



Key Resources for Achieving your GHG Goals

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E SOURCE

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EPA Climate Leaders Webinar



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Min Travel, Egypt
<http://www.mintravel.com>



Photo Credit: Greg Grieco
<http://live.psu.edu/image/342>

80%



Three Things We Must Do

Massive increase in energy efficiency across all sectors:

- Energy efficiency is “The First Fuel!”

Decarbonize electricity—several options, each with challenges:

- Renewables (storage and transmission)
- Carbon capture and storage (unproven)
- Nuclear (waste, proliferation, uranium supply)

Electrify or substitute biofuels for loads that would otherwise burn fossil fuel:

- Cars (PHEVs), Heating

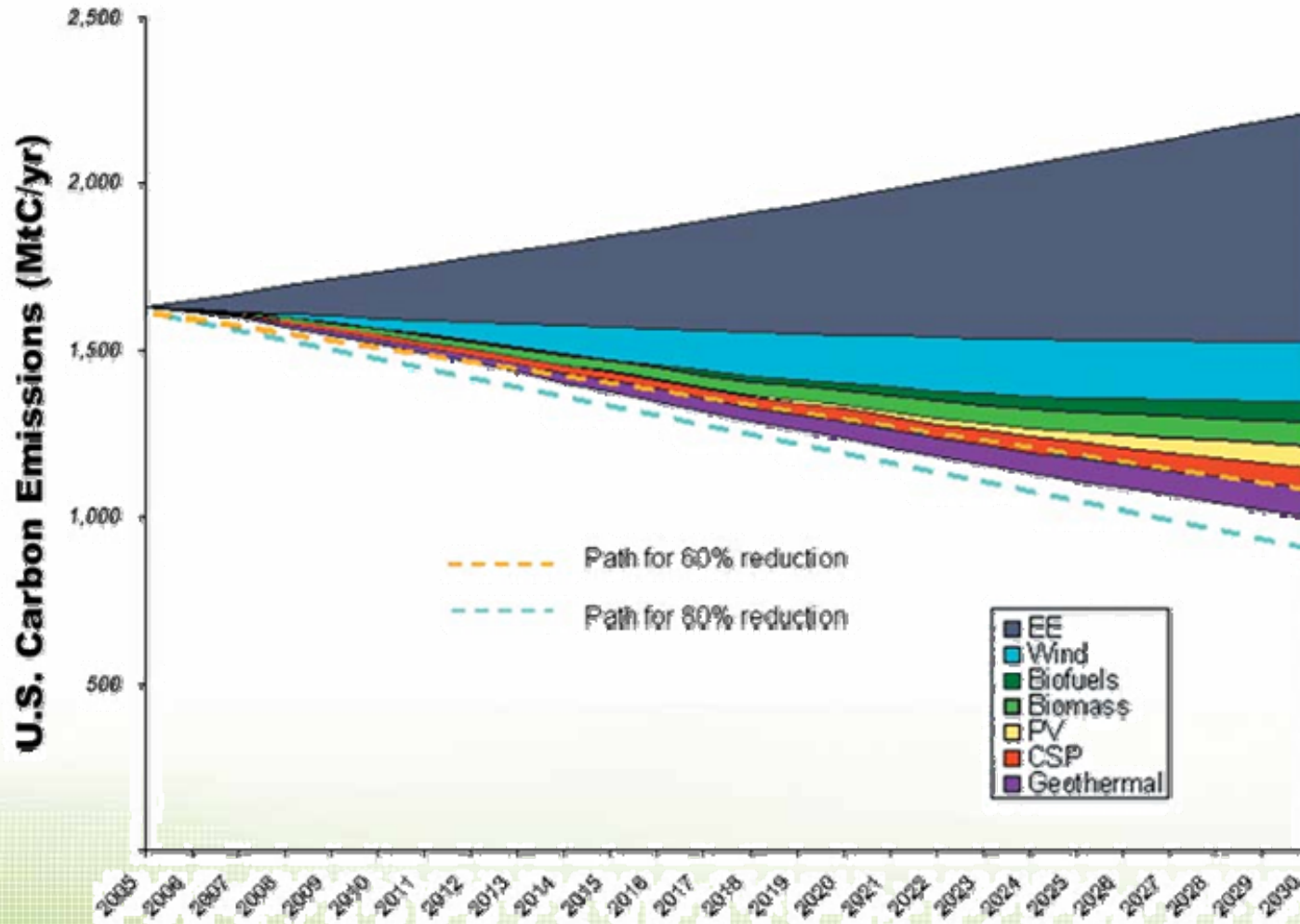


Will Take an Effort As Big as WWII



In nine months, the entire U.S. auto industry was converted to the production of tanks, guns, and planes.

Carbon Reduction can be Accomplished Through Energy Efficiency & Renewables



Source: Potential Carbon Emissions Reductions from Energy Efficiency and Renewable Energy by 2030 by Charles F. Kutscher, Ph.D., P.E., American Solar Energy Society - 2007

Roadmap for Reducing GHG Emissions

First Tier

- Energy-efficiency improvements at facilities
- Combined heat and power
- More efficient vehicles or improved logistics
- Reduction of any process emissions through process improvements

Second Tier

- Use of biofuels for facilities or vehicles
- PV or other renewable on-site generation
- Green power purchases
- RECs or offsets



What Other Executives are Saying

- 72% (up 10% from 2007) are paying more attention to energy efficiency (EE)
- 41% (up 13% from 2007) replacing inefficient equipment before the end of its useful life
- 78% (up 11% from 2007) switching to EE lighting
- 88% (up 11% from 2007) claim EE is a design priority in construction and retrofits
- 59% feel climate change is an extremely, very significant, or somewhat significant motivator
 - 40% believe it extremely or very likely that within 2 years, legislation will mandate EE and/or carbon reduction
- 38% are including or considering PV in projects



Source: Johnson Controls Energy Efficiency Indicator Survey, March 2008

Efficiency vs Conservation

Energy Efficiency

energy-saving measures that maintain, or even improve, the energy services that businesses and consumers receive. Energy efficiency is all about reducing the energy input without any loss in value or comfort. Usually, energy efficiency results from investment in long-lived technologies or building improvements that silently, continually work beyond the scenes to save energy, reduce bills, and lessen environmental impacts) without inconveniencing anyone.

Energy Conservation

Encompasses actions intended to save energy, even those that involve discomfort or sacrifice. When utilities ask customers to cut back on electricity use to help avoid brownouts, they're asking for energy conservation. When consumers choose to drive less or lower their thermostats during the heating season, they're embracing energy conservation. Because it hinges on behavior, rather than technology, energy conservation may be short-lived.



Pancaking Resources

- Federal
- State
- City
- Utility
- Industry Associations
- Clients/corporate partners



From Bon Appetite 2/08
Epicurious.com
photo by Lisa Hubbard



Salt River Project 20 kW PV Example

SRP offers \$3/watt rebate, up to \$60,000 per project

20 kW system cost	\$140,000
\$3/watt SRP rebate	-\$60,000
10% Arizona tax credit	-\$14,000
30% Federal tax credit	<u>-\$42,000</u>
Net cost	\$24,000



Energy Policy: Building Up Steam



Ancient History, December 2007, Energy Independence and Security Act

New efficiency standards for lighting, appliances, HVAC, refrigeration, motors

DOE authorized (but not funded) to provide \$200 million per year in CHP grants

More stringent CAFE standards

Plus lots on biofuels, and energy efficiency in homes, small business, and government buildings



Commercial Building Tax Deduction Extended Through 2013

Gives you time to plan building improvements

Tax deduction of up to \$1.80 per square foot for investments in energy-efficient lighting, HVAC, hot water, and building envelope measures in commercial buildings

To get full credit, installations must reduce total annual energy use by at least 50% compared to a similar building satisfying ASHRAE 90.1-2001

Partial allowance of \$0.60 per square foot



Renewables Investment Tax Credits Expanded and Extended to 2016

Credits, not deductions

30% for solar, fuel cells, and small wind

10% for geothermal heat pumps, microturbines, and CHP

Maximum incentives and equipment size limits

- Fuel cells \$1,500 per 0.5 kW for units ≥ 0.5 kW
- Microturbines \$200 per kW for units ≤ 2 MW
- No limits on credit amount for other technologies
- Wind turbine size limit ≤ 100 kW
- CHP size limit ≤ 50 MW



Tax Credit for Plug-In Electric Vehicles

Individuals and businesses eligible

Qualified vehicle

- Uses traction battery with at least 4 kWh capacity
- Recharges from “offboard source”
- Meets emission standards
- Acquired for use or lease by taxpayer, as original user

Sum of \$2,500 plus \$417 per kWh exceeding 4 kWh of traction battery capacity



PHEV Credit Limits and Phase-Out

Limits (during initial period, before phase-out)

- \$7,500 cap for vehicle less than 10,000 pounds
- \$10,000 cap for vehicle 10,000 – 14,000 pounds
- \$12,500 cap for vehicle 14,000 – 26,000 pounds
- \$15,000 cap for vehicle more than 26,000 pounds

Phase-out period

- Begins second calendar quarter following the calendar quarter in which the sales of qualified vehicles exceeds 250,000 units
- 50% of tax credit allowable for two calendar quarters, 25% for next two quarters
- Tax credit provision ends 12/31/2014

Tax credit cannot be a “double benefit”

- For example, cannot be combined with “alternative motor vehicle” credit



Racing down the track, February 2009,
ARRA: >\$40 billion for clean energy
and efficiency



Courtesy: Trainweb.com

A Sense of Scale

1936 Rural Electrification Act

- ~\$6 billion loan, inflation adjusted



Energy component of ARRA 2009

- ~\$43 billion



2006 total utility DSM spending

- ~\$2 billion



Most Benefits of ARRA for Business Will Be Indirect

Smart grid and transmission—\$11 billion

State energy offices—\$3.1 billion

Community block grants—\$3.2 billion

Energy Star rebates—\$0.3 billion

Federal facilities and vehicles—\$8.8 billion

Weatherization—\$5 billion

Renewable energy tax incentives—\$14 billion



Federal Programs

Energy Star-EPA

<http://www.energystar.gov/>

CHP Partnership-EPA

<http://www.epa.gov/chp/index.html>

Industrial Assessment Centers-DOE

<http://www.iac.rutgers.edu/>



State/City Programs

State Energy Offices

Partners with regional organizations, utilities

Local GHG reduction goals

US Conference of Mayors Climate Protection Agreement

Over 500 signatories

<http://www.usmayors.org/climateprotection/>





- ▶ Water and Sewer Financing
- ▶ Water Supply Program
- ▶ Land Conservation Financing
- ▶ Low-Income Weatherization Assistance Program
- ▶ Recycling and Waste Reduction
- ▶ Fuel Storage Tank Program
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 - ▶ Individual Main
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 - ▶ Business Get Started
 - ▶ Business Next Step
 - ▶ Business Advanced Strategies
 - ▶ Business Onsite
 - ▶ Government Main
 - ▶ Case Studies

Governor's Energy Challenge

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Cultivating
ECO-FRIENDLY Ideas
for businesses
and organizations.

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Welcome to the Governor's Energy Challenge for Businesses and Organizations

On behalf of Georgia's residents and future generations, we thank you for making this commitment to reduce your energy use. You will not only save energy and money but you will have the opportunity to be recognized as a responsible steward of our state's natural resources.

QUICK LINKS:

- ▶ [Get Started](#)
- ▶ [Take the Next Step](#)
- ▶ [Advanced Energy Strategies](#)
- ▶ [On-site Assistance](#)
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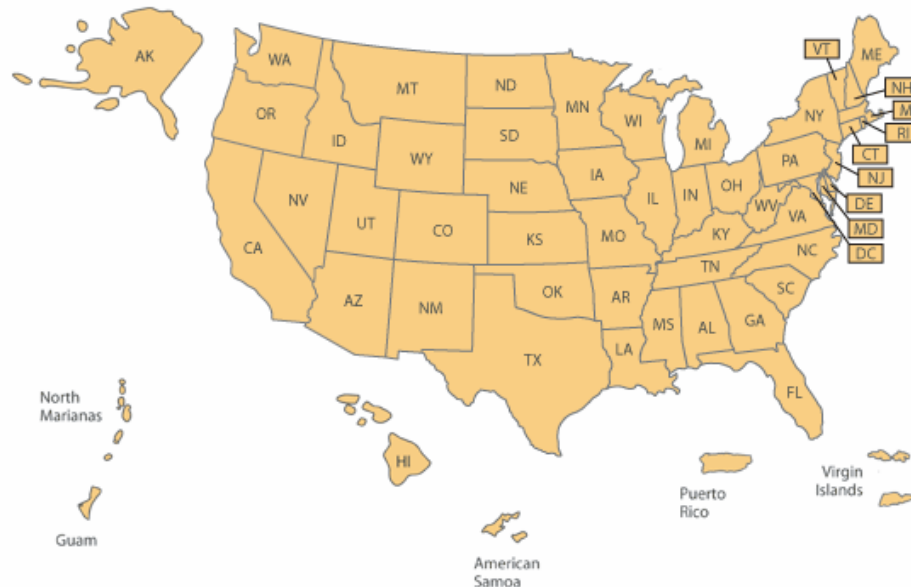
[State Publications](#)

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State Energy Office Contacts

Select a state on the map or from the pull-down menu below to obtain phone, e-mail, and street address of the director of the state energy office and program manager for the State Energy Program in that office.

Select a State



http://apps1.eere.energy.gov/state_energy_program/seo_contacts.cfm

Utility Resources

Audits

Efficiency equipment rebates

On-Bill Financing

Energy and bill information tools

Renewable power



SDG&E

Express Efficiency program

- CA utilities (CPUC)
- For equipment efficiency retrofits
- Up to \$350,000/year/fuel/meter

Custom and industry-specific incentives

- Restaurants
- IT



National Grid

▪ Large business

- New construction
- Retrofits
- Commissioning

Small business

- Free audit
- 70:30 EE equipment incentive, 24 months free OBF
- Building operator certification courses



DSIRE Database of State Incentives for Renewables & Efficiency

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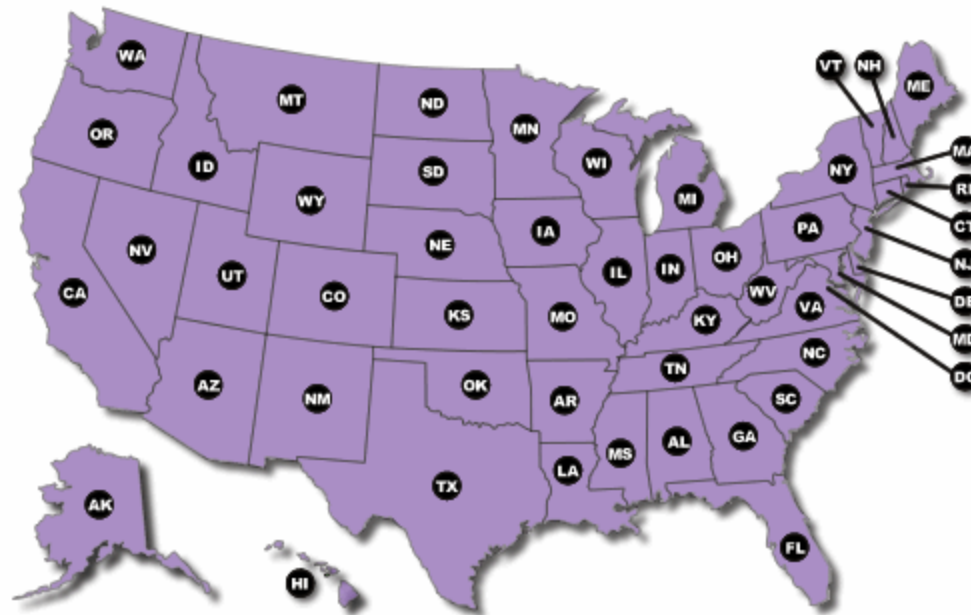
[New / Updated Incentives](#)

DSIRE is a comprehensive source of information on state, local, utility, and federal incentives that promote renewable energy and energy efficiency. Choose one or both databases to search:

Renewable Energy Energy Efficiency



Federal Incentives



Last Updated: 05/11/09

<http://www.dsireusa.org/>



Clients/Corporate Partners

Corporations: the New Regulators

Wal-Mart

Dell

GE Ecomagination

Associations

Green Hotels

www.greenhotels.com/

National Restaurant Association's "Conserve"

conserve.restaurant.org/

BOMA International

www.boma.org/



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