

Interview with James J. Greenberger, Executive Director & co-founder of the National Alliance for Advanced Technology Batteries (“NAATBatt”):

What is the mission of the National Alliance for Advanced Technology Batteries?

The core mission of NAATBatt is to grow the market for advanced batteries in North America, with a focus on transportation and grid-level storage applications. According to current projections, by 2014 the U.S. market is expected to account for only 20% of all grid-enabled vehicles (GEV's) worldwide. Given the importance of electric drive to the national goals of energy independence and greenhouse gas reductions, we have to improve on that.

The fundamental challenge is consumer acceptance of electric drive in the United States. This challenge affects every company hoping to sell advanced battery-related products in North America. We have to move the focus of the North American market from early adopters to the general consumer by selling the average American consumer on the benefits of electric drive. A market that is solely dependent upon early adopters and government subsidies is neither economically nor politically sustainable.

Selling the general consumer on electric drive will be challenging, but it is possible. An absolute requirement for doing so is addressing the high cost of lithium-ion batteries. The general American consumer is intensely practical and non-ideological. For a GEV to be accepted by that consumer, its cost to the consumer must be equivalent to or lower than that of a comparable ICE car.

Anyone who has worked with advanced batteries knows that achieving cost parity with ICE cars is a tall order. There is no single or simple solution. But if we can combine improvements in battery technology with greater efficiency in the supply chain, better manufacturing processes, standardization of critical components, developing a secondary market for automotive batteries, creating a new model for battery ownership and intelligent government incentives, we may just get there. Unfortunately, we do not have much time.

Achieving cost parity is not the problem of any one company; it is the problem of the entire industry. Whether GM's GEV or the battery that powers it is better than Ford's or Nissan's or BYD's does not matter if the general U.S. consumer does not start buying GEV's. Addressing the cost parity problem and selling the general U.S. consumer on GEV's will require a coherent industry strategy, a consistent public message, and cooperation among auto companies, battery companies, materials companies and utilities of unprecedented kind and scope. NAATBatt will be the vehicle for that strategy, message and cooperation.

This week, new initiatives to promote battery manufacture were announced in Japan, Taiwan and Korea. What is going on in the United States? How much additional government support for advanced batteries can manufacturers expect?

This past year has seen a dramatic change in the attitude of the U.S. government towards advanced batteries and electric drive. A year ago there was almost no government support for private sector development of advanced battery technology or, it seemed, much appreciation for how important that technology is. Over the past year, however, we have seen billions of dollars invested by the federal government in advancing lithium-ion battery technology and establishing a domestic manufacturing base to manufacture advanced batteries. Most noteworthy was the two billion dollars of grants included in the Stimulus Package specifically for advanced battery manufacturing—an allocation that NAATBatt was instrumental in obtaining.

Individual states have also become aggressive in supporting advanced battery manufacturing as part of their economic development programs. The State of Michigan has made more than \$500 million of refundable tax credits available for advanced battery manufacturing. The State of Kentucky offered up to \$200 million in incentives to build a battery manufacturing plant in Kentucky. Many states continue to be very interested in attracting advanced battery manufacturers to their jurisdictions and substantial state incentives continue to be made available.

One of the most interesting programs recently introduced by the U.S. Department of Energy is FOA-207, an ARPA-E program that will provide grants of up to 90% of the cost of projects to develop next generation battery technologies. This is an unprecedented level of government support for private sector initiatives to develop energy storage technology. It

also, perhaps, speaks volumes about where the Department of Energy thinks the best long term opportunities for the domestic battery industry may be.

Many believe that Asian companies will be the winners in the battle for the advanced battery market and that U.S. companies have already lost that race. What are your thoughts?

The battle for the advanced battery market is not a race, it is a boxing match. U.S. companies did not show up for round one. They were knocked to the mat in round two. And they show every sign of being bested in rounds three and four. The goal for U.S. industry must be to stay in the fight and wait for a chance to land its best punch in a later round. That punch is the development of new and innovative energy storage technologies. That is what U.S. companies do best. It is way too early to call this fight. If nothing else, the problems this week at Toyota and Ford's pick up of market share are reminders that nothing is forever in the automobile business.

What is the most important thing the U.S. government can do to promote advanced battery manufacturing in the United States?

While support for battery manufacturers is helpful in all forms, the single most important thing the government can do is promote the growth of a domestic market for advanced batteries. To create Green Jobs, you must first create a market for Green Products. We should worry less at this point about where the batteries come from and more about whether someone in the United States is going to buy them. The nature of advanced battery manufacturing is such that in the long run economics will favor manufacturers that have plants close to their end-markets. If we grow a domestic market for advanced batteries by aggressively encouraging their use in GEV's and grid-level storage applications, the domestic manufacturing jobs will follow.

What differentiates NAATBatt from other not-for-profits focused on electric drive?

NAATBatt is a business-oriented trade association that is dedicated to growing the business of all of our members by growing a market for their products in the United States. Our membership includes manufacturers of lithium-ion battery cells and battery packs. But it also includes companies up and down the supply chain, including mining companies, advanced material suppliers, industrial equipment manufacturers, automobile OEM's, utilities, recharging solutions providers, battery consultants and other service providers. Although our focus is on the North American market, our membership includes both U.S. and foreign-based companies looking to grow and compete in the North American market.

Unlike other organizations focused on electric drive, NAATBatt is not a Washington-based lobbying organization. We are about helping our members grow a business. Our programs will provide better information about the North American lithium-ion market, networking opportunities for the industry, agitation for standards and other actions necessary to build a viable market, and education for consumers, government officials and the capital markets about our members and the industry we are hoping to build.

Building robust demand for GEV's and other advanced battery products in North America is not going to be easy. In fact, there is an unfortunate sense of complacency in the industry growing out of the unfounded belief that just because electric drive should happen, it will. Building a market for GEV's in North America will require the concerted, collaborative effort of companies up and down the supply chain, both inside the United States and abroad. NAATBatt will be the vehicle for that effort.