Marji Rosenbluth Philips

PJM PC Special Session on Battery Storage as a Transmission Asset

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LS Power Group Overview

LS Power is a development, investment and operating company focused on the North American power and energy infrastructure sector

- **Founded in 1990, LS Power has over 250 employees** in NY, NJ, MO, TX and CA, beyond which its projects and businesses have **provided thousands of construction and operations jobs**
- **LS Power has raised over $45 billion to finance and support energy infrastructure investments in the U.S.**
- LS Power actively invests in competitive power markets and
  - **Manages over** 14,000 MW of generation capacity and over 4,000 MW of demand response and energy efficiency, for a total of over **18,000 MW throughout the US**
  - **Makes fuel neutral investments,** including solar, wind, battery energy storage, natural gas, hydro, pumped storage, demand response and energy efficiency
  - **Leaders in distributed energy through EVgo** (the nation's largest fast charging platform for electric vehicles) **and CPower Energy Management** (leading demand-side energy management company that helps commercial, industrial and government organizations save on energy costs, earn revenue through energy curtailment, enhance sustainability efforts, and contribute to a balanced, reliable grid)
  - **Invests over $2 billion in high voltage transmission projects across the U.S. to support renewables and grid reliability**

LS POWER

Innovation and Investment in Energy

LS POWER

Project Portfolio

LS Power has extensive development and operating experience across multiple regions, markets and technologies

LS Power Distributed Energy Platforms

National Leaders in Electric Vehicle Charging, Energy Efficiency and Demand Response

- **EVgo is the nation's largest and most reliable public fast charging network for electric vehicles**, powered 100% by renewable energy, with more than 800 fast charging locations in 66 metropolitan markets across 34 states. EVgo owns and operates its network, and serves more than 180,000 retail and fleet Consumers, with plans to more than triple its network over the next five years. We believe that EVgo has the best operating record in the industry – more than 98% uptime – and consistently earns the highest consumer scores on PlugShare for U.S. public charging networks

- **CPower Energy Management is the leading demand-side energy management solutions provider in the U.S.,** that helps over 1,400 commercial, industrial and government organizations across North America save on energy costs, earn revenue through energy curtailment, enhance their sustainability efforts, and support the decarbonization and reliability of the electric grid

LS Power Footprint in PJM

LS Power is the second largest privately held generation company in PJM, with over 11,000 MW of capacity

- Our PJM generation assets include clean supply resources: **hydro pumped storage, solar, and natural gas fired peaking and combined cycle facilities**
- **Affiliate CPower is the largest supplier of demand response and energy efficiency in PJM**
- **LS Power is a leading developer of transmission assets in PJM, for which its solutions were deemed lower cost and environmentally superior** to other options proposed; LS Power established a first-of-its-kind project cost cap to protect electricity consumers from paying for cost overruns – a new, consumer-focused approach

- **LS Power is technology neutral…** including hydro pumped storage, solar, and natural gas fired peaking and combined cycle facilities
- **We will invest where price signals are efficient and transparent to provide an opportunity (but not a guarantee) of a return on its investment**
  - With two-thirds of LS Power's generation portfolio in PJM**, PJM has provided such investment opportunities over its history that have provided significant consumer benefits**

LS Power Advocacy Principles

- Markets must be:
  - Non-discriminatory
  - Transparent
  - Fair

- Consumers benefit the most from competitively driven procurements
  - This is true for both generation and transmission reliability procurements

FERC Treatment of Battery Storage

- In Docket No. ER15-3-001, p. 5, FERC held that battery storage could be treated as a transmission asset in PJM
  - "The Commission has recognized that storage devices may be classified as generation, transmission, or distribution assets; it is a case-specific inquiry, depending upon the intended use of the storage device at issue"
- In ER20-588, FERC recently accepted very fact specific MISO tariff filing language to create a Storage as Transmission Asset Only ("SATO")
  - Note the tariff language did not address all issues (e.g., market impact)
- Commissioner Danly dissented
  - Suggested that it is undeniable that battery storage is generation
    - More appropriate to create new ancillary service than try to create a definitional space for battery storage as a transmission asset
- PJM has a stakeholder process to address this issue
- AEP filed for a project to be rate based as transmission
- Which leads to our discussion today

Challenges to Integrating Battery Storage as a Transmission Asset

- PJM's processes to procure reliability unnecessarily bifurcated into silos:
  - RPM
  - RTEP
- No reason that an asset should be precluded from bidding to resolve a transmission reliability issue
  - A generator solution may be cheaper than a transmission solution
- Consumers benefit most from a process that encourages innovative approaches through an auction with participation by multiple parties
- No reason to design special rules for a battery storage asset
- All generation assets should be eligible to solve a reliability issue in a cost effective manner
- We need to develop a product that facilitates such an outcome

LS Power Proposal

A new Ancillary Service: "Transmission Support"

- Defined broadly:
  - Product to solve an identified reliability problem
  - Any type of facility that will participate or receive market revenues through the energy, capacity and/or ancillary services is eligible to provide "Transmission Support"
- Competitively Procured
- Does not require creation of special rules to accommodate participation of the facility
- Consistent with Commission precedent
  - Would be consistent with FERC recognition of role of battery storage
  - Is consistent with Commissioner Danly's concerns about unbundling transmission services from transmission through ancillary services

“Transmission Services” Procurement

- PJM should use competitive RFP process
  - Similar to what’s done today for black start and competitive transmission
  - PJM would identify the violation and define the needs
  - Winner chosen based on lowest cost solution that resolves the identified need

- Compensation would be based on the bid/offer
  - This is similar to a generator that receives cost based rates for black start
  - Could use reactive power example with a prescribed bid/offer cost methodology
  - The asset would also depend on market revenues for other funding sources

- Term of service a component of the RFP
  - Notice provisions from PJM and the developer
    - E.g., deactivation and black start type requirements

There is No Down Side

- This is a win-win for everyone!
  - Consumers pay lowest cost to resolve a reliability issue
  - Investors have the opportunity to collect revenues from the markets
  - No need to go through the exercise of distinguishing whether an asset is transmission or generation
  - Impact on the wholesale market is integrated through existing market rules
  - Risk of performance is with asset owner