New York Energy $mart℠
Public Service Commission — NYSERDA

Electric Power Transmission and Distribution (EPTD) Program

Program Opportunity Notice PON 1208

$3.6 Million Available for Two Rounds

Proposals Due: **June 4th, 2008 by 5:00 PM Eastern Time, Round 1**
January 21st, 2009 by 5:00 PM Eastern Time, Round 2

The New York State Energy Research and Development Authority (NYSERDA) announces the availability of $3.6 million to support projects that improve the reliability, security, and overall performance of the electric power delivery system in New York State. All, or none, of the available funds could be awarded in either round. Projects must demonstrate significant statewide public benefit and quantify all energy, environmental and economic impacts. Technology demonstration, product development, engineering studies, and research studies are all eligible for funding under this solicitation. The primary program objectives are as follows:

1. **Develop and demonstrate technologies that improve the performance of the electric power delivery system in New York State (*Technology Track*); and**
2. **Develop strategies that support sustainable investment, equitable and efficient electric energy markets, and continued improvement of the electric power delivery system in New York State (*Policy Track*).**

NYSERDA anticipates making multiple awards in the following four (4) categories:

	Maximum Award	Contractor Cost Share	Recoupment Obligation
Technology Track			
Category A: Demonstration Projects	$ 1,000,000	50%	No
Category B: Product Development	$ 500,000	50%	Yes
Category C: Engineering Studies	$ 200,000	25%	No
Policy Track			
Category D: Research Studies	$ 200,000	25%	No

Proposal Submission: Proposers must submit two (2) paper copies of the proposal with a completed and signed Proposal Checklist attached to the front of each copy, both of which **must** contain an original signature. One (1) electronic copy of the proposal must also be submitted on a standard compact disk (CD). This electronic document (.pdf format only) must be an exact scanned image of the final paper copy proposal and include all relevant forms and signatures. Proposals must be clearly labeled and submitted to: **Roseanne Viscusi, PON 1208, NYS Energy Research and Development Authority, 17 Columbia Circle, Albany, NY 12203-6399**

Programmatic questions should be directed to Mark R. Torpey, (518) 862-1090 ext: 3316 (mrt@nyserda.org), Gregory A. Pedrick, ext: 3378 (gap@nyserda.org), and Mike Razanousky, ext: 3245 (mpr@nyserda.org) Contractual questions should be directed to Nancy Marucci, (518) 862-1090 ext: 3335 (nsm@nyserda.org)

No communication intended to influence this procurement is permitted except by contacting Mark R. Torpey, (518) 862-1090 ext: 3316 (mrt@nyserda.org). Contacting anyone other than this Designated Contact (either directly by the proposer or indirectly through a lobbyist or other person acting on the proposer's behalf) in an attempt to influence the procurement: (1) may result in a proposer being deemed a non-responsible offerer, and (2) may result in the proposer not being awarded a contract.

*Late proposals and proposals lacking the appropriate completed and signed Proposal Checklist will be returned. Faxed or e-mailed proposals will not be accepted. Proposals will not be accepted at any other NYSERDA location other than the address above. If changes are made to this solicitation, notification will be posted on NYSERDA's web site at www.nyserda.org.

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1.0 Background

A) New York State Public Service Commission (NYSPSC) SBC III Order

The NYSPSC Order (Case 05-M-0090) regarding the continuation of the System Benefits Charge (SBC III) Program allocated a total of $10 million over a five-year period to support transmission and distribution (T&D) related projects that demonstrate broad public benefit. The Order states the following:

"Transmission and distribution research projects should be supported that relate to broad energy efficiency or reliability benefits of a statewide nature. New technologies should be promoted that would provide improvements to power reliability, quality, security, and reduce the cost of energy and energy delivery"

B) NYSERDA SBC III Operating Plan

NYSERDA completed an SBC III Operating Plan in March 2006 that included an initial list of programmatic goals and objectives for the Electric Power Transmission and Distribution (EPTD) Program. The Operating Plan emphasizes the importance of coordinating with the New York Independent System Operator (NYISO) and the New York State Reliability Council (NYSRC) to develop a comprehensive EPTD Program that enhances electric power delivery system reliability, security, and performance. The Operating Plan states the following:

"The NYISO is responsible for managing the wholesale electric power market in accordance with stringent reliability requirements as defined by the NYSRC, while concurrently matching consumer demand with least cost marginal supply. The management of this competitive market, and the real-time monitoring of compliance with system reliability standards, are critical public benefit tasks and uniquely qualify the NYISO and the NYSRC as key stakeholders in the EPTD Program"

http://www.nyserda.org/publications/sbcOperatingPlan2006.pdf

C) New York State Electric Utility Participation

The EPTD program supports both transmission and distribution projects that demonstrate significant public benefit. Coordination with the appropriate electric utility is critical for these types of projects since broad scale technology implementation will necessitate final utility approval. All of the electric utilities in New York State (Consolidated Edison, National Grid, New York State Electric and Gas, Rochester Gas and Electric, Central Hudson Gas and Electric, Orange and Rockland, Long Island Power Authority, and the New York Power Authority) have participated in defining the objectives of this program. SBC III funds will be used to demonstrate and develop advanced technologies that would otherwise be too risky for a utility to pursue on its own, and/or to further enhance and supplement a given utility's ongoing research and development activities. These funds are not intended to displace any utility technology development initiatives already planned or underway.

http://www.nyserda.org/publications/Report06-13.pdf

D) Useful Background Reference

General Electric completed a report in November, 2000, entitled "The New York State Electric System Reliability Study". This study provides a high level overview of both the transmission and distribution networks in NYS and contains useful background information regarding electric power delivery system reliability and performance.

http://www.nyserda.org/sep/t&dreport.pdf

E) Results from Previous Solicitation (PON 1102)

A solicitation was issued last year (PON 1102) seeking competitive proposals in the area transmission and distribution (T&D) R&D. Fifteen (15) projects, addressing a broad range of T&D issues, were awarded funding under two separate rounds (May 1st and November 1st, 2007). Table 1 provides a summary of the projects awarded NYSERDA funds.

Electric Power Transmission and Distribution Program - Selected Projects from Round 1&2 (PON 1102)					
NYSERDA Project Manager	NYSERDA Project #	Category	Proposer	Proposal Title	NYSERDA Funding
M Torpey	10465	D	General Electric	Analysis of the Near Term Impact of Proposed Greenhouse Gas (GHG) Policies	$ 198,750
G. Pedrick	10466	A	New York Presbyterian Hospital (NYPH)	NYPH CHP CliP Implementation	$ 110,000
G. Pedrick	10467	C	New York State Electric and Gas (NYSEG)	Compressed Air Energy Storage Engineering Study	$ 200,000
M Torpey	10468	C	Alcoa, Inc.	NYISO Demand Response Capability Assessment - Alcoa Massena Operations	$ 165,000
G. Pedrick	10469	B	SuperPower Inc.	Transmission Level High Temperature Superconductor Fault Current Limiting	$ 500,000
M Torpey	10470	A	Electric Power Research Institute (EPRI)	Real-Time Applications of Phasor Measurement Units (PMU) for Visualization, Reactive Power Monitoring	$ 744,120
M Torpey	10471	A	Electric Power Research Institute (EPRI)	Fast Fault Screening for Real-Time Transient Stability Assessment	$ 250,000
M Torpey	10472	D	Pace Law School Energy Project	Identification and Development of More Effective Approaches for Engaging Distribution Utilities in the Deployment of	$ 148,660
M Torpey	10474	A	Orange and Rockland Utilities, Inc.	Smart Grid Pilot Project	$ 1,000,000
M Razanousky	10476	D	New Electricity Transmission Software	Voltage Dispatch and Pricing in Support of Efficient Real Power Dispatch	$ 150,000
M Torpey	10477	D	JWD Consulting, Inc.	Installing FACTS Devices on the Electric	$ 182,500
M Torpey	10674	A	Consolidated Edison Company of New York,	Project Hydra Demonstration	$ 1,000,000
M Torpey	10675	D	Columbia University	Microgrids: Benefits of Small Scale Electricity Networks in NYS	$ 134,958
M Razanousky	10676	A	Innoventive Power, LLC	Use of Distributed Resources to Support NYS Transmission and Distribution Grids	$ 999,865
G. Pedrick	10677	C	Clarkson University	Based Design Methodology for Electric Power Distribution Systems	$ 190,079
				Total Funding	$ 5,973,722

Table 1: Summary of Previous Electric Power Transmission and Distribution Solicitation Awards (PON 1102)

Specific information regarding any/all of the projects listed in Table 1 can be obtained by contacting the appropriate Project Manager.

2.0 Transmission and Distribution Overview

A simplified overview of the electric power delivery system is shown in Figure 1. Illustrated in blue and green are the transmission and distribution system, respectively. The transmission system provides a high voltage link between the generating station and the distribution network, and typically operates between 138 - 765 kV. Open access to the transmission network provides the means for existing and new generators to participate in New York State's deregulated electricity market. Increased electric commodity supplier participation and improvement in the electric power delivery infrastructure will further enhance efficient wholesale electric energy markets. This solicitation encourages the demonstration and development of advanced technologies that improve transmission and distribution system performance.

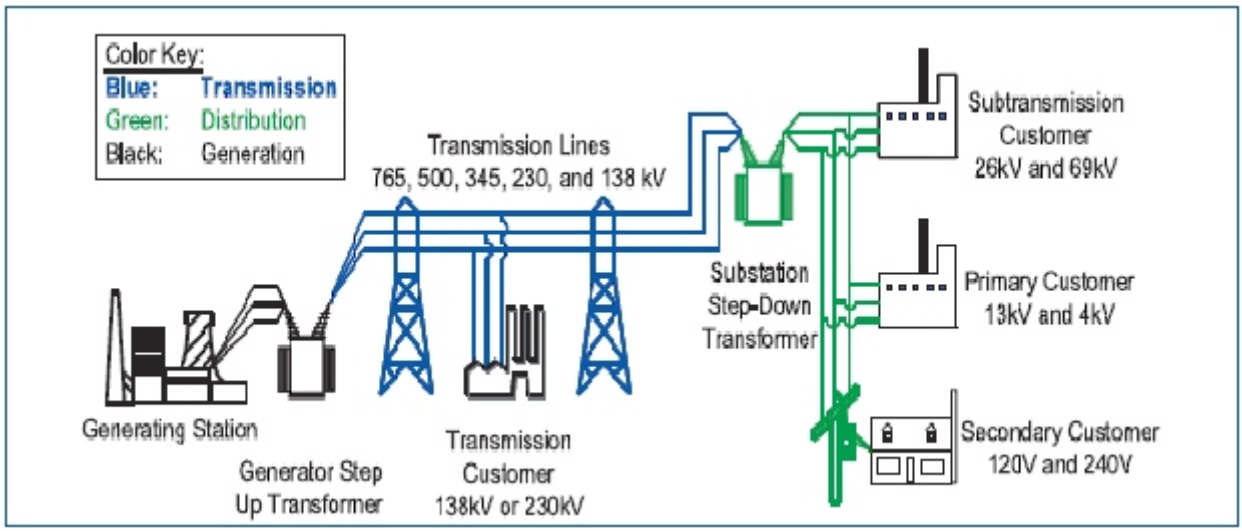

Figure 1: Simplified Transmission and Distribution System Schematic

The vast majority of electric customers in New York State interconnect at the distribution network level. These customers include industrial, commercial, and residential applications, representing 14%, 51%, and 33% of total electric energy consumption, respectively. The transportation sector, primarily governed by railway electrification in the New York metropolitan area, comprises 2.3% of total statewide electricity consumption. Electric load growth for all sectors from 1990 to 2005 is shown in Figure 2. Total electric energy load growth during this period has resulted from annual increases of 2.4% and 2.0% for the commercial and residential sectors, respectively. The industrial sector has demonstrated a corresponding 2.5% annual decline in electric energy consumption since 1990.

In order to effectively serve a broad range of customers in New York State and support long-term economic growth, continued improvement in the electric power deliver system is necessary**.** Increased in-state consumer reliance on electrical energy necessitates improved system reliability and power quality. The commercial sector is the most dependent on electric energy as a percentage of total energy consumed compared with the other three sectors. Commercial applications, on average, consume one unit of electric energy for every two units of thermal energy equivalent (3,412 Btu's equals 1 kWh). By way of comparison, the residential and industrial sectors typically consume one unit of electric energy for every four units of thermal energy equivalent. Accommodating strong economic growth of the commercial sector in New York State presents unique challenges for the electric power delivery system. Commercial businesses typically consume electricity during peak periods of the day, and demonstrate low overall load factors. This electrically intensive peak period demand requirement may substantially increase overall congestion, and adversely impact local system reliability.

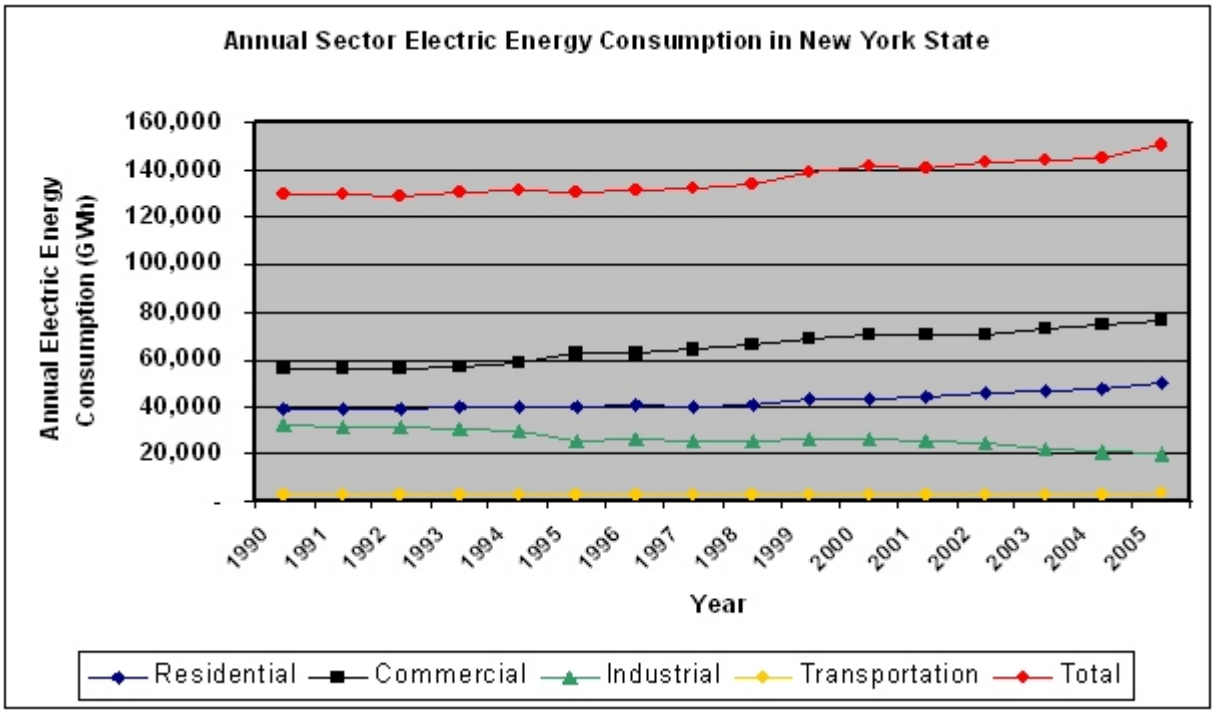

Figure 2: Annual Sector Growth of Electricity Consumption in New York State

The electric energy consumption of the transportation sector has remained relatively constant for many years. This trend, however, may substantially change as New York State reduces its reliance on petroleum derived fuels. Increased electrification and more prevalent use of commuter transport, and expanded market penetration of plug-in hybrid vehicle technologies will substantially alter the characteristic load profile of the electric distribution network. Although the transportation sector currently represents only 2.3% of the electric energy consumed in New York State, it accounted for approximately 41% of total net energy consumption (98% of this total energy comes from petroleum based fuels). Shifting even a small percentage of the transportation sector's total energy requirements from oil to electricity, will result in significantly increased electric power demand throughout the state. Implementation of advanced technologies (intelligent micro-grids, real-time grid monitoring sensors, etc.) will be necessary to accommodate a more expansive, reliable, and secure electric power delivery system. By comparison, the commercial, industrial, and residential sectors represent 23%, 8%, and 28% of total statewide energy consumption, respectively.

The New York Independent System Operator (NYISO) manages the wholesale electric energy market in New York State, and effectively dispatches central station power plants to insure a supply/demand balance on a least cost basis. Electric energy prices are determined by the marginal cost of the last power plant dispatched to meet total system demand. During certain time periods - particularly during the summer peak load periods - the electric power delivery system becomes constrained and the delivery of electric power from the lowest cost power plant to a specific load is not possible. Under these circumstances, the cost of electricity for customers in the constrained area (these areas are often referred to as "load pockets") includes an additional congestion charge. The total cumulative congestion charge that New York State consumers pay per annum is illustrated in Figure 3. The most recent NYISO data for 2006 identifies a total annual cost to ratepayers of approximately $120 million. Reducing congestion costs by developing/demonstrating advanced T&D technologies that enhance grid performance, will provide for a more efficient wholesale market and result in a lower cost of electricity for all sectors. This solicitation encourages proposals that support innovative approaches for minimizing statewide congestion charges.

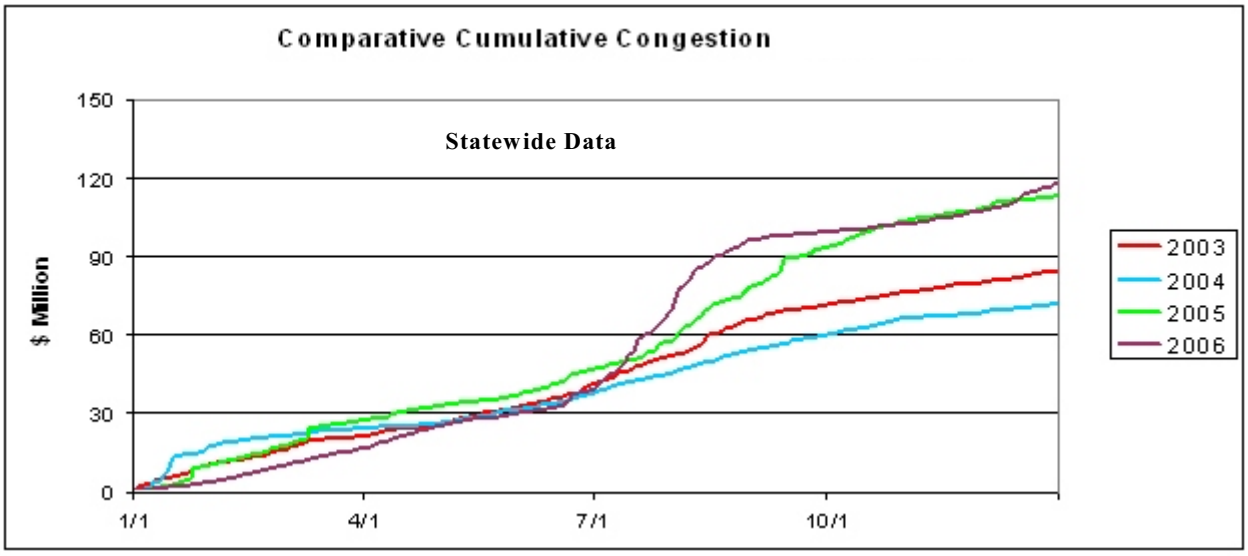

Figure 3: Annual Cumulative Cost of Congestion in New York State (NYISO)

The delivery of power from the generating station to the end use customer results in a substantial loss of energy throughout the entire T&D network. Minimizing these resistive energy losses will reduce electric power costs for all ratepayers. Although electric energy delivery losses - on a per unit of energy generated basis - have substantially declined over the years, New York State must continue to further reduce these overall system losses. The average U.S. electric power delivery system energy loss from a central station power plant to an end use consumer is approximately 6%. Figure 4 illustrates the substantive improvements over the past 50 years in reducing U.S. average T&D system losses. Overall losses for New York State are higher than the national average and currently represent about 10% of total generated electric energy. Total electric energy consumption for all sectors in New York State is approximately 150,000 GWh - 10% of this value corresponds to the equivalent of a 1,700 MW central power plant operating all year long. Recent improvements in T&D cable technologies and advanced power electronic equipment have the potential to significantly reduce overall system losses.

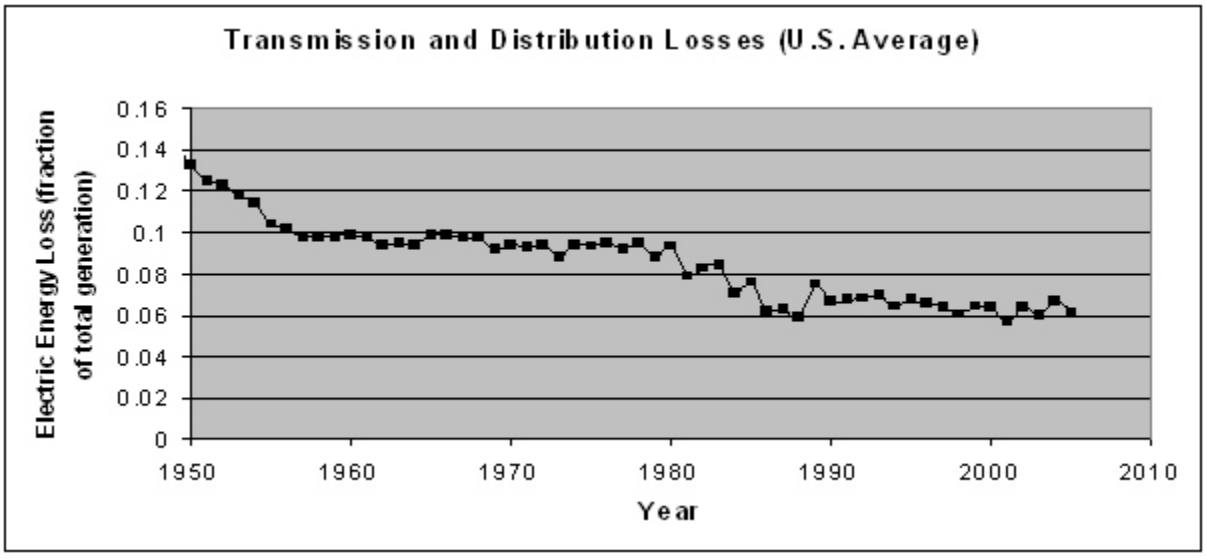

Figure 4: T&D Electric Power Losses (U.S. Average)

The electric power delivery system in New York State is part of the national Eastern Interconnection and falls under the regional jurisdiction of the Northeast Power Coordinating Council (NPCC) as shown in Figure 5. At the local level, the NYISO manages the wholesale electric power market in compliance with standards established by the NYSRC. New York State directly interconnects with four (4) other regional transmission organizations as illustrated in Figure 6 (PJM, NEISO, Ontario IMO, and Hydro Quebec). Coordinated planning between national, regional and local entities is critically important to ensure safe and reliable operation of the entire interconnected system.

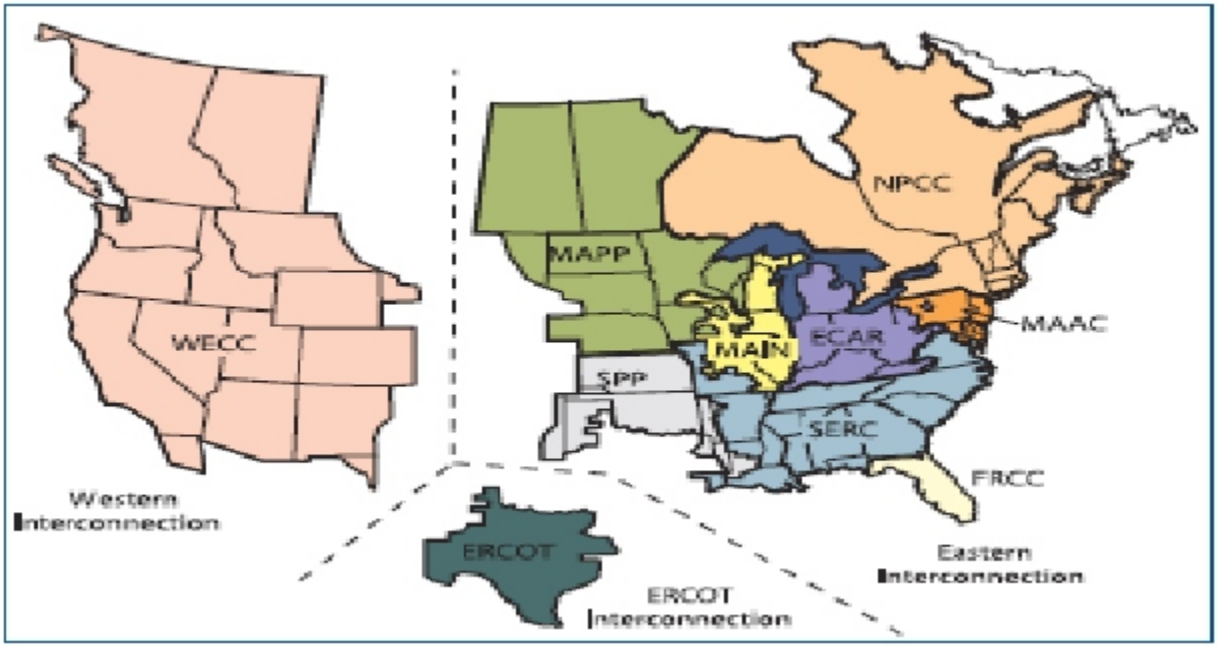

Figure 5: National/Regional Electric Power Delivery System

3.0 National Perspective

The NYSPSC has approved a total of $10 million to promote the development and demonstration of innovative T&D technologies to improve the performance of the electric power delivery system in New York State. In order to leverage limited in-state funds, NYSERDA encourages all proposers to partner with national organizations such as the Electric Power Research Institute, and the U.S. Department of Energy. It is important for grid modernization initiatives undertaken in New York State to be complementary and consistent with planned/existing efforts on the national and regional level. The following web sites are provided as a reference to highlight some of the ongoing T&D related activities outside of New York State:

National Energy Technology Laboratory (NETL)
The U.S. Department of Energy (DOE) NETL is managing a program entitled "The Modern Grid Initiative (MGI)" to develop the conceptual framework of an efficient, safe, and secure electric power grid of the future. The MGI intends to provide funding in support of large-scale technology demonstration projects during a five-year period (2008 thru 2012). NYSERDA encourages proposers to coordinate with NETL and the MGI program team to develop a comprehensive technology demonstration project in New York State.

http://www.themoderngrid.org/

US DOE Office of Electricity Delivery and Energy Reliability (OE)
OE is the primary organization within the U.S. DOE for research, development, demonstration, technology transfer, and policy development activities for the electric T&D system. A Strategic Plan, entitled "Transforming Electricity Delivery", was completed in September 2007 that highlights the federal government's major electric power delivery R&D initiatives for the next several years.. All proposers are encouraged to review the Strategic Plan and identify possibilities for mutual collaboration and cost sharing opportunities with OE.

http://www.oe.energy.gov/DocumentsandMedia/RD_Strategic_Plan_Final07.pdf

The National Electric Transmission Congestion Study
The U.S. DOE completed a detailed report that examines electric power delivery bottlenecks and identifies constrained transmission paths in many areas of the nation. . The Study has identified the Atlantic coastal area from metropolitan New York southward through Northern Virginia as a "critical congestion area". Under current federal law, the Federal Energy Regulatory Commission (FERC) is granted the authority over the States to mandate specific congestion relief strategies. Both the NYSPSC and the New York State Department of Environmental Conservation (NYSDEC) have raised substantive issues regarding the accuracy and legitimacy of DOE's conclusions. Proposals are sought that address transmission constraints in an efficient manner and that further recognize the potential cost savings and environmental benefits of state level jurisdiction in siting congestion mitigation technologies. The following web reference links are provided:

Congestion Study: **http://nietc.evs.anl.gov/**

NYSPSC/NYSDEC Comments: **http://www.ny.gov/governor/press/1105072.html**

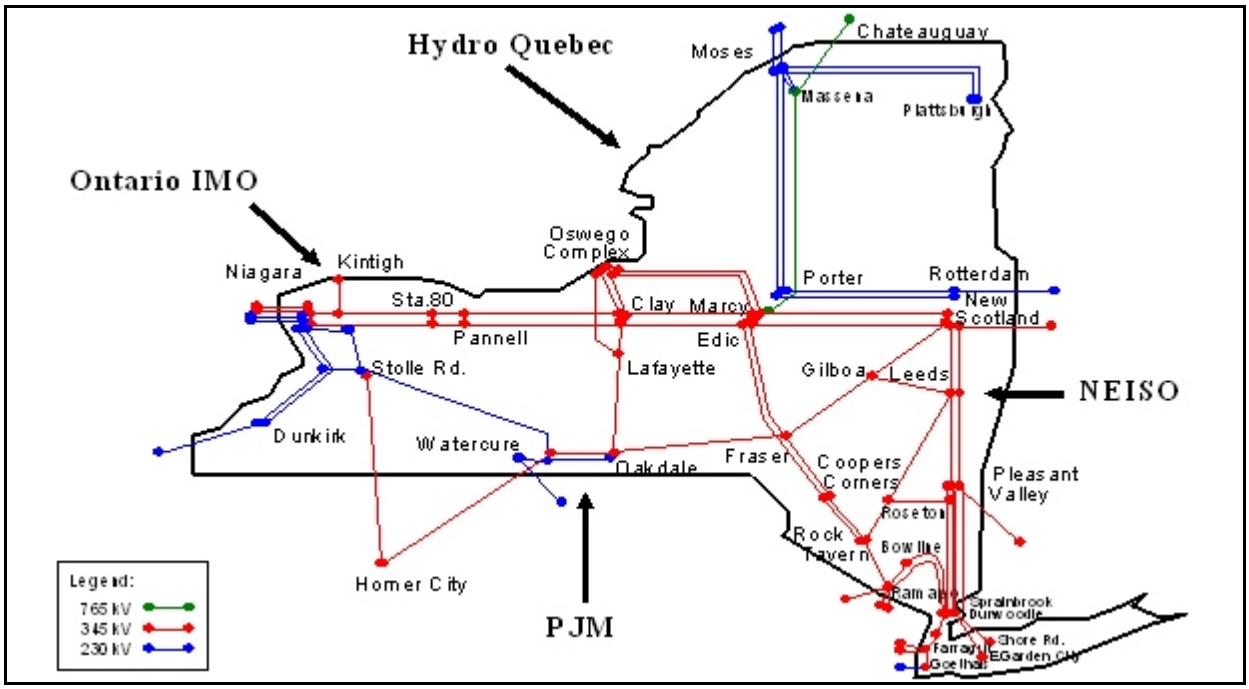

Figure 6: NYISO Regional Interconnections

4.0 Regional Perspective

The NYISO coordinates statewide wholesale electric energy transactions and actively develops the necessary rules and protocols to promote a functional deregulated commodity market. The move towards a deregulated structure is intended to reduce overall electric energy costs by accommodating greater competition among privately owned independent power producers. A consequence of this market structure has been to alter the historical characteristic of electric energy flow in and out of the state on a daily and seasonal basis. The Electric Power Research Institute (EPRI) completed a study which identified significant changes in electric power flow during the peak summer period. Figures 7 and 8 compare the variation in regional energy flow between the 6-month period from May to October for 2001 and 2003, respectively. The trends suggest that New York is moving towards greater reliance on imported electric energy to satisfy statewide demand. This shifting of electric power flow is not necessarily a problem - it is potentially a characteristic of a more open and accessible market. Policies and technologies need to be developed to insure safe and reliable operation of the electric power delivery system as the state continues to implement a more "fully" deregulated market structure.

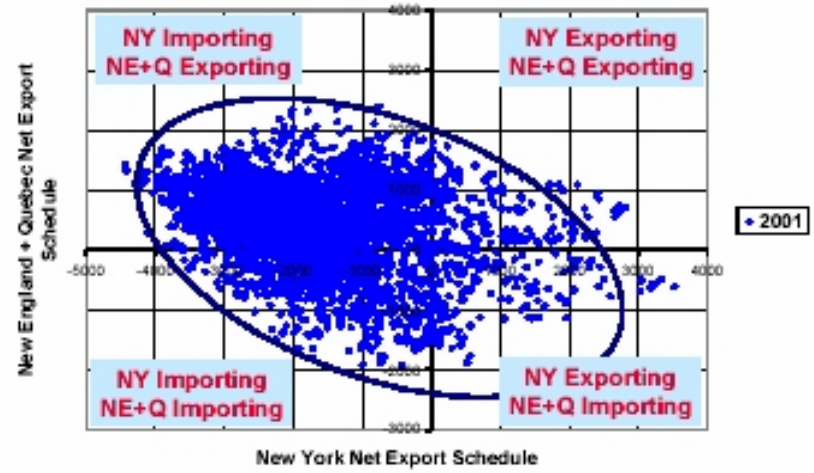

Figure 7: Wholesale Electric Power Flow (in MW) for May through October 2001

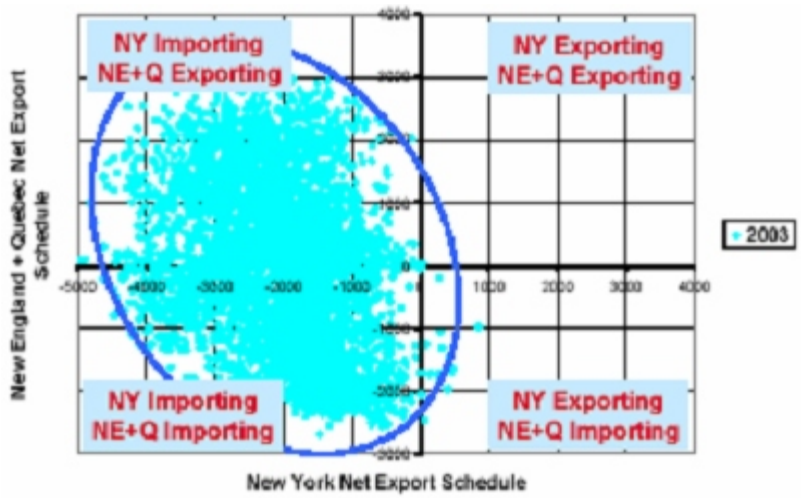

Figure 8: Wholesale Electric Power Flow (in MW) for May to October 2003

Final Report on the August 14th, 2003 Blackout in the United States and Canada

The U.S.-Canada Power Systems Outage Task Force completed a rigorous review of the August 14th, 2003 blackout which severely impacted the northeastern U.S. and the surrounding Canadian region. The Final Report included forty-six (46) recommendations regarding critical issues that need to be addressed in order to avoid and/or minimize the impact of subsequent blackouts. The following recommendations identify certain areas that are consistent with the public benefit objectives of this solicitation and will enhance NYISO system operations:

1. Demonstrate and adopt better real-time tools for system operators and reliability coordinators.
2. Strengthen reactive power and voltage control practices.
3. Improve quality of system modeling data and data exchange practices.
4. Reinforce communication protocols and upgrade communication system hardware.
5. Implement and require the use of time-synchronized data recorders.
6. Implement controls to manage system health and network monitoring.

Many of the recommendations identified in the Final Report emphasize the importance of improving operator visualization, situational awareness, control, and communication.

https://reports.energy.gov/BlackoutFinal-Web.pdf

Regional Greenhouse Gas Initiative (RGGI)

RGGI is a cooperative effort by Northeast and Mid-Atlantic states to implement a regional cap-and-trade program that reduces carbon dioxide (CO2) emissions 10% below 1990 levels from central power plants by 2020. The cap-and-trade program provides for a market based approach to reduce regional CO2 emissions on a least cost basis. A power plant can elect to reduce its CO2 emissions by either improving efficiency or purchasing offsets from other generators that can implement efficiency measures at a lower cost. It is still unclear what impact this will have on the wholesale electric energy market. The NYISO currently administers the market by dispatching low cost power plants to satisfy marginal demand, and therefore a power plant that decides to purchase offsets to comply with the RGGI guidelines may be at a disadvantage over the long-term compared with a generator that elects to improve efficiency. Figure 9 illustrates the relationship between carbon dioxide emissions (in units of lbs./MWh) and the electrical efficiency of power plants utilizing different fossil fuels.

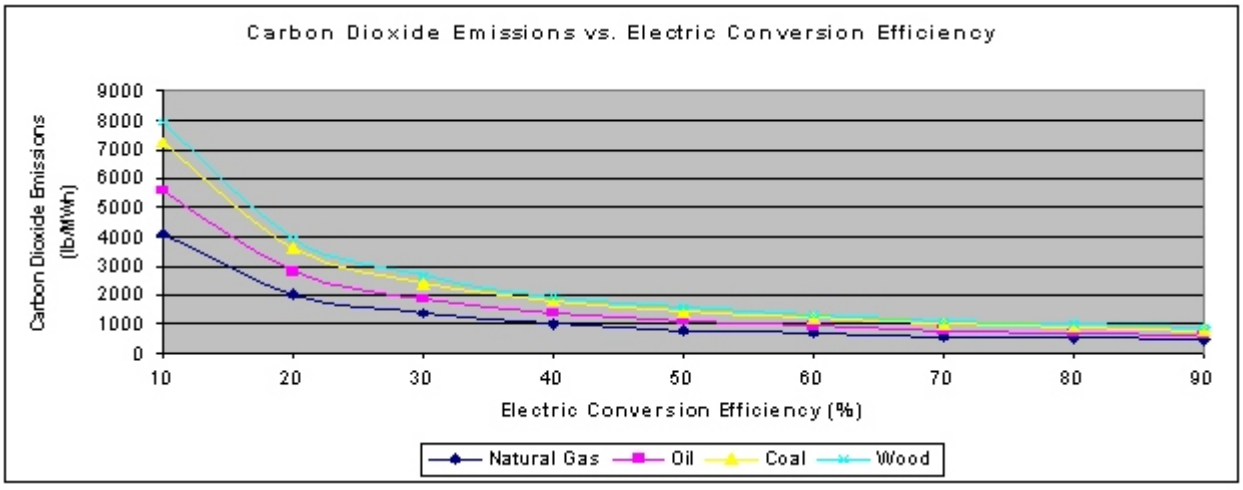

Figure 9: Comparative CO2 Emissions Performance of Power Plants with Different Fuels

It is important to consider the impact that RGGI will have on the performance of the electric power delivery system. The practical implementation of this CO2 mitigation program may well result in a significant redistribution of power flow into and out of New York State. Private investment in transmission system infrastructure may also be hindered if, for example, the revenue associated with a particular high voltage line depended on linking an upstate coal based resource to downstate loads. A CO2 intensive fossil fuel power plant may elect to reduce electric energy output during certain times of the year in order to adhere to RGGI guidelines - thus negatively impacting cost recovery for a private transmission owner that charges fees proportionate to circuit loading.

http://www.rggi.org/about.htm

5.0 Local Perspective

NYSERDA is currently administering the statewide renewable portfolio standard (RPS) program which mandates that renewable resources provide 25% of the electric power requirements by 2013. Incentives are provided to qualifying renewable resources - on an auction basis - based on energy production (MWh) and the extent to which a particular facility supports local economic development. A significant objective of this solicitation is to demonstrate and develop the technologies to facilitate interconnection of renewable resources in a manner that maintains overall electric power delivery system performance and reliability. This presents a unique challenge for the T&D system since the vast majority of the facilities proposed to satisfy the RPS mandate are intermittent wind based resources. Two references concerning integration of wind based renewable resources are included in this solicitation.

Transmission and Wind Energy: Capturing the Prevailing Winds for the Benefit of Customers
National Grid completed this report in September 2006 to identify the critical issues facing the electric power delivery system that need to be addressed in order to facilitate wind power development in New York State. The report states the following:

"Operating techniques for intermittent generation resources, properly structured market rules, and effective transmission policies for regional planning, cost allocation, and cost recovery and incentives will help facilitate wind power as well as other new sources of generation"

http://www.nationalgridus.com/non_html/c3-3_NG_wind_policy.pdf

The Effects of Integrating Wind Power on Transmission System Planning Reliability and Operations
General Electric completed this report in March 2005 and concluded that a 10% market penetration of wind energy (approximately 3,300 MW) could be accommodated within the statewide grid without adversely impacting system reliability.

http://www.nyserda.org/publications/wind_integration_report.pdf

NYSERDA encourages proposers to coordinate with the appropriate local distribution company (LDC) to develop projects that provide significant public benefit and potentially supplement on-going utility research and development activities that improve the performance and reliability of the local distribution network. The solicitation will support appropriate statewide LDC R&D activities for both overhead and underground circuits, and for both radial and network distribution configurations. The development/implementation of local micro-grids, hardening of substation components, mitigation of ground fault current vulnerability, and improving the ability of the utility to monitor real-time system status and operation of the distribution system are encouraged.

Programmatic Guidelines

Technology Track - Categories A, B, and C

General Programmatic Requirements

Objective: *Demonstrate and develop technologies that improve the performance of the electric power delivery system.*

Demonstration projects (Category A), Product Development projects (Category B), and Engineering Studies (Category C) are solicited that fall within one or more of the six (6) following areas critical to the development of an advanced electric power delivery system in NYS:

***1. Monitoring and Diagnostics*:** Accurate and robust sensors and meters are needed to effectively monitor grid performance in real-time. Advanced diagnostic technologies provide the necessary input signals/data to determine the status of the electric power delivery system, and may include the following:

a) Phasor measurement units, dynamic data recorders, and reactive power meters
b) Voltage, current, frequency, and power quality sensors.
c) Climate monitoring equipment
d) Cable icing/de-icing and loading diagnostics
e) GPS time-stamped and synchronized devices

***2. Data Processing and Analysis*:** Sensor and meter data measurements need to be processed and analyzed in order to develop useful information regarding the condition of the electric power delivery system. Software tools need to be evaluated that improve the accuracy of predictive modeling and identify reliable system performance metrics and benchmarks. Projects may include the following:

a) Fast simulation modeling
b) Optimization of real power flow with system constraints (voltage, frequency, current)
c) Predictive on-line voltage collapse tool

3. Optimized Visualization: Displaying accurate and complex information in a simple graphical format will improve the ability of grid operations staff to accurately gauge grid status, and effectively respond to system disturbances. It is critically important that the visualization software tools developed/demonstrated under this category satisfy utility and/or NYISO requirements. Projects are encouraged that:

a) Improve intra/inter regional pattern recognition
b) Accurately identify areas of system outage (both transmission and distribution)
c) Pinpoint the location of initial system disturbances
d) Coordinate the display of Eastern Interconnection Phasor Project (EIPP) data

4. Secure Communication: The August 14th Blackout report recommended standardizing communication protocols and data exchange methodology on both a local and regional basis. Incorporating secure communication technologies will enhance the reliable flow and accuracy of information shared among regional control areas (NYISO, PJM, NEISO, Ontario Hydro, Hydro Quebec). Proposers may consider:

a) Deploying/developing advanced IT communication technologies
b) Utilizing internet based communication channels
c) Demonstrating/developing advanced power line carrier (PLC) protocols
d) Hardening communication strategies to resist external interference

5. Improved Control Options: It is essential to provide grid operations staff with effective output control options to improve grid reliability, security, and overall performance. An effective control strategy provides operators with a means to pro-actively respond to minor system disturbances and thus prevent the occurrence of major catastrophic events. Eligible projects may include:

a) Demonstrating effective islanding strategies
b) Optimizing control of in-state resources to prevent cascading/rolling blackouts
c) Improving black start functionality to expedite system restoration

6. Enhanced System Performance: It is critical to demonstrate advanced technologies that can reduce power system losses and congestion throughout New York State. This category is intended to support demonstration and development projects that improve overall electric power delivery system performance and may include the following:

a) Testing of advanced conductors and cables
b) Evaluation of energy storage technologies to reduce T&D congestion
c) Deployment of innovative power electronic components and reactive power resources
d) Demonstration of protective relay equipment and ground fault circuit protectors
e) Hardening of T&D infrastructure to reduce system vulnerability
f) Implementation of advanced micro-grid networks
g) Development of advanced technologies to improve the performance of underground distribution networks.

Proposals must clearly identify which of the six (6) areas are to be addressed under the project. Proposers must also clearly identify why a specific project falls within Category A (Demonstration) rather than Category B (Product Development).

Technology Track: Category A - Demonstration Projects

A. Eligibility Requirements

Demonstration projects both within and outside of the six (Consolidated Edison, Orange and Rockland, New York State Electric and Gas, Rochester Gas and Electric, Central Hudson, and National Grid) regulated electric service territories are eligible for funding under this solicitation. Proposers must clearly identify whether the demonstration project will support either transmission or local distribution operations. **All projects must demonstrate broad public benefit.**

Transmission level demonstration projects must be installed in New York State within the electric power service territories of the following entities:

1. Six (6) regulated utilities identified above that contribute to the SBC 3 program.
2. New York Power Authority (NYPA).
3. Long Island Power Authority (LIPA)
4. Independent operator/developer of privately owned transmission infrastructure.

Distribution level demonstration projects must be installed in New York State within the local service territories of the following entities:

1. Six (6) regulated utilities identified above that contribute to the SBC 3 program.
2. New York Power Authority (NYPA) - both municipal and rural electric cooperatives.

Distribution level projects supported in partnership with NYPA must demonstrate opportunities for broad replication throughout New York State and provide technical value for the six regulated utilities. NYPA distribution level projects will require a letter of support and a co-funding commitment from a minimum of one other regulated utility partner.

B. Funding Requirements

The proposal should show non-NYSERDA funding of at least 50% of the total project cost. Cost sharing can be from the proposer, other team members, and other government or private sources. Contributions of direct labor (for which the laborer is paid as an employee) and purchased materials may be considered "cash" contributions. Unpaid labor, indirect labor, or other general overhead may be considered "in-kind" contributions. NYSERDA will not pay for efforts which have already been undertaken. The proposer or proposing team cannot claim as cost-share any expenses that have already been incurred. Show the cost-sharing plan in the following format:

	Cash	In-Kind Contribution	Total
NYSERDA	$	$	$
Proposer	$	$	$
Others (list individually)	$	$	$
Total	$	$	$

Attach supporting documentation to support indirect cost rate(s) included in your proposal as follows:

1. Describe the basis for the rates proposed (i.e., based on prior period actual results; based on projections; based on federal government or other independently-approved rates).

2. If rate(s) is approved by an independent organization, such as the federal government, provide a copy of such approval.

3. If rate(s) is based on estimated costs or prior period actual results, include calculations to support proposed rate(s). Calculation should provide enough information for NYSERDA to evaluate and confirm that the rate(s) are consistent with generally accepted accounting principles for indirect costs.

NYSERDA reserves the right to audit any indirect rate presented in the proposal and to make adjustment for such difference. Requests for financial statements or other needed financial information may be made if deemed necessary.

NYSERDA will contribute up to a maximum of 50% of total project costs within the limits of a total per project cap of $1,000,000. Eligible cost share can include both cash and in-kind contributions. Preference will be given to proposers that provide higher cash contributions towards project costs. External funding partnerships are encouraged to best leverage limited in-state resources. Recoupment will **not** be required for Category A demonstration projects.

	Maximum Award	Contractor Cost Share	Recoupment Obligation
Technology Track			
Category A: Demonstration Projects	$ 1,000,000	50%	No
Category B: Product Development	$ 500,000	50%	Yes
Category C: Engineering Studies	$ 200,000	25%	No
Policy Track			
Category D: Research Studies	$ 200,000	25%	No

Additional programmatic requirements are as follows:

- Demonstration projects must be installed, operated, and tested within New York State.

- Proposals must include a letter of support from all in-state entities responsible for managing, operating, and maintaining the T&D infrastructure impacted by the technology demonstration project.

- A commitment letter from all external funding sources is required for the proposal to be considered responsive. All commitment letters must state whether that organization's funds are fully committed to the proposed project or are awaiting subsequent approval, and must clearly specify the amount of cost share supported by in-kind or cash contributions. Letters of commitment must be written on the organization's letterhead and endorsed by an Officer with signatory authority.

- Eligible demonstration projects are those that:
  a) characterize the performance of pre-commercial/innovative technologies.
  b) utilize commercially available technologies in support of innovative applications.
  c) represent the first time a technology will be used/evaluated in New York State.

- Proposers are encouraged to develop projects that leverage funding with external (outside of New York State) partners such as the United States Department of Energy (USDOE), the Electric Power Research Institute (EPRI), the Edison Electric Institute (EEI), and other R&D organizations.

- Proposals that include effective collaboration with local utilitites, independent transmission owners, NYISO, and the NYS Office of Homeland Security (OHS) are preferred. Endorsement letters from these entities should be included in the proposal.

- A cost/"public benefit" analysis is required for all proposals to justify allocation of system benefits charge (SBC) funds.

- Proposals are encouraged that improve the reliability/security of mission critical facilities.

- T&D technology demonstration projects that facilitate interconnection of renewable resources and distributed energy systems, and support local economic development initiatives are encouraged.

- Proposals must clearly define the reasons why a project falls under Category A (Demonstration) rather than Category B (Product Development).

C. Proposal Requirements

Proposers must submit two (2) paper copies and one (1) electronic copy of the completed proposal to the attention of Roseanne Viscusi at the address on the front of this Program Opportunity Notice. A completed and signed Proposal Checklist must be attached as the front cover of your proposal, one of which must contain an original signature. Late proposals and proposals lacking the appropriate completed and signed Proposal Checklist will be returned. Faxed or e-mailed copies will be not be accepted.

Procurement Lobbying Requirements - State Finance Law sections 139-j and 139-k

Procurement lobbying requirements contained in State Finance Law sections 139-j and 139-k became effective January 1, 2006 (http://www.ogs.state.ny.us/aboutogs/regulations/advisoryCouncil/StatutoryReferences.html). In compliance with §139-j and §139-k of the State Finance Law, for proposals submitted in response to this solicitation that could result in agreements with an annual estimated value in excess of $15,000, additional forms must be completed and filed with proposals: (1) a signed copy of the Proposal Checklist including required certifications under the State Finance Law and (2) a completed Disclosure of Prior Findings of Non-Responsibility form. Failure to include a signed copy of the Proposal Checklist referenced in this solicitation will disqualify your proposal.

- All proposals must include a nominal ten (10) page **technology overview** that provides a comprehensive description of the overall project objectives. System/process drawings, data tables and figures that effectively supplement the project description are encouraged.

- Proposers must prepare a **milestone payment schedule (MPS)** that clearly identifies the task, start date, completion date, and the amount of NYSERDA funds requested upon successful completion of the task. This schedule must also define the specific matching cost share associated with each task. NYSERDA will only accept invoices for completed tasks - funds are not allocated to cover expected/anticipated costs. Proposals that effectively monitor on-going progress and identify scheduled opportunities for NYSERDA to determine if further investment is warranted are preferred.

- All proposals must include a detailed **statement of work (SOW)** consistent with the MPS outlined above. The SOW must define all of the objectives and deliverables associated with each task. The SOW will

form the basis/structure of the contractual agreement with NYSERDA, and it is recommended that all terminology/language be reviewed by the proposing organization's counsel prior to submission. Prior review will help expedite subsequent contract execution.

- A **technology transfer plan (TTP)** must be prepared in order to be eligible for funding. This plan shall outline an effective strategy for educating the broader community as to the public benefits resulting from broad application of this technology. NYSERDA will work with its Contractors to address any/all proprietary issues associated with technology demonstration projects.

- A **cost/public benefit analysis** must be completed that identifies why the demonstration project is worthy of public funds. The analysis should focus on the broader/commercial statewide application of the technology in its justifying arguments.

- A **permitting plan** is required for all demonstration projects. The permitting plan must lists all of the requisite federal, state, and local permits and identify expected dates for obtaining these permits. The proposal must include a completed **SEQRA application** in order to be eligible for funding.

- Each proposal must include a **monitoring plan** that identifies the specific information/data to be monitored in order to benchmark project success. Demonstration projects should include all of the necessary instrumentation and data archiving capabilities to effectively assess technology performance.

- All proposals must identify **team qualifications** and provide resumes for all key project personnel

D. Evaluation Criteria

All of the proposals will be reviewed by a technical evaluation panel (TEP) consisting of both internal NYSERDA staff and outside technical experts. NYSERDA reserves the option to invite any/all proposers to provide an oral presentation to its TEP members as a supplement to the written proposal. NYSERDA will coordinate with any/all proposers to schedule oral presentations after the TEP has officially reviewed and discussed all of the proposals. All proposals will be evaluated according to the level of detail provided in the following sections. Proposals must include substantive detail for all eight (8) evaluation criteria.

1. Technology Overview	**10 pages**
2. Milestone Payment Schedule	**1 page**
3. Statement of Work	**10 pages**
4. Technology Transfer Plan	**3 pages**
5. Cost/Public Benefit Analysis	**3 pages**
6. Permitting Plan	**2 pages**
7. Monitoring Plan	**2 pages**
8. Team Qualifications	**5 pages**

Technology Track: Category B - Product Development

A. Eligibility Requirements

All Product Development projects must focus on improving the performance of the electric power delivery system in New York State. Both "hardware" and "software" product development projects are eligible for funding that:

1. Develop and commercialize advanced/innovative equipment **(hardware)** manufactured in New York State, including Long Island.

2. Develop and commercialize data acquisition and analysis tools, advanced communication systems, and process control technologies **(software)** to be sold and/or licensed by New York State companies.

Proposers must clearly identify whether the product is being developed to improve transmission and/or distribution system operations. **All projects must demonstrate broad public benefit.**

B. Funding Requirements

The proposal should show non-NYSERDA funding of at least 50% of the total project cost. Cost sharing can be from the proposer, other team members, and other government or private sources. Contributions of direct labor (for which the laborer is paid as an employee) and purchased materials may be considered "cash" contributions. Unpaid labor, indirect labor, or other general overhead may be considered "in-kind" contributions. NYSERDA will not pay for efforts which have already been undertaken. The proposer or proposing team cannot claim as cost-share any expenses that have already been incurred. Show the cost-sharing plan in the following format:

	Cash	In-Kind Contribution	Total
NYSERDA	$	$	$
Proposer	$	$	$
Others (list individually)	$	$	$
Total	$	$	$

Attach supporting documentation to support indirect cost rate(s) included in your proposal as follows:

1. Describe the basis for the rates proposed (i.e., based on prior period actual results; based on projections; based on federal government or other independently-approved rates).

2. If rate(s) is approved by an independent organization, such as the federal government, provide a copy of such approval.

3. If rate(s) is based on estimated costs or prior period actual results, include calculations to support proposed rate(s). Calculation should provide enough information for NYSERDA to evaluate and confirm that the rate(s) are consistent with generally accepted accounting principles for indirect costs.

NYSERDA reserves the right to audit any indirect rate presented in the proposal and to make adjustment for such difference. Requests for financial statements or other needed financial information may be made if deemed necessary.

NYSERDA will contribute up to 50% of total project costs or a maximum of $500,000 per project whichever is lower. NYSERDA funds will not exceed $500,000 per project. Eligible cost share can include both cash and in-kind contributions. Preference will be given to proposers that provide higher cash contributions towards project costs. External funding partnerships are encouraged to best leverage limited in-state resources. Recoupment is required for Category B Product Development projects. NYSERDA's standard terms and conditions require full repayment of funds based upon 1.5% of total revenues (for in-state companies) resulting from commercial product sales. Out of state companies will be required to repay up to three times the value of the NYSERDA funding award based on 5% of total revenues.

	Maximum Award	Contractor Cost Share	Recoupment Obligation
Technology Track			
Category A: Demonstration Projects	$ 1,000,000	50%	No
Category B: Product Development	$ 500,000	50%	Yes
Category C: Engineering Studies	$ 200,000	25%	No
Policy Track			
Category D: Research Studies	$ 200,000	25%	No

Additional programmatic requirements are as follows:

- Projects are only eligible for funding if the product is to be either manufactured, sold, or licensed by a New York State company.

- Preference will be given to proposals that include a letter of support from a potential in-state end user of the product responsible for incorporating the technology within the T&D infrastructure.

- A commitment letter from all external funding sources is required for the proposal to be considered responsive. All commitment letters must state whether that organization's funds are fully committed to the proposed project or are awaiting subsequent approval, and must clearly specify the amount of cost share supported by in-kind or cash contributions. Letters of commitment must be written on the organization's letterhead and endorsed by an Officer with signatory authority.

- Eligible product development projects are those that:
  a) Focus on bench-scale and/or pilot-scale pre-commercial design.
  b) Utilize commercially available technologies to develop innovative integrated systems.
  c) Develop innovative software tools to improve T&D system security, reliability, and power quality.

- Proposers are encouraged to develop projects that leverage funding with external (outside of New York State) partners such as the United States Department of Energy (USDOE), the Electric Power Research Institute (EPRI), the Edison Electric Institute (EEI), and other R&D organizations.

- Proposals that include effective technology development collaboration with local utilitites, independent transmission owners, and the NYISO are preferred.

- A cost/"public benefit" analysis is required for all proposals to justify allocation of system benefits charge (SBC) funds.

- Proposals are encouraged that develop innovative products to address the reliability/security requirements of mission critical facilities.

- Development of T&D technologies that facilitate interconnection of renewable resources and distributed energy systems, and support local economic development initiatives are encouraged.

C. Proposal Requirements

Proposers must submit two (2) paper copies and one (1) electronic copy of the completed proposal to the attention of Roseanne Viscusi at the address on the front of this Program Opportunity Notice. A completed and signed Proposal Checklist must be attached as the front cover of your proposal, one of which must contain an original signature. Late proposals and proposals lacking the appropriate completed and signed Proposal Checklist will be returned. Faxed or e-mailed copies will be not be accepted.

Procurement Lobbying Requirements - State Finance Law sections 139-j and 139-k

Procurement lobbying requirements contained in State Finance Law sections 139-j and 139-k became effective January 1, 2006 (http://www.ogs.state.ny.us/aboutogs/regulations/advisoryCouncil/StatutoryReferences.html). In compliance with §139-j and §139-k of the State Finance Law, for proposals submitted in response to this solicitation that could result in agreements with an annual estimated value in excess of $15,000, additional forms must be completed and filed with proposals: (1) a signed copy of the Proposal Checklist including required certifications under the State Finance Law and (2) a completed Disclosure of Prior Findings of Non-Responsibility form. Failure to include a signed copy of the Proposal Checklist referenced in this solicitation will disqualify your proposal.

- All proposals must include a nominal five (5) page **technology overview** that describes the project objectives. System/process drawings, data tables and figures that effectively supplement the project description are encouraged. The technology overview must contain the following:

  1) Detailed analysis defining target markets, product revenue potential, and strategic partnerships
  2) Identification of all market competitors and the value added advantage of the proposed product
  3) Estimate of New York State economic and direct employment benefits

- A **cost/public benefit analysis** must be completed that identifies why the product development project is worthy of public funds. The analysis should focus on the broader/commercial statewide application of the technology in its justifying arguments.

- Proposers must prepare a **milestone payment schedule (MPS)** that clearly identifies the task, start date, completion date, and the amount of NYSERDA funds requested upon successful completion of the task. This schedule must also define the specific matching cost share associated with each task. NYSERDA will only accept invoices for completed tasks - funds are not allocated to cover expected/anticipated costs. Proposals that effectively monitor on-going progress and identify scheduled opportunities for NYSERDA to determine if further investment is warranted are preferred.

- All proposals must include a detailed **statement of work (SOW)** consistent with the MPS. The SOW must define all of the objectives and deliverables associated with each task. The SOW will form the basis/structure of the contractual agreement with NYSERDA, and it is recommended that all terminology/language be reviewed by the proposing organization's counsel prior to submission.

- A **commercialization plan** must be prepared in order to be eligible for funding. This plan shall outline the strategy for product commercialization.

- Each proposal must include a **monitoring plan** that identifies the specific information/data to be monitored in order to benchmark project success. Development projects should include all of the

necessary instrumentation and data archiving capabilities to effectively assess technology performance.

- All proposals must identify **team qualifications** and provide resumes for all key project personnel

D. Evaluation Criteria

All of the proposals will be reviewed by a technical evaluation panel (TEP) consisting of both internal NYSERDA staff and outside technical experts. NYSERDA reserves the option to invite any/all proposers to provide an oral presentation to its TEP members as a supplement to the written proposal. NYSERDA will coordinate with any/all proposers to schedule oral presentations after the TEP has officially reviewed and discussed all of the proposals. All proposals will be evaluated according to the quality and level of detail provided in the following sections (page recommendations are provided for general guidance). Proposals must include detail regarding all six (6) evaluation criteria items to be eligible for funding.

1. **Technology Overview** **8 pages**
2. **Milestone Payment Schedule** **1 page**
3. **Cost/Public Benefit Analysis** **3 pages**
3. **Statement of Work** **8 pages**
4. **Commercialization Plan** **3 pages**
5. **Monitoring Plan** **2 pages**
6. **Team Qualifications** **5 pages**

Technology Track: Category C - Engineering Studies

A. Eligibility Requirements

Engineering studies are solicited that provide the necessary preliminary information in support of potential Category A demonstration projects**.** This solicitation will **not** offer funds in support of engineering studies for product development (Category B) initiatives. Category C funds are intended to support the "soft" costs - such as - preliminary site assessment, utility interconnection, and permitting associated with larger-scale demonstration projects. The proposing organization need not reside in New York State, however, the engineering study must **only** evaluate potential sites consistent with Category A requirements as follows:

Category A Requirements:

Demonstration projects both within and outside of the six (Consolidated Edison, Orange and Rockland, New York State Electric and Gas, Rochester Gas and Electric, Central Hudson, and National Grid) regulated electric service territories are eligible for funding under this solicitation. Proposers must clearly identify whether the demonstration project will support either transmission or local distribution operations. **All projects must demonstrate broad public benefit.**

Transmission level demonstration projects must be installed in New York State within the electric power service territories of the following entities:

1. Six (6) regulated utilities identified above that contribute to the SBC 3 program.
2. New York Power Authority (NYPA).
3. Long Island Power Authority (LIPA)
4. Independent operator/developer of privately owned transmission infrastructure.

Distribution level demonstration projects must be installed in New York State within the local service territories of the following entities:

1. Six (6) regulated utilities identified above that contribute to the SBC 3 program.
2. New York Power Authority (NYPA) - both municipal and rural electric cooperatives.

Distribution level projects supported in partnership with NYPA must demonstrate opportunities for broad replication throughout New York State and provide technical value for the six regulated utilities. NYPA distribution level projects will require a letter of support and a co-funding commitment from a minimum of one other regulated utility partner.

B. Funding Requirements

The proposal should show non-NYSERDA funding of at least 25% of the total project cost. Cost sharing can be from the proposer, other team members, and other government or private sources. Contributions of direct labor (for which the laborer is paid as an employee) and purchased materials may be considered "cash" contributions. Unpaid labor, indirect labor, or other general overhead may be considered "in-kind" contributions. NYSERDA will not pay for efforts which have already been undertaken. The proposer or proposing team cannot claim as cost-share any expenses that have already been incurred. Show the cost-sharing plan in the following format:

	Cash	In-Kind Contribution	Total
NYSERDA	$	$	$
Proposer	$	$	$
Others (list individually)	$	$	$
Total	$	$	$

Attach supporting documentation to support indirect cost rate(s) included in your proposal as follows:

1. Describe the basis for the rates proposed (i.e., based on prior period actual results; based on projections; based on federal government or other independently-approved rates).

2. If rate(s) is approved by an independent organization, such as the federal government, provide a copy of such approval.

3. If rate(s) is based on estimated costs or prior period actual results, include calculations to support proposed rate(s). Calculation should provide enough information for NYSERDA to evaluate and confirm that the rate(s) are consistent with generally accepted accounting principles for indirect costs.

NYSERDA reserves the right to audit any indirect rate presented in the proposal and to make adjustment for such difference. Requests for financial statements or other needed financial information may be made if deemed necessary.

NYSERDA will contribute up to a maximum of 75% of total project costs within the limits of a total per project cap of $200,000. Eligible cost share can include both cash and in-kind contributions. Preference will be given to proposers that provide higher cash contributions towards project costs. External funding partnerships are encouraged to best leverage limited in-state resources. Recoupment will **not** be required for Category C engineering studies.

	Maximum Award	Contractor Cost Share	Recoupment Obligation
Technology Track			
Category A: Demonstration Projects	$ 1,000,000	50%	No
Category B: Product Development	$ 500,000	50%	Yes
Category C: Engineering Studies	$ 200,000	25%	No
Policy Track			
Category D: Research Studies	$ 200,000	25%	No

Additional programmatic requirements are as follows:

- Category C funds cannot be used to support expenses incurred prior to proposal submission.

- Equipment purchases are not eligible for funding under Category C, except for metering/monitoring devices needed to gather relevant preliminary data. Metering/monitoring expenses should be limited to a small percentage of total project cost.

- Engineering studies must be completed within 18 months of NYSERDA award notification.

- Proposers are encouraged to conduct engineering studies that leverage funding with external (outside of New York State) partners such as the United States Department of Energy (USDOE), the Electric Power Research Institute (EPRI), the Edison Electric Institute (EEI), and other R&D organizations.

- Proposals that include effective collaboration with local utilitites, independent transmission owners, NYISO, and the NYS Office of Homeland Security (OHS) are preferred. Endorsement letters from these entities should be included in the proposal.

- A cost/"public benefit" analysis is required for all proposals to justify allocation of system benefits charge (SBC) funds.

- Engineering studies relating to mission critical facilities are encouraged.

- T&D related engineering studies that facilitate interconnection of renewable resources and distributed energy systems, and support local economic development initiatives are encouraged.

C. Proposal Requirements

Proposers must submit two (2) paper copies and one (1) electronic copy of the completed proposal to the attention of Roseanne Viscusi at the address on the front of this Program Opportunity Notice. A completed and signed Proposal Checklist must be attached as the front cover of your proposal, one of which must contain an original signature. Late proposals and proposals lacking the appropriate completed and signed Proposal Checklist will be returned. Faxed or e-mailed copies will be not be accepted.

Procurement Lobbying Requirements - State Finance Law sections 139-j and 139-k

Procurement lobbying requirements contained in State Finance Law sections 139-j and 139-k became effective January 1, 2006 (http://www.ogs.state.ny.us/aboutogs/regulations/advisoryCouncil/StatutoryReferences.html). In compliance with §139-j and §139-k of the State Finance Law, for proposals submitted in response to this solicitation that could result in agreements with an annual estimated value in excess of $15,000, additional forms must be completed and filed with proposals: (1) a signed copy of the Proposal Checklist including required certifications under the State Finance Law and (2) a completed Disclosure of Prior Findings of Non-Responsibility form. Failure to include a signed copy of the Proposal Checklist referenced in this solicitation will disqualify your proposal.

- All proposals must include a nominal five (5) page **technology overview** that provides a comprehensive description of the overall project objectives.

- Proposers must prepare a **milestone payment schedule (MPS)** that clearly identifies the task, start date, completion date, and the amount of NYSERDA funds requested upon successful completion of the task. This schedule must also define the specific matching cost share associated with each task. NYSERDA will only accept invoices for completed tasks - funds are not allocated to cover expected/anticipated costs. Proposals that effectively monitor on-going progress and identify scheduled opportunities for NYSERDA to determine if further investment is warranted are preferred.

- All proposals must include a detailed **statement of work (SOW)** consistent with the MPS outlined above. The SOW must define all of the objectives and deliverables associated with each task. The SOW will form the basis/structure of the contractual agreement with NYSERDA, and it is recommended that all terminology/language be reviewed by the proposing organization's counsel prior to submission. Prior review will help expedite subsequent contract execution.

- A **cost/public benefit analysis** must be completed that identifies why the engineering study will lead to a demonstration project worthy of public funds. The analysis should focus on the broader/commercial statewide application of the technology in its justifying arguments.

- All proposals must identify **team qualifications** and provide resumes for all key project personnel

D. Evaluation Criteria

All of the proposals will be reviewed by a technical evaluation panel (TEP) consisting of both internal NYSERDA staff and outside technical experts. NYSERDA reserves the option to invite any/all proposers to provide an oral presentation to its TEP members as a supplement to the written proposal. NYSERDA will coordinate with any/all proposers to schedule oral presentations after the TEP has officially reviewed and discussed all of the proposals. All proposals will be evaluated according to the quality and level of detail provided in the following sections (page recommendations are shown for guidance). Proposals must include substantive detail for all five (5) evaluation criteria items to be eligible for funding.

1. **Technology Overview** **5 pages**
2. **Milestone Payment Schedule** **1 page**
3. **Statement of Work** **5 pages**
4. **Cost/Public Benefit Analysis** **3 pages**
5. **Team Qualifications** **3 pages**

Policy Track - Category D

General Programmatic Requirements

Objective: *Develop innovative strategies that support sustainable investment and continued improvement of the electric power delivery system in New York State.*

A portion of the overall program funds will be used to support research studies (Category D). These in-depth studies will focus on a broad range of business, regulatory, and public policy issues that need to be concurrently addressed in order to facilitate private investment and technology adoption within the electric power delivery system. Proposals are solicited that define tangible recommendations and provide a practical framework for reducing the risks associated with technology deployment. Four (4) topic areas have been defined as follows:

1. Business Strategies: Recent expenditures in New York State's electric power delivery system have primarily focused on operation and maintenance activities. Far less investment has been directed towards deployment of advanced technologies to improve system performance. In order to effectively upgrade the electric power delivery system to meet growing demand and promote open access to new generation sources, additional investment is required. Proposals are encouraged that develop effective business models promoting public/private investment partnerships to finance large-scale infrastructure projects.

New York Power Authority CSC Project
NYPA invested $41 million to install a convertible static compensator (CSC) at its Marcy substation in Oneida County. The total project cost was $54 million with the balance of funds provided by the Electric Power Research Institute (EPRI), Siemens Power Transmission and Distribution, and a number of additional utility stakeholders. The objective of the project was to increase the amount of electric energy that could be delivered from upstate to downstate during peak congestion periods. The system has been in full operation since 2004 and has both increased the transmission circuit capacity by a nominal 200 MW and reduced downstate congestion charges. A reduction in congestion charges is great for downstate ratepayers, but it presents a fundamental problem when trying to recoup the cost of the initial investment. If the technology that is installed reduces/eliminates the congestion charge which was supposed to provide sufficient revenue for a reasonable rate of return on the initial investment, then the project is not financially sustainable.

Long Island Power Authority Neptune RTS Project
LIPA has contracted with a private developer (Neptune RTS) to install a 600 MW high voltage direct current (HVDC) transmission cable linked to the PJM electricity market. The 500 kV cable is 65 miles long (51 miles will be buried underwater) and links a substation in Sayreville, New Jersey with a substation in Hempstead, New York. The private developer has entered into a long term contract with LIPA to provide up to 600 MW from the PJM market thus alleviating the electric power delivery bottleneck on Long Island. This private investment was only possible because the long term contract provided sufficient cash flow stability.

Both of the aforementioned projects were undertaken because LIPA and NYPA took proactive steps to promote innovation in the electric power delivery system. Although the investment costs for these projects will not be incorporated as part of a regulated rate settlement filing with the NYSPSC, they still represent an alternative form of public expenditure by virtue of their respective status as state authorities. NYSERDA encourages proposers to define business models that can support wide spread deployment/adoption of innovative technologies and promote sustainable investment strategies throughout all areas of the state - not just within LIPA and NYPA service territories. It is critically important to quantify the reliability improvements resulting from infrastructure upgrades and to allow private developers to capture the financial value of performance based enhancements.

2. Regulatory Issues: Comprehensive regulations need to encourage the development of an efficient and reliable electric power delivery system that satisfies increasing statewide demand. The NYSPSC and the NYSRC must continue to coordinate their efforts to promote reliability guidelines that effectively support long term consumer requirements. NYSERDA encourages projects that resolve regulatory barriers that negatively impact the implementation of an advanced grid. Projects may addressthe following topics:

a) FERC and NYSPSC jurisdictional issues. Under EPACT 2005, FERC has the jurisdiction to mandate the construction of new transmission circuits in specific areas where electric power delivery constraints jeopardize regional reliability. Effective coordination of federal and state entities is critical to avoid potential jurisdictional conflicts.

b) Utility ownership of distributed generation (DG) technologies. Strategic deployment of DG systems can improve overall distribution network system reliability. DG resources can also enhance system performance and should be an integral part of long term electric power delivery system planning. Accommodating utility ownership/operation of DG assets within a deregulated electric market may provide consumer benefits.

c) Interface disparities with adjoining regional transmission owners (RTOs). This is commonly referred to as the "seams issue", and the NYISO has identified a critical need to optimize electric power transfers and create inter-regional price convergence.

3. Public Policy Issues: New York State continues to refine its functional version of an effective deregulated electric wholesale market. The objective has been to implement a competitive and robust market that ultimately results in the lowest cost of power to consumers. New York State has been at the forefront of this initiative and continues to lead the nation in developing the rules of a reliable and efficient market. NYSERDA encourages proposals that address broad public policy issues within the context of deregulated electric market structure such as:

a) Equitable allocation of T&D upgrade costs to support increasing downstate electric load requirements. If ratepayers are to support either a percentage or all of the costs associated with a power delivery upgrade, consideration should be given to apportion the costs in an equitable manner.

b) Proper recognition and accounting of all environmental impacts. This relates to impacts associated with generation resources and the construction of new transmission lines across the state.

c) Development of proper metrics to gauge adequate performance of the T&D system. Current diagnostic metrics such as the system average interruption frequency index (SAIFI) and the customer average interruption duration index (CAIDI) provide a rather limited perspective characterizing system performance.

4. Advanced Concepts: The primary focus of the solicitation is to support the development and demonstration of pre-commercial and commercial technologies, respectively. However, NYSERDA further recognizes the strategic value of sponsoring longer term projects that have the potential to provide significant public benefit. The Advanced Concepts funding category provides a venue to support projects that demonstrate both high risk and high reward. Proposals are encouraged that promote collaboration with in-state academic institutions and may include the following:

a) Development of technologies to "harden" the electric power delivery system against external threats. Effective collaboration with the New York State Office of Homeland Security (NYSOHS) and the State Energy Management Office (SEMO) is required.

b) Implementation of micro-grids to improve overall statewide reliability by creating numerous sub networks that can be individually isolated and self sustaining. These clustered circuits must effectively integrate energy efficiency, demand response, and distributed generation as inexorably linked components of a "smart" micro-grid.

c) Integration of innovative technologies, such as superconductivity, energy storage, and advanced control strategies in support of a "self-healing" grid.

Policy Track: Category D - Research Studies

A. Eligibility Requirements

Proposers must focus on a critical electric power delivery issue within New York State, and clearly state which of the four (4) topic Policy Track topic areas their project will address. Projects that relate to more than one topic area are acceptable. The proposing entity does not have to be based/headquartered in New York State. Proposers must clearly identify whether the research study will focus more on transmission or local distribution issues. **All projects must demonstrate broad public benefit.**

B. Funding Requirements

It is strongly recommended (but not required) that the proposal show non-NYSERDA funding of at least 25% of the total project cost. Cost sharing can be from the proposer, other team members, and other government or private sources. Contributions of direct labor (for which the laborer is paid as an employee) and purchased materials may be considered "cash" contributions. Unpaid labor, indirect labor, or other general overhead may be considered "in-kind" contributions. NYSERDA will not pay for efforts which have already been undertaken. The proposer or proposing team cannot claim as cost-share any expenses that have already been incurred. Show the cost-sharing plan in the following format:

	Cash	In-Kind Contribution	Total
NYSERDA	$	$	$
Proposer	$	$	$
Others (list individually)	$	$	$
Total	$	$	$

Attach supporting documentation to support indirect cost rate(s) included in your proposal as follows:

1. Describe the basis for the rates proposed (i.e., based on prior period actual results; based on projections; based on federal government or other independently-approved rates).

2. If rate(s) is approved by an independent organization, such as the federal government, provide a copy of such approval.

3. If rate(s) is based on estimated costs or prior period actual results, include calculations to support proposed rate(s). Calculation should provide enough information for NYSERDA to evaluate and confirm that the rate(s) are consistent with generally accepted accounting principles for indirect costs.

NYSERDA reserves the right to audit any indirect rate presented in the proposal and to make adjustment for such difference. Requests for financial statements or other needed financial information may be made if deemed necessary.

NYSERDA will contribute up to a maximum of 100% of total project costs within the limits of a total per project cap of $200,000, however, NYSERDA **strongly** encourages proposers to contribute 25% of total project expenses. Eligible cost share can include both cash and in-kind contributions. Preference will be given to proposers that provide higher cash contributions towards project costs. External funding partnerships are

encouraged to best leverage limited in-state resources. Recoupment will **not** be required for Category C engineering studies.

	Maximum Award	Contractor Cost Share	Recoupment Obligation
Technology Track			
Category A: Demonstration Projects	$ 1,000,000	50%	No
Category B: Product Development	$ 500,000	50%	Yes
Category C: Engineering Studies	$ 200,000	25%	No
Policy Track			
Category D: Research Studies	$ 200,000	25%	No

C. Proposal Format

Proposers must submit two (2) paper copies and one (1) electronic copy of the completed proposal to the attention of Roseanne Viscusi at the address on the front of this Program Opportunity Notice. A completed and signed Proposal Checklist must be attached as the front cover of your proposal, one of which must contain an original signature. Late proposals and proposals lacking the appropriate completed and signed Proposal Checklist will be returned. Faxed or e-mailed copies will be not be accepted.

Procurement Lobbying Requirements - State Finance Law sections 139-j and 139-k

Procurement lobbying requirements contained in State Finance Law sections 139-j and 139-k became effective January 1, 2006(http://www.ogs.state.ny.us/aboutogs/regulations/advisoryCouncil/StatutoryReferences.html). In compliance with §139-j and §139-k of the State Finance Law, for proposals submitted in response to this solicitation that could result in agreements with an annual estimated value in excess of $15,000, additional forms must be completed and filed with proposals: (1) a signed copy of the Proposal Checklist including required certifications under the State Finance Law and (2) a completed Disclosure of Prior Findings of Non-Responsibility form. Failure to include a signed copy of the Proposal Checklist referenced in this solicitation will disqualify your proposal

- All proposals must include a nominal five (5) page **overview of the critical issue** to be addressed in the research study and provide a comprehensive description of the overall project objectives.

- Proposers must prepare a **milestone payment schedule (MPS)** that clearly identifies the task, start date, completion date, and the amount of NYSERDA funds requested upon successful completion of the task. This schedule must also define the specific matching cost share associated with each task. NYSERDA will only accept invoices for completed tasks - funds are not allocated to cover expected/anticipated costs. Proposals that effectively monitor on-going progress and identify scheduled opportunities for NYSERDA to determine if further investment is warranted are preferred.

- All proposals must include a detailed **statement of work (SOW)** consistent with the MPS outlined above. The SOW must define all of the objectives and deliverables associated with each task. The SOW will form the basis/structure of the contractual agreement with NYSERDA, and it is recommended that all terminology/language be reviewed by the proposing organization's counsel prior to submission. Prior review will help expedite subsequent contract execution.

- A **cost/public benefit analysis** must be completed that identifies why the research study is worthy of public funds. The analysis should focus on the broad statewide benefits resulting from study.

- All proposals must identify **team qualifications** and provide resumes for all key project personnel

D. Evaluation Criteria

All of the proposals will be reviewed by a technical evaluation panel (TEP) consisting of both internal NYSERDA staff and outside technical experts. NYSERDA reserves the option to invite any/all proposers to provide an oral presentation to its TEP members as a supplement to the written proposal. NYSERDA will coordinate with any/all proposers to schedule oral presentations after the TEP has officially reviewed and discussed all of the proposals. All proposals will be evaluated according to the quality and level of detail provided in the following sections (page recommendations are shown for guidance). Proposals must include substantive detail for all five (5) evaluation criteria items to be eligible for funding.

1. Critical Issue Overview	**5 pages**
2. Milestone Payment Schedule	**1 page**
3. Statement of Work	**5 pages**
4. Cost/Public Benefit Analysis	**3 pages**
5. Team Qualifications	**3 pages**

GENERAL CONDITIONS

Proprietary Information - Careful consideration should be given before confidential information is submitted to NYSERDA as part of your proposal. Review should include whether it is critical for evaluating a proposal, and whether general, non-confidential information, may be adequate for review purposes. The NYS Freedom of Information Law, Public Officers law, Article 6, provides for public access to information NYSERDA possesses. Public Officers Law, Section 87(2)(d) provides for exceptions to disclosure for records or portions thereof that "are trade secrets or are submitted to an agency by a commercial enterprise or derived from information obtained from a commercial enterprise and which if disclosed would cause substantial injury to the competitive position of the subject enterprise." Information submitted to NYSERDA that the proposer wishes to have treated as proprietary, and confidential trade secret information, should be identified and labeled "Confidential" or "Proprietary" on each page at the time of disclosure. This information should include a written request to except it from disclosure, including a written statement of the reasons why the information should be excepted. See Public Officers Law, Section 89(5) and the procedures set forth in 21 NYCRR Part 501 www.nyserda.org/nyserda.regulations.pdf. However, NYSERDA cannot guarantee the confidentiality of any information submitted.

Omnibus Procurement Act of 1992 - It is the policy of New York State to maximize opportunities for the participation of New York State business enterprises, including minority- and women-owned business enterprises, as bidders, subcontractors, and suppliers on its procurement Agreements.

Information on the availability of New York subcontractors and suppliers is available from:

Empire State Development
Division For Small Business
30 South Pearl Street
Albany, NY 12245

A directory of certified minority- and women-owned business enterprises is available from:

Empire State Development
Minority and Women's Business Development Division
30 South Pearl Street
Albany, NY 12245

State Finance Law sections 139-j and 139-k - NYSERDA is required to comply with State Finance Law sections 139-j and 139-k. These provisions contain procurement lobbying requirements which can be found at:

http://www.ogs.state.ny.us/aboutogs/regulations/advisoryCouncil/StatutoryReferences.html

The attached Proposal Checklist calls for a signature certifying that the proposer will comply with State Finance Law sections 139-j and 139-k and the Disclosure of Prior Findings of Non-responsibility form includes a disclosure statement regarding whether the proposer has been found non-responsible under section 139-j of the State Finance Law within the previous four years.

Tax Law Section 5-a - NYSERDA is required to comply with the provisions of Tax Law Section 5-a, which requires a prospective contractor, prior to entering an agreement with NYSERDA having a value in excess of $100,000, to certify to the Department of Taxation and Finance (the "Department") whether the contractor, its affiliates, its subcontractors and the affiliates of its subcontractors have registered with the Department to collect New York State and local sales and compensating use taxes. The Department has created a form to

allow a prospective contractor to readily make such certification. See, ST-220-TD (available at http://www.tax.state.ny.us/pdf/2006/fillin/st/st220td_606_fill_in.pdf). Prior to contracting with NYSERDA, the prospective contractor must also certify to NYSERDA whether it has filed such certification with the Department. The Department has created a second form that must be completed by a perspective contractor prior to contacting and filed with NYSERDA. See, ST-220-CA (available at http://www.tax.state.ny.us/pdf/2006/fillin/st/st220ca_606_fill_in.pdf). The Department has developed guidance for contractors which is available at:

http://www.tax.state.ny.us/pdf/publications/sales/pub223_606.pdf.

Contract Award - NYSERDA anticipates making multiple award under this solicitation. It may award a contract based on initial applications without discussion, or following limited discussion or negotiations. Each offer should be submitted using the most favorable cost and technical terms. NYSERDA may request additional data or material to support applications. NYSERDA will use the Sample Agreement to contract successful proposals. NYSERDA expects to notify proposers in approximately 12 weeks from the proposal due date whether your proposal has been selected to receive an award.

Limitation - This solicitation does not commit NYSERDA to award a contract, pay any costs incurred in preparing a proposal, or to procure or contract for services or supplies. NYSERDA reserves the right to accept or reject any or all proposals received, to negotiate with all qualified sources, or to cancel in part or in its entirety the solicitation when it is in NYSERDA's best interest.

Disclosure Requirement - The proposer shall disclose any indictment for any alleged felony, or any conviction for a felony within the past five years, under the laws of the United States or any state or territory of the United States, and shall describe circumstances for each. When a proposer is an association, partnership, corporation, or other organization, this disclosure requirement includes the organization and its officers, partners, and directors or members of any similarly governing body. If an indictment or conviction should come to the attention of NYSERDA after the award of a contract, NYSERDA may exercise its stop-work right pending further investigation, or terminate the agreement; the contractor may be subject to penalties for violation of any law which may apply in the particular circumstances. Proposers must also disclose if they have ever been debarred or suspended by any agency of the U.S. Government or the New York State Department of Labor.

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Recoupment is only required for Category B - Product Development Projects.

Recoupment - For any new product development projects requesting NYSERDA funding over $50,000, NYSERDA will require a royalty based on sales of the new product developed. NYSERDA's standard royalty terms are 1.5% of sales for products produced in New York State (for a period of fifteen years or until the Contractor pays NYSERDA an amount equal to the amount of funds paid by NYSERDA to the Contractor, whichever comes first) and 5% of sales for products produced outside of New York State (for a period of fifteen years or until the Contractor pays NYSERDA an amount equal to three times the amount of funds paid by NYSERDA to the Contractor, whichever comes first).

Attachments:

Attachment A: Proposal Checklist
Attachment B: Disclosure of Prior Findings of Non-Responsibility Form
Attachment C: Contract Pricing Proposal Form and Instructions
Attachment D: Sample Agreement