The State Energy Program:

A Modest Investment…A Mammoth Return

How $45 Million Yields $256 Million in Annual Energy Cost Savings

If Webster Had to Define it…

State Energy Program: *Noun*: the only Federally funded, State-based initiative administered by the U.S. Department of Energy to encourage State and private-sector initiatives to:

- Save Energy
- Reduce Energy Costs
- Create Energy from Non-Fossil Resources
- Reduce Harmful Emissions

***See also*: leverage, economic advantage, increased return on investment**

A Model Federal Government Program

- SEP represents modest investment ($45M in FY02)
- Produces measurable benefits addressing key national energy, economic, and security policy goals
- Allows for maximum state/local control over resource allocation
- Encourages significant private and State investment (economically justifiable, environmentally sound), including job creation

SEP Produces Quantifiable Benefits…

- Energy Savings
- Cost Savings
- Emission Reductions
- Alternative and Renewable Energy Production
- Economic Development
- Jobs Created for Americans

…That Support National Policy Goals

- Assuring energy reliability and availability
- Strengthening America's competitive position (while decreasing reliance on oil produced outside the U.S.)
- Strengthening national energy security
- Enhancing homeland security

Quantifying SEP's Benefits:
The Oak Ridge National Laboratory Report

"The impressive savings and emissions reductions numbers, ratios of savings to funding, and payback periods…indicate that the State Energy Program is operating effectively and is having a substantial positive impact on the nation's energy situation." – January 2003

More Precisely, $1 in SEP Funding Yields…

- $7.23 in annual energy cost savings
- 1.17 million source BTUs saved
- $3.54 in “leveraged” funding from the State and private sector (not including public benefits funds)

Aggregate Annual Savings are Significant

- Energy savings:
  - 41,358,478 MMBTUs
- Cost savings:
  - $256,422,600.00

Annual Emissions Reductions are Equally Significant

Total Annual Emission Reductions

Carbon	719,251.8 metric tons
VOCs	127.2 metric tons
NOx	5,739.0 metric tons
PM_{10}	144.8 metric tons
SO_2	7,655.7 metric tons
CO	968.7 metric tons

Actual Program Benefits are Even Greater

- ORNL report quantifies benefits of 14 SEP program areas, representing about 60% of funding
- Not addressed by report are benefits related to:
  - energy emergency planning and preparedness,
  - State Energy Office involvement in public- and private-sector energy policy and program plan development, and
  - alternative energy production activities

STATE ENERGY PROGRAM

Where the BTUs Meet the Road

Examples of SEP in Action

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TEXAS

LoanSTAR Program

Purpose and Goals:

- Reduce building energy consumption and taxpayers' energy costs through efficient operation of public buildings

Program Activity:

- Revolving loan program financing energy efficiency projects for State agencies, colleges and universities, school districts, county hospitals and local governments

- Legislatively mandated capitalization of $95 million, minimum
- Loans repaid from cost savings generated by funded projects
- 144 loans totaling over $164 million

TEXAS

LoanSTAR Program

Results:

- *Energy Savings*
  - Energy savings exceed 18 million MMBTUs = electricity use of 440,000 homes for a year
  - Total energy cost savings top $125 million
  - Projected energy savings to surpass $500 million, over the next 20 years

- *Emission Reductions*
  - CO_2 – 1,342,235 tons
  - SO_2 – 3,076 tons
  - NOx – 4,699 tons

Denver Region

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State Energy Advisory Board

NEW YORK

FlexTech Program

Purpose and Goals:

- Encourage energy efficiency in commercial/industrial sectors

Program Activity:

- Objective engineering assistance to commercial/industrial customers

- $750,000 per year of SEP funds
- Information on energy improvements and implementation of energy efficiency measures
- Initially implemented using SEP funds
- Now supplemented with New York Energy $mart^{SM} public benefit funds

Boston Region

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State Energy Advisory Board

NEW YORK

FlexTech Program

Results:

- *Energy Savings*
  - 20,000 mWh of electricity per year = electricity use of more than 3,300 households
  - 5,000 kW peak load reduction per year = ~1/3 cost of NGCC plant
  - 200,000 MMBtu of natural gas per year = 195 million cubic feet
  - 200,000 MMBtu of oil per year = 34,500 barrels of crude oil
  - SEP-funded portion saves ~70,000 total BOE per year
- *Emission Reductions*
  - CO_2 ~30,000 tons per year
  - NOx ~40 tons per year
  - SO_2 ~80 tons per year
- *Leveraging*
  - SEP funds leverage $14 million in capital improvements
- *Other*
  - $4 million per year of energy and operational savings
  - Creates ~130 jobs

Boston Region

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HAWAII

Solar Program

Purpose and Goals:

- Reduce energy costs through installation of solar water heaters and solar electric systems (PV)

Program Activity:

- Total SEP funding of $500K
- Public education, State tax incentives, development of solar maps; work with solar and buildings industries, and public utilities
- 75,000 solar water heater systems installed
- Statewide public-private partnership created
- Number 1 in solar systems registered in Million Solar Roofs Program

Seattle Region

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HAWAII

Solar Program

Results:

- *Energy Savings*
  - 2 million MMBTUs per year = electricity use of ~50,000 households
- *Emission Reductions* (75,000 water heaters)
  - CO_2 – 2 million tons
  - NOx – 6,000 tons
  - SO_2 – 3,600 tons
  - PM_{10} – 360 tons

- *Leveraging*
  - $180M from homeowners
  - $15M in utility rebates
  - $150M in state income tax credits
  - $345M in solar investment stimulated **690:1** ratio of total investment from SEP seed money
- *Other*
  - 1,800+ jobs created
  - $240M in total savings for Hawaii residents

Seattle Region

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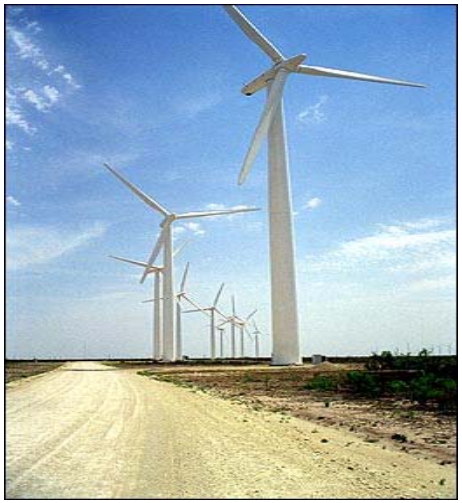
NEW MEXICO



Wind Energy Program

Purpose and Goals:

- Develop commercial wind power in New Mexico
- Produce clean, affordable electricity for New Mexicans

Program Activity:

- Wind Resource Assessment and Monitoring - $210,500
  - 6 of the most promising sites selected for intense monitoring
  - All 6 determined to have significant commercial potential
- Economic Impact Studies - $50,000
  - Detailed economic benefits of wind power to 5 counties
- Wind Development Guide/Case Study - $150,000
  - Step-by-step guidance documents for wind development in New Mexico

Denver Region

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NEW MEXICO

Wind Energy Program

Results:

- *Energy Savings*
  - Wind power will offset some of State's 99% fossil-fired power generation
- *Leveraging*
  - $400,00 in SEP funds garner nearly $90 million in State incentives for wind projects
- *Other*
  - Over 200 MW of wind capacity scheduled on line by end of 2003
  - New State public policy incentives resulting from Wind Energy Program:
    - ❖ Renewable Energy Production Tax Credit
      - – $0.01/kWh provides $8million/yr for 10 years $80 million (maximum)
    - ❖ Industrial Revenue Bond Financing of Wind Projects
      - – Lower interest rates and exemption from Gross Receipts Tax for wind equipment $7 million (minimum)
    - ❖ Renewable Portfolio Standard
      - – Effective July 1, 2003, 10% by 2011
      - – Wind Program instrumental in getting legislation passed

WASHINGTON

Telework Collaborative

Purpose and Goals:

- Reduce vehicle miles traveled
- Save energy, improve air quality, reduce traffic congestion, and enhance job opportunities
- As a result of 9/11/01, use telework as a foundation for emergency management plans

Program Activity:

- Create a five-state partnership with 50+ years of leadership and experience in telework (Washington,Oregon,California,Arizona,Texas)
- Provide training, technical assistance, and implementation tools to employers throughout the country

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WASHINGTON

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Telework Collaborative

Results:

- *Energy Savings*
  - State agency teleworkers in OR, WA, AZ, and TX drive 8.5 million miles less, saving 283,000 gallons of gasoline
- *Emission Reductions*
  - State agency teleworkers in OR, WA, AZ, and TX reduce 2,300 tons CO_2 annually

- *Leveraging*
  - More than $1M in state and federal funds to create a comprehensive package of telework tools including guidebooks, training kits, on-line training, case studies, and web sites
- *Other*
  - A 1999 U.S. West survey reported that more than 40% of employers in OR, WA, and AZ offer telework
  - Helped organizations in 46 states and 12 countries establish programs
  - The U.S. Office of Personnel Management lists Telework Collaborative training materials on its telework web site as suggested resources for Federal agencies

IOWA

Chariton Valley Biomass Project

Purpose and Goals:

- Demonstrate electricity production from co-firing and gasification of biomass
- Assess environmental impact of biomass generated electricity

Program Activity:

- Transform warm and cool season grasses such as switchgrass and reed into cash energy crops
- Establish and manage biomass plantings
- Develop biomass energy market
- Support from public agencies, private organizations, and landowners

Chicago Region

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State Energy Advisory Board

IOWA

Chariton Valley Biomass Project
Results:

- *Emission Reductions*
  - CO_2 ~177,000 tons/year, co-firing 5% biomass with coal at Ottumwa Generating Station
  - SO_2 ~113 tons/year, co-firing 5% biomass with coal at Ottumwa Generating Station
- *Leveraging*
  - $7.0M DOE funds
  - $10.7M non-Federal in-kind sources
  - $17.7M total
- *Other*
  - Economic development for rural communities
  - Alternative market for lands enrolled in the Conservation Reserve Program
  - Reductions in soil erosion and increases in water quality
  - Habitat for declining grassland birds

Chicago Region

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MISSOURI

Pattonville School Landfill Methane Project

Purpose and Goals:

- Reduce natural gas heating energy costs
- Reduce landfill emissions from flared waste methane

Program Activity:

- Conversion of two natural gas boilers to methane
- Project costs – $182,000

Results:

- *Energy Savings*
  - All natural gas usage replaced by methane (8,142M BTUs)
  - $40,130 annual natural gas fuel savings
- *Emission Reductions*
  - CO_2 – 981,843 pounds per year
- *Leveraging*
  - Landfill operator covered cost of pipeline and supplies methane at no charge

Chicago Region

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CALIFORNIA

Builder Energy Code Training

Purpose and Goals:

- Save energy through energy code training for large production builders in CA, NV
- Improved compliance with California's Residential Building Energy Efficiency Standards (Title 24)

Program Activity:

- Training is provided in quality energy-related construction practices (insulation, space conditioning, plumbing, etc.)
- More than 400 builder companies and 3,000 builder and local building department staff have participated
- Prior to the program, new homes complied with the standards only 15% of the time. Following training, participating builders were in compliance 77% of the time
- Approximately 125,000 new homes have directly benefited

Seattle Region

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CALIFORNIA

Builder Energy Code Training

Results:

- *Energy Savings*
  - More than 69 trillion Btus annually in energy efficiency or $600,000 = electricity use of nearly 1.7 million households
  - Over 6 years: 388 trillion Btus or $3.3 million annually for life of homes = electricity use of nearly 9.5 million households
  - Annual consumer savings over 150% of one-time training costs
  - **Total savings = production of 2 "peaker" power plants** (typically, peaker plants range between 200 and 600 MW)
- *Emission Reductions*
  - CO_2 – 101,196 pounds
  - SO_2 – 7,197 pounds
  - NOx – 7,833 pounds
- *Leveraging*
  - $750K to $1 million in Southern California Edison Funds each year

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SEP: A Model Federal Government Program

- Represents modest investment ($45M in FY02) with great return
- Produces measurable benefits addressing key national energy, economic and security policy goals as illustrated by case studies
- Allows for maximum state/local control over resource allocation
- Encourages significant private and state investment (economically justifiable, environmentally sound) including job creation
- Federal government gets much value added from programs whose metrics have not been factored in, like energy emergency preparedness, state policies to support federal initiatives, clean energy production

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