

NEMA
SUMMARY AND
ANALYSIS OF
THE ENERGY
INDEPENDENCE
AND SECURITY
ACT OF 2007

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President Bush signs the Energy Independence and Security Act of 2007 on December 19.

ABOUT NEMA

For more than 80 years, the National Electrical Manufacturers Association has been the premier trade association for the electroindustry. NEMA's 400 member companies manufacture products used in the generation, transmission, distribution, control, and end-use of electricity. NEMA's members are at the heart of providing energy solutions for today and tomorrow's energy challenges.

BACKGROUND

On December 19, 2007, President George W. Bush signed H.R. 6, the Energy Independence and Security Act of 2007, into law (Public Law 110-140). Throughout 2007, Congress debated and considered several energy bills. NEMA was actively engaged during the year, testified four times before key House and Senate committees, and spearheaded negotiations of provisions important to NEMA member companies.

During the year-long negotiation process, provisions have been added, and in some cases, some have been removed in order to craft a bill that would pass Congress and obtain Administration support. Just prior to the final passage of H.R. 6 in December, the energy tax incentive package was removed from the bill. The tax package contained a number of energy tax incentives advocated by NEMA. The Congress is expected to take up energy tax issues in 2008.

OFFICIAL TITLE

A bill to move the United States toward greater energy independence and security, to increase the production of clean renewable fuels, to protect consumers, to increase the efficiency of products, buildings and vehicles, to promote research on and deploy greenhouse gas capture and storage options, and to improve the energy performance of the federal government, and for other purposes."

NEMA ENERGY PRINCIPLES

NEMA's legislative advocacy was based on several guiding principles:

- A comprehensive electrical energy policy should rely on affordable, proven technology to address energy supply and demand.
- Market-based incentives and solutions should be the primary vehicle to enhance energy efficiency, production, and distribution, and conservation.
- On a case-by-case basis, there is value in government intervention, such as targeted research and development, incentives to invest in energy efficient technologies, promotion of energy efficiency, and removal of barriers to electrical grid improvement and generation capacity.

An efficient electrical transmission network is needed to move energy from producer to consumer.

This publication summarizes and highlights provisions of interest to NEMA and the electroindustry.

ENERGY EFFICIENT PRODUCTS

POSITION

NEMA supports national energy efficiency standards established by the federal government based on industry consensus standards. As products are produced for national markets, efficiency standards, test procedures, and labeling must be uniform state-to-state.

PROVISIONS

National appliance and equipment efficiency standards are a proven energy-saving policy. The litmus test for establishing mandatory national product and equipment efficiency standards is technological feasibility, economic justification, energy savings, and commercial availability. The first federal standards were established in 1987, and subsequent standards were enacted by Congress in 1988, 1992, and 2005.

Title III contains a series of Appliance and Equipment Efficiency Standards for ten products. See Appendix I for a listing of the rulemaking deadlines for the various sections described below:

Section 301- External Power Supply Efficiency Standards. This section establishes new external power supplies standards for “Class A external power supplies.”

Section 302- Updating Appliance Test Procedures. This section directs the Department of Energy (DOE) to review test procedures for all federally covered products at least every seven years.

Section 303- Residential Boilers. This section updates existing standards on residential boilers.

Section 304- Furnace Fan Standard Process. This section directs DOE to set a standard for electricity use by furnaces (for furnace fans) by December 31, 2013.

Section 305- Improving Schedule for Standards Updating and Clarifying State Authority. This section directs DOE to review each standard within six years of the last final rule or three years of the last review, and, if warranted, to set a standard within three more years. This section sets a timetable for adopting standards for certain products set in the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) model commercial building energy

The Act consists of 822 pages organized into 16 separate titles (sections). The titles are:

Title I – Energy Security Through Improved Vehicle Fuel Economy

Title II – Energy Security Through Increased Production of Biofuels

Title III – Energy Savings Through Improved Standards for Appliance and Lighting

Title IV – Energy Savings in Buildings and Industry

Title V – Energy Savings in Government and Public Institutions

Title VI – Accelerated Research and Development

Title VII – Carbon Capture and Sequestration

Title VIII – Improved Management of Energy Policy

Title IX – International Energy Programs

Title X – Green Jobs

Title XI – Energy Transportation and Infrastructure

Title XII – Small Business Energy Programs

Title XIII – Smart Grid

Title XIV – Pool and Spa Safety

Title XV – Revenue Provisions

Title XV – Effective Date

code. This provision maintains the strong federal preemption for federally covered products contained in current law.

Section 306- Regional Standards for Furnaces, Central Air Conditioners, and Heat Pumps. This section allows DOE to establish standards that vary in up to two regions for furnaces and up to three regions for central air conditioners and heat pumps that are “economically justified” for each region. If the department sets regional standards, the measure prohibits such products from being sold or used in areas outside of the region. Regional standards may not be less stringent than the national standard. This section directs DOE to issue an enforcement plan for each regional standard and directs the Federal Trade Commission (FTC) to establish labeling and disclosure requirements.

Section 307- Procedure for Prescribing New or Amended Standards. This section repeals requirement for an advanced notice of proposed rulemaking (ANOPR) when setting a new or amended standard.

Section 308- Expedited Rulemakings. This section allows the U.S. Department of Energy (DOE) to issue as a direct final rule a standard recommended jointly by manufacturers, states, and efficiency advocates. If there are adverse public comments, the direct final rule is to be withdrawn. NEMA actively supported the adoption of an “expedited rulemaking” process when consensus standards agreements are negotiated.

Section 309- Battery Chargers. This section requires DOE to complete rulemakings to determine revised standards for battery chargers by July 2011.

Section 310- Standby Mode. This section requires that future standards for products include their energy use when they are in “standby” mode. It requires the department, starting in July 2010, to limit the amount of energy consumer and industrial products can use when in “standby” or “sleep” mode. Fluorescent lamp ballasts are specifically included.

Section 311- Energy Standards for Home Appliances. This section establishes new and updated appliance efficiency standards based on agreements between manufacturers and efficiency advocates for residential clothes washers, dishwashers, and humidifiers. This provision also directs DOE to update the standard for refrigerators and freezers.

Section 312- Walk-In Coolers and Walk-In Freezers. This section establishes new and updated standards for walk-in coolers and walk-in freezers based upon standards in California, Maryland, and Rhode Island. Requirements include, beginning in 2009 that products have automatic door closers that firmly close all walk-in doors that have been closed to within 1 inch of full closure, with exceptions.

Section 313- Electric Motor Efficiency Standards. This section establishes new and updated standards for electric motors as recommended by NEMA. In general, general-purpose 1,200 horsepower electric motors that were first regulated by the Energy Policy Act of 1992 must now meet the NEMA Premium® energy efficiency levels (MG 1-2006, Table 12-12), effective December 19, 2010.

In addition, energy efficiency requirements are established for additional electric motors not presently regulated. For these motors, the efficiency levels are contained in Table 12-11, MG 1-2006. Motors include U-Frame, Design C, close-coupled pump motors, footless motors, vertical solid-shaft normal thrust motor, eight-pole motor, and a poly-phase motor with voltage of not more than 600 volts; fire-pump motors; and general-purpose Design B motors of 201-500 horsepower. See Appendix II for detailed electric motor information.

Section 314- Standards for Single Package Vertical Air Conditioners and Heat Pumps. This section adopts ASHRAE standards for small commercial air conditioners under 65,000 Btu capacity and for single package vertical units.

Section 315- Improved Energy Efficiency for Appliances and Buildings in Cold Climates. This section authorizes DOE research and rebates for technologies that improve the energy efficiency of appliances and mechanical systems in cold climates.

Section 316- Technical Corrections. This section makes technical corrections to Energy Policy Act of 2005 provisions on ceiling fans, fluorescent lamps, and mercury vapor lamp ballasts. See Appendix III.

Section 321- Efficient Light Bulbs. This section sets, for the first time, efficiency standards for “general service” light bulbs that will essentially phase-out the most common incandescent light bulbs by 2012-2014 and directs DOE to conduct two follow-on rulemakings to assess more stringent standards starting 2020 and 2025. The initial standards can be met by advanced incandescent (including halogen) bulbs, which are being introduced to the market; compact fluorescent lamps (CFLs); and light-emitting diodes (LEDs). CFLs and LEDs will also meet the longer-term targets, along with other advanced lighting technologies.

This section authorizes \$10 million for research, market tracking, and a national program of consumer awareness and directs the FTC to review current labeling of light bulbs and issue new rules. California and Nevada are permitted to adopt the federal standards one year earlier than the federal effective dates. Specialty bulbs, including chandelier and appliance bulbs, are exempted from the standards. DOE is also directed to complete a report to Congress within one

ENHANCED BUILDING EFFICIENCY

POSITION

NEMA supports enhanced efficiency for residential, commercial, and industrial buildings based on the latest industry consensus standards. Buildings consume about 50 percent of the energy used in the United States, and retrofitting state-of-the-art technologies into existing buildings can save 50 percent or more of the current energy use; new buildings can save even more with the efficiency designed in. NEMA supports federal leadership in procuring energy efficient products and setting a good example of energy efficiency.

RESIDENTIAL BUILDING EFFICIENCY

Section 411- Reauthorization of Weatherization Assistance Program. This section reauthorizes the Weatherization Assistance Program at \$750 million in 2008, rising to \$1.4 billion in 2012. This section makes Puerto Rico eligible for the program and includes pilot program focusing on key energy-saving components and grants for materials, benefits, and technologies not currently covered under the program.

Section 413- Energy Code Improvements Applicable to Manufactured Housing. This section directs DOE, after consultation with the Department of Housing and Urban Development (HUD), to set a standard for manufactured housing at least as stringent as the International Energy Conservation Code (IECC) national model code.

HIGH-PERFORMANCE COMMERCIAL BUILDINGS

Section 421—Commercial High-Performance Green Buildings. This section establishes an Office of Commercial High-Performance Green Buildings in the DOE Energy Efficiency and Renewable Energy division and an industry Green Building Partnership Consortium.

Section 422—Zero-Net-Energy Commercial Buildings Initiative. This section authorizes a Zero-Net-Energy Commercial Buildings Initiative to be run by the DOE

year on means to reduce or prevent the release of mercury during the manufacture, transportation, storage, or disposal of light bulbs. The National Academy of Sciences is directed to complete a report by 2013 on the status of advanced solid state lighting. For a summary of Section 321, see Appendix IV.

Section 322- Incandescent Reflector Lamp Efficiency Standards. This section, proposed by NEMA, expands the types of incandescent reflector lamps covered by efficiency standards prescribed in the Energy Policy Act of 1992. See Appendix V.

Section 323- Public Building Energy Efficiency and Renewable Energy Systems. This section directs the General Services Administration (GSA) to set minimum energy efficiency and renewable energy performance requirements for leased space, to estimate energy performance in the prospectus submitted to Congress, and to make energy efficiency and renewable energy an evaluation factor for leases. In addition, each public building constructed, altered, or acquired by GSA is to be equipped with energy efficient lighting fixtures and bulbs to the maximum extent feasible. Energy efficient lighting products include Energy Star and Federal Energy Management Program (FEMP)-designated products, including LED lighting. GSA shall develop guidelines for the use of energy efficient lighting technologies that contain mercury in childcare centers in public buildings.

Section 324- Metal Halide Lamp Fixtures. This section sets a new federal standard setting efficiency standards on the types of ballasts for metal halide lamp fixtures. The FTC is to issue a labeling rule by July 2008 for the fixture and ballast. See Appendix VI for details.

Section 325- Energy Efficiency Labeling for Consumer Electronic Products. This section directs the FTC to require energy use labels for consumer electronics (televisions, personal computers and monitors, cable and satellite set-top boxes, and digital video recorders) when test procedures are available and unless determined not to be feasible. FTC may add product categories and may change the label for these products.

Office of Commercial High-Performance Green Buildings established in Sec. 421 and an industry consortium with the goal of developing and disseminating technologies, practices, and policies for net-zero-energy commercial buildings for all new commercial buildings by 2030, half of commercial building stock by 2040, and all commercial buildings by 2050. This section also authorizes appropriations in the amount of \$20 million for FY08, \$50 million for FY09-FY10, \$100 million for FY11-FY12, and \$200 million for FY13-FY18.

Section 423—Public Outreach. This section directs the Commercial Director and Federal Director, in coordination with the Consortium established in Section 421, to carry out public-outreach activities to inform individuals and entities of the information and services available.

INDUSTRIAL ENERGY EFFICIENCY

Section 451- Industrial Energy Efficiency. This section directs the Environmental Protection Agency (EPA) to survey and create a registry of sites where recoverable waste energy and combined heat and power projects may be economically feasible. This section authorizes \$100 million in 2008 and \$200 million per year in 2009-2012 for EPA grants for production of electricity and useful thermal energy from waste energy (at \$10 per megawatt-hour or equivalent), and \$10 million per year for grants to states that have achieved 80 percent recovery of identified opportunities (at \$1,000 per megawatt).

This section also requires states and non-regulated utilities to consider a standard for sale of excess power from waste-energy recovery projects to the utility or for transport of the electricity to enable sale to a third party, while authorizing \$10 million per year to DOE's EERE for Clean Energy Application Centers in eight regions.

Section 452- Energy-Intensive Industries Program. This section authorizes \$184 million in FY08 for a DOE RD&D program in cooperation with industry to improve the energy efficiency of data centers, product manufacturing, and food processing. The amount authorized rises to \$190 million in FY09, \$196 million in FY10, \$202 million in FY11, and \$208 million in 2012.

Section 453- Energy Efficiency for Data Center Buildings. This section authorizes a joint DOE-EPA program, to be coordinated by an industry organization, for energy efficiency of data center equipment and buildings, including establishing specifications and benchmarks.

HIGH-PERFORMANCE FEDERAL BUILDINGS

Section 431- Energy Reduction Goals for Federal Buildings. This section accelerates targets for energy use reductions in federal buildings to 3 percent per year for FY08-FY15, ending in a 30 percent reduction in energy intensity by 2015, consistent with Executive Order 13423.

Section 432- Management of Energy and Water Efficiency in Federal Buildings. This section requires that for large buildings (including at least 75 percent of agency building energy use), agencies must designate an energy manager, do energy and water evaluations every 4 years for approximately 25 percent of the facilities of each agency, including re-commissioning measures, may implement within 2 more years all identified measures that are life-cycle cost-effective and are required to do follow-up, while developing uniform guidelines, with the Office of Management and Budget (OMB) including implementation in its score cards. Allows appropriations and private financing to be combined to fund these activities.

Section 433- Federal Building Energy Efficiency Performance Standards. This section requires new federal buildings, if feasible, to reduce fossil fuel consumption by 55 percent in 2010 and rising to 100 percent by 2030.

Section 434- Management of Federal Building Efficiency. This section requires large capital energy investments in federal facilities to be the most energy-efficient that is cost-effective. Also requires federal agencies to meter natural gas, steam, chilled water, and water, as well as electricity.

Section 435- Leasing. This section requires federal agencies to lease space in buildings that have earned the Energy Star label in the previous year, with certain exceptions.

Section 436- High-Performance Green Federal Buildings. This section establishes an Office of Federal-High Performance Green Buildings within GSA. The Federal Director is directed to conduct analysis, guidance, and training on life-cycle costing for green buildings, identify green building incentives through recognition awards and retention of savings, and other duties.

Section 437- Federal Green Building Performance. This section directs the Comptroller General of the United States to conduct an audit of the implementation of the High-Performance Federal Buildings and submit to the Federal Director, the Advisory Committee, GSA, and Congress on the results.

Section 439- Cost-Effective Technology Acceleration Program. This section directs GSA to implement a program for maximum feasible replacement in its buildings.

Section 440- Authorization of Appropriations. This section authorizes \$4 million a year for FY08-FY12 for the management of federal building efficiency and the cost-effective technology acceleration program.

Section 441- Public Building Life-Cycle Costs. This section extends the period for life-cycle cost accounting for federal buildings to 40 years.

ENERGY-SAVING PERFORMANCE CONTRACTING

Section 51—Authority to Enter into Contracts: Reports. This section eliminates the advance reporting requirement for Energy Savings Performance Contracts (ESPCs) that have a cancellation ceiling exceeding \$10 million.

Section 512—Financing Flexibility. This section increases ESPC funding flexibility by allowing a combination of appropriated funds and private financing.

Section 513—Promoting Long-Term Energy Savings Performance Contracts and Verifying Savings. This section restricts federal agencies from limiting the duration of ESPCs to less than 25 years or limiting the total amount of obligations. Further, this section permits the criteria for savings verification to satisfy the requirement for energy audits. Also, it directs federal agencies to modify existing ESPCs to conform with the requirements of this subtitle.

Section 514—Permanent Reauthorization. This section permanently authorizes ESPCs.

Section 515—Definition of Energy Savings. This section extends the definition of energy savings reduction to include increased use of an existing energy source by cogeneration or heat recovery, use of excess electrical or thermal energy generated from onsite renewal sources or co generation, and increased energy-efficient use of water resources.

Section 516—Retention of Savings. This section permits agencies to retain the full amount of energy and water cost savings obtained from utility incentive programs.

Section 517—Training Federal Contracting Officers to Negotiate Energy-Efficiency Contracts. This section authorizes \$750,000 per year over five years for a program to train contract officers in negotiating ESPCs.

Section 518—Study of Energy and Cost Savings in Nonbuilding Applications. This section directs the Departments of Defense and Energy to study the potential use of ESPCs in nonbuilding applications, which is defined to include vehicles and federally owned equipment to generate electricity or transport water.

ENERGY EFFICIENCY IN FEDERAL AGENCIES

Section 521- Installation of Photovoltaic System at DOE HQ Building. This section requires the GSA to install a photovoltaic system from the Sun Wall Design Project, for the Forrestal Building. \$30 million from the Federal Buildings Fund is awarded to carry out this section.

Section 522- Prohibition on Incandescent Lamps by Coast Guard. This section bans use of incandescent lights by the Coast Guard, with some exceptions.

Section 523- Standard Relating to Solar Hot Water Heaters. This section requires that at least 30 percent of hot water demand in new or substantially modified federal buildings be met using solar hot water heaters, if life-cycle cost-effective.

Section 524- Federally Procured Appliances with Standby Power. This section requires agencies to buy products that use 1 watt or less of standby power if cost-effective and practicable.

Section 525- Federal Procurement of Energy Efficient Products. This section requires the GSA and Defense Logistics Agency to list only Energy Star or FEMP-designated products in their catalogues.

Section 527- Government Efficiency Status Reports. This section requires federal agencies to submit an annual efficiency

SMART GRID

status report to OMB, with the status of compliance on requirements made by this bill, the status of implementation on initiatives to improve energy efficiency, and the savings to the taxpayers resulting from the mandated improvements.

Section 528- OMB Government Efficiency Reports and Scorecards. This section directs OMB to submit an annual government efficiency report to the House Committee on Oversight and Government Reform and the Senate Committee on Governmental Affairs.

Section 529- Electricity Sector Demand Response. This section directs FERC to assess demand response potential and develop a demand response action plan.

POSITION

NEMA supports the use of technology to enhance the capacity, efficiency, and reliability of the electrical grid. "Smart Grid" generally refers to modernizing electricity infrastructure to increase reliability and security, including the development of technology that can automatically respond to changing conditions in the electricity market and the inclusion of renewable energy in the electricity market

PROVISIONS

Section 1301- Statement of Policy on Modernization of Electricity Grid. This section establishes the policy of the United States to support the modernization of the nation's electricity transmission and distribution system to maintain a reliable and secure electricity infrastructure that can meet future demand growth and to achieve other goals and measures.

Section 1302- Smart Grid System Report. This section requires DOE to report to Congress concerning the status of smart-grid deployments nationwide and any regulatory or government barriers to continued deployment.

Section 1303- Smart Grid Advisory Committee and Smart Grid Task Force. This section requires DOE to establish a Smart Grid Advisory Committee and Task Force to advise the Secretary and others concerning the development of smart-grid technologies, the progress of a national transition to the use of smart-grid technologies and services, the evolution of widely accepted technical and practical standards and protocols to allow interoperability and intercommunication among smart-grid capable devices, and the optimum means of using federal incentive authority to encourage such progress. The Task Force is composed of representatives from FERC, National Institute of Standards and Technology (NIST), and other agencies and is responsible for coordinating smart grid activities. The Advisory Committee will be composed of industry experts who will advise DOE on its role in promoting the smart grid.

Section 1304- Smart Grid Technology Research, Development, and Demonstration. This section authorizes up to \$100 million annually from 2008 through 2012 for smart-grid regional demonstration projects to test sensing, communication, analysis, and power-flow control technologies. DOE can select up to five control areas for the

demonstrations, which will be carried out in cooperation with the host utility. Projects can receive a matching grant for up to 50 percent of eligible costs.

Smart-grid technologies include not only household-level devices, but high-voltage transformers, relays, and other power equipment that form the primary highways for electricity delivery. This technology reaches its full potential when implemented along the entire route from the generator to the home and over a sufficient geographic scope. For example, a wide-area smart-grid could proactively divert power away from an overheating transmission line and ask for conservation measures from only the relevant region. While many of these technologies exist today in isolation, their integration into a single reliable system is still many years away. These demonstration projects will take a significant step towards smart-grid integration.

Section 1305- Smart Grid Interoperability Framework. This section directs NIST to set up a process to develop smart grid interoperability standards. NEMA is named as a participant in this process, along with NERC, IEEE, and Gridwise. The standards will encompass all grid-connected devices, from generation control to appliance communication. Once the standards have reached a “sufficient consensus,” FERC will issue a rulemaking to adopt these standards for regional and wholesale electricity markets.

Several states are considering demand response and home automation technology with differing requirements and standards. A unified national standard will help manufacturers and consumers design, manufacture, evaluate, and adopt compatible products quickly. As described below, there will also be financial incentives at the state and federal levels to comply with these standards.

Section 1306- Federal Matching Fund for Smart Grid Investment Costs. This section authorizes funds for a DOE matching grant program for 20 percent of smart grid investment costs. DOE will set up a Smart Grid Investment Matching Fund to provide help manufacturers add smart grid functionality to their devices. Manufacturers of motors, meters, sensors, transmission and distribution equipment, plug-in hybrid vehicles, and appliances will be eligible to receive up to 20 percent of costs related to enabling smart-grid functionality on their products. A “smart grid function” is a defined term and includes the ability to communicate and act on price or disruption information, sensing

capability, and automation. Investments must comply with the NIST standards, once available, in order to be eligible for matching funds.

Going beyond just demand response, the legislation recognizes that any number of power transmission, distribution, and end-use devices could be made “smart.” In certain cases even the cost to develop software for smart-grid functionality may be eligible for financial incentives. “Smart grid functions” are shown in Appendix VII.

Section 1307- State Consideration of Smart Grid. The section requires state regulators to consider allowing smart-grid investments when making rate determinations under PURPA (Public Utility Regulatory Policy Act). New factors include total costs, cost-effectiveness, reliability, security, system performance, and societal benefit. States must also consider providing retail customers with hourly price information on a daily basis. Utilities will be permitted to recover costs additional associated with smart-grid investments as well as accelerated depreciation for obsolete equipment. State commissions will have until December 2009 from enactment to complete a proceeding on these new PURPA amendments. Investments must comply with the NIST standards (Section 1305).

The PURPA amendments essentially mandate advanced meters, given the hourly price information requirements and a directive to consider societal benefit. While the two-year deadline is only for rulemaking and not implementation, if left intact this amendment could signal the beginning of aggressive and nearly universal (Advance Metering Infrastructure (AMI) deployment.

Section 1308- Study of the Effect of Private Wire Laws on the Development of Combined Heat and Power Facilities. This section requires the DOE, in consultation with the states and other entities, to conduct a study of the laws and regulations affecting the siting of privately owned electric distribution wires on and across public rights-of-way.

Section 1309- DOE Study of Security Attributes of Smart Grid Systems. This section requires the DOE to submit a report to Congress that provides a quantitative assessment and determination of the existing and potential impacts of the deployment of smart grid systems on improving the security of the nation’s electricity infrastructure and operating capability.

RESEARCH AND DEVELOPMENT

SOLAR ENERGY

Section 602- Thermal Storage Research and Development Program. This section establishes an R&D program to provide lower cost and more viable thermal energy storage technologies to enable the shifting of electric power loads on demand and to extend the operating time of concentrating solar power electric generating plants. This section authorizes \$5 million for FY08, \$7 million for FY09, \$9 million for FY10, \$10 million for FY11, and \$12 million for FY12.

Section 603- Concentrating Solar Power Commercial Application Studies. This section directs DOE to conduct a study on methods to integrate concentrating solar power and utility-scale photovoltaic systems into regional electricity transmission systems and to identify new transmission or transmission upgrades needed to bring electricity from high- concentrating solar power resource areas to growing electric power load centers throughout the United States. The study shall analyze and assess cost-effective approaches for management and large-scale integration of concentrating solar power and utility-scale photovoltaic systems into regional electric transmission grids to improve electric reliability, to efficiently manage load, and to reduce demand on the natural gas transmission system for electric power and a report on the results of a study on methods to reduce the amount of water consumed by concentrating solar power systems.

Section 604- Solar Energy Curriculum Development and Certification Grants. This section establishes within the Office of Solar Energy Technologies a grant program to create and strengthen solar industry workforce training and internship programs in installation, operation, and maintenance of solar energy products. \$10 million every year for FY08-FY12 is authorized to carry out this section.

Section 605- Daylighting Systems and Direct Solar Light Pipe Technology. This section authorizes \$3.5 million each year for FY08-FY12 for DOE to establish a program of R&D to provide assistance in the demonstration and commercial application of direct solar renewable energy sources to provide alternatives to traditional power generation for lighting and illumination, including light pipe technology, and to promote greater energy conservation and improved efficiency.

Section 606- Solar Air Conditioning Research and Development Program. This section authorizes \$2.5 million every year for FY08-FY12 for DOE to establish a research, development, and demonstration program to promote less costly and more reliable decentralized distributed solar-powered air conditioning for individuals and businesses.

Section 607- Photovoltaic Demonstration Program. This section requires DOE to establish a program of grants to states to demonstrate a advanced photovoltaic technology. In addition, this section authorizes \$15 million for FY08, \$30 million for FY09, \$45 million for FY10, \$60 million for FY11, and \$70 million for FY12.

GEOHERMAL ENERGY

Section 613- Hydrothermal Research and Development. This section requires DOE to support programs of research, development, demonstration, and commercial application to expand the use of geothermal energy production from hydrothermal systems, including advanced hydrothermal resource tools and industry-coupled exploratory drilling.

Section 614- General Geothermal Systems Research and Development. This section requires DOE to support programs of research, development, demonstration, and commercial application of components and systems capable of withstanding extreme geothermal environments and necessary to cost effectively develop, produce, and monitor geothermal reservoirs and produce geothermal energy; models of geothermal reservoir performance, with an emphasis on accurately modeling performance over time; and technologies and practices designed to mitigate or preclude potential adverse environmental impacts of geothermal energy development, production or use; and seek to ensure that geothermal energy development is consistent with the highest practicable standards of environmental stewardship.

Section 615- Enhanced Geothermal Systems Research and Development. This section requires DOE to support programs of research, development, demonstration, and commercial application for enhanced geothermal systems, including enhanced geothermal systems technologies and enhanced geothermal systems reservoir stimulation.

Section 616- Geothermal Energy Production From Oil and Gas Fields and Recovery and Production of Geopressed Gas Resources. This section requires DOE to implement a grant program in support of geothermal energy production from oil and gas fields for three demonstration projects.

Section 623- Authorization of Appropriations. This section authorizes \$90 million every year for FY08-FY12 for this subtitle. Of this amount, \$10 million a year will be for geothermal energy production from oil and gas fields. In addition, \$5 million a year for five years is authorized for the Intermountain West Geothermal Consortium.

Section 625- High Cost of Region Geothermal Energy Grant Program. This section requires DOE to make grants to eligible entities, with respect to geothermal energy projects in a high-cost region, to conduct feasibility studies, for design and engineering costs, and to demonstrate and promote commercial application of technologies related to geothermal energy as part of the project.

MARINE AND HYDROKINETIC RENEWABLE ENERGY TECHNOLOGIES

Section 632- Definition. This section defines “marine and hydrokinetic renewable energy” as electrical energy from waves, tides, and currents in oceans, estuaries, and tidal areas; free-flowing water in rivers, lakes, and streams; free-flowing water in man-made channels; and differentials in ocean temperature.

Section 633- Marine and Hydrokinetic Renewable Energy R&D. This section requires DOE, in consultation with the Departments of Interior and Commerce, to establish a program of research and development, demonstration, and commercial application to expand marine and hydrokinetic renewable energy production.

Section 634- National Marine Renewable Energy Research, Development, and Demonstration Centers. This section requires DOE to award grants to institutions of higher

education for the establishment of one or more National Marine Renewable Energy Research, Development, and Demonstration Centers. These centers are for advancing research, development, demonstration, and commercial application of marine renewable energy and will serve as an information clearinghouse for the marine renewable energy industry, collecting and disseminating information on best practices in all areas related to developing and managing enhanced marine renewable energy systems resources.

Section 636- Authorization of Appropriations. This section authorizes \$50 million every year for FY08-FY12 for activities under this subtitle, excluding those receiving funds for ocean energy, including wave energy.

ENERGY STORAGE FOR TRANSPORTATION AND ELECTRIC POWER

Section 641- Energy Storage Competitiveness. The Department of Energy will support basic research on primary storage technologies such as ultra capacitors, flywheels, batteries, power conditioning electronics, compressed air, and hydrogen. Utilities, manufacturers, and end users will also be invited to participate in demonstration projects for storage technologies. Plug-in hybrids will receive funding for improvements to battery technology and for use as grid-connected energy storage. This section authorizes up to \$295 million annually for the next ten years across these various initiatives.

MISCELLANEOUS PROVISIONS

Section 654- H-Prize. This section amends the Energy Policy Act of 2005 to require DOE to carry out a program to competitively award cash prizes to advance the research, development, demonstration, and commercial application of hydrogen energy technologies. This section authorizes \$20 million for FY08-FY17 for advancements in technologies, components, or systems related to hydrogen production, hydrogen storage, hydrogen distribution, and hydrogen utilization; \$20 million for prototypes of hydrogen-powered vehicles or other hydrogen-based products that best meet or exceed objective performance criteria; and \$10 million for transformational changes in technologies for the distribution or production of hydrogen that meet or exceed far-reaching objective criteria.

Section 655- Bright Tomorrow Lighting Prizes. This section directs DOE to establish Bright Tomorrow Lighting Prizes for development of solid-state lighting that meets specified criteria: \$10 million is authorized for a 60-watt incandescent replacement LED product; \$5 million for a 38-PAR halogen replacement LED product; and \$5 million for a 21st Century Lamp. This section calls for federal government purchase of the products of the successful prize winners.

TRANSPORTATION

Section 102—Vehicle Efficiency Standards. The law requires new corporate average fuel economy (CAFE) standards for cars, sport utility vehicles (SUVs), work trucks, and medium and heavy duty trucks. The law requires a fleetwide fuel economy average of 35 miles per gallon for cars and SUVs (fewer than 8,500 pounds gross vehicle weight rating) by 2020.

Section 1131—Highways. The Congestion Mitigation and Air Quality (CMAQ) program is one of the "core" highway programs of the Federal Highway Administration (FHWA) and is administered jointly with the Federal Transit Administration. The program funds projects in areas that are not in compliance with clean air standards. Under current law, the federal share of projects under the program is 80 percent.

The law allows the federal share to be increased to 100 percent in fiscal 2008 and 2009. Additionally, this law requires the FHWA, when it administers rescissions of highway funds that are apportioned to states, to distribute rescissions proportionally across the "core" highway programs. This provision is intended to prevent states from applying a greater portion of the rescission to the CMAQ program, or to the Transportation Enhancements program, as some states have done in recent years when such rescissions have been made.

FOREIGN AID AND INTERNATIONAL

The measure creates several new programs to develop and promote international renewable energy sources. The measure authorizes foreign aid for developing countries, creates a new International Clean Energy Foundation, and authorizes new State Department programs to promote international cooperation to address climate change.

Section 911—U.S. AID Programs. The bill authorizes \$200 million in each of fiscal 2008 through 2012 for the U.S. Agency for International Development (USAID) to assist developing countries in adopting policies and programs to promote clean and energy-efficient technologies. Specifically, USAID may assist developing countries with programs to produce market conditions for the private-sector delivery of energy services, assist with legal and regulatory issues, and fund public-awareness campaigns to foster an environment in which renewable energy is in demand.

Section 912—Commerce Department Programs. The measure directs the Commerce Department to expand an existing corps or create a new corps in the Foreign Commercial Service Office to promote U.S. renewable energy exports to other countries, particularly in India and China. The bill authorizes such sums as necessary over the period of fiscal 2008 through 2012 for these programs. The measure also directs the International Trade Administration (ITA) to organize trade missions to promote trade and investment in clean energy technologies and authorizes such sums as necessary over the period of fiscal 2008 through 2012.

Section 913—United States Trade Missions to Encourage Private Sector Trade and Investment. This section directs the

Department of Commerce to direct the ITA to organize related trade missions to and from the United States to encourage private-sector trade and investment in clean and efficient energy technologies.

Section 914—Actions by Overseas Private Investment Corporation. This section encourages the Overseas Private Investment Corporation to promote clean and efficient energy technologies.

Section 915—Actions by United States Trade and Development Agency. This section encourages the U.S. Trade and Development Agency to promote clean and efficient energy technologies.

Section 916—Deployment of International Clean and Efficient Energy Technologies and Investment in Global Energy Markets. This section establishes an interagency task force on international clean energy and a working group and center on clean energy exports.

Section 92—Clean Energy Foundation. The measure creates an International Clean Energy Foundation, which would be established within the executive branch as a government corporation. The foundation would pursue ways to reduce global emissions of greenhouse gases. Specifically, the foundation would award grants to overseas projects that significantly reduce greenhouse gases, seek outside sources of additional funding for the projects, and establish partnerships with foreign governments and non-governmental organizations. The bill authorizes \$20 million annually over the period of fiscal 2008 through 2012 to establish the foundation.

RENEWABLE ENERGY AND OTHER PROVISIONS

Section 701 --Carbon Sequestration. Carbon sequestration refers to capturing carbon dioxide from large-source polluters, such as coal-fired electric power plants, and then storing the gas underground, in the ocean, or in plants to prevent its release into the atmosphere. The intent is that long-term storage will eventually reduce levels of carbon dioxide and thus reverse the trend of higher global temperatures. Although technology exists to capture carbon dioxide, storage still is in experimental stages and has not been implemented on a large scale.

The Energy Department currently operates a Carbon Sequestration Program that focuses on storing carbon dioxide in underground repositories; injecting the gas deep into the ocean or increasing ocean absorption of carbon dioxide; increasing the amount of carbon dioxide that is absorbed by plant life; and genetic engineering of micro-organisms that could release other gases to offset the effects of carbon dioxide.

The measure expands the current carbon sequestration program, requiring the department to conduct at least large-volume tests of carbon storage to examine the costs and feasibility of geologic storage methods. It directs the department to develop pilot programs that involve industrial and coal-fired electricity plants and that use an integrated process of capturing, transporting, and then storing carbon dioxide.

Section 1001—Green Jobs. The law authorizes \$125 million in each fiscal year for the Labor Department to administer a new grant program for training programs for workers in the renewable energy and energy-efficiency sectors.

By June 2009, under the program, grants are to be given to programs that target workers who need updated training related to the energy industry, veterans, the unemployed, formerly incarcerated non-violent offenders, and at-risk youth. Grants could go to public-private partnerships, states, and programs designed to assist low-income communities.

Section 1201—Small-Business Programs. The law establishes a new Renewable Fuel Capital Investment Pilot Program, to be run by the Small Business Administration, which will offer loan guarantees and grants to newly formed "renewable fuel investment companies." Such companies are defined by the measure as small businesses that have a "primary objective" providing venture capital businesses that research, produce or develop renewable fuels.

The law authorizes \$15 million in each fiscal year for the grants; however, to be eligible to receive funds through the program, companies must be either newly founded or a newly founded subsidiary of an existing company. In addition, companies receiving these funds would have to raise at least \$5 million in capital or capital commitments.

The law authorizes grants of between \$150,000 and \$300,000 for small-business development centers to provide assistance for developing, marketing, or investing in energy-efficiency technology. The measure also increases the maximum loan limit on Community Development Center grants to \$4 million (from the current \$3 million) for small businesses that seek loans to improve energy efficiency or reduce energy consumption.

The measure increases loan guarantee rates, to 90 percent from the current 75 percent, for loans used for energy-efficient technologies.

Section 541—Block Grants. The law authorizes \$2 billion in each of fiscal 2008 through 2012 years for a new Energy Efficiency Block Grant Program, in which DOE would award grants to state and local governments for an array of activities to improve energy efficiency. The grants are for cities with a population of at least 50,000, or counties with a population of at least 200,000. Specifically, local governments may use the grants to develop energy-efficiency strategies, hire technical consultants, conduct energy audits, and develop conservation programs.

Section 801—National Media Campaign. This section authorizes \$5 million per year in 2008-2012 for a DOE national media campaign to increase energy efficiency and reduce oil consumption.

APPENDIX I:

ENERGY EFFICIENT PRODUCT STANDARDS

§ No.	Product	Due Date	Description
301	Class A External Power Supplies	7/1/2008	Effective date for efficiency standards
301	Class A External Power Supplies	7/1/2011	Amended standards final rule
301	Class A External Power Supplies	7/1/2013	Amended standards effective date
301	Class A External Power Supplies	7/1/2015	Amended standards final rule
301	Class A External Power Supplies	7/1/2017	Amended standards effective date
303	Residential Boilers	9/1/2012	Effective date for efficiency standards
309	Battery Chargers	7/1/2011	Final rule for efficiency standards
310	Battery Chargers	12/31/2008	Final rule for standby mode test procedures
310	External Power Supplies	12/31/2008	Final rule for standby mode test procedures
310	Clothes Dryers	3/31/2009	Final rule for standby mode test procedures
310	Room Air Conditioners	3/31/2009	Final rule for standby mode test procedures
310	Fluorescent Lamp Ballasts	3/31/2009	Final rule for standby mode test procedures
310	Clothes Washers	6/30/2009	Final rule for standby mode test procedures
310	Residential Boilers	9/30/2009	Final rule for standby mode test procedures
310	Residential Water Heaters	3/31/2010	Final rule for standby mode test procedures
310	Dishwashers	3/31/2011	Final rule for standby mode test procedures
310	Ranges	3/31/2011	Final rule for standby mode test procedures
310	Ovens	3/31/2011	Final rule for standby mode test procedures
310	Microwave Ovens	3/31/2011	Final rule for standby mode test procedures
310	Dehumidifiers	3/31/2011	Final rule for standby mode test procedures
311	Dehumidifiers	10/1/2012	Effective date for efficiency standards
311	Clothes Dryers	1/1/2011	Effective date for efficiency standards
311	Dishwashers	1/1/2010	Effective date for efficiency standards
311	Dishwashers	1/1/2015	Amended standards rulemaking
311	Dishwashers	1/1/2018	Amended standards effective date
313	Electric Motors	12/19/2010	Effective date for efficiency standards
321	General Service Incandescent Lamp, 1490-2600 Lumens	1/1/2012	Effective date for efficiency standards
321	General Service Incandescent Lamp, 1050-1489 Lumens	1/1/2013	Effective date for efficiency standards
321	General Service Incandescent Lamp, 750-1049 Lumens	1/1/2014	Effective date for efficiency standards
321	General Service Incandescent Lamp, 310-749 Lumens	1/1/2014	Effective date for efficiency standards
321	Modified Spectrum General Service Incandescent Lamp, 1118-1950 Lumens	1/1/2012	Effective date for efficiency standards
321	Modified Spectrum General Service Incandescent Lamp, 788-1117 Lumens	1/1/2013	Effective date for efficiency standards
321	Modified Spectrum General Service Incandescent Lamp, 563-787 Lumens	1/1/2014	Effective date for efficiency standards

§ No.	Product	Due Date	Description
321	Modified Spectrum General Service Incandescent Lamp, 232-562 Lumens	1/1/2014	Effective date for efficiency standards
321	General Service Incandescent Lamps	1/1/2014	Amended standards rulemaking begins
321	General Service Incandescent Lamps	1/1/2017	Amended standards final rule
321	General Service Incandescent Lamps	1/1/2020	Amended standards effective date (3 years from issuance of final rule)
322	ER, BR, and BPAR Lamps	1/1/2008	Effective date for efficiency standards
322	ER, BR, and BPAR Lamps, 2.25-2.75 in. diameter	6/16/2008	Effective date for efficiency standards
324	Metal Halide Lamp Fixtures	1/1/2009	Effective date for efficiency standards
324	Metal Halide Lamp Fixtures	1/1/2012	Amended standards final rule
324	Metal Halide Lamp Fixtures	1/1/2015	Amended standards effective date
324	Metal Halide Lamp Fixtures	1/1/2019	Amended standards final rule
324	Metal Halide Lamp Fixtures	1/1/2022	Amended standards effective date
324	Metal Halide Lamp Fixtures	1/1/2009	Labeling requirements effective date; FTC to issue by 7/1/2008

APPENDIX II:

SECTION 313—ELECTRIC MOTOR EFFICIENCY

STANDARDS

Definitions

1. General purpose electric motor (subtype I) - any electric motor that meets the definition of “general purpose” motor as established by DOE in its final rule codified in 10 CFR 431 in effect on December 19, 2007.
2. General purpose electric motor (subtype II) – any electric motor incorporating the design elements of a general purpose electric motor (subtype I) that are configured as:
 - U-Frame motor.
 - design C motor.
 - close-coupled pump motor.
 - footless motor.
 - vertical solid shaft normal thrust motor (tested in a horizontal configuration).
 - 8-pole motor (900 rpm).
 - poly-phase motor with voltage no more than 600 volts (other than 230 or 460 volts).

Standards

General purpose motors (subtype I) manufactured after December 19, 2010, with a power rating of 1 horsepower or greater, but not greater than 200 horsepower shall have a nominal full load efficiency that is not less than as defined in NEMA MG-1 (2006) Table 12-12 (aka “NEMA Premium® efficiency levels).

General purpose motor (subtype II) with a power rating of 1 horsepower or greater, but no more than 200 horsepower, manufactured after December 19, 2010, shall have a nominal full load efficiency that is not less than as defined in NEMA MG-1 (2006) Table 12-11.

Fire pumps motor manufactured after December 19, 2010 shall have nominal full load efficiency no less than as defined in NEMA MG-1 (2006) Table 12-11.

NEMA Design B, general purpose electric motor with a power rating of more than 200 horsepower, but no more than 500 horsepower, manufactured after December 19, 2010, shall have a nominal full load efficiency that is not less than as defined in NEMA MG-1 (2006) Table 12-11.

APPENDIX III:

SECTION 316—TECHNICAL CORRECTIONS

SPECIALTY MERCURY VAPOR LAMPS AND BALLASTS

The Energy Policy Act of 2005 included a provision that no new ballasts for mercury vapor lamps be imported or manufactured for use in the U.S., effective January 1, 2008. Standard mercury vapor systems were the target, but specialty lamps were inadvertently swept into the definition. Two technical corrections are included in the Energy Independence and Security Act of 2007 relating to mercury vapor:

- Mercury vapor lamps are now defined as having screw bases, thereby exempting ballasts for special uniquely based lamps that are used in such applications as UV curing and chip manufacturing.
- If a standard screw-based mercury vapor lamp is used in a specialty application, the ballast for that lamp must now be labeled “Not for general illumination” and must specify on the label the specialty applications for which the ballast is designed.

DEFINITION OF FLUORESENT LAMP

The National Energy Policy Act of 1992 exempts fluorescent lamps with a CRI of “82” or higher from LPW standards. EISA changes the exempted CRI from “82” to “87.”

APPENDIX IV:

SECTION 321—GENERAL SERVICE INCANDESCENT LAMPS

DEFINITIONS

General service incandescent lamp (light bulb) is defined as a standard incandescent or halogen type lamp that:

- Is intended for general service applications,
- Has a medium screw bases,
- Has a lumen range of 310-2600 (40 - 100W in today's wattages), and
- Is capable of operating at least partially in the range of 110-130 volts.

Section 321 contains a list of excluded lamps that include appliance lamp, blacklight lamp, bug lamp, colored lamp, infrared lamp, left-hand thread lamp, marine lamp, marine signal service lamp, mine service lamp, plant lamp, reflector lamp, rough service lamp, shatter-resistant/shatter-proof/shatter-protected lamp, sign service lamp, silver bowl lamp, showcase lamp, 3-way incandescent lamp, traffic signal lamp, vibration service lamp, G-shape with a diameter of 5 inches or more, T-shape lamp of 40 watts or less and a length of greater than 10 inches; B, BA, CA, F, G16-1/2, G25, G30, S, or M14 lamp of 40 watts or less.

Section 321 sets a maximum wattage of 60 watts for candelabra base incandescent lamps, and 40 watts for intermediate base incandescent lamps.

General Service Incandescent Lamp Standards and Effective Dates

Current Wattage	Rated Lumen Ranges	New Maximum Rated Wattage	Minimum Rate Life-time (Hours)	Manufactured on or After
100	1490-2600	72	1000	1/1/2012
75	1050-1489	53	1000	1/1/2013
60	750-1049	43	1000	1/1/2014
40	310-749	29	1000	1/1/2014

Modified Spectrum lamps lumen ranges are 25 percent lower and have the same maximum wattages as listed above.

Minimum requirement of 80 CRI except for modified spectrum, which will have a minimum CRI of 75.

MONITORED LAMP TYPES

Effective for calendar years 2010-2025, five types of exempted lamps are to be monitored by DOE in consultation with NEMA. Should sales of a monitored type double compared to the modeled unit sales for the same year, DOE shall complete an accelerated rule making to establish energy conservation standards for the monitor lamp types (see table below). Should DOE fail to do so, a specified “backstop” standard will go into effect.

Lamp Type	Backstop Measures			Effective Date
	Coating	Max. Watts	Packaging	
Rough Surface Lamps	Add shatter-proof coating	40	Sold at retail in single pack	1 year after date of issuance of sales growth data
Vibration Service Lamps	-	40	Same	Same
3-Way Lamps	-	Each filament must meet maximum wattage requirements for the respective lumen range in the table above	Same	Same
2601-3300 Lumen General Service Lamps	-	95	Same	Same
Shatter-Resistant Lamps	-	40	Same	Same

FIRST DOE RULEMAKING TO BEGIN 1/1/2014

If DOE determines that the standards prescribed in Section 321 should be amended, the Secretary shall publish a final rule not later than January 1, 2017, with an effective date no earlier than three years after the final rule is published. Latest effective date for the new final rule would be January 1, 2020.

If DOE fails to complete a rulemaking or if the final rule does not produce savings that are equal to or greater than the savings from a minimum efficacy standard of 45 LPW, effective January 1, 2000, the Secretary shall prohibit the sale of any general service lamp that does not meet a minimum efficacy of 45 LPW.

SECOND DOE RULEMAKING TO BEGIN 1/1/2020

If DOE determines that the standards in effect should be amended, new final rule to be published not later than January 1, 2022 and to be effective not earlier than three years after the date on which the final rule is published.

STATE PREEMPTION

States are preempted from setting standards for general service light bulbs, except:

- California's Title 20 standards that have an effective date of January 1, 2008, remain in effect until the federal standards become effective.
- California and Nevada may adopt the Federal general service incandescent light bulb standards with an effective date no earlier than 12 months of the federal effective dates.
- California and Nevada may adopt two years early (January 1, 2018) whatever final rule is issued by DOE to be effective by January 1, 2020; or, if there is no final rule to be effective 1/1/2020,
 - California and Nevada may adopt a 45 LPW minimum requirement, or
 - California may adopt "any regulations relating to the covered products adopted pursuant to state statute in effect as of the date of enactment of the Energy Independence and Security Act of 2007."

CONSUMER EDUCATION AND EVALUATION OF PRODUCT LABELING

The Federal Trade Commission (FTC) to issue new labeling rules by July 20, 2010. DOE, in cooperation with Environmental Protection Agency (EPA), FTC, lighting and retail industry associations and other stakeholders, shall conduct an annual assessment of the general service and compact fluorescent lamp market. A proactive national program of consumer awareness to help consumers understand the lamp labels and lighting choices is also required. An authorization of \$10,000,000 for each fiscal year 2008-2013 is provided to fund these activities.

MERCURY USE AND RELEASE

No later than December 19, 2008, DOE, in cooperation with EPA, shall report to Congress regarding how the federal government may reduce or prevent the release of mercury during the manufacture, transportation, storage, or disposal of light bulbs.

PROHIBITED ACTS

The section prohibits any manufacturer, distributor, retailer, or private labeler to distribute in commerce an adapter that is designed to allow an incandescent lamp that does not have a medium screw base to be installed into a fixture or lampholder with a medium screw base and is capable of being operated at least partially within 110-130 volts.

ENFORCEMENT

The section provides the ability for any state attorney general to restrain any person from distributing in commerce a general service lamp that does not comply with the federal standards. Under current law, only the federal government undertakes enforcement of the federal standard. This provision will now allow states to enforce lamp standards.

APPENDIX V:

SECTION 322—INCANDESCENT REFLECTOR LAMP EFFICIENCY STANDARDS

- BR, ER, and BPAR lamps
- Reflector lamps between 2.25 (18/8) and 2.75 (22/8) inches in diameter
- Lamps that have a rated wattage that is 40 watts or higher

The 1992 legislation covered R and PAR lamps greater than 2.75 (22/8s) inches in diameter, medium screw base, 40-205 watts, 115-130 volts. The minimum efficacy standards established in 1992 now apply to this larger group of reflector lamps.

Nominal Lamp Wattage	Minimum Average Lamp Efficacy (LPW)
40-50	10.5
51-66	11.0
67-85	12.5
86-115	14.0
116-155	14.5
156-205	15.0

EXCEPTIONS

- BR30, BR40 and ER40 lamps rated at 65 watts
- ER30, BR30, BR40 and ER40 lamps rated at ≤ 50 watts
- R20 lamps rated at ≤ 45 watts

Manufacturers can continue to make and sell 65BR30 lamps.

EFFECTIVE DATES (MANUFACTURE DATES)

BR, ER and BPAR lamps and similar shapes, on and after 1/1/2008 (Technical corrections bill must be passed to confirm date of 6/16/2008)

Lamps between 2.25-2.75 inches, on or after 6/16/2008

APPENDIX VI:

SECTION 324—METAL HALIDE LAMP FIXTURES

STANDARDS

Metal halide lamp fixtures operated with lamps greater than or equal to 150 watts but less than or equal to 500 watts shall contain:

- A pulse-start metal halide ballast with a minimum ballast efficiency of 88 percent.
- A magnetic probe-start ballast with a minimum ballast efficiency of 94 percent.
- A non-pulse state electronic ballast with—
- A minimum ballast efficiency of 92 percent for wattages greater than 250 watts.
- A minimum ballast efficiency of 90 percent for wattages 250 watts or less.

Standards above do not apply to:

- Fixtures with regulated lag ballasts.
- Fixtures that use electronic ballasts to operate at 480 volts.
- Fixtures that—
 - Are only rated for 150 watt lamps,
 - Are rated for use in wet locations per NEC 202, section 410.4(A), and
 - Contain a ballast that is rated to operate at ambient air temperatures above 50°C per UL 1029-2001.

EFFECTIVE DATE

Applies to fixtures manufactured on or after January 1, 2009

LABELING

The Federal Trade Commission will issue a labeling rule by July 1, 2008, requiring a capital letter “E” printed within a circle on the packaging of the fixture and on ballast contained in the fixture.

NEXT DOE RULEMAKINGS

First Round: No later than January 1, 2012, DOE shall publish a final rule to determine whether the standards should be amended. The resulting final rule shall apply to products manufactured on or after January 1, 2015

Second Round: Not later than January 1, 2019, DOE shall publish a final rule to determine whether the standards then in effect should be amended.

Section 324 provides that California may set standards if DOE misses rulemaking deadlines.

APPENDIX VII: SMART GRID

	Deadlines
Smart Grid System Report (§1302)	1 year after date of enactment (12/19/07), then once every two years
NIST begins work on Smart Grid Interoperability Standards (§1305)	2/17/2008
Establish a Smart Grid Advisory Committee (§1303)	3/18/2008
Establish a Smart Grid Task Force (§1303)	3/18/2008
Report on progress towards Interoperability Standards (§1305)	12/19/2008
Establish a federal matching fund for Smart Grid Investment Costs (§1306)	12/19/2008
Study of private wire laws (merchant distribution) on cogenerators	12/19/2008
States must initiate rulemakings to consider Smart Grid technology, include advanced meters (§1307)	12/19/2008
States must complete rulemakings to consider Smart Grid technology, including advanced meters (§1307)	12/19/2009
Study on security attributes of Smart Grid	6/19/2009

DEFINITION OF SMART GRID FUNCTIONS FROM SECTION 1306

The term “Smart Grid functions” means any of the following:

- (1) The ability to develop, store, send, and receive digital information concerning electricity use, costs, prices, time of use, nature of use, storage, or other information relevant to device, grid, or utility operations, to or from or by means of the electric utility system, through one or a combination of devices and technologies.
- (2) The ability to develop, store, send, and receive digital information concerning electricity use, costs, prices, time of use, nature of use, storage, or other information relevant to device, grid, or utility operations to or from a computer or other control device.
- (3) The ability to measure or monitor electricity use as a function of time of day; power quality characteristics such as voltage level, current, cycles per second; or source or type of generation; and to store, synthesize or report that information by digital means.
- (4) The ability to sense and localize disruptions or changes in power flows on the Grid and to communicate such information instantaneously and automatically for purposes of enabling automatic protective responses to sustain reliability and security of Grid operations.
- (5) The ability to detect, prevent, communicate with regard to, respond to, or recover from system security threats, including cyber-security threats and terrorism, using digital information, media, and devices.
- (6) The ability of any appliance or machine to respond to such signals, measurements, or communications automatically or in a manner programmed by its owner or operator without independent human intervention.
- (7) The ability to use digital information to operate functionalities on the electric utility grid that were previously electro-mechanical or manual.
- (8) The ability to use digital controls to manage and modify electricity demand, enable congestion management, assist in voltage control, provide operating reserves, and provide frequency regulation.
- (9) Such other functions as the Secretary may identify as being necessary or useful to the operation of a Smart Grid.

Resources used in the creation of this summary are:

Congressional Quarterly, Osram Sylvania, the Congressional Research Service, House and Senate Committee documents, Alliance to Save Energy, and the Library of Congress.

