



2017 Project Prioritization & Budgeting Process

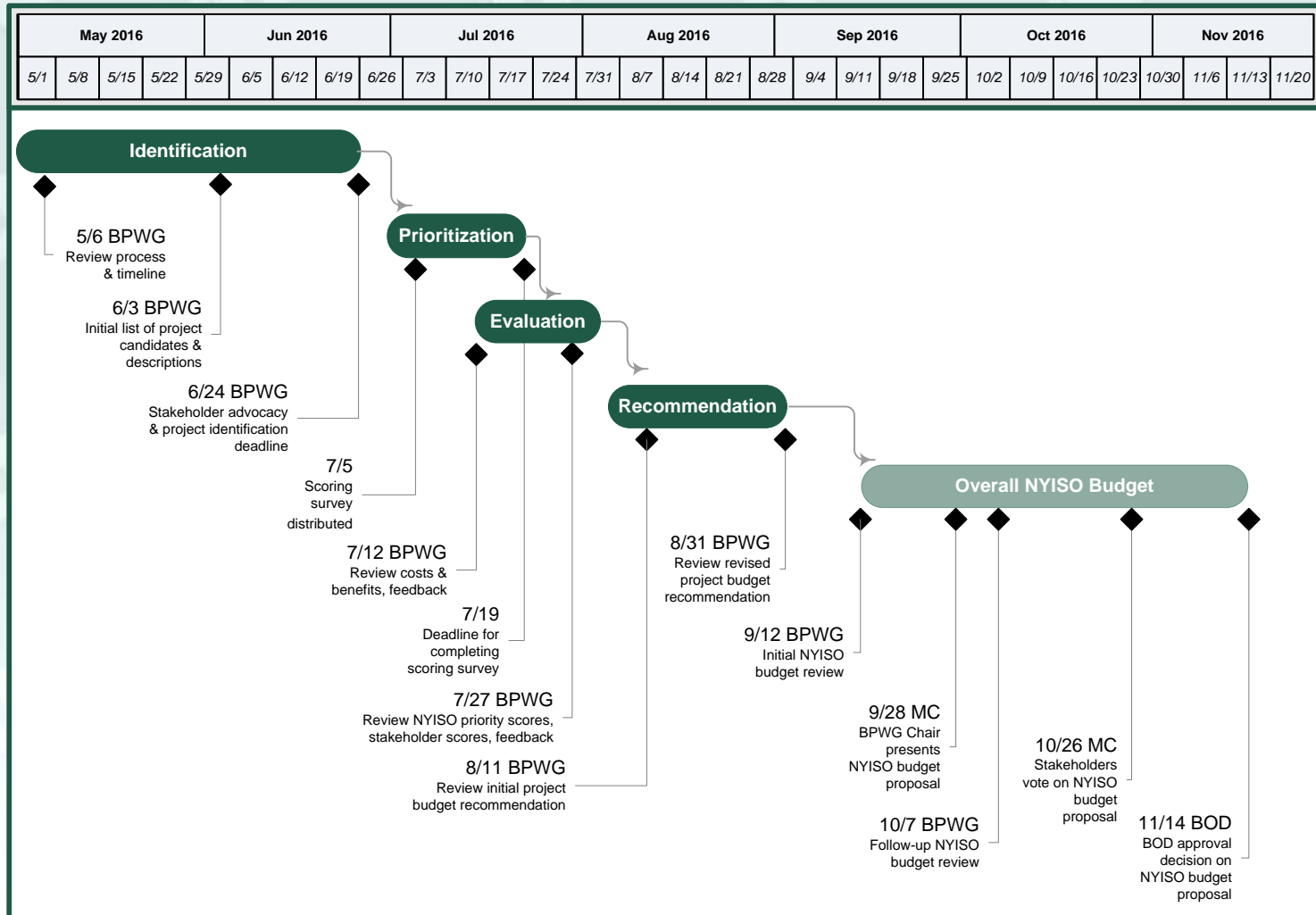
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Budget & Priorities Working Group
August 11, 2016
Krey Corporate Center

2017 Project Prioritization Process

Phase	Description
Identification	This phase involves developing the list of project candidates taking into consideration regulatory obligations, strategic initiatives, State of the Market recommendations, necessary infrastructure enhancements, product plans, stakeholder feedback, etc.
Prioritization	The phase involves the NYISO and stakeholder scoring of projects. The NYISO scores projects using objective criteria that reflects strategic alignment, expected outcomes, risks, and ability to execute. Stakeholders score projects based on their organizational priorities via a survey mechanism.
Evaluation	This phase involves performing a feasibility assessment based on detailed cost and labor estimates, dependencies, priority scores, and stakeholder feedback.
Recommendation	This phase involves proposing a feasible set of project deliverables and related budget requirements. The proposal is refined as needed based on stakeholder feedback.

2017 Project Prioritization Timeline



Recommended Budget by Product Area

Product Area	Estimated Cost (in millions \$)					
	Labor	Capital	Prof. Services	Total	Mandatory	Continuing
Business Intelligence Products	0.97	-	0.56	1.53	0.31	0.28
Capacity Market Products	2.93	-	1.42	4.35	0.70	0.55
Demand Response	0.28	-	0.15	0.43	-	0.18
Energy Market Products	0.52	0.01	0.10	0.62	-	0.39
Enterprise Products	2.63	5.92	0.74	9.29	-	4.73
Finance Products	1.29	0.05	0.09	1.42	-	0.57
Operations and Reliability Products	4.93	1.40	9.84	16.17	-	15.55
Planning Products	0.47	-	0.30	0.77	-	0.46
TCC Market Products	0.53	0.01	0.43	0.96	-	0.96
Total Cost	14.55	7.38	13.62	35.55	1.01	23.67

Recommended 2017 Projects

Project	Priority Scores					Deliverable	Estimated Cost (in millions \$)				
	NYISO	Stakeholder	Weight	Org Count	Sector Count		Labor	Capital	Prof. Serv.	Total	
Business Intelligence Products											
NAESB PKI Phase 2	MANDATORY					Deploy	0.31	0.00	0.00	0.31	
Enterprise Information Management - Data Integration Phase III	CONTINUING					Development Complete	0.28	0.00	0.00	0.28	↓
Customer Relationship Management Tool	237	51	24	6	3	Deploy	0.08	0.28	0.00	0.36	↓
Public Website Calendar	193	15	21	4	2	Architecture Design	0.05	0.00	0.00	0.05	
Secure Communications	186	16	17	3	2	Deploy	0.14	0.00	0.00	0.14	
Public Website Refresh	181	36	24	4	2	Architecture Design	0.15	0.00	0.26	0.41	↓
eTariff Webviewer Enhancements	175	53	38	10	2	Deploy	0.04	0.00	0.02	0.06	↓
Key Topics Tracking for Public Website	160	21	18	4	2	Deploy	0.07	0.00	0.00	0.07	
Mobile Applications	146	15	20	3	2	Deploy	0.08	0.00	0.15	0.23	

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Recommended 2017 Projects

Project	Priority Scores					Deliverable	Estimated Cost (in millions \$)				
	NYISO	Stakeholder	Weight	Org Count	Sector Count		Labor	Capital	Prof. Serv.	Total	
Capacity Market Products											
RMR Cost Recovery Phase II	MANDATORY					Functional Requirements	0.28	0.00	0.00	0.28	↓
Demand Curve Reset	MANDATORY					Study	0.04	0.00	0.06	0.10	
Demand Curve Reset Annual Updates	MANDATORY					Deploy	0.25	0.00	0.09	0.34	↓
Elimination of Capacity Zones (SOM)	CONTINUING					Market Design Complete	0.55	0.00	0.00	0.55	↓
Alternative Methods for Determining LCRs (SOM)	759	278	236	20	4	Market Design Complete	0.41	0.00	0.64	1.05	↓
Integrating Public Policy	732	422	402	27	5	Study	0.31	0.00	0.35	0.66	↑
Treatment of Capacity Exports from Localities (SOM 8)	723	41	69	7	4	Market Design Complete	1.02	0.00	0.00	1.02	
Performance Assurance	546	54	70	7	2	Study	0.15	0.00	0.21	0.36	↓
ICAP AMS Redesign & Testing Improvements Phase 1	479	77	47	9	4	Deploy	0.46	0.00	0.00	0.46	↑
Automate ICAP Import Rights	454	25	15	3	2	Deploy	0.10	0.00	0.00	0.10	
Modifications to GADS Reporting Software for IIFO	449	1	0	1	0	Deploy	0.02	0.00	0.09	0.11	↓
GADS Reporting	364	61	33	7	2	System Design	0.08	0.00	0.00	0.08	

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Recommended 2017 Projects

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	NYISO	Stakeholder	Weight	Org Count	Sector Count		Labor	Capital	Prof. Serv.	Total
Capacity Market Products										
Forward Capacity Market	350	149	110	11	4	Concept Proposed	0.23	0.00	0.00	0.23
BSM to Address Other Price Suppression Actions (SOM 5)	349	70	72	5	2	Concept Proposed	0.76	0.00	0.00	0.76
Capacity Transfer Rights for Internal Transmission Upgrades (SOM)	337	14	20	4	2	Concept Proposed	1.05	0.00	0.00	1.05
Economically Allocate Import Rights	330	4	0	4	0	Concept Proposed	0.83	0.00	0.00	0.83
Fuel Assurance – Dual Fuel Requirements for Gas-Fired Generators	299	21	40	2	4	Concept Proposed	0.63	0.00	0.00	0.63
On Ramps and Off Ramps for Zones	295	61	35	6	2	Concept Proposed	0.47	0.00	0.00	0.47
Incremental External CRIS Rights	263	61	25	3	4	Market Design Complete	0.57	0.00	0.00	0.57
Incremental Enhancement to BSM Forecasts of ICAP Prices (SOM)	246	71	66	8	4	Concept Proposed	0.31	0.00	0.00	0.31
Dynamic Creation of Zones	215	91	72	7	2	Concept Proposed	0.71	0.00	0.00	0.71



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Recommended 2017 Projects

Project	Priority Scores					Deliverable	Estimated Cost (in millions \$)				
	NYISO	Stakeholder	Weight	Org Count	Sector Count		Labor	Capital	Prof. Serv.	Total	
Demand Response Products											
Distributed Energy Resource Program Design	CONTINUING					Concept Proposed	0.18	0.00	0.00	0.18	
NYISO Pilot Framework	498	306	189	13	4	Market Design Complete	0.01	0.00	0.07	0.08	↓
Granular Pricing & Market Price Delivery	373	61	52	7	3	Concept Proposed	0.03	0.00	0.00	0.03	
Meter Data Policy	346	83	65	9	3	Study	0.06	0.00	0.09	0.14	↓
Limited Resource Performance Obligations: Evaluate Minimum Performance Obligation for Capacity Resources	344	183	184	13	5	Market Design Complete	0.06	0.00	0.00	0.06	
Business Objects Enhancements for DRIS Data	289	30	20	2	2	Deploy	0.06	0.00	0.00	0.06	
State of Charge Management for Energy Storage	281	126.5	52	11	4	Development Complete	0.08	0.00	0.00	0.08	

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Recommended 2017 Projects

Project	Priority Scores					Deliverable	Estimated Cost (in millions \$)				
	NYISO	Stakeholder	Weight	Org Count	Sector Count		Labor	Capital	Prof. Serv.	Total	
Energy Market Products											
ConEd/PSEG Wheel (SOM)	CONTINUING					Deploy	0.26	0.01	0.10	0.37	↓
Hybrid GT Pricing Improvements (SOM)	CONTINUING					Functional Requirements	0.03	0.00	0.00	0.03	↓
Energy Storage Integration & Optimization	748	303.5	111	18	5	Concept Proposed	0.10	0.00	0.00	0.10	↓
Fuel Assurance—Constrained Fuel Supply Bidding (SOM)	642	44	58	6	4	Study	0.09	0.00	0.00	0.09	↑
Model 100+KV Transmission Constraints (SOM)	568	227	141	13	4	Concept Proposed	0.05	0.00	0.00	0.05	
Graduated Transmission Demand Curves (SOM)	471	146	34	6	2	Market Design Complete	0.03	0.00	0.00	0.03	
RTC/RTD Forward Horizon Coordination Improvements (SOM)	454	144	119	12	5	Study	0.09	0.00	0.00	0.09	↓
Ontario Pricing	373	33	8	3	1	Market Design Complete	0.03	0.00	0.00	0.03	
Review of RACT Compliance Plans (SOM)	345	9	8	3	1	Concept Proposed	0.07	0.00	0.00	0.07	
Outage Analysis Tool	343	16	24	4	2	Study	0.07	0.00	0.00	0.07	
Long Island PAR Optimization & Financial Rights (SOM)	339	36	36	7	3	Concept Proposed	0.10	0.00	0.00	0.10	

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Recommended 2017 Projects

Project	Priority Scores					Deliverable	Estimated Cost (in millions \$)				
	NYISO	Stakeholder	Weight	Org Count	Sector Count		Labor	Capital	Prof. Serv.	Total	
Energy Market Products											
Startup Cost Compensation	311	70	78	6	3	Concept Proposed	0.03	0.00	0.00	0.03	
5-Minute Transaction Scheduling (SOM)	291	90	19	4	2	Concept Proposed	0.05	0.00	0.00	0.05	
Scarcity Pricing Tariff Revision	275	9	14	3	4	Deploy	0.06	0.00	0.22	0.28	
Offer Cap Enhancement for FERG	254	71	35	3	4	Concept Proposed	0.05	0.00	0.00	0.05	
Eliminate Fees for CTS Transactions with PJM (SOM)	247	299	130	12	3	Concept Proposed	0.05	0.00	0.00	0.05	
DAM Scheduling for ICAP Suppliers	240	43	42	7	4	Deploy	0.32	0.00	0.30	0.62	
Quarterly Congestion Reporting	219	26	19	3	2	Deploy	0.13	0.00	0.00	0.13	
Reinstitute Import Guarantees	209	231	106	7	4	Concept Proposed	0.10	0.00	0.00	0.10	
Changes to Selkirk Market Modeling	206	129	33	5	2	Market Design Complete	0.13	0.00	0.00	0.13	
Fractional MW Load Bidding	195	99	12	6	2	Concept Proposed	0.05	0.00	0.00	0.05	
ACD Dataset Reporting	138	4	0	4	0	Deploy	0.06	0.00	0.00	0.06	
Integration of OFO status into SUEDE	102	4	0	4	0	Development Complete	0.14	0.00	0.00	0.14	

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Recommended 2017 Projects

Project	Priority Scores					Deliverable	Estimated Cost (in millions \$)				
	NYISO	Stakeholder	Weight	Org Count	Sector Count		Labor	Capital	Prof. Serv.	Total	
Enterprise Products											
Storage Infrastructure Redesign Phase III	CONTINUING					Deploy	0.19	3.21	0.02	3.41	↓
Telephony System Upgrade	CONTINUING					Deploy	0.33	0.00	0.15	0.48	↓
Application Platform Upgrade Phase IV	CONTINUING					Deploy	0.35	0.39	0.10	0.84	↓
Backup Enhancements	415	1	0	1	0	Deploy	0.18	1.75	0.06	1.99	↓
Enterprise Job Scheduling Upgrade	333	6	5	2	1	Deploy	0.12	0.06	0.15	0.34	↓
Software AG Upgrade	322	1	0	1	0	Deploy	0.26	0.27	0.08	0.61	↓
Marketplace and Webforms Technology Upgrade	265	4	0	4	0	Deploy	0.16	0.00	0.02	0.18	
Database Platform Upgrade Phase II	254	1	0	1	0	Deploy	0.32	0.24	0.00	0.56	↑
Identity and Access Management – 2017	250	1	0	1	0	Deploy	0.47	0.00	0.00	0.47	↓
Application Testing Improvements	214	1	0	1	0	Deploy	0.42	0.00	0.18	0.61	↓

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Recommended 2017 Projects

Project	Priority Scores					Deliverable	Estimated Cost (in millions \$)			
	NYISO	Stakeholder	Weight	Org Count	Sector Count		Labor	Capital	Prof. Serv.	Total
Finance Products										
North Subzone Redistricting	CONTINUING					System Design	0.22	0.00	0.00	0.22
Rate Schedule 1 Technology Automation	CONTINUING					Deploy	0.10	0.00	0.00	0.10
Day Ahead Margin Assurance Payment (DAMAP) Enhancements	CONTINUING					Deploy	0.06	0.00	0.00	0.06
Transmission Service Charges Rate Update	CONTINUING					Deploy	0.20	0.00	0.00	0.20
Rate Schedule 12 Settlement	343	1	0	1	0	Functional Requirements	0.46	0.00	0.00	0.46
CMS Projected True-up Exposure Study	265	24	43	4	3	Study	0.01	0.00	0.00	0.01
Transactions Modifications & Confirmation Tool	263	6	9	2	4	Functional Requirements	0.09	0.00	0.00	0.09
CMS/ ConInvoice Data Integration	263	4	0	4	0	Deploy	0.14	0.00	0.00	0.14
Settlements Sub Accounts	229	120	39	7	2	System Design	0.07	0.00	0.00	0.07
Settlement at Sub-hourly Metering Study	214	40	0	2	0	Study	0.03	0.00	0.00	0.03
Expense Reports Automation	211	1	0	1	0	Architecture Design	0.09	0.03	0.09	0.20
Financial Reporting Tools	193	1	0	1	0	Deploy	0.09	0.03	0.00	0.11
Contract Management	178	6	9	2	4	Architecture Design	0.12	0.05	0.15	0.32
Sub Accounts with Unique Invoicing, Banking and Reporting	100	76	29	6	2	Deploy	0.82	0.00	0.00	0.82




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Recommended 2017 Projects

Project	Priority Scores					Deliverable	Estimated Cost (in millions \$)				
	NYISO	Stakeholder	Weight	Org Count	Sector Count		Labor	Capital	Prof. Serv.	Total	
Operations & Reliability Products											
TOA Platform Upgrade Phase II	CONTINUING					Development Complete	0.23	0.00	0.78	1.01	↓
EMS BMS System Upgrade	CONTINUING					Development Complete	4.33	1.20	8.92	14.45	
FERC Funded Rerun - Phase 4	CONTINUING					Deploy	0.09	0.01	0.00	0.09	
2017 Reference Level Software Enhancements	377	11	17	3	1	System Design	0.23	0.00	0.10	0.33	↓
EPG PMU Simulator	365	13	8	3	1	Deploy	0.06	0.20	0.04	0.30	↓
PMU Enhancements	345	13	8	3	1	Deploy	0.13	0.00	0.50	0.63	
Gas Balancing Position Reporting	256	6	9	2	4	Deploy	0.03	0.00	0.00	0.03	
Smart Grid Visualization	223	19	8	4	4	Deploy	0.01	0.00	0.00	0.01	
SUEDE Front End Toolset	183	6	9	2	4	Deploy	0.26	0.00	0.00	0.26	


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Recommended 2017 Projects

Project	Priority Scores					Deliverable	Estimated Cost (in millions \$)				
	NYISO	Stakeholder	Weight	Org Count	Sector Count		Labor	Capital	Prof. Serv.	Total	
Planning Products											
Solar Forecasting Initiatives	CONTINUING					Deploy	0.17	0.00	0.30	0.46	
Interconnection Process Review	258	435	470	24	5	Concept Proposed	0.20	0.00	0.00	0.20	
Public Policy Transmission Planning Process Acceleration	232	417	273	21	5	Concept Proposed	0.10	0.00	0.00	0.10	

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Recommended 2017 Projects

Project	Priority Scores					Deliverable	Estimated Cost (in millions \$)				
	NYISO	Stakeholder	Weight	Org Count	Sector Count		Labor	Capital	Prof. Serv.	Total	
TCC Products											
TCC Balance-of-Period (TCC AMS, TCC AVS & CMS)	CONTINUING					Deploy	0.53	0.01	0.43	0.96	

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Next Steps

- ◆ **We will review a revised project budget recommendation at the August 31st BPWG meeting**

Appendix A: Stakeholder Advocacy

Organization	Advocacy Position
Richard P. Felak	The number and gravity of the proposed changes listed under capacity market products is clearly indicative of the long-established fact that the NYISO's capacity market is irretrievably broken, convoluted, inscrutable, inefficient, counterproductive, and beyond help with so many layers of band aids that it has terminal gangrene under them. You're continuing to waste your time and money and most importantly flushing money down the drain that instead should be directed for the benefit of your most important customers -- i.e., end use consumers -- and the only way to make improvements is by completely redoing the capacity market from the ground up starting with a clean sheet. Aren't you glad you asked huh.....
Saracen Energy East LP	Utilizing the graduated transmission curves as outlined in the tariff should eliminate all of the constraint relaxation and offline GT practices impairing energy prices. / / Modeling of all 100kV and above facilities will improve energy prices significantly and bring NYISO operations to a standard utilized by neighboring RTO's. It will better manage network issues caused by changes in our future generation fleet. It will lower production costs and improve price transparency.
NextEra Energy Power Marketing, LLC	These are all particularly important issues, notably on storage integration and interconnection process review. Thanks for seeking comments on this survey.
Citigroup Energy Inc.	I didn't see any FTR or NODAL Virtual projects listed.....
DC Energy LLC	There were no virtual energy product enhancement alternatives in this survey. Many stakeholders favor expanding virtual bidding points to include generation nodes, there had been stakeholder discussion on this subject but that was not included here. We recommend such advancement be included in the next survey.
AES ES Holdings, LLC	AES ES Holdings, LLC appreciates the opportunity participate in the survey. We allocated 100% of our points to Energy Storage and Optimization (vs. splitting between multiple storage and DER related projects) because we believe that improving in front of the meter storage project market integration is the most immediate focus priority to maximize the technical capability of in front of the meter storage projects to improve reliability, lower carbon and lower costs on the grid. Once the optimization question is addressed, other "sub topics" such as state of charge management and behind the meter storage/ DER can be detailed. In other words, if budget resources are limited, this project should be the first step before other related projects are launched.

Appendix A: Stakeholder Advocacy

Organization	Advocacy Position
Long Island Power Authority	<p>> Transmission as reserve (excluded due to software update limitations) - impact should be studied before any software design can be done / > LI PAR Optimization - limit to changes within PAR tap change tolerance, including relative flows on parallel PARs / > Future consideration - measure and reduce systematic difference in DAM and RT gas burn (an effort that will be of increasing relevance as renewable penetration increases). / > For modeling key +100 kV constraints - do not require NYPA to change Niagara dispatch. /</p>
CPower	<p>CPower recommends that, in considering demand response projects for 2017, existing penalty provisions for SCRs be reviewed in conjunction with either the Distributed Energy Resource Program Design or the Limited Resource Performance Obligations proposed 2017 projects. Reviewing a more comprehensive set market rule changes applied to a given set of resources will result in greater market certainty for all stakeholders.</p> <p>Currently-implemented penalty calculations associated with, but not limited to, Incremental ACL, Provisional ACL, and RIP Portfolio shortfalls do not take into account the ICAP equivalent of UCAP offered, nor do they recognize actual event or test performance. Penalties are based solely upon the inability to demonstrate the enrolled Incremental or Provisional ACL. In many cases, these additional factors would eliminate the need for penalties. The addition of RIP shortfall penalties to individual SCR penalties results in overly punitive treatment of portfolios; consideration should be given to eliminating individual SCR penalties where possible. Minimum SCR kW thresholds for Change of Load/Change of Status (CoL/CoS) rules should be increased to better focus on larger resource performance; aggregate data reporting on the incidence of CoL/CoS violations would also be helpful. This effort would identify tariff and procedure changes needed to establish appropriate penalty calculation formulae.</p> <p>CPower recognizes that this initiative is not explicitly considered in the ongoing stakeholder prioritization of 2017 projects, but would like the project prioritization process record to indicate the importance of this effort to NY demand response providers. We appreciate the NYISO's consideration of this effort in 2017.</p>
EnerNOC, Inc.	<p>I understand that Dave Lawrence representing CPower reached out to you regarding considering existing penalty provisions for SCRs be reviewed in conjunction with either the Distributed Energy Resource Program Design or the Limited Resource Performance Obligations proposed 2017 projects. For all the reasons Dave provided, we fully support that. The penalty provisions are in serious need of reform and it was disappointing they weren't included in the survey.</p>

Appendix A: Stakeholder Advocacy

Organization(s)	Advocacy Position
Energy Spectrum Inc.	<p>Energy Spectrum recommends that, in considering demand response projects for 2017, existing penalty provisions for SCRs be reviewed in conjunction with either the Distributed Energy Resource Program Design or the Limited Resource Performance Obligations proposed 2017 projects. Reviewing a more comprehensive set market rule changes applied to a given set of resources will result in greater market certainty for all stakeholders.</p> <p>Currently-implemented penalty calculations associated with, but not limited to, Incremental ACL, Provisional ACL, and RIP Portfolio shortfalls do not take into account the ICAP equivalent of UCAP offered, nor do they recognize actual event or test performance. Penalties are based solely upon the inability to demonstrate the enrolled Incremental or Provisional ACL. In many cases, these additional factors would eliminate the need for penalties. The addition of RIP shortfall penalties to individual SCR penalties results in overly punitive treatment of portfolios; consideration should be given to eliminating individual SCR penalties where possible. Minimum SCR kW thresholds for Change of Load/Change of Status (CoL/CoS) rules should be increased to better focus on larger resource performance; aggregate data reporting on the incidence of CoL/CoS violations would also be helpful. This effort would identify tariff and procedure changes needed to establish appropriate penalty calculation formulae.</p> <p>Energy Spectrum recognizes that this initiative is not explicitly considered in the ongoing stakeholder prioritization of 2017 projects, but would like the project prioritization process record to indicate the importance of this effort to NY demand response providers. We appreciate the NYISO's consideration of this effort in 2017.</p>
Alcoa, Inc., IBM Corporation, Occidental Chemical Corp., and Wegmans Food Markets	<p>I do not like the description of the "Limited Resource Performance Obligations: Evaluate Minimum Performance Obligation for Capacity Resources." The NYISO needs to evaluate and improve its demand response programs, but I disagree that minimum performance requirements need to be increased, as assumed in the write-up. If anything, those requirements should be relaxed and made more flexible to enhance - rather than impede - participation in the programs.</p>

The mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefit to consumers by:

- *Maintaining and enhancing regional reliability*
- *Operating open, fair and competitive wholesale electricity markets*
- *Planning the power system for the future*
- *Providing factual information to policy makers, stakeholders and investors in the power system*

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