

DOCKETED

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Siemens on ISO 15118

Chris King – SVP Strategic Partnerships

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Siemens EV Charging Portfolio

Commercial & Residential Chargers “Level 2”



Name: VersiCharge™

- Home, workplace, Utility, longer-term stop areas
- **9.6kW & 11.5kW**
- Cell, Wi-Fi, OCPP, Modbus, I/O
- RFID / QR Code
- Hours to charge

DC Fast Charger “Level 3”



Names: Ultra50™ Ultra175 (Q4)

- Primarily car, short term stop locations.
- **50kW / 175kW**
- Wi-Fi, Cell, RFID, Credit Card, OCPP coms
- 30 min to charge

DC Heavy Duty Plug-In



Name: Sicharge UC™

- Fleet, eBus & Depots
- **150kW**, 200-850V
- Up to “4” remote dispensers
- OCPP Coms
- Built in Cellular

“Opportunity Charging” Bus Overhead



Name: Sicharge UC™

- **Pantograph**
- eBus & Fleet charging
- On-route or Depot charging
- **300kW - 600kW**
- Minutes to charge

Cloud Service Offerings



Names: Care, Connect, Charge and Control

- IoT cloud Reporting, trending, control, alarming and billing
- Open connectivity to any OCPP charger

Battery Storage Site Generation



Name: Fluence™

- Modular Battery storage solutions
- 250kW, 500kW and up designs
- Offer backup storage and site grid stability

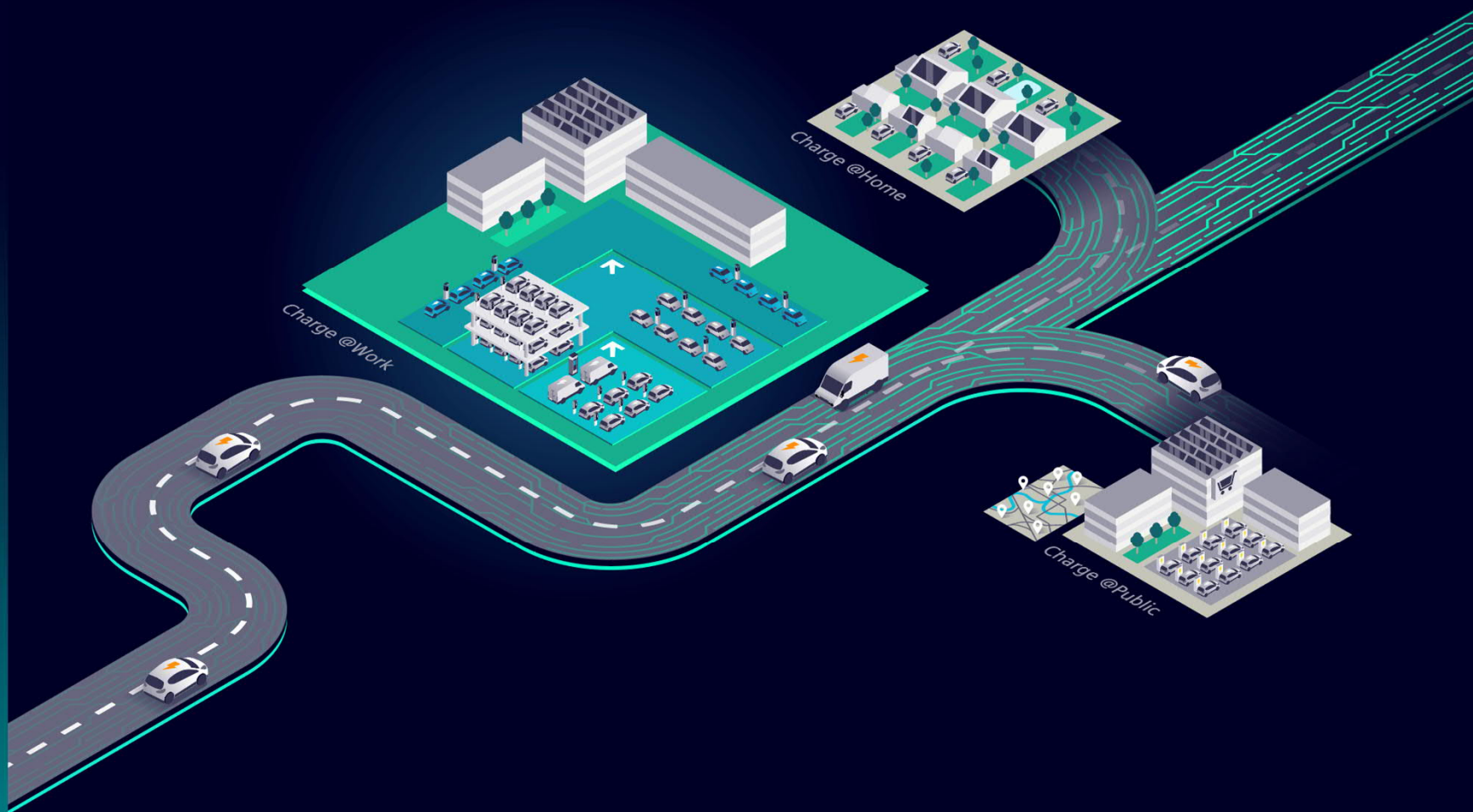
Siemens as EV Charging Customer

Fleet of ~11,000 LD vehicles

- Sales representatives
- Service vehicles
- Full transition to electric

Key requirements

- Streamlined user experience
- Charge at home
- Charger at workplace
- Public charging
- Universal payment access to public charging



Industry Adoption



A Comprehensive Guide to Electric Vehicle Managed Charging

MAY 2019

TABLE 11: NUMBER OF MANAGED CHARGING-CAPABLE EVSE MANUFACTURERS BY MESSAGING PROTOCOL TYPE, 2019

| OSCP/ OCPP | OPENADR | ISO/IEC 15118 | IEEE 2030.5 | API | PROPRIETARY |
|------------|---------|---------------|-------------|-----|-------------|
| 29 | 8 | 8 | 4 | 2 | 7 |

TABLE 12: PROTOCOLS INCLUDED IN AUTOMAKERS' 10-YEAR TIME HORIZON, 2017

| AUTOMAKER | AC CONDUCTIVE | DC CONDUCTIVE | WIRELESS INDUCTIVE |
|--------------------------------|---|---------------------------------------|---------------------------------|
| BMW | ISO 15118 (HomePlug Green PHY) | ISO 15118 (HomePlug Green PHY) | ISO 15118 |
| Fiat Chrysler | IEEE 2030.5 | ISO 15118 (HomePlug Green PHY) | WiFi, ISO 15118 v2 |
| Ford | Telematics & ISO 15118 (future) | ISO 15118 (HomePlug Green PHY) | ISO 15118 v2 |
| GM | No High Level Communication | DIN Spec, no timeframe for ISO/IEC | WiFi and Telematics |
| Honda | TBD High Level Communication, Vehicle to Grid | DIN Spec / ISO 15118, Vehicle to Grid | Premium product |
| Lucid | ISO 15118 (HomePlug Green PHY) | ISO 15118 (HomePlug Green PHY) | |
| Mercedes Benz | ISO 15118 (HomePlug Green PHY) | ISO 15118 (HomePlug Green PHY) | J2954 / ISO 15118 |
| Nissan | Telematics | CHAdeMO | In development |
| Porsche/Audi/Volkswagen | ISO 15118 (HomePlug Green PHY) | ISO 15118 (HomePlug Green PHY) | ISO 15118 (In development—2018) |

| Thank You