



U.S. DEPARTMENT OF  
**ENERGY**

# Green Cities Florida

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speaking on behalf of

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U.S. Department of Energy



# EERE is Advancing the President's Vision for a Clean Energy Economy

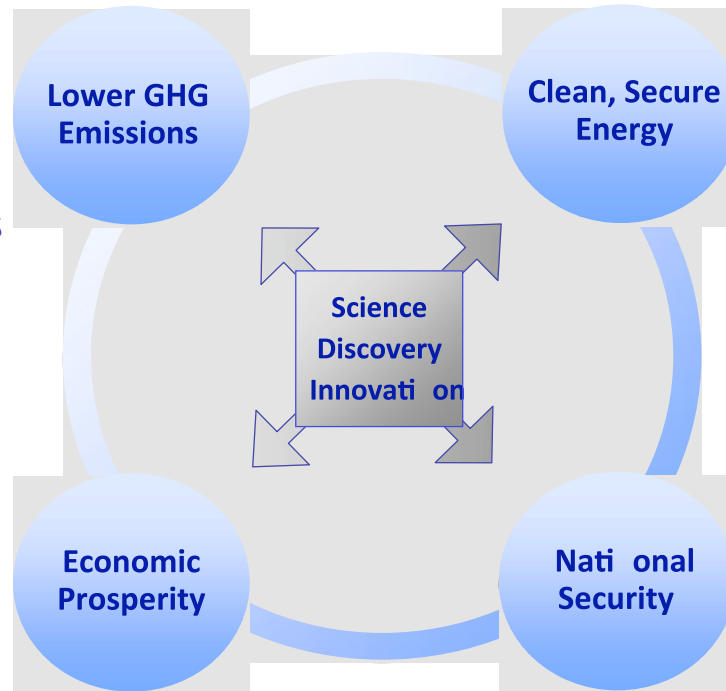


## Environmental

- Closing the carbon pollution loophole.
- Protecting American consumers by returning carbon-generated revenues to them.

## Economic

- Creating new jobs in the clean energy economy.
- Promoting U.S. competitiveness as we address climate change.



## Energy Security

- Investing in the next generation of energy technologies.
- Promoting energy efficiency.
- Breaking our dependence on oil.
- Producing more energy at home.

# Office of Energy Efficiency and Renewable Energy Technology Portfolio



## Electric Power Generation

- Geothermal
- Solar
- Wind & Hydropower

## Advanced Transportation

- Biomass
- Fuel Cells
- Vehicles

## Energy Efficiency

- Buildings
- Industrial
- Federal Energy Management
- Weatherization and Intergovernmental



## Mission Statement

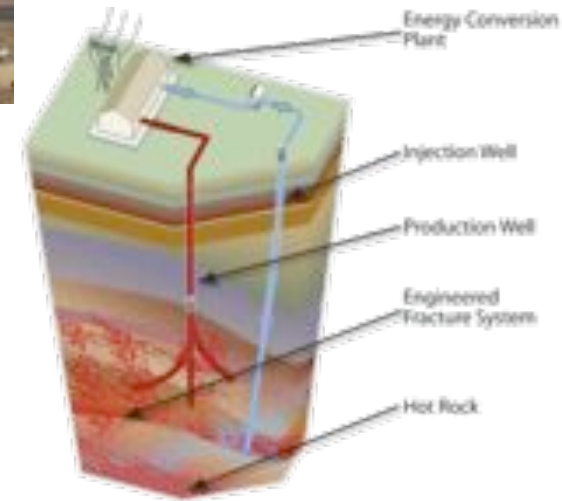
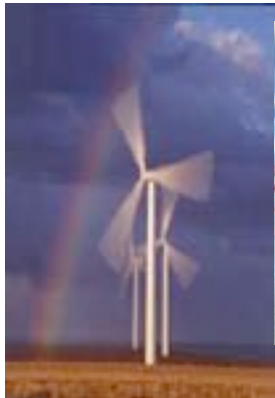
To develop cost competitive technology, facilitate commercialization and deployment to the marketplace

# Electric Power Generation

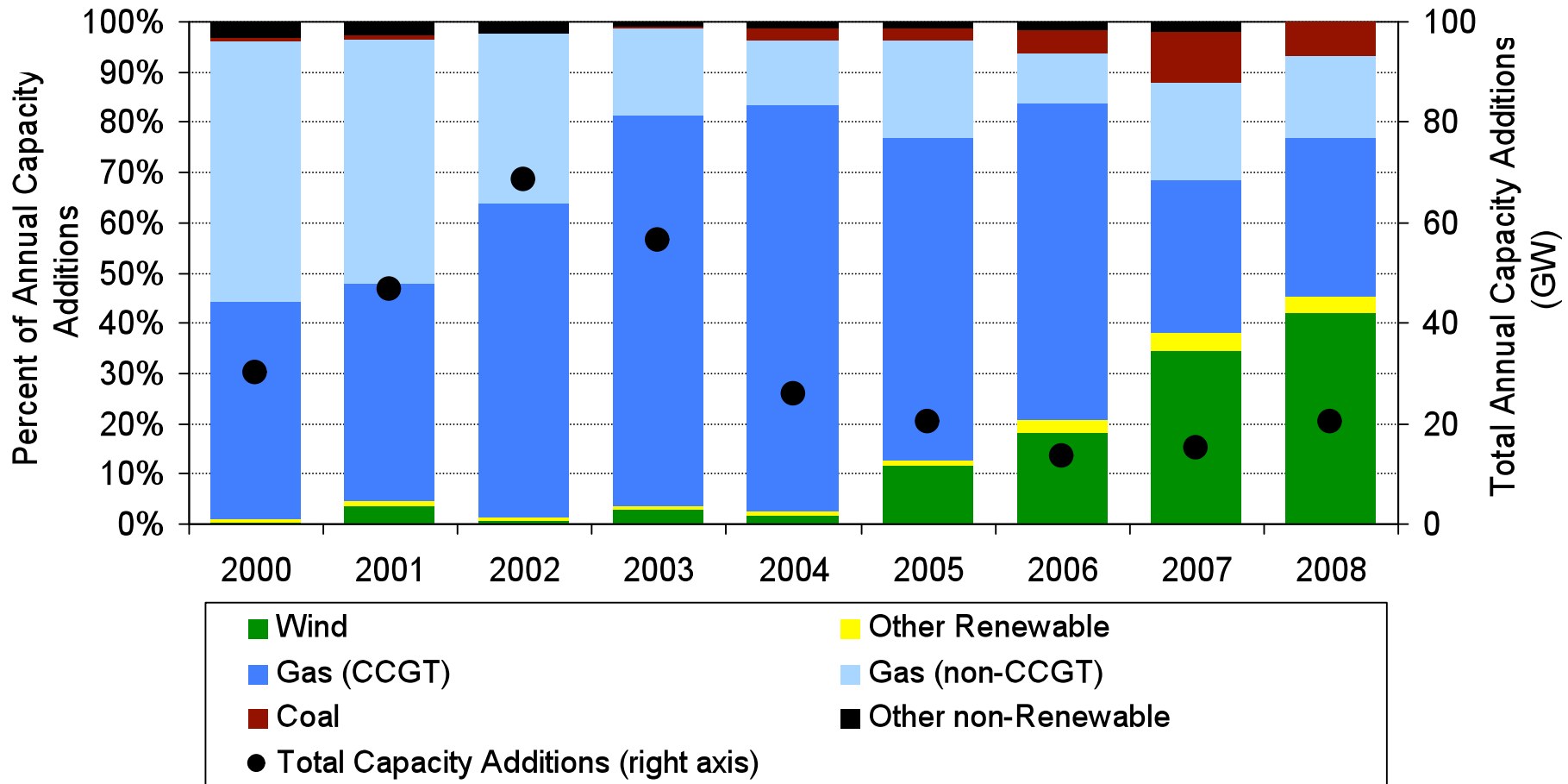


## Renewable Electricity

Accelerate the research, development, demonstration, and deployment of solar, geothermal, wind, and water electricity generation technologies.



# Current Status of Renewable Electricity Technologies



Renewable energy has been contributing to a growing portion of U.S. electric capacity additions (45% in 2008; up from 1% in 2002)

# EERE Renewable Electricity Program Area Snapshots



- **Wind:** Improve cost, performance, and reliability of wind technologies to work towards up to 20% wind energy penetration by 2030
  - Recovery Act: \$93M for turbine performance and reliability testing, R&D on critical wind energy challenges, and advanced material technology development
- **Solar:** Increase photovoltaic (PV) efficiency, system reliability and manufacturing capability; increase concentrating solar power (CSP) efficiency and reliability and develop thermal storage technologies
- **Geothermal:** Evaluate and validate Enhanced Geothermal Systems (EGS), or engineered reservoirs of hot rock but a deficient of water and/or permeability.
  - Recovery Act: \$400M for RD&D to accelerate the development of pilot scale EGS projects, update the resource database, and standards & training for geothermal heat pumps
- **Water Power:** Facilitate technology design and development to improve system performance and reduce costs of marine and hydrokinetic technologies



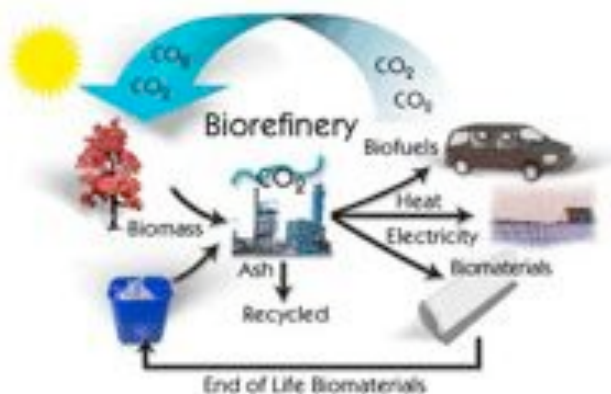
## Advanced Vehicles

Advance vehicles R&D to stimulate domestic manufacturing of advanced batteries and electric drive-train components to accelerate the large-scale commercial use of plug-in vehicles in the U.S.



## Fuel Cells

Advance fuel cell technologies to increase the commercial availability of fuel cells.



## Next Generation Biofuels

Advance the research and accelerate the demonstration and deployment of cellulosic biofuels technologies to provide a home grown alternative to imported oil.

# Current Status of Advanced Transportation Technologies



- In 2006, the U.S. became the world's leading ethanol producer. In 2008, the U.S. produced 9 billion gallons of ethanol – displacing the need for nearly 320 million barrels of oil.
- Approximately 1.3 million Hybrid Electric Vehicles (HEVs) are on the road (total light-duty vehicles: ~240 million). Since 2001, HEV sales have grown nearly 145%.
- Over 200 fuel cell vehicles and 60 fueling stations have been demonstrated in the U.S.

Highway vehicles account for 55% of U.S. oil consumption

# EERE Advanced Vehicle Technologies Program Area Snapshots



- **Biofuels:** Make cellulosic ethanol cost-competitive by 2012 partially through investing in full- and demonstration-scale biorefineries
  - Recovery Act: \$800M to accelerate R&D for multiple advanced biofuel pathways and to provide additional support for commercial-scale biorefinery demonstrations
- **Advanced vehicles:** Increase R&D for plug-in hybrid electric vehicle (PHEV) technologies, lightweight materials for vehicle structures and powertrains, study possibilities for intermediate blends of ethanol (above E10)
  - Recovery Act: \$2.0B to build domestic battery manufacturing capabilities and an additional \$400M for large-scale electric vehicle demonstrations
- **Fuel Cells:** Develop multiple fuel cell technologies for multiple fuel sources for applications in distributed generation, backup power, auxiliary power units, portable power systems, material handling equipment, specialty vehicles, and transportation
  - Recovery Act: \$42M towards accelerating early market opportunities for fuel cells



# The American Recovery and Reinvestment Act of 2009 (Recovery Act)



- President Obama signed this unprecedented effort into law on February 17, 2009:
  - Jumpstarts our economy, create or save millions of jobs, and put a down payment on addressing long-term challenges, so our country can thrive in the 21st Century
  - Requires the hard work and collaboration of homeowners, scientists, local and state governments, small businesses, industry, and many others



# Energy Efficiency and Renewable Energy (EERE) Recovery Act funding



EERE RD&D		\$2.5B
Biomass	\$800M	
Geothermal	\$400M	
Information & Communications Tech.	\$50M	
EERE Discretionary Funding	\$1.25B	
Energy Efficiency Conservation Block Grants		\$3.2B
State Energy Program		\$3.1B
Weatherization Assistance		\$5.0B
Energy Efficient Appliance and ENERGY STAR Rebates		\$300M
Alternative Fuel Vehicle Grant Program		\$300M
Advanced Battery Manufacturing Grants		\$2.0B
Transportation Electrification Grants		\$400M
EERE Total:		\$16.8B

# Types of state and local projects



- State and local building retrofits that are ready to start
- Residential energy efficiency programs—energy audits and financial incentives
- Programs incorporating sustainable strategies—performance contracting, state procurement standards, revolving loan programs, and transportation initiatives that will provide long-term dividends

# The State Energy Program



- Congress created the State Energy Program (SEP) in 1996 by consolidating the State Energy Conservation Program and the institutional Conservation Program to:
  - Encompass both renewable energy and energy efficiency technologies and address all sectors of the economy
  - Fund states to carry out their own clean energy programs and projects

**MARCH 12, 2009**

**DOE Announced Nearly \$3 Billion under SEP**

# How the State Energy Program works



- SEP distributes financial assistance to the states, District of Columbia, and territories (American Samoa, Guam, Puerto Rico, U.S. Virgin Islands, and the Northern Mariana Islands) through formula grants
- States develop energy efficiency and renewable energy projects that meet their unique energy needs and are consistent with national energy goals



# Weatherization Assistance Program



- The program helps low-income households improve the efficiency of their homes
- Funds are allocated to the states, which distribute funds to local agencies
- Low-income families save an average of \$350 or more each year on their energy bills after their homes have been weatherized. These homes avoid an estimated 1.79 tons of carbon dioxide emissions annually.

**MARCH 12, 2009**

**DOE Announced Nearly \$5 Billion for Weatherization**

# Energy Efficiency and Conservation Block Grants program



- Formula grants that support energy audits, efficiency retrofits, improved building codes, etc.
- Applies to cities and counties nationwide. Smaller cities and counties can work through state energy offices to access the funds
- Drives significant improvements in energy efficiency and renewable energy at the local level—high return projects

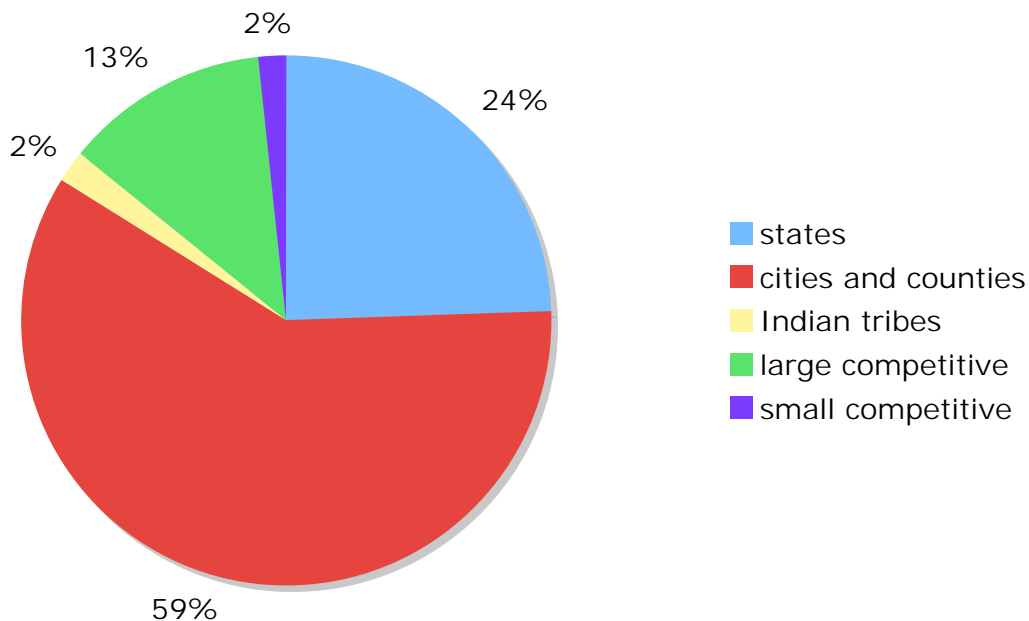
**MARCH 26, 2009**

**DOE Announced \$3.2 Billion for EECBG**

# Energy Efficiency and Conservation Block Grants



**Appropriations: Total \$3.2 billion**



**Cities and counties  
\$1,880,310,000**

**States  
\$767,480,000**

**Indian tribes  
\$54,836,200**

**Competitive grants:  
\$54,820,000  
\$398,000,000**

# Energy Efficiency and Conservation Block Grants



## Eligible Uses of Funds

- Primarily for energy efficiency and energy conservation
- Community-wide; not just municipal buildings and facilities
- Don't have to do capital *projects*, can do *programs*
- Prioritize activities that pay dividends year after year
- Funds must be obligated within 18 months, expended within 36

### **1.Strategy Development**

### **2.Building Energy Audits & Retrofits**

### **3.Financial Incentive Programs**

### **4.Energy Efficiency and Conservation Programs for Buildings and Facilities**

### **5.Development and Implementation of Transportation Programs**

### **6.Building Codes and Enforcement**

### **7.Energy Distribution Technologies for EE including CHP & district heating and cooling**

### **8. Material Conservation Programs including source reduction, recycling, and recycled content procurement programs**

### **9. Reduction and Capture of Methane and Greenhouse Gases**

### **10.Traffic Signals and Street Lighting**

### **11.Renewable Energy Technologies on Government Buildings**

### **12.Any Other Appropriate Activity**

# Applying for grants administered by states or local governments



- Apply directly to state energy office or local government entity
- Go to [energy.gov/recovery/](http://energy.gov/recovery/) to find link to your state energy office