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By John Gartner

GridPoint to Play Traffic Cop for Vehicle Charging

Imagine directing traffic in Manhattan when the power is out, no one knows how to find the bridges or tunnels, and most of the drivers are speaking different languages. That scenario is similar to what smart grid company GridPoint is up against in building software that will enable electric vehicles, charging equipment, utilities and grid operators to all get along.

GridPoint is developing version 3 of its Smart Charging software (due to ship to customers in September) that will schedule and monitor vehicle charging while keeping track of the grid's health. The software includes tools that enable utilities to understand how vehicles individually and in aggregate are impacting power demand. Utilities can compare recent vehicle demand on the grid with what would have happened with no control over vehicle charging to see how well their attempts at shifting the load are doing. The Smart Charging software also provides day-ahead demand projections based on previous charging data.

By connecting to the grid applications that control the power flow via the Open Automated Demand Response Communication Standards, GridPoint can slow down or stop vehicle charging during times of peak demand.

GridPoint has been busy lining up partnerships with many of the largest utilities during their ongoing EV trials, and this week added CabAire, eVco, Plug Smart Intelligent Energy Solutions and eTec as charging equipment partners. The eTec relationship encompasses more than 12,000 charging stations that are being set up in cities across the U.S., which are partially funded by the DOE.

GridPoint's John Clark says his company's role in electric vehicle charging is to "make it invisible." The company works with utilities to integrate vehicle charging into their existing IT infrastructure at a cost of often more than \$1 million.

To enable the smart management of charging for the first plug-in and all-electric vehicles, a small hardware module will be placed in the vehicle, according to Clark. This "brute force method" of proprietary equipment will be superseded by hardware integrated into the vehicle that will employ standards being developed for sharing data. Rather than requiring an upgrade to the vehicles, Clark says the Smart Charging software will have to remain backward compatible.

GridPoint is developing complex algorithms that must account for many factors, including the percentage of the battery depleted, the power transfer speed of the charging equipment (i.e. Level 1,2, or 3), aggregate demand on the grid, and what time of day customers want their vehicles to be fully charged, just to name a few.

This "middleware" market that connects EVs to the smart grid will get crowded as more utilities prepare and the number of vehicles on the road grows. Companies such as Cisco, IBM, GE, and consulting firms such as Accenture and Cap Gemini will all look to play a role.

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