High Power DC Charging

EV Roadmap – June 21, 2017
EVgo is the largest developer, owner and operator of public* DC charging stations in the United States.

Over 950 – 50kW DC Fast Chargers

Every market is strategically covered with EVgo Freedom Stations giving drivers the confidence to go farther.

*Non-proprietary Standard
Building Range Confidence with High Power DC

Reliable

Available

Fast

• No compromise in owning an EV
• Expands potential market for EVs.
• Provides a safety net for drivers

High-Power charging in both the inter and intra city is critical to mass EV adoption.
Charger Operating Costs

**VARIABLE**
- **ELECTRICITY (kWh)**
- Utilization Level
  - Vehicle Battery
  - Electricity Rates
- Coincident Utilization
  - Peak kW
  - Demand Rates

**FIXED**
- **DEMAND CHARGE (kW)**
- # of Chargers
- Preventative Cost
- Repair Cost
- # of Chargers
- # of Users
- MAINTENANCE
- CUSTOMER CARE
- LEASE
- # of Chargers
Energy Demand Mitigation

- EVgo DC Station coupled with second-life battery energy storage
  - 4 – 50kW DC Fast charging ports
  - 100kwh battery storage with 60kW inverter
  - ~20kW Solar Canopy

- EVgo incurs significant demand charge costs at the station level – especially in markets like SDG&E where demand charges go as high as $40 / kW

- Battery Storage system has been operating since May 19, 2016

- Site is currently drawing an average demand of 15kW per month (originally 90kW per month)

- Project won the 2016 ESNA storage award
EVgo High Power Development

Installed first 150kw prototype - Freemont, CA

Baker, CA - High Power (150kW-350kW) Station

- Over 2MW Utility Connection
- Designed for up to 8 Dispensers
- ~20kW Solar Canopy
- Static Battery Storage
- Opens Fall 2017
Challenges Ahead

• Technical development
  • Standards
  • Cable, connector and cooling
  • High voltage (+500v) development

• Reliability

• Station design
  • Footprint requirements
  • Vehicle charging port location

• Utility demand charges
  • Demand mitigation technology (Power share, energy storage, etc.)
  • Rate reform

• Sustainable infrastructure in early days with low EV market penetration
Thank You

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