

September 21, 2015 | By Laura Margoni

## New Electric Vehicle Chargers Help Usher in the Future of Electric Vehicle Charging

Home to nearly half of the nation's plug-in electric vehicles, California has emerged as a leader in embracing clean car technology and infrastructure. Now, thanks to research funding from the California Energy Commission, the next generation of electric vehicle charging stations has been commissioned at the University of California, San Diego and are being used to test a new form of data communication between electric vehicles, charging stations and the power grid.



“We are proud to be a part of this project which represents the future of electric vehicle transportation,” said Gary C. Matthews, UC San Diego vice chancellor for Resource Management and Planning. “The expansion of our electric vehicle charging infrastructure complements our operations and research efforts while supporting the university and the state’s efforts to promote clean transportation.”

The pilot project brings together charging stations supplied by RWE – Germany’s second largest utility – and smart electric drive coupes from Daimler with UC San Diego as the demonstration site. The RWE charging stations are the only charging stations in the world currently certified for the global standard to be implemented in 2017 by the International Standards Organization (ISO) known as ISO 15118. The new standard addresses the “vehicle to grid” communication interface, paving the way toward one coherent system that better integrates electric vehicles with the power grid. As part of the pilot project, Daimler is offering affordable leases on smart electric drive coupes that have been built to be fully compatible with ISO 15118. The leases will be offered to interested UC San Diego students, faculty and staff who will be part of consumer driving, charging and behavior studies.

“With this new standard, the charging stations recognize when electricity is available and use it for charging,” said Norbert Verweyen, managing director of RWE. “If the energy is needed elsewhere, the charging process is interrupted.”

The process is known as “intelligent” or “smart” charging – the car, the charging station and the grid are able to communicate with each other in real time to determine grid capacity and customer needs, something that had not been possible before.

The new ISO standard also allows for the authentication and identification of the vehicle, coordination of the charging process, handling of the billing, and can support additional services such as remote diagnostics, navigation system updates and entertainment.

“In Germany, we see California as being on a parallel sustainability path and projects like this help light the way for all of us,” added Verweyen. “It’s exciting for RWE to be working in California, with all our partners, to advance this global ‘vehicle to grid’ communication standard.”

Twenty-four RWE Level 2 chargers have been installed on the UC San Diego campus along with three publicly accessible DC fast chargers from RWE. DC fast chargers typically provide 60-80 miles of range in just 20 minutes of charging.

“There are approximately 63 DC fast chargers located throughout San Diego County,” said Byron Washom, director of Strategic Energy Initiatives at UC San Diego. “With the addition of these three RWE DC fast chargers we’ll now have five on our campus, all of which are available to the public.”

The RWE chargers complement the university’s existing 29 chargers giving the campus one of the largest, most diverse range of electric vehicle charging stations at any university in the world.

The RWE chargers were funded by a \$300,000 California Energy Commission grant with cost sharing from RWE, San Diego Gas & Electric and UC San Diego. San Diego County-based small business Alternative Energy Systems Consulting, Inc. received the commission monies to purchase and install the RWE chargers, which were manufactured by Aerovironment, Inc. in Los Angeles County. KnGrid, a California-based small business, is the mobility operator, handling the pricing and billing for use of the chargers. RWE and KnGrid operate the network of charging stations with RWE’s own state-of-the-art IT architecture for grid-friendly electric vehicle charging with more than 4,000 connected, publicly accessible charging outlets globally.

Recognized as a leader in clean transportation, nearly half of UC San Diego's fleet of more than 800 vehicles has been converted to near-zero emission vehicles. Diesel fuel has been replaced with ultra-low sulfur biodiesel, and many buses, street sweepers, cars and trucks have been converted to run on compressed natural gas. The fleet also includes seven electric vehicles including two smart electric drive and more than 50 hybrid-electric vehicles. The university's "green fleet" was ranked 14th overall in the nation and received the highest ranking of any university by Government Green Fleet in 2012.

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