



The future of trolleybuses in Scandinavian cities: the examples of Landskrona, SE and Bergen, NO



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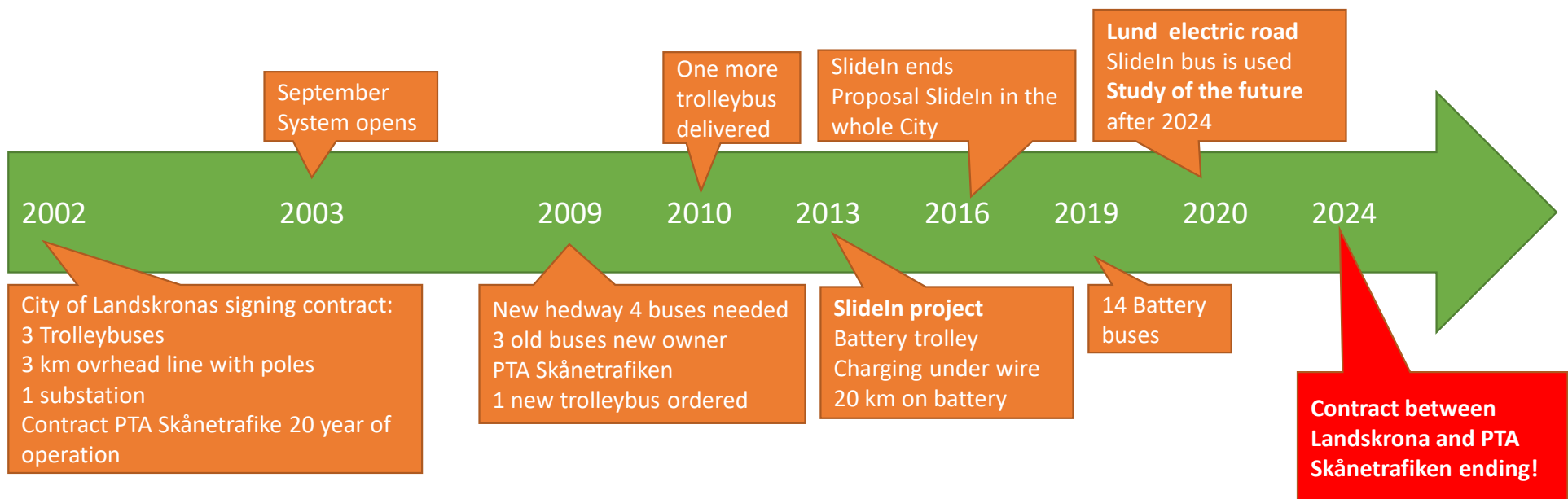


Landskrona, Sweden

Is there a future after 2024?



➤ Three trolleybuses from and the system from 2003.



➤ Trolleybus organisation Landskrona



City of Landskrona:

- Owner infrastructure (Poles, overhead wire and substation)
- Contract with PTA Skånetrafiken

PTA Skånetrafiken:

- Owner of 4 trolleybuses, Slideln IMC trolley and de-icing car
- Responsible for costs of electric spare parts for trolleybuses

Operator Nobina:

- Operation of all city buses including trolleybuses and the Slideln-bus based on a contract with PTA Skånetrafiken (10 year contract)
- Maintenance of trolleybuses, Slideln-bus and de-icing car.
- Costs for bus spare parts.



➤ SliedIn-project First IMC-project?

- Started in 2013
- Charging on the trolleybus line
- Operation up to 20 km on battery
- Ending 2016
- Proposal SliedIn on all City buses
 - 600 + 2700 meter of new overhead wire
 - One more substation
- Battery is still in top condition 2020
- Result 14 depot charging battery buses



➤ Trolleybus Landskrona today and 2024

- Contract ending 2024 between PTA and the City
- Study going on to choose future solution
 - Battery operation 100%
 - IMC operation 100% - need new infrastructure
 - Go on as to day – Trolley / Battery
- In 2024
 - 3 km infrastructure with a life time of at least 20 years more
 - 1 Trolleybus age 14 years
 - 1 IMC-Trolleybus age 11 years
 - Tender for operator the next 10 years

➤ Will there be a future of Trolleybuses in Landskrona?

- Always a discussion when the life time of busses is comming to an end!



*Battery bus
The future?*



*Face lifted
17 year old
trolley*



*10 year old
Trolley*



*SlideIn-bus design
E-road in Lund*



*SlideIn-bus on
E-road in Lund*

trolley:motion
urban e-mobility

*"The future is charging during motion"
PTA Skånetrafiken on opening of E-road Lund*



Bergen, Norway

Expand or die

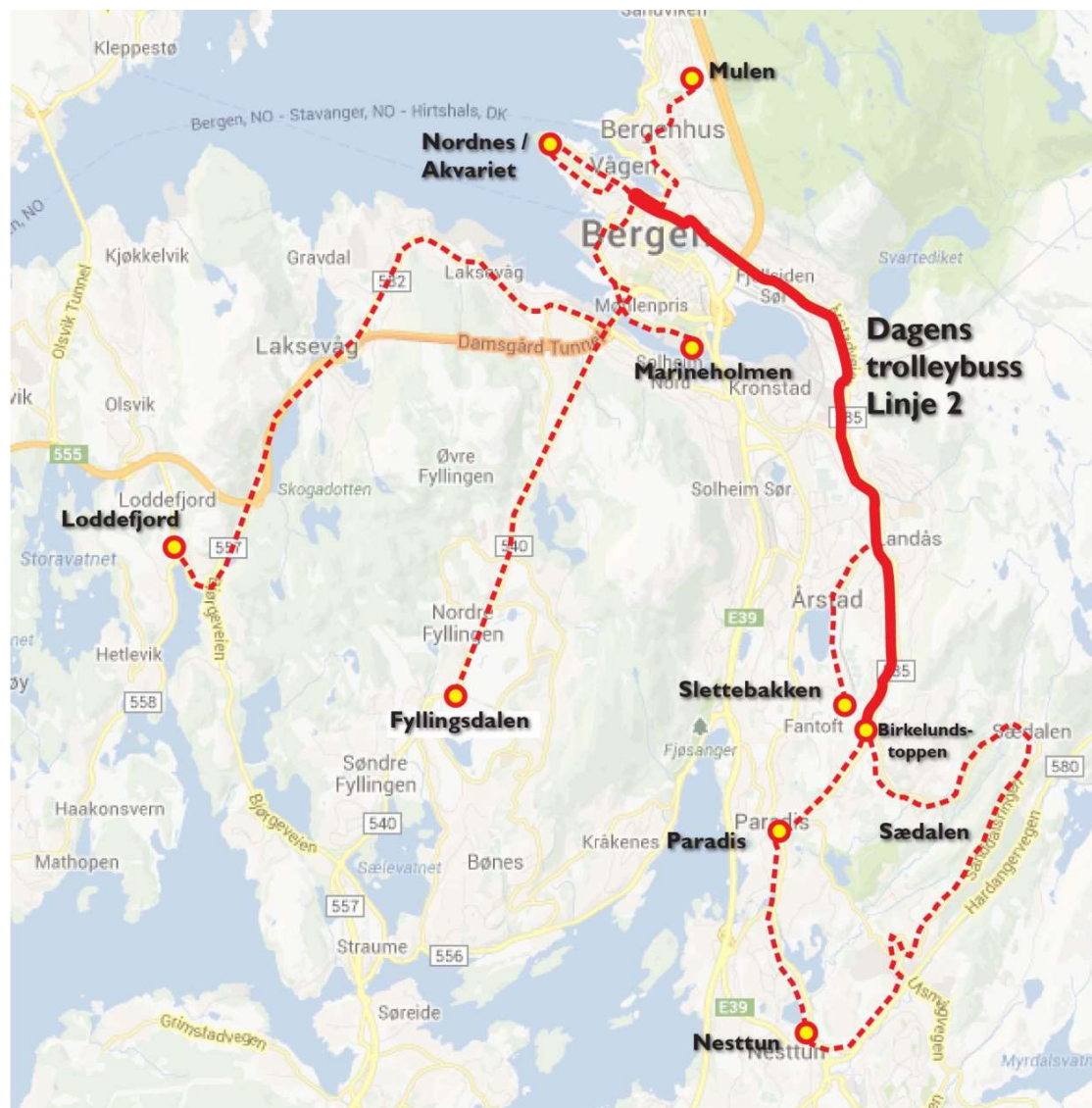


➤ Current trolleybuses from 2003 Trolleybus system since 1950



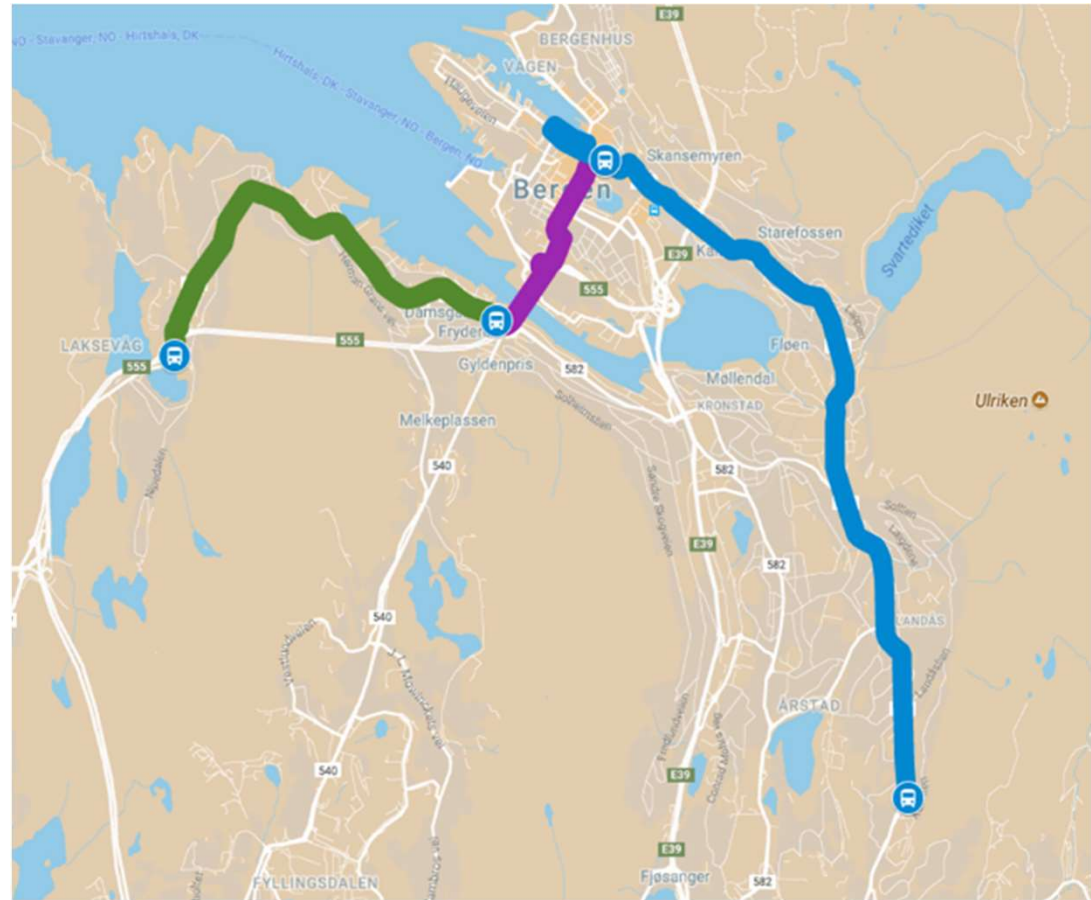
➤ Possibilities

- Many possible extensions investigated
- Use existing infrastructure as a backbone
- Decision to use in-motion charging



➤ Extension to open in 2020

- Existing line, 7 km (blue)
- Battery operations (purple) through the city centre, 2 km
- New infrastructure (green), 4 km.
- Total length, 13 km



➤ Today's Line 2 → Future Line 6

- Existing line 2 will be renumbered to line 6
- Construction of 5 kilometres of new OCL infrastructure including 3 rectifier stations
- Through the city centre with battery operations
- Investment costs for infrastructure about EUR 10 million
- Special assistance from Norwegin government through ENOVA

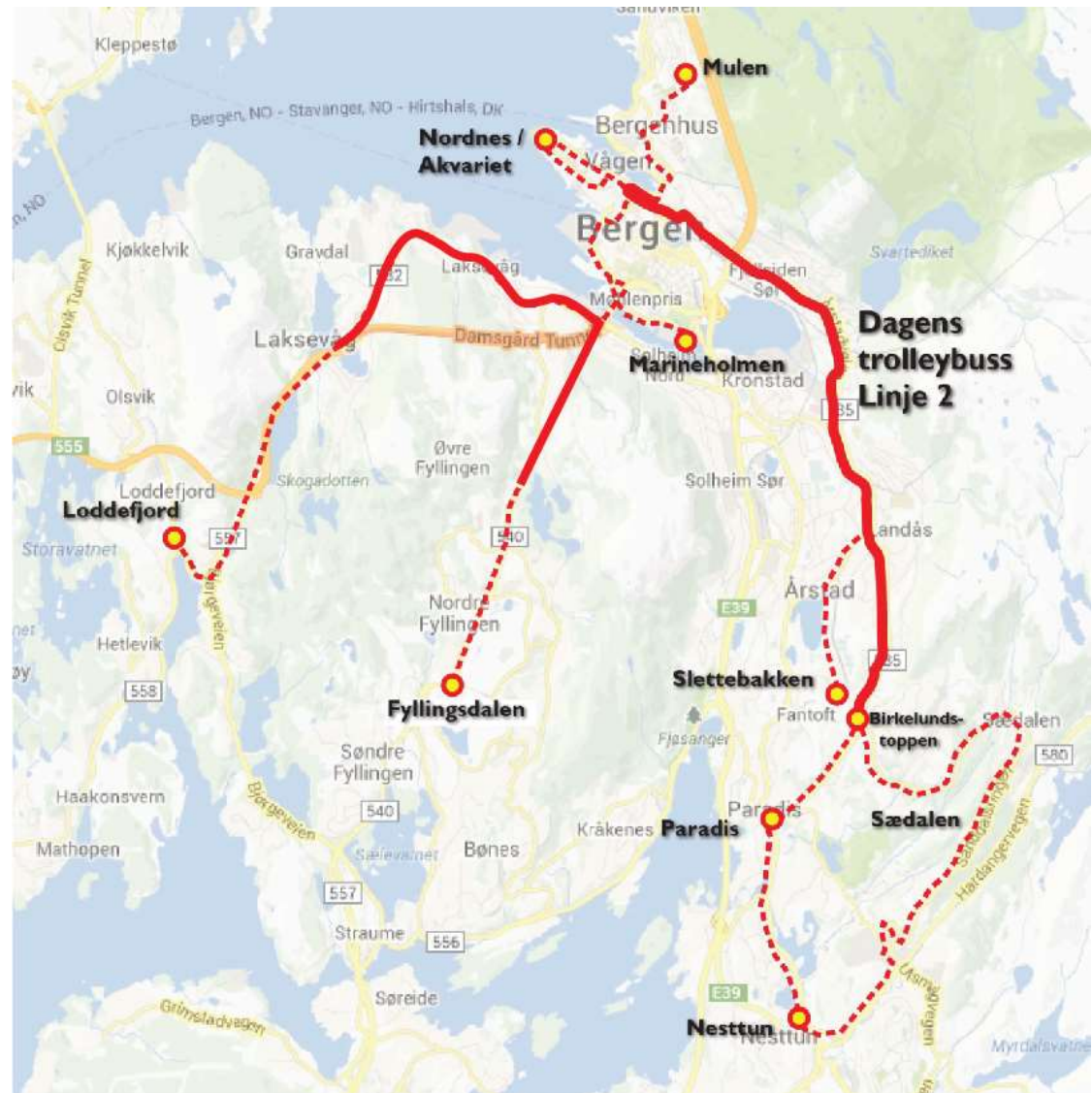
➤ Rolling stock: new buses from Solaris / Skoda

- Solaris / Skoda Electric
- 10 new 18 meter trolleybuses
- Auxiliary power: 55 kWh battery
- First bus arrived in October 2020
- Start of passenger operations
1st Dec 2020 – existing line
- Start of extended operations
– May/June 2021



➤ Future plans

- 11 kilometers of overhead infrastructure can be used by many different bus lines in the next years



Contact information

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