

Welcome



NYSERDA
Overview
June 2008



NYSERDA

New York State Energy Research and Development Authority

- **A Public Benefit Corporation established in 1975 by State Legislature**
- **Mission: To identify solutions to State's energy challenges in ways that benefit the State's economy and environment**
- **Forge public/private partnerships with businesses, municipalities, residents, and other energy stakeholders to accomplish this goal**

NYSERDA

NYSERDA provides Co-Funding to Eligible Recipients to help:

- **Evaluate Options for Energy Efficiency Improvements**
- **Purchase and Install Premium-Efficiency Equipment**
- **Invent New Products to Grow NYS Manufacturing Jobs**
- **Develop Business Acumen to Accelerate Business Growth**
- **Conduct Technology Transfer to Spur Marketplace**
- **Train and Develop “Green Collar” Workforce**

Support for All Sectors



Office/Commercial

Residential

Transportation

Industrial/Agricultural

NYSERDA Responsibilities

- **Energy Research & Development, Demonstration, and Deployment**
- **System Benefits Charge Administrator**
- **Energy Planning & Analysis**
- **Power Plant Siting Board Member**
- **Greenhouse Gas Task Force**
- **West Valley Demonstration Project**
- **Saratoga Technology + Energy Park**
- **Spearheading EO # 111**
- **Administrator of Renewable Portfolio Standard (RPS)**
- **Governor's Renewable Energy Taskforce**





**SARATOGA
TECHNOLOGY +
ENERGY
PARK**

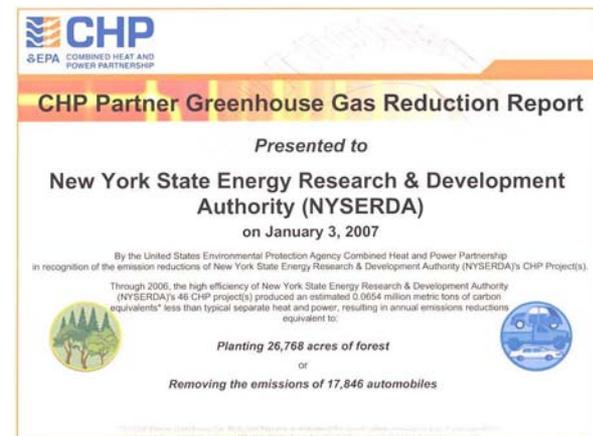


- STEP is a knowledge-based community dedicated to the development of clean energy technologies
- Locating companies to STEP
 - Seven companies so far
- Expected to attract more than 3,000 jobs to the Capital Region
- Designated an Empire Zone
- Partners: Saratoga Economic Development Corp., University at Albany, Town of Malta

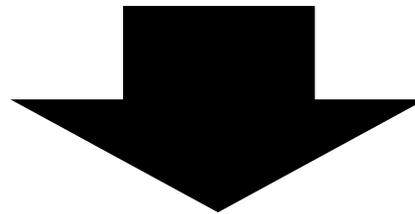
NY Energy \$martsm Benefits

“Small Charge, Big Change”

- Saving Money, Energy, Jobs and the Environment
- In a 6 ½ year period of NY Energy \$mart:
 - \$198 million in annual energy savings realized
 - 4,200 jobs retained and created
 - \$2.50 leverage for every program \$1
 - 1,400 GWh/yr saved = 230,000 households
 - 860 MW of demand reduced
- Annual emission reductions
 - 1,280 tons of NO_x
 - 1 million tons of CO₂ = 200,000 fewer cars



**Help to Identify
What You Need
(Technical Assist / Feasibility Studies)**



**Help to Invent
New Technology
(R&D)**

**Help with
Early Adoption
(Demonstration)**

**Help to Buy
Mature/Premium
(Deployment)**

Deployment Features

- **Menu of Underutilized Technologies**
- **Commercial Off-the-Shelf Items**
- **\$\$ Awarded via Open Enrollment/Rebate**
- **Branding Campaign for Retail Customers**
- **Goals:**
 - **Target Peak Demand and Capacity**
 - **Foster Customer Choice**



RD&D Features

- Innovative Technologies
- Market-Driven Topics
- Near-Term Commercialization
- \$\$ Award via Competitive Selection

- Format of Projects:
 - Feasibility Studies
 - Applied Research R&D
 - Demonstration Showcase Events



RD&D and Deployment

Help “Stock the Shelves” with New and Better Technologies

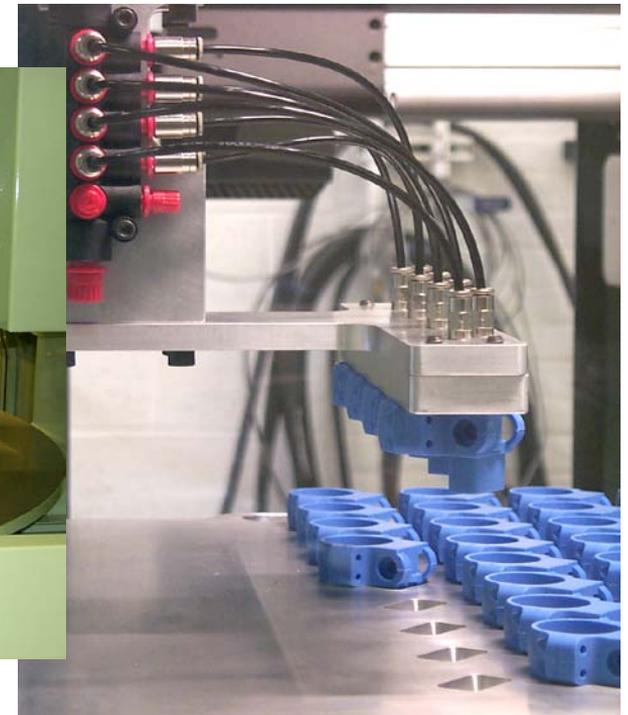
Help “Flood the Marketplace” with Proven Underutilized Technologies

Energy – efficiency, reliability

Environment – clean energy

Economics – enhance NYS competitiveness

Automation for Precision/Repeatability



New Product Development

- Grow Jobs in NYS
- Invent New Energy Technologies
- Underwrite Risk of R&D for Small and Large Companies

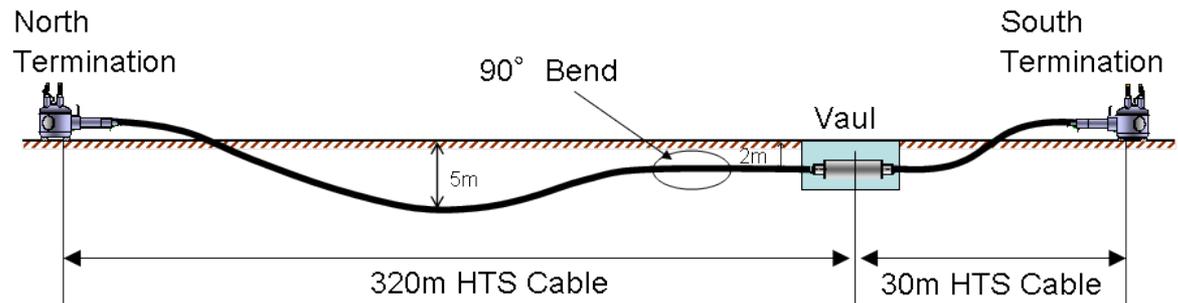
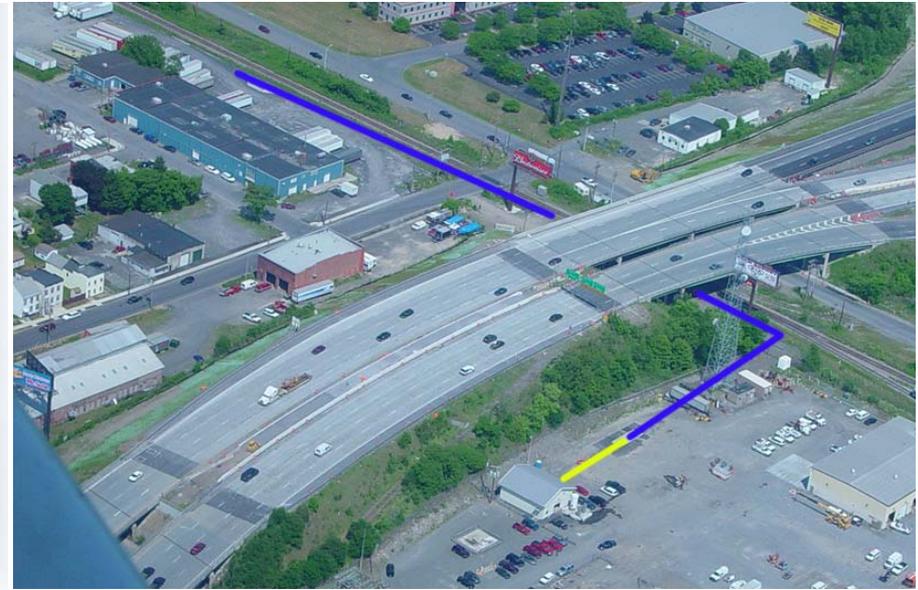


Hydrogen and Emerging Technologies

- Hydrogen-fueled Vehicles and Fueling Infrastructure
- Superconductivity-enabled Electrical Cables
- Microwave, Laser, X-ray, Ultraviolet, Radio Frequency, Electron Beam Energy Sources for Precision Heating of Industrial Parts



High-Temperature Superconducting Cable Commissioned in Albany in Summer 2006



Public Benefit Electric T&D R&D



- Advanced Monitoring and Diagnostic of Grid Status
- Control Logic for Real-time Response to Deviations
- Lightweight/Reinforced Cables for Long Overhead Spans

Building Envelope

Develop new building construction products

- Advanced windows
- Panelized wall systems
- Industrialized construction methods
- Integrated systems

Transform the way Buildings are Designed and Built

Lighting

Partners with Rensselaer Polytechnic Institute's (RPI)
Lighting Research Center (LRC)

- National Lighting Product Information Program (NLPIP)
- Design and Evaluation of Lighting Technologies and Applications (DELTA)
- Hybrid Skylight Program



Morgan Chase Manhattan

NYSERDA Incentive \$50,000

- Lighting upgrades in 10 locations in NYC
- 400,000 kWh/yr savings

510 5th Avenue



Technical Assistance Services

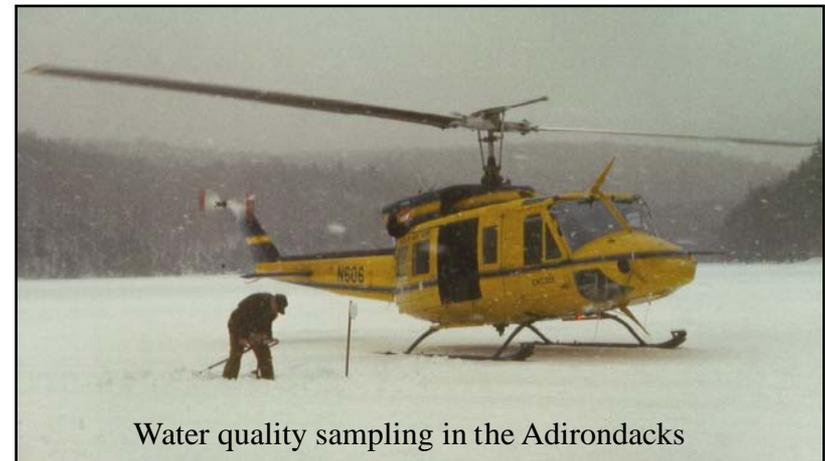
- Flexible service
- Customer-directed
- 50% Cost share
- Examples:
 - Feasibility Studies
 - Retrocommissioning
 - CHP
 - Energy Operations Management
 - Load Curtailment



Transform Market by Growing a Network of Providers

Environmental Monitoring, Evaluation & Protection

- Increase understanding of environmental impacts of energy choices
- Provide scientific foundation for effective, equitable energy-related environmental policies
- Focus areas: acid rain, mercury pollution, fine particle pollution, climate change, reducing impacts from alternative energy development



Water quality sampling in the Adirondacks



Mercury measurements in the Catskills

Benefits of DG-CHP

- **Fuel “in” at one place, Multiple Benefits “out” yields Financial Savings, and is Good for the Environment**
- **Diversification of Energy Supply Sources yields Greater Reliability ==> Energy Security**
- **Return on Investment:**
 - DG-CHP ==> Every Day**
 - Emergency Generator ==> Sporadically, if ever**

Greater Rochester International Airport

- Two 750 kW Natural Gas Reciprocating Engines
- Heat Recovered for Space and DHW Heating and a 300 ton Absorber
- NYSERDA \$500,000
GRIA \$2,000,000
- Status: Fully Operational



Personal Observations

- We've come a long way
 - hope to have ~300 MW running by 2012
 - still a long way to go before getting to thousands of MW without subsidy
 - many barriers removed – but many remain
- We all have sense that we are at an unsettled time in energy
- Will this help or hurt CHP?
 - rising and uncertain fuel prices
 - rising but less rapid electric prices
 - inhibition of capital decision making
- Good thermal utilization CHP is a broadly applicable efficient technology which should win considering
 - high energy prices
 - carbon constraints

- Let's learn from each other
- Plan the path forward
- Define what needs to be done
 - Government
 - Industry