Brattle: Texas grid storage economically viable

By Christopher Kolomitz

Energize Weekly

November 19, 2014

Researchers from the Brattle Group are finding that large scale electricity storage in Texas could be economically viable and may decrease customer electricity bills, according to a new report.

The Brattle economists say deployment of grid-integrated distributed electricity storage in Texas could provide substantial net benefits to the power system in ERCOT and its electricity customers.

The report, commissioned by Oncor Electric Delivery Company, evaluates whether storage could be cost-effectively deployed from the perspectives of retail customers, wholesale electricity market participants, and the combined system or “society as a whole” while maintaining wholesale power prices that continue to support necessary generation investments.

According to the report Brattle estimates that 3,000 to 5,000 MW of grid-integrated, distributed electricity storage would be the most cost-effective from an ERCOT system-wide societal perspective based on a forecast of installed cost of storage of approximately $350/kWh.

The authors identify four components of storage value from a system-wide perspective to estimate net benefits, including avoided distribution outages, deferred transmission and distribution (T&D) investment, avoided new generation or demand-side capacity investments, and electricity production cost savings.

From an electricity customer’s perspective, deploying storage across ERCOT would decrease customer bills slightly and additionally provide significant reliability benefits in the form of reduced power outages for customers located in areas where storage is installed.

“Considering both the impact on electricity bills and improved reliability of grid-integrated storage, the customer benefits would significantly exceed costs,” said Judy Chang, a Brattle principal and lead author of the study. “However, while beneficial from an integrated, system-wide perspective, an efficient scale of storage deployment would not be reached if deployed by merchant developers who rely solely on participation in the wholesale market, or by retail customers who use it solely for back-up power, or by wires companies who deploy it solely for capturing T&D benefits. These entities, independently and separately, will not be able to capture the full value of the storage to viably support the magnitude of investment that could be cost-effective for ERCOT.”

The authors report that enabling cost-effective investments in electricity storage will require a regulatory framework that helps investors capture the combined values of storage from the wholesale market, the T&D systems, and customer outage reduction.

The authors recommend a regulatory framework that would involve allowing the transmission and distribution companies to deploy the electricity storage on the distribution system and “auction off” to
independent third parties the rights to use the storage facilities for participation in the wholesale market.