Summary of
The American Recovery and Reinvestment Act of 2009
for the Clean Energy Industry

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Disclaimer

This document has been compiled by the New England Clean Energy Council using information available from various credible sources. Though every effort has been taken to ensure the correctness of the data, any errors present are not the responsibility of the New England Clean Energy Council or anyone acting on behalf of the council. A lawyer should be consulted before making any business decisions based on the information provided.

Acknowledgements & Data Sources

The New England Clean Energy Council would like to acknowledge the following websites and data sources.

- DSIRE (Database of State Incentives for Renewable Energy): http://www.dsireusa.org
- http://www.recovery.gov for the original text of the American Recovery and Reinvestment Act of 2009
- Congressional Research Service document: Energy Provisions in the American Recovery and Reinvestment Act of 2009 (P.L. 111-5)
- The website of the Department of Energy
- The website of the American Wind Energy Association
- The website of the Solar Energy Industries Association

The first two data sources in the list above have been used extensively in compiling this document.

About the Editor

This document has been compiled and edited by Deepak Jeevan Kumar, a first year MBA student at the Yale School of Management and an intern at the New England Clean Energy Council.

At the Yale School of Management, Deepak is a co-chair of the energy club. He is interested in identifying & nurturing new clean technologies and in analyzing the impact of government policies on these investments.

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Summary by Industry

	Solar	Wind	Fuel Cells	Batteries	Hybrids	Geothermal	Combined Heat and Power	Alternative Refueling Stations	Biomass	Carbon Sequestration
Production Tax Credit (extended by 3 years)		2.1 ¢ / kWh				2.1 ¢ / kWh			2.1 or 1.0 ¢ / kWh	
Investment Tax Credit	30%	10% or 30%	30%			10%	10%		30%	
Treasury Grant	30%	10% or 30%	30%			10%	10%		30%	
Repeal of Subsidized Energy Financing on ITC	Yes	Yes	Yes			Yes	Yes		Yes	
Bonus Depreciation	50%	50%	50%			50%	50%		50%	
Residential Tax Credit	30%	30%	30%			30%				
Manufacturing Tax Credit	30%	30%	30%	30%	30%	30%	30%			30%
Special Federal Grants				$2 billion						
Other Tax Credits					$2,500 to $7,500			30% or 50%		
Government Purchases					$300 million					
CREBs	Yes	Yes	Yes	Yes	Yes	Yes	Unclear		Yes	
Renewable Energy Loan Guarantee	Yes	Yes	Yes	Unclear	Unclear	Yes	Unclear		Unclear	
DOE R&D						$400 million			$800 million	Up to $3.4 billion

Table of Contents

Introduction to the ARRA 2009

The American Recovery and Reinvestment Act of 2009, popularly known as the stimulus package, was signed in to law by President Obama on February 17, 2009. This will be referred to as the ARRA 2009 or the ARRA in this document.

Aim and Special Purposes

The aim of this act as quoted in the original text is:

> *Making supplemental appropriations for job preservation and creation, infrastructure investment, energy efficiency and science, assistance to the unemployed, and State and local fiscal stabilization, for the fiscal year ending September 30, 2009, and for other purposes.*

The original text further states the special purposes of this act as

(1) To preserve and create jobs and promote economic recovery.
(2) To assist those most impacted by the recession.
(3) To provide investments needed to increase economic efficiency by spurring technological advances in science and health.
(4) To invest in transportation, environmental protection, and other infrastructure that will provide long-term economic benefits.
(5) To stabilize State and local government budgets, in order to minimize and avoid reductions in essential services and counterproductive state and local tax increases.

Two Divisions: Div. A (Appropriations) and Div. B (Tax and Other Provisions)

The Appropriations provisions in Division A related to the clean energy industry are predominantly in "Title IV – Energy and Water Development" of that division.

The Tax provisions in Division B relevant to the clean energy are predominantly in "Title I – Tax Provisions" of that division. The relevant subtitles are:

- Subtitle B – Energy Incentives
- Subtitle D – Manufacturing Recovery Provisions
- Subtitle G – Other Provisions

Source of the ARRA 2009

The original text of the bill can be found at:
http://www.whitehouse.gov/the_press_office/ARRA_public_review/

Relevant Prior Acts of the Congress

The ARRA 2009 modifies and/or extends many of the provisions introduced in the Energy Independence Act and Security Act of 2007 and the Energy Improvement and Extension Act of 2008. The tax related provisions are present in the United States tax code. This document discusses the appropriations/provisions that are currently valid – these could have been introduced first in any of the above or other acts of Congress.

Batteries

Key Messages

Provision	Benefits/Concerns
$2 billion in grants	• Jumpstart U.S. based manufacturers
Renewable Energy Loan Guarantee Program	• $6.0 billion in loans to be guaranteed by the DOE • But criteria are not determined yet and could be very stringent

$2 billion in grants

Sectors	Commercial, Industrial
Technologies	Advanced lithium ion batteries, hybrid electrical systems, component manufacturers, and software designers
Incentive Amount	Grant amount per manufacturer not determined yet
Maximum Limit	$2 billion
Eligibility	Manufacturers of advanced battery systems and vehicle batteries produced in the United States
Exceptions	Only for U.S. based manufacturers
Expiry	Unknown / not yet determined+
Source	ARRA 2009: H.R. 1-24

+ DOE has announced 2 grants on Mar 19, 2009.

- Recovery Act - Electric Drive Vehicle Battery and Component Manufacturing Initiative (Deadline May 19, 2009)
- Recovery Act - Transportation Electrification (Deadline May 13, 2009)

At this point it is unclear if all of the $2 billion dollars will be allocated in these grants. More details can be found at:
http://www07.grants.gov/search/search.do?&mode=VIEW&flag2006=false&oppId=46164
http://www07.grants.gov/search/search.do?&mode=VIEW&flag2006=false&oppId=46161

Manufacturing Tax Credits (30%)

Up to 30% of manufacturing investments in the U.S. can claimed under tax credits. This cannot be claimed along with ITC. The U.S. Treasury will release more details after consultation with the Department of Energy by Aug 16, 2009.

Other Incentives

CREBs, renewable energy loan guarantees, R&D grants and other incentives are described in the “Direct-Impact Incentives” and “Indirect-Impact Incentives” sections.

Hybrids

Key Messages

Provision	Benefits/Concerns
$2 billion in grants	• Jumpstart U.S. based manufacturers
Increase in tax credits for vehicles	• Up to $7,500 per vehicle • Reduces net acquisition cost of hybrid vehicles
$300 million for government purchases	• Assures additional immediate revenues for manufacturers of higher fuel economy vehicles
Renewable Energy Loan Guarantee Program	• $6.0 billion in loans to be guaranteed by the DOE • But criteria are not determined yet and could be very stringent

$2 billion in grants

Sectors	Commercial, Industrial
Technologies	Advanced lithium ion batteries, hybrid electrical systems, component manufacturers, and software designers
Incentive Amount	Grant amount per manufacturer not determined yet
Maximum Limit	$2 billion
Eligibility	Manufacturers of advanced battery systems and vehicle batteries produced in the United States
Exceptions	Only for U.S. based manufacturers
Expiry	Unknown / not yet determined +
Source	ARRA 2009: H.R. 1-24

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At this point it is unclear if all of the $2 billion dollars will be allocated in these grants. More details can be found at:
http://www07.grants.gov/search/search.do?&mode=VIEW&flag2006=false&oppId=46164
http://www07.grants.gov/search/search.do?&mode=VIEW&flag2006=false&oppId=46161

Government purchases ($300 million)

Sectors	Government (administered by GSA)
Technologies	Capital expenditures and necessary expenses of acquiring motor vehicles with higher fuel economy, including: hybrid vehicles; electric vehicles
Incentive Amount	Division not specified
Maximum Limit	$300 million
Eligibility	Higher fuel economy vehicles
Exceptions	None specified
Expiry	Sep 30, 2011
Source	ARRA 2009: H.R. 1-36

DOT released $100 million for public transit agencies through grants. It is unclear if this funding is a part of the $300 million allocated under the ARRA 2009. Details can be found at: http://www07.grants.gov/search/search.do?&mode=VIEW&flag2006=false&oppId=45906

Tax Credits for New Hybrids ($2,500 to $7,500)

Sectors	Personal use
Technologies	Purchase of new plug-in electric drive motor vehicles
Incentive Amount	$2,500-$7,500
Maximum Limit	200,000 cars per manufacturer followed by a phase-out period
Eligibility	Plug-in electric drive motor vehicles
Exceptions	None specified
Expiry	After the 200,000 per manufacturer limit followed by a phase-out period
Source	ARRA 2009: Section 1141 (H.R. 1-212)

Tax Credits for Conversion Kits (10%)

Sectors	Personal use
Technologies	Conversion of any vehicle in to a qualified plug-in electric drive motor vehicle
Incentive Amount	10%
Maximum Limit	$4,000
Eligibility	Conversion in to plug-in electric drive motor vehicles after Feb 17, 2009
Exceptions	None specified
Expiry	Dec 31, 2011
Source	ARRA 2009: Section 1143 (H.R. 1-217)

Manufacturing Tax Credits (30%)

Up to 30% of manufacturing investments in the U.S. can claimed under tax credits. This cannot be claimed along with ITC. The U.S. Treasury will release more details after consultation with the Department of Energy by Aug 16, 2009.

Other Incentives

CREBs, renewable energy loan guarantees, R&D grants and other incentives are described in the “Direct-Impact Incentives” and “Indirect-Impact Incentives” sections.

Solar

Key Messages

Provision	Benefits/Concerns
New Treasury Grant equivalent to 30% of investment	• Alleviate the problems caused by the inactivity in the tax equity market • Enables increased investments in new projects • The funds have not yet started to flow in
Repeal of subsidized energy financing on ITC	• ITC can be used in conjunction with other subsidies for renewable energy projects
50% bonus depreciation	• Recover costs of capital expenditures faster by immediately writing off 50% of the cost of depreciated property
Renewable Energy Loan Guarantee Program	• $6.0 billion in loans to be guaranteed by the DOE • But criteria are not determined yet and could be very stringent
30% Residential Tax Credit with no limit	• Will benefit manufacturers who sell solar panels and solar water heating systems to homes

Investment Tax Credits (30%)

Sectors	Commercial, Industrial, Utility
Technologies	Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Solar Thermal Process Heat, Photovoltaics, Solar Hybrid Lighting
Incentive Amount	30%
Maximum Limit	None specified
Eligibility	Hybrid solar lighting systems are defined as those that use solar energy to illuminate the inside of a structure using fiber-optic distributed sunlight.
Exceptions	Passive solar systems and solar pool-heating systems are not eligible.
In-service deadline	Placed in service by Dec 31, 2016
Source	ARRA 2009: Section 1101 (H.R. 1-205) & US Code Section 48

Treasury Department Grants (30%)

All criteria mentioned in ITC apply in addition to the ones mentioned below.

In-service deadline	Placed in service in 2009 or 2010 OR construction begins in 2009 or 2010 and the project is placed in service before the ITC deadline
Expiry	Application deadline: Oct 1, 2011
Payment Schedule	Grant will be paid with in 60 days of application or the date the property is placed in service, whichever is later
Source	ARRA 2009: Sections 1104 & 1603

Repeal of the subsidized energy financing limitation on the Investment Tax Credits (ITC)

This is applicable only for projects placed in service after Dec 31, 2008. (*Source:* ARRA 2009: Section 1103 (H.R. 1-206) & US Code Section 48)

Bonus Depreciation (50%)

50% bonus depreciation is applicable for properties acquired and placed in service in 2008 or 2009. More details are provided in the "Direct-Impact Incentives" section.

Manufacturing Tax Credits (30%)

Up to 30% of manufacturing investments in the U.S. can claimed under tax credits. This cannot be claimed along with ITC. The U.S. Treasury will release more details after consultation with the Department of Energy by Aug 16, 2009.

Residential Tax Credits (30%)

Sectors	Residential
Technologies	Solar water heaters, Photovoltaics, Other Solar Electric Technologies
Incentive Amount	30%
Maximum Limit	• Solar-electric systems placed in service before 1/1/09: $2,000 • Solar-electric systems placed in service after 12/31/08: no maximum • Solar water heaters placed in service before 1/1/09: $2,000 • Solar water heaters placed in service after 12/31/08: no maximum
Eligibility	• The home served by the system does not have to be the taxpayer's principal residence. • Equipment must be certified for performance by the Solar Rating Certification Corporation (SRCC) or a comparable entity endorsed by the government of the state in which the property is installed. • At least half the energy used to heat the dwelling's water must be from solar in order for the solar water-heating property expenditures to be eligible.
Exceptions	Solar water-heating property for swimming pools or hot tubs is not eligible.
In-service deadline	Jan 1, 2006 to Dec 31, 2016
Source	ARRA 2009: Section 1122 & US Code Section 25D

Excess credit may be carried forward to succeeding tax year.

Other Incentives

CREBs, renewable energy loan guarantees, R&D grants and other incentives are described in the "Direct-Impact Incentives" and "Indirect-Impact Incentives" sections.

Wind

Key Messages

The wind energy industry has benefitted immensely from the following provisions.

Provision	Benefits/Concerns
New Treasury Grant equivalent to 30% of investment	• Alleviate the problems caused by the inactivity in the tax equity market • The funds have not yet started to flow in
ITC for big wind projects for the first time	• Allows sale and leaseback (*Source:* AWEA) • For investors with excess tax credit, this could be a better option compared to using the 30% treasury grant
PTC has been extended by 3 years	• Estimating NPV and cash flows for 3 years is easier. • For wind farms with every high wind speeds and high PPA revenues, this may be a better option than using 30% treasury tax grant or 30% ITC
Repeal of subsidized energy financing on ITC	• ITC can be used in conjunction with other subsidies for renewable energy projects
50% bonus depreciation	• Recover costs of capital expenditures faster by immediately writing off 50% of the cost of depreciated property
Renewable Energy Loan Guarantee Program	• $6.0 billion in loans to be guaranteed by the DOE • But criteria are not determined yet and could be very stringent

Production Tax Credits

Sectors	Commercial, Industrial, Utility
Technologies	Wind
Incentive Amount	2.1¢ per kWh
Maximum Limit	None specified
Eligibility	First 10 years of operation
Exceptions	None specified
In-service deadline	Placed in service by Dec 31, 2012
Source	ARRA 2009: Section 1101 & US Code Section 45

Investment Tax Credits (30%) in lieu of PTCs

The terms and conditions given for PTCs apply.

Investment Tax Credit for Small Wind Turbines (30%)

Sectors	Commercial, Industrial, Utility
Technologies	Small wind turbines
Incentive Amount	30%
Maximum Limit	• $4000: placed in service after Oct 3, 2008 and before Jan 1, 2009 • No limit: placed in service after Dec 31, 2008
Eligibility	Up to 100 kW in capacity
Exceptions	None specified
In-service deadline	Placed in service by Dec 31, 2016
Source	ARRA 2009: Section 1101 (H.R. 1-205) & US Code Section 48

Investment Tax Credits for Microturbines (10%)

Sectors	Commercial, Industrial, Utility
Technologies	Microturbines
Incentive Amount	10%
Maximum Limit	No explicit limit specified (refer to eligibility conditions below)
Eligibility	• $200 per kW of capacity up to a maximum capacity of 2 MW • Electricity only generation efficiency of 26% or higher
Exceptions	None specified
In-service deadline	Placed in service by Dec 31, 2016
Source	ARRA 2009: Section 1101 (H.R. 1-205) & US Code Section 48

Treasury Department Grants (10% or 30%)

The grant will have the same percentage payment as the corresponding PTC/ITC. All criteria mentioned in the above PTCs/ITCs apply in addition to the ones mentioned below.

In-service deadline	Placed in service in 2009 or 2010 OR construction begins in 2009 or 2010 and the project is placed in service before the ITC/PTC deadline
Expiry	Application deadline: Oct 1, 2011
Payment Schedule	Grant will be paid with in 60 days of application or the date the property is placed in service, whichever is later
Source	ARRA 2009: Sections 1104 & 1603

Repeal of the subsidized energy financing limitation on the Investment Tax Credits (ITC)

This is applicable only for projects placed in service after Dec 31, 2008. (*Source:* ARRA 2009: Section 1103)

Bonus Depreciation (50%)

50% bonus depreciation is applicable for properties acquired and placed in service in 2008 or 2009.

Manufacturing Tax Credits (30%)

Up to 30% of manufacturing investments in the U.S. can claimed. This cannot be claimed along with ITC.

Residential Tax Credits (30%)

Sectors	Residential
Technologies	Small wind-energy property
Incentive Amount	30%
Maximum Limit	• Wind turbines placed in service in 2008: $4,000 and $500 per 0.5 kW • Wind turbines placed in service after 12/31/08: no maximum
Eligibility	The home served by the system does not have to be the taxpayer's principal residence.
Exceptions	None specified
In-service deadline	Jan 1, 2008 to Dec 31, 2016
Source	ARRA 2009: Section 1122 & US Code Section 25D

Excess credit may be carried forward to succeeding tax year.

Other Incentives

CREBs, renewable energy loan guarantees, R&D grants and other incentives are described in the "Direct-Impact Incentives" and "Indirect-Impact Incentives" sections.

Fuel Cells

Key Messages

Provision	Benefits/Concerns
Increase in Investment Tax Credit	• The maximum limit has been increased from $500 to $1,500 per 0.5 kW
Repeal of subsidized energy financing on ITC	• ITC can be used in conjunction with other subsidies for renewable energy projects
50% bonus depreciation	• Recover costs of capital expenditures faster by immediately writing off 50% of the cost of depreciated property
Renewable Energy Loan Guarantee Program	• $6.0 billion in loans to be guaranteed by the DOE • But criteria are not determined yet and could be very stringent
New Treasury Grant equivalent to 30% of investment	• Alleviate the problems caused by the inactivity in the tax equity market • Enables increased investments in new projects • The funds have not yet started to flow in

Investment Tax Credits (30%)

Sectors	Commercial, Industrial, Utility
Technologies	Fuel Cells
Incentive Amount	30%
Maximum Limit	• $1,500 per 0.5 kW (placed in service after Oct 4, 2008) • $500 per 0.5 kW (placed in service before Oct 4, 2008)
Eligibility	Electricity-only generation efficiency of 30% or higher
Exceptions	None specified
In-service deadline	Construction to start by Dec 31, 2010 and placed in service by Dec 31, 2016
Source	ARRA 2009: Section 1101 (H.R. 1-205) & US Code Section 48

Treasury Department Grants (30%)

All criteria mentioned in ITC apply in addition to the ones mentioned below.

In-service deadline	Placed in service in 2009 or 2010 OR construction begins in 2009 or 2010 and the project is placed in service before the ITC deadline
Expiry	Application deadline: Oct 1, 2011
Payment Schedule	Grant will be paid with in 60 days of application or the date the property is placed in service, whichever is later
Source	ARRA 2009: Sections 1104 & 1603

Repeal of the subsidized energy financing limitation on the Investment Tax Credits (ITC)

This is applicable only for projects placed in service after Dec 31, 2008. (*Source:* ARRA 2009: Section 1103 (H.R. 1-206) & US Code Section 48)

Bonus Depreciation (50%)

50% bonus depreciation is applicable for properties acquired and placed in service in 2008 or 2009. More details are provided in the "Direct-Impact Incentives" section.

Manufacturing Tax Credits (30%)

Up to 30% of manufacturing investments in the U.S. can claimed under tax credits. This cannot be claimed along with ITC. The U.S. Treasury will release more details after consultation with the Department of Energy by Aug 16, 2009.

Residential Tax Credits (30%)

Sectors	Residential
Technologies	Solar water heaters, Photovoltaics, Other Solar Electric Technologies
Incentive Amount	30%
Maximum Limit	$500 per 0.5 kW
Eligibility	• The home served by the system must be the taxpayer's principal residence. • At least 0.5 kW of electricity using an electrochemical process • Electricity-only generation efficiency greater than 30%. • In case of joint occupancy, the maximum qualifying costs that can be taken into account by all occupants for figuring the credit is $1,667 per 0.5 kilowatt. This does not apply to married individuals filing a joint return. The credit that may be claimed by each individual is proportional to the costs he or she paid.
Exceptions	None specified
In-service deadline	Jan 1, 2006 to Dec 31, 2016
Source	ARRA 2009: Section 1122 & US Code Section 25D

Excess credit may be carried forward to succeeding tax year

Other Incentives

CREBs, renewable energy loan guarantees, R&D grants and other incentives are described in the "Direct-Impact Incentives" and "Indirect-Impact Incentives" sections.

Geothermal

Production Tax Credits

Sectors	Commercial, Industrial, Utility
Technologies	Geothermal Electric
Incentive Amount	2.1¢ per kWh
Maximum Limit	None specified
Eligibility	First 10 years of operation
Exceptions	None specified
In-service deadline	Placed in service by Dec 31, 2013
Source	ARRA 2009: Section 1101 & US Code Section 45

Investment Tax Credits in lieu of PTC

The terms and conditions given for PTC apply. Prior to the ARRA 2009, geothermal facilities were already eligible for a 10% tax credit under the energy ITC. It is not clear at this time if geothermal electric facilities will be eligible for a 10% tax credit, as defined by the ITC rules, or the full 30% tax credit now available for PTC eligible technologies in general.
Source: http://www.dsireusa.org

Investment Tax Credits (10%)

This is different from the above ITC as the in-service deadlines are different

Sectors	Commercial, Industrial, Utility
Technologies	Geothermal Electric, Geothermal Heat Pumps
Incentive Amount	10%
Maximum Limit	None specified
Eligibility	• Includes geothermal heat pumps and equipment used to produce, distribute or use energy derived from a geothermal deposit. • For electricity produced by geothermal power, equipment qualifies only up to, but not including, the electric transmission stage. • For geothermal heat pumps, this credit applies to eligible property placed in service after October 3, 2008.
Exceptions	None specified
In-service deadline	• Geothermal Heat Pumps: Construction to start by Dec 31, 2010 and placed in service by Dec 31, 2016 • Rest: no date stated
Source	ARRA 2009: Section 1101 (H.R. 1-205) & US Code Section 48

Treasury Department Grants (10%)

All criteria mentioned in ITC apply in addition to the ones mentioned below.

In-service deadline	Placed in service in 2009 or 2010 OR construction begins in 2009 or 2010 and the project is placed in service before the ITC deadline
Expiry	Application deadline: Oct 1, 2011
Payment Schedule	Grant will be paid with in 60 days of application or the date the property is placed in service, whichever is later
Source	ARRA 2009: Sections 1104 & 1603

Repeal of the subsidized energy financing limitation on the Investment Tax Credits (ITC)

This is applicable only for projects placed in service after Dec 31, 2008. (*Source:* ARRA 2009: Section 1103 (H.R. 1-206) & US Code Section 48)

Bonus Depreciation (50%)

50% bonus depreciation is applicable for properties acquired and placed in service in 2008 or 2009. More details are provided in the "Direct-Impact Incentives" section.

Manufacturing Tax Credits (30%)

Up to 30% of manufacturing investments in the U.S. can claimed under tax credits. This cannot be claimed along with ITC. The U.S. Treasury will release more details after consultation with the Department of Energy by Aug 16, 2009.

Residential Tax Credits (30%)

Sectors	Residential
Technologies	Geothermal heatpumps
Incentive Amount	30%
Maximum Limit	• Geothermal heat pumps placed in service in 2008: $2,000 • Geothermal heat pumps placed in service after 12/31/08: no maximum
Eligibility	• The home served by the system does not have to be the taxpayer's principal residence. • The geothermal heat pump must meet federal Energy Star program requirements in effect at the time the installation is completed.
Exceptions	None specified
In-service deadline	Jan 1, 2008 to Dec 31, 2016
Source	ARRA 2009: Section 1122 & US Code Section 25D

Excess credit may be carried forward to succeeding tax year

R&D Funding ($400 million)

$400 million of the $2.5 billion R&D funding for DOE's Office of Energy Efficiency and Renewable Energy is slated for geothermal projects. This information is present in the document released by the Congressional Research Service. However, it is unclear in the main text of the bill.

Other Incentives

CREBs, renewable energy loan guarantees, R&D grants and other incentives are described in the "Direct-Impact Incentives" and "Indirect-Impact Incentives" sections.

Biomass

Production Tax Credits

Sectors	Commercial, Industrial, Utility
Technologies	Closed-loop biomass and Open-loop biomass
Incentive Amount	2.1¢ per kWh for closed-loop biomass & 1.0¢ per kWh for open-loop biomass
Maximum Limit	None specified
Eligibility	First 10 years of operation (exceptions are listed below)
Exceptions	• Open-loop biomass, geothermal, small irrigation hydro, landfill gas and municipal solid waste combustion facilities placed into service after October 22, 2004, and before enactment of the Energy Policy Act of 2005, on August 8, 2005, are only eligible for the credit for a five-year period. (*Source:* http://www.dsireusa.org) • Open-loop biomass facilities placed in service before October 22, 2004, are eligible for a five-year period beginning January 1, 2005. (*Source:* http://www.dsireusa.org)
In-service deadline	Placed in service by Dec 31, 2013
Source	ARRA 2009: Section 1101 & US Code Section 45

Investment Tax Credits (30%)

The terms and conditions given for PTC apply.

Treasury Department Grants (30%)

All criteria mentioned in PTC apply in addition to the ones mentioned below.

In-service deadline	Placed in service in 2009 or 2010 OR construction begins in 2009 or 2010 and the project is placed in service before the ITC deadline
Expiry	Application deadline: Oct 1, 2011
Payment Schedule	Grant will be paid with in 60 days of application or the date the property is placed in service, whichever is later
Source	ARRA 2009: Sections 1104 & 1603

Repeal of the subsidized energy financing limitation on the Investment Tax Credits (ITC)

This is applicable only for projects placed in service after Dec 31, 2008. (*Source:* ARRA 2009: Section 1103 (H.R. 1-206) & US Code Section 48)

Bonus Depreciation (50%)

50% bonus depreciation is applicable for properties acquired and placed in service in 2008 or 2009. More details are provided in the "Direct Impact Provisions" section.

R&D Funding ($800 million)

$800 million of the $2.5 billion R&D funding for DOE's Office of Energy Efficiency and Renewable Energy is slated for biomass energy projects. This information is present in the document released by the Congressional Research Service. However, it is unclear in the main text of the bill.

Other Incentives

CREBs, renewable energy loan guarantees, R&D grants and other incentives are described in the "Direct-Impact Incentives" and "Indirect-Impact Incentives" sections.

There other grants/loans for which applications are currently open. It is unclear if any of the funds from the ARRA 2009 will have an impact on these.

Grant / Loan	Allocation	Deadline	Agency
Biotechnology, Biochemical and Biomass Engineering	$120,000 per year per applicant	Sep 15, 2009	NSF
Biorefinery Assistance Program (Guaranteed Loans)	$250 million for all applicants	Apr 30, 2009	USDA Rural Development: Energy Branch
Development of Supply Systems to Handle and Deliver High Tonnage Biomass Feedstocks for Cellulosic Biofuels Production	$5 million per applicant and $15 million in total	May 18, 2009	DOE – EERE
Demonstration of Integrated Biorefinery Operations	$40 million for all applicants	May 29, 2009	DOE - EERE

Sources:
http://www07.grants.gov/search/search.do?&mode=VIEW&flag2006=false&oppId=45855
http://www.rurdev.usda.gov/ia/rbcs_9003_Fact_Sheet.pdf
http://www07.grants.gov/search/search.do?&mode=VIEW&flag2006=false&oppId=46146
https://e-center.doe.gov/iips/faopor.nsf/UNID/63F9F91D2EA7865A85257527005EC91A?OpenDocument

Alternative Fuel Vehicle Refueling Property

30% or 50% tax credits

Sectors	Commercial
Technologies	Gas stations or other businesses that install alternative fueling pumps that dispense hydrogen, E85 fuel, electricity and natural gas
Incentive Amount	Hydrogen: 30%, Others: 50%
Maximum Limit	Hydrogen: $200,000 per installation, Others: $50,000 per installation
Eligibility	None specified
Exceptions	None specified
In-service deadline	Placed in service in 2009 or 2010
Source	ARRA 2009: Section 1123 & US Code Section 30C(e)

Other Incentives

CREBs, renewable energy loan guarantees, R&D grants and other incentives are described in the “Direct-Impact Incentives” and “Indirect-Impact Incentives” sections.

Combined Heat and Power (CHP)

Investment Tax Credits (10%)

Sectors	Commercial, Industrial, Utility
Technologies	CHP/Cogeneration
Incentive Amount	10%
Maximum Limit	None specified
Eligibility	• Up to 50 MW in capacity • Placed in service after Oct 3, 2008 • Exceed 60% energy efficiency, subject to certain limitations and reductions for large systems. • The efficiency requirement does not apply to CHP systems that use biomass for at least 90% of the system's energy source, but the credit may be reduced for less-efficient systems.
Exceptions	None specified
In-service deadline	Construction to start by Dec 31, 2010 and placed in service by Dec 31, 2016
Source	ARRA 2009: Section 1101 (H.R. 1-205) & US Code Section 48

Treasury Department Grants (10%)

All criteria mentioned in ITC apply in addition to the ones mentioned below.

In-service deadline	Placed in service in 2009 or 2010 OR construction begins in 2009 or 2010 and the project is placed in service before the ITC deadline
Expiry	Application deadline: Oct 1, 2011
Payment Schedule	Grant will be paid with in 60 days of application or the date the property is placed in service, whichever is later
Source	ARRA 2009: Sections 1104 & 1603

Repeal of the subsidized energy financing limitation on the Investment Tax Credit (ITC)

This is applicable only for projects placed in service after Dec 31, 2008. (*Source:* ARRA 2009: Section 1103 (H.R. 1-206) & US Code Section 48)

Bonus Depreciation (50%)

50% bonus depreciation is applicable for properties acquired and placed in service in 2008 or 2009. More details are provided in the “Direct Impact Provisions” section.

Other Incentives

CREBs, renewable energy loan guarantees, R&D grants and other incentives are described in the “Direct-Impact Incentives” and “Indirect-Impact Incentives” sections.

Carbon Sequestration

Office of Fossil Energy Research and Development ($3.4 billion)

The details are not explicitly specified in the final version of the ARRA bill. Congressional Research Service in its report states that:
"Of the $3.4 billion appropriation, the conference report specifies that $1.52 billion will support a competitive solicitation for industrial carbon capture and energy efficiency improvement projects. This provision likely refers to a program for large-scale demonstration projects that capture carbon dioxide (CO_2) from a range of industrial sources. A small portion of the $1.52 billion would be allocated for developing innovative concepts for reusing CO_2. Of the remaining $1.88 billion, $1.0 billion would be available for fossil energy R&D programs. However, the conference report does not say how the funding would be distributed across programs. Of the remaining $880 million, the report specifies that $800 million will be designated for DOE's Clean Coal Power Initiative Round III solicitations. That program targets coal-based systems that capture and sequester, or reuse, CO_2 emissions. Lastly, $50 million is allocated for site characterization activities for geologic formations (for the storage component of CCS activities), $20 million for geologic sequestration training and research, and $10 million for unspecified program activities.

If the majority of the $3.4 billion for fossil energy R&D were used for CCS activities, it would constitute a major increase of funding relative to the current level. It would also be a large and rapid increase in funding over what DOE spent on CCS cumulatively over the 11 years from FY1997 through FY2007 (slightly less than $500 million). Moreover, the majority of DOE's CCS program would shift to the capture component of CCS, unless funding for the storage component increases commensurately in annual appropriations."

Manufacturing Tax Credits (30%)

Up to 30% of manufacturing investments in the U.S. can claimed under tax credits. This cannot be claimed along with ITC. The U.S. Treasury will release more details after consultation with the Department of Energy by Aug 16, 2009.

Other Incentives

CREBs, renewable energy loan guarantees, R&D grants and other appropriations/provisions are described in the "Direct-Impact Incentives" and "Indirect-Impact Incentives" sections.

Energy Efficiency

Manufacturing Tax Credits (30%)

Sectors	Commercial, Industrial, Manufacturing
Technologies	Property designed to refine or blend renewable fuels or to produce energy conservation technologies (including energy-conserving lighting technologies and smart grid technologies),
Incentive Amount	30% of qualified investment
Eligibility	U.S. based manufacturing investments only
Expiry	Unknown / not determined yet
Source	ARRA 2009: Sec 1302; US Code Section 48C

Exception: This cannot be claimed along with ITC.
The U.S. Treasury will release more details after consultation with the Department of Energy by Aug 16, 2009.

Residential Energy Efficiency Tax Credits (30%)

Sectors	Residential
Technologies	Water Heaters, Furnaces, Boilers, Heat pumps, Air conditioners, Building Insulation, Windows, Doors, Roofs, Circulating fans used in a qualifying furnace Biomass, Stoves that use qualified biomass fuel
Incentive Amount	30%
Maximum Limit	Aggregate amount of credit for all technologies placed in service in 2009 and 2010 combined is limited to $1,500
Eligibility	Equipment must be new and in compliance with all applicable performance and safety standards as described in tax code
Exceptions	None specified
In-service deadline	2009 and 2010
Source	ARRA 2009: Section 1121 & US Code Section 25C

Other Incentives

DOD	Almost $3.9 billion is allocated for energy efficiency and other modernization uses
Energy Efficiency and Conservation Block Grant	$3.2 billion for local governments (refer to “Indirect-Impact Incentives” for details)
Energy Efficient Appliance Rebate Program	$300 million for state rebates for the Energy Star Program
Schools	$9.75 billion (18.2% of the $53.6 billion state stabilization fund) may include assistance for making the buildings more energy efficient among many other uses
Weatherization Assistance Program	$5 billion (refer to “Indirect-Impact Incentives” for details)
Federal Buildings Upgrade	$4.5 billion to convert GSA facilities to High-Performance Green Buildings $4 million to for the Office of Federal High Performance Green Buildings
Assisted Housing & Loans	$250 million to upgrade HUD-sponsored low income housing $1 billion from Public Housing Capital can also be used for energy efficiency

Direct-Impact Incentives

Production Tax Credits (PTCs)

The production tax credit (PTC) is a per-kilowatt-hour tax credit for electricity generated by qualified energy resources and sold by the taxpayer to an unrelated person during the taxable year. Therefore, this benefit is not beneficial for those taxpayers having negative pre-tax income.

PTC was originally enacted in 1992, but has been renewed by the Congress numerous times. More recently, the Congress has let this expire many times before renewing it causing a lot of problems, especially for wind developers. The ARRA 2009 extends this by three years allowing developers of renewable energy projects to plan better.

The terms & conditions (solar, wind, etc) and are therefore described in detail under the appropriate section of this document. The summary is given below:

Resource	PTC Amount	In-Service By
Wind	2.1¢ per kWh	Dec 31, 2012
Geothermal	2.1 ¢ per kWh	Dec 31, 2013
Closed-loop Biomass	2.1 ¢ per kWh	Dec 31, 2013
Open-loop Biomass	1.0 ¢ per kWh	Dec 31, 2013
Landfill Gas	1.0 ¢ per kWh	Dec 31, 2013
Municipal Solid Waste	1.0 ¢ per kWh	Dec 31, 2013
Qualified Hydroelectric	1.0 ¢ per kWh	Dec 31, 2013
Marine and Hydrokinetic (150 kW or larger)	1.0 ¢ per kWh	Dec 31, 2013

The duration of the credit is generally 10 years after the date the facility is placed in service, but there are two exceptions:

- Open-loop biomass, geothermal, small irrigation hydro, landfill gas and municipal solid waste combustion facilities placed into service after October 22, 2004, and before enactment of the Energy Policy Act of 2005, on August 8, 2005, are only eligible for the credit for a five-year period.
- Open-loop biomass facilities placed in service before October 22, 2004, are eligible for a five-year period beginning January 1, 2005.

Source: http://www.dsireusa.org

Investment Tax Credits (ITCs)

The terms & conditions (solar, wind, etc) and are therefore described in detail under the appropriate section of this document.
In general, the original use of the equipment must begin with the taxpayer, or the taxpayer must construct the system. The equipment must also meet any performance and quality standards in effect at the time the equipment is acquired. The energy property must be operational in the year in which the credit is first taken.
Source: http://www.dsireusa.org

Grants for Manufacturers of Advanced Battery Systems ($2.0 billion)

The Act states that "$2,000,000,000 shall be available for grants for the manufacturing of advanced batteries and components and the Secretary shall provide facility funding awards under this section to manufacturers of advanced battery systems and vehicle batteries that are produced in the United States, including advanced lithium ion batteries, hybrid electrical systems, component manufacturers, and software designers". The details are given under the "Batteries" and "Hybrids" sections.

Treasury Department Grants

This will be provided in lieu of ITC or PTC. All terms and conditions specified in ITC/PTC apply in addition to the ones below.

In-service deadline	Placed in service in 2009 or 2010 OR construction begins in 2009 or 2010 and the project is placed in service before the ITC deadline
Expiry	Application deadline: Oct 1, 2011
Payment Schedule	Grant will be paid with in 60 days of application or the date the property is placed in service, whichever is later
Source	ARRA 2009: Sections 1104 & 1603

Repeal of the subsidized energy financing limitation on the Investment Tax Credit (ITC)

This is applicable only for projects placed in service after Dec 31, 2008. (*Source:* ARRA 2009: Section 1103 (H.R. 1-206) & US Code Section 48)

Residential Tax Credits

These are different for different industries (solar, wind, etc) and are therefore described in detail under the appropriate section of this document.

Manufacturing Tax Credits ($2.3 billion)

The purpose of this incentive is to encourage U.S. based manufacturing facilities that manufacture a wide range of renewable energy and energy efficiency projects.

Sectors	Commercial, Industrial, Manufacturing
Technologies	• Property designed to be used to produce energy from the sun, wind, geothermal deposit or other renewable sources • Fuel cells, microturbines, energy efficient storage systems for use with electric or hybrid motor vehicles, • Electric grids to support transmission of renewable energy including storage of such energy • Property designed to refine or blend renewable fuels or to produce energy conservation technologies (including energy-conserving lighting technologies and smart grid technologies) • Property designed to capture and sequester carbon dioxide emissions • Property designed to refine or blend renewable fuels or to produce energy conservation technologies (including energy-conserving lighting technologies and smart grid technologies), • New qualified plug-in electric drive motor vehicles, qualified plug-in electric vehicles, or components which are designed specifically for use with such vehicles, including electric motors, generators, and power control units
Incentive Amount	30% of qualified investment
Maximum Total Allocation	$2.3 billion
Eligibility	Only U.S. based manufacturing investments
Expiry	Unknown / not specified yet
Source	ARRA 2009: Sec 1302

Exception: This cannot be claimed along with ITC.

The U.S. Treasury will release more details after consultation with the DOE by Aug 16, 2009.

Bonus Depreciation (50%)

Sectors	Commercial, industrial
Technologies	Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Solar Thermal Process Heat, Photovoltaics, Landfill Gas, Wind, Biomass, Renewable Transportation Fuels, Geothermal Electric, Fuel Cells, Geothermal Heat Pumps, Municipal Solid Waste, CHP/Cogeneration, Solar Hybrid Lighting, Direct Use Geothermal, Anaerobic Digestion, Microturbines
Incentive Amount	First 50% depreciated in 2008 and 2009 Remaining 50% as per normal schedule
In-service deadline	Acquired and placed in service in 2008, 2009
Source	ARRA 2009: Div. B Sec 1201; US Code Sections 48 & 168

Clean Renewable Energy Bonds (CREBs) ($2.4 billion)

The borrower pays back principal, but the bondholder receives tax credits in lieu of bond interest. These credits are treated as taxable income. The Energy Improvement and Extension Act of 2008 had allocated $800 million to CREBs. The ARRA added another $1.6 billion.

Sectors	Local Government, State Government, Tribal Government, Municipal Utility, Rural Electric Cooperative
Technologies	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, Hydrokinetic Power, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal
Incentive Amount	$2.4 billion 33.33% to public power providers 33.33% to federal/state/local governments 33.33% to electric cooperatives
Expiry	Unknown / not determined yet
Source	ARRA 2009: Sec 1111; US Code Section 54

Renewable Energy Loan Guarantee Program ($6.0 billion)

Administered by	DOE
Technologies & Eligibility	• Renewable energy systems, including incremental hydropower that generate electricity or thermal energy, and facilities that manufacture related components. • Electric power transmission systems, including upgrading and reconductoring projects. • Leading edge biofuel projects that will use technologies performing at the pilot or demonstration scale that the Secretary determines are likely to become commercial technologies and will produce transportation fuels that substantially reduce life-cycle greenhouse gas emissions compared to other transportation fuels • Davison-Bacon wage requirements apply • $25 million is reserved for administrative expenses • $10 million will be reserved for administrative expenses for the Advanced Technology Vehicles Manufacturing Loan Program
Incentive Amount	$6.0 billion
Expiry	DOE can enter in to guarantees till Sep 30, 2011
Source	ARRA 2009: Div. A, Title IV

Details and applications are available at: http://www.lgprogram.energy.gov/index.html

Indirect-Impact Incentives

Department of Defense

Almost $3. 9 billion can be used by Sep 30, 2010 to invest in energy efficiency projects and to repair and modernize DOD facilities among other uses ("to improve, repair and modernize Department of Defense facilities, restore and modernize real property to include barracks, and invest in the energy efficiency of Department of Defense facilities.")

Department of Energy

DOE's Office of Energy Efficiency and Renewable Energy ($16.8 billion)

Energy Efficiency and Conservation Block Grants ($3.2 billion)

The Energy Independence and Security Act of 2007 established the structure for the EECBG program, the goals of which are to help reduce energy use and carbon emission at the local and regional level. Of the $3.2 billion, $400 million is to be awarded on a competitive basis.
The allocations for the New England states are given below.

State	Allocation
Connecticut	$24.5 million
Maine	$11.3 million
Massachusetts	$42.2 million
New Hampshire	$12.5 million
Rhode Island	$14.5 million
Vermont	$10.3 million

Source: http://www.energy.gov/recovery/index.htm

State Energy Program ($3.1 billion)

Under Division A, Title IV, $3.1 billion is allocated for the State Energy Program. Only states that adopt utility rate "decoupling" and new building codes are eligible according to the research report published by the Congressional Research Service.

- Allocated between states on their share of electricity consumption in the country
- Increased 60-fold from $50 million
- State energy offices can fund renewable energy and energy efficiency programs
- Purchase Renewable Energy Credits (RECs) to incentivize renewable energy projects
- States are going to face a challenge in deploying these funds in a timely manner

The allocations for the New England states are given below.

State	Allocation
Connecticut	$38.5 million
Maine	$27.3 million
Massachusetts	$54.9 million
New Hampshire	$25.8 million
Rhode Island	$24.0 million
Vermont	$22.0 million

Source: http://apps1.eere.energy.gov/wip/pdfs/sep_arra_2009_state_allocations.pdf

Weatherization Assistance Grant Program ($5.0 billion)

This is to help low-income families to permanently reduce their energy bills by making their homes more energy efficient. The allocation for the New England states is given below.

State	Program Allocation	T&TA Allocation	Total Allocation
Connecticut	$53.0 million	$11.3 million	$64.3 million
Maine	$34.5 million	$$7.4 million	$41.9 million
Massachusetts	$100.7 million	$21.4 million	$122.1 million
New Hampshire	$19.1 million	$4.1 million	$23.2 million
Rhode Island	$16.5 million	$3.5 million	$20.0 million
Vermont	$13.8 million	$3.0 million	$16.8 million

Source: http://apps1.eere.energy.gov/weatherization/pdfs/wx_recovery_fact_sheet.pdf

Research & Development ($2.5 billion)

This is for energy efficiency and renewable energy R&D purposes. $800 million is set aside for biomass energy and $400 million is set aside for geothermal energy.

Administered by	DOE's Energy Efficiency and Renewable Program
Technologies	Renewable energy and energy efficiency
Incentive Amount	$2.5 billion ($800 million for biomass) and $400 million for geothermal)
Expiry	Unknown / not determined yet
Source	ARRA 2009: Div. A, Title IV

This information is present in the document released by the Congressional Research Service. However, it is unclear in the main text of the bill.

DOE's Office of Electricity Reliability and Energy Delivery: Transmission & Smart Grids ($4.5 billion)

Under Division A, Title IV, $4.5 billion dollars are awarded to the Department of Energy for expenses related to electricity delivery and energy reliability activities to modernize the electric grid, including

- Demand responsive equipment
- Enhance security and reliability of the energy infrastructure
- Energy Storage research, development demonstration and deployment
- Facilitate recovery from disruptions to the energy supply

Smart Grid Information Clearinghouse

On Mar 6, 2009, the DOE announced a $1.25 billion "Smart Grid Information Clearinghouse" grant. The deadline for application is Apr 6, 2009. More details can be found at:
http://www07.grants.gov/search/search.do?&mode=VIEW&flag2006=false&oppId=45833

DOE's Office of Fossil Energy ($3.4 billion)

Some of this could be used for carbon sequestration. Refer to the section on carbon sequestration for details.

DOE's Office of Science ($1.6 billion)

The act does not provide specific guidelines on the allocation of this sum. On Mar 23, 2009, Sec Chu announced the availability of the first $1.2 billion to national labs. More details can be found at:
http://www.sc.doe.gov/News_Information/News_Room/2009/Office%20of%20Science%20Funding%20announcement.release.3.23.09.pdf

DOE's Advanced Research Projects Agency (ARPA-E) ($400 million)

No specific guidelines are provided on the allocation of this sum.

DOE: Bonneville Power Administration ($3.25 billion)

Division A, Sec 401 states that "For the purposes of providing funds to assist in financing the construction, acquisition, and replacement of the transmission system of the Bonneville Power Administration and to implement the authority of the Administrator of the Bonneville Power Administration under the Pacific Northwest Electric Power Planning and Conservation Act (16 U.S.C. 839 et seq.), an additional $3,250,000,000 in borrowing authority is made available under the Federal Columbia River Transmission System Act (16 U.S.C. 838 et seq.), to remain outstanding at any time.

DOE: Western Area Power Administration ($3.25 billion)

Under Division A, Section 402, $3.25 billion is allocated for the following purposes.

- Constructing, financing, facilitating, planning, operating, maintaining, or studying construction of new or upgraded electric power transmission lines and related facilities with at least one terminus within the area served by the Western Area Power Administration; and
- Delivering or facilitating the delivery of power generated by renewable energy resources constructed or reasonably expected to be constructed after Feb 17, 2009

General Services Administration (GSA)

- $4.5 billion will be made available for measures necessary to convert GSA facilities to High-Performance Green Buildings.
- $4 million will be allocated for the Office of Federal High-Performance Green Buildings.
- $300 million (till Sep 30, 2010) will be set aside to procure energy-efficient federal motor vehicle fleet. (This is a direct-impact provision and is discussed under the "Hybrids" section)

Department of the Interior

- $180 million to the Bureau of Land management: construction activities that may include energy-efficient retrofits of existing facilities
- $115 million for the U.S. Fish and Wildlife Service: construction activities that may include energy-efficient retrofits of existing facilities
- $589 million for the National Park Service: construction activities that may include energy-efficient retrofits of existing facilities

Environmental Protection Agency

- Energy efficiency use is approved under $1.2 billion for EPA state revolving funds
- $300 million for the diesel emissions reduction program

Department of Labor: $500 million for Green Jobs

Division A, Title VIII of the ARRA 2009 places $500 million under the Department of Labor for job training projects that prepare workers for careers in energy efficiency and renewable energy.

Department of Veterans Affairs

Energy projects are permitted under the $1 billion allocated for non-recurring maintenance of medical facilities.

Department of Housing and Urban Development

- $1 billion has been allocated to the "Public Housing Capital Fund", a part of which can be used for energy conservation retrofit investments. Awards must be made by HUD by Sep 30, 2009.
- $250 million for grants or loans for energy retrofit and green investments in HUD-assisted housing.