

ARRA Energy Report Card: Two Years Later

<https://marketpublishers.com/r/A1B6B1D1AA9EN.html>

Date: January 2011

Pages: 212

Price: US\$ 4,950.00 (Single User License)

ID: A1B6B1D1AA9EN

Abstracts

ProdUnit Price (Global Site License): US\$ 7,425.00

Introduction

At \$94.8 billion, clean energy investments account for the largest portion, 30 percent, of ARRA appropriations directed for innovative infrastructure improvements. This public spending in the form of direct funds and tax incentives were appropriated to encourage innovation and adoption of clean energy technologies, establishing a foundation for a national transition to a clean energy economy. ARRA energy-related funding not only presents potential near-term economic benefits, but also long-term economic and strategic investment and a transformative opportunity for the energy sector.

The greatest opportunities to reduce energy consumption and carbon emissions can be found in the transportation, power, and residential and commercial buildings sectors. To this end, ARRA clean energy provisions represent an array of investments in advances in clean transportation, renewable power generation, modernization of the electric transmission and distribution grid, carbon capture and sequestration, and building efficiency. These investments support the development, production, and/or deployment of a host of both new and existing technologies, industry training to install, operate, and maintain these technologies, and community outreach programs to facilitate market conditioning to accelerate adoption of new, energy efficient products and methods.

The Transportation Sector received the greatest stimulus boost in terms of sheer dollar allotment with more than \$22 billion to promote the development, production, and purchase of energy efficient transportation solutions and technologies. ARRA funding of mass transit will be essential to reversing the years of infrastructure deterioration, the declining service reliability for transit riders, the increasing maintenance costs for transit operators, and the worrisome limitations on the ability to expand system capacity at a

time of high demand. Meanwhile, ARRA investment in advanced vehicles and fuels has the potential to someday deliver affordable electric cars that can drive 300 miles on a single charge, powered by \$10 of clean electricity instead of \$50 of oil—a scenario that could emancipate the country from its reliance on imported oil.

The Power Sector received the second highest allotment of ARRA funding with almost \$21 billion, lead by investments in the smart grid that approached \$11 billion. Smart grid investment, can be regarded as the biggest stimulus winner in terms of latent impact because the favorable implementation of various other ARRA energy initiatives—increasing renewable electricity generation and enabling electric vehicles while simultaneously ensuring reliability of electric service—hinges on successful grid modernization. In addition, maximizing the efficiency of the smart grid is widely viewed as the incident that will usher in an era of energy independence for the U.S. ARRA has demonstrated substantial effects within the Power Sector. For example, growth in renewable energy has increased since 2009, despite recessionary conditions, due in large part to ARRA. This will enable the U.S. to make significant progress toward meeting a goal of doubling its renewable generation capacity by 2012. Without ARRA investments, it is likely that the pace of renewable energy project construction and manufacturing growth would have otherwise slowed dramatically due the sharp economic and financial downturn over this period.

Lastly, the more than \$18 billion dedicated to the Building Sector will aid the anticipated—and substantial—increase in building renovation aimed at making structures more energy efficient to combat rising energy costs and adverse environmental impacts. Energy efficiency gains in residential and commercial buildings as a direct result of ARRA are expected to decrease overall energy consumption of these sectors by nearly 3% in 2015. The EIA estimates that the savings in energy expenditures from these efficiency gains will exceed \$13 billion in 2020.

Finally, one key success factor for the ARRA has been its ability to leverage federal funding with co-investments from the private sector and state and local governments to complement its investments in a wide range of activities. ARRA direct investments and tax incentives of about \$95 billion in clean energy programs requiring co-investments will support about \$250 billion in total investments in clean energy markets.

Contents

Chapter 1: Executive Summary

Report Scope

American Recovery and Reinvestment Act

Figure 1-1: ARRA Public Investment Funding by Sector (in \$ B)

Figure 1-2: ARRA Clean Energy Appropriations by Type (in \$ billion)

Table 1-1: ARRA Clean Energy Provisions by Category (in \$ B)

ARRA in the Power Sector

Table 1-2: ARRA Power Sector Direct Investment Provisions (in \$ B)

ARRA in the Transportation Sector

Table 1-3: ARRA Clean Energy Programs, Transportation (in \$ B)

ARRA in the Buildings Sector

Table 1-4: ARRA Clean Energy Programs, Residential and Commercial Buildings (in \$ B)

ARRA Cross-Sector Energy Appropriations

Economic Impact of ARRA

Figure 1-3: Macroeconomic Impact of ARRA (in % change and #)

ARRA Impact: Clean Energy Markets-Power Sector

Renewable Generation

Carbon Emissions

Grid Modernization

ARRA Impact: Clean Energy Markets - Transportation Sector

Advanced Vehicles and Fuels

Mass Transit and High-Speed Rail

ARRA Impact: Clean Energy Markets-Buildings Sector

Report Format

Report Methodology

Chapter 2: ARRA in the Power Sector

ARRA Grid Modernization Investments

Table 2-1: ARRA Clean Energy Programs, Grid Modernization (in \$ B)

Smart Grid Investment Grant Program

Table 2-2: ARRA Grid Modernization Programs, Smart Grid Investment Grant Program (in \$ million)

Increased Borrowing Authority-Bonneville and Western Area Power Administrations

Smart Grid and Energy Storage Demonstration Program

Table 2-3: ARRA Grid Modernization Programs, Smart Grid and Energy Storage Demonstration Program (in \$ million)

Smart Grid Demonstration Programs

Energy Storage Demonstration Programs

Interconnection Transmission Planning & Analysis

Table 2-4: ARRA Grid Modernization Programs, Interconnection Planning & Analysis Program (in \$ million)

Enhancing State and Local Government Energy Assurance

State Electricity Regulators Assistance Initiative

Interoperability Standards and Framework

Markets Impacted by ARRA Grid Modernization Investments

Market for Smart Grid Technologies and Components

Technologies

Market Size

Figure 2-1: Smart Grid Market Size, 2009, 2015 (in \$ B)

Market for Utility Scale Energy Storage

Technologies

Market Size

Figure 2-2: Global Energy Storage Market for Utility Applications by Technology, 2009, 2015 (in \$M)

Figure 2-3: Global and US Value of Energy Storage Market for Utility Applications, 2009, 2015 (in \$ B)

ARRA Renewable Generation Investments

Table 2-5: ARRA Clean Energy Programs, Renewable Generation (in \$ B)

Innovative Technology Loan Guarantee Program

Geothermal Technologies Program

Table 2-6: ARRA Renewable Generation Programs, Geothermal Technologies Program (in \$ million)

Solar Technologies Program

Table 2-7: ARRA Renewable Generation Programs, Solar Technologies Program (in \$ million)

Wind Energy Program

Table 2-8: ARRA Renewable Generation Programs, Wind Energy Program (in \$ million)

Table 2-9: ARRA Renewable Generation Programs, Facility Improvements at NREL Program (in \$ million)

Federal Renewable Energy Zones

Massachusetts Wind Technology Center

Modernizing US Hydropower Infrastructure

Table 2-10: ARRA Renewable Generation Programs, Modernizing US Hydropower Infrastructure Program (in \$ million)

Community Renewable Energy Deployment

Table 2-11: ARRA Renewable Generation Programs, Community Renewable Energy Deployment Program (in \$ million)

Markets Impacted by ARRA Renewable Generation Investments

Market for Geothermal Power

Technologies

Market Size

Figure 2-4: Global & US Value of Geothermal Power Generated, 2009, 2015 (in

\$ M)

Market for Solar Power

Technologies

Market Size

Figure 2-5: Global Solar Market, 2009, 2015 (in \$ B)

Figure 2-6: US Solar Market, 2009, 2015 (in \$ B)

Market for Wind Power

Technologies

Market Size

Table 2-12: Global Wind Capacity, 2009-2015 (in GW)

Table 2-13: Global Wind Capacity, 2009-2015 (in GW)

Figure 2-7: US Market Value Wind Energy Manufacturing, 2009, 2015 (in \$ B)

Market for Hydropower

Conventional Hydropower Technologies

Figure 2-8: Global Conventional Hydropower Capacity, 2009, 2015 (in GW)

Ocean Hydropower Technologies

Figure 2-9: Global Ocean Hydropower Capacity, 2009, 2015 (in GW)

Market Size

Figure 2-10: Global & US Value of Hydro Systems, 2009, 2015 (in \$ B)

ARRA Clean Coal and CCS Investments

Table 2-14: ARRA Clean Energy Programs, Carbon Capture & Sequestration (in \$ B)

Industrial Carbon Capture and Storage Applications

Table 2-15: ARRA Carbon Capture and Sequestration Programs, Industrial Carbon Capture and Storage Applications Project Awards (in \$ million)

Fossil Energy Research and Development Programs

Clean Coal Power Initiative Round III

Table 2-16: ARRA Carbon Capture & Sequestration Programs, Clean Coal Power Initiative Round III (in \$ million)

Table 2-17: ARRA Carbon Capture & Sequestration Programs, Geologic Sequestration Site Characterization (in \$ million)

Markets Impacted by ARRA Clean Coal and CCS Investments

Technologies

Figure 2-11: Global Electricity Generation by Clean Coal Technology, 2009, 2015 (in terawatt hours)

Figure 2-12: Pathway to Zero Emissions Coal Combustion

Figure 2-13: Carbon Capture Options in Development

Figure 2-14: Carbon Sequestration Options

Market Size

Figure 2-15: Global CCT Electricity Value, 2009, 2015 (in \$B)

Chapter 3: ARRA in the Transportation Sector

Table 3-1: ARRA Clean Energy Programs, Transportation (in \$ B)

ARRA Advanced Vehicles and Fuels Investments

Advanced Battery Manufacturing Grants

Transportation Electrification Program

Energy Efficient Federal Motor Vehicle Fleet Procurement Program

Alternative-Fueled Vehicles Pilot Grant Program

Vehicle Technologies Program

Biomass Program

Table 3-2: ARRA Transportation Programs, Biomass Program (in \$ million)

Innovative Technology Loan Guarantee Program

Markets Impacted by ARRA Investment in Advanced Vehicles and Fuels

Market for Advanced Electric Vehicles

Technologies

Market Size

Figure 3-1: Global Sales of Advanced Electric Vehicles by Type, 2009, 2015 (in # of vehicles)

Figure 3-2: Global Advanced EV Components and Infrastructure Market Size, 2009 & 2015 (in \$ B)

Market for Advanced Fuels

Figure 3-3: Global and US Bio-electricity Generation, 2009, 2015 (in GWh)

Technologies

Figure 3-4: Global and US Bio Ethanol Capacity, 2009, 2015 (in gallons M)

Figure 3-5: Global and US Bio Diesel Capacity, 2009, 2015 (in gallons M)

Market Size

Figure 3-6: Global Market Value of Bioenergy and Biofuel Manufacturing, 2009, 2015 (in \$ B)

ARRA Mass Transit Investments

Transit Capital Assistance

Table 3-3: ARRA Transportation Programs, Transit Capital Assistance Program (in \$ million)

National Railroad Passenger Corporation (Amtrak)

New and Small Starts Program

Fixed Guideway Infrastructure Investment

High Speed Intercity Passenger Rail Program

Markets Impacted by ARRA Mass Transit Investments

Market for Mass Transit

Conventional Mass Transit Technologies

Figure 3-7: Transit Passenger Miles by Type of Transportation Service, 2009

High Speed Rail (HSR) Technologies

Market Size

Figure 3-8: US Conventional Mass Transit Market, 2009, 2015 (in \$B)

Table 3-4: Average Annual Market Value of HSR Manufacturing by Type of HSR System and Component, 2010-2015 (in \$M)

Figure 3-9: Market Value of HSR Manufacturing, 2009 & 2015 (in \$B)

Chapter 4: ARRA in the Buildings Sector

ARRA Residential and Commercial Buildings Energy Efficiency Investments

Table 4-1: ARRA Clean Energy Programs, Residential and Commercial Buildings (in \$ B)

Weatherization Assistance Program

Federal Buildings Fund

Table 4-2: ARRA Energy Efficiency Programs, Federal Buildings Fund Programs (in \$ million)

State Energy Program

Public Housing Capital Fund

Energy Efficiency and Conservation Block Grant Program

Retrofit Ramp-Ups in Energy Efficiency

Veterans Health Administration Medical Facilities Non-Recurring Maintenance and Energy Projects

Energy Efficient Building Technologies Initiative

Table 4-3: ARRA Energy Efficiency Programs, Energy Efficient Building Technologies Initiative (in \$ million)

Energy Efficient Appliance Rebates/ENERGY STAR Program

Green Retrofit Program for Multifamily Housing

Energy Conservation Investment Program

Net Zero Energy Residential Test Facility

Markets Impacted by ARRA Residential and Commercial Buildings Energy Efficiency Investments

Market for Energy Efficient Building Technologies

Residential Energy Efficiency Technologies

Figure 4-1: Breakdown of Residential Energy Usage, US

Commercial Energy Efficiency Technologies

Market Size

Figure 4-2: Global and US Green-Building Renovations Market, 2009, 2015 (in \$ B)

Figure 4-3: Residential Energy Efficiency Renovations Market, 2009, 2015 (in \$B)

Figure 4-4: Global ICT-Enabled Energy and Emissions Reductions, Buildings, 2009-2015 (in B kWh and M tonnes CO₂e; relative to 2005 benchmark)

Chapter 5: ARRA Cross-Sector Energy Appropriations

ARRA Energy Research & Job Training Investments

Table 5-1: ARRA Clean Energy Programs, Energy Research & Job Training (in \$ B)

Competitive Grants for Worker Training and Placement in High Growth and Emerging Industry Sectors

Advanced Research (ARPA-E)

Table 5-2: ARRA Energy Research and Job Training, ARPA-E Programs (in \$ million)

National Laboratory Facilities

Table 5-3: ARRA Energy Research & Job Training, National Laboratory Facilities (in \$ million)

Workforce Development

Table 5-4: ARRA Energy Research & Job Training Programs, Workforce Development Program (in \$ million)

Geologic Sequestration Training and Development

Small Business Clean Energy Innovation Projects

Table 5-5: ARRA Energy Efficiency Programs, Small Business Clean Energy Innovation Projects (in \$ million)

ARRA Clean Energy Tax Provisions

Clean Energy Manufacturing Tax Credits

New Clean Renewable Energy Bonds

Qualified Energy Conservation Bonds

Extension of Renewable Energy Production Tax Credit

Election of Investment Credit in Lieu of Production Credit

Repeal of Certain Limits on Business Credits for Renewable Energy Property

Energy Cash Assistance Grants

Plug-in Electric Drive Vehicle Credit

Plug-In Electric Drive Conversion Kits

Plug-In Electric Vehicle Credit

Temporary Increase in Credit for Alternative Fuel Vehicle Refueling Property

Residential Energy Efficient Property Credit

Residential Alternative Energy Property Credit

Chapter 6: Recipient Profiles

Table 6-1: Recipient Companies Profiled (\$M)

A123 Systems

Table 6-2: A123 Systems Profile

Table 6-3: A123 Systems, ARRA Clean Energy Awards (\$ M)

Abound Solar

Table 6-4: Abound Solar Profile

Table 6-5: Abound Solar, ARRA Clean Energy Awards (\$ M)

Air Products and Chemicals

Table 6-6: Air Products and Chemicals Profile

Table 6-7: Air Products and Chemicals, ARRA Clean Energy Awards (\$ M)

AltaRock Energy

Table 6-8: AltaRock Energy Profile

Table 6-9: AltaRock Energy, ARRA Clean Energy Awards (\$ M)

American Electric Power

Table 6-10: American Electric Power Profile

Table 6-11: American Electric Power, ARRA Clean Energy Awards (\$ M)

Archer Daniels Midland

Table 6-12: Archer Daniels Midland Profile

Table 6-13: Archer Daniels Midland, ARRA Clean Energy Awards (\$ M)

Beacon Power Corporation

Table 6-14: Beacon Power Corporation Profile

Table 6-15: Beacon Power Corporation, ARRA Clean Energy Awards (\$ M)

BlueFire Renewables, Incorporated

Table 6-16: BlueFire Renewables, Incorporated Profile

Table 6-17: BlueFire Renewables, Incorporated, ARRA Clean Energy Awards (\$ M)

BrightSource Energy

Table 6-18: BrightSource Energy Profile

Table 6-19: BrightSource Energy, ARRA Clean Energy Awards (\$ M)

Cannon Power Group

Table 6-20: Cannon Power Group Profile

Table 6-21: Cannon Power Group, ARRA Clean Energy Awards (\$ M)

CenterPoint Energy

Table 6-22: CenterPoint Energy Profile

Table 6-23: CenterPoint Energy, ARRA Clean Energy Awards (\$ M)

Delphi

Table 6-24: Delphi Profile

Table 6-25: Delphi, ARRA Clean Energy Awards (\$ M)

Duke Energy

Table 6-26: Duke Energy Profile

Table 6-27: Duke Energy, ARRA Clean Energy Awards (\$ M)

First Wind Holdings, LLC

Table 6-28: First Wind Holdings, LLC Profile

Table 6-29: First Wind Holdings, LLC, ARRA Clean Energy Awards (\$ M)

Florida Power & Light Company

Table 6-30: Florida Power & Light Company Profile

Table 6-31: Florida Power & Light Company, ARRA Clean Energy Awards (\$ M)

General Motors Company

Table 6-32: General Motors Company Profile

Table 6-33: General Motors Company, Incorporated, Selected ARRA Clean Energy Awards (\$ M)

Johnson Controls, Incorporated

Table 6-34: Johnson Controls, Incorporated Profile

Table 6-35: Johnson Controls, Incorporated, ARRA Clean Energy Awards (\$ M)

Nevada Geothermal Power, Incorporated

Table 6-36: Nevada Geothermal Power, Incorporated Profile

Table 6-37: Nevada Geothermal Power, Incorporated, ARRA Clean Energy Awards (\$ M)

Solyndra, Incorporated

Table 6-38: Solyndra, Incorporated Profile

Table 6-39: Solyndra, Incorporated ARRA Clean Energy Awards (\$ M)

Summit Power Group, Incorporated

Table 6-40: Summit Power Group, Incorporated Profile

Table 6-41: Summit Power Group, Incorporated ARRA Clean Energy Awards (\$ M)

Chapter 7: Comparative Analysis

Overview of ARRA Investment

Table 7-1: ARRA Clean Energy Provisions by Category (in \$ B)

Power Sector

ARRA Grid Modernization Investments

Table 7-2: ARRA Clean Energy Programs, Grid Modernization (in \$ B)

ARRA Renewable Generation Investments

Table 7-3: ARRA Clean Energy Programs, Renewable Generation (in \$ B)

ARRA Funding for the Geothermal Technologies Program

Table 7-4: ARRA Renewable Generation Programs, Geothermal Technologies Program (in \$ million)

ARRA Investments in DOE's Solar Technologies Program

Table 7-5: ARRA Renewable Generation Programs, Solar Technologies Program (in \$ million)

ARRA Investments in Wind Energy Program

Table 7-6: ARRA Renewable Generation Programs, Wind Energy Program (in \$ million)

Modernizing US Hydropower Infrastructure through ARRA Funding

Table 7-7: ARRA Renewable Generation Programs, Modernizing US Hydropower Infrastructure Program (in \$ million)

ARRA Clean Coal and CCS Investments

Table 7-8: ARRA Clean Energy Programs, Carbon Capture &

Sequestration (in \$ B)

Transportation Sector

ARRA and the Transportation Sector

Table 7-9: ARRA Clean Energy Programs, Transportation (in \$ B)

Buildings Sector

ARRA Residential and Commercial Buildings Energy Efficiency Investments

Table 7-10: ARRA Clean Energy Programs, Residential and Commercial Buildings (in \$ B)

Energy Efficient Building Technologies Initiative

Table 7-11: ARRA Energy Efficiency Programs, Energy Efficient Building Technologies Initiative (in \$ million)

Conclusion

I would like to order

Product name: ARRA Energy Report Card: Two Years Later

Product link: <https://marketpublishers.com/r/A1B6B1D1AA9EN.html>

Price: US\$ 4,950.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/A1B6B1D1AA9EN.html>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:
Last name:
Email:
Company:
Address:
City:
Zip code:
Country:
Tel:
Fax:
Your message:

****All fields are required**

Customer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <https://marketpublishers.com/docs/terms.html>

To place an order via fax simply print this form, fill in the information below and fax the completed form to +44 20 7900 3970