

# Cleantech Funding in the Recovery Act and FY10 Budget Request

Southampton-San Diego Cleantech Conference

June 5, 2009

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# **Investors demand Inclusion of Carbon Data in SEC Filings**

Reports argue institutional investors do not have access to enough climate change data in company reports for them to do their fiduciary duty

04 Jun 2009

# **Obama Green Stimulus to cut US Emissions by at least 61m Tonnes**

New research finds "Green New Deal" spending plan could have equivalent effect on cutting carbon emissions as taking 13 million cars off the road

# **The President and the Vice President At Signing of the American Recovery and Reinvestment Act February 17, 2009**

“We're not just going to help the economy recover. We're going to start building the economy for the future....

We are taking big steps down the road to energy independence, laying the groundwork for new green energy economies that can create countless well-paying jobs. It's an investment that will double the amount of renewable energy produced over the next three years.”

# Highlights

- The ARRA includes more than \$60 billion in clean energy investments
- President's budget invests \$15 billion each year for 10 years to develop clean energy: wind power and solar power, geothermal energy and clean coal technology

# Commitment to Clean Tech

## Clean Tech Goals of the Recovery Act

- Revive the renewable energy industry and provide the capital over the next three years to eventually double domestic renewable energy capacity
- Undertake the largest weatherization program in history by modernizing 75 percent of federal building space and more than one million homes

# Commitment to Clean Tech

- Invest in the clean energy technologies of the future to help lay the foundation for a robust and sustainable 21st century economy
- Rebuild the American economy by harnessing the power and potential of science and technological innovation, giving much-needed support for science programs that promise to generate jobs even as they develop alternative energy sources, increase energy efficiency, and accelerate the search for new medical diagnostics and cures.

# Clean Energy in the ARRA

- \$11 billion for a bigger, better, and smarter grid that will move renewable energy from the rural places it is produced to the cities where it is mostly used, as well as for 40 million smart meters to be deployed in American homes
- \$5 billion for low-income home weatherization projects
- \$4.5 billion to green federal buildings and cut our energy bill, saving taxpayers billions of dollars

# Clean Energy in the ARRA continued...

- \$6.3 billion for state and local renewable energy and energy efficiency efforts
- \$600 million in green job training programs \$100 million to expand line worker training programs and \$500 million for green workforce training
- \$2 billion in competitive grants to develop the next generation of batteries to store energy

# ARRA Funding - DOE

| Program   | \$ Auth. | \$ Awarded |
|---|----------|------------|
| Total   | 38.7B    | 4.1B       |
| Office of Energy Efficiency and Renewable Energy      | 16.8B    | 756M       |
| Loan guarantee program                                | 6B       | 2.8B       |
| Office of Environmental Mgmt                          | 6B       | 1M         |
| Office of Electricity Delivery and Energy Reliability | 4.5B     | 0          |
| Office of Fossil Energy                               | 3.4B     | 0          |
| Office of Science                                     | 1.6B     | 481M       |
| Advanced Research Projects Agency-Energy              | 0.4B     | 0          |

# Office of Energy Efficiency and Renewable Energy (\$16.8B)

\$3.2B for Energy Efficiency and Conservation Block Grants (\$2.8 billion for formula grants, remainder for competitive).

\$2.5B for Applied Research, Development, Demonstration, and Deployment, including \$800M for Biomass, \$400M for Geothermal, \$41.9M for Fuel Cell Markets, and \$93M for wind energy.

\$2B for Advanced Battery Manufacturing Grants.

\$400M for Transportation Electrification.

\$300M for an Alternative-Fueled-Vehicles Pilot Grant Program.

## **Office of Fossil Energy (\$3.4B)**

\$1.52B for industrial carbon capture and energy efficiency improvement projects and concepts for beneficial CO<sub>2</sub> reuse.

\$50M for site characterization activities in geologic formations.

\$20M for geologic sequestration training and research grants.

**Office of Electricity Delivery and Energy Reliability  
(\$4.5B) - Smart Grid**

## **Office of Science (\$1.6B)**

\$277M for Energy Frontier Research Centers.

\$90M for other core research.

## **Advanced Research Projects Agency-Energy (\$0.4B)**

\$400M to establish ARPA-E to support novel early-stage energy research, development of technologies, research and development of manufacturing processes, and coordination for technology demonstration and facilitation of technology transfer.

# ARRA Funding - DOT

| \$ Authorized | Highlights   |
|---------------|--|
| 48.1B         | \$1.5 billion discretionary grant program for surface transportation will allow projects to compete for grant funds based on how much their project is expected to reduce energy consumption or greenhouse gases, or both. |

# **Green Backs for Green Energy**

US Energy Department is to back  
alternative energy and energy-  
efficiency projects with \$10bn in loan

07 July 2008

# ARRA – Bonds, Loans, and Taxes

## Bond and Loan Programs:

- \$1.6B of new clean energy renewable bonds to wind, biomass, geothermal, hydropower, landfill gas, and marine renewables
- \$6B for Innovative Technology Loan Guarantee Program for renewable energy power generation and transmission projects

# ARRA – Bonds, Loans, and Taxes

## Some Tax Incentive Highlights:

- 30% investment tax credit for certain energy property (including certain fuel cell, solar, geothermal power production, small wind energy, combined heat and power system, and geothermal heat pump property)
- Renewable energy production tax credits are extended for energy produced from wind, geothermal, hydropower and landfill gas
- Tax credits for purchases of energy-efficient furnaces, windows and doors, or insulation

# **US Budget Proposals spell fresh Funding for Renewables Industry**

Department of Energy and Department of  
Interior earmark billions in funding for  
clean energy project

08 May 2009

# Commitment to Clean Tech

## OSTP Technology Investments in the 2010 Budget

**Clean energy technology** – In no area will innovation be more important than in the development of new technologies to produce, use, and save energy. The 2010 Budget sustains the Administration's commitment to developing a 21st century clean energy economy.

**Next-Generation Manufacturing Technologies** – The 2010 Budget provides significant funding for programs at the National Institute of Standards and Technology (NIST) that will foster innovation in manufacturing. While its initiatives are not solely directed at the manufacturing sector, the Economic Development Administration (EDA) will be spending at least \$50 million to promote regional innovation clusters and \$50 million to support business incubator networks.

**Education technology** – Supporting cutting-edge educational technology, modernizing science laboratories, and forging partnerships to improve the use of science and technology in classrooms are key priorities throughout federal investments in education.

# FY10 Budget Request – DOE Transformational Activities

- Funding in FY09, in the Recovery Act, and in FY10 will total \$1.2B for three transformational activities:
  - Energy Innovation Hubs.
  - Energy Frontier Research Centers.
  - Advanced Research Projects Agency-Energy (ARPA-E).

# FY10 Budget Request – DOE Transformational Activities

## Energy Innovation Hubs

- \$280 million eight Energy Innovation Hubs cross-disciplinary research and development focused on the barriers to transforming energy technologies into commercially deployable materials, devices and systems
- The Hubs focus on different areas of research and are scattered across DOE program offices:
  - Buildings systems design and Solar Electricity (EERE)
  - Grid materials, devices, and systems (OE)
  - Carbon capture sequestration (FE)
  - Extreme Materials and Modeling and Simulation (NE)
  - Fuels from Sunlight and Batteries and Storage (SC)

# FY10 Budget Request – DOE Transformational Activities

## Energy Frontier Research Centers

- \$100M Office of Science -- 46 Research Centers energy research challenges in renewable and low-carbon energy, energy efficiency, energy storage, and cross-cutting science.

# FY10 Budget Request – DOE Transformational Activities

## ARPA-E

- \$10M from Energy Transformation Acceleration Fund
- high-risk, high-reward energy research projects that can yield revolutionary changes in production, distribution, use
  - \$400M already from ARRA for initial setup
  - Development of breakthrough energy technologies

# FY10 Budget Request – DOE Office of Science

- \$4.9B, an increase of 4 percent over FY 2009, to continue to invest in science research.
  - In addition to \$1.6B of Recovery Act funding.
- Supports ongoing initiatives including:
  - Climate Change Science Program (\$165.3M)
  - Climate Change Technology Program (\$635.7M)
  - Networking and Information Tech R&D (\$447M)
  - National Nanotechnology Initiative (\$326.5M)
- Includes two of the Department's eight Energy Innovation Hubs (\$70M).

# **Obama ploughs \$1.8bn into US Biofuel Industry Makeover**

Agencies release biofuel targets and unveil  
\$1.8bn in funding designed to accelerate  
switch to second generation fuel

06 May 2009

# FY10 Budget Request – DOE

## Office of Energy Efficiency and Renewable Energy

- FY 2010 request of \$2.3B, an increase of 6 percent over FY 2009, builds on the Recovery Act funding of \$16.8B and includes:
  - Advanced Transportation Solutions (Biomass, Vehicles, and Fuel Cells programs: \$636.5M)
  - Renewable Power Solutions (Wind, Solar, Geothermal, and Water Power programs: \$475M)
  - Energy Efficiency Solutions (Buildings, Industrial Technologies, Weatherization and Intergovernmental and Federal Energy Management programs: \$671M)
- \$115M to establish the RE-ENERGYSE program (REgaining our ENERGY Science and Engineering Edge)
  - Higher Education (\$80M), Technical Training and K-12 Education (\$35M)
- Includes two of the Department's eight Energy Innovation Hubs (\$70M).

# FY10 Budget Request – DOE

Office of Energy Efficiency and Renewable Energy

## Clean, Renewable Energy Generation

- \$475M in a variety of renewable sources of electrical generation including:
  - Solar (\$320M, an 83 percent increase over FY 2009)
  - Wind (\$75M, a 36 percent increase over FY 2009)
  - Geothermal (\$50M, a 14 percent increase over FY 2009)

# FY10 Budget Request – DOE

Office of Energy Efficiency and Renewable Energy

## Energy Efficiency

- \$671M from EERE to accelerate deployment of clean, cost-effective, and rapidly deployable energy conservation measures.

# FY10 Budget Request – DOE

Office of Energy Efficiency and Renewable Energy

## Other Low Emission Energy Technologies

- Low-Emissions Transportation Technology: Vehicle technology program funded at \$333M, a 22 percent increase over FY 2009, to develop lithium-ion batteries, plug-in hybrids, drive-train electrification, as well as test new fuels blends, and research improvements to engine efficiency.
- Cleaner Coal: \$180M, a 20 percent increase over FY 2009, in carbon capture and sequestration research, development and deployment.
- Safe and Reliable Nuclear Energy: \$383M to research and develop advanced nuclear technology and fuel cycle technologies with improved safety and proliferation-resistant characteristics.

# **US government ups Smart Grid Support**

Interoperability standards outlined for  
Obama's "energy internet"

26 May 2009

# FY10 Budget Request – DOE

Office of Electricity Delivery and Energy Reliability

- \$208M, an increase of 52 percent over FY 2009.
- \$174M for smart grid research and modernization, an increase of 105 percent above FY 2009.
  - In addition to \$4.5B of Recovery Act funding.
- Supports the establishment of an Energy Innovation Hub.

# FY10 Budget Request – DOE Office of Nuclear Energy

- \$845 million. This is the final year of investments in demonstrating untested licensing process for new nuclear power plants.
- Two Energy Innovation Hubs (\$70M).

# FY10 Budget Request – DOE Office of Fossil Energy

- \$431 million plus \$3.4 billion in Recovery Act funds for clean coal research
  - Seeks to establish the capability of producing electricity from coal with dramatically reduced atmospheric emissions of carbon dioxide.
- Supports the establishment of an Energy Innovation Hub.

# FY10 Budget Request - DOT

- \$73.3B, compared to \$71.5B in FY09
  - \$1.8 billion for the New Starts program in the Capital Investment Grants account for investment in new transit infrastructure that is planned, constructed and operated by State and local governments.
  - \$10.3 billion to build, maintain, and improve mass transit projects.

# FY10 Budget Request - EPA

- \$10.5 billion for FY 2010 to carry out EPA's mission to protect human health and safeguard and improve the environment.
  - 37 percent increase over FY 2009
- Includes \$19 million to support the President's effort to develop a comprehensive energy and climate change plan to transition America to a clean energy economy, reduce oil usage, and slow global warming.

# FY10 Budget Request - EPA

- Enhanced toxics program: \$55 million, an increase of \$8 million over FY 2009, to screen, assess, and reduce chemical risks.
- Research and Development programs: \$842 million, an increase of \$52 million from FY 2009.
- Biofuels: \$5.6 million, an increase of \$5 million over FY 2009, for biofuels research and sustainability analysis.
- Green Infrastructure Research: \$3.6 million to expand green infrastructure research.
- Air toxics research: \$3.3 million to protect and improve the quality of the air.