

trolley:2.0

for smart cities

Developmental options of in-motion charging in Maribor

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City bus service in Maribor

trolley:2.0
for smart cities

- 2nd biggest City in Slovenia
- 112000 inhabitants (20000 students, 15000 schoolars)
- 147 m2
- One operator – Marprom
- 21 city bus lines with 230 km total lenght
- 56 buses (capacity - 1.550 sits, 2.246 stands)
- Avarage age of buses 11,3 in 2014; 6,5 in 2017
- 121 drivers
- 2,8 mil km on yearly basis
- Budget 6,3 mil. € (Subsidy 4,1 mil. €)



Context information - Maribor's efforts for electromobility

- first fast-charging station – 2012
- 20 e-car sharing spots (8 e-cars in MB, 140 in Slovenia)
- 20 fast EV charging stations + 6 Tesla EV chargers
- Additional 8 fast EV charging station planned in 2018
- 24 free parking for EV

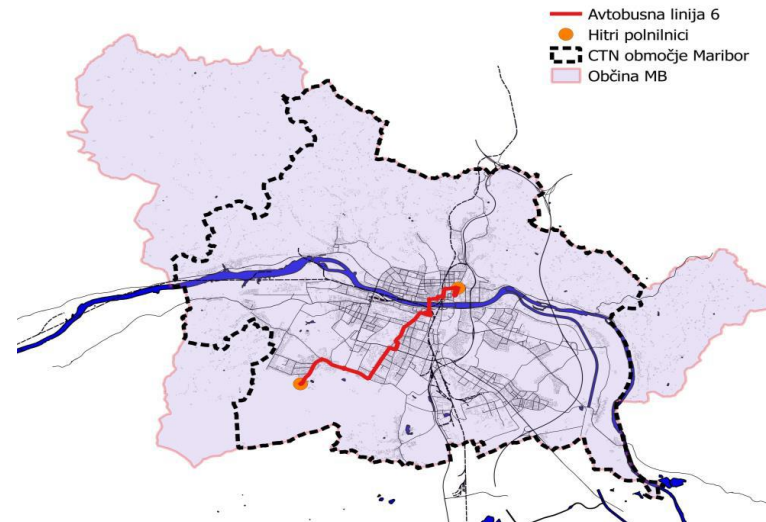


Activities for electrifying PT

- city centre mini e-bus (since 2017)

Electrifying PT line 6

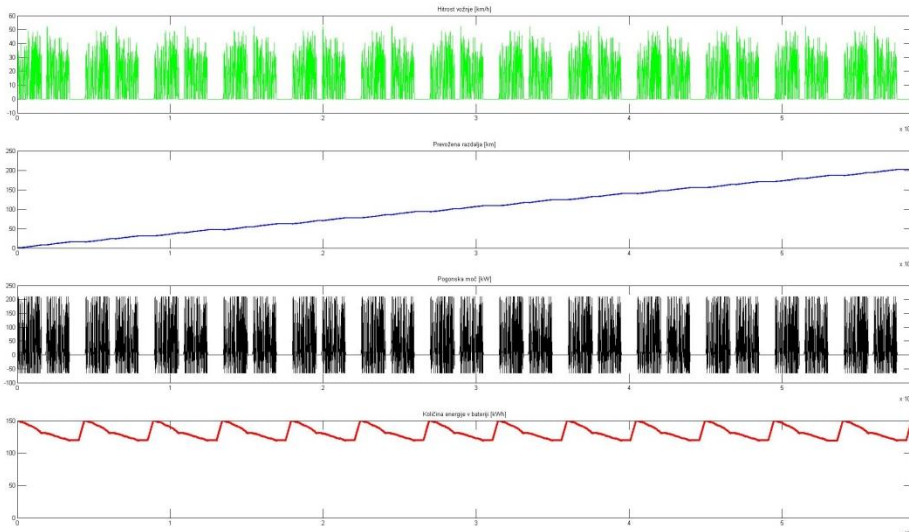
- 5 Plug in hybrid buses – tendering (2019)
- 3 opportunity chargers – tendering – electrifying PT line 6 (2019)
- Full line 6 electrification (future)



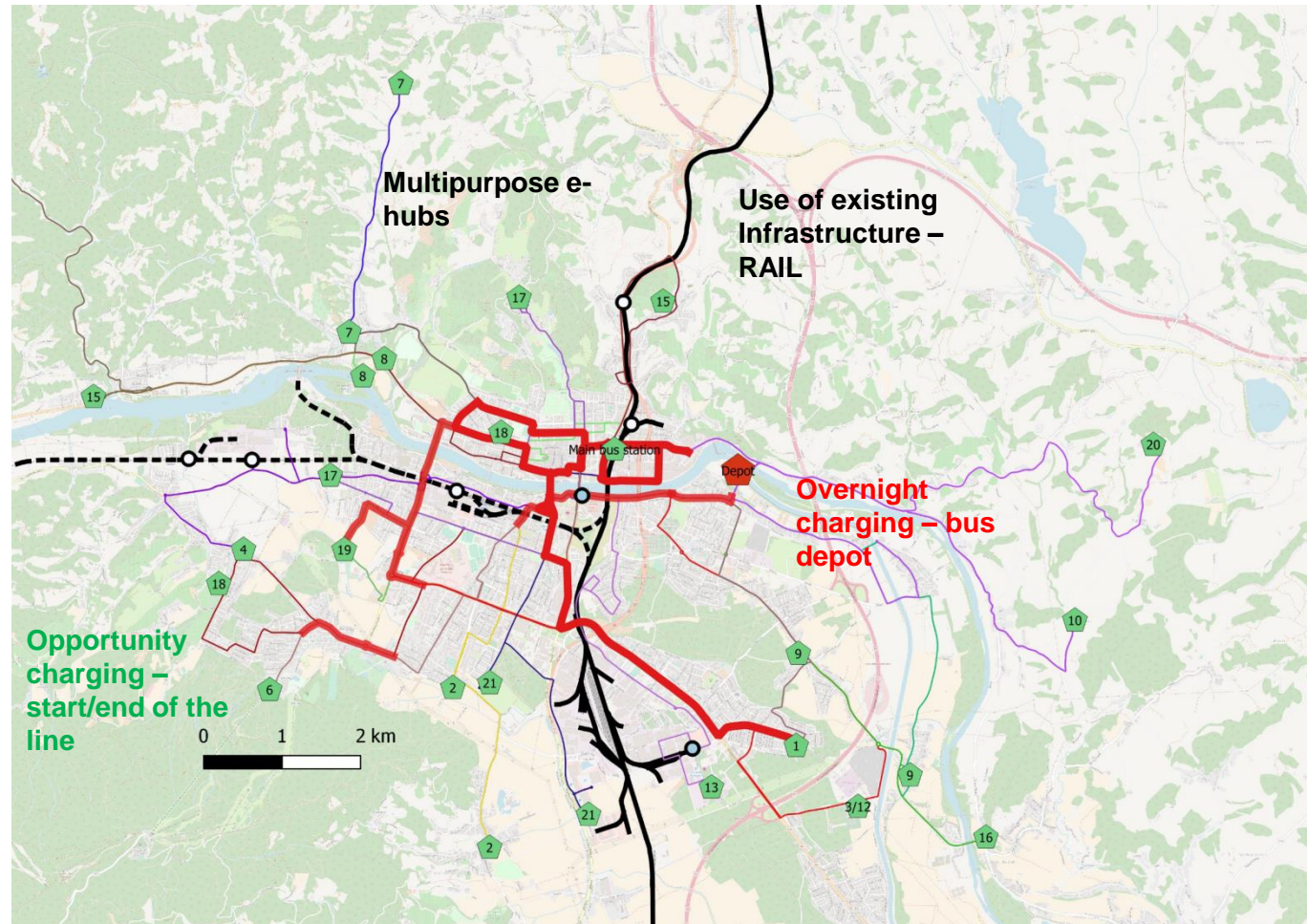
Testing/ Simulation

- Hybrid bus – testing in 2016 – may 2018 in operation
- E-bus - testing in 2017 –
 - average consumption 1,1 kWh/km,
 - impact of heating (up to 1,4 kWh/km),
 - hilly terrain – no higher consumption

A model developed – for PT route 6 and 7 based on driving cycle
Simulation – worst case scenario – 12 m e-bus - on line 6 –
2,4kWh/km need for:

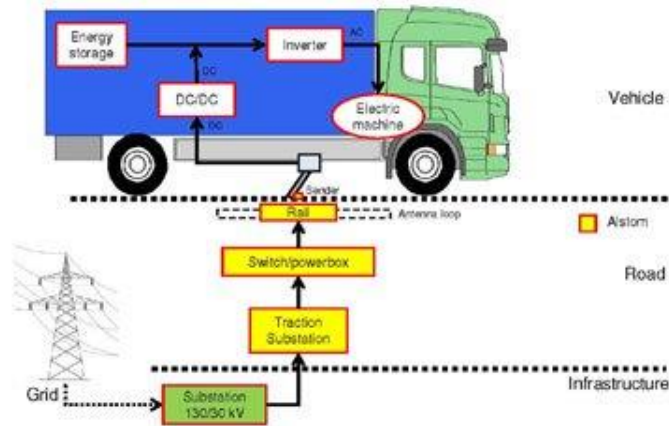


Potential of e-PT in future – project Eliptic



In – motion charging – selection of technology

- Hybrid trolleybus?
- E-roads conductive charging?
- E-roads – Inductive charging?



In – motion charging – developmental opportunities and know how from Trolley 2.0

Learning from best practice examples from cities with no historical development of Trolley network

Review of In-motion charging technologies

- Integration of regional bus network and city bus network through in-motion charging
- In- motion and hybrid charging on rail network
- Opportunity and in-motion charging
- In-motion Charging in city Centre (planning e –roads for PT – identification of future motorised traffic vs. closing city centre for traffic)
- In-motion charging and BRT
- In-motion charging for motorised traffic and PT

Contact

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