



U.S. Department of Energy
**Energy Efficiency
and Renewable Energy**

Bringing you a prosperous future where energy
is clean, abundant, reliable, and affordable

Federal Energy Management Program

Current Federal Energy Regulation

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US Department of Energy
Federal Energy Management Program



Federal Drivers

- Energy Policy Act of 2005 (**EPACT 2005**)
- Energy Independence and Security Act of 2007 (**EISA 2007**)
- Executive Order 13423 – Strengthening Federal Environmental, Energy, and Transportation Management (**EO - 13423**)



Federal Rulemakings

- 10 CFR part 433 for commercial and high-rise multi-family residential buildings
- 10 CFR part 435 Subpart A for low-rise residential buildings
- 10 CFR part 436 for procurement of energy efficient products and for life cycle cost effectiveness
 - CFR means Code of Federal Regulations



10 CFR Part 433

- Final Rule on energy efficiency
- Notice of Proposed Rulemaking on Sustainable Design
- Notice of Proposed Rulemaking on Fossil Fuel-Generated Energy Reduction



10 CFR Part 433

- Final Rule on energy efficiency
 - From Section 109 of EPCACT 2005
- Notice of Proposed Rulemaking on Sustainable Design
 - From Section 109 of EPCACT 2005 and coordinated with EO 13423 Guiding Principles
 - Also includes section 523 of EISA 2007 on solar hot water heating
- Notice of Proposed Rulemaking on Fossil Fuel-Generated Energy Reduction
 - From Section 433 of EISA 2007



10 CFR Part 435 Subpart A

- Final Rule on energy efficiency
- Notice of Proposed Rulemaking on Sustainable Design
- Notice of Proposed Rulemaking on Fossil Fuel-Generated Energy Reduction



10 CFR Part 435 Subpart A

- Final Rule on energy efficiency
 - From Section 109 of EPAAct 2005
- Notice of Proposed Rulemaking on Sustainable Design
 - From Section 109 of EPACT 2005 and coordinated with EO 13423 Guiding Principles
 - Also includes section 523 of EISA 2007 on solar hot water heating
- Notice of Proposed Rulemaking on Fossil Fuel-Generated Energy Reduction
 - From Section 433 of EISA 2007



10 CFR Part 436

- Definitions of life cycle cost-effectiveness for use in 10 CFR parts 433 and 435
- Procurement of energy efficient products



10 CFR Part 436

- Definitions of life cycle cost-effectiveness
 - for use in 10 CFR parts 433 and 435 where life-cycle cost-effectiveness is required
- Procurement of energy efficient products
 - From Section 104 of EPACT 2005



Cost-Effectiveness Options

- Lower life-cycle cost
- Positive net savings
- Savings to investment ratio greater than 1
- Adjusted internal rate of return that is greater than the discount rate listed in OMB circular A-94



EO 13423

- EO 13423 contains mandates for Federal agencies that are very similar to those found in EPOA 2005 and EISA 2007
- A key requirement in EO13423 is for Federal agencies to follow the Guiding Principles for high performance and sustainable buildings



Just Tell Me What I Have To Do!

1. Reduce Energy Usage
2. Use Sustainable Design Principles
3. Procure Energy Efficient Products



Reduce Energy Usage I

- All Federal buildings must be designed to have 30% lower energy cost than buildings built to private sector standards , if life-cycle cost effective
- Private sector baselines
 - ANSI/ASHRAE/IESNA Standard 90.1-2004 for commercial and high-rise multi-family residential buildings
 - 2004 IECC for low-rise residential buildings



What Does This Mean?

- You must perform whole building simulations on your building
- You must compare your proposed design with a baseline defined by Appendix G of Standard 90.1-2004 or Section 404 of the 2004 IECC
- You must show that your design is cost-effective



Reduce Energy Usage II

- Many larger Federal buildings must be designed to achieve 55% reduction in fossil fuel-based energy compared to typical buildings, starting in FY2010 (and higher levels in the future)
- Typical buildings
 - DOE's Commercial Building Energy Consumption Survey (CBECS)
 - DOE's Residential Energy Consumption Survey (RECS)



Fossil Fuel Reduction

Fiscal Year	Percentage Reduction
2010	55
2015	65
2020	80
2025	90
2030	100



What does this mean?

- You must decide if your building
 - requires GSA to notify Congress, or
 - is a public building, or
 - is of more than \$2.5 million in cost
- You must perform whole building simulations on your building
- You must compare your proposed design with a baseline defined by CBECS or RECS for similar buildings



Details of fossil fuel comparisons I

- Based on all energy usage in building (no blanket exemptions)
- Sum of direct fossil-fuel use plus fossil-fuels used to generate electricity
- National average fossil-fuel generation ratio (instead of state or local ratios)



Details of fossil fuel comparisons II

- CBECS and RECS data by building type (as published, instead of more detailed analysis)
- Use of simulation for barracks and other building types not in CBECS or RECS
- Building by building exemption requests (no blanket exemptions)



Use Sustainable Design Principles

- All Federal buildings must use sustainable design principles for siting, design, and construction, if life-cycle cost-effective
 - Guiding Principles in EO 13423 cover **most** of these requirements, except for siting.



What does this mean?

- Your building design process must
 - Follow Integrated Design Principles
 - Optimize Energy Performance
 - Protect and Conserve Water
 - Enhance Indoor Environmental Quality
 - Reduce Environmental Impact of Materials
 - Address Building Siting
- Your building design must also provide 30% of the hot water load from solar energy



Procure Energy-Efficient Products

- Buy Energy-Star or FEMP-designated products
 - Unless products not cost-effective (taking energy savings into account) or product do not meet functional requirements of agency



What does this mean?

- Buy energy-efficient products where they are available and where they meet agency needs



Useful Web Links

- FEMP regulatory site
 - <http://www1.eere.energy.gov/femp/about/legislation.html>
- FEMP energy efficiency rulemaking training
 - http://www.energycodes.gov/federal/webcast_federal_series.stm
- Guiding Principles
 - http://www.wbdg.org/pdfs/hpsb_guidance.pdf



Questions?

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- Thank-you