

BACKGROUND UPDATE ZEM ALLIANCE Dec 2009

BACKGROUND AND OBJECTIVES

December, 2009

The ZEM initiative emerged from the work in the World Economic Forum's Agenda Council for the Future of Transport to make the EV cheaper and accessible for the global consumer. The resulting ZEM Alliance is a coordinated demonstration and research initiative by global electric vehicle pioneers among automobile manufacturers, electric utilities, research centers and service partners that jointly work to overcome barriers and create business solutions to be launched in January 2010.

The Battery Bottleneck and the lack of Infrastructure

Battery cost is the main bottleneck to widespread EV adoption. Given that the battery technologies are still quite young, and have not yet attained economies of scale, they remain expensive. Capturing the total value of the full life cycle of the batteries, and reducing the risk to the consumer in this new technology fields are key to overcoming the battery challenge.

Similarly, the chance to become familiar with the electric car is important, and we need the engagement by corporations and municipalities to make EVs accessible to many new users.

A New Model

The electric vehicle must be simple to manage and cost efficient to run. The consumer value proposition must therefore insulate the end user from the complexities of battery technology and the risk associated with new technology, offer simple payment plans that includes a lease of the battery, and promote mobility-on-demand (EV car sharing) : i.e. moving from CAPEX to OPEX.

In order to achieve this we have to better understand what influences the battery value of its lifetime, capture the life cycle value of the battery's energy storage capability, and extend the batteries useful life by regularly monitoring and optimally managing the battery while in use.

Finding Solution with a Scientific Approach

As a first step we have agreed on a joint work plan to identify key factors which affect battery life and performance, to develop and test ways to convert the battery investment cost to a mobility fee per month/mile, to link the battery technology to utility requirements, and to research post-mobility applications of EV batteries. For that we have established 7 working groups to which international experts and the partners in the ZEM Alliance will work on the next two years, to find answer to:

Â· what affect battery life and performance under real life conditions, and how can we influence it?

Â· What are second life application for EV batteries, and what repurposing technology is required?

Â· What are the economics of battery recycling and can we expect a raw materials shortage?

Â· What are new models for government support and grant/loan programs for EVs and batteries?

Â· How are data best collected and transferred, and what communications to the grid are desired?

Â· How do consumers use the EVs and how to they accept sharing EVs and leasing batteries?

Â· What business models do best meet the needs of utilities and automakers - and the consumers?

Implementing ZEM Programs in Real Life today: Think Global and Act Local

In order to advance the broader acceptance of the EV, we believe that cars have to be out in the field and become accessible to a broader clientele, ranging from corporate users and local authorities to individuals. ZEM initiates therefore early commercial projects beyond mere demonstration efforts in partnership with local utilities, financial institutions, and governments in order to implement the global ZEM Model and make the EV affordable and accessible to global customers. Finding viable options for financing the batteries is a key to making the EV accessible and affordable.