With **Plug-in Electric Vehicles (PEVs)** growing in popularity, utilities are expecting to see more of their customers charging PEVs throughout residential neighborhoods. The unique characteristics of the electrical demand due to charging PEVs at home can have unexpected effects on the power grid, more specifically on secondary networks.

Quanta Technology has designed, and manufactured a PEV simulator (**PEV-SIM™** to simulate the charging effects of common electric vehicles such as the Nissan Leaf, the Chevrolet Volt and high charging current of Tesla cars. Additional profiles can be easily uploaded to expand the tests to include prototype or future-design vehicles. Additionally, we are not limited to just residential charging using only Level 1 and 2 chargers. Our PEV simulator is also capable of determining the effects of DC fast chargers. Finally, our PEV simulator incorporates the Control Pilot communications with EVs.

**Service Offerings**

- Test plan and model development
- Unit simulates numerous PEV charging scenarios including custom profiles
- EV Communications and EVSE sub-metering accuracy tests
- Testing multiple what-if scenarios with several PEV customers on a circuit
- Ability to simulate the effects on the grid of PEV charging stations at different feeder locations
- Continuous feedback of relevant parameters (power, energy, cost, etc.) to the user
- Ability to time-compress simulations
- Environmentally friendly: energy is not dissipated, it is fed back to the grid

The ability to time-compress and batch process different charging simulations allows for fast and sequential evaluation of multiple scenarios without operator intervention. Data is polled and can be recorded in real-time through a connected user interface. Another unique feature of our tests is that our PEV simulator is **regenerative**. Nearly all of the power is fed back to the grid. This ensures that the test is environmentally friendly and not causing significant heat dissipation.

**PEV-SIM can also be integrated into an RTDS system. RTDS is a real-time power system simulation platform** for precise modeling and analysis of transient phenomena, utilizing simulation time close to the time frame of actual events. RTDS is primarily developed and utilized for **hardware-in-the-loop (HIL) testing of protective relays, digital controllers and process control devices** for performance evaluation and pre-commissioning testing under close to real world conditions. RTDS testing is also commonly used for prototype development and/or finalizing a new application design.
HMI and EV Charging Profile Selection

For more information regarding Quanta Technology's simulator capabilities, please visit our website [www.quanta.technology.com](http://www.quanta.technology.com) or contact Farid Katiraei at +1 (647) 330-7379.

This material is intended strictly as general information about Quanta Technology, LLC and does not constitute the basis of any design advice or contract. Copyright © 2016