Interior Structures
AMAX Cooling Solutions	AMAX USA and Speakman Company	The AMAX series of commercial/industrial units provide customized cooling solutions that utilize the energy saving benefits of a direct and indirect (IDEC) evaporative cooling combined as necessary with the comfort and dependability of direct expansion cooling.	HVAC
Telkonet SmartEnergy	Telkonet	Occupancy-based energy management controls and technology. The NTSE platform provides a network-connected energy management system utilizing the most efficient setback method of Recovery Time to monitor and manage in-room energy efficiency needs.	Controls
Smart Controller	Solarienne Energy Solutions	An aftermarket control unit that can be installed on existing equipment to reduce electrical consumption. Our controller works on any HVAC equipment, air compressors, conveyor drives, machine drives. Can be used in almost any electrical motor application to reduce electrical costs starting at 20%.	Controls
Robur	Robur Corporation	Gas Fired Absorption Heat Pumps and chillers for use in comfort conditioning, process heating and cooling as well as medium temperature refrigeration. The Robur heat pumps provide heating efficiencies well over 100%.	HVAC
Adaptable Chilled Beams	Halton	Cooling and heating method that utilizes water for heat transport rather than air, providing energy savings and better IAQ.	HVAC
Advanced Energy Efficient HVAC System	United Technologies Research Center	The system under development is an Integrated HVAC, dehumidification, and air purification system that achieves up to 2X reduction in energy use at standard rating conditions. The system can be configured in various products and capacities; current development is focused on a 3-20 RT (refrigeration tons) rooftop unit.	HVAC
Albeo T8LED Troffer	Albeo Technologies Inc.	Albeo's white-LED solid-state T8LED troffers are designed for general retail indoor lighting. Constructed from high quality materials, these specification grade fixtures replace fluorescent troffers with an energy	Indoor Lighting

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		efficient, long-lived, low maintenance LED solution. Albeo products lower operational expenses by reducing energy consumption, maintenance expenses, consumable material expenses, recycling costs, and HVAC load.	
DanaLite, Ultra-Slim Modular LED Lighting System	Juno Lighting Group	12, linkable, 5W LED modules, 1 Wide by ½ Tall, with choice of color temperatures.	Indoor Lighting
Demand Control Lighting (DCL) System Controls and DEMANDflex ballasts	Universal Lighting Technologies, Inc.	Demand Control Lighting (DCL) is a cost-effective lighting system for energy management and conservation. DCL communicates with all DEMANDflex ballasts in a building or multiple buildings on the circuit level without the need for extra control wires. Power to ballasts can be reduced up to 50% with commands from automated building controls (including schedulers, occupancy sensors, or photocells), a local computer, or stand alone DCL controls. Ideal for new construction or retrofit projects, DCL also enables participation in a utility's demand response program.	Indoor Lighting
Dryvit Outsulation Systems	Dryvit Systems, Inc.	Dryvit is the manufacturer of Outsulation Systems, a series of insulated exterior wall systems. Dryvit is the leading manufacturer of these types of systems and has been in business for over 40 years. Headquartered in Rhode Island, Dryvit has four manufacturing plants in the US (all certified to ISO 9001 and ISO 14001) and one in China, Canada and Poland. Outsulation is a brand name as well as a concept that means "insulation" placed on the outside of the wall.	Envelope
EC Fan Drive Motors with Integral Process Control - M3G150 / M3G112 Series	ebm-papst, Inc.	ebm-papst offers a line of intelligent, single or 3-phase AC mains powered EC (Electronically Commutated) drive motors which reach full speed efficiency levels up to 90% and maintain a high efficiency when operated at greatly reduced speeds. They come equipped with an integrated PID controller, external sensor input for speed modulation, sensor power supply and RS485 Bus interface for programming and diagnostics. Motor communication is possible via free motor control software available for laptop and PDA. This allows easy setting of a fixed motor speed or programming of a closed-loop feedback system to maintain a constant set point chosen by the user. These external rotor motors were designed to drive ebm-papst air movers. A single motor design can drive several fan types, including axial impellers up to 990mm (39), backward curved radial impellers up to 710mm (28) and forward curved centrifugal wheels up to 450mm (17.7"). They cover a range of shaft power up to 6kW (8hp).	HVAC
ECO ³	Smartcool Systems Inc.	The ECO ³ is a new retrofit technology designed to make air conditioning and refrigeration systems more energy efficient. The product uses Smartcool's patented algorithms to optimize the cooling cycles of the compressors within these systems by interfacing directly between the primary controller and the compressors. It can also optimize the heating cycle of compressor driven heat pumps. The compressors in a given system are responsible for an average of 70% of the energy consumed. The ECO ³ can reduce the compressor run time by 30% while maintaining temperature requirements, and has no impact on manufacturer warranties for the system. By optimizing the compressors, the ECO ³ achieves an average 15% reduction in kWh consumption in addition to an average 10% reduction in KW demand. The ECO ³ is compatible with any single or dual compressor air conditioning unit or with any single compressor refrigeration unit.	HVAC
eH2O Energy Water Conservation	eH2O, LLC	This is a validated energy and water conservation product for air conditioning systems using a mineral precipitation process. Normally these minerals are kept in solution using chemicals and do adhere to	HVAC

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		heat transfer surfaces while using a tremendous amount of fresh make up water in the process. This technique completely prevents this adhesion problem and does not require the fresh make up water in the process.	
Element	Big Ass Fans	The 12-ft. diameter Element by Big Ass Fans is the first commercial air movement solution that is engineered specifically for the unique needs of large commercial spaces such as retail spaces, shopping malls, office buildings, churches and recreational facilities. Element delivers a visual punch and impressive, ductless air movement in large, open spaces. Operating on just one-half horsepower at maximum speed, the energy-efficient Element delivers massive, silent air circulation that is ideal for public spaces. Element can also be integrated with existing building automation systems for a streamlined operation. And with a wide range of colors and finishes, Element can blend in or become a true design feature in any space.	HVAC
Energy Expert	NorthWrite, Inc.	This sophisticated, yet easy-to-use software application trains itself to create a "smart model" of your building and compares daily energy consumption against this norm. The Energy Expert will tell you whether your facility over-consumed; under-consumed or used about the right amount of energy on a daily basis. Notifications predicting potential peak demand days allows you to take actions to prevent costly peak demand charges. Features of Energy Expert include: Next Day Notifications arrive in convenient email format when usage exceeds limits to prevent data overload Notifications trigger actions that maintain sustainability of ESM's implemented in your energy program Energy and cost savings from an energy program are calculated for each day, month and YTD	Controls and Diagnostics
Energy Saving Module (ESM) System	Smartcool Systems (USA), Inc.	Smartcool Systems Inc. is an advanced energy conservation solutions company that specializes in energy and cost reduction technologies for commercial and retail businesses. This green technology reduces the electricity consumption (kWh) and maximum demand (KW) of air conditioning and refrigeration compressors. Rather than replacing existing equipment, the ESM works in conjunction with existing controls in order to ensure that compressors work at maximum efficiency, while maintaining preset temperature levels and without causing over-cycling. This process, known as "Compressor Optimization" can reduce compressor runtime by more than 30% and electricity consumption and demand by up to 20%.	HVAC
EnergyWitness	Interval Data Systems, Inc.	IDS offers a program, based on its EnergyWitness technology platform and related services, that will address comfort and indoor air quality, energy efficiency and its impact on your organization's carbon footprint and sustainability efforts, and improve operational efficiency. We start by giving you a complete picture of where you are through our Building Operations Scorecard System, and then work with you to create a plan for measured and verified improvement.	Controls and Diagnostics
GTD Generator Transfer and Relay Control Devices	Philips Bodine	Philips - Bodine's GTD Generator Transfer Device and the GTD20 Emergency Lighting Relay Control Device eliminate night-lighting for emergency lighting purposes.	Indoor Lighting
Heat Reclaim Tank	Therma-Stor	A passive system that reclaims rejected heat from refrigeration, freezer, chiller, or air conditioners systems to provide heated water.	HVAC
Heat Transfer and Insulating Roofing Board	Corporate Research Services, Inc.	Corrugated roofing board or roofing board with flutes (1) easily transfers hot air from roof generated by the sun to be used for heating materials such as water; (2) easily delivers fire extinguishing material when needed to all areas of the roof; (3) Insulates roof during cold weather.	Interior Structures
IceBank Cool	CALMAC	CALMAC manufactures IceBank cool energy storage tanks which store	HVAC

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Energy Storage	Manufacturing Corporation	renewable energy, like wind and /or inexpensive night-time electricity, in the form of ice for comfort cooling use during peak demand periods the next day.	
iCOMM Remote Monitoring for High Efficiency Water Heating	A. O. Smith	The iCOMM remote monitoring system for high efficiency commercial water heating is a new technology and will be available for sale this summer. The iCOMM control module connects to the Cyclone Xi 95% efficient water heater and allows remote management of all water heater functions via the internet. iCOMM will also e-mail or text message facility managers in the event of a fault, tank leak or low water temperature condition. Used in conjunction with the 95% Cyclone Xi water heater this system can provide energy savings of up to 30% in commercial applications. Typical payback period of just one year can be achieved in applications with high hot water needs.	Water Systems
Insul-Stud	Engineering Technology Consultants Corporation	New energy saving steel stud, made from 30% less material than generic steel studs, to be used in the building industry in steel framing for interior load bearing and non-load bearing walls as well as exterior load-bearing walls in light commercial and residential construction.	Envelope
Juno Recessed LED Downlights	Juno Lighting Group	5 and 6, New Construction and Remodel, IC Rated, Dimmable, 14W LED Recessed Downlights.	Indoor Lighting
LEDnovation Solid State Lighting	LEDnovation, Inc.	LEDnovation, Inc. was created to develop and commercialize new and innovative solid state lighting products. We have unique LED solutions that are based on performance and cost and advanced prototype demonstrations can be arranged for you to judge Lumen output, CRI, CCT, & Efficacy. Initially, we will produce A19-type LED light bulbs for the North American market and eventually roll out our solutions worldwide. Our product offerings for 2009 include 40W, 60W, 75W, & 100W incandescent bulb replacements. According to the US DOE & the Fredonia group, 22% of all electricity use is related to lighting. To put this in perspective, the total energy for lighting equals the output of more than 100 large power plants. LEDnovations products are ~90% more efficient than a standard incandescent bulb.	Indoor Lighting
Melink Intelli-Hood Controls	Melink Corporation	The Melink Intelli-Hood controls automatically reduce the speed of the commercial kitchen exhaust and make-up air fan (if applicable) during idle, non-cooking periods to save fan energy and conditioned air. The system includes the following components: I/O Processor, Keypad, Temperature Sensors, Optic Sensors, Variable Frequency Drives (VFDs), and Cables.	HVAC
Optimum LOOP	Optimum Energy, LLC	Power-based control strategy for all-variable speed central plants based on Hartman LOOP technology and patents.	HVAC
Power Smart Technology	Powerweb Technologies	Wireless energy cost control solution that enable the integration of load management, smart metering and low cost energy procurement integrated into one easy to use solution.	Controls and Diagnostics
Powerworx Technology	Continental Power Corporation	A technology that reduces electrical energy consumption provides protection against surges and spikes and 'cleans' electrical power. Powerworx does so cost effectively, Powerworx is installed in parallel near the incoming power panel. Powerworx is solid state, maintenance free, relocatable, moisture, dust and tamper resistant without moving parts. Powerworx is listed with Underwriters Laboratories, unconditionally warranted for 60 days and covered by a 10 year limited warranty. Powerworx Technology is manufactured by Continental Power Corporation, a 20 year old electrical conservation company.	Envelope

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Solar Tracking Skylights	Solar Tracking Skylights	By tracking the sun throughout the day, Solar Tracking Skylights (STS) generate up to 500% more useable daylight compared to conventional skylights. In fact, Solar Tracking Skylights have proven to have the best Return on Investment of any daylight harvesting product on the market. If you are trying to reduce your Carbon Footprint, Energy Consumption or are considering LEED Construction, STS has a unique ability to meet your needs with an unmatched Return on Investment.	Indoor Lighting
TCP/IP Based Distributed Refrigeration Controller	Verisae, Inc.	A typical food refrigeration system consist of compressor rack, air/water cooled condenser and many refrigeration cases operating at multiple temperatures. Traditionally, a proprietary central controller is used with input/output board to control compressors & condenser fans with cases controlled mechanically (using thermal expansion valves). The technology recommended here make use of distributed control for compressors, condensers and refrigerated cases with cases controlled using electronic expansion valve. The communication between the controllers and with outside world is using internet standard Ethernet & TCP/IP protocol.	Refrigeration
Xceed	Lightolier	Exceed is an energy-efficient compact fluorescent luminaire that exceeds expectations for efficiency, size, and design. It has several unique design features, from an ultra-shallow frame that fits between 2x4 stud construction to an ultra-efficient optical system. The mounting is also innovative, with a frame for wood joists or ceiling tile that can be installed in no time. The design includes an efficient lens that obscures the view of the lamp to give a soft look.	Indoor Lighting
Trac 12 LED Linear Lighting	Juno Lighting Group	Miniature track-based linear lighting with plug-in modules, in 3 wattages and 2 color temperatures, which are operated using conventional AC low-voltage transformers.	Indoor Lighting
Dynamic V8 Air Cleaning System	Environmental Dynamics Group, Inc.	The Dynamic V8 is an active-field, polarized media air cleaning system that is typically used in the filtration section of HVAC systems in a wide range of applications. In brief, it provides superior indoor air quality and significant reductions in energy (both through reductions in fan horsepower requirements and the potential to reduce outdoor air levels), waste, and maintenance as compared to the passive filters typically used.	HVAC
Vapor Injection Scroll Compressor	Emerson Climate Technologies	Scroll compression designed with an additional port midway through the compression process. This introduces a third pressure into the system where a liquid subcooler can be accommodated to subcool the liquid refrigerant entering the evaporator.	Refrigeration
Q-Pump DOAS / HOAS	Desert Aire	The Q-Pump is a DOAS (Dedicated Outside Air System) or HOAS (High Outside Air System) water source heat pump with an unoccupied status providing 100% return air function. Using the building loop, the Q-Pump efficiently transfers energy from the water while in heating mode and into the water during cooling mode. "Waste" energy from the store's refrigeration equipment is transferred into the building loop and is utilized by the Q-Pump system. The results: Net decrease in total electricity and natural gas consumed while maintaining required levels of outdoor air in the store humidity control and space temperature at the desired set-point. Humidity control eliminates the need to defrost the glass doors of refrigeration units using electric heaters. Temperature control allows possible downsizing of the HVAC system typically needed.	HVAC
Digital Discus	Emerson Climate Technologies	A digital capacity modulation system for reciprocating compressors that allows the compressor to unload down to 10% of its capacity. This technology is a variable adjustment of capacity and allows capacity to adjust in blocks of time measured in seconds and can operate at 10% capacity indefinitely.	Plug and Process Loads

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Interior Window Insulators	Dennis Roberts	An interior mounted window insulator that consists of a metalized (aluminum), coated, polyethylene sheet laminated to a sheet of carbon graphite PVC that is then embossed, perforated, and laminated to a sheet of clear 1 mil. polyester. The window insulator is reversible, so you may have the reflective surface facing externally during the season when solar gain is a problem, and the carbon PVC surface facing outward during cold seasons to reflect heat back into the building while collecting convective sunlight for conversion to radiant heat. The panel installation uses a magnet to form a gasket for an air tight seal to provide additional insulation. Other installations form a trapped air insulation barrier.	Envelope
Wet/Dry Closed Loop Fluid Cooler	PowerCold Corporation	Heat exchanger uses an engineered polymer tubing which can operate either as a wet, evaporative cooled closed loop fluid cooler, or, because of the extensive heat transfer surface area, can operate as a dry fluid cooler during non peak summer cooling periods. (see attached explanation)	HVAC
MasterColor CDM Elite Medium Wattage	Philips Lighting Electronics	210W & 315W ceramic metal halide systems which feature extremely high efficacy lamps (115-120 lumens/watt), excellent color rendering (>90), long life (20,000 hrs) and excellent lumen maintenance (>80% at end of lamp life). The first such system to feature all 4 of these important criteria. Additionally the 315W system is dimmable, allowing up to a 40% energy reduction. These systems are designed for applications where ~400W systems have traditionally been used. The compact lamp and electronic ballast afford fixture designers with the most design freedom to date.	Indoor Lighting
coolWIRE	CVC 1 Limited LLC coolWIRE	Our patented technology provides a way to increase the number of wires without increasing the size of the wires by 900% in raceways, wireways, and cable trays. It reduces harmonics/RF and reducing cooling cost to the total environment of the building so it uses less fuels in production, installation, and cooling. Used in all types of buildings such as healthcare imagining finical, offices, big box stores and much more	Indoor Lighting
RTU+Server	EnergyICT	Capable of monitoring sub-metered loads and signaling building automation systems to initiate load reduction strategies during Demand Response events. Load data is stored at the central host for enterprise level monitoring, reporting and initiation of enterprise wide load reduction strategies.	Envelope
Silicon Expansion Valve (SEV) for HVAC/R applications.	Microstaq Inc.	Utilizing a combination of original and licensed technology, Microstaq has created a silicon expansion valve (SEV) based on the MEMS model: leveraging semiconductor processes to produce three-dimensional mechanical devices in silicon. Fluids actually pass through and are controlled by the micromachined silicon features.	HVAC
Powerworx Systems	Continental Power Corporation	Three technologies in one maintenance-free and easily installed system that reduces KW Demand and KWH's, mitigates damaging harmonic distortion and protects electrical equipment from surges and spikes.	Refrigeration
SageGlass Glazing	SAGE Electrochromics, Inc.	SageGlass electronically tintable architectural glazing provides dynamic control of solar glare and heat without blocking the view. The SageGlass product saves energy, contributes to a more comfortable interior environment, and allows architects more daylighting design freedom.	Envelope
Wireless Remote Power	Powercast Corporation	Wireless Remote Power is sending power through the air using radio waves and converting the received RF energy back into DC power. Powercast is looking to apply this technology to wireless sensors and develop sensors that can operate perpetually without batteries. The primary application would be to improve the energy efficiency of commercial buildings and industrial facilities by providing environmental and process control systems with additional data from wireless sensors. Powercast technology can be used to wirelessly recharge the batteries in	Interior Structures

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		wireless sensor networks making them easier to maintain, and therefore have a higher rate of deployment and subsequent energy savings. Developing these sensors to be battery-free, and powered with RF-power, will enable wireless sensor networks to scale to hundreds or thousands of nodes without creating a growing liability of battery replacement.	
Constellation Solid-State High-Bay Light Fixture	Albeo Technologies Inc.	Albeo's Constellation white-LED solid-state lighting systems are designed for general retail indoor lighting. Constructed from high quality materials, these specification grade fixtures replace fluorescent or HID lights with an energy efficient, long-lived, low maintenance LED solution. Albeo products lower operational expenses by reducing energy consumption, maintenance expenses, consumable material expenses, recycling costs, and HVAC load.	Indoor Lighting
Lightolier Xceed	Lightolier	Exceed is an energy-efficient compact fluorescent luminaire that exceeds expectations for efficiency, size, and design. It has several unique design features, from an ultra-shallow frame that fits between 2x4 stud construction to an ultra-efficient optical system. The mounting is also innovative, with a frame for wood joists or ceiling tile that can be installed in no time. The design includes an efficient lens that obscures the view of the lamp to give a soft look.	Indoor Lighting
White-light SSL Downlight	Lightolier	Solid state lighting must be evaluated as a system. Lightoliers system approach involves the concurrent design of power conversion, LED circuits, thermal management and optics. This guarantees that all components will deliver optimum performance and long life. Lightolier's proprietary remote phosphor LED technology converts blue LEDs to white light. Typically LED chips themselves are phosphor-coated, where slight variations in coating thickness have a substantial impact on color and performance. Remote-phosphor technology improves color consistency and lumen output across products. This helps to give a smooth, uniform lighting appearance with spec-grade cutoff and energy-saving output. Lightoliers modular construction eliminates the possibility of field modifications and resulting contamination to ensure long life and photometric performance.	Indoor Lighting
1.5 GPM Showerhead	Niagara	High function showerhead with message features. This shower head reduces water usage by 40%. Which means at least a 10% reduction in energy needed to heat the water.	Water Systems
FlexRight	Build Right Products, LLC - Distributed by Titus	FlexRight is a radius forming brace engineered to shape flexible duct into energy efficient 90° elbows. It improves airflow and saves energy in HVAC systems by eliminating kinks and restrictions common to flexible duct installations. Made from 100% recycled materials, FlexRight is easy and economical to install. A major source of excessive energy consumption is restricted airflow caused by improperly installed and kinked flexible ducts (similar to the restricted water flow in a kinked garden hose). Restricted airflow causes HVAC equipment to run longer cycles wasting and consuming excessive amounts of energy.	HVAC
Ecodenser/ATCS	CQM L.T.D.	A 24x7 online heat exchanger cleaning system for a variety of industry applications including HVAC, processing equipment, and power plants.	HVAC
PICCV - Pressure Independent Characterized Control Valve	Belimo Aircontrols	The PICCV is a two way valve that will supply a specific flow for each degree of ball opening regardless of pressure variations in a system.	HVAC
Radiant Cooling (Tube In Slab)	Uponor North America	Tubing based radiant systems have been used successfully in America since the 1930s with various forms of cooling showing up in the 1990s. The concept of reversible floors, those used for both radiant heating and cooling, is referenced in European design manuals such as the Rehva	Water Systems

Product Name	Manufacturer	Brief Description (Submitted to DOE; Claims Not Verified)	End Use
		manual. Uponor is currently drafting a new design manual for radiant cooling prepared for the North American market. A radiant system provides a very good method of discharging sensible cooling loads while maintaining thermal comfort at relatively low operation costs. The primary application is radiant floors, however ceiling and wall applications are also used. Radiant systems are designed in accordance to the ensuing radiant exchange (heating/cooling) in the space. The radiant system can be installed so that both individual and zone control can be achieved. Primary benefits include higher system energy efficiency, better comfort, and more architectural freedom.	
iForm or eForm Insulating Concrete Forms	Reward Wall Systems, Inc.	Stay-in-place formwork for structural cast-in-place concrete walls. The product consists of two rigid panels of expanded polystyrene insulation board held together by plastic ties that form a flat solid monolithic concrete core wall. The walls can be used for load bearing and non-load bearing or below grade and above grade. The forms are used in the construction of plain or steel reinforced concrete exterior or interior walls, foundations, and retaining walls. The forms remain in place after placement of concrete.	Envelope
Automatic Setpoint Demand Lighting	Realtime Precision Systems, Inc.	The Need For Energy Conservation Is So Great And The Non-Applied Solution Is Reasonable And Straight Forward. Increasing Control Efficiency Is The Fastest, Least Costly, And Most Profitable Way To Conserve Electrical Energy. Automatic Setpoint Demand Limiting Control Costs As Little As 1% Of The 1980S Energy Management. It Has A Payback Of 1-3 Months. Converting HVAC Controls Would Provide The Following Savings For Each 1,000 Square Foot Zone: *Increase Efficiency 5% Or \$75.00/Yr *Setpoint Demand Limiting Can Save An Addition \$80.00/Yr *Rolling Blackouts Would Be Substantially Reduced The USA Annual Savings Would Be: 60 Million KW Of Peak Electric Demand 12 Billion KWh Of Electrical Usage Equal To \$30 Billion And 7 Billion Metric Tons Of Carbon	HVAC
Venergy	Cooper Controls	Software that outputs real time energy metering information collected directly by the lighting control system	Indoor Lighting
Greengate Patient Control Station	Cooper Controls	The Greengate Patient Control Station provides the hospital patient or nursing home resident easy control over their lighting controls and shades with the added security of a standard connection to the Nurse Call system and the comfort of a universal TV controller. The patient control station provides large clearly labeled buttons in a fully sealed case.	Interior Structures
Fossil Fuel Stabilizer	The Energy Group	Technology reduces consumption 10% - 35% and reduces GHG emissions to 96%. NOT magnets, NO maintenance ever, NO moving parts and has "NEVER" failed to product results, when done by its instructions.	HVAC
Solar Power Signage	The Sign Center	Our company developed a new system for lighting any sign by solar power. A regular sign use 1000 to 1500 watts by hour our system reduce to 0 Watts, and the price is a regular in the market, this technology work in Channel letters signs and monument or pylon signs	Outdoor Lighting
Drylight Skylighting System	Carlisle SynTec	Skylight is manufactured utilizing RIM (Reaction Injection Molding), a proprietary encapsulation process that results in a homogenous and seamless integration of frame and glazing that does not require the use of any mechanical glazing methodologies to achieve a watertight assembly. System also features the Insulcurb system, an R-15 curb assembly that is 300% more thermal efficient than typical metal curbs. The assembly also features a highly reflective white melamine inner curb wall that contributes to better light diffusion in the skylight lightwell. System is also included under Carlisle's Total Roof System Warranty.	Envelope

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Fossil Fuel Stabilizer	The Energy Group	Inline fuel device reduces any type of fuel consumption from 10% - 35%, also reduces GHG emissions to 96%, without magnets, maintenance. Has a life of 50 years, comes with a 1 yr money back performance warranty.	HVAC
Blue Q	The Energy Group	Additive for any type of cooling or refrigeration	HVAC
Zone Control Units (ZCU)	Siemens Building Technologies	Factory assembled, tested, and configured VAV box with hydronics and controls delivered Plug & Play	HVAC
Redwood Smart Lighting Architecture	Redwood Systems	Redwood Systems is creating an entirely new, transformative way to power and control commercial lighting. This new system leverages the disruptive properties of Light Emitting Diode (LED) technology to build a fully digital lighting network transforming lighting from a simple and intensive analog user of power into a digital, Internet-scale woven fabric that can intelligently and discretely optimize energy, improve light quality, and save over 75% of the power consumed by lighting.	Indoor Lighting
Limpsfield LC Burner	Limpsfield Engineering Ltd	ultra high efficiency burner that fires a multitude of fuel types both liquid and gaseous. Utilized for retro-fit to existing boilers or new boilers. Boilers that used for space heating or process requirements.	HVAC
Magna	Grundfos Pumps Corporation	The Grundfos Magna is the next generation in heating circulators. The Magna ensures maximum energy savings in circulators applications. It is easy to install, simple to operate, and a great choice for the replacement market. The Magna is an all-in-one solution for heating circulators. The Magna consists of a permanent magnet motor, integrated variable frequency drive, and advanced control including the patented AUTOadapt function. This advanced control enables the pump to learn the system demands and optimize performance to save maximum energy.	Water Systems
Building Intelligence Quotient Program	BiQ Consortium	Web based building automation rating program developed for Continental Automated Building Association. CABA is already an Energy Star partner and many of CABA members are as well. The BiQ compliments the energy Star and LEED, Green Globe programs.	Water Systems
Trinity Building & Electric Vehicle System	Trinity Energy Applications	This system is designed and engineered to be installed on the exterior face of high rise and mid-rise buildings. The system is designed to be installed within the interstitial spaces above ceilings. It is designed to capture the inherent winds around these buildings from any direction, including the leeward side and capturing the negative pressure winds.	Envelope
Induction Lighting Technology	US Lighting Tech	US Lighting Tech, located in Signal Hill California, is one of the country's leading manufacturers of induction lighting products. We create and market innovative lighting systems that outperform conventional systems in terms of functionality, energy efficiency, maintenance and ease of installation. USLT induction lighting systems that can save up to 40% in energy consumption. And because our induction systems last 3 to 10 times as long as other lighting technologies, we can not only significantly reduce the total cost of ownership (IE. maintenance overhead) but we also help reduce the total amount of solid waste disposal generated by up to 90%. We are committed to our goals of surpassing environmental standards and being proactive in dealing with saving energy, reducing solid waste and decreasing pollution all for a better quality of light and life.	Indoor Lighting
Flozone Services, Inc. - Ozone and Radio Frequency Water Treatment	Flozone Services, Inc. - Aqua-Dynamics Group	Flozone technologies reduce utility costs, maintenance costs, and improve the environment. Our Integrated Water, Energy, & Air Management systems provide sustainable green-friendly solutions through proven and sound technology. Flozone technologies offer cost effective solutions that are environmentally responsible with the best control systems, and superior service. In today's market building climate	Envelope

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		controls, cost reductions and Return On Investments are vital for any facility to thrive during high energy costs. Flozone Services can help your facility achieve its sustainable future with proven results.	
Coilless Technology Water Heating	American Hometec, Inc.	Recently developed Coilless Technology tankless water heaters by American Hometec, Inc. should provide an opportunity for buildings to use a water heating system that does not have energy losses due to distribution system, heating element performance deteriorating with use, or constant equipment maintenance issues. This is a system that will allow over 95% efficiency throughout equipment lifetime with no maintenance. It is simple to install with compact design for space saving.	Water Systems
eLighting	Control Network Solutions	eLighting is the "World's First" non-proprietary Web enabled, Lighting commissioning and control system. It is a set of drivers, software, connectivity kits and Intelligent ballasts that allow a variety of control strategies to be implemented via occupancy, dimming, light level detection and more. The blending of two known technologies, already deployed worldwide, capable of saving up to 40% in lighting cost.	Envelope
Autonomous Vertical Transportation: Enabler for Reducing Building Size and Energy	United Technologies Research Center	Elevators serve a vital function in providing vertical transportation in a multi-story building. In a high-rise building, however, the total amount of elevator core space can be substantial. This paper describes a novel vertical transportation system in which multiple autonomous vehicles move independently in the same shaft. The traffic efficiency of this system is much higher and enables a significantly smaller elevator core while meeting the same performance. The smaller elevator core enables a reduction in building energy not only by reducing the energy load used by the core but also by allowing building designs with a smaller envelope while maintaining the same total occupied space. A case study shows that in a typical 40-story office building, a three-fold reduction in elevator core space is achievable resulting in a 5% reduction in the buildings floor space with a corresponding annual energy savings of 350,000 kilowatt-hours (over 1.5% of the total building energy).	Envelope
Exquisite Heat	John Cockerill	Adjusts heating or cooling production and energy use by means of thermostat analysis over time. Established a constant of circulation and adjust the temperature of the source plant to the temperature of medium that will satisfy set point at that rate of circulation.	HVAC
Power-Spar Concentrated Solar Power	Menova Energy, Inc.	Power-Spar is a high efficiency Fresnel Reflector 2-axis Solar Tracking Concentrator. The Fresnel Reflector design concentrates solar energy to a Triple Junction Cell or Thermal Receiver above the platform (similar to a solar tower) with over 1000 times concentration. The system can be configured for Concentrated PV, Concentrated Solar Thermal, Lighting, Heat, Solar Thermal Air Conditioning, or any combination of each. Low profile offers reduced shading (3%), and greatly increases energy density.	Indoor Lighting
Powerboss intelligent motor controller	Somar International Ltd	A microprocessor based intelligent motor controller for fixed speed A/C induction motors which performs soft start, soft stop and a host of other functions AND includes optimization function which precisely matches the power delivered to the motor to equal the load requirements, thereby reducing kW, kva and kvar by an average of 20% to 40% across the broad spectrum of applications. The technology has been in use in over 70 countries worldwide for better than a decade and carries all required approvals and listings for installation throughout the world. It has a proven documented track record of reliability and performance, and is now available in the USA.	HVAC
SmartPod High Bay Lighting	HID Labs, Inc.	High Bay lighting for application in large "big box" buildings such as retail, cold storage, industrial facilities. The light generate up to 65% energy savings over conventional HID and are 10-30% more efficient	Indoor Lighting

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		than the most efficient T5 and T8 fluorescent. Additionally, they are fully dimmable and controllable by motion and light sensors as well as fully intelligent networks and utility demand response systems. These lights are "Smart Nodes" for the Smart Grid. It is cheaper to save a watt than build a watt, so our ability to save 65% of industrial lighting energy (lighting is on average 25% of industrial energy use) gives us the ability to save about 13% of the nation's industrial electricity consumption	
Viridity's VPower System	Viridity Energy	Viridity Energy defines the next generation of demand response and energy management, unleashing greater value from your energy resources. Viridity's extensive power market and facilities management experience, coupled with breakthrough technology, expands the value of the energy assets of your organization. In particular specializing in Building load response analysis to dynamic and variable conditions.	Envelope
LED conversion solution for fluorescent light	Smashray Ltd.	Smashray's V-LUXA series (patent pending) is an LED lighting solution for those customers interested in converting existing fluorescent lighting fixtures to LED technology. This product can also be employed for new installations but it comprises a very cost effective and environmentally beneficial solution by retrofitting existing fixtures of various dimensions and wattages.	Indoor Lighting
ECM	Regal Beloit	ECM (Eclectically Commutated Motor) is a permanent-magnet, brushless DC motor.	HVAC
High power LED Lighting	Thermoking Technology	We provide practical LED lighting indoor and outdoor. High power LED lighting has been developed for many years; however, the practical use is still not reliable due to the thermal effect which will affect the lifespan and lighting efficiency of the LED light. We have developed unique patented thermal solution to solve the problem. We provide from 20W~320W LED lighting with great energy saving ability, good lighting efficiency, very low maintenance fee and very long lifespan.	Indoor Lighting
Sopogy MicroCSP	Sopogy Inc.	Modular, scalable, distributed concentrated solar power (CSP), which is a smaller form factor than traditional large desert mounted CSP. MicroCSP targets industrial and commercial applications with solar air-conditioning, process heating (desalination, process steam) and electricity generation all at the point of use.	Exterior Structures
Micro Turbines	Insource Power Inc.	Turbines will create more energy efficiency for production and require less maintenance	Electricity Generation
Blow-Thru Space Heater	Cambridge Engineering, Inc.	Direct gas-fired, high temperature rise Blow-Thru Space Heater: A very energy efficient way to heat commercial buildings with large open spaces that require both space heating and ventilation with outside air. Equipment is certified to ANSI Safety Standard Z83.4/CSA3.17 and compliant with ASHRAE energy standard 90.1. It is used to help buildings meet ASHRAE 62.1 ventilation requirements. Blow-Thru technology (patented burner downstream of blower) provides both space heat and tempered ventilation using the least amount of outside air making it the most energy efficient way to heat large warehouses and distribution centers.	HVAC
Multi-Pump Control (MPC)	Grundfos Pumps Corporation	Control system to operate and communicate with an advanced user interface controlling up to six efficient and reliable Grundfos CR pumps.	Water Systems
Alpha	Grundfos Pumps Corporation	The Grundfos Alpha is the next generation in heating circulators. The Alpha ensures maximum energy savings in circulators applications. It is easy to install, simple to operate, and a great choice for the replacement market. The Alpha is an all-in-one solution for heating circulators. The Alpha consists of a permanent magnet motor, integrated variable frequency drive, and advanced control including the AUTOadapt	Water Systems

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		function. This advanced control enables the pump to learn the system demands and optimize performance to save maximum energy.	
MLE Integrated Variable Speed Motor	Grundfos Pumps Corporation	Grundfos MLE solutions are all-in-one solution: a motor with an integrated frequency converter and controller. Used on other Grundfos pumps with sensors, they offer all the advantages of total system integration. They come with an integrated converter and PID controller with multiple sensor options. This single source solution provides complete system integration with a simplified and optimized interface.	Water Systems
REHAU	REHAU Inc.	REHAU manufactures a complete Ground air heat exchange PVC piping system. This system uses geothermal energy to precondition makeup air as required by ASHRAE 90.1 and ASHRAE 62.1 and 2 for indoor air quality. System is composed of 8 & 15 inch SDR 35 PVC bell & spigot pipe with patent pending anti microbial polymer inner layer. System is complete with 8 & 15 fittings, air inlet tower, filters and condensate management options. Complete software for the selection of and calculation of air flow rates, soil types, and piping lengths. ASHRAE climate files are inputted and calculation algorithms calculate ground temperatures, pipe heat transfer based on soil and air flow rates.	HVAC
LR6 LED Downlight	Cree LED Lighting	The first commercially successful LED downlight, the LR6 is a 6 recessed downlight for commercial or residential applications. The LR6 can be retrofit into conventional IC or non-IC 6 recessed housings. The LR6 delivers 650 lumens of light (equivalent to a 65W incandescent lamp) while consuming only 12 Watts or less of electricity for an efficacy of 54 delivered lumens per watt of input power. The LR6 is available in two color temperatures, warm white 2700K (LR6) and cool or neutral white 3500K (LR6C) and with an Edison screw base or a GU-24 base. The LR6 provides a color rendering index (CRI) of greater than 90 for either color temperature. The LR6 is also designed to provide a lifetime of 50,000 hours or greater with no maintenance needed. The LR6 is also available in a number of configurations, including as a surface mount fixture (the SC6).	Indoor Lighting
Wireless Pneumatic Thermostat	Cypress Envirosystems	It is a plug and play wireless pneumatic thermostat. The worldwide patent pending Wireless Pneumatic Thermostat (WPT) delivers DDC-like functionality at a fraction of the time and cost without the need to change out pneumatic pipes, run wires, replace actuators or disturb tenants. Not necessary to upgrade entire building at one time; may selectively retrofit individual thermostats for incremental benefits.	HVAC
High Efficiency Biomass Gasification Boiler	Advanced Climate Technologies, LLC	The ACT Bioenergy wood pellet/wood chip gasification boiler achieves up to 90% thermal efficiency (LHV). The system has automated controls including: automatic ignition, combustion modulating and ash removal. It has significantly lower emissions than typical wood boilers based on the USEPA's AP-42 standard emission factors. The hot water boilers range in size from 500,000 Btu/h to 1.7 MMBtu/h.	HVAC
Kinetic Energy Storage Device - The Power Tree Power Plant	Power Tree Corporation	Power Trees patent pending device mechanically stores kinetic energy in a unique flywheel design. The new Power Tree Flywheel system represents the first viable long-discharge whole building electric energy storage system suitable for individual facility installations. Power Tree Flywheel systems can also be distributed throughout existing electric utility distribution grids.	Electric Energy Storage
StoneSheets	StoneSheets	Thinly cut slabs of stone, reinforced with a choice of different reinforcement backing options, contributing differently to resource savings. Used for Exterior Cladding, Interior Walls, Countertops, Shower Surrounds, Cruise ships and Airplanes, and more.	Envelope
SYSTEMAX/TRAN SMAX	Harmonics Limited	SYSTEMAX is a retrofit unit that prevents the formation of triple harmonic currents generated by office equipment driven by Switch	Plug and Process

Product Name	Manufacturer	Brief Description (Submitted to DOE; Claims Not Verified)	End Use
	Inc.	Mode Power Supplies. These are computers, faxes, monitors etc. It is off the shelf technology that can be installed in thirty minutes. TRANSMAX provides the same benefit but is integrally incorporated into a TP-1 208/120 transformer. It is focused on new construction or whole transformer replacement	Loads
Diogen Bulb	Diogen Lighting	The Diogen Bulb is a state-of-the-art breakthrough and is the next evolutionary step in lighting. The unique retrofit design of the Diogen Bulb universally replaces standard incandescent and compact fluorescent (CFL) bulbs and is both UL and CUL certified.	Indoor Lighting
Diogen Bulb Replacement Lamps	Diogen Lighting	Diogens replacement lamps series includes T-8 LED replacement lamps, PAR lamps, GU10s and MR16s that offer up to 50,000 hours of illumination while saving on average, 70% in energy costs. Our lamps offer direct replacement for standard incandescent, halogen and fluorescent lighting.	Indoor Lighting
Green DCV	Cemtrex	Single sensor Demand Controlled Ventilation (co2 sensor)	Interior Structures
REJUVINAIR Services	Rejuvinair Inc.	Sustainable 305 Degree steam sanitation and sterilization of air handling coils providing the cleanest, purest, healthiest environmentally indoor air humanly possible reducing energy costs 22-45%. Fixasleeve PTAC sleeve repair kit.	HVAC
Kinetic Energy Flooring	POWERleap Inc.	A flooring system that converts kinetic energy from pedestrian and vehicular traffic into electricity. The system uses proprietary piezoelectric generators and harvesting modules to generate, distribute and store electric energy.	Controls and Diagnostics
PIC-V Pressure Independent Valves	Griswold Controls	Pressure Independent (PI) Valves limit the flow to heating and cooling coils and terminal units to design flow at all times regardless of pressure changes in the system. While traditional HVAC systems allow excess water to zones requiring extra pump energy PI valves limit the flow at all times saving energy.	HVAC
BioPCM	Phase Change Energy Solutions	BioPCM is a new green building product using bio-based phase change materials (PCM). The product addresses national energy-related challenges by increasing the thermal mass of buildings, storing latent heat energy, reducing electric consumption, decreasing utility costs to end users, stabilizing electric grids and shifting peak electric demand.	Envelope
Network Building Mediator (NBM)	Cisco Systems	The NBM is a network device that communicates to multiple disparate building systems and protocols. It provides IP level network commands, control, monitoring, and web-based user interface. Provides ability to remotely monitor and control energy across an enterprise. Also provides users the ability to leverage energy saving internet based applications (DR, Fault detection, etc).	Water Systems
LED Wall Pack	Lumecon LLC	Surface-mounted downlight that is intended for use as wall washer, security light, doorway light, wall-mounted sidewalk light, etc. Draws just 38 watts, replaces up to 100-watt metal halide fixtures of similar fixture style.	Outdoor Lighting
Smart SafePlug	2D2D	Electrical Fault Circuit Interruption (EFCI) technology provides fire safety and shock protection. In addition it monitors energy consumption for plug in loads and applies an RFID tag to electrical cords which provides not only for the safety features but can also be expanded for asset management applications.	Plug and Process Loads
GnX Wind Turbine Generator	Encenx Corporation	Encenx has developed a unique, roof mounted, vertical blade, wind turbine system which produces electricity while providing structural ventilation. The technology revolves around a multi-output generator that produces 1kw for residential applications and 5kw and 10kw for commercial applications. The turbine actually turns in zero wind for ventilation, driven by a small, energy efficient electric motor.	Electricity Generation

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Environmental Paradise Logic	The Energy Saving Solution, LLC	The EP101 computerized temperature controller is powered by Environmental Paradise Logic. The EP101 controller performs harmoniously with existing heating, cooling equipment by instructing them to operate with extremely unique, yet unlimited energy efficient strategies. Environmental Paradise Logic is an Infinitely self learning and self tuning technology. It totally controls both the burner/compressor and the circulator fan/pump, "exclusively by the indoor temperature."	Envelope
Central Direct Expansion System	Solution Dynamics, LLC	This Patent Pending system involves the installation of a high efficiency centralized refrigeration system for facilities having multiple Heating and Cooling Roof Top Units (RTUs). The conversion of standalone RTUs to a central system can have a quick payback, increased reliability, and significant environmental benefits. The basic concept is simple; feed liquid refrigerant to packaged roof top units and pull the suction gas back to a centralized water cooled engine room. This enables operation at roughly ½ the energy use, via a reliable industrial style compressor system configured in an overall engine room design.	HVAC
Solar Powered Led Lighting System	Todd Herrick	A Simple (Off-Grid) Solar Powered Led Lighting System For Interior Lighting.	Indoor Lighting
LPA Liquid Pressure Amplification	HY-SAVE	With LPA, a small centrifugal pump pressurizes liquid refrigerant and delivers it up to 40 times more efficiently than a compressor. This innovative technology increases refrigeration system capacity, while saving electrical energy substantially cutting costs and carbon emissions. HY-SAVE technology means lower head pressure and compressor operating temperatures, leading to longer component life and less maintenance. So, as well as achieving energy savings of up to 40% or more in return for a modest investment, HY-SAVE reduces operating costs and payback is generally expected within 12 to 18 months.	HVAC
Steel Reinforced Insulated Concrete Form	SMAG Industries / BSG Products	Insulated concrete form product consisting of 2.5" EPS foam with a steel web core that withstands 1,600 lbs/square inch lateral pressure during the concrete pour	Envelope
Visually and Energy Efficient Exterior Lighting	World Institute of Lighting and Development Corporation, Magnaray® Int Division	50%-99% in exterior lighting energy costs can be available for most exterior lighting applications using relatively new twin T5 lamp sources in properly designed outdoor luminaires. 50%-82% energy savings is available on an hour by hour burn basis, while 99% would involve use of motion sensors. This has been and is currently being demonstrated at utilities, military bases, and commercial facilities around the world. It involves standard ballasts, and normally commercially available sources, and is proven technology. Lamp life in excess of 40,000 hours, with 90% lumen maintenance (much better than current LED and induction technology) is currently being reported in actual field applications, not just lab conditions. Lamp replacement cost is less than \$10 for 40,000 hours of life; program rapid start ballasts are expected to last 100,000 hours, but warranted for 5 years. Solar powered products/systems also available.	Outdoor Lighting
Solar Powered Led Lighting System	ADVANCED SOLAR LIGHTING TECHNOLOGIES INC.	With The Use Of An Off-Grid Solar Hybrid System (Solar-Wind) Create And Generate Enough Power To Light The Interior Of Small- Large Scale Buildings.	Indoor Lighting
DHID (Digital HID) Ballast Technology	Accendo Electronics Ltd.	Accendo GloGreen Digital HID Ballasts (DHID) offer high electrical efficiency and performance compared to conventional core and coil (magnetic) ballasts. DHID offers the most cost-effective, value-added alternative to LED, fluorescent and induction based technologies for new and retrofit industrial and commercial Green lighting projects. The	Envelope

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		proven GloGreen DHID products represent the World's most advanced digital ballast technology for High-Intensity Discharge (HID) lighting available on the market today. Microprocessor controlled, the patented GloGreen digital ballast simply replaces existing conventional ballasts and significantly upgrades the HID lighting system performance by up to 75%.	
Underground Thermal Energy Storage	Underground Energy, LLC	Advanced geothermal technology allows for seasonal storage and extraction of heat or cold in the subsurface. Winter cold can be stored in an aquifer and recovered in the summer, and vice versa. In essence, it is cheaper and more efficient to store and recover thermal energy from one season to the next than the conventional alternative of generating heat or cold on demand.	HVAC
Green SWEEP	Government Regulatory Compliance LLC	S.W.E.E.P. is an acronym for the Summary of Waste, Energy and Emissions Performance. Green SWEEP is a monitoring and behavioral feedback system for energy and pollution reduction. The software calculates monthly usage against previous periods for feedback from various sources to improve operational practices. The system prompts building managers through the use of visual-graphic performance gauges to support the proposition that feedback is not only a strategy that facilitates individual adaptation, but also a resource that promotes energy efficiency.	Envelope
NRG Trax	NRG Consultants	NRG Consultants is a professional services company that specializes in energy and environmental management solutions. Since 2002, Northern has helped clients organize energy usage information and implement cost transparent energy conservation projects. Our energy solutions have helped organizations reduce their energy and utility costs by over 30%. Organizing energy cost and usage information is the first step to a successful energy conservation program.	Interior Structures
Enerfit	Enerfit, LLC	Enerfit is a patent-pending retrofit for existing single-zone direct expansion air conditioning units, package or split. Enerfit may be used to retrofit any size or brand of single-zone unit, but is most cost effective when installed on units 10 tons in capacity or larger. Enerfit works with any type of heat. Enerfit saves energy, improves indoor comfort, reduces maintenance cost, and extends the life of the unit.	HVAC
High Performance Green Building System TM	Green-Source Products, LLC	Super insulated structural building system consisting of recycled steel tubes in an expanded polystyrene matrix, assembled into wall and roof panels. R-30 walls and R-50 roof panels are standard. Transportable panel lengths up to 38+ ft.	Envelope
LED Retrofit Panels	Vision Energy Solutions, Inc.	Led retrofit panels specifically designed for commercial outdoor/indoor fixtures. These LED panels are universal and with our custom fit plates we can fit ~90% of the traditional fixtures on the market. Our panels are installed on-site and use the existing fixture, pole wiring, etc... so downtime is minimized (typical installation is approximately 30 minutes) and but using all of the existing infrastructure the cost is significantly reduced.	Envelope
Voltage Reduction Energy Management System	CORE Energy Solutions, LLC.	The proprietary design cooperatively controls voltage to HID high intensity discharge lamps, constant watt auto and reactor type ballasts using a 97% efficient toroidal autotransformer and a patent pending microprocessor control system. The panel type solution is quickly and inexpensively installed at the distribution point; each panel managing multiple circuits up to 100amp. Two way Internet, cellular or radio communications enable enterprise level scheduling, energy use and savings data aggregation. Total costs of operations are reduced by 50% or more by: 1) reducing voltage; 2) reducing hours of operation; 3) extending the life of fixture components; and 4) reducing maintenance	Envelope

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		costs. Installation yields a return on investment of 24-30 months and qualifies for utility rebates and incentives.	
Solar Thermal Collectors	Solar Panels Plus	Evacuated tube solar thermal collectors which can generate thermal energy for use in hot water systems and heating applications. The SPP-30A collectors made by Solar Panels Plus are the only US made evacuated tube collectors that comply with the Buy American Act.	Exterior Structures
SRS Electrolytic Scale Removal System	CQM-Tech	The SRS improves heat transfer efficiency in heat exchangers by preempting fouling such as scale, corrosion, microbial build up and particulate accumulation in processes that use water as a heat transfer medium.	Water Systems
Sawtooth Solar Daylighter	Futura Solar, LLC	Structurally integrated, Multiple benefits, roofing system (US patent 6,912,816).	Envelope
AoturoaLED	AoturoaLED	Led Retro-fit Kit replaces fluorescent lamps in existing interior light fixtures	Indoor Lighting
Sundolier	Sunflower Corporation	Active Suntracking daylight harvester demonstrating meeting general lighting requirements for up to 2,500 square feet (100% natural light) with one two foot roof penetration. The Sundolier is designed to completely offset electrical lighting requirements for large spaces during sunny or hazy periods significantly reducing both electrical consumption and demand peaks.	Envelope
PERMAFROST	Powertron Global	Patented formulations used in all types of HVAC, Refrigeration, and Ice Makers to improve efficiency in systems from 15-24% and reduce overall power bills approximately 8-14%. Product is a onetime treatment for the life of the system and is installed into the air side (where refrigerant is installed) removing oil that forms in the coil system. A.S.H.R.A.E estimates that 30% efficiency is lost in 5 years on all HVAC systems due to oil migration into the coil system. This product will also drop a buildings DELTA T (temperature) coming out of the air vents giving the building a cooler and dryer air quality.	Interior Structures
LED Commercial Lighting Fixtures	ElectraLED, Inc.	Headquartered in Largo, FL. with design and UL certified ISO 9001/2000 manufacturing facilities in Largo, Safety Harbor, and Homosassa, FL. ElectraLED produces high-quality, energy-efficient, commercial LED lighting products. The ElectraLED families of products provide an array of solutions for all types of signage, architectural, refrigerated display cases, walk-in coolers, track lighting, loading docks, security and flood lighting for the commercial lighting industry. We are partnered with Osram Sylvania and all of ElectraLED LED systems come backed with a five (5) year warranty. With innovative engineering, flexibility and speed to market; we have our finger on the pulse of sustainable lighting technologies.	Indoor Lighting
netLiNK Controls	netLiNK Controls	The first true 2-way communication wireless control system for site lighting, irrigation, ball field, audio, etc... We can turn ON and OFF just about any switchable device outdoors without running any new circuits or reconfiguring them! We can even send (SMS) Text or email alerts when a lamp or ballast fails!	Outdoor Lighting
Patient Room Lighting Controls	Cooper Controls	From the pillow speaker, the patient can switch and dim up to 3 zones of lighting all while integrating with the nurse call system. Additional patient room capabilities include daylighting, wall mounted user interfaces, open/close shade control, networkability, and remote monitoring and control	Indoor Lighting
Electrical Harmonizer Automatic Voltage Regulator	Legend Power	The Electrical Harmonizer-AVR is an energy conservation device consisting of an automatic tap changer with an auto transformer. The device continually regulates incoming voltage levels and automatically adjusts the transformers tap settings to ensure voltage is always delivered to a customer at the optimal minimum. By regulating voltage	Controls and Diagnostics

Product Name	Manufacturer	Brief Description (Submitted to DOE; Claims Not Verified)	End Use
		facilities will reduce energy consumption by 5-7%.	
Economizer Controller	Honeywell International	The product now in design (with expected release in Q4 2010) combines the energy savings of using outdoor air for "free cooling" and demand control ventilation with a LCD display for fault detection and diagnostics for the HVAC system and auto commissioning or recommissioning in the field during installation or post installation of the system.	HVAC
Wet Rock Cooling	John Flaherty	With roof temperatures reaching > 132 *F in direct sunlight, imagine the change with a roof rarely exceeding 82 *F. A solar energy barrier that blocks the sun's direct heating and maintains a temperature lower than ambient air. Wet Rock Cooling presents you with the opportunity to make the simple change from 132 *F to 82 *F using only water. Wet Rocks are inexpensive and very UV stable. We are ready to work with you on the wet rock road to energy savings! Sincerely, John Flaherty 941-539-7945 Visit our website at: http://www.wetrockcooling.com/	Envelope
KVAR Sizing Apparatus and the KVAR Energy Controller (KVAR EC)	KVAR Energy Savings, Inc. (KVAR Corp.)	Together, the KVAR Sizing Apparatus and KVAR ECs are the only Power Factor Optimization Device technology solutions able to optimize Power Factor (PF) on-site by tuning the electrical system in real time, from the inductive equipment back through the electric utility meter so that demand on the electric grid, energy consumption, electrical system losses and carbon footprints are reduced and operations are streamlined. The KVAR EC is a cost effective product that reduces electric consumption and spans through the residential, commercial and industrial markets, specifically all electrical service from 600 volts and below. The tangible results of using the KVAR EC are real savings on energy bills, reduction in demand for electric utilities, decreased line losses and carbon emissions.	Water Systems
Green Certification	Invaluable Technologies, now Calico Energy, Inc	Green Certification is an award-winning energy management tool from Calico Energy that facilitates the submission of building-wide energy usage data to the U.S. Environmental Protection Agency's ENERGY STAR program. While traditional requests for building-wide energy usage data can be highly labor-intensive particularly in the case of multi-tenant facilities Green Certification reduces this burden by up to 97% by automating the collection, submission, and validation of data to ENERGY STAR. Buildings that are certified as ENERGY STAR compliant typically increase in value by an average of 16%, in addition to making a positive statement about the owners support for environmentally friendly facilities. Green Certification deployments have received EPA ENERGY Stars Innovation in Customer Service Award for the product in 2009, as well as AESPs Outstanding Achievement in Energy Program Design & Implementation in 2010.	Plug and Process Loads
SlenderWall Architectural Precast Concrete/Steel Stud Building Panels	Easi-Set Industries	SlenderWall is the only wall system that combines four proven components: architectural precast concrete, hot-dipped galvanized welded wire, insulated stainless-steel anchors (Thermaguard), and heavy gauge galvanized steel or stainless steel studs, to create a single, efficient exterior wall system for new construction and renovation. SlenderWall is designed to reduce building foundation and structure costs, shipping and installation costs, and thermal transfer. The design isolates the exterior precast concrete cladding from the structural stresses associated with wind loading, steel frame movement, expansion and contraction and seismic shock.	Envelope
CTI Combined Thermal Insulation	E.E.T. Energy Efficiency Technology	Unique in its insulation formula-CTI achieves excellent combined insulation performances. Save substantial quantity of energy (electricity).	Envelope

Product Name	Manufacturer	Brief Description (Submitted to DOE; Claims Not Verified)	End Use
LR6-DR1000	Cree, Inc.	The LR6-DR1000 extends the family of LR6 6 recessed downlight products for commercial or residential applications to new levels of output and efficacy. The LR6-DR1000 can be retrofit into conventional IC or non-IC 6 recessed housings. The LR6-DR1000 delivers 1000 lumens of light while consuming only 12.5 Watts or less of electricity for an efficacy of 80 delivered lumens per watt of input power. The LR6 is available in two color temperatures, warm white 2700K (LR6 DR1000) and cool or neutral white 3500K (LR6C DR1000). The LR6 DR1000 provides a color rendering index (CRI) of greater than 90 for either color temperature. The LR6 DR1000 is also designed to provide a lifetime of 50,000 hours or greater with no maintenance needed. The LR6 DR1000 is also available in a number of configurations, including as a surface mount fixture (the SC6 GU24).	Indoor Lighting
Automated Parking Systems	U-Parkit NA	UPARKIT provides GREEN parking solutions. The increasing demand for environmentally conscious developments mandates for projects to meet higher levels of sustainability through LEED certification. The U.S. Green Building Councils LEED (Leadership in Energy and Environmental Design) rating system. UPARKIT, parking system to addresses this environmental framework and provides developers, builders, designers and governing agencies the opportunity for the following LEED solutions: Reduced CO2 and Other Vehicle Emissions, Reduced Energy Consumption, Reduced Lighting Requirements, Reduced Mechanical Requirements, Saves Parking Search Time, Water Conservation, Reduced Overhead and Operating Costs, Reduced Maintenance Costs, Substantially Reduced Personnel / Labor, More Secure Than Standard Structures, Reduced Parking Structure Footprint, Reduced Construction Schedule, Reduced Excavation Requirements, Achieves Maximum Project Density, Portability	Envelope
Air Pear - The Thermal Equalizer	Airus, LLC	Thermal destratification - The Air Pear provides thermal equalization by the constant flow of air from ceiling to floor. Resulting in the elimination of temperature variations and creating uniform temperature. Saving you on your energy expenditures.	HVAC
Occupancy Based Hotel Guestroom Controls	Marriott International	Marriott would like to have validation testing performed on Occupancy Based Guestroom Controls as there are numerous manufacturers claiming significant energy savings. We would like the test to include the HVAC system, hard-wired lighting fixtures and the TV. Marriott will offer a hotel for testing but we would like to do both pre-install and post-install monitoring.	Controls and Diagnostics
Smart Circuit 20	WattsUp Meters	The Smart Circuit is a web-enabled electricity controller that provides users real time data and actionable rules for remotely controlling electricity via the internet a sophisticated, scalable, yet affordable energy management system for residential and commercial applications. The Smart Circuit allows you to take control of your electricity consumption, access data and switch loads, reduce your carbon footprint, lower your energy bill, and automate load shedding and KWH reduction via a user-friendly web interface. And, the Smart Circuit is available now you don't have to wait for the Smart Grid and typically provides a payback within 2 years and that is without a subsidy or government rebate.	Controls and Diagnostics
DuroSite LED High Bay Lighting Fixture	Dialight	150 Watt LED High Bay lighting fixture	Indoor Lighting
RENOVATE by Bekowitz	JE Berkowitz, LP	RENOVATE is a revolutionary window retrofit technology for existing windows to save energy, money and improve the bottom line! RENOVATE is targeted toward single-glazed, commercial (non-	Envelope

Product Name	Manufacturer	Brief Description (Submitted to DOE; Claims Not Verified)	End Use
		residential), aluminum framed windows.	
LED Light System	KMW Communications, Inc.	KMW LED - Green Light System, Eco Friendly Multi-Function - CCTV Camera, Speaker, Antenna, and LED	Indoor Lighting
Concrete Parking Lots for Less than Asphalt	CEMEX, Inc.	Although concrete paving is the most sustainable solution, a great majority of commercial buildings are paved with asphalt due to asphalt's significant cost advantage over concrete. The cost difference is typically due to the overdesign of the concrete paving versus asphalt. The American Concrete Institute (ACI) has developed a design manual specifically for concrete parking lots. Using these design practices, concrete is frequently less expensive than asphalt. However, these design practices have not been widely adopted for several reasons. Unless the initial cost is comparable between asphalt and concrete, adoption by the industry will be slow.	Exterior Structures
Micro-Scale Anaerobic Digester	Living Arts Systems	Living Arts Systems in Crestone, CO is the licensed US installer of the Family Size Puxin Biogas Plant which has a very good performance record in China. Working Waste is looking for assistance to scale up and modify the Puxin model so that it can process 1-3 tons/week of food waste and meet US customer specifications.	Electricity Generation
EnergyAI	EnergyAI	EnergyAI is a low-cost service which analyzes historic building energy use data to identify opportunities for operational savings. EnergyAI can tell you if your facility is operating as expected. Is there long term load creep? Is your facility consistently shutting down at night or on weekends? Are there occasional days of unexpectedly high use, and do they have a pattern (for example, do Mondays tend to have high energy use)? EnergyAI is a service, there's no hardware or software to install. The only input is up to a year of interval energy data (e.g. 15 minute or hourly meter readings). EnergyAI accepts data from all leading energy management systems and utility-hosted web sites. The EnergyAI report presents its findings in clear, concise language. Potential operational savings are quantified in avoidable energy, costs, and greenhouse gas emissions. The price for an annual analysis is \$20 per load (a load is usually a meter or submeter).	Controls and Diagnostics
Theris VAV System	Phoenix Controls	Theris is the name of the VAV and Constant Volume ventilation control system from Phoenix Controls. Theris provides cost-effective precision ventilation designed for healthcare facilities, with features that improve infection control, support energy savings with high turn-down ratios, and reduce or eliminate system maintenance.	HVAC
M2G Intelligent Boiler Optimization Control	Sabien	The M2G Intelligent Boiler Optimization Control addresses the problem of dry cycling in closed loop hot water boilers. The M2G works through intelligent thermodynamic analysis of the boilers supply and return water temperatures. This can be achieved by retrofitting an intelligent boiler load optimization system which ensures the boilers designed set point temperature is maintained so that comfort levels aren't compromised.	HVAC
NGBiofuel	New Generation Biofuels	NGBiofuel is not a biodiesel. Our biofuel is a 100 percent replacement for petroleum based commercial fuel oil # 2 aka heating oil.	Exterior Structures
Wireless Pneumatic Thermostat	Cypress Envirosystems	The Wireless Pneumatic Thermostat (WPT) is a non-invasive HVAC controls retrofit solution. It costs 80% less than traditional Direct Digital Controls retrofits and pays for itself in about 18 months. A single thermostat can be replaced in 10 minutes compared to hours or days for other technologies. Total project time is reduced from months to days. The intelligent controls, diagnostic data and auto calibration save around	HVAC

Product Name	Manufacturer	Brief Description (Submitted to DOE; Claims Not Verified)	End Use
		15% of energy use and enable 1kW of auto-demand response capacity. The fast, non-invasive retrofit makes it feasible to upgrade HVAC controls without disrupting tenants, e.g. patient rooms can remain in use in hospitals during retrofits. Also, since walls and ceilings remain sealed during installation, older facilities that have asbestos can be upgraded. The WPT also connects buildings to the Smart Grid through OpenADR, a communications protocol created by LBNL. This capability enables auto-demand response and other functionality presented by the Smart Grid.	
Voltage Control Guard (VCG1)	GiG2, Inc.	The Voltage Control Guard provides for lower home or business energy consumption through stabilization of the neutral-grounding system. The Voltage Control Guard is applicable in single and multi-phase building power systems that do not employ their own dedicated substation.	Controls and Diagnostics
Condensing Flue Gas Heat Recovery	Sidel Systems USA Inc.	The Sidel SRU flue gas condenser is an energy saving device that can increase the efficiency of a natural gas or LPG fired appliance to well over 90% by recovering the energy out of the waste exhaust gases.	HVAC
Aerial Building Inspection	Robot & Vision, Inc.	Unmanned Mini-copter equipped with visual and infrared sensors to pin point energy leaks and other structural problems.	Envelope
AircoSaver	EPV Germany	The AircoSaver (AES) is a retrofit to air conditioning systems that adds logic sensing thermodynamic saturation of the evaporator coil to the control of the compressor. Typical savings are 15% of system kWh.	HVAC
Energy Mist	Miatech, Inc.	Energy Mist is a pressurized water mist system that cools air being drawn into an air cooled condenser. Energy mist reduces ambient air temperature, reducing head pressure, increasing capacity, and reducing electric demand.	HVAC
Inflexor Window Insulators	Energy Efficiency Done Right	Our solar collector/solar rejecter window insulators (Interior Mounted) - are university tested. In'Flector is so effective a 4' X 4' In'Flector window insulator can produce as much heat as a 600 watt electrical heater per sunlight hour and reflect up to 72% of the room heat back into the room! During the summer, our product reduces air infiltration up to 71%, stops solar heat gain up to 67%, and blocks up to 90% of harmful UV rays.	Envelope
IEC (International Energy Capital)	International Energy Capital	IEC is a facilitator and provider of energy project financing to developers and investors in the energy sector across the globe specializing in debt and equity placement for all energy types.	Envelope
Photovoltaic Glass Unit (PVGU)	Pythagoras Solar	Pythagoras Solar has developed the industry's first transparent and high density PVGU, combining the modularity and insulating benefits of the insulating glass unit (IGU) with the industry's highest-density BIPV power generation. Pythagoras PVGU brings a new level of design flexibility to the architecture, construction and engineering industries, enabling the creation of cost-efficient, aesthetically pleasing, self-powered buildings which will have a lasting impact on urban design. As an integrated component of building construction, the PVGU advances the deployment of building-centric power generation, advances Green Buildings to their Net Zero destination, and brings the world closer to the ubiquitous solar future that Pythagoras envisions.	Envelope
Heat Capture Hood Filters	Thermal Recovery Systems, Inc	Heat Capture Hood Filters replace standard grease filters in a commercial kitchen hood. They act as a heat exchanger by using the hot air exhaust to heat water flowing through tubes built into the filters and through flexible pipe connecting the filters together. The heated water (approx. 120 deg F) is sent to the water heater greatly decreasing the temperature rise required.	Water Systems
led lighting	Shanghai sansi technology co.ltd	Sansi uses a unique heat-radiator equipped with a specially designed wind-channel made from aluminum that is used to obtain high lighting efficiency. Our LED lights distribute illuminance equally and are effective in emitting light in the desired direction. They produce a low	Outdoor Lighting

Product Name	Manufacturer	Brief Description (Submitted to DOE; Claims Not Verified)	End Use
		temperature, create little power consumption waste, and carry a long life span. Sansi LED lights have a high, crisp pureness in color thus avoiding radiation and are free of ultra-red and ultra-violet rays. LED lighting is highly recommended in tunnels, street, gas stations, pathway, subway stations, and parking garages to name a few.	
Wireless Energy Manager (WEM)	Wireless Energy Solutions	WEM utilizes standard Z-wave technology in a mesh oriented network to monitor and control electrical usage in commercial office and retail space. It is a totally integrated system that can interface with Zigbee and other wireless protocols. it is designed to reduce office energy usage from 15 to 30%	Indoor Lighting
Smart Window Hardware	The Bronze Craft Corporation	Bronze Craft has been designing commercial window hardware for all major North American window manufacturers since 1944. We have developed a product which is solar powered and utilizes Zigbee wireless technology to report integral sensor measurement of daylight, temperature, moisture and opened/closed or locked condition of the window or door. This product allows the building owner to identify energy wasting fenestration areas in the building, as well as, moisture due to window leakage or condensation due to high humidity. The product communicates with BACNET by Zigbee interface.	Envelope
STEP Warmfloor	Electro Plastics, Inc.	STEP Warmfloor is a low-voltage, AC/DC, strong, thin and flat heating element made of PTC self-regulating polymer. It is very energy efficient - as the ambient temperature increases, the electrical resistance increases and the consumption of electricity decreases. STEP Warmfloor can be used as the primary heating source or/and for floor warming in new construction and remodeling.	HVAC
Vapor heating system with naturally induced vacuum	Igor Zhadanovsky	A new improved technology has been re-introduced - vapor heating system with naturally induced vacuum - VHSNIV. It can be utilized in two- and single-pipe steam systems. VHSNIV employs no vacuum pump and simplifies operation and maintenance. Steam systems can be converted into vapor heating systems with significantly less cost and risk than into hot water. Possible applications include, but are not limited to, new residential and commercial buildings, existing steam system retrofits, steam district heating systems, high rise buildings, and CHP. Copper tubing and lightweight panel radiators are implemented instead of heavy cast iron radiators and piping in order to reduce new VHSNIV installations time, cost, and heat losses.	HVAC
Silicon Expansion Valve (SEV) and Super Heat Controller (SHC)	Microstaq	The Microstaq Silicon Expansion Valve (SEV) and Super Heat Controller (SHC) replace the existing direct expansion valve found in most HVAC and refrigeration systems. Both components utilize MEMS technology to precisely deliver refrigerant which in turn lowers system superheat and reduces energy usage by around 20% while also increasing reliability of the entire system by protecting the compressor.	HVAC
Cascade's UVOX II	Cascade Water Services	The UVOX II is a green method of cooling tower water treatment that: 1) Eliminates hundreds of pounds annually of chemical, even in relatively small cooling towers for scale and corrosion inhibition as well as biological fouling 2) Out performs chemical in corrosion protection, scale prevention, and biological protection for cooling towers 3) Saves water by increasing cycles of concentration as compared to chemical and 4) Is preferred by maintenance crews because their safety is increased by eliminating all that chemical that can cause safety hazards while moving/transporting the chemical, or having pumps or plastic chemical tubing that can rupture and spray chemical on the maintenance crew or into their eyes, and is much easier to work with than chemical. On top of all that, there generally is no upfront money charged for the unit and installation is normally at no charge while the monthly fee for the UVOX	Water Systems

Product Name	Manufacturer	Brief Description (Submitted to DOE; Claims Not Verified)	End Use
		It is about the same and often less than the cost for chemical.	
Wireless Energy Manager	Wireless Energy Solutions	the wireless Energy manager provides both control of every electrical device in a commercial building as well as measuring the power usage of each device. It is inexpensive, requires no construction to install and provides control from any internet capable device.	Indoor Lighting
Interflow	Interflow USA	In a majority of existing Residential and Commercial Forced Air Heating and Cooling (HVAC) systems, air flows through inefficient square 90 turns which cause air to reflect creating Turbulence and Backpressure. This Turbulence and Backpressure causes HVAC systems to work harder and run longer, increasing energy use and costs. INTERFLOW products are designed to avoid costly retrofits by easily installing into existing (HVAC) systems to create smooth transitions for air to flow freely, reducing Turbulence and Backpressure This reduction in Turbulence and Backpressure allows HVAC systems to operate more efficiently thereby reducing energy use and costs.	HVAC
Noritz Modular, High-modulating Commercial Water Heating System	Noritz America Corporation	The Noritz Modular, High-Modulating Commercial Water Heating System is a means to build high efficiency gas water heating solutions from 200,000 BTU to 9.0 million BTU in capacity on an instantaneous water heater platform. The System provides load matching enabled by superior modulation, built-in system redundancy, installation flexibility, and easy maintenance during operation.	HVAC
LumiSmart ILC	Cavet Technologies Inc.	LumiSmart Intelligent Lighting Controller (ILC) is a low-cost, non-invasive lighting energy management solution. LumiSmart is purpose-built device that device that dramatically reduces power consumed by existing installed fluorescent lighting systems with no discernable impact on occupant comfort. It provides a power reduction of 30% or more without replacing existing lamps, ballasts or fixtures. LumiSmart is installed at the circuit-breaker panel and provides immediate power savings to relieve pressure on the electrical grid while also reducing associated carbon emissions. It is 1/10 the price of competing solutions and works with standard fluorescent lighting systems. LumiSmart can be installed within 30 minutes by any certified electrician and does not require extensive retrofitting of ballasts or re-wiring that leads to business disruption. LumiSmart delivers immediate cost savings and achieves a return of investment of 12 to 24 months.	Indoor Lighting
Refractive Globe with LumiLock LED	Philips Hadco	Decorative Post top Refractive Globe with our LumiLock LED engine inside.	Exterior Structures
Solar	Philips Hadco	Philips Hadco and SolarOne transform the power of sun into attractive, simple, effective and reliable off-grid lighting solutions. Patent pending SO-Bright technology is the world's most advanced lighting and control technology for autonomous solar lighting systems. It features the highest efficiency constant-current driver circuitry and the state-of-the-art SO-Bright Lighting Controller.	Outdoor Lighting
POM PowerGUARD	POM Energy Concepts Inc	An energy saving device that uses magnetic chokes coupled across phases to act as a 60 HZ band pass filter. The device reduces kW demand, kWh, improves Power Factor and Voltage, reduces amperage and harmonic content, and protects against spikes and surges including lightning	Envelope
Green Spider	Green Spider Energy llc	The Green Spider is an Energy Saving appliance for parking lot lighting/roadway poles with multiple fixture heads. After installation the Green Spider transforms a single pole feed to "master" and "secondary" feed circuits. The master circuit is wired to a light fixture designated as the "Security" lighting fixture. There are three (3) "secondary" circuits that can be utilized with 3 fixtures (rated up to 1000 watts) as the	Exterior Structures

Product Name	Manufacturer	Brief Description (Submitted to DOE; Claims Not Verified)	End Use
		'Energy Saving' fixture feed circuits. The availability to shut off the 3 Energy Saving fixtures generates a saving in excess of 25%. The fixtures are set to turn off at a timed interval after non-peak hours which saves energy, saves money and extends the time life of equipment thus reducing associated maintenance dollars. Made in the USA, with a two year warranty, patent pending.	
Wireless distributed lighting control and monitoring system	DimOnOff Inc	Parking lot (or similar indoor or outdoor lighted areas) wireless control and monitoring system. Provides excellent energy savings and maintenance management tools. Secured multi-sites and multi-users, local and remote access over private network or the internet. DimOnOffs wireless approach provides rapid, non intrusive and easy installation for new and retrofit installations.	Indoor Lighting
Climate Selection Tools for Renewables	Geophysics Branch, NAVAIR	User-friendly, single-page digital graphic climatological products termed 'climograms' have been developed by DoD test range meteorologists. In partnership with Air, Weather & Sea Conditions, Inc., the capability can be adapted for use as planning aids in determining where use of renewable energy sources is practical and makes good sense. These products would be especially applicable to GSA's infrastructure, and it's Building Technologies Program. For each location selected, these graphic products display the site's seasonal and diurnal variability of such parameters as wind direction, wind speed, wind persistence, cloud and sky cover, temperature and a host of other potential renewable energy parameters as a function of month and time of day. These products thus enable the decision-maker and planner to determine ahead of time where proposed installations are likely to be operationally and cost-effective. And they facilitate planning early in the process.	Envelope
Linear LED Replacement Lamps	Emergence Technology Consultants, LLC	Linear LED Replacement Lamps available in 2-8' lengths to replace traditional fluorescent light bulbs customized to end-user requirements for lumen output and color temperature. UL certified lamps, troffers utilizing an external power adapter.	Indoor Lighting
EarthLinked Commercial Water Heater	EarthLinked Technologies, Inc.	Geothermal heat pump water heater verified by US EPA to save up to 75% in energy, emissions and operating cost as compared with electric resistance water heating.	Thermal Energy Generation
Data Acquisition and Automation	ProFab Technology, Inc	We design and develop Data Acquisition and Automation tools for the semiconductor industry which also includes thermal control But these systems are easily adaptable to any other kind of industry and environment.	Water Systems
T5 Retrofit Kit	The Green Savings Company	The T5 Retrofit kit is a single strip that can fit into any existing T8 or T12 fixture. It can accommodate any 28w T5 lamp and includes a mirror like reflector, bi pin adapter and electronic rapid start ballast. Due to the reflector our kit can produce the same amount of lumens as 2 standard linear lamps saving up to 65% on lighting costs.	Interior Structures
MicroGuard AD35 Protective Coating	Adsil	Inorganic glass like 10 micron film that is applied to coils and fins of air cooled RTUs to protect against corrosion and save 12% energy (EPA Certified)	HVAC
Genius DOAS Equipment	American Genius Corp.	The Genius products use a liquid desiccant multi-stage heat and mass transfer process which enables them to use very low temperature waste heat sources. The first product planned is a dehumidifier/cooler that retrofits to a 6 to 10 ton rooftop unit and uses the hot condenser air to regenerate the desiccant. The electric power usage is only 15% of the gross cooling tonnage. The EER of the combination unit is over 30 (see e-mailed paper). In addition to raising the outside air component up to 50% of the total air flow, the Genius unit recovers heat (cooling) from the exhaust air from the building. Carryover of the liquid desiccant is avoided by the use of specially designed demisters.	HVAC

Product Name	Manufacturer	Brief Description (Submitted to DOE; Claims Not Verified)	End Use
HVAC Intelligent Control	E2 Efficient Energy America	Efficient Energy America, Inc. (E2America) is an emerging leader in intelligent HVAC control, optimization and real-time reporting systems. E2America's intelligent HVAC control, optimization and real-time reporting systems go far beyond traditional energy management systems to reduce electricity costs, usage and carbon emissions for commercial enterprises.	HVAC
Sustainable energy circuit	Student - SUNYIT	An infrastructure which will provide transportation, food, manufacturing exports, housing, clean energy, natural gas, and 50% + energy savings. For the core, Sustainable energy circuit uses manufacturing heat to purify grey water and purify ocean water. As well as provide heating and hot water while gaining most of the energy back through turbines cranked by steam. The steam acts as a natural pumping system, once condensed the reservoirs are purified and put through electrolysis which gives us hydrogen along with methane extraction we will have enough energy to ignite the blast furnace. The elevated reservoirs create water pressure, too. It a complete circuit.	Envelope
H.E.L.P. (High Efficiency Local Processor) System	The Technology Consortium, Ltd.	This newly patented technology utilizes a "Smart Controller" to determine the optimum electric motor speed, and adjusts accordingly. This reduced HP reduces electrical consumption.	Water Systems
Environmental Paradise	Richard P. Cheripka	Environmental Paradise controls are robust DDC controllers that can be used in place of a standard thermostat in homes and small commercial buildings, or as a complete Building Automation System in larger facilities.	Envelope
High Efficiency RTU HVAC System	7AC Technologies	Ultra-Efficient Solar HVAC heating and cooling solution for medium to large scale HVAC application that reduces energy consumption by at least 50% when using conventional energy sources and enables a direct path to near net zero when using solar or waste heat sources. The core of the solution utilizes an innovative liquid desiccant (LD) technology which leverages and enhances patents and research from DoE NREL. 7AC received a commercialization grant from NREL for this product. Additionally, 7AC is also developing a combination PV/Thermal module that can provide enhanced electrical and hot-water thermal energy. Arrays of these PVT panels can be used to power the HVAC solution. Our PVT technology is being developed with the aid of a DoD SBIR grant. Note: The HVAC system can be used using conventional electricity and natural gas sources OR with PVT.	HVAC
VariLux : HPS Street Light Dimmer	Infomate Services	We have developed a powerful real-time based street light controller which replaces the current three-prong photocell controller. This controller saves power by providing optimal lighting for various times of the night by intelligent dimming of the street lights at pre-determined times.	Outdoor Lighting
Using Condenser Heat to Halve Air Conditioner Costs	American Genius Corporation	Using discharged air from condenser exhaust enables an IAQ system to double the cooling capacity of conventional roof top air conditioners. Three times more moisture can be removed from outside air than by compressor based units. The combination of the system with a conventional compressor based air conditioner results in overall 47% energy savings.	HVAC
3S Solar Block	Eco Products LLC	Solar Control Low-E coatings on acrylic and polycarbonate glazing for windows, skylights and daylighting systems	Envelope
DrivePak	NexRev Inc.	Energy efficiency upgrade for existing packaged rooftop HVAC units converts standard units to multi-speed load-matching technology.	HVAC
Cepenergy Management, energy	Artequim . com ltd	All Buildings	Controls and Diagnostics

Product Name	Manufacturer	Brief Description (Submitted to DOE; Claims Not Verified)	End Use
management Software			
Energy Avenger	ISI	The Energy Avenger is a proven power reduction technology, patented by ISI, The Energy Avenger is an Energy Conservation Unit, a controlled transformer manufactured for ISI by General Electric (GE) and is UL labeled. This electro / mechanical Energy Conservation Unit (ESU) reduces energy consumed by High Intensity Discharge (HID)	Exterior Structures
All Climate with Polar Package system	Freeaire Refrigeration	'All Climate' is a computer control for walk in refrigeration coolers and freezers that maximizes efficiency of traditional refrigeration equipment by limiting evaporator run time (and replacing the need to move air around with 23 watt fans), limiting compressor run times, limiting door heater run times as well as cooler lighting. Polar Package is an 'economizer' that consists of a combination of temperature and humidity sensors and an intake fan and exhaust fan that draws in cool outside air when outside temps are lower than the set point of the cooler. In warmer climates (South of the 38 parallel) we can use the All Climate system to save energy and in colder climates (North of the 38 parallel) we can compliment its use with the Polar Package.	Refrigeration