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# Energy From Agriculture:

## New Technologies, Innovative Programs & Success Stories

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### Recent Energy Legislation: Perspectives and Opportunities

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**USDA's Office of Energy  
Policy and New Uses**





## **Energy Policy Act of 2005 – EPACT**

**Where does EPACT fit into  
the future vision for energy  
and the agricultural sector?**

# Energy Policy Act of 2005 – Background

- The Energy Policy Act of 2005 was signed into law by President Bush on August 8, 2005.
- The comprehensive 1,724 page bill provides over \$12 billion in tax breaks and other production and conservation incentives for both industry and consumers (*The Table of Contents alone is 19 pages!*)



# Energy Policy Act of 2005

Major Title of Energy Bill	Sections that Pertain to Energy Efficiency, Renewable Energy & Agriculture
Title I—Energy Efficiency	✓
Title II—Renewable Energy	✓
Title III—Oil and Gas	
Title IV—Coal	✓
Title V—Indian Energy	
Title VI—Nuclear Matters	
Title VII—Vehicles and Fuels	✓
Title VIII—Hydrogen	✓
Title IX—Research and Development	✓
Title X—Department of Energy Management	✓
Title XI—Personnel and Training	✓
Title XII—Electricity	✓
Title XIII—Energy Policy Tax Incentives	✓
Title XIV—Miscellaneous	✓
Title XV—Ethanol and Motor Fuels	✓
Title XVI—Climate Change	✓
Title XVII—Incentives for Innovative Technologies	✓
Title XVIII—Studies	✓



# **EPAct 2005 Provisions Related to the Agricultural Sector**

## **Government Procurement Helping to Create Markets for Energy Technologies**

- Federal Government Renewable Purchase Requirement (Sec. 203)
- Federal and State procurement of fuel cell vehicles and hydrogen energy systems (sec. 782)
- Federal procurement of stationary, portable and micro fuel cells (Sec. 783)
- Federal procurement of energy efficient products (Sec. 104)



# EPAct 2005 Provisions Related to the Agricultural Sector

## Financing Incentives



- Renewable Energy Production Incentive (Sec. 202)
- Grants for Facilities using Forest Biomass to Produce Energy (Sec. 210)
- Grants to Producers of Certain Ethanol (including cellulosic biomass, waste-derived-ethanol, approved renewable fuels (Sec. 1512))



# EPAct 2005 Provisions Related to the Agricultural Sector

## Tax Incentives

### Renewable Energy

- Extension and Equalization of the Production Tax Credit
- Clean Renewable Energy Bonds (CREBs)
- Extension of Biodiesel Income and Excise Tax Credits
- New Small Producer Biodiesel Credit
- Modifications to the Small Ethanol Producer Credit
- Alternative Fuel Refueling Property
- Residential solar (heat and electricity) tax credit
- Business Solar Investment Tax Credit

### Other Incentives for Producers of Electricity

- Treatment of Electric Cooperative Income Under 85/15 Test

### Energy Efficiency and Conservation Incentives

- Alternative Powered Vehicles
- Residential Fuel Cell Equipment
- Business Tax Credit for Purchase of Fuel Cell Power Plants
- Personal Credit for Energy Efficient Home Improvements
- Credit for Commercial Building Energy Reductions
- Business Tax Credit for Developer Constructing Fuel Efficient Homes
- Manufacturers' Tax Credit for Efficient Appliances



# **Increasing Market Demand for Renewable Electricity Through Federal Purchases**

- By 2013, the act requires the federal government to buy at least 7.5 percent of its electricity from renewable energy sources
- The act doubles the credit for power generated on-site or on federal or tribal lands.





# EPACT 2005 - Two Major Energy Efficiency Provisions

**Manufacturer and consumer tax incentives (more than \$2 billion beginning in 2006 and generally extending for 2 years) for advanced energy-saving technologies and practices**

**Minimum energy efficiency standards on 16 products**



## Residential

Ceiling Fan Light Kits  
Dehumidifiers  
Compact Fluorescent Lamps

## Commercial

Air Conditioners And Heat Pumps, Clothes Washers, Distribution Transformers, Exit Signs, Fluorescent Lamp Ballast, Ice-makers, Mercury Vapor Lamp Ballast, Pedestrian Signals, Pre-rinse Spray Valves, Refrigerators



# 2005 Energy Act & Buildings

➤ **Provisions include:**

- Tax credits for:
  - Commercial and Industrial Buildings
  - Residential Buildings
  - Energy Efficient Products such as appliances and heating and cooling equipment (including solar and geothermal heat pumps)
- R&D in:
  - Next Generation Lighting Initiative (\$23 M appropriated by Congress)
  - National Building Performance Initiative
- Technology Deployment:
  - Advanced Energy Efficiency Technology Transfer Centers



# EPACT and Materials Handling

- Provides tax credits *to the manufacturer of* very efficient refrigerators and other appliances. This may help to bring prices down to the consumer.
- Requires new federal minimum efficiency standards on products ranging from compact fluorescent light, refrigerators and freezers, ice-makers, air conditioners and heat pumps.
- Directs DOE to conduct a consumer education program on HVAC maintenance on the benefits of proper air conditioning, heating and ventilation maintenance.



## Related EPACT and Transportation

- Credits provided for hybrid, fuel cell, and “advanced” diesel vehicles.
- Provides a tax credit of up to \$3,400 for owners of hybrid vehicles
- Alternative fueled vehicles are eligible for credits.



# Related EPACT and Industry

## **Industrial Voluntary Commitments –**

Encourages DOE to enter into agreements with large industrial firms and/or their trade associations to achieve at least 2.5 percent per year energy efficiency gains.

## **Combined Heat and Power –**

Provides for a study by DOE on the potential benefits of distributed generation and methods for valuing their benefits. Directs states to consider adopting model interconnection standards which will help CHP and distributed generation to increase.



# EPACT 2005 Provisions Related to Renewable Energy

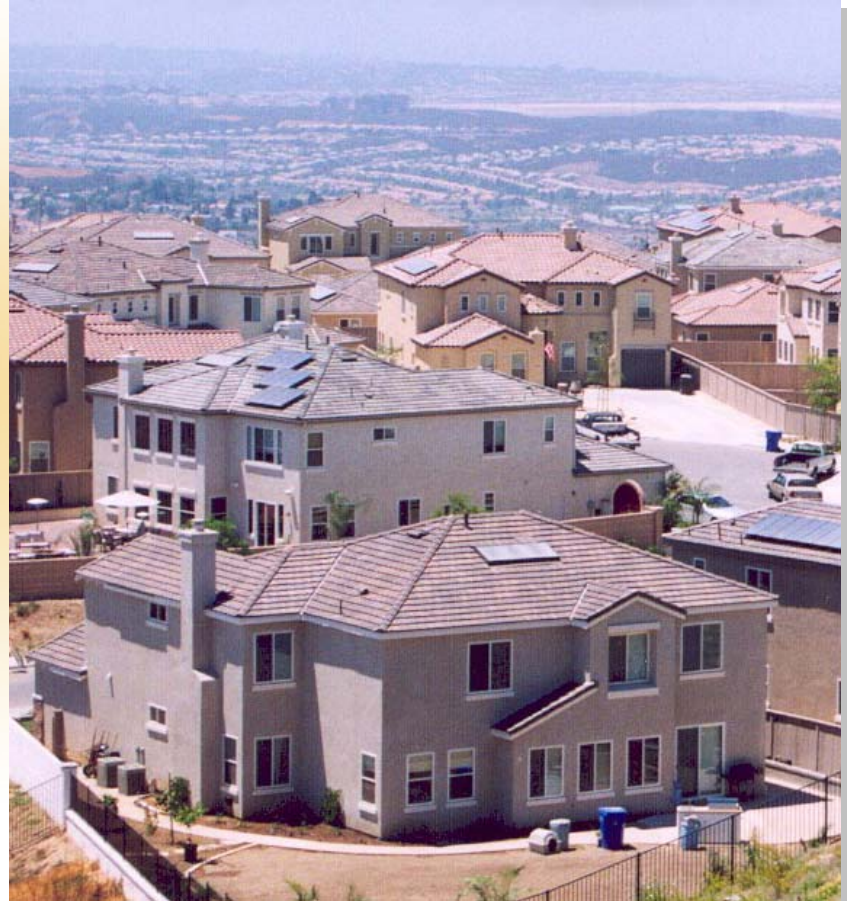
- **Authorizes or reauthorizes** several renewable energy programs.
- Sets new goals for renewable energy in **federal facilities and fleets**,
- Expands programs for hydrogen fuel cell buses, and sets a **renewable fuels standard** of 7.5 billion gallons per year by 2012 for increased use of ethanol and biodiesel.



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# EPAct 2005 and Solar Energy

- First federal tax credits for solar energy systems on homes in 20 years.
- Homeowners and businesses will receive a credit of up to 30 percent of the cost of installing a solar power system or a solar hot water system.
- The solar energy tax credit is capped at \$2,000 for each type of system, and applies to the cost after accounting for any state and utility incentives.
- It applies to systems that are placed in service in 2006 or 2007.



# Renewable Energy & EPACT 2005 (Cont'd)

## In the tax title of the bill:

- §1301 extends the renewable energy production tax credit (PTC) for two years,
- §1303 provides \$800 million in renewable energy bonds,
- §1335 establishes a residential solar (heat and electricity) tax credit, and
- §1337 creates a business solar tax credit.





# EPAct 2005 Provisions Related to the Agricultural Sector

## R&D Provisions for Renewables



- Extensive R&D Provisions (Title IX) related to programs of renewable energy research, development, demonstration, and commercial application in the following areas:
  - Solar Energy and Photovoltaics
  - Cellulosic Biomass
  - Biofuels and Biobased Products
  - Biomass Integrated Refinery
  - Wind Energy (Low Speed, Distributed Wind Energy Production)
  - Geothermal Energy Drilling (Improving Resource Detection, Decreasing Drilling and Maintenance Costs)
  - Hydropower



# EPACT – Education & Outreach

- Numerous titles encourage education and outreach on energy technology including:
  - University research programs;
  - Energy awareness campaigns to improve energy education of the public;
  - Consumer education, e.g. HVAC maintenance training

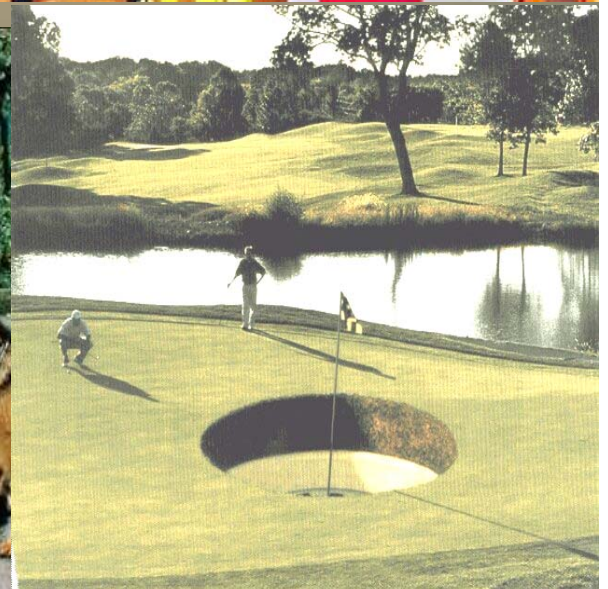




# Opportunities

- Take advantage of EPACT provisions to leverage efforts and make strides at local, regional, and national level:
  - **Utilities and other agencies** implementing electricity-saving programs could gear their programs to complement these new tax incentives (including enhanced programs to promote efficient new homes; new commercial buildings; appliances; heating, air conditioning, and water heating equipment; and retrofits to existing homes)
  - **State agencies and others** interested in distributed generation could consider policy initiatives and promotions to complement federal incentives for stationary fuel cells and microturbines.
  - **States and others interested** in promoting advanced cars and trucks could use federal hybrid, fuel cell, and advanced diesel vehicle tax credits to support their efforts.

# What Can You Do To Engage The Provisions of EPACT?



*Let Us Begin Building a Prosperous Future  
for Rural America*



**Where Energy is Clean, Abundant, Reliable, and Affordable**





# Additional Information on EPACT 2005

➤ [\*http://aceee.org/pubs/e053.htm\*](http://aceee.org/pubs/e053.htm)

Excellent summary of EPACT 2005 energy efficiency provisions from the American Council for an Energy-Efficient Economy (ACEEE)

➤ [\*http://www.ncseonline.org/NLE/CRS/abstract.cfm?NLEid=22053\*](http://www.ncseonline.org/NLE/CRS/abstract.cfm?NLEid=22053)

Good material from Congressional Research Service on renewable energy and EPACT 2005

➤ [\*http://energycommerce.house.gov/108/0205\\_Energy/conference/EnergyConf\\_report.pdf\*](http://energycommerce.house.gov/108/0205_Energy/conference/EnergyConf_report.pdf)

Full text version of the Energy Policy Act of 2005