

Comments Submitted by EnergyConnect, Inc., on the DNV GL Report “A Review of Distributed Energy Resources (Draft)”

August 8, 2014

Introduction

EnergyConnect, Inc. (ECI), a subsidiary of Johnson Controls, Inc., participates in the NYISO wholesale electricity market as a demand response provider. ECI appreciates the opportunity to provide comments on the study commissioned by the NYISO and performed by DNV GL (Consultant) entitled “A Review of Distributed Energy Resources (Draft)”, dated July 18, 2014.

Overall, ECI believes the report serves as a useful compendium of information on various distributed energy resource (DER) technologies, including useful data and references on technological progress, costs, penetration levels, system impacts, and barriers to growth. We would like to request the NYISO and its Consultant to consider revisions to specific sections of the report, and for the NYISO to consider certain next steps as a follow-on effort to the report. Specifically, we group our comments into six topics:

- The NYISO should coordinate future efforts on this study with the NYSDPS Reforming the Energy Vision (REV) initiative (docket no. DPS 14-M-0101).
- As part of the coordinated DER study/REV proceeding, the NYISO should take a lead role in evaluating the maximum level of various forms of DER penetration allowable to maintain a secure and reliable bulk power system.
- The role and impacts of energy efficiency need to be considered in greater detail in the report.
- Sections on the state of the art in solar forecasting are needed.
- Revisions to the executive summary should be considered.
- Suggested edits/errata.

The NYISO Should Coordinate Future Efforts on this Study with the NYSDPS Reforming the Energy Vision (REV) Initiative (Docket No. DPS 14-M-0101)

At the time of the kickoff DER workshop in December 2013, the REV process was in the formative stages, with no information available to stakeholders as to scope or timetable. The Consultant’s findings as reported on at the April 4, 2014 Market Issues Working Group were not informed by material prepared by DPS staff through stakeholder working groups, and stakeholder feedback in general. The draft report under review does acknowledge the existence of REV in Section 5.3.3, but provides only a broad overview of the initiative.

Given the importance of the REV proceeding, ECI recommends that future efforts in the NYISO DER study follow the main themes and issues emerging from that proceeding. For example, the DPS Track 1 working groups focused on four major areas: Markets and Pricing, Customer Engagement, Platform Technology, and Microgrids; Track 2 will deal with regulatory policy and rate design. To the extent the

Consultant and/or NYISO pursue additional work under this study, particular attention should be paid to the issues emanating from the REV proceeding as they impact the wholesale markets and bulk power system. Ideally, that effort should mirror the framework established by the REV proceeding.

In recent similar studies undertaken by the NYISO (e.g., SCR Baseline Study), the NYISO has issued a management response to the study findings, recommending directions for future NYISO stakeholder activity. For the DER study, ECI suggests that it would be most appropriate for any follow-on effort based on management recommendations to take place within the context of the REV proceeding. While much of the effort in the REV process is directed at distribution level impacts, there may be opportunities for revised wholesale market rules that fall under the purview of NYISO and FERC and would complement any DPS-directed efforts.

The NYISO Should Take a Lead Role in Evaluating the Maximum Level of Various Forms of DER Penetration Allowable to Maintain a Secure and Reliable Bulk Power System

It is clear from the discussions to date in the REV proceeding that parties have differing viewpoints as to the impacts of various levels of DER penetration on the power system. Likewise, the Consultant's report (Sec. 6.1.4) discusses a number of the bulk power system concerns associated with increased levels of DER penetration, including:

- Variability
- Short-term forecasting
- Market price dynamics
- Ramping and coincidence
- Ancillary service implications

While the report (pp. 101 ff.) cites a number of studies performed by DNV GL and others, no studies specific to the NY bulk power system are cited, presumably because they have not been performed or they have not attempted to model the bulk power system impacts in sufficient detail¹. As the REV proceeding unfolds, the NYISO should take a central role in assisting with and/or funding studies to evaluate the practical limits of various levels of DER penetration over mid-to long-term timeframes. Similar to the study commissioned by the NYISO in 2010², wherein the maximum amounts of central station wind generation were determined, such a study would assist all parties in determining a glide path to greater DER penetration.

¹ the NYSERDA study cited on p. 49 looked at DER technological and economic feasibility, but did not perform loadflow, stability, and generation adequacy studies. The study can be found at <http://www.nyserda.ny.gov/Energy-Data-and-Prices-Planning-and-Policy/Energy-Prices-Data-and-Reports/EA-Reports-and-Studies/EERE-Potential-Studies.aspx>

² "Growing Wind – Final Report of the NYISO 2010 Wind Generation Study", September 2010, available at http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Documents_and_Resources/Special_Studies/Special_Studies_Documents/GROWING_WIND_-_Final_Report_of_the_NYISO_2010_Wind_Generation_Study.pdf

The Role and Impact of Energy Efficiency Need to be Recognized

Early in the report (p. 14), the Consultant defines DER exclusive of demand response and energy efficiency solutions. Consistency with the REV proceeding would suggest including these approaches as part of the overall DER solutions going forward. The opportunities for and implications of increased energy efficiency initiatives are given short shrift in the report. ECI believes that energy efficiency measures should be a topic of the DER report, since it can have a significant impact on customer load profiles and overall emissions characteristics. Particularly given the number of incentives available for energy efficiency in NY as cited in Section 5.3 of the report, it would appear that energy efficiency must be included in any consideration of DER alternatives. There needs to be some assessment of the prospects for energy efficiency technologies and their impact on the bulk power system. In particular, the Consultant should discuss the interaction of energy efficiency initiatives with other forms of DER.

Sections on the State of the Art in Solar Forecasting are Needed

The Consultant's report discusses at length (Sec. 6.1.4) the potential bulk power system and market problems created by significant levels of rooftop solar generation and, to a lesser degree, other forms of distributed generation. In particular, the difficulties associated with variations in day-ahead and real-time information on these technologies seem to raise a red flag without adequate discussion of mitigation approaches. It would be beneficial for the consultant to add a section that discusses the state of the art for solar forecasting technologies to help address the increased volatility of these resources in the markets.

Revisions to the Executive Summary Should be Considered

On page 3, the executive summary contains a paragraph on DER technical potential, but focuses only on PV. It would be good to add brief summaries of the potentials for DG, energy storage, microgrids, etc.

The section beginning on page 6 details potential challenges associated with DER. While it is difficult to summarize the extent of the factual material presented in the body of the report, this section comes across as overly emphasizing certain findings, particularly those associated with the potential adverse impacts to the bulk power system, at the expense of identifying any mitigation strategies that could be pursued along with increased DER penetration. The section on successful DER integration beginning on page 10 attempts to lay out general concepts, but it would be good to provide specific examples of improvements being pursued (e.g., see comments above on solar forecasting).

On page 8 of the report summary (and detailed on p.104 of the full report), the following statement is made:

“Research by DNV GL and NYISO found that demand responding to price, with no feedback or price elasticity information available to market operators, can result in imbalances between supply and demand which in turn can lead to fluctuations in price, supply, and demand.”

To our knowledge, the NYISO has not issued a statement that dynamic pricing (load responding to price) in NY would result in the situation described, nor does the cited reference identify the NYISO as a

contributor to the analysis. The NYISO should clarify its position on dynamic pricing, which appears to contradict long-established views held by the NYISO.³

Suggested Edits/Errata

- P. 49 – need full citation to NYSERDA 2014 study.
- P.66 – Figure 5-6 would be improved if the same y-axis was used for all four graphs.
- P. 84 – include markers on curves to better distinguish datasets.
- P.119 – Figure 6-17 – are DSASP meter data reporting intervals correct (one hour)?

³ “Power Alert III – New York’s Energy Future”, May 2003, pp. 14, 45.