



**BACKGROUND FOR FERC CHAIRMAN JON WELLINGHOFF'S
MEETING WITH NAATBATT DELEGATION TO DISCUSS
COMMUNITY ENERGY STORAGE**

July 29, 2010

Summary

A delegation of companies led by the National Alliance for Advanced Technology Batteries (NAATBatt) wishes to discuss with Chairman Wellinghoff and FERC staff the potential benefits of community energy storage (CES) technology and its unique ability among other storage and smart grid solutions to accelerate the electrification of motor vehicles in the United States. The delegation will express its desire that, notwithstanding the physical interconnection of CES facilities to the distribution portion of the power system, the FERC consider ways to provide effective incentives for CES investment where CES facilities perform functions similar to bulk storage facilities that are directly interconnected to the transmission grid.

Delegation Members

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NAATBatt

The National Alliance for Advanced Technology Batteries (NAATBatt) is a not-for-profit trade association of more than 40 battery producers and related supply chain companies dedicated to growing the market for advanced energy storage technology in North America. Advanced energy storage is key to reducing American dependence on petroleum and to increasing deployment of clean, renewable energy on the grid. NAATBatt focuses on large format batteries used in advanced automotive and grid-level storage applications.

NAATBatt believes that the principal barrier to large scale deployment of electric vehicles and grid-level energy storage in the United States is the high cost of energy storage relative to competing technologies. NAATBatt works to reduce that cost by promoting the development new battery technologies, encouraging technology road maps and standardization programs, and supporting public policy initiatives designed to make advanced energy storage more affordable to consumers and to electric utilities.

Community Energy Storage

The term community energy storage (CES) describes a distributed fleet of advanced batteries, each providing at least 25 kW of active and reactive power and 25-75 kWh of energy at 240/120V AC, connected to secondary transformers serving a few houses or small commercial loads. Each CES fleet offers multiple megawatts and multiple megawatt hours of storage controlled and coordinated by a single CES control hub. CES systems are the subject of ongoing demonstration projects by AEP, DTE and Southern California Edison.

Initial interest in CES centered on its local distribution benefits. Those benefits include backup power to connected loads, flicker mitigation, and convenient integration of locally generated renewable energy onto the grid. However, there is increasing recognition that CES facilities, when aggregated, can be operated to produce many of the same grid-level benefits claimed by larger bulk storage technologies. Those benefits include load leveling, VAR support, and various ancillary services. Many of these grid-level applications can provide transmission function benefits, resolving reliability concerns by, among other things, mitigating transmission overload, addressing transmission line trips, and reacting to voltage dips.

CES is one of several storage technologies under study by utilities across the country. Because of CES's unique ability to benefit both distribution and transmission functions, NAATBatt is hopeful that, absent regulatory impediment, CES technology will eventually be accepted and deployed on a wide scale by utilities and their regulators.

Unique Potential of CES to Promote Vehicle Electrification

The principal purpose of the delegation's meeting with Chairman Wellinghoff and FERC staff is to alert the FERC to the important role that widespread deployment of CES facilities could play in accelerating the deployment of electric vehicles in the United States. Electrifying motor vehicles is a high priority of national energy policy. Section 711 of the Energy Policy Act of 2005 expressly directs the acceleration of efforts to improve batteries for hybrid vehicles.

CES can improve advanced batteries and accelerate the deployment of grid-enabled electric vehicles (GEV's) in the United States in three ways. First, CES facilities can help stabilize the grid and facilitate the widespread recharging of GEV's should it occur at times of peak demand. A recent EPRI survey indicates that 95% of anticipated GEV owners expect to charge their vehicles at home. Although grid stability is the primary concern of the FERC and the utility industry, any fault events and related adverse consequences attributable to GEV recharging could have a material and adverse effect on consumer acceptance of GEV's and on the national objective of vehicle electrification. This must not occur. CES is a cost-effective, targeted and

quickly deployable solution to the possible instabilities that may arise from GEV recharging. Major automobile companies will begin selling GEV's into the mass market later this year.

Second, CES applications may use batteries that are similar to or that can be made in the same plants as advanced batteries for GEV's. By increasing substantially the volume of advanced batteries produced, CES can reduce the cost of GEV batteries and increase deployment of GEV's in the United States. The principal barrier to widespread deployment of GEV's is the high cost of the advanced batteries that power them. The U.S. Advanced Battery Consortium (USABC) estimates that a price target of \$150 per kWh must be achieved to promote the long term commercialization of full electric vehicles. Today, however, although costs vary by producer and exact figures remain proprietary, third party estimates of lithium-ion battery costs range from \$800 to \$1,300 per kWh. Increasing the volume of advanced batteries produced is the most effective way of reducing the price of those batteries and of GEV's in the short term. No other grid-level storage or smart grid technology offers this benefit.

Finally, several utilities and automobile companies are examining the possibility of reusing retired advanced automobile batteries in CES applications. Although the work in this area is preliminary, the possibility of CES providing a secondary market for retired automotive batteries is very exciting. Battery reuse by CES facilities could reduce, perhaps dramatically, the upfront cost of a battery-powered GEV to consumers. Anything that reduces the cost of GEV's furthers the important national goal of electrifying a significant portion of America's motor vehicles.

Regulatory Challenges to CES that NAATBatt Urges FERC to Consider

NAATBatt fully supports the FERC's decision in *Western Grid Development* to extend transmission rate incentives for energy storage facilities that satisfy the requirements of Order No. 679 and Section 219 of the Federal Power Act. NAATBatt expects to support any future FERC initiatives, including the possible identification of safe harbors, which will more certainly define the manner in which storage facilities must operate in order to access incentive transmission rates or similar benefits.

Because of the physical location of CES facilities below the substation level in the power system, however, extending jurisdictional transmission rate incentives to CES projects involves a regulatory problem not shared by bulk storage facilities. Section 201(b)(1) of the Federal Power Act states that, except as otherwise provided in the Act, the FERC does not have jurisdiction over "facilities used in local distribution". If FERC were to find that it does not have jurisdiction over CES facilities because they are interconnected to distribution facilities, even where they collectively provide the same benefits as transmission-connected storage, owners and operators of CES facilities will not have access to the same rate incentives to which owners and operators of bulk storage facilities may have access under *Western Grid Development*. NAATBatt is concerned that this anomaly will unfairly and unwisely disincentivize utility investment in CES facilities.

NAATBatt urges the FERC to examine closely the question of its jurisdiction over CES facilities that are operated primarily to provide transmission-related grid benefits but which happen to be physically interconnected to distribution systems and perform some distribution functions. To the extent that CES facilities perform the same functions and are operated subject to the same

restrictions as the types of bulk storage facilities identified in *Western Grid Development*, CES facilities should have the same opportunities for cost recovery at incentive rates.

DISCLAIMER

This memorandum is provided as informal background for meetings among FERC officials and members of the NAATBatt delegation of companies scheduled for July 29, 2010. This memorandum reflects the preliminary views of NAATBatt only and no statement or position contained in this document may be attributed to any individual NAATBatt member or to any individual member of the NAATBatt delegation.

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