



September 10, 2018

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Honorable Kathleen H. Burgess, Secretary  
New York State Public Service Commission  
3 Empire State Plaza  
Albany, New York 12223-1350

**RE: Initial comments requested by Department of Public Service and New York State Energy Research and Development Authority Staff Recommendations to New York State Energy Storage Roadmap**

Dear Secretary Burgess,

Northern Power Systems, a developer of energy storage, distributed wind and solar projects would first like to applaud the Commission on its efforts to develop an energy storage market in New York and further the Renewable Energy Vision (“REV”) under **The Energy Storage Deployment Program, Case 18-E-0130**. As a project developer who has engineered and designed many renewable-energy projects with on- and off-grid applications using a variety of technologies for a broad range of customers, we see New York State (“NYS”) as a leader in the progressive move toward a more-sustainable energy economy utilizing storage and renewables and advancing the electric grid of the future.

In participating in the Roadmap proceedings, we believe our direct energy storage project experience will support the New York State programs formulation, and contribute to the development of a robust energy storage market. The following are initial comments to the New York State Energy Storage Roadmap and Department of Public Service / New York State Energy Research and Development Authority Staff Recommendations (Roadmap) (“The Roadmap”).

**Ownership of Energy Storage**

We support the REV principles of competitive ownership of storage in Distributed Energy Resource (“DER”) markets. A competitive Energy Storage System (“ESS”) in the marketplace continues the long and effective core premise of deregulation that was initiated in the 1990’s and implemented by NYS. We see this as a crucial element for a broad-based and cost-effective energy market through the use of competition.

### **Dual or Multiple Market Participation**

The Roadmap refers to “dual market participation” which we continue to see in a number of reports and studies<sup>1</sup>. We see this as among the most important issues in The Roadmap to solve, which may include the continual discussion around Buyer Side Mitigation restrictions. We understand and support the need to balance and reserve priority access with maximizing value streams; therefore, under the REV objectives and in keeping with the spirit of such, with its goal of moving from “Macrogrid” to the “Intragrid”, we urge Staff to further explore and prioritize a distribution ESS capacity market, with a declining level of capacity available in each of those zones or utilities – perhaps utility specific capacity that can be contracted directly while allowing the ESS to participate in ancillary markets with the NYISO.

This allows the utility the opportunity to approach the ESS market with precise planning while maintaining the larger capacity needs with the NYISO. Allowing the distribution networks to procure longer term and specific timeframe capacity will allow for a more defined and longer term value streams that is needed for investment. Such a market could begin to assimilate, be expanded, and in ways mirror the Demand Response (“DR”) markets; specifically, the Special Case Resources (“SCR”) program that currently exists. The expansion of such to include ESS in a specific manner with a defined set of rules and patterns that ESS are capable of achieving in their current market state - ie; duration, capacity, localization, temporalization, length/term – could begin to formulate and validate a market that has near term scalability. Additionally, the distribution operator may have more visibility into their network and be able to plan for the longer term through such a program.

### **Contract Duration, Financing and Interconnection**

In our view, one of the first clear set of market rules for energy storage should be to create a standard, preferably a twenty-year market, but at minimum ten-year commitment for an ESS – this creates the first hurdle for securitizing capital into these type of projects.

With the current NYISO and capacity markets being much shorter term, energy storage presents a different set of reactionary rules; most specifically, and again assimilating the idea of the DR and SCR programs which are designed to create resiliency in the technical realm of the grid of which an ESS could perform equal resiliency with longer term planning and confidence.

Lastly, with the contract duration still not defined, the interconnection of such resource should have the right to interconnection for a period of defined time and the creation of market rules to extend such, once a contract ends. If the contracts are of ten years for market participation, a set of market rules should be created to secure the rights to the interconnection point for another ten years as this will create another value, or assurance, that the project can be financed and will continue to maintain its positioning. The

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<sup>1</sup>See “NYISO, State of Storage Report, December 2017” and “NYISO, Distributed Energy Resources Market Design Concept Proposal, December 2017”

creation of a set of market rules to extend such interconnection rights should be created in order to create a maximum set of opportunities for the ESS development and capital infusion into the market.

### **Performance**

A set of performance metrics will be important in the marketplace, again similar to the idea of the SCR market, as this will underscore reliability and resiliency. An ESS that underperforms in relation to any market defined set of procedures or rules should be negatively penalized. Perhaps an “after the fact” review of performance and a percentage of defined obligatory satisfaction – an automated set of performance scoring. If a system continues to underperform according to any market set rules or contracted relief, the ESS owner will have to make the required upgrades to keep its system satisfactory at the expense of the investment otherwise the ESS may be subject to non-performance and lose its interconnection status. This will create a qualitative approach to the marketplace and dissuade any underperformance.

### **Charging & Discharging Rules & Rates**

We recognize the complexities implied by standalone storage systems that both consume energy from the grid and provide it to the grid and commend the Commission for its measured approach; specifically, to the ongoing Value of Distributed Energy Resources Case 15-E-0751 (“VDER”). Although currently a challenging process, we appreciate the continuing solicitation of stakeholders’ input as we believe this to be a critical component of defining the dynamism of a DER and ESS. While there may need to be changes to regulations; specifically, the Buyer Side Mitigation hurdles, this is the core component of understanding the value proposition of investment and we believe the charging and discharging rules and rates should be defined in very specific daily/monthly/seasonal timeframes in the standalone approach. The E3 presentation<sup>2</sup> has begun such process and continuation of such ideas is warranted; perhaps, for each NYISO zone, which could continue to define the regional charge/discharge timeframes and value. Once such timeframes are defined, a set of reactionary rules can begin to formalize and the market can begin to understand an investment into an ESS. And translating this structure to each utility will create a scalable way for developers to understand the market opportunities in each zone. Until then, this market will linger until a pathway to market investment is created.

### **Environmental Benefits**

The “Clean Peak” actions described in the Roadmap are useful. We support the Commission’s continuing efforts to solicit stakeholder input on additional approaches to valuing flexible resources including storage and the value of such in the time of use patterns. We believe that fair and consistent valuation of environmental benefits will support the development of storage markets and the idea of clean peak but

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<sup>2</sup> see E3 presentation “Shaped E Value”, July 11th, 2018, page 24

only and once market barriers are dismantled and/or reconfigured. Then the idea can be translated on the customer side, distribution or bulk markets as defined in The Roadmap.

### **Resiliency and Microgrids**

Resiliency is an important and sometimes difficult element of an ESS to quantify; however, this factor may be an area of focus to quantify for the Roadmap; specifically, in relation to the localization of distribution planning. Although ESS has many attributes, resiliency is the most difficult to define yet yields certain local technical advantages and seems to be an area the Roadmap could further explore, or define.

Additionally, resiliency may come in the form of a microgrid and could provide real world advantages under emergency situations. While not the main focus, both resiliency, in the general marketplace for local value, and microgrids for another value, could warrant further review and be an area of focus and may be achieved under “4.3.4 NYS Leading by Example” section of The Roadmap. Perhaps, an “added incentive” under the formulation of the bridge incentive could be warranted for microgrids that provide a community relief element.

This could come by way of a pilot program and formulation of specific projects aimed to illustrate benefits of resiliency alongside other market-driven factors. A specific ESS microgrid incentive could formulate under The Roadmap as we see a scalable approach to such a market and the formulation during this time key to statewide and community resiliency projects.

### **Solar and Storage in Dual Participation**

The solar and storage markets seem to be most addressable today based on a thriving understanding of the value to time shift solar and the tangible evidence of the market growth; specifically, in our opinion, for the K12 school market. This market provides another opportunity as discussed around microgrids and dual participation. Many times, schools, probably even on the University level, may have energy consumption that actually may decrease or doesn’t dramatically increase during summer due to the scheduling of school; therefore, giving storage another example of a dual participation opportunity – the use of storage to time shift and/or dispatch these facilities during summer peak presents opportunity in the community on the local level.

Additionally, the microgrid approach can be realized here as well, and provide another means for the community to utilize the REV objectives and create a place for emergency relief during storms, or other. With the Breakeven Installed Cost Of Storage (“BICOS”)<sup>3</sup> in the K12 showing an economic advantage, this may be a market that provides the most benefit to the community and market opportunities at large.

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<sup>3</sup> See “The Roadmap” page 9, Figure ES2. Economic (BICOS) of Various Storage Use Cases Comparing Revenue Streams to Total Cost Over System Lifetime

## **Market Acceleration Incentives**

We support the Commission’s recommendations for market acceleration incentives and note the benefit of declining incentive value with time. We further note the need for long-enough time frames to allow market mechanisms to develop and this should align with what type of duration rules are set as this will configure into the investment thresholds. The longer the contract for an ESS, the less up front incentive, the shorter the contract life of an ESS, more upfront incentive will be needed.

Additionally, we urge the commission to explore zonal differences in incentive values as each region of the state has its own variables to consider and scaling of the incentives to ESS sizing, much like the NY Sun Megawatt Block programs that have formulated. A incentive capacity and value of each zone based on different sizing of capacity is warranted; however, without any great clarity into the rules and regulations of what the ESS will be performing, such markets need to formulate in order to address the different incentives of the markets – customer sited, distribution and bulk, each of these carry a different set of resiliency factors and economic propositions based on the sizes and locations, and noted in The Roadmap<sup>4</sup> - various bridge incentives and various levels of incentives need to be created to serve the various markets defined.

## **Data Access**

We support the guidance in the Roadmap regarding developer access to distribution and customer data. This is essential information when exploring energy storage – whether this is customer sites, distribution or bulk, a specific set of data will create efficiencies in project development. Such information has begun to materialize through the use of the Point Identification (“PTID”) granular pricing on the transmission node<sup>5</sup>. We support such granular information and encourage a continuation of such on the distribution feeder level and substation level, that includes detailed information related to capacity, pricing, renewable penetration, voltage, and the like. We encourage the expedition of the Application Programming Interface (“API”) which can continue to digitize information that supports proactive development.

Lastly, we understand data access carries security aspects and we are respectful of such and understand that a method, or systematic way of sharing, may take time but this is necessary in order to properly address the next generation grid development.

## **Customer Centric Landing Page**

The market for renewables is changing and the customer understanding of such is too, in many ways becoming more confusing; therefore, we encourage Staff to begin to formulate a customer centric

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<sup>4</sup> See “The Roadmap” page 9, Figure ES2. Economic (BICOS) of Various Storage Use Cases Comparing Revenue Streams to Total Cost Over System Lifetime and page 10, Figure ES3 Blended Energy Storage Cost Forecast for New York State by Upstate/Downstate Region

<sup>5</sup> See page 29 -31 of Distributed Energy Resources Market Design Concept Proposal.

informational page that may include marketing tutorials that allows customers, first and foremost, and developers, to understand what all these changes mean, in a real world scenario – specific examples per say. The VDER formulation and now ESS markets, and other continual REV proceedings, they are all now starting to triangulate, becoming co-dependent on each other; therefore, it may be a good time to create a seamless way to translate this information to customers and the market. If developers can't explain these new methods, how can customers understand this with confidence.

Perhaps NYPA, or other government side agency can provide a real world scenario with a school, a government site, or other, that simply shows the simplicity of how this works, or should work. This could include the idea of solar and storage using the VDER and an ESS, or a Community Distributed Generation (“CDG”) project and what this means for a residential customer bill, this way the market confusion can begin to alleviate. There may be sophisticated customers that are early adopters but with the government side to support the market changes, since they are the ones who have created them, this will provide the market with translatable information that alleviates confusion and may provide a way for the market to gain confidence in what this means to their energy consumption and how to utilize these policies and new ideas. They don't have to be installed systems but rather a tutorial if you will using real world marketing tools and information that shows the process of utilizing these new ideas and methods. The complexities of the market are real.

## **Conclusion**

The Roadmap is very extensive incorporating an enormous amount of information that is pulled from many different cases and places in the REV proceedings. Currently, we see a triangulation of factors that are creating roadblocks and confusion. Additionally, we continue to see various parties involved that seem to have highly sensitive rules and regulations and inhibiting factors that may slow the ESS market formation. We are confident that a very specific market can be defined, create value to rate payers and all parties involved with the right formulation; however, the unwinding of shorter term markets into longer term confidence is a must in order to scale a ESS market for financing.

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