

LYNX ELECTRIC CURRENTS

September 2016

Editor's Notes:

Written by Bert Spaeth



Once again it's time for school buses rolling on our highways, football games in schools as well as the professional teams, fall foliage and all the wonderful things that come with fall, which includes some relief from the high temperatures. Meanwhile in the energy field, regulators are tightening rules of engagement for suppliers, service providers and ESCO's. Emphasis on carbon reduction, DR, DG and renewables are being pushed and in many state mandated. Typically, those mandates are in the form of forcing energy suppliers to purchase RECs (Renewable Energy Credits). For almost a decade, NY has had their own system handled by NYSERDA, using funds collected from kWh sales, SBC, RPS, and RGGI. NYSERDA was able to create incentives to encourage the installation of renewable energy, energy efficiency projects and DR (Demand Response) projects. As the NY REV program becomes established the PSC will be establishing programs in which ESCO's, Service Providers and Utilities will be required to purchase RECs. Those funds will be used to incentivize renewable energy, support non-competitive nuclear plants, and support energy efficiency programs including small scale hydro plants. Meanwhile marketing rules are being changed to favor the consumers and reduce complaints. Transmission upgrades, along with increased capacity of natural gas pipelines are being developed across the country in an effort to improve reliability. Recent litigation clarifying jurisdiction between state regulators and FERC has been resolved. The DR issue from 2015 that placed DR programs on hold had the Supreme Court rule that FERC does have the jurisdictional authority to regulate DR programs for wholesale power. State rulings on jurisdiction over regulators' actions and timelines also clarified NY's retail marketing programs. Essentially, the NY State Supreme court ruled that the PSC had the authority to regulate suppliers. However, the 2015 rules pertaining to retail customers did not give suppliers adequate time to respond. PSC proposed retail rules over contracts between suppliers and customers and cancelling new residential retail sales are on hold giving suppliers more time for implementing the new regulations.

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Editor's Notes (continued from front page)

With the upcoming elections, issues over pipelines, fossil fuel use, renewable energy, incentives for clean energy and carbon reduction will be debated. Certainly the coal miners will voice their concern as their industry gets destroyed by EPA regulations. The notion that renewable energy is free, reliable and more cost effective is not realistic. While solar and wind should be utilized as much as possible, it is not a continuous supply therefore fossil fuel generators are still needed to carry the base load. Energy storage will eventually lessen the need as utility grade battery banks are installed. Customers need to realize that renewable clean energy and low carbon emissions come with a price tag. At present, government subsidizing masks some of those higher costs.

US Energy

The "US Chamber of Commerce for 21st Century Energy Report" addressed the impact of "carbon reduction policies being proposed" on the US economy. The report looks at the economic and employment impact of current government policies, specifically the government's stance regarding fossil fuels. The report states not only are jobs at risk but the US government could forgo \$11.3 billion in lost revenue from current royalty payments. In addition anti carbon regulations can impact expansion of US exports of LNG and crude oil. Currently the US is exporting fossil fuels, which helps our balance of payments with foreign nations. Inside the US the employment impact of carbon policies is estimated to result in the loss of over 100,000 direct jobs and the loss of over 290,000 indirect jobs across the US. The current administration's policy of "keep it in the ground" could impact the national GDP by \$70 billion in the US economy. Developing technology to clean up fossil fuel combustion, better scrubbing technologies and slowly integrating more renewable energy and carbon neutral generation would be a better approach. At present the US Interior Department has announced they will no longer issue coal leases on federal lands part of the PEIS (Programmatic Environmental Impact Statement). The current energy mix show that 41 % of US coal comes from Federal lands. In the US energy mix, coal provides 33 % of our electricity according to US Energy Information using 2015 data.



NYISO Updates

Last spring the PSC issued new regulations for ESCOs covering guaranteed savings that are documented, they also require verified customer consent, and contract language that is clear along with customer participation rules. The changes have been challenged by ESCOs and their membership organizations. NY Supreme Court Judge Zwack ruled in favor of the ESCO's on most of the issues because ESCO's were not given "procedural due process rights". The implementation timelines were not realistic to allow compliance by ESCO's. Judge Zwack did reinforce the fact that the PSC has jurisdiction and authority over electric retail markets in NY. The authority includes auditing ESCO's to make sure they are following uniform business practices and are following state retail marketing regulations.

Recommendations from the Feller Energy Law group listed the following steps for ESCO's to remain compliant with state best business practice regulations. The recommendations include:

- Keep records of all customer Agreements
- Retain all affirmative consent forms from customers
- Maintain a plan for price reliability
- Ensure all marketing materials comply with PSC objectives

According to Feller Energy, following their best business practices will prepare ESCOs to experience a smooth audit by the PSC. To avoid past customer complaints the PSC is determined to ensure harmful practices are removed from the marketplace. Lynx recommends you consider the four steps identified, save all relevant documents for a minimum of two years, follow UBP (Uniform Business Practices) and be prepared for an eventual PSC audit.

Tip of the Month!

As the REV program along with the CEP (Clean Energy Program) becomes established, energy suppliers will be required to purchase REC's (Renewable Energy Credit's). You can find more details under NY State section of the newsletter. Lynx is encouraging our customers to get informed about REC's and plan your 2017 marketing with the fact that as a supplier you will have the added expense of REC's. The program will be phased in and the percentage of required renewable energy purchase will increase every year. Lynx is prepared to assist you with securing the needed REC's and handle the required paper work. Besides REC's, there will also be added cost to supplement non-competitive nuclear plants. When details become available, Lynx will keep you posted with Lynx EMS Flash or our monthly Lynx Currents newsletter. It is important to know the new regulations so energy's LSE (Load Serving Entities) can reflect the added costs of the new mandates.

New York State Updates

As NY continues to transition to Governor Cuomo's REV program, the PSC has begun to provide details of CES (Clean Energy Standard). The latest update provides details on implementation of CES program. Large scale solar and wind projects along with DG (Distributive Generation), Energy Efficiency, and customer controlled energy management will be part of the energy mix, moving forward. The Governor's plan also includes supplemental funding for nuclear power plants that are not economically competitive with shale gas fueled power plants. It is anticipated that the CES effort will produce 29,000,000 MWh with large scale solar, wind and other renewables. Off-shore wind is being encouraged by the PSC by implementing faster permitting and making regulations less restrictive. The next steps will see development of renewable energy purchase mandates for utilities, energy suppliers and energy service providers. Based on current information, this will follow similar models currently being utilized in PJM. Compliance obligation will have Tiers in which suppliers or LSE purchase REC's that are grouped as renewables or carbon reduction systems. Tier one includes: solar, fuel cells, wind, ocean and tidal hydro, biogas, biomass, and liquid biofuels. Tier two will cover technologies to improve efficiencies, promote maintenance for existing energy technologies and improve small scale hydro generators. Tier three will provide supplemental revenue to nuclear plants to make them competitive with other generators. Nuclear energy is considered a zero emission power source and will develop ZEC's (Zero Emission Credits) which suppliers will need to purchase as part of CEP.

The PSC is also developing a voluntary green energy market, with details still pending. Additionally, LSEs (Load Serving Entities) will have load allocations to purchase RECs, based on their SBC (System Benefit Charges). The RECs can be purchased from private sources, generators, or NYSERDA. NYSERDA will be the "supplier of last resort" and will also be charged with certifying NY RECs. LynxEMS will alert our clients as soon as specific allocation numbers are published. LynxEMS has been active in RPS programs serving our customers in PJM and ISO-NE customers. At this time, the measure will be implemented in 2017. LynxEMS is proactive and working to prepare our clients for REV and CEP.

FERC Updates

Responding and complying with FERC Order 1000, interregional ties between PJM, NYISO and NE-ISO are being developed and implemented. A 345/115 kV line between PJM and NYISO has been operational since November of 2015. A second line also located on the southern border of NYISO and northern border of PJM is expected to be completed and operational by June of 2016. These interregional connections meet and satisfy FERC Order 1000 provisions and provide benefits to the regional RTO/ISO's. The expected outcomes include: Improved reliability, greater energy and capacity diversification, higher production efficiency, and greater economic exchange of electricity among regions. By implementing FERC Order 1000, the electric reliability regions will experience more collaborative planning for facilitating projects using protocol developed in 2004 and amended in 2015. The collaborative process will allow the regions to address environmental compliance issues, better integration of distributed energy and have the ability to utilize variable energy resources such as wind power.

PJM Updates

FirstEnergy is closing three of its older coal fired plants and will be building transmission lines to maintain sufficient capacity and grid reliability. As a result the utility will be raising prices for the next PJM capacity auction. The timing of the plant closure, not factoring in energy efficiency improvement gained from closing old plants and using more efficient newer plants and new transmission lines were not factored into their proposed price increase. PUCO (Public Utility Commission of Ohio) is looking into the need for corporate separation of generation, transmission, distribution and commodity, which First Energy does not have at the present time. There may also be some concern over market manipulation with the timing of the plant closures, ignoring efficiency savings. The plant closings and building of new transmission lines will cost First Energy ratepayers \$4.2 billion. Those costs will be factored into the rate base and recovered in future rate increases.

Green Energy REC's (Renewable Energy Credits)

RECs will be coming to New York as new mandates establish energy Tiers. As state mandates are phased in, suppliers or ESCOs will be required to purchase RECs (Renewable Energy Credits) and show documented proof of purchase. Types of clean or renewable energy will vary by states. In addition the percentage of RECs needed for compliance will vary with states and calendar year. Some states require a percentage of Solar RECs or off-shore wind depending on the host states social policies. New York will be requiring ZECs (Zero Emission Credits). Each category, whether it is called Tier or Class has different pricing and some states mandate a mix. Default purchasing will be more expensive than purchasing from private sources. Lynx will assist you in locating cost effective green RECs to meet your needs. In addition, Lynx can handle your reporting and assist you in purchasing RECs. Governor Cuomo wants the energy mix to contain 50% renewable energy by 2030. The NY REV program appears to be moving towards defining the rules and regulations for REC programs. Current studies are underway to create a market and provide a funding source for renewable energy providers.

Note: To ease the burden of purchasing annually for our ISO-NE and PJM customers, and to minimize the large cash expenditure, Lynx is recommending purchasing REC's on a quarterly basis and avoid higher prices at the end of the reporting period.



NYSERDA PON Updates

As we indicated last year major changes continue to be made to NYSERDA PON's as it prepares to support the REV programs. NYSERDA will be tasked with managing REC (Renewable Energy Certificates) and validating or certifying as well as marketing REC's to energy suppliers. The list below shows the PON programs that have been revised. The emphasis appears to be in electric energy efficiency upgrades and renewable energy. Additional incentives can also be obtained from utilities. For example Con Edison is offering incentives for various energy efficiency upgrades so check with your utility before planning any major energy upgrades, As changes and revisions are made Lynx Currents will continue to keep you updated. **If you have a project that requires outside funding such as grants, Lynx staff can assist you.**

Current PON's (Program Opportunity Notices), which are available to qualified customers that pay SBC for NYSERDA programs, are listed below.

- PON 1601 New Construction Financial Incentives: Provides incentives for new and remodeled buildings. Revised 3/1/2016.
- PON 1746 Flex Tech: Provides funding for a variety of feasibility and energy related studies. Revised 4/20/2016
- PON 2112 Solar PV Program Financial Incentive, Revised 4/20/2016, up to 25 kW for residential and up to 200 kW for non-residential.
- PON 2568 CHP Acceleration Program. This PON runs through December 30, 2016, pending availability of funding. These units are pre-engineered CHP systems for NYC area up to 1.3 MW.
- PON 3010 NY Biomass Boilers, Revised 8/7/2015: pays for Biomass fueled thermals through 2018
- PON 3082 NY SUN Commercial/Industrial Incentive Program: Through Dec. 2023
- PON 3261 Commercial Implementation Assistance Program This PON runs through 12/29/2016
- PON 3308 Commercial Tenant Program. This PON runs through July 2019
- PON 3309 Real Time Energy Management: Through 6/30/2021

US Energy Markets

Argonne National Laboratory is developing technology that can turn CO2 into fuel using solar power. This can have a huge impact on carbon reduction, and will create new jobs as well as new marketing opportunities. Initially this research was designed to enable carbon sequestration. The "magic" is using the proper catalyst which in this case is "tungsten diselenide". Using the catalyst and solar power, researchers are able to convert CO2 into CO (Carbon Monoxide) which can be used as a fuel. The process is considered to be artificial Photosynthesis producing CO from CO2. Still in its infancy, this new technology can have a significant impact using the sun, co2 to make useful fuel and reduce the carbon impact caused by fossil fuels.

ISO-NE Updates

The proposed "Greater Boston and Southern New Hampshire Reliability Project" is being bid from two utilities with estimated price tag over one billion dollars. The local bid is coming from PSNH owner Northeast Utilities and partner National Grid. The other bid is from Nextera, a Florida based utility. The transmission line is needed for grid reliability for New England. The overland transmission proposal from Northeast is an AC voltage line and is expected to cost \$510 million. The sea link plan proposed by Florida utility is DC voltage and expected to cost \$770 million. Both plans will require an additional \$221 million for interconnection and grid updates. The New Hampshire Transmission Line comes with a not to exceed price guarantee of \$679 million for building the Sea Link line as a DC circuit. The AC plan at \$510 million seems like a bargain however the Florida utility Nextera using cost analysis for transmission cost history, shows cost overcharges are typical in ISO-NE. Rate payers will be on the hook for all costs including overcharges. ISO-NE regulators will need to determine whether cost containment is worth the initial higher cost. Either way, a new transmission line is needed to maintain ISO-NE grid reliability.



Energy Engineer Corner

Our staff encounters numerous questions from both IT and energy customers. We have decided to publish several of the more common questions on a monthly basis. So if you have a technical question regarding IT or energy, send us an e-mail and our staff will respond. We will publish select questions each month that may be of interest to our readers. Send questions to: BASpaeth@LynxTechnologies.net.

Our question for the month:

I'm thinking about getting a generator and wonder how much money I could be making with all of the DR program calls for curtailment.

Response:

Good question. The curtailment programs have been extremely active with the high humidity and high temperatures this summer. Let's look at some basic parameters before you fire up your generator. The incentive you would be paid is determined by the location (Zones) and the need to reduce peak demand. Zone J in NYC had over 18 hours in curtailment for the summer period to date. Besides the initial payment based on the amount of kW you reduced and using the NYISO determined baseline, participants also receive payment for each additional run hour paying for kWh provided. Con Edison and other IOU (Investor Owned Utilities) also pay incentives for certain distribution sectors within their franchise territories. Using a 100 kW generator as a DR source, Upstate customers participating in the NYISO DR program could have made over \$2,000 during the 5 hours of curtailment during the summer strip so far. Downstate customers have had over 25 hours of curtailment so during the 2016 summer strip and could have made \$5,000. DR can be accomplished by operating a generator, using an Energy Management system or simply by during of non-essential loads. Call our Lynx office for more details if you want to participate and earn some DR incentives.

September 2016

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				<i>1</i>	<i>2</i>	<i>3</i>
<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i> NYISO ICAP Monthly Auction	<i>10</i>
<i>11</i>	<i>12</i> NYISO ICAP Monthly Auction	<i>13</i>	<i>14</i> NYISO ICAP Auction Results	<i>15</i>	<i>16</i>	<i>17</i>
<i>18</i>	<i>19</i>	<i>20</i>	<i>21</i>	<i>22</i> Certification	<i>23</i>	<i>24</i>
<i>25</i>	<i>26</i> NYISO ICAP Spot Auction	<i>27</i> NYISO ICAP Spot Auction	<i>28</i> NYISO ICAP Auction Results	<i>29</i> NYISO ICAP STRIP Auction	<i>30</i> NYISO ICAP STRIP Auction	

Future Dates

Oct:

4 STRIP Auction Results
 10 & 11 NYISO ICAP Monthly Auction
 13 Monthly Auction Results
 21 Certification
 25-26 NYISO ICAP Spot Auction
 28 Spot Auction Results

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Commodity Pricing

Historical - Flat DAM

	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16
NYISO-A	27.73	19.28	28.80	38.59	37.77	27.82
NYISO-F	26.87	21.40	23.41	30.76	32.12	27.34
NYISO-J	28.62	23.45	25.47	35.43	35.64	29.96
NYISO-K	29.18	24.78	28.01	44.48	59.93	49.98
PJM-PSEG	22.89	21.36	23.71	31.46	29.32	25.06
PJM-JCPL	22.25	21.20	23.56	31.32	29.15	24.86
PJM-APS	29.56	23.85	25.84	32.16	32.30	28.95
PJM-PECO	21.53	20.77	22.91	32.96	29.26	24.88
PJM-PPL	22.26	20.90	23.41	30.46	28.60	24.60
PJM-DLCO	28.18	23.01	25.35	30.80	31.90	28.02
PJM-PENELEC	26.39	22.91	25.05	31.30	30.91	28.13
PJM-METED	22.28	21.13	23.57	31.96	29.28	25.91
PJM-BGE	38.29	28.80	32.39	39.98	43.12	38.88
ISONE-CT	28.11	21.24	22.94	31.50	35.62	29.71

Current Projections

Oct-16	Nov-16	Dec-16	Oct-16 to Sep-17		
Flat	Flat	Flat	Flat	Peak	Off Peak
27.54	28.65	38.14	34.02	44.46	24.98
25.97	31.80	46.93	39.25	46.81	32.72
27.70	33.05	46.72	40.94	50.01	33.09
41.09	44.52	55.15	51.89	62.70	42.52
24.86	26.95	35.93	33.14	40.17	27.06
24.41	26.33	35.08	32.53	39.40	26.58
29.19	30.30	34.97	34.20	40.83	28.46
24.10	25.86	34.28	32.30	39.26	26.27
24.23	26.01	34.32	32.02	38.83	26.12
29.29	29.95	33.22	32.72	38.96	27.33
27.66	28.82	33.86	33.13	39.68	27.47
25.44	26.70	34.68	33.00	40.16	26.80
37.21	38.50	44.09	42.97	51.73	35.40
28.13	31.32	47.18	39.09	46.20	32.93

Glossary of Acronyms

<p>ABACCUS - Annual Baseline Assessment of Choice in Canada and the US</p> <p>AEC - Alternative Energy Credits</p> <p>AEPS - Alternative Energy Portfolio Standard</p>	<p>CRP - Comprehensive Reliability Plan</p> <p>DEFG - Distributed Energy Financial group</p> <p>DER - Distributed Energy Resources</p>	<p>DG - Distributed generation</p> <p>DR - Demand Response</p> <p>LNG - Liquid Natural Gas</p> <p>NEPOOL New England Power POOL</p>	<p>REC - Renewable Energy Credits</p> <p>REV - Reforming Energy Vision</p>
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