

VGI Workplace Charging Experience



CARB, PEV Infrastructure Information Meeting



*Gregory W. Haddow
May 27, 2014*

SDG&E Goal – Grid-Integrated Charging

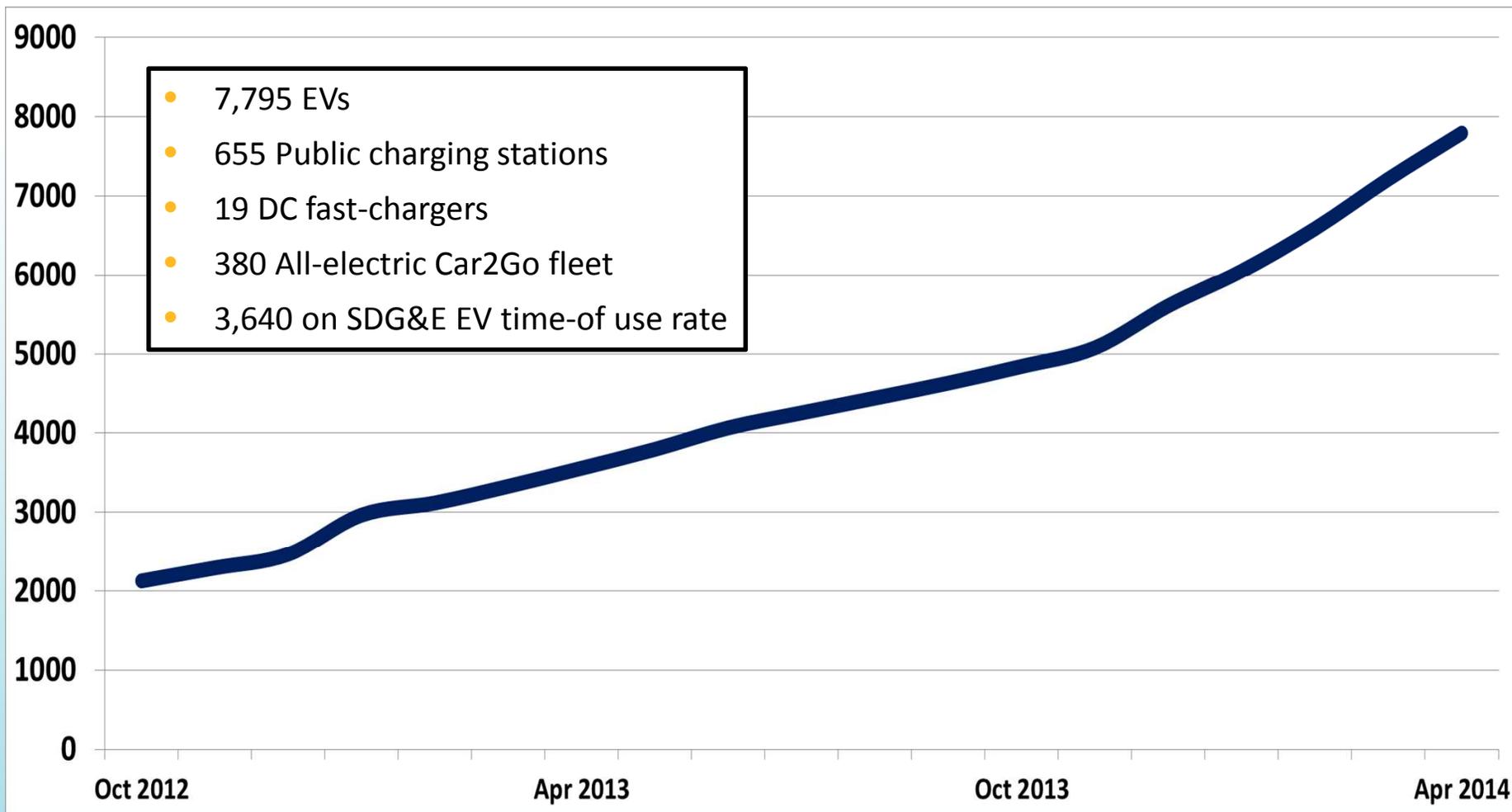
*Create an excellent customer experience and accelerate the growth of electric transportation by ensuring the safe, reliable and **efficient integration** of EV loads with the grid*



- **Technology**
- **Pricing**
- **Innovation**
- **Education**

- More plug-in electric vehicles
- More electric grid integrated miles

San Diego Regional EV Growth



As of April 2014

Utility Role

- Educate customers and stakeholders
- Proactively support customers and EV service providers
- Maintain low electricity pricing
- Walk-the-Talk – Learn-by-doing to better inform our customers
- Innovate and explore grid-integrated EV charging – propose charging solutions that benefit all customers
- Ensure that EV charging does not become a market barrier to EV adoption

Fleet & Workplace Charging VGI Pilot

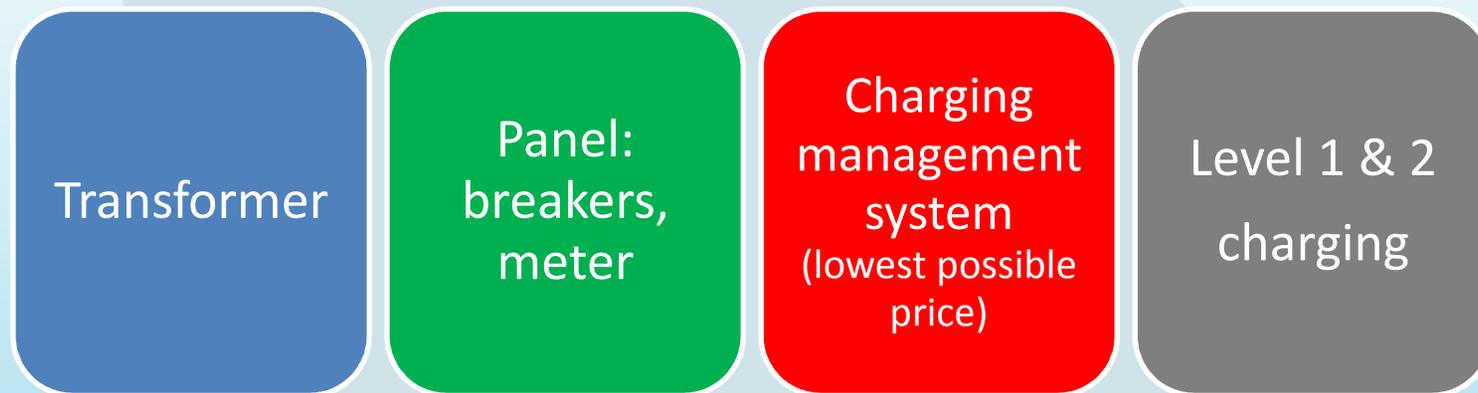


Fleet & Workplace Charging Benefits

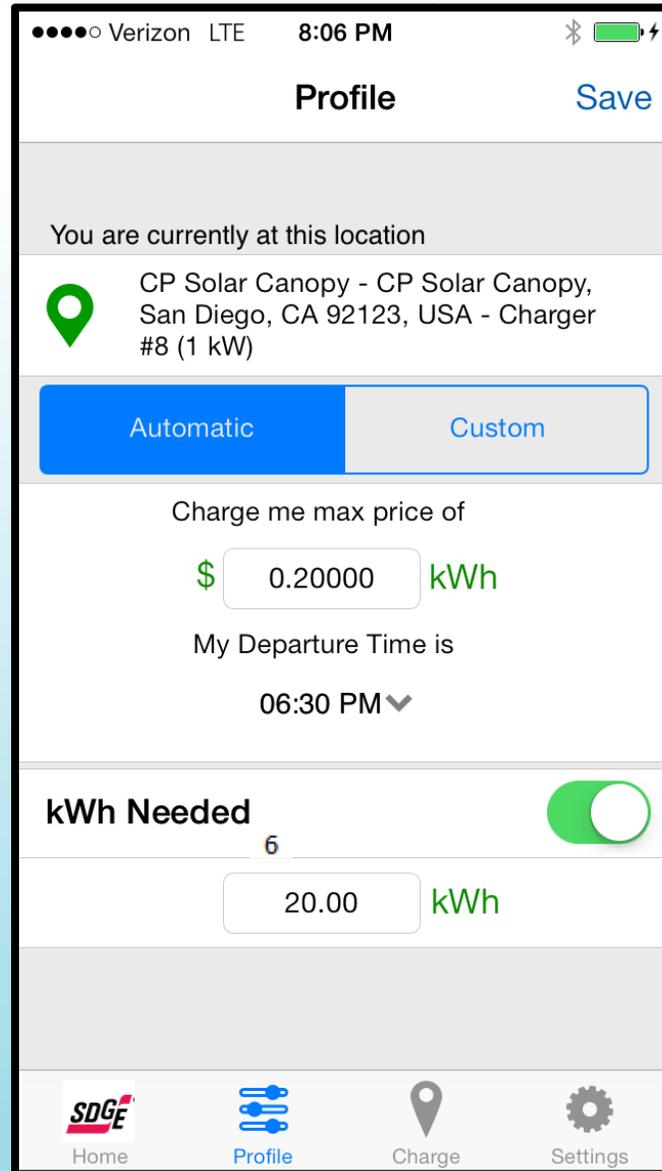
- Reduce harmful air emissions from gasoline and diesel fuels
- Explore grid-integrated charging (Vehicle-Grid Integration, VGI)
 - Reduce on-peak charging and the need to build power plants
 - Charge EVs when energy cost is low, and supply and capacity are plentiful (integration of renewable energy resources)
 - Stepping stone toward “vehicle-to-grid”
- Increase EV adoption
- Increase zero emission miles driven per EV
- Increase fuel cost savings

Objectives & VGI System

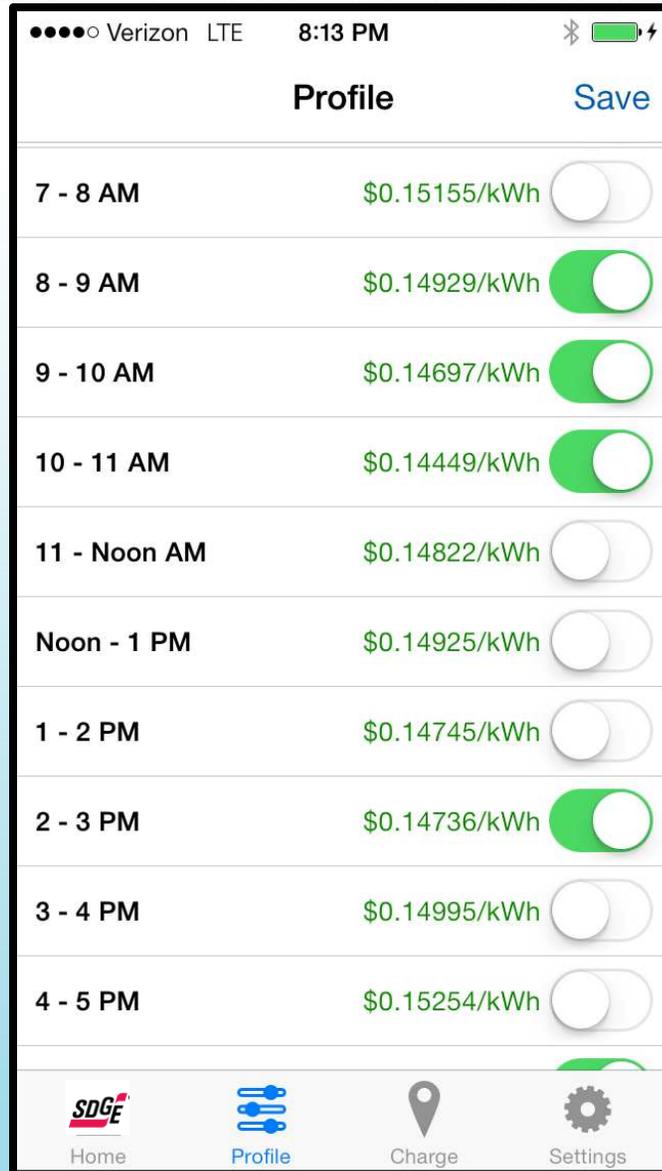
- Expose employees to utility-specified, time-variant prices
- Ensure employees get lowest possible price and meet charging needs
- Bill employees – details about time-of-day usage and unit price



Example of Automatic Phone App Setting



Example of Custom Phone App Setting



Facility Usage Tracking

SDG&E Employee Charging January 2014 to April 2014	
Workdays	70
Charging Sessions	700
Total kWh Usage	3,700
kWh/day, All Units	53 kWh
Median kWh/session	4.5 kWh
Sessions/workday/unit	1 Session/day
Electric miles/day dispensed	160 miles
Median \$/kWh	\$0.17

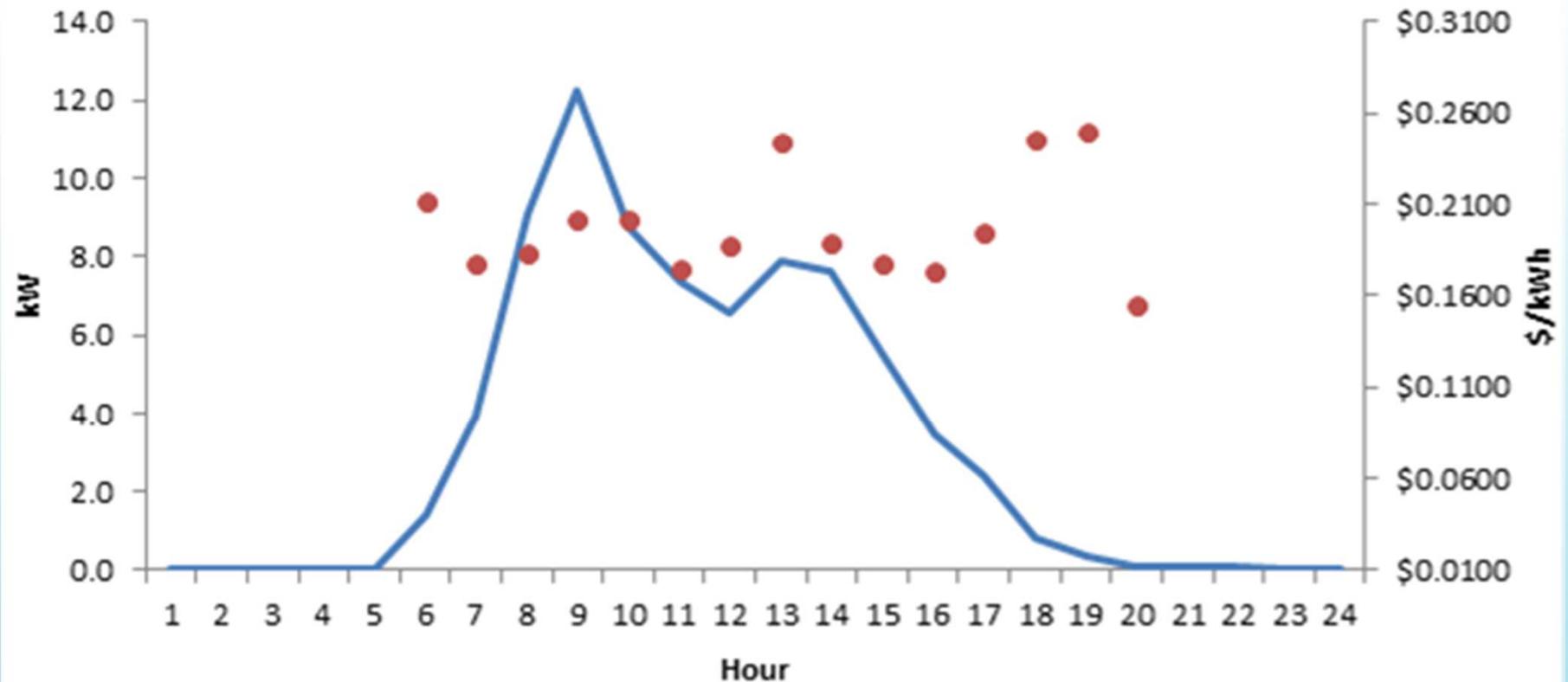
Tracking Usage & Pricing

Average hourly load and price (\$/kWh)

CP Solar Canopy Charging 1/1/2014 to 4/21/2014

— Average Hourly kW

● Average Hourly Price



Questions?

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