

Project Title	Project Description
<b>Business Intelligence Products</b>	
eTariff Public Website Module	This project will add the eTariff Public Website module to <a href="http://www.nyiso.com">www.nyiso.com</a> . This is a small effort with new enhancements for the MPs. It allows searching and viewing capabilities for NYISO tariffs, filings and docket numbers. Also, it reduces NYISO's internal maintenance and support.
Market and Settlement Data Management Phase I – Broader Regional Markets	Broader Regional Markets (BRM) initiatives will require reporting and analysis on historical BMS and MIS data beginning in 2012. Analysis will need to be performed over a large time span of data. BMS data that is currently retained for only ten days will be retained for up to five years for analysis. To achieve BRM reporting and analysis requirements this project will copy and integrate BMS and MIS data to NYISO's data warehouse platform. This will provide a platform for analytics and reporting as well as analytics of other control area data that may be required.
Public Website: Maps and Graphs Upgrade	This project will replace old technology and examine possible enhancements to the current maps and graphs displayed on the NYISO public website. The upgrade would improve performance and maintenance of these screens. This project aligns with the build out of the new control center to share technology and displays while minimizing maintenance and maximizing capabilities available via the public website.
Public Website: Posting Marginal Unit Fuel Data	NYISO will add the marginal unit fuel information to its market data area on the NYISO public website. This is a request from the Public Power/Environmental Sector meeting and would require the posting of the fuels being used on the margin (normally 3-6 entries) for each hour of the DAM market.
Public Website: Publishing process	The NYISO public website uses several older systems to maintain the content on the website. This project will replace the current content management technology and the portal technology with a single, more efficient, and cost-effective solution using Microsoft SharePoint to maintain and post documents to the public website.
Web Posting Enhancements	<p>"Web Postings" refers to a series of processes that generate and publish various CSV, PDF, and HTML files to NYISO's OASIS area on the public website (<a href="http://mis.nyiso.com/public">http://mis.nyiso.com/public</a>). These files include zonal and generator pricing data for the Real-Time, Hour-Ahead, and Day-Ahead markets, outage data, interface limits &amp; flows, PAR schedules &amp; flows, actual load and load forecasts, various reports, and other publicly available data used by MPs.</p> <p>This project would improve the posting process to increase reliability and performance and reduce software licensing costs in the future.</p>

Project Title	Project Description
<b>Capacity Market Products</b>	
Additional Capacity Zones	<p>The NYISO is conducting analysis of potential new capacity zones demarcated by south of the UPNY-SENY Interface. Results of preliminary analyses of LHV demand curves were presented to stakeholders in December 2010. The NYISO submitted a report on criteria for new capacity zones to FERC in January 2011, and awaits a reply from FERC on next steps. Market Design for possible new capacity zones will be initiated in Q4-2011.</p> <p>Effort for 2012 includes completing the design (both functional and architectural) for the software, and initiating software development. It is anticipated that development will continue into 2013.</p>
Generator Availability Data System (GADS) Portal	<p>This project covers integration of GADs data (generator forced outage statistics) to the ICAP auction software using the NxL GADs software package, now available as open source software. The primary deliverable will be a front-end user interface to allow MPs to enter generator outage information.</p>
ICAP Software Enhancements	<p>Implement any rule changes required as a result of 2011 stakeholder discussions on buyer-side mitigation. Implementation would require changes to the ICAP Automated Market System (AMS). In addition, there are a number of Auxiliary Market Operations Access Reports that need to move off the Microsoft Access platform to create web-based reports. It is anticipated that a subset of reports will be converted as a part of each software release.</p>
<b>Demand Response Products</b>	
Demand Response – Real Time Energy Market	<p>The focus of this project in 2012 is development of the market rules and identification of software changes required to permit demand response entities to participate in the NYISO's real-time energy market. The scope of this effort will be determined in the 4<sup>th</sup> quarter of 2011.</p>
DSASP Direct Communication – Phase 2	<p>This project will address the required modifications to direct communications from the NYISO to the DSASP provider/aggregator to incorporate a replacement technology for private frame relay. The scope of this effort will be determined by the replacement technology identified by NYISO. Deployment is targeted for the 2<sup>nd</sup> quarter of 2012.</p>
Order 745: DADRP Implementation	<p>This project will implement changes resulting from FERC's acceptance of NYISO's August 19, 2011 compliance filing on DR Compensation. The scope of changes will be based on FERC's evaluation of the compliance filing expected in the 4<sup>th</sup> quarter of 2011.</p>

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Order 745: Dynamic Net Benefits Study	This project will be a study to evaluate the feasibility of incorporating a dynamic net benefits test into the day-ahead and real-time unit commitment and scheduling processes. A compliance filing detailing the results of the feasibility study is due to FERC on September 21, 2012.
Demand Response – Real Time Energy Market	The focus of this project in 2012 is development of the market rules and identification of software changes required to permit demand response entities to participate in the NYISO's real-time energy market. The scope of this effort will be determined in the 4 <sup>th</sup> quarter of 2011.
DRIS: Event Notification	The focus of the project in 2012 is the identification of a replacement of the event notification vendor to allow for integration with the Demand Response Information System (DRIS). Replacement of the event notification system with DRIS will enhance reliability by ensuring that demand response aggregators receive notifications in a consistent and timely manner. Integration with DRIS reduces duplication of event information and facilitates event response reporting.
DRIS: Enhancements	The focus of the project in 2012 is the deployment of any necessary software changes within the Demand Response Information System (DRIS) to maintain the application and implement changes as the result of stakeholder discussions in 2011 on SCR-related topics such as implementation of market rules for resources with distributed generation.
<b>Energy Markets Products</b>	
Ancillary Services Mitigation (SOM)	Per recommendation of NYISO's Market Advisor, NYISO should modify two mitigation provisions that may limit competitive 10-minute reserves offers in the day-ahead market. This project would focus on an evaluation of these two mitigation provisions and identification of appropriate modifications, if necessary.
Disaggregated Virtual Trading (SOM)	<ul style="list-style-type: none"> <li>In the 2006 through the 2010 State of the Market Report, the NYISO's Market Advisor highlighted an issue with energy market price convergence in New York City. Specifically, Dr. Patton highlighted an apparent divergence between day-ahead and real-time energy prices in specific New York City load pockets. That concern led to the recommendation to consider allowing virtual trading at a more disaggregated level or identify other means of improving convergence in the load pockets.</li> <li>Multiple Market Participants have requested extension of the NYISO virtual market to allow trading at the nodal level (current functionality only supports trading at the NYISO load zones). In 2008 and 2009, the NYISO investigated the market and software implications for extending the current zonal virtual trading capability to generator locations.</li> </ul>

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Interregional Transaction Coordination Phase III – PJM Intra-hour Transaction Scheduling	Interregional Transaction Coordination Phase 3 is a Broader Regional Markets initiative that provides more frequent scheduling of external energy transactions, specifically with PJM. Currently energy transactions between NY and other control areas are evaluated economically once for the hour. The State of the Market recommends the, “NYISO continue its work with neighboring control areas to better utilize the transfer capability between regions.” This project expands upon the work completed in Phase 1 by implementing Intra-hour energy transaction scheduling capabilities with PJM. This project was one of the BRM initiatives identified in NYISO’s response to FERC on Loop Flows.
Interregional Transaction Coordination Phase IV – ISO-NE Intra-hour Transaction Scheduling	The State of the Market recommends the, “NYISO continue its work with neighboring control areas to better utilize the transfer capability between regions.” This project would look to expand upon earlier phases and design the requirements needed to implement Coordinated Transaction Scheduling (CTS) with ISO-NE. This project was one of the BRM initiatives identified in NYISO’s response to FERC on Loop Flows.
Interregional Transaction Coordination Phase V – PJM Coordinated Transaction Scheduling	This project expands upon the work of Phase 4 by leveraging the designs with New England on Coordinated Transaction Scheduling. PJM is hoping to evolve transaction scheduling with the NYISO to gain full efficiencies for both regions.
Market to Market Coordination - PJM	In 2011 the NYISO worked with PJM to meet the 2010 FERC Order to implement Market to Market coordination. In 2012 the NYISO will implement software to enable Market to Market coordination between PJM and NY. This project was one of the BRM initiatives identified in NYISO’s response to FERC on Loop Flows.
Operations Systems Documentation	NYISO’s Broader Regional Market initiatives involve modifications to many internal proprietary applications. Proper documentation of these systems in advance of the project changes is paramount to a timely implementation of the Broader Regional Market initiatives. The goal of this effort is to develop a comprehensive set of technical system documentation used by Operations.
Price Validation Redesign to Support BRM	The current validation rule set driving the Price Validation toolset has evolved with the NYISO over the last 11 years. While new rules have been added, no attempt has been made to reevaluate historic rules. This project would work to evaluate the fundamental needs of Price Validation and how their current processes and rules fit those needs. The objective of this evaluation is to gain efficiency in the day to day PV process, as well as IT development and support of these processes.

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Regulation Mileage Compensation	FERC recently released a Notice of Proposed Rule-making in which they “proposes to adopt a frequency regulation compensation mechanism... for compensating regulation providers in organized wholesale electricity markets in order to eliminate undue discrimination and ensure just and reasonable rates.” This compensation mechanism would bifurcate the NYISO’s current regulation market into capacity and movement. This project would evaluate the design, feasibility, complexity, and benefits of such an approach.
Reliability Resource Compensation	In response to the NYISO’s Rest of State Reliability Mitigation filing in 2010, both the BOD and FERC requested the NYISO evaluate the mechanisms for fixed cost compensation and determine if the current mechanisms for compensating reliability units were appropriate. This project looks to expand upon stakeholder discussions from 2011 and identify what, if any, changes are needed to the current processes.
Scheduling and Pricing: Enhanced Scarcity Pricing (SOM)	The 2010 State of the Market recommends the NYISO investigate the possibility of more efficient price setting when energy within the NYCA is scarce. The NYISO will evaluate the causes for the pricing inefficiency and, if necessary, develop and review with stakeholders potential market enhancements that will best capture most efficient price for periods with scarce energy.
Scheduling and Pricing: Graduated Transmission Demand Curve (SOM)	The 2010 State of the Market recommends the NYISO consider the feasibility and potential impacts on reliability and system security from using a graduated Transmission Shortage Cost. The SOM says, “RTD uses a “Transmission Shortage Cost” that limits the re-dispatch costs that may be incurred to \$4,000/MWh when managing congestion. However, our analysis suggests that this level may be higher than necessary to maintain reliability during some brief shortages.”
Enterprise Products	
Data Integration Platform	A data-oriented integration platform is required for NYISO to integrate relatively large amounts of market and operational data from external partners of varying data types, protocols, and semantics. The Market to Market Coordination initiative will require NYISO to integrate 5-minute operational data for purposes of Market Flow validation. NYISO will be unable to dictate data types, protocols and semantics for all partner integrations. Robust and scalable transformation capabilities are required. This project will deliver a unified architecture to support incoming and outgoing data in a unified fashion, along with enterprise monitoring and alerting and tools to maintain data quality.
Identity and Access Management – Phase III	This project continues the roadmap initiated in 2010 to help address evolving NERC CIP compliance requirements and deliver a foundation for enterprise-wide identity and access management. Technical controls and workflows will manage employee user identities and access rights to 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.

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PCC Data Center Migration	Supports strategic NYISO building modernization initiative designed to alleviate space constraints and enable expansion of systems required for Broader Regional Markets and Smart Grid initiatives. This project covers the planning and execution of the PCC data center migration into the new state-of-the-art facility at Guilderland in Q2 2012, while improving efficiencies in the data center design and minimizing outages and business impact during the migration.
Project Management Platform	This initiative will deliver Microsoft Project 2010 in a robust, hosted environment that will provide NYISO with up-to-date project scheduling and tracking tools, centralized and consistent project reporting for improved portfolio management, and improved project team collaboration. This platform will also enable future enhancements to NYISO's project resource planning and management process.
Ranger Messaging Integration	Market to Market Coordination requires near real-time business messages to be exchanged between NYISO and the market systems of its external partners in support of the flow gate coordination process. This project will augment existing integration capabilities to include secure near real-time exchange of structured business data between NYISO's market system, PJM, and other partners. Near real-time messaging will increase as NYISO processes increasingly interact with external partners and customers.
Service Manager Upgrade	This continues an initiative started in 2011 to migrate service request processing for defects, enhancements, software changes, service desk requests, NOC incidents, and MP inquiries and questions from HP Service Center to HP Service Manager 9.2. The Service Center platform is nearing end-of-support and is being replaced by Service Manager. Service Center licenses were exchanged in May 2011, establishing an 18 month window to complete the migration by November 2012.
Finance Products	
Bad Debt Processing Flexibility	This project would give the NYISO the ability to place Bad Debt Losses on any invoice (Flexible Invoice Period [FIP] or Monthly) to reduce exposure & aid in timely recovery of funds. Currently, bad debt losses can only be applied to monthly invoices, creating a potential delay of 3-4 weeks should a bad debt loss occur shortly after monthly invoice issuance. This project would reduce the length of time funds are borrowed from Working Capital and reduce credit risk exposure.
Bank Wire & ACH Processing Improvements	This project addresses two manual processes: (1) Batch entry and transmission of wire payments to MPs and (2) ACH debit transactions as a method of invoice payment by MPs who have opted into this form of payment. Both functions are high volume and are currently done manually. This project would create a cost savings and reduce risk of manual entry errors for the NYISO by entering transactions as a batch versus single transactions.

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ICAP Weekly Invoicing Automation	This project would automate the process of assessing ICAP charges/credits on Flexible Invoicing Period (FIP) and Monthly invoices. This is a manually intensive process today spanning multiple departments. This project would eliminate the need for manual entry and reduce the potential for errors associated with manual processes.
Oracle Financials Upgrade	This software upgrade would bring the NYISO up to a more recent version of the application and provide additional functionality in the system. Oracle Financials is used by NYISO for the company financial reporting, procurement payments and tracking of Customer payments. In addition, there are new features in the Oracle Financials R12 application that provide efficiencies to Finance business processes.
Performance Tracking System (PTS) Replacement	The PTS system is a required data source for the calculation of all Real Time settlements and the loss calculation that is a core component of Sub Zonal load. Additionally, it is the back-up metering system which is used as a default in the absence of Revenue grade metering for a particular generator or tie. It has been determined that this system requires a complete re-write due to numerous system outages, antiquated system design, incompatible technology stack, and many time-consuming manual processes.
Transaction Credit Enhancements	Enhancement to the CMS application to change the credit requirements for external transactions (imports, exports, wheels). These enhancements are needed to better align the credit requirements to the evolving market design for transactions occurring as part of the Broader Regional Markets initiatives. The number of Energy Marketers has increased over the last several years, and this increases the potential risk of defaults in the NYISO markets. These rules were approved in the governance process in 2009.
<b>Operations &amp; Reliability Products</b>	
HTP Controllable Tie Line	This project would support the implementation of a new controllable tie line from PJM into NYCA. Targeted commercial date is early 2013.
Krey Control Center	This is a multi-year project to determine the requirements, design and to implement the necessary situational awareness, data redundancy and communication infrastructure to facilitate operational control from the new Krey Primary Control Center.

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Operational Tools 2012	<p>This project would provide enhanced productivity and visibility to the Operations staff. The following enhancements are included:</p> <ul style="list-style-type: none"> <li>• Transmission Outage Application (TOA) – Increased transparency of maintenance schedules</li> <li>• Automated integration of Transmission Outage Application with Wind Forecast vendor</li> <li>• Consolidate DMNC modeling and tracking</li> <li>• Update NERC System Data Exchange (SDX) file processing.</li> </ul>
Ranger Enhancements 2012	<p>This project would provide enhanced reliability and address FERC and NERC requirements. The following enhancements are included:</p> <ul style="list-style-type: none"> <li>• Maintenance and identification of wind and solar generation.</li> <li>• Enhanced system alarm processing</li> <li>• Incorporate and support new NERC MOD standards</li> <li>• Incorporate and support new bulk power system definition</li> </ul>
Ranger Optimization and Performance Enhancements	<p>This project is required to enhance the NYISO's scheduling platform's ability to incorporate new expanded market functionality and participation.</p>
Ranger Software Platform Upgrade	<p>The Ranger Software Platform Upgrade project would upgrade the existing Supervisory Control and Data Acquisition (SCADA) and Energy Management System (EMS) Ranger Platform to the latent system release to incorporate latest platform enhancements, enhanced cyber security, data detection and maintenance, revised network applications and HMI enhancements.</p>
TSC Enhancements	<p>This project would enhance the administration and calculation process used to allocate export transaction shares so that the Transmission Owner's (TO) can invoice their Transmission Service Charges (TSC).</p>

**Planning and TCC Market Products**

Multi-Duration Centralized TCC Auction and Non-historic Fixed Price TCCs	<p>This project continues the 2011 efforts to provide for Multi-Duration Centralized TCC Auctions, Balance-of-Period Auctions, and Non-Historic Fixed Price TCCs. Under multi-duration format, the Spring and Autumn Centralized Auctions will allow multiple periods (6 month, 1 year) for a given round of up to 5 years total instead of the single period auctions offered today. The current monthly auctions will be replaced with Balance-of-Period auctions which include all months remaining in the current capability period. Incorporated into this project is compliance with FERC order to make available Non-Historic Fixed Price TCCs, a five year TCC product that may be purchased only by LSEs. Annual invoicing of products longer than one year and a new credit policy are being developed with MPs as part of this project.</p>
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Market to Market Coordination – PJM: TCC Changes	This project supports the larger BRM project identified under Energy Markets Products. Changes will be required in the auction engine used by NYISO in support of changes being made to the Day Ahead Market. Software modifications will be completed by the vendor that supplies the auction engine used by NYISO.
High Performance Computing Phase II	In order to better support tariff mandated activities performed by the System Planning group, a project was put in place in 2010 to build out a High Performance Computing (HPC) environment for the GE MARs application. Based on success from that project, the second phase of this project looks to move additional applications to the HPC environment including the GE MAPs application. An additional HPC system would be installed at the PCC for this purpose.
Siemens' PTI Model-on-Demand Phase II	In 2011 NYISO completed an Architecture Design Specification for delivery of Siemens PTI Model-on-Demand (MOD) web portal. The web portal will allow TOs input to the modeling process including submit, review, update, correct, and approve network model data in a structured, interactive manor. NYISO will then review and work with TOs to update and correct if needed, and approve.
SUF / SDU Headroom Tracking	Headroom associated with System Upgrade Facilities (SUF) and System Deliverability Upgrades (SUF) is currently tracked in multiple systems. In 2010, a market design concept was approved for developing headroom tracking software that would provide a robust solution for satisfying System Planning requirements. This project will continue to build on the prior year efforts.