

New York Power Authority Energy Services & Technology



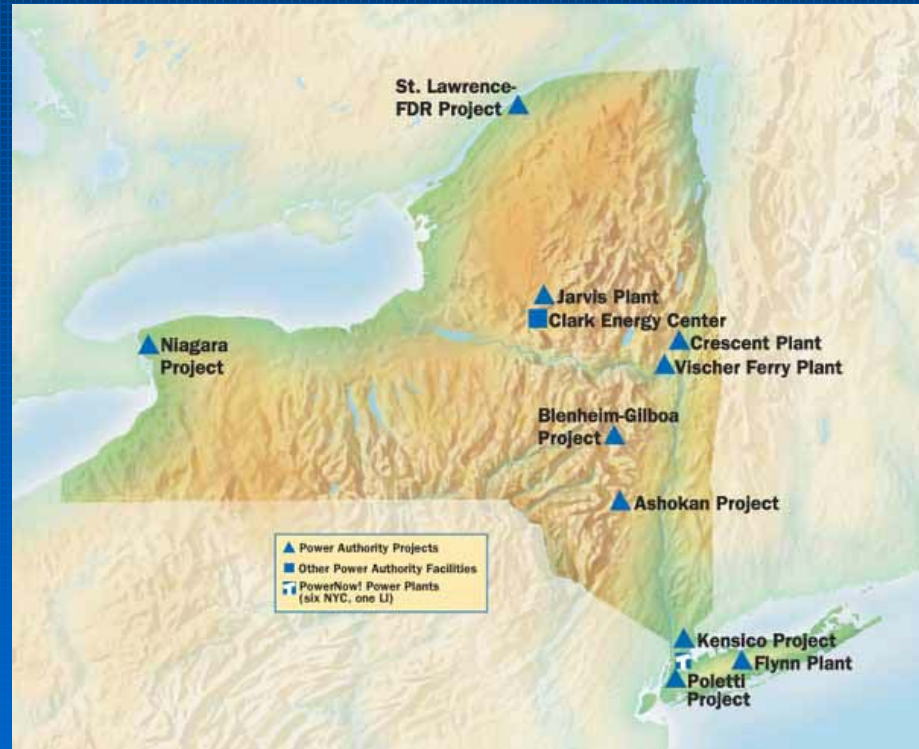
***Energy Efficiency Partnerships
June 15th, 2009***

New York Power Authority

✧ NYPA owns and operates **17 power plants** and **1,400 circuit-miles of transmission lines**, supplying one-fifth of New York State's electricity.

✧ NYPA **energy efficiency services** help schools and other public facilities **conserve power and cut energy costs.**

✧ NYPA is New York State's **leading supplier of renewable power**, investing in life extension and modernization of its hydropower resources as well as wind power, solar energy, fuel cells and other advanced energy technologies.



NYPA Energy Services Profile

- NYPA has offered Energy Services since the mid-1980's
- Annual budget over \$120M in investments
- NYPA's Formula: Provide turn key services including audit, design, construction and complete project closeout
- Provide up front financing with recovery from participants usually within 10 years through energy savings
- To date, over \$1.3B has been invested with improvements in over 3,100 public and not for profit facilities
- NYPA will invest \$1.4B in energy efficiency and clean energy technologies through 2015 to support the Governor's 45x15 plan and the Mayor's PlanYC
- 400 projects currently in progress at 800 facilities

Evolution of ESP

- Lighting
- Motors
- VFD's
- Chillers
- Boilers (High & Low Pressure Steam, Condensing)
- Building Shell
- Web Based Metering
- LED (traffic & subway signals)
- Compressed Air Systems
- Combined Heat and Power
- Solar PV, Solar Thermal
- Wireless Technologies
- Electric Vehicles
- LEED
- Wind & Geothermal

Services Provided

- Initial Site Inspection
- Feasibility Study
- Life Cycle Cost Analysis
- Engineering Design
- Equipment Procurement
- Construction Bid Process for Material & Labor
- NYC & NYS Code & Standards Compliance
- Federal, State, City & Local filings, permits, inspections, and certificates
- Environmental Design and Compliance
- Environmental Abatement, Hazardous and Universal Waste Disposal (i.e. lead, asbestos, mercury and PCBs)
- Utility coordination with Con Edison, Keyspan, LIPA, etc.
- Integration with all applicable NYSERDA Programs
- Construction Management
- Personnel training on installed equipment
- Complete As-built Drawings and O&M Manuals

Program Participants

- The City of New York
 - New York City Housing Authority (NYCHA)
 - City University of New York (CUNY)
 - Department of Environmental Protection (DEP)
 - New York City Police Department (NYPD)
 - Department of Education (NYC Public Schools)
- NYS Office of General Services (OGS) & (SUNY)
- Metro Transit Authority – LIRR, NYC Transit, LI Bus
- Westchester County Schools, Municipalities, & Wastewater Facilities
- Port Authority
- State, Public & Governmental Facilities
- Also partnering with the Governor's Renewable Energy Task Force

Program Results

- Program has produced over \$100M in annual recurring customer savings statewide
- Energy improvements have been completed in over 3,100 public and not for profit facilities
- Savings equate to over 2M barrels of oil and 800,000 tons of greenhouse gases avoided annually.
- Yielded reduction of over 200 MW and 1,000 GWH off the grid
- NYPA has installed 31 photovoltaic systems statewide along with 15 fuel cells generating over 3.5 MW of renewable energy capacity
- Over 970 Electric Vehicles have been placed into service with over 9 million miles travelled

LED Technology

- NYPA has researched LED technology for over two decades
- Projects completed since then include:
 - Traffic Signals with NYC, Westchester and Orange County (80% power savings)
 - Subway Signals with the NYC Transit Authority (75% power savings)
 - Garage fixture pilots at two sites (30% power savings)
- LED Street Lights – the potential to save (30 to 50% conservatively)
 - Existing pilot with WC to retrofit 20-30 poles on Woods Road
 - Cost is \$450 - \$600 material only. Labor will be done in house
 - 100w HPS to 60w LED; 150w HPS to 106w LED (30 – 40% savings)
- We are evaluating solar & wind LED light poles for use in parks and highways

Energy Services Performance Contracting

- Focus in on Measurement & Verification (M&V)
- Contractor will guarantee \$1K in savings but you may or may not see those numbers
- Numerous factors contribute to savings:
 - Weather, additions, change in operating schedule, any upgrades
- When proceeding with an ESCO:
 - Verify assumptions
 - Conditions in operating equipment
 - Are negative savings cost shared or solely customers responsibility
 - Customers usually use the contract to obtain financing from third party lender