



The CIVITAS eLIPTIC project: Public transport as the backbone of electric mobility in European Cities

Hendrik Koch
Project Coordination
Working Group Sustainable Mobility

Der Senator für Umwelt,
Bau und Verkehr



Freie
Hansestadt
Bremen



Horizon 2020
Programme



- Research and Demonstration project in EU Program „Horizon 2020“ (Mobility for Growth 5.1)
- Funding primarily for research and promotion (only small share for hardware)
- 33 partner in 8 Countries
- Duration: 01.06.2015 – 30.05.2018
- Coordinator: Freie Hansestadt Bremen
- Budget: 5,9 Million Euro



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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 636012

Project coordinator: Bremen
Project manager: Rupprecht Consult

- Public transport company/operator
- Research and innovation
- Industry
- Associations

20 Use Cases

+ 11 Twinnings

+ User Forum (PTO / PTA)

+ UITP, POLIS, VDV,
ASSTRA, LCVP



Three thematic technology pillars



A

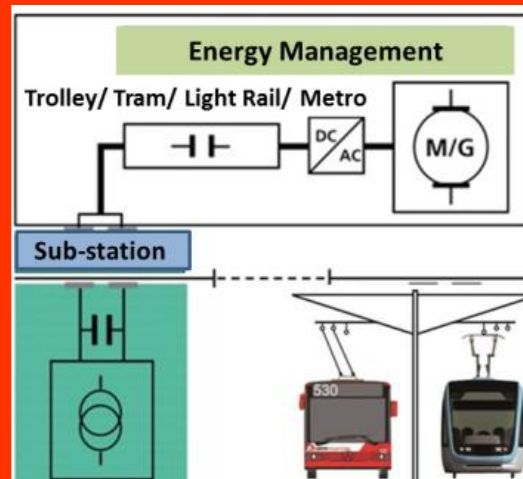
E-buses

Safe integration
into existing electric
PT infrastructure



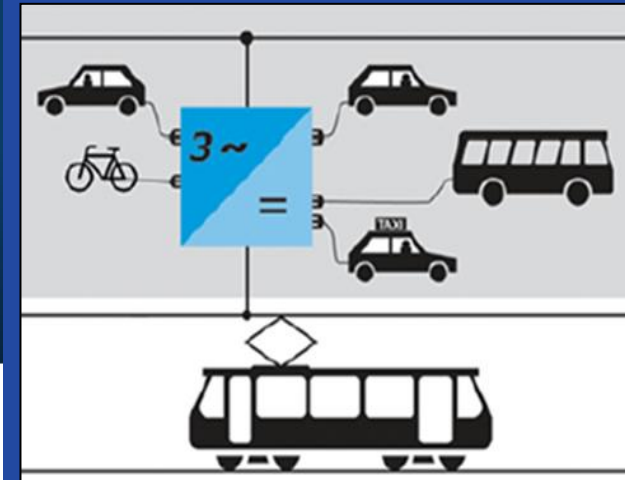
B

Energy efficient electric PT system



C

Multi-purpose use of electric PT infrastructure



Electric buses tested in real life at BSAG

18m battery bus long range



2016:

2 12m full electric battery buses (SILEO and EBUSCO)

1 18 m SILEO full electric battery bus

Charging at combined tram/ bus depot

Electric buses in regular service in Oberhausen



2015:

2 12m battery buses(SOLARIS Urbino 12),
charging at tram stop and tram substation

Battery-trolley-hybrid without overhead wire



Extended service on regional route without overhead wire
Tests of automated wiring and de-wiring for more flexibility in
Eberswalde, Szeged and Gdynia

Battery buses in regular service at TfL



22 x 12m buses plus double deckers in regular service from different OEMs (e.g. IRIZAR)
From 2020 on all 300 buses operated in the ULEZ must be battery electric or hydrogen powered

Energy efficient tram / metro



Source: www.tickettokyoto.eu/en

2014: Energy storage in tram substation in regular operation

2016: Feasibility study on potential to extend recuperation through braking in Brussels

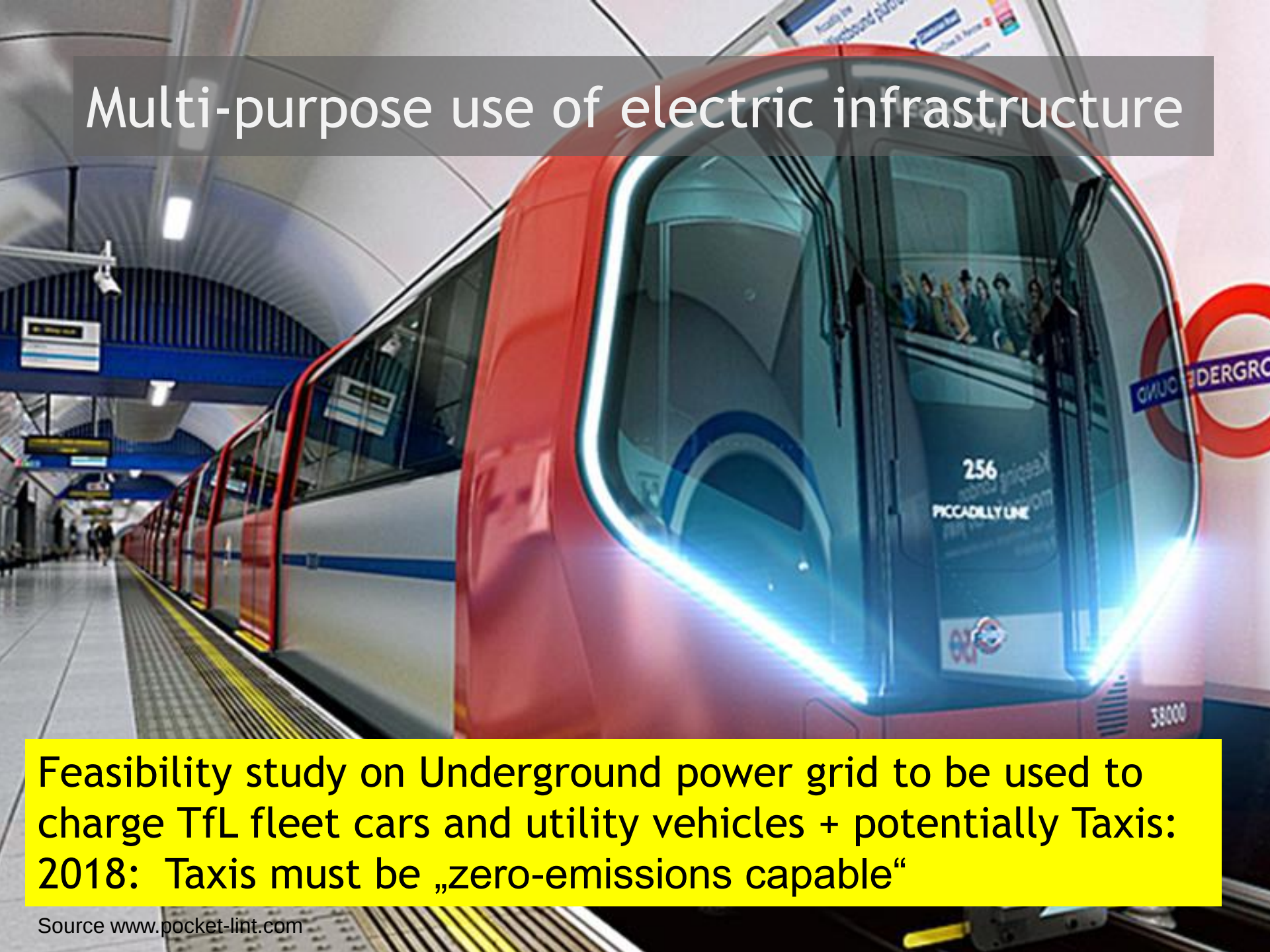
2017: Feasibility study on potential to extend recuperation through braking in trolley network in Gdynia

Multi-modal (e-)mobility



Public transport + Carsharing in Bremen by BSAG and MOVE
ABOUT
Feasibility study of further stations // on integration in existing
network

Multi-purpose use of electric infrastructure



Feasibility study on Underground power grid to be used to charge TfL fleet cars and utility vehicles + potentially Taxis: 2018: Taxis must be „zero-emissions capable“

e-mobility = electric cars ???

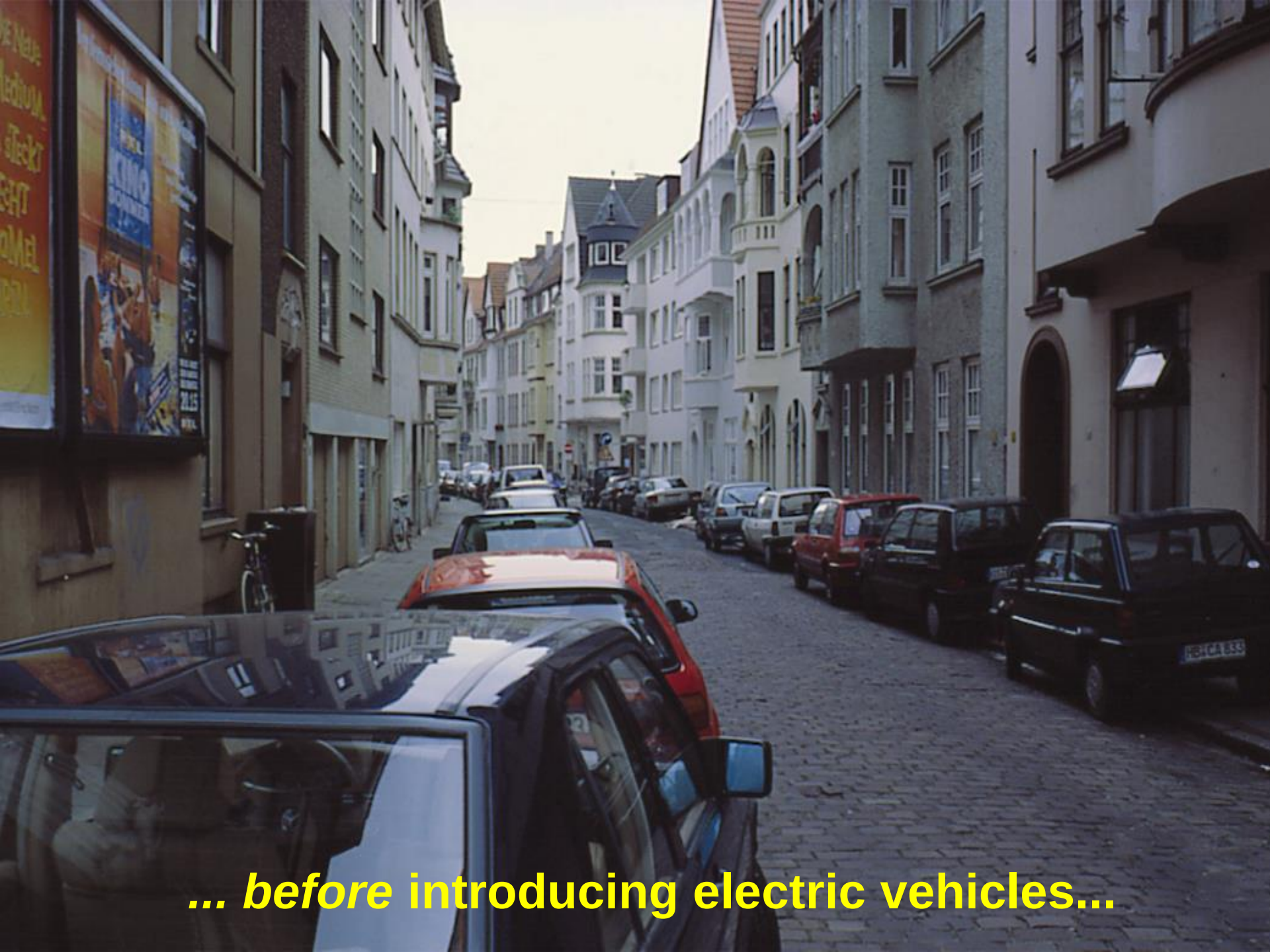




“green” traffic jam = traffic jam!

Electric congestion is **not smarter**
than with conventional cars





... before introducing electric vehicles...

The use of street space is **not smarter** than with conventional cars



...after introducing electric vehicles...

Factor 100

Passenger car

< 1 hour

Small (- medium)

50 - 60% Diesel

Diesel: $PM_{10} + NO_2$
Gasoline: low

500 l gasoline/
Diesel

~ 1,2 to

Daily usage

Engine size

Fuel

local pollutants

Annual fuel
consumption

CO_2 emission p.a.

Bus (18m)

12 - 16 hours

big

95 – 98 % Diesel

Diesel: $PM_{10} + NO_2$

40,000 l Diesel

~ 100 to

Total impact

Equals to app.
100 electric
passenger cars

Factor 100

x 100



< 1 hrs/d

...but not 100
fold financial
support!



12-16 hrs/d

Factor 100



Besides indirect funding (no / less + operational benefits)
funding

For buses an equivalent support would mean
~ 500.000€ / bus

Germany = 4.000€

Data: 2015/ Germany April 2016



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HORIZON 2020

The EU Framework Programme for Research and Innovation

Thank you for your attention!

Hendrik Koch

Freie Hansestadt Bremen

Senator für Umwelt, Bau und Verkehr

Referent / Projekt-Koordination Nachhaltige Mobilität

hendrik.koch@umwelt.bremen.de

www.eliptic-project.eu

eliptic@umwelt.bremen.de



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