

# Energy Efficiency as a Necessary Component of the Energy Savings and the American Recovery and Reinvestment Act of 2009

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# ARRA Background

- The American Recovery and Reinvestment Act of 2009 (ARRA, P.L. 111-5) was signed into law by President Obama on February 17, 2009. The stated purposes of the law include the following:
  - To preserve and create jobs and promote economic recovery.
  - To assist those most impacted by the recession.
  - To provide investments needed to increase economic efficiency by spurring technological advances in science and health.
  - To invest in transportation, environmental protection, and other infrastructure that will provide long-term economic benefits.
  - To stabilize state and local government budgets, in order to minimize and avoid reductions in essential services and counterproductive state and local tax increases.



# Energy Efficiency is Compatible With ARRA

Buying fuel is not as labor-intensive as energy efficiency or renewable energy expenditures » Money spent on energy efficiency goes further to stimulate the economy

Less spent on energy leaves more for other uses

- Low-income weatherization » more disposable income
- Government facilities » more money available for services

Infrastructure construction and renovation projects are the best time to add energy efficiency » less cost and inconvenience when combining energy efficiency with planned construction

“Smart Grid” includes demand response, flexible loads » this will require building energy management systems



# ARRA Divisions

- Division A – Appropriations Provisions
- Division B – Tax Incentive Provisions
  
- Dollar amounts are in billions  
(\$1,000,000,000) unless otherwise  
specified



## Other Acts

- Energy Policy Act of 2005 – EPACT 2005
- Energy Independence and Security Act of 2007 - EISA 2007
- Emergency Economic Stabilization Act of 2008 – EESA 2008



## Division A (appropriations)

Agency	\$ Billions
Department of Defense	0.3
<b>Department of Energy</b>	<b>36.0</b>
<b>General Services Administration</b>	<b>4.8</b>
Environmental Protection Agency	0.3
Department of Labor	0.5
Department of Transportation	0.1
Total, Energy Programs	42.0



# DOE Office of Energy Efficiency and Renewable Energy (EERE)

- R&D (includes Biomass [\$800 million] and Geothermal [\$400 million]) 2.5
- Energy Efficiency and Conservation Block Grants 3.2
- Weatherization Assistance Grant Program 5.0
- State Energy Grant Program 3.1
- Grants for Advanced Battery/Battery Component Manufacturing Facilities 2.0
- Grants for Electric Vehicle Technologies 0.4
- Total for EERE (including programs not shown above) \$16.8



## Other DOE Offices

- Office of Electricity Reliability and Energy Delivery (OE)
  - Grid Modernization/Smart Grid/Electricity Storage 4.5
- Office of Chief Financial Officer
  - Loan Guarantee Program for Renewable Energy and Transmission 6.0
- Power Marketing Administrations (BPA and WAPA) Transmission 3.3
- Office of Fossil Energy 3.4
- Office of Science 1.6
- Advanced Research Projects Agency (ARPA-E) 0.4



# GSA

- ARRA provides \$5.5 billion for the Federal Buildings Fund, of which at least \$4.5 billion is to be used to convert GSA facilities to high-performance green buildings as defined in EISA.
- ARRA also provides \$4 million to support the operations of GSA's Office of Green Buildings.
  - EISA (Title IV, Subtitle C) established the structure for an Office of Federal High-Performance Green Buildings in the General Services Administration (GSA).<sup>42</sup> The office has responsibility for developing a program to reduce total energy use (relative to the 2005 level) in federal buildings 30% by 2015. Further, for new federal buildings and major renovations, fossil energy use (relative to the 2003 level) is to be reduced 55% by 2010 and eliminated by 2030. EISA required GSA to establish an Office of Federal High-Performance Green Buildings to coordinate green building information and activities within GSA and with other federal agencies. The office must also develop standards for federal facilities, establish green practices, review budget and lifecycle costing issues, and promote demonstration of innovative technologies.
- ARRA appropriates \$300 million to GSA for the procurement of energy-efficient motor vehicles for use in federal agency fleets. Eligible vehicles include hybrids, plug-in hybrids, and pure electric vehicles.



## Division B (energy tax provisions)

Tax Incentive Provision	Estimated Budget Effect(\$ billions)
<b>Renewable Energy Electricity Production Tax Credit (PTC)</b>	<b>\$13.1</b>
Investment Tax Credit (ITC) in Place of the PTC	0.3
Business ITC, Repeal of Credit Caps	0.6
Clean Renewable Energy Bonds (CREBs)	0.6
Energy Conservation Bonds (ECBs)	0.8
<b>Efficiency Improvements to Existing Homes</b>	<b>2.0</b>
<b>Efficiency and Renewables Equipment, Credit Limit</b>	<b>0.3</b>
Advanced Energy Manufacturing Facility	1.6
Parity for Transportation Fringe Benefits	0.2
Plug-In Vehicle Tax Credit	2.0
Total, Selected Energy Tax Incentives	\$21.6



# Renewable Energy Production Tax Credit (PTC)

- The enacted law (§1101) would extend the placed-in-service date for wind facilities for three years, through the end of 2012. For other qualifying resource facilities (closed-loop biomass, open-loop biomass, geothermal, small irrigation, incremental hydropower, landfill gas, municipal waste, and marine/hydrokinetic), the PTC would be extended through the end of 2013. The Joint Committee on Taxation (JCT) estimates the cost at \$13.1 billion over 10 years.



# Energy Efficiency Improvements to Existing Homes

- EESA (P.L. 110-343, Division B) re-established for one year (2009) a 10% investment tax credit for home energy efficiency improvements, with caps of \$50 for fans, \$150 for furnaces and boilers, and \$300 for shell improvements.
- ARRA increases the credit to 30% for 2009 and extends it through 2010. Also, ARRA eliminates the individual equipment dollar caps and sets a new aggregate cap of \$1,500. JCT estimates the cost at \$2.03 billion over three years.



# Residential Efficiency and Renewables Equipment

- EESA (P.L. 110-343, Division B) established a 30% ITC for a variety of residential energy efficiency and renewable energy equipment. Under that law, caps were set on the credit for certain equipment and the credit had to be reduced if the qualifying residence received subsidized financing.
- ARRA eliminates the caps on residential wind, geothermal, and solar thermal equipment. It also repeals the subsidized financing reduction for residential solar, geothermal, wind, and fuel cells. JCT estimates the cost at \$268 million over nine years.



# The Contribution of IEA Annex 46 to ARRA

“Shovel-ready” “Need for speed” » Design guidance and prescriptive measures can reduce time and money spent on initial technology evaluations and audits

- Annex 46 Templates can provide design guidance
- Even if one “over conserves,” the consequences are still more reductions in energy and emissions and more money spent on labor » these are compatible with ARRA objectives

Identifying the best technologies, products, procedures, program metrics, etc. for energy efficiency and renewable energy

- Annex 46 is a venue for international information sharing and technology transfer
- This can also promote exports from countries that have developed the best state-of-the-art in energy efficiency



# Conclusions

The large expenditures from ARRA will be having some big impacts on energy efficiency programs in the US.

Promoting energy efficiency and renewable energy is very consistent with ARRA's objectives. In fact, energy efficiency investments are one of the best means to directly and quickly stimulate the economy.

IEA Annex 46 can improve the speed, effectiveness and scope of ARRA-funded energy efficiency programs.



# Questions?

Thank-you.