

Promoting **clean** public transport

Trolley

Tram – trolleybus synergies in Szeged

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TROLLEY Final Conference



Introduction

- ▶ Traditionally trolleebuses were spreading from the 1920s.
- ▶ Rivalisation or coexistence?



- ▶ There is no single prescription for electromobility.
- ▶ Modern trolleybuses become more flexible, more independent of the wires.

Can we / Should we get rid of the wires?

► Flexibility still has its limits

- far from full electric one day operation with 18 m vehicles

- battery lifetime around 3 years in case of intense use (e.g. Roma)

- new technologies are expensive

Energiedichten Bordenergieträger

(Lino Guzzella, ETH Zürich)



Netto Vortriebsenergie/Energieträgermasse – Einheit kWh/kg



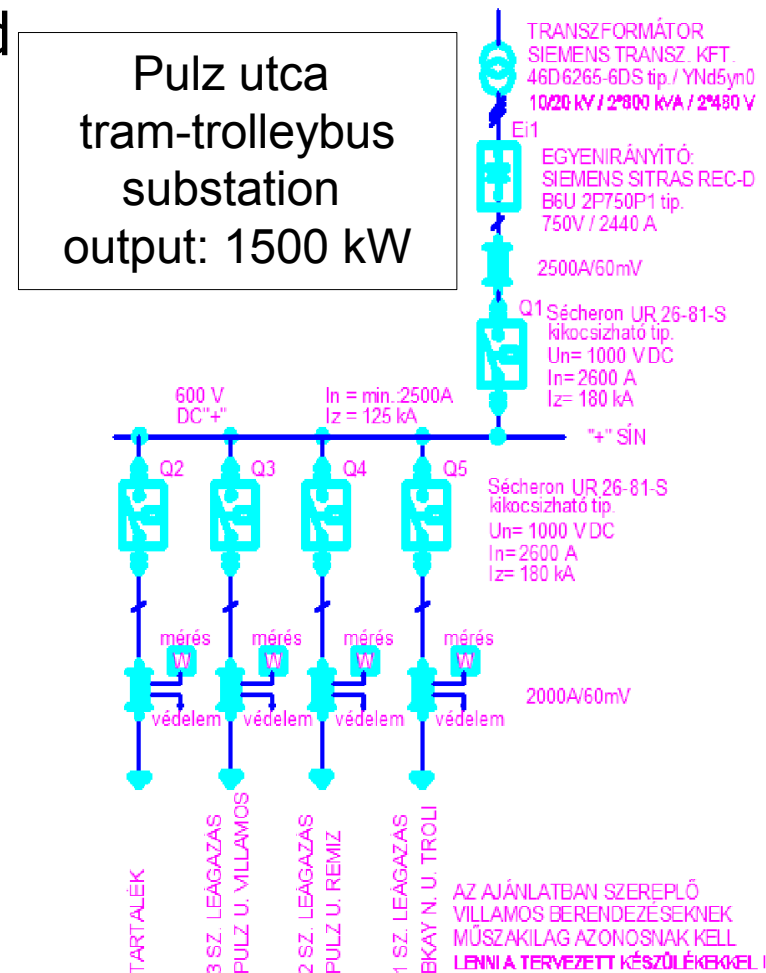
Examples

Many
examples,
historic
and current:



Common tram-trolleybus power supply

- ▶ Traditionally both trolleybuses and trams use 600-750 V DC (even serial hybrids find this voltage!)
- ▶ Common substations, separate feeder cables
- ▶ Recuperation possibility through the substation
- ▶ **Difference** of grounding the negative wire between common tram-trolley substations and separate trolley substations



Common tram-trolleybus power supply 2

- ▶ Catenary maintenance crews can be common with trams and trolleybuses
- ▶ The manufacturing companies also standardize their products
 - cables
 - insulators
 - wall anchors
 - etc...
- ▶ Specific elements for tram-trolleybus crossings



Common tram-trolleybus maintenance

- ▶ Daily maintenance: little cooperation
- ▶ Common workshop activities:
 - Electric – electronic construction
 - Body and chassis mechanical repairs
 - Painting
 - Assembly



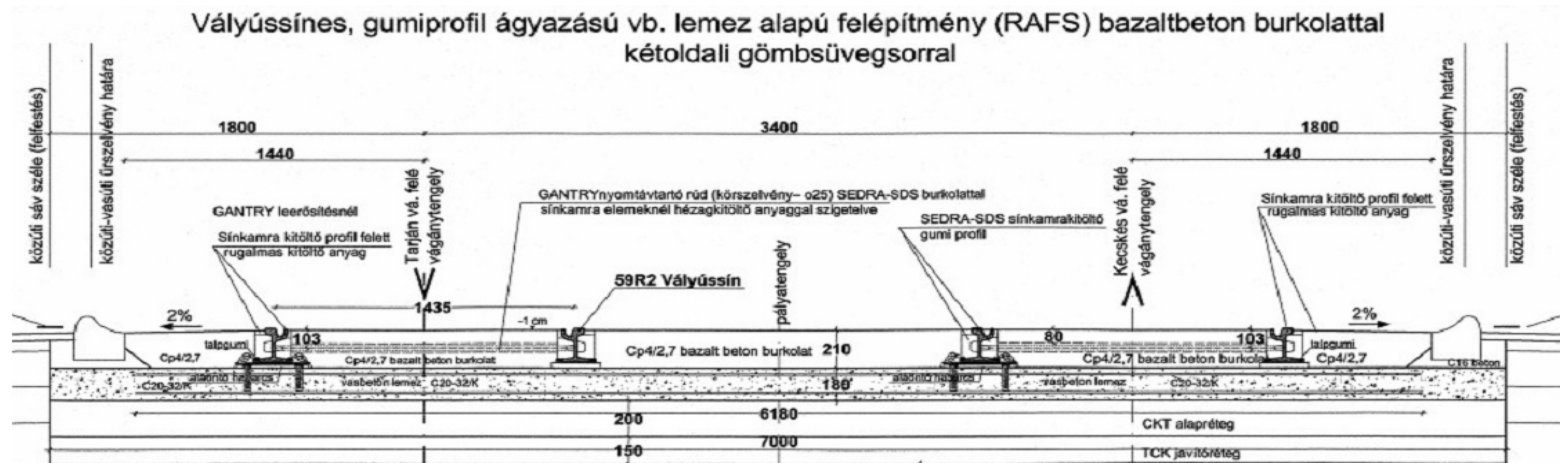
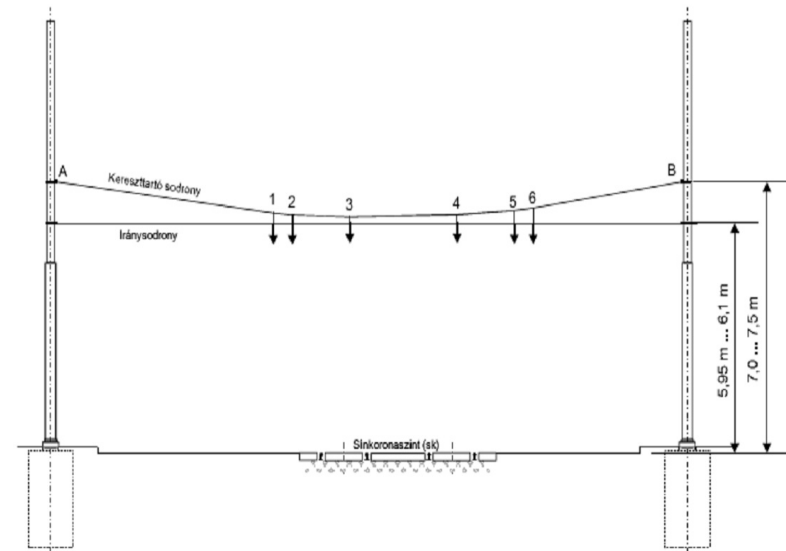
Common tram-trolleybus lane

- ▶ In Szeged we operate a common tram-bus lane since 2004.
- ▶ Since 2010 a trolleybus route runs as well here.
 - + higher speed
 - + better use of public space
 - + traffic lights advantage



Common tram-trolleybus lane 2

- + common tram-trolleybus catenary
- increased wear of the tram track's surface
 - several types of asphalt duration: max. 5-6 years
 - concrete: more durable, problems with cracks



Thank you for your attention!



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