



Electrified trucks and buses charging opportunities

Volvos' perspective

Fredrik Cederstav, Volvo Group | Bilbao | 2019-09-27





VOLVO DEMOS 2020



BARCELONA (Q1 2020, to be confirmed)

- ⦿ Multi-brand bus interoperability
- ⦿ OEM: **Volvo**, Solaris, Vectia, VDL, Irizar, Heuliez
- ⦿ Charging: OppCharge



GOTHENBURG (Q3 2020)

- ⦿ Bus & truck interoperability
- ⦿ OEM: Volvo only
- ⦿ Late Oct. 2020
- ⦿ Charging: OppCharge, DC & depot



DEMO TECHNOLOGIES

DEMO CITY	VEHICLE	CHARGING TECHNOLOGY		
		OppCharge (kW)	DC CCS2 (kW)	AC CCS2 (kW)
Barcelona	12m Gen2 BEV City Bus	300	150 Available	11 Available
Gothenburg	12m Gen2 City Bus	300	150	11
Gothenburg	2 x 18.75m Artic Bus	Min. 450	150	11
Gothenburg	Urban FE-259 Truck (4 bat)	300	250	44



1. What are the needs and requirements by the various stakeholders involved to develop interoperable and shared charging systems?

Industry standard is a must.

Customer unique demands is not feasible. Needs from logistic stakeholders are for the moment mostly unknown or immature. Most actors seem to focus on night (depot) charging only.

Public charging complementing depot charging would therefore improve the business case. (**DenCity: Spyros**)

Bus operators are more mature and usually have a preferred charging need.

Volvo are participating in standardization forums like **Char-In**.

2. What are existing challenges for a wider implementation?

Standard for high power charging over 350 kW not ready, no standard for inductive or for dynamic charging.

Initially, public support to a significant extent to lift the business out of the “death valley” of constant prototyping. A good network of reliable public charging stations will ease the fear of “range anxiety”.



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3. What is the added value (benefits) of interoperable charging solutions for both e-buses and other electric vehicles?

Multibrand usage, enables completion of business case, lower TCO, scale of economy, lower development cost, future use of components will be lower.

4. What are supportive policies and measures that can help to further advance this business model?

Implement standard but not too many different standards with one technology (Opp charge). Standardization cannot be a slow process.

For public urban charging spots, municipalities should prepare to combine bus, car/taxi and logistic charging for refuse trucks and delivery trucks in hubs. This brings economy- of- scale. A role model is the city of Oslo.

(Comment by Spyros)...





Q1 2020:



	FL	FE
GVW(t)	16	27
Load capacity (t)	4-7	10-18
Charge time (h)	1-2 DC 150kW 10 AC 22kW	1-2 DC 150kW 10 AC 22kW
Charge system	CCS type 2	CCS type 2
Engines	1	2
Transm.	2-speed	2-speed
Cont. Output (kW)	130	260
Max torque	425	850
Markets	Europe	Europe

Specifications new FL/FE electric

Thanks!

