

# **DOE FY2012 Congressional Budget Request for EERE**

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## **Outline**

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- Overview
- Key Funding Changes
- Context / Questions
- Historical Spending Context
- References

## Overview

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- DOE Total Energy Request up \$1.7 B (16.1%)
- EERE up \$983.7 M (44.4%)
- Largest \$ increase ever, for EERE
- OE up \$65.7 M (38.2%)
- Offsets: DOE Fossil Energy Office and fossil tax subsidies

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## FY2012 Emphasis

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- Entire EERE effort: Transformation to Clean Energy Economy (Deployment)
- [A] International Competitiveness (Jobs)
- [B] Climate Change (Reduced Carbon)
- [C] Oil Imports (EVs & Cellulosic Ethanol)

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## **Administration's Themes**

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- New technologies and new jobs
- China, Germany, & others “making serious investments”
- Need to build clean energy facilities
- Recovery Act started the process
- “Nation that leads the clean energy economy will lead the global economy”

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## **Program Funding Changes**

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- Largest \$ Increases
- Other Large \$ Increases
- Significant \$ Decreases

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## **Funding Calculation References**

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- All funding changes shown in the presentation follow those in the DOE request.
- The differences are calculated between the FY2012 request and the FY2010 appropriation.
- There is not yet a final appropriation for FY2011.

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## **Largest \$ Increases**

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- Vehicles + \$283.8 M (93%)
- Buildings + \$251.7 M (115%)
- Industry + \$225.5 M (239%)
- Solar + \$213.6 M (88%)

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## Other Large Increases

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- Biomass + \$124.3 M (58%)
- Weatherization +\$123.8 M (46%)
- Geothermal + \$58.4 M (136%)
- Wind +47.8 M (61%)

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## Significant Decreases

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- Congressionally-Directed Projects  
[Earmarks] - \$292.1 M (-100%)
- Hydrogen - \$69.8 M (-41%)
- Water Power - \$10.2 M (-21%)

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## **Theme Areas for \$ Increases**

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- Power Technologies: Wind, Geothermal, Solar PV
- Buildings-Related Initiatives: Solar PV and Buildings Programs
- Transportation-Related Initiatives: Biomass and Vehicles Programs
- Manufacturing-Related Industry Programs

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## **Power Technologies**

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- Clean Energy Standard Provides a Major Focus (80% by 2035)
- [A] Wind + \$63.7 M for “Innovative” Offshore Deployment
- [B] Geothermal + \$58.4 M for variety of technology and resource strategies
- [C] Solar PV “SunShot” +\$213.6 M for a major new initiative

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## **Solar PV “SunShot” Initiative**

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- Reduce utility-scale PV cost by 75%, to grid parity (\$1,000/kw or 6 cents/kwh)
- CES 2030 goals: 375 gw, 13% of demand
- Collaborate with OS and ARPA-E
- Focus on power electronics, BIPV, BOS
- Regain world manufacturing leadership and jobs

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## **Better Buildings Initiative**

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- Goal of 20% efficiency increase by 2020
- Focus on long-term barriers (see CRS report R40670 by Paul Parfomak)
- “Race to Green,” +\$200 M in grants to S&L governments for existing buildings
- CBP partnerships for new construction & community extension partnership
- Building Design Innovation Hub extended
- Accelerate scope & effectiveness of equipment efficiency standards

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## **Biomass Initiatives**

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- Cellulosic Biofuels Reverse Auction, + \$150 M production cost subsidy for first/pioneer plants
- Integrated Biorefineries, + \$25 M for private sector plant scale up & replication
- Biopower Initiative, + \$22.5 M for pilot-scale demonstration of cofiring & 10 mw goal for 2015

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## **Vehicles Program Initiatives**

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- Goal for one million EVs on road by 2015
- New Deployment Initiative, + \$200 M, supports competitive grants for infrastructure and fleet conversion
- R&D for Batteries/EVs up \$89.4 M (91%), focus on doubling battery energy density and reducing production cost by 70%

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## Industry Initiatives

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- Goal: Double Energy Productivity and Reduce Carbon Intensity by 2020
- Industry Programs, up \$225.5 M (240%)
- [A] Next Generation Materials, +\$89.0 M (754%)
- [B] Next Generation Manufacturing Processes, + \$77.4 M (150%)
- [C] Ind. Tech. Assistance, + \$44.1 M (143%)
- [D] New Manufacturing Energy Systems program, + \$15.0 M

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## Next Generation Materials

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- Refocus of former industry-specific programs, aimed at technology breakthroughs
- Improve manufacturing competitiveness
- Novel materials to support Next Generation Manufacturing and clean energy manufacturing
- Competition to establish Innovation Hub for Critical Materials (create substitutes)

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## **Other Industry Initiatives**

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- Next Generation Manufacturing Processes, + \$77.4 M for innovations (e.g., bioprocessing) to make production more competitive and adaptable
- Industrial Technical Assistance, + \$50 M for new DOE-NIST partnership to retrofit cogeneration & waste heat recovery
- Manufacturing Energy Systems, + \$15 M for new program of University centers to help bridge innovation gap and support competitiveness/job creation

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## **Context 1: Clean Energy Competitiveness, PV Example**

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- In the early 1980s, U.S. firms were the undisputed global leaders in the wind and solar photovoltaics (PV) industries.
- In the 1990s, Japan became the global leader in the PV industry.
- In the 2000s, Germany took the lead in wind power and its feed-in tariff (FIT) propelled it to world leadership in large (utility-scale) PV too.
- Europe's PV demand growth spurred China's export-driven ascent to global leader in PV manufacturing.
- Many states have an RPS, which has goals similar to an FIT. Recent efforts to create a federal RPS fell short. The Administration proposes a broader CES.

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## **Context 2: Spending for Demonstration Projects**

- Innovation Valley of Death. Long-standing policy debate over the federal role in filling the gap between R&D and market commercialization.
- Demonstration projects tend to be very expensive.
- ARPA-E was created to spur development of “breakthrough” technologies.
- Recovery Act funded a fast-track loan guarantee program for commercial technologies.
- Budget deficit concerns tend to limit spending.

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## **Context 3: Funding Technology to Mitigate Climate Change**

- Debate over optimal energy measures to mitigate greenhouse gas emissions.
- Recovery Act provided record funding for clean energy technologies.
- The European Union has begun a cap-and-trade program; the recent U.S. effort fell short.
- The absence of cap & trade funding for clean energy technology may have prompted the large increase proposed for EERE programs.
- CRS Analysts: Jane Leggett (7-9525), Brent Yacobucci (7-9662), Jonathan Ramseur (7-7919).

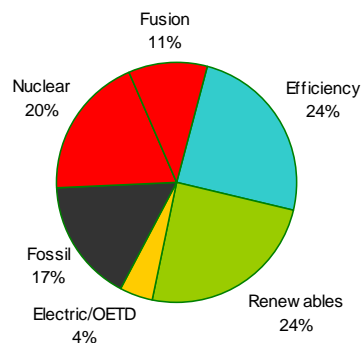
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## FY2010: Compare Efficiency, Renewables, Nuclear, and Fossil

- FY2010 funding for nuclear R&D (\$775 M) and fusion R&D (\$418 M) is highest (\$1,193 M)
- Efficiency R&D (\$983 M) is second
- Renewables R&D (\$964 M) is third
- Fossil R&D (\$660 M) is fourth
- Historically, much less spent for efficiency and renewables than for nuclear and fossil

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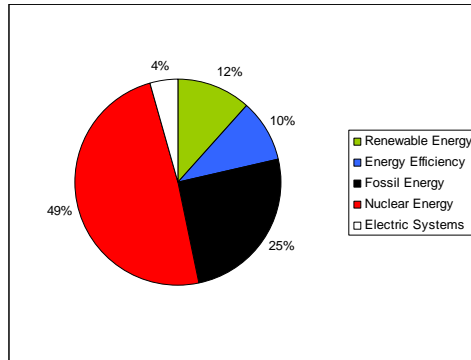
## Energy R&D Funding, FY2010



Source: DOE FY2012 Cong. Budget Request. Fusion is funded under Office of Science, all others under Energy Resources Supply and Conservation

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## DOE Energy R&D Funding Shares, FY1948-FY2010



Note: Nuclear includes fission and fusion

Source: DOE, An Analysis of Federal Incentives Used to Stimulate Energy Production, 1980; & DOE Budget Authority History Table.

## Context & Challenges for Congressional Staff

- Role of Government
- Budget deficit
- Trade deficit
- Energy security
- Energy prices
- Greenhouse gas emissions

Further information available to  
Congressional Staff:

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- CRS R41150, DOE FY2011 appropriations
- CRS R40669, DOE FY2010 appropriations
- CRS RL34417, DOE FY2009 appropriations
- CRS RS22858, on R&D Funding History
- All are on the CRS web site at <http://www.crs.gov/>
- Fred is at 7-7039, fsissine@crs.loc.gov

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