Mission:
Strengthen America’s energy security, environmental quality, and economic vitality through R&D and public-private partnerships that –

- diversify the Nation's sources of energy;
- increase efficiency and productivity of the existing energy infrastructure;
- bring clean, reliable and affordable energy technologies to the marketplace; and,
- make a difference in the everyday lives of Americans by productively enhancing their energy choices and quality of life.
## Energy Efficiency and Renewable Energy
### FY 2009 - FY 2011 Budget Table

<table>
<thead>
<tr>
<th>Programs</th>
<th>FY 2009</th>
<th>FY 2010</th>
<th>FY 2011</th>
<th>FY11 vs FY10</th>
<th>$ Change</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomass and Biorefinery R&amp;D</td>
<td>214,245</td>
<td>777,138</td>
<td>220,000</td>
<td>0</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Vehicles Technologies</td>
<td>267,143</td>
<td>2,795,749</td>
<td>311,365</td>
<td>325,302</td>
<td>+ 13,937</td>
<td>4%</td>
</tr>
<tr>
<td>Hydrogen and Fuel Cell Technologies</td>
<td>164,638</td>
<td>42,967</td>
<td>174,000</td>
<td>137,000</td>
<td>- 37,000</td>
<td>-21%</td>
</tr>
<tr>
<td>Geothermal Technology</td>
<td>43,322</td>
<td>393,106</td>
<td>44,000</td>
<td>55,000</td>
<td>+ 11,000</td>
<td>25%</td>
</tr>
<tr>
<td>Solar Energy</td>
<td>172,414</td>
<td>115,963</td>
<td>247,000</td>
<td>302,398</td>
<td>+ 55,398</td>
<td>22%</td>
</tr>
<tr>
<td>Water Power</td>
<td>39,082</td>
<td>31,667</td>
<td>50,000</td>
<td>40,488</td>
<td>- 9,512</td>
<td>-19%</td>
</tr>
<tr>
<td>Wind Energy</td>
<td>54,370</td>
<td>106,932</td>
<td>80,000</td>
<td>122,500</td>
<td>+ 42,500</td>
<td>53%</td>
</tr>
<tr>
<td>Buildings Technologies (includes Hub)</td>
<td>138,113</td>
<td>319,186</td>
<td>222,000</td>
<td>230,698</td>
<td>+ 8,698</td>
<td>4%</td>
</tr>
<tr>
<td>Federal Energy Management Program</td>
<td>22,000</td>
<td>22,388</td>
<td>32,000</td>
<td>42,272</td>
<td>+ 10,272</td>
<td>32%</td>
</tr>
<tr>
<td>Industrial Technologies</td>
<td>88,196</td>
<td>261,501</td>
<td>96,000</td>
<td>100,000</td>
<td>+ 4,000</td>
<td>4%</td>
</tr>
<tr>
<td>Weatherization &amp; Intergovernmental</td>
<td>516,000</td>
<td>11,544,500</td>
<td>270,000</td>
<td>385,000</td>
<td>+ 115,000</td>
<td>43%</td>
</tr>
<tr>
<td>RE-ENERGYSE</td>
<td>0</td>
<td>0</td>
<td>50,000</td>
<td>+ 50,000</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Program Direction</td>
<td>127,620</td>
<td>80,000</td>
<td>140,000</td>
<td>200,008</td>
<td>+ 60,008</td>
<td>43%</td>
</tr>
<tr>
<td>Program Support</td>
<td>18,157</td>
<td>21,890</td>
<td>45,000</td>
<td>87,307</td>
<td>+ 42,307</td>
<td>94%</td>
</tr>
<tr>
<td>Facilities and Infrastructure</td>
<td>76,000</td>
<td>258,920</td>
<td>19,000</td>
<td>57,500</td>
<td>+ 38,500</td>
<td>203%</td>
</tr>
<tr>
<td>Congressional-Directed Activities</td>
<td>228,803</td>
<td>0</td>
<td>292,135</td>
<td>0</td>
<td>- 292,135</td>
<td>-100%</td>
</tr>
<tr>
<td>Use of Prior Year Balances</td>
<td>-13,238</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Total, EERE</strong></td>
<td>2,156,865</td>
<td>16,771,907</td>
<td>2,242,500</td>
<td>2,355,473</td>
<td>+ 112,973</td>
<td>5%</td>
</tr>
</tbody>
</table>
Energy Efficiency and Renewable Energy Budget History
FY2004-FY2011 (requested)
Planks

- Scale and Speed
- High Impact Innovation
- Hearts and Minds
- Talent
• Largest One Time Investment in Energy Efficiency

Total Funding: Market Share

- EECBG - $3.2 Billion
- SEP - $3.1 Billion
- WAP - $5 Billion
- Appliance Rebates - $300 Million

Total = $11.6 Billion
Efficiency

- RTR
- R Squared
- PHEVs
- FEMP
Solar Program RD&D Goals and Focus:
- Achieve grid parity with PV and other solar technologies by 2015 through advanced R&D over the entire supply chain.
- Expand funding of the Concentrated Solar Power program through launch of energy storage research and demonstration.
- Funding solar research across the entire value chain.
- Transforming solar markets through initiatives that break down market barriers and promote the adoption of solar power.

Market Status:
In 2008, total installed solar photovoltaic (PV) capacity reached 1,100 MW with 30 percent CAGR for the past 6 years.
In 2007, the first large-scale concentrating solar power (CSP) plant in 15 years came online in Nevada.

Photovoltaics (PV) – Direct Conversion of Light to Electricity

Concentrating Solar Power Technologies

FY 2011 Budget Request: $302.4 M (+22% FY2010)
Market Status:
- In 2008, the U.S. produced 9 billion gallons of ethanol or 6 percent of light duty fuel needs
- For the past 4 years the U.S. has led the world in ethanol production
- ~7 million flexible fuel vehicles on the road
- Cellulosic biofuels pilot/demo plants planned for 2010-2012

Biomass Program RD&D Goals and Focus:
- Achieve cost competitive cellulosic ethanol and other cellulosic and advanced biofuels through applied research, development and biorefinery demonstrations. Support infrastructure activities to enable 36 bgy biofuels by 2022.
- Advanced biofuels that reduce GHG emissions up to 80% compared to a 2005 gasoline baseline
- Advances in enzymes and catalysis
- Engineering of new microorganisms
- Novel sustainability indicators
- Test intermediate blends of ethanol

FY 2011 Budget Request: $220 M (0% FY2010)
Wind Energy

Wind Energy Resource Potential

Market Status:
U.S. installed capacity is 35,159 MW, including over 9,900 MW installed in 2009

Wind power is the leading source of new renewable energy capacity

U.S. investment in wind power was close to $20B in 2009

Wind Program RD&D Goals and Focus:
Facilitate wind energy’s rapid market expansion

Improve cost, performance and reliability of wind turbine technology

Supporting U.S. manufacturing and workforce development

Reducing barriers to deployment

Supporting grid interconnection

Facilitating offshore wind power deployment

FY 2011 Budget Request: $122.5 M (+53% FY2010)
Water Power

**Market Status:**
U.S. ocean power industry still in early technology development stages; no clear cost and performance data; high capital costs
U.S. wave & current resource estimated at 51 GW of extractable energy; Global OTEC resource = 3–5 TW
Remaining conventional hydropower potential is large (>50 GW), but limited by licensing and regulatory barriers, as well as environmental concerns

**Water Power Program RD&D Goals and Focus:**
- Reduce the barriers to deployment for marine and hydrokinetic technologies through technology development and testing, resource assessments, and environmental impact studies.
- Wave, current, tidal technologies:
  - Device and component development and testing
  - Resource assessments
- Conventional hydropower:
  - Efficiency and capacity upgrades
  - Licensing and environmental impacts
  - Resource assessments for non-powered dams, small hydropower facilities

**FY 2011 Budget Request:** $40.5 M (-19% FY2010)
Geothermal Energy

Industry Status:

Installed capacity of 3,000 MW e

Total of 132 new projects underway in 12 states, resulting up to 6,442 MW

EGS potential > 100 GW by 2050

Geothermal Program RD&D Goals and Focus:

- Demonstrate technical feasibility of Enhanced Geothermal Systems (EGS) in different geological conditions;
- Cost-shared step-out approach to EGS Demonstration Projects
- Emphasis on EGS while supporting undiscovered hydrothermal;
- Expand program to include co-produced fluids and power from oil and gas wells, and low-temperature resources;
- Remove institutional barriers for all geothermal resources
  - National Geothermal Data Systems
  - Workforce Development and Education

FY 2011 Budget Request: $55 M (+25% FY2010)
Office of Energy Efficiency and Renewable Energy

http://www.eere.energy.gov/

THANK YOU