

BMW

U.S. Press Information

For Release: May 16, 2023

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More Power To You: BMW of North America and PG&E Start V2X Testing in California

- PG&E and BMW of North America expand collaboration by testing vehicle-to-everything technology that will improve grid reliability and help EV customers lower their electric bills by exporting power back to the grid during peak demand periods

Mountain View, Calif. – May 16, 2023... As electric vehicles (EVs) become more prevalent, with approximately 40% of all EVs in the United States driving on California roads, BMW of North America (BMW) and Pacific Gas and Electric Company (PG&E) are collaborating to test how vehicle-to-everything (V2X) technology can serve as a solution to offset growing demand on the power grid, improve reliability for electric customers, and maximize the usage of renewable energy. In addition, V2X technology could eventually enable customers to use their vehicles as backup home generation when needed.

The V2X testing is taking place at PG&E's Applied Technology Services (ATS) Lab in San Ramon and is the focal point of an extended partnership to advance V2X technology and explore the utilization of EVs as a flexible grid resource. The collaborative testing builds on the momentum of the [ChargeForward](#) smart charging program, which was announced in 2015 and offers PG&E customers who drive a BMW EV, incentives to align vehicle charging with renewable energy to help support the overall sustainability of the electric grid.

“Electric grid sustainability is becoming an increasingly complex challenge across the U.S.,” said Adam McNeill, Vice President, Engineering, BMW of North America. “That’s why we started our ChargeForward program in 2015, to connect our vehicles, our customers, and the grid. V2X takes smart charging to the next level, exploring how EV batteries can be used for backup generation and other grid services. We’re excited to continue pursuing additional customer benefits while helping make the grid more dependable and sustainable.”

V2X technology will someday empower EV drivers to return excess stored energy from their vehicle batteries back to the grid in exchange for compensation, presenting an ideal response to high-demand power conditions and a key solution for grid stability and resiliency. Additionally, V2X technology could play an important role in increasing the amount of greenhouse gas (GHG)-free resources powering the grid by storing solar and wind energy generated during the day to supplement the availability of clean energy during the peak evening demand period and overnight.

“The utility and automotive industries are creating a transformative clean energy future together. At PG&E we are working with partners like BMW to unleash the full potential of EVs to enhance grid resilience and reliability for our customers, while reducing carbon emissions in our hometowns” said Aaron August, PG&E Vice President, Utility Partnerships and Innovation. “Clean-powered EVs are vital to the battle against climate change. Using V2X technology to create virtual power plants from EVs can help utilities like ours meet peak electricity demand without the need for non-renewable energy resources. With smart, managed bi-directional charging, we can decarbonize our planet at a lower cost to our customers.”

The pilot is assessing how a typical home could maximize its renewable energy usage by switching between EV battery stored renewable energy and grid-provided renewable energy. The EV battery charges when the renewable energy mix on the grid is highest and the battery discharges throughout the day to support the household load. Results show that a vehicle-to-home connected EV is capable of providing roughly double the amount of renewable energy that a typical California household would be able to use on an average day, significantly increasing customers’ ability to use more green energy on a daily basis. Testing also offers insights on how V2X vehicles perform under real-world scenarios, taking into

consideration vehicle functionality and driver behavior to ensure that EVs can be used as a viable grid resource while still meeting customer needs.

PG&E and BMW will continue collaborating to better understand how these learnings can be applied to consider other customer and utility benefits.

ChargeForward Program

This expanded partnership, focused on V2X testing, is a direct result of the success of ChargeForward. Conceived eight years ago, and now in its third pilot phase, BMW and PG&E were the first to offer customers cash incentives for maximizing renewable energy by optimizing their EV charging times to support the overall reliability of the electric grid. It is available to all BMW battery and plug-in EV drivers in Northern and Central California who are also PG&E residential electric customers.

This last year showed that by aligning charging with renewable energy, BMW drivers helped the grid generate and support more clean energy. In California 1.4 million miles were powered by 100% renewable energy in the last 12 months.

What's next?

BMW and PG&E have agreed to extend their partnership until March 2026 with a focus on smart charging testing. In the next stage of this collaboration, BMW and PG&E will work together to continue testing V2X-enabled vehicles, specifically vehicle-to-grid (V2G), in a field trial at BMW Group Technology Office USA located in Mountain View, California. BMW will develop a test fleet of V2X vehicles that will be used in day-to-day operations and serve as a grid resource to help integrate renewable energy and balance the grid. This field test will evaluate how V2X technology can be used for advanced use cases that can be commercialized in future years and help support renewable integration on a neighborhood level to increase grid reliability on a larger scale.

BMW Group In America

BMW of North America, LLC has been present in the United States since 1975. Rolls-Royce Motor Cars NA, LLC began distributing vehicles in 2003. The BMW Group in the United States has grown to include marketing, sales, and financial service organizations for the BMW brand of motor vehicles, including motorcycles, the MINI brand, and Rolls-Royce Motor Cars; Designworks, a strategic design consultancy based in California; a technology office in Silicon Valley and various other operations throughout the country. BMW Manufacturing Co., LLC in South Carolina is the BMW Group global center of competence for BMW X models and manufactures the X3, X4, X5, X6 and X7 Sports Activity Vehicles as well as the BMW XM. The BMW Group sales organization is represented in the U.S. through networks of 350 BMW passenger car and BMW Sports Activity Vehicle centers, 146 BMW motorcycle retailers, 104 MINI passenger car dealers, and 38 Rolls-Royce Motor Car dealers. BMW (US) Holding Corp., the BMW Group's sales headquarters for North America, is located in Woodcliff Lake, New Jersey.

About PG&E

Pacific Gas and Electric Company, a subsidiary of [PG&E Corporation](#) (NYSE:PCG), is a combined natural gas and electric utility serving more than 16 million people across 70,000 square miles in Northern and Central California. For more information, visit www.pge.com/ and <http://www.pge.com/about/newsroom/>.

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