**Position Paper**

**Adapting Energy Storage to the ERCOT Energy Market**

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**Purpose.**

 This Position Paper is intended to present new information that may warrant reconsideration of how Energy Storage is treated in the ERCOT marketplace and by the Public Utility Commission of Texas.

**Background.**

 NPRR 410 (September 7, 2011) attempted to define two energy market aspects of large scale energy storage (see NPRR 410). The reason stated for the revision was:

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| *This NPRR allows Energy Storage Resources to participate in the ERCOT market by addressing unintended consequences of treating the “Load” function and the “Generation” function of storage technologies under separate Settlement formulas. Failure to address this issue will result in either an unreasonable barrier to market entry for beneficial emerging technologies or in inefficient market outcomes where differences between Resource Node and Load Zone prices provide inappropriate market incentives.* |

The status of the NPRR is “withdrawn”. However, there are new considerations that may warrant the NPRR to be revisited and/or revised. These considerations are both from technological advances in the industry and trends in conditions affecting grid operations.

**Challenges Facing the ERCOT Grid.**

 NPRR 410 addressed two primary grid features of Energy Storage:

 - While charging from the grid, batteries (Energy Storage) are considered loads.

 - When discharging to the grid, batteries are considered generation resources.

 The NPRR attempted to clarify Energy Storage that was charged from the grid as strictly a pass-through mechanism that did not generate new electricity resources (which is a valid point not shared by the traditional generation industry). It also went into pricing issues that are beyond the scope of this paper. There is a third feature of Energy Storage that is a valuable consideration that has not but should be addressed. That is the ability of Energy Storage to reduce stress on transmission and distribution circuits. When Energy Storage is interconnected to a circuit, both the substations and power lines can be sized for a normal load profile, with the Energy Storage offsetting higher demand loads placed on the circuits. This is both a practical and economically feasible way for line companies to serve their loads. By itself, this feature cannot justify the expense of adding Energy Storage to a transmission or distribution circuit, but when also used to store and sell electricity on the ERCOT market, these systems now become economically feasible. However, the Public Utility Regulatory Act (or PURA), Sec 35.152, Generation Assets, states:

***Sec. 35.152. GENERATION ASSETS.***

*(a) Electric energy storage equipment or facilities that are intended to be used to sell energy or ancillary services at wholesale are generation assets.*

*(b) The owner or operator of electric energy storage equipment or facilities that are generation assets under Subsection (a) is a power generation company and is required to register under Section 39.351(a). The owner or operator of the equipment or facilities is entitled to:*

*(1) interconnect the equipment or facilities;*

*(2) obtain transmission service for the equipment or facilities; and*

*(3) use the equipment or facilities to sell electricity or ancillary services at wholesale in a manner consistent with the provisions of this title and commission rules applicable to a power generation company or an exempt wholesale generator.*

*(c) Notwithstanding Subsection (a), this section does not affect a determination made by the commission in a final order issued before December 31, 2010.*

*(Added by Acts 2011, 82nd Leg., R.S., ch. 1069 (SB 943), § 2.)*

PURA further prohibits distribution or transmission line companies from owning or operating “Generation Assets”. This definition does not consider the grid reliability and enhancement features of Energy Storage. There also appears to be considerable reluctance among the wire companies to pay a fee to an Energy Storage company for just the grid enhancement capability of Energy Storage, for fear it may violate PURA.

**Conclusions and Recommendations.**

 Large scale Energy Storage should be considered as a means of strengthening the aging and oftentimes inadequate transmission and distribution circuits in ERCOT. Technologies now available allow for Energy Storage systems in MegaWatt sized increments that can operate effectively for 20 or more years and can be deployed fairly quickly to areas needing the support. When coupled with solar or wind generation resources, Energy Storage can dramatically offset peak demand in areas having inadequate electrical support. This is especially pertinent in the Eagle Ford Shale oil play, the Permian Basin, and in the City of Houston.

 The recommendations that should be considered by ERCOT and by the PUC are as follows:

1. Redefine the role of Energy Storage to allow for its ability to reduce stress on transmission and distribution circuits. This could mean that an Energy Storage operator may be permitted to register as both a generation asset and as a special line company.

2. Allow Energy Storage system operators to be included in the existing fee structure for line charges, when systems are of sufficient size to support the grid (typically over 1 MW of capacity).

3. Permit Energy Storage operators to buy and sell electricity on the open market.

4. To avoid a conflict between PURA and traditional generators or wire companies, a solution might be to allow only wire companies to receive the line charges for energy storage and for Energy Storage operators who are also acting as generation companies to receive the benefits of buying, storing, and/or selling the electricity. The actual means for this to work would be to allow the generation companies to collect a fee directly from the benefiting line companies for placing the equipment on their circuits (the line companies would then receive reimbursement for that fee from the appropriate portion of ERCOT wide line charges). In this way, the third and valuable function of Energy Storage---grid support---could be used to reduce the costs and timeliness of grid expansion.

The points presented in this paper are not all-inclusive and should be used as a starting point for further discussions.