

Project Title	Project Description
<p>P Auxiliary Market Products</p>	
Demand Curve Reset	<p>Per the Market Services Tariff, the NYISO will be developing new sets of demand curves for the capacity market in 2010, with a requirement to file the new curves with FERC by 11/30/2010. The request for proposal to select a consultant to perform the demand curve study contains detailed requirements.</p>
Demand Response Information System	<p>The Demand Response Information System project is a multi-year project to automate the current core functionality of Registration Processing, Event Notification, and Reporting, as well as the ICAP/SCR Processing and the Event Performance, Management and Settlement Preparation calculations. The project also includes new functionality in Event and Meter Data Management and Marketplace functions. Phase 1 of the project is scheduled for delivery in 2009, with the remainder of the work in Phase 2 scheduled for 2010.</p>
ICAP Import Rights Modeling-Capabilities for New Interfaces	<p>This project would implement new capability to model external locations to the sub zone level to support any new interfaces including, HQEX, HQ-Cedars, NPX-AC, NPX-CSC, OH-AC, PJM-AC, and PJM-Neptune. Specifically, the project will address:</p> <ul style="list-style-type: none"> • Multiple import rights models at each physical interface • Specific modeling to treat Unforced Capacity Deliverability Rights (UDRs) • Additional flexibility to model and track wheel-throughs • Apportioning of CRIS and ERIS for exports • Monthly adjustment in import limits to account for deliverability rules • Support of buyer-side mitigation as necessary
Demand Response Aggregations in DSASP	<p>Based on the NYISO's response to FERC Order 719, NYISO will be investigating the changes needed to accommodate aggregated small demand response resources providing ancillary services (DSASP). The current DSASP program allows individual resource participation through a TO; this project would allow multiple demand response resources to participate in DSASP by providing an aggregate signal through a TO to the NYISO. The primary effort involves discussions with NPCC and the NYSRC on any potential rule changes in their areas. Market rule changes should be minimal if aggregations are treated in the same manner as individual DSASP resources.</p>
Final Deliverability Rules	<p>On the basis of FERC's June 23, 2009 ruling and NYISO's filing on External CRIS Rights due October 2009, there will be additional modifications to the ICAP AMS to implement the rules associated with External CRIS Rights, specifically:</p> <ul style="list-style-type: none"> • Identifying external suppliers, bilateral contracts, and commitments to offer market capacity associated with Long-Term External CRIS Rights • Tracking the duration of rights awards and specific months when offers are required • Imposition of an offer cap (\$/kW-mo); creating and modifying the values associated with the cap • Tracking of offer behavior, and identification of situations where an entity with Long-Term External CRIS Rights is in violation of its commitment • Renewal of Long-Term External CRIS Rights • Transfer of rights to another entity; ability to allow partial MW transfer of rights • Compatibility with existing import rights process for short-term imports

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Criteria for New Capacity Zones	The NYISO and its stakeholders are jointly developing the rationale for creating additional capacity zones, identified as a recommendation in the 2008 State of the Market report. Implementation would likely need to occur in time for the 2011 Summer Capability Period. This is a significant modification of the existing code design that will result in a system design with the flexibility to accommodate the creation and deletion of new capacity zones. Another area that will be addressed is the modeling of imports; all imports are currently modeled into the ROS region, but there will be situations where imports from one external control area will enter multiple NYISO capacity zones.
Capability Period Alignment	The NYISO's Capacity Market Capability Year runs from May through the following April; both ISO-NE's and PJM's capability years begin in June. The misalignment of capability years creates issues for suppliers importing capacity into NY from PJM or ISO-NE for use in the NYISO's strip auction, and also impacts NY LSE IRM/locality requirements. This project will consider the extent of market rule changes, software changes and potential operations procedure changes that would be required to align NY's capability year with those of PJM and ISO-NE.

Business Intelligence Products	
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E-Tariff	This is a project to comply with FERC Order 714 by April 1, 2010. The NYISO must implement a system to electronically manage the submission of all tariff filings with FERC, using a FERC mandated XML format. This project will also involve the migration of both NYISO tariffs from a page-based format to a record-based format and will culminate in an initial baseline filing for each of the two tariffs.
E-Room Planning Collaboration	The interactive collaboration provided by NYISO today for planning studies uses a combination of email, burned CDs and posting to a secured area of the NYISO website. This is difficult to administer and does not provide the robust functionality desired. This project would provide for a new collaborative environment through the use of Microsoft SharePoint.
Interregional Transaction Data Access	This project would focus on providing access to data from surrounding control areas to NYISO's Market Mitigation and Analysis Unit. It would automate the gathering and scrubbing of this data so it can be put in a central data warehouse, allowing a history to be built over time. The project will also provide the access for the tools necessary to analyze this data. This data is currently gathered manually and there is no NYISO database to capture a history of this information. This project requires working with the surrounding control areas to automate, as much as possible, the sharing of this data for analytical purposes.
Intranet Redesign	The NYISO has not updated the technological platform or the design of the NYISO Intranet since its inception. This is an internal NYISO project with the purpose of moving the site, which currently exists on outdated technology, to a new technological platform for the benefit of content publishing, ease of navigation and maintenance.

Energy Markets Products	
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Long Term Loop Flow Response-Buy Through Congestion	As a result of the events leading to the 2008 Lake Erie loop flow issues, in 2009 the NYISO, PJM, ISO-NE and MISO identified solutions to the costs imposed on the non scheduling RTO. This project will focus on designing software and rules in conjunction with neighboring control areas to mitigate the effect of loop flows on our systems.
PJM Congestion Management Market Flow Calculator	In late-2006, PJM approached NYISO, interested in developing a program to allow inter-control area dispatch to help manage congestion. PJM has implemented a program with MISO and is currently in the early stages of designing such a program with SPP. In 2007, NYISO initiated discussions with PJM to further understand the MISO program and begin to outline a conceptual straw proposal for a similar program between PJM and NY. NYISO has continued to define the details

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	of a Congestion Management protocol between NYISO and PJM. In 2009, NYISO worked with PJM and NYISO stakeholders to develop a Congestion Management protocol. Before this protocol can be implemented, automated software to calculate the market flow between PJM and NY must be created. In 2010 we will implement this calculator and analyze flows to determine with PJM and NYISO stakeholders the proper basis for compensation.
Interregional Transaction Coordination Phase 1-HQ on Dispatch	Currently, energy transactions between the NYCA and other control areas are evaluated economically once for the hour. This project will focus on instituting an intra-hour economic evaluation and scheduling of transactions with neighboring control areas, starting with the HQCA.
Interregional Transaction Coordination Phase 2-Ancillary Services	Currently ancillary services are procured from internal resources only. This project will focus on designing a method to economically evaluate and schedule the reserve and regulation products from neighboring control areas, starting with the HQCA.
Increasing Bids in RT	Currently generators with accepted Day Ahead bids are prohibited from increasing the accepted portion of their bids in the Real Time markets. Circumstances can arise, such as fuel outages or restrictions, which cause the accepted DA bids to no longer be representative of the units' actual costs. This project would allow these resources to represent their new costs in Real Time. This project is dependent on the Reference Price Software upgrade project.
Scheduling & Pricing Phase 4 – Modify Transaction Bid Caps	Currently Day Ahead scheduled transactions are carried over into the Real Time market as price takers to insure prioritization, their prices are set to the bid floors. Curtailments of these transactions in Real Time can then lead to an arbitrary price of -\$999.70. This can lead to significant balancing residuals. This project will evaluate the feasibility and appropriateness modifying this default value and implement this new value.
Dynamic Reserve Calculation	Currently the NYISO secures ancillary services at 1.5x the single largest contingency of 1200MWs. In the second half of 2010, upgrades to an internal generator will increase this number to near 1400MWs. This project will evaluate the feasibility of updating the model to evaluate the economics of simultaneously scheduling resources between 1200 and 1400 MWs and the reserves needed to meet those schedules. In addition this would allow more imports from HQ.
Enhanced Shortage Pricing	The NYISO implemented reserve demand curves as part of the SMD2 implementation to accurately and consistently capture shortage conditions directly into the market clearing prices. During the development of the market rules, set points (or \$/MW pairs) were established for the Ancillary Service products. In 2010, we will continue the analysis performed in 2009 and design market rules to optimize the operation of the reserve demand curves.
Energy Storage Optimization	The current NYISO model for dealing with large scale storage models, i.e. pump storage, is to force these units to manage their own commitments for injections and withdrawals. This project would focus on the feasibility and appropriateness of allowing the Day Ahead model to optimize a multiple status (GEN/OFF/PUMP) resource.
Finance Products	
Credit Management System	Streamline, automate, and integrate the credit management processes through a Credit Management System (CMS) to make the processes more efficient and auditable. The end state vision for this multi-year project is an automated and integrated CMS that provides a real time credit position and settlement results netted across all markets. NYISO and MPs will be able to manage collateral as a portfolio and make business decisions using analytical tools and information through a user interface. In addition, the NYISO will be able to leverage automation to implement credit requirements that are

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	better matched to market risk. This will be an iterative project, with multiple phases. In 2009, the project delivered functionality for the TCC Market, Credit Infrastructure, Virtual Transactions Market and ICAP Market. In 2010, the project is planned to provide the functionality required to support the (1) Energy and Ancillary Services Market, (2) 2 year TCCs and (3) Market Participant User Interface.
Demand Response program settlements automation	The objective of this project is the automation of the Demand Response program settlements by interfacing with the new Demand Response Information System (DRIS). The NYISO has begun discussions regarding the design of automated demand response settlements and is positioned to meet the 2009 business plan commitment to complete the design by fourth quarter.
Disaggregated Virtual Trading-Credit Requirements	This is a project to develop the market design for credit requirements based on the DVT market design concept proposed and discussed at the Market Issues Working Group in 2009.
Infrastructure Products	
Identity and Access Management	This project addresses NERC CIP compliance requirements. The project will deliver a foundation for enterprise-wide identity and access management to achieve compliance. Technical controls and workflows will manage employee user identities and access rights to widely used critical cyber assets defined by NERC CIP. The solution will provide reporting and visibility to current access entitlements and immediate revocation of rights on employee exit. This project continues the roadmap initiated with a 2009 project that enabled support for Microsoft-based applications for market participants.
Applications Platform Evolution/Service Oriented Architecture	Transition from Weblogic to JBOSS as our application server.
Web Posting Enhancements	<p>The Web Posting Enhancement project will address the following objectives:</p> <ul style="list-style-type: none"> • Improve reliability and performance of the web posting process • Eliminate dependency on proprietary Tibco technology for Postings (major step toward \$440k/yr cost reduction) • Ensure pricing data quality across NYISO systems with authoritative transactional source for prices and price versions • Improve reliability and greatly simplify DSS price data integration • Address NAESB WEQ-002 posting technical requirements • Support SmartGrid initiative by posting LBMP prices to TOs over ICCP (item may be listed with energy product projects) <p>"Web Postings" refers to a series of Tibco Business Works processes that generate and publish various CSV, PDF, and HTML files to NYISO's OASIS site (http://mis.nyiso.com/public). These files include zonal and generator pricing data for the Real-Time, Hour-Ahead, and Day-Ahead markets, outage data, interface limits & flows, PAR schedules & flows, actual load and load forecasts, various reports, and other publicly available data used by our Market Participants. There are over 40 postings in total that publish to the site throughout the day.</p>
Data Warehouse Platform Evolution	The Netezza data warehouse appliance will allow NYISO IT to deliver business intelligence projects faster, greatly increase reporting performance and make data available sooner for reporting. With data intensive initiatives, NYISO requires a high performance scalable cost effective data warehouse platform. 2010 is the optimum year to invest in a data warehouse appliance as it will have near-term business and technical benefits for current and planned DSS development efforts.

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Oracle 11 Upgrade	This is a required upgrade to ensure continued functionality and ongoing support. The upgrades to NYISO systems will be prioritized and scheduled in a phased manner.
Shared Governance Voting Software	The ISO Agreement requires that the NYISO facilitate a voting process as defined in the Agreement. This voting process is currently conducted via a spreadsheet program (Lotus 1-2-3). The existing voting program presents some risk to the NYISO as it based upon unsupported software and has no provisions for change management.
Operations and Reliability Products	
Reference Level Software	This is a continuation of a multi-phased project focusing on the next generation of the Reference Level Software. The current phase includes gathering detailed requirements and creating a detailed design with scheduled completion by Q3 2009. The next phase in 2010 will focus on building and implementing the new Reference Level Software, as well as implementing required changes in other existing NYISO applications, e.g. MIS. It is critical that the NYISO continue to address several identified issues with the calculation and management of the reference price process, and to automate several manual processes related to the reference price process.
Reference level Software – Certification	This project will certify that the reference level calculations are in compliance with required tariffs through an independent validation of application results. This effort provides additional confidence to our Market Participants that we are administering the market in agreement with the stated rules. The certification will be completed prior to deploying the Reference Level Software to production.
Wind Management Evolution – Meteorological Data Submission	This project will continue expanding NYISO’s ability to effectively and reliably manage wind power integration into the NY Bulk Power Grid by providing NYISO operations with tools to enhance their ability to see significant wind ramp events before they occur through the enhanced collection of meteorological data from each wind resource. As more generation from wind resources is added to the system, it becomes increasingly important for NYISO to have strong tools at its disposal to manage these resources in a reliable manner. The NYISO has begun achieving that goal by implementing an intelligent wind power forecasting program, and a process to dispatch wind resources using an economic evaluation. Additionally, NYISO is wrapping up a new study assessing the implications of large wind integration in New York, including the impacts on market rules, grid reliability, system cost, and ancillary services.

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Outage Scheduler Phase III	<p>This is a multi-year project with three phases to increase market efficiency, reliability and provide increased transparency. Phase I of the Outage Scheduler project was to replace the legacy database with a new application Transmission Outage Application (TOA).</p> <p>Phase II of this project will develop a web interface for the Generator Operators allowing for submission and tracking of their outage requests. In addition, system design will be completed for the Transmission Owners:</p> <ul style="list-style-type: none"> ➤ To submit transmission outages via a web interface ➤ Review GO Outage requests ➤ Approval or rejection of GO Outage requests <p>Phase III will develop:</p> <ul style="list-style-type: none"> ➤ TO web interface with the functionality identified above ➤ TOA - Ranger OUS interface allowing for unplanned outage information to be integrated within the TOA application ➤ Direct interfaces to the MMP and AMO NYISO departments for automation of required outage information ➤ Direct interface availability from MP outage systems via standardized file transfers
Smart Grid: Phasor Measurement Network	<p>This project, when completed, will enhance the monitoring of the power flow and exchange on key transmission lines throughout New York State. This is a pilot project to install five Phasor Measurement Units (PMUs) and to develop the design for a "Phasor Measurement Network" that can readily accommodate additional PMUs. This initiative will also develop application software to collect and evaluate the measurement data.</p>
Smart Grid: Dynamic Pricing Phase I	<p>The focus of this project is to identify viable technological solutions for sending price signals in real time.</p>
Mixed Integer Programming Study and DVT Market Design Feasibility Assessment	<p>During the Fall 2007 ABB User's Group Meeting, Art Cohen presented on ABB's experience using Mixed Integer Programming (MIP) versus Lagrangian Relaxation (Multipliers). Ireland and ERCOT were recently delivered using MIP. NYISO may want to have both, even if to use MIP to check the LR solution. Initially the MIP algorithm would be used as a study version that could be used to check and compare against the Lagrangian results. MIP may be better at handling certain unit commitment states. FERC has requested the NYISO to investigate using a MIPS solution for unit commitment. Also, this is an opportunity for NYISO to evaluate the performance and feasibility of the current DVT market design concept, which has been discussed at MIWG throughout 2009, using a different algorithm.</p>
State Estimator Enhancements – Local Estimated Flag	<p>This enhancement will provide an additional flag that will identify if the source data is metered or estimated, providing critical information to the Operations staff and market applications.</p>

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Planning and TCC Market Product Enhancements	
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Non-Historic Fixed Price TCC's	<p>Non-Historic Fixed Price TCCs to eligible LSEs (A940) To comply with FERC docket ER07-521, the NYISO is looking to offer a non-historic 5yr Fixed Price TCC product to its LSEs.</p> <ul style="list-style-type: none"> ➤ To be eligible for the award of five-year fixed price TCCs an LSE must certify that the fixed price TCC they are requesting would be used to hedge the cost of meeting their load; however If the requested fixed price TCCs exceeds the available transfer capacity the TCCs awarded to each LSE will need to be limited. ➤ The price for a non-historic Fixed Price TCC would be based on the auction price of a five-year TCC determined in the Autumn Initial TCC Auction <ul style="list-style-type: none"> ▪ <i>LSEs may enter into a contract for a non-historic Fixed Price TCC from any source, sinking in the LSE's load zone, paying the auction price for a five-year TCC having the same source and sink</i> ➤ Under this approach a fraction of the capacity, otherwise available in the Autumn Initial TCC Auction, would be made available to support the award of non-historic Fixed Price TCCs
TCC Auction Enhancement Features - Phase I	<p>This project will provide for TCC Auction 'End State' functionality to include:</p> <ul style="list-style-type: none"> ➤ Remove restrictions on TCC sales in non-reconfiguration rounds in capability period auctions by providing the opportunity to sell TCCs in any round ➤ Implement Multi Duration Capability Period Auctions ➤ Balance of period (BOP) TCCs; revised structure of the monthly auctions.
CARIS Software	<p>This project will provide NYISO with improved ability to meet CARIS requirements as outlined in NYISO's Compliance filing, Docket No. OA08-52-000, Section II, 6. & 7. and, Attachment Y of the OATT, Section 15.4 in support of FERC Order 890. The software will provide an estimation tool for the CARIS project.</p> <ul style="list-style-type: none"> ➤ This software would utilize publicly available construction cost for potential new construction projects. This is needed for new projects to provide an estimating tool that would incorporate all aspects of the necessary construction expenditures. ➤ Planning will use the tool to validate construction project costs and to perform Cost/Benefits analyses that will be utilized with the CARIS voting process. The software is required to support the CARIS project and process.

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<p>CARIS Voting Software</p>	<p>This project will provide NYISO with improved ability to meet CARIS requirements as outlined in NYISO's Compliance filing, Docket No. OA08-52-000, Section II, 6. & 7. and, Attachment Y of the OATT, Section 15.6 in support of FERC Order 890. This software will support the CARIS voting process.</p> <p>The CARIS voting software needs to automate the process of LSE project voting allowing for tracking results of the planning process for CARIS. It will:</p> <ul style="list-style-type: none"> ➤ Require an internal user interface for the NYISO Planning group to allow for customizing the LSE voting list by zone and with respective weighting share for each CARIS project proposed. ➤ Need to determine the vote weight of each LSE based on project criteria ➤ Calculate the overall weighted LSE affirmative votes to two decimal places. The software is required to support the CARIS project and process.
<p>System Upgrade Facility</p>	<p>This project will automate through software the process for tracking financial information regarding SUFs and SUDs as determined in the Class Year Facilities Studies. This will include:</p> <ul style="list-style-type: none"> ➤ Recording the cost of estimates, cost allocation, and Headroom (i.e. remaining unused capacity) of new SUFs and SUDs identified in each Class Year Facility Study. ➤ Recording any subsequent adjustments of costs and cost allocation of SUFs and SUDs for reconciliation of actual versus previous estimated costs. ➤ Tracking the usage and adjustments of Headroom for previously cost allocated SUFs and SUDs as determined in subsequent Class Year Facility Studies.
<p>Siemen's PTI Model-on-Demand</p>	<p>The Siemens PTI MOD Project will be implemented in two phases</p> <ul style="list-style-type: none"> ➤ Siemens PTI MOD Phase 1: <ul style="list-style-type: none"> ▪ Maintenance and consulting for implementation of the Siemens PTI Model-on-Demand (MOD) software. These would include, and provide: <ul style="list-style-type: none"> ▪ Base case builder and organization tool ▪ Data library to store load profiles, equipment ratings, system updates, project models etc. ➤ Siemens PTI MOD Phase 2 <ul style="list-style-type: none"> ▪ Maintenance and consulting for implementation of the Siemens PTI Model-on-Demand (MOD) web portal which will allow TOs and MPs to review and approve data in a structured, interactive manor and updates and corrections can be submitted to for NYISO review and approval. <p>Phase 1 will be Internal facing and Phase 2 will be External facing.</p>