NEW YORK INDEPENDENT SYSTEM OPERATOR
10 Krey Boulevard • Rensselaer, NY 12144

April 18, 2014

The Honorable Fred Upton, Chairman
U.S. House of Representatives
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515-6115

Dear Chairman Upton, Chairman Whitfield and Committee Members:

On behalf of the New York Independent System Operator (NYISO), please see the attached responses to your March 26, 2014 request for information. Please advise if we can be of any further assistance.

Regards,

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New York Independent System Operator
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NYISO Response to House of Representatives Committee on Energy and Commerce
April 17, 2014

1. For this past winter season, please address the following relating the NYISO system:

   a. Did the NYISO have sufficient operating reserves during the recent cold weather conditions?

   The NYISO maintained sufficient operating reserves during the recent cold weather events. On January 7, the NYISO declared a NERC Energy Emergency Alert 1, indicating that there was no surplus margin in excess of its reserve requirements, as well as a NERC Energy Emergency Alert 2 for some hours, as demand response programs were activated.

   b. Were there generating units contracted for capacity that failed to produce power when called upon during the recent cold weather events? If yes, please describe the type of generation source for each contracted unit that failed to produce power.

   See the charts below describing generator derates on seven of the coldest days this winter. Generator derates indicate a unit that failed to produce power when it had a day-ahead commitment.[1]

17-Dec

Total Derates at Peak		-489					
Unit Type		MW	Fuel (MW)		Cold (MW)	Non-Fuel/Weather Related (MW)	
Gas Only	16%	-79	-46	16%	0	-33	
Dual-Fuel	62%	-304	-240	84%	0	-64	
Oil Only	17%	-85	0	0%	0	-85	
Nuclear	0%	0	0	0%	0	0	
Refuse	4%	-21	0	0%	0	-21	
Biogas	0%	0	0	0%	0	0	
Hydro	0%	0	0	0%	0	0	
Coal	0%	0	0	0%	0	0	
Wind	0%	0	0	0%	0	0	
		-489	-286		0	-203	
			58%		0%	42%	

Fuel-Related Reasons	MW	%
Gas Only Units		
Lack of Fuel	42	91%
Gas Issue	4	9%
	46	
Dual-Fuel Units		
Gas Compressor Problem	78	33%
Low Gas Pressure	162	68%
	240	

[1] Total derate summary applies only to the seven days listed. Reasons for generator derates come from the Transmission Owners, who communicate these reasons to NYISO Grid Operators. Therefore, some of the "Non-Fuel/Non-Weather" related issues (e.g. unit trip, unable to start, etc.) could have been related to cold temperatures on some of these days. Unless the unit indicated that the derate was specifically due to cold weather or fuel issues, the derate was listed as non-fuel/non-weather related.

3-Jan

Total Derates at Peak		-2,549						
Unit Type			Fuel (MW)		Cold (MW)		Non-Fuel/Weather Related (MW)	
Gas Only	11%	-293	-275	63%	-18	5%	0	
Dual-Fuel	72%	-1,839	-163	37%	-163	44%	-1,514	
Oil Only	7%	-174	0	0%	-158	43%	-16	
Nuclear	0%	0	0	0%	0	0%	0	
Refuse	1%	-18	0	0%	0	0%	-18	
Biogas	0%	0	0	0%	0	0%	0	
DSASP	1%	-21	0	0%	0	0%	-21	
Hydro	6%	-161	0	0%	-29	8%	-132	
Coal	2%	-44	-1	0%	0	0%	-43	
Wind	0%	0	0	0%	0	0%	0	
		-2,549	-439		-368		-1,743	
			17%		14%		68%	

Fuel-Related Reasons		
Gas Only Units		
Lack of Gas	224	82%
Gas Issue	4	1%
Gas Restriction	46	17%
	274	
Dual-Fuel Units		
Lack of Fuel	163	100%
Coal		
Fuel Quality	1	

7-Jan

Total Derates at Peak		-4,135						
Unit Type			Fuel (MW)		Cold (MW)		Non-Fuel/Weather Related (MW)	
Gas Only	9%	-387	-309	72%	0	0%	-78	
Dual-Fuel	43%	-1,762	-82	19%	-946	52%	-733	
Oil Only	10%	-402	-40	9%	-361	20%	-1	
Nuclear	25%	-1,045	0	0%	0	0%	-1,045	
Refuse	0.4%	-18	0	0%	-17	1%	-1	
Biogas	0.1%	-4	0	0%	-4	0%	0	
Hydro	10%	-425	0	0%	-425	24%	0	
DSASP	1%	-42	0	0%	0	0%	-42	
Coal	1%	-51	0	0%	-51	3%	0	
Wind	0%	0	0	0%	0	0%	0	
		-4,136	-432		-1,805		-1,900	
			10%		44%		46%	

Fuel-Related Reasons		
Gas Only Units		
No Gas	309	100%
	309	
Dual-Fuel Units		
Fuel Issue	43	51%
Can't Run on Oil	41	49%
	84	
Oil Only Units		
No Oil	40	

22-Jan

Total Derates at Peak		-1,162						
Unit Type			Fuel (MW)		Cold (MW)		Non-Fuel/Weather Related (MW)	
Gas Only	20%	-228	-225	52%	0	0%	-3	
Dual-Fuel	69%	-798	-208	48%	-57	66%	-532	
Oil Only	0%	0	0	0%	0	0%	0	
Nuclear	0%	0	0	0%	0	0%	0	
Refuse	6%	-67	0	0%	0	0%	-67	
Biogas	0%	0	0	0%	0	0%	0	
Hydro	5%	-59	0	0%	-19	22%	-40	
Coal	1%	-10	0	0%	-10	12%	0	
Wind	0%	0	0	0%	0	0%	0	
		-1,162	-433		-86		-643	
			37%		7%		55%	

Fuel-Related Reasons		
Gas Only Units		
Gas OFO	133	59%
No Gas	92	41%
	225	
Dual-Fuel Units		
Gas Issue	192	80%
Fuel Issue	16	7%
	208	

28-Jan

Total Derates at Peak		-272						
Unit Type			Fuel (MW)		Cold (MW)		Non-Fuel/Weather Related (MW)	
Gas Only	0%	0	0	0%	0	0%	0	
Dual-Fuel	46%	-126	-17	0	-2	100%	-107	
Oil Only	45%	-123	0	0	0	0%	-123	
Nuclear	0%	0	0	0	0	0%	0	
Refuse	3%	-7	-7	0	0	0%	0	
Biogas	0%	0	0	0	0	0%	0	
Hydro	1%	-3	0	0	0	0%	-3	
Coal	5%	-14	-14	0	0	0%	0	
		-272	-37		-2		-233	
			14%		1%		86%	

Fuel-Related Reasons		
Dual-Fuel Units		
Fuel Issue	17	100%
Coal		
Fuel Issue	14	100%
Refuse		
Fuel Issue	7	100%

6-Feb

Total Derates at Peak		-440						
Unit Type			Fuel (MW)		Cold (MW)		Non-Fuel/Weather Related (MW)	
Gas Only	10%	-46	0	0%	0	0%	-46	
Dual-Fuel	61%	-267	0	0%	0	0%	-267	
Oil Only	0%	0	0	0%	0	0%	0	
Nuclear	3%	-15	0	0%	0	0%	-15	
Refuse	10%	-42	-24	33%	0	0%	-18	
Biogas	0%	0	0	0%	0	0%	0	
Hydro	0%	0	0	0%	0	0%	0	
Coal	16%	-71	-50	67%	0	0%	-21	
		-440	-74		0		-366	
			17%		0%		83%	

Fuel-Related Reasons		
Refuse		
Fuel Quality	24	100%
Coal		
Fuel Quality	50	100%

7-Feb

Total Derates at Peak		-493						
Unit Type			Fuel (MW)		Cold (MW)		Non-Fuel/Weather Related (MW)	
Gas Only	18%	-90	-90	54%	0	0%	0	
Dual-Fuel	64%	-315	0	0%	-2	100%	-313	
Oil Only	0%	0	0	0%	0	0%	0	
Nuclear	0%	0	0	0%	0	0%	0	
Refuse	8%	-40	-40	24%	0	0%	0	
Biogas	0%	0	0	0%	0	0%	0	
Hydro	2%	-11	0	0%	0	0%	-11	
Coal	8%	-38	-38	23%	0	0%	0	
		-493	-168		-2		-323	
			34%		0%		66%	

Fuel-Related Reasons		
Gas Only Units		
No Gas	90	100%
Refuse		
Poor Fuel Quality	40	100%
Coal		
Fuel Quality	38	100%

c. At any time did NYISO rely on imports from other systems in order to meet its own system energy needs, outside of normal operating conditions? If yes, please describe the magnitude and duration of such reliance, and any remedial actions.

Imports outside of normal operating conditions are considered emergency purchases. There were no instances when the NYISO relied on imports from other systems in order to meet its own system energy needs, outside of normal operating conditions.

d. Were there any periods of unplanned loss of load during this time? If yes, please describe the reason, scope, and duration of any unplanned loss of load.

There were no periods of unplanned loss of load on the bulk electric system during this time.

e. Did NYISO experience any generation outages or curtailments due to lack of fuel ? If yes, please describe the reason, scope, and duration of any lack of fuel.

Please see the above charts detailing generator performance over the evening peak period on each of these days. As noted, some of the generation outages were due to lack of fuel.

f. Was NYISO required to adjust generation commitment and/or dispatch due to the conditions on the natural gas system?

The only instance we are aware of that significantly impacted generator performance was related to the compressor station force majeure event on the Texas Eastern interstate gas pipeline on January 7, which led to gas curtailments for generators located behind the Local Distribution Company in New York City and Long Island. On this day, most gas-fired generation with dual-fuel capability (if running) was already operating on alternate fuel, since it was more economic to do so.

2. For the NYISO region this past winter season, what would have occurred in terms of reliability and affordability of electricity if coal-fired units, other fossil fuel-fired units, or nuclear power plants that have announced retirement had not been available?

    a. How many of these retiring units ran during the recent cold weather incidents? How many megawatts did these retiring units provide?

    Generator specific information is protected by the confidentiality provisions of the NYISO tariff.

    Retirement notices, however, are publicly available. The following generators have notified the NYISO of their intent to retire:

    - Selkirk (427 MW) provided notice on March 6 their Intent to Mothball by September 1, 2014. This is a dual-fuel unit.
    - Ravenswood GT-7 (15 MW) provided notice on December 12 of their Intent to Mothball, and went into Mothball status on 3/13. This is a gas-only unit.
    - RG&E Station 9 Unit 2 CT (18 MW) provided notice on December 2 of their Intent to Retire, and retired within 90 days. This was a gas-only unit.
    - Dunkirk and Cayuga (total 383 MW) are both operating under "Reliability Support Services Agreements" with their local transmission operators. These are coal units.

    b. Does NYISO plan to replace the capacity provided by the retiring units? If the replacement is expected to be natural gas units, is deliverability of natural gas an issue of concern in the NYISO footprint?

    The NYISO does not own or control the development of capacity resources. Generation is developed by market participants as they deem it economic to do so, with the resources that they choose.

    The NYISO Interconnection Queue provides insight as to what developers are pursuing. As of March 2013, approximately 6,000 MW of proposed new gas –fired generation is listed in the NYISO Interconnection Queue. About 5,000 MW of the proposed gas-fired generators are combined cycles, some of which will have dual-fuel capability. The remaining are gas only combustion turbines.

    See the answer to 2d for a description of anticipated natural gas deliverability.

    c. Has NYISO performed any economic modeling to determine how many natural gas units are likely to be built to replace retiring capacity?

    The NYISO does not conduct economic modeling to determine how many natural gas units are likely to be built to replace retiring capacity. The NYISO relies upon market-based solutions to reliability needs in the first instance, and will call upon the New York Transmission Owners and other developers to provide a regulated transmission with tariff rate recovery, or to provide resource solutions, only if it determines that market-based investments will not fulfill reliability needs by the year of need.

d. Does NYISO expect or have any firm commitments that new natural gas units will be constructed within the NYISO footprint?

The NYISO conducts an annual assessment of the reliability of the planned New York State Bulk Power Transmission Facilities in accordance with established North American Electric Reliability Corporation (NERC) Reliability Standards, Northeast Power Coordinating Council (NPCC), New York State Reliability Council (NYSRC), and NYISO criteria, rules, and procedures.

As part of its Comprehensive Reliability Planning Process, the NYISO conducts a long-range reliability assessment of both resource adequacy and transmission security of the New York bulk power system over a ten-year study period. The Reliability Needs Assessment (RNA) considers any units that have submitted a notice, prior to April 15 of the planning year, of their intent to retire or mothball. Proposed new generation projects (as listed in the NYISO interconnection queue, or as planned and listed in the NYISO Gold Book), and projects proposed as market-based solutions by Transmission Owners are also considered, where applicable.

There are several projects that completed the most recent planning year studies, have paid for any applicable cost allocations, and have demonstrated their intent to proceed with the Interconnection process. Two new natural gas units include CPV (678 MW) and Berrians I and II (250 MW).

e. Is there sufficient natural gas transportation capability available in the NYISO footprint for anticipated new natural gas units?

In November 2013, three pipeline upgrade and/or expansion projects went into service, allowing more than 1 Bcf/day of additional capacity in the New York region. There are additional upgrades and/or new pipelines in development, although some are currently awaiting certification.

The Eastern Interconnection Planning Collaborative is undertaking a Gas-Electric System Interface Study from 2013-2014, with funding from the U.S. Department of Energy. The study will evaluate the interaction between the natural gas and electric systems over the next 5 and 10 years, over a broad Study Region consisting of the service territories served by PJM, ISO-NE, NYISO, IESO (Ontario) MISO and TVA, with four main objectives:

- Baseline the existing natural gas and electric system infrastructure;
- Evaluate the capability of the natural gas system to meet the needs of the electric system;
- Identify contingencies on the natural gas system that could adversely affect electric system reliability and vice versa; and
- Review dual fuel capability.

The NYISO is actively participating in this study, and expects that it will inform our analysis of the ability of expected gas transportation to meet future electric system needs. The study is scheduled for completion by June 2015.

3. Please describe in detail how renewable energy resources performed when dispatched during the cold weather conditions.

Wind Performance during the evening peak hours on each of the days referenced above.

Date	MW
December 17	194
January 3	372
January 7	1,115
January 22	285
January 28	778
February 6	469
February 7	1,039

Hydro Performance during the evening peak hours on each of the days referenced above. Hydro derates are referenced above.

Date	MW
December 17	4,803
January 3	4,618
January 7	4,282
January 22	4,219
January 28	4,866
February 6	4,898
February 7	3,741

4. Please describe in detail how demand response resources performed during the cold weather conditions. Was demand response subject to compliance penalties?

The NYISO activated demand response resources in all zones on January 7. The tariff-required 21-hour advance notice for mandatory performance was not given, so performance on this day was voluntary. The demand response providers are submitting meter data now and the NYISO will be evaluating their performance soon.

5. Please describe in detail how distributed generation performed during the cold weather conditions.

Currently, distributed generation resources are located on local transmission owner systems, as local transmission or distribution resources. The degree to which these resources participated as demand response providers is pending review of the voluntary demand response call on January 7.

6. Please describe in detail how system conditions in neighboring Balancing Authorities affected NYISO's operations during recent cold weather conditions.

The NYISO participated in Northeast Power Coordinating Council (NPCC) calls daily, during the cold weather events.

Generally, the NYISO encountered no problems with coordinating interchange schedules with adjacent Balancing Authorities (BA). Interchange schedules in real time operations are a strong function of adjacent BA reserve margins and market scheduling processes.