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BMW i ChargeForward Pilot Launches in Bay Area

The BMW Group, together with Pacific Gas and Electric Company, explores how electric vehicles (EVs) can help reduce demand on the power grid during peak periods, ultimately driving down total cost of EV ownership for consumers

Woodcliff Lake, N.J. – August 3, 2015 … The BMW i ChargeForward Program has begun as an 18-month pilot. The program is now issuing calls to participating BMW i3 drivers in the San Francisco Bay Area to request the interruption of the charging of their EVs for one hour.

The pilot study is being undertaken by the BMW Group Technology Office, together with Pacific Gas and Electric Company (PG&E), whose service area covers Northern and Central California. Working with a group of nearly 100 BMW i3 drivers, selected from approximately 400 applicants, BMW i ChargeForward will demonstrate how intelligent management of electric vehicle charging can contribute to optimizing electric power grid efficiency while reducing total cost of electric vehicle ownership. The study has two parts: a managed charge pilot program involving BMW i3 owners and a battery second life energy storage system. In the managed charge pilot program, these 100 BMW i3 owners will allow BMW to delay in the charging of their vehicles by up to an hour, based on requests received from PG&E when grid loads are at their peak. The program also includes a "second life" for used MINI E batteries, by repurposing these batteries into a stationary solar-powered electric storage system located at the BMW Technology Office in Mountain View, California.

"One thing that we'll be investigating with this pilot is understanding how people charge, how flexible they are with respect to when they charge, and how best to design future products in way that benefits both customers and utilities," noted Julia Sohnen, Advanced Technology Engineer - Sustainable Mobility at the BMW Group Technology Office USA.

Grid efficiency through managed charging, combined with a used EV battery "second life" system.

The goal of the pilot is to provide PG&E with up to 100 kilowatts of capacity at any given time, regardless of how many BMW electric vehicles are charging, as part of a voluntary load-reduction program known as "Demand Response." The benefit to PG&E of more efficient use of existing power grid resources through EV charging management is passed on in the form of monetary incentives to program participants. Improved grid utilization, resulting from EV charging management combined with a solar-powered "second life" battery system, is expected to reduce stresses on the grid and reduce the need for additional peaker plants, thus reducing consumer costs while supporting the integration of renewable energy.

Throughout the 18 month pilot, BMW will manage the charging of participating BMW i3 vehicles, while prioritizing the e-mobility needs of participants based on timing by which vehicles should be fully charged, as communicated through a smartphone app.

For each program "event," when PG&E experiences peak load conditions, participants whose vehicles are selected for delayed charging will receive a text message notifying them that their vehicle charging will be halted for up to one hour, thereby temporarily reducing the load on the power grid. Using the BMW i ChargeForward smartphone app, participants can choose to opt out of any request based on their driving needs, however, and their vehicle charging will continue uninterrupted – for example, if they need to depart for a trip during peak load times and need a full charge sooner.

As an incentive for participating, selected drivers will receive $1,000 initially, and an additional reward of up to $540 at the conclusion of the program, based on their level of participation in charging Demand Response "events," as well as participation in occasional BMW or PG&E sponsored surveys or questionnaires.

EV battery "second life" system using MINI E vehicle batteries.

The battery second life portion of the project involves a full-scale stationary energy system built from eight used MINI E batteries to store energy and return it to the power grid. This 240 kilowatt-hour system, located at the BMW Technology Office in Mountain View, California, is one of the largest second life systems in the world.

At the end of a vehicle's life, these batteries still have at least 70% of their original storage capacity available, making them suitable for re-use. By removing them from the vehicle and installing them in a stationary storage system with integrated solar power generation, new

renewable capacity can be added to the grid—supported by resources that once took energy from it.

This additional power will supplement the energy load reduction by intelligent management of BMW i3 charging, to ensure PG&E grid needs are met, based on signals sent to BMW by PG&E as part of Demand Response.

BMW i ChargeForward pilot goals.
The goal of the pilot is to make electric vehicles even more attractive to our customers by ultimately reducing the total cost of EV ownership while demonstrating the ability to integrate renewable energy into the grid, extending the BMW Group's commitment to sustainability as demonstrated by BMW i.

Total cost-of-ownership could be reduced, for example, as utility companies provide drivers with incentives to manage their electric vehicle charge times; these incentives could offset the cost of installing a charging station at home.

BMW brings its extensive e-mobility history full circle.
The BMW Group took a significant step towards the adoption of sustainable mobility with the MINI E pilot project in 2009, and then again with the BMW ActiveE Field Trial in 2011. Experience from these field trials paved the way for the first born-electric production BMW EV, the BMW i3. BMW i ChargeForward employs both used MINI E vehicle batteries from the MINI E Field Trial as well as a small group of BMW i3 customer vehicles, to advance the benefits of sustainable mobility.

BMW Group In America
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