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Fast Chargers – trends, impact in the distribution network

siemens.com/charger

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Types of chargers

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Characteristics of charging levels as defined by the SAE and charging modes as defined by the IEC

Charging level	Voltage	Charging mode	Protection type	Typical power	Setting
Level 1	120 V AC	-	None or breaker in cable	1.2–1.8 kW AC	Primarily residential in North America
Level 2	200–240 V AC	Mode 1	None	3.6–11 kW AC	Wall socket in Europe; primarily for 2- and 3-wheelers
		Mode 2	Pilot function and breaker in cable	3.6–22 kW AC	Home and workplace with cable or basic station
		Mode 3	Pilot function and breaker in hardwired charging station	3.6–22 kW AC	Home, workplace, and public with hardwired station
Fast charging	400 V – 1000 V DC	Mode 4	Monitoring and communication between vehicle and EVSE	50 kW or more	Public, frequently intercity

eMobility charging hardware
from small AC to high power DC Charger

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Wallbox
up to 22kW
Launch in 2020

SICHARGE CC AC22
2 x 22 kW

CPC 50 and CPC 150
up to 150 kW

SICHARGE UC family
Plug in (150kW) & Pantograph (600kW)

- Comprehensive portfolio for different charging requirements
- Compatible to major standards (CCS, CHAdeMO, Type2)
- Futureproof communication options
- Elegant and timeless design
- Robust and durable
- Fit for outdoor

Highway transit charging

Gas stations & truck stops

E-Bus depot incl. opportunity charging

Logistics depot charging (fleets)

Enterprises & retailers (dealerships)

Parking garages & real-estate

Single-home & multi-home (private customers)

City & town street parking

Charging use cases

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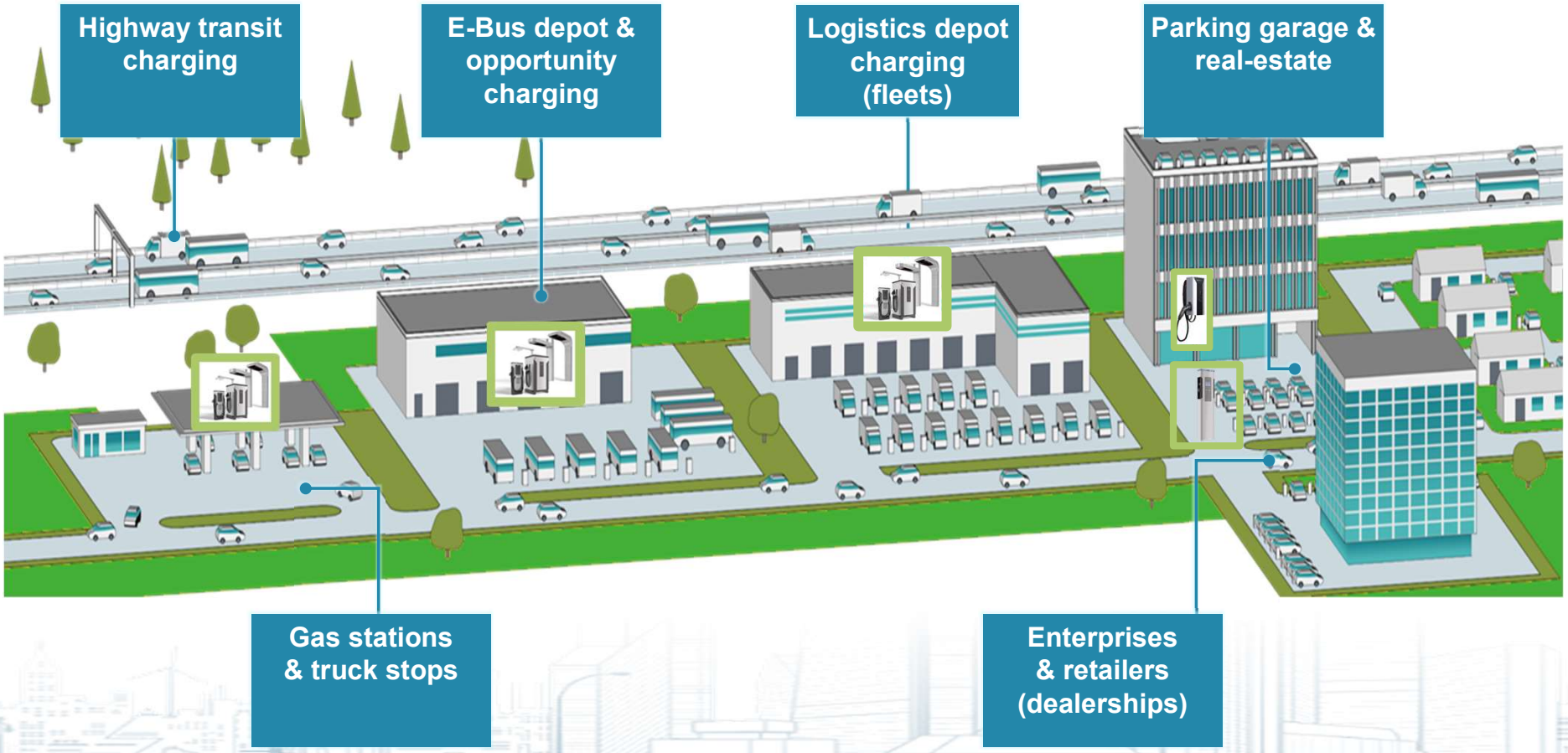

SICHARGE CC AC22 in many Colors and custom Designs

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SICHARGE CC AC 22 is your own architectural design element
Either in the elegant default design or as per your specification
- Ask us for CAD data for integration in your 3D environment -

Finishing Options

- Standard color is RAL 9006 (best urban fit)
- Optional add. RAL coloring available
- Delivery option with folio (4 color print)
  - Full folio (100% of space)
  - Semi folio (about 50% of space)

Customer Benefits

- Full range of individualization options
- Delivery “Individualized & ready to install”
- “production quality” level
- No need to order add. 3rd party services
- Design support optionally available

Available Options and Accessories

CPC150 in many Colors and custom Designs

CPC 150 design can be customized as per your brand message either the front only or all sides

Finishing Options

- Standard color is RAL 9016 traffic white
- powder coated
- Other colors on demand
- Folio options with any design possible
  - Full folio around the charger
  - Front folio

Customer Benefits

- Full range of individualization options
- Delivery “Individualized & ready to install”
- “production quality” level
- No need to order add. 3rd party services
- Design support optionally available

The electrical grid of today and tomorrow

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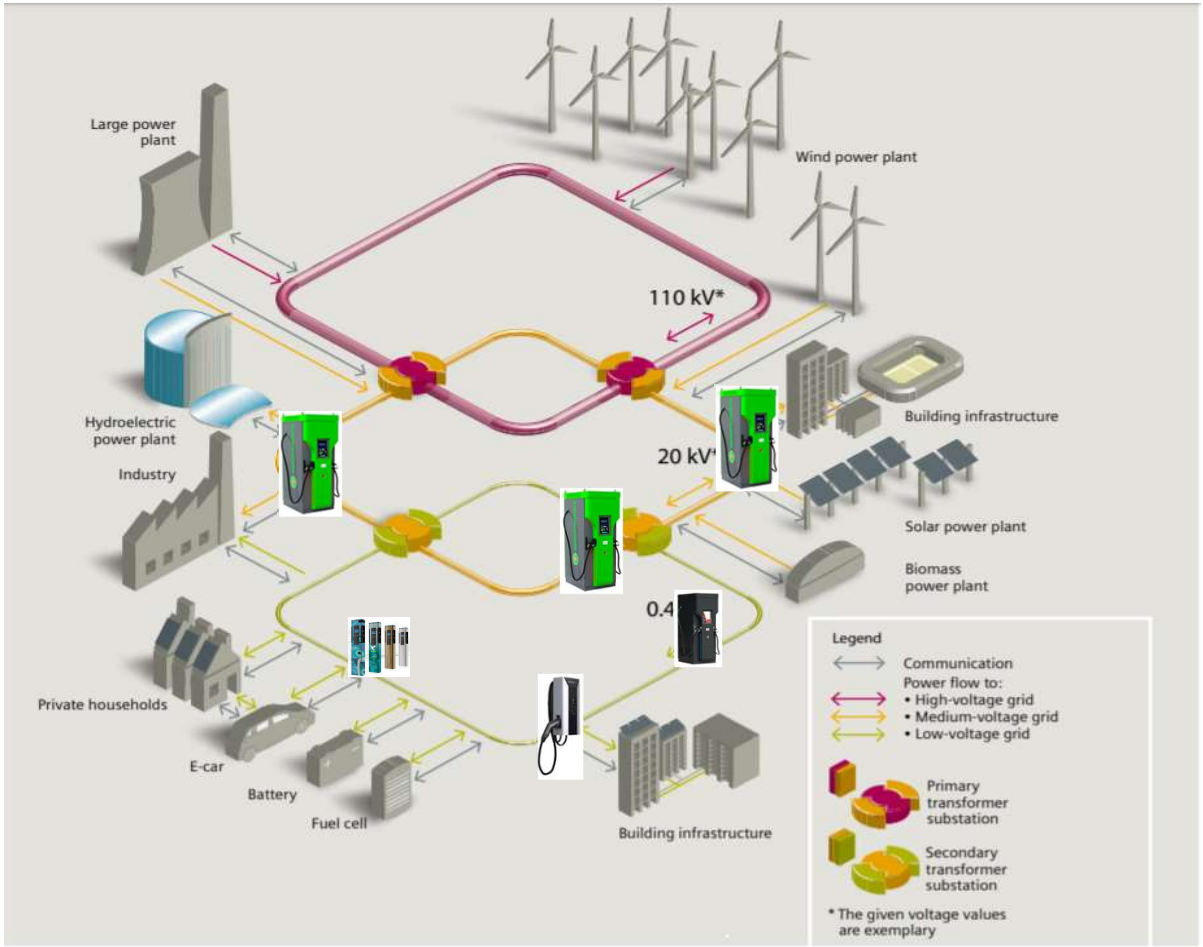
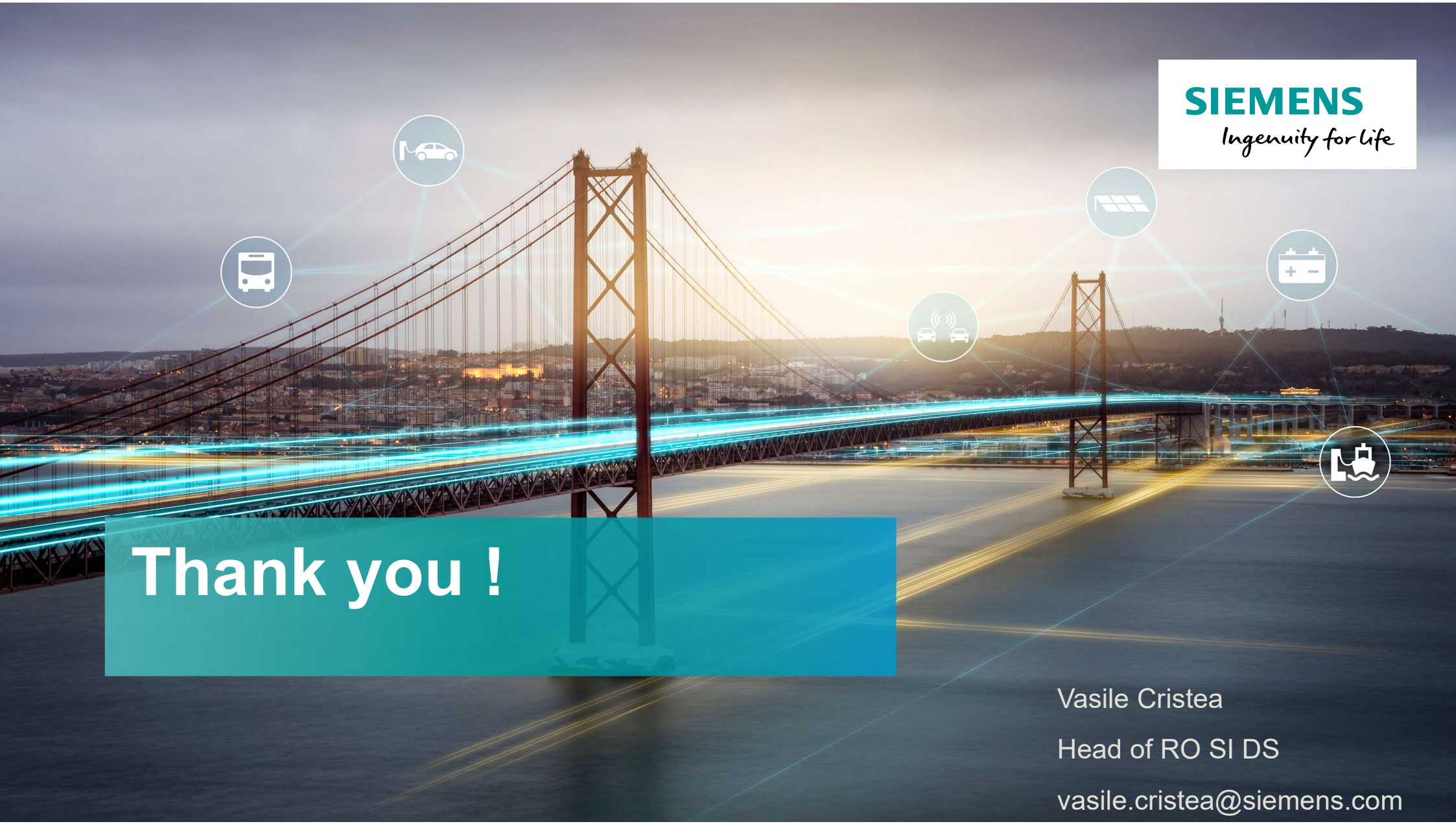


- **Fast charging - the electricity grid**
  - Fast charging stations on medium voltage grids have unique properties that can play a role in stabilizing the grid & absorb large amounts of renewable energy (solar and wind)
  - All future Fast charging stations are connected to robust medium voltage distribution grids. This helps to divert load from the vulnerable low voltage grid
  - Large fast charging stations with 10+ chargers are able to serve hundreds of cars per day, yet require just one grid connection. This dramatically lowers the burden of connecting to grid companies
- **Fast charging - renewable energy integration**
  - Fast charging stations follows a predictable and stable load curve during the day. Fast charging happens mainly during daytime, when the sun is shining and more and more renewable energy will be produced. Increasing supply of solar energy can thus be directly absorbed by fast charging. Fast charging is complementary to slow charging (which mostly happens overnight)
  - In the future, with more self driving EVs on the road, the value to the grid & renewable energy adoption can be increased further. Fully autonomous EVs can respond dynamically to price signals of fast charging stations to optimize for fast charging on moments of high renewable energy output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Thank you !
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