TOSA, Geneva’s innovative electric bus

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Chair of the Board, transports publics genevois

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Transports publics genevois - Facts and figures

- Wholly owned by canton of Geneva
- 1885 employees (1200 drivers, 10% women)
- 550,000 passengers/day (more than entire Geneva population)
- 215 million passengers/year (450 million/year in CFF trains in all of Switzerland)
- 28 million kilometers covered/year (about 77,000 km/day or twice around earth)
- 58 lines covering over 400 km
- 436 véhicules (trams, trolleybuses, buses)
- Operates 7 days/week, 23 hrs/day

Source: chiffres du rapport annuel 2016
Characteristics

Articulated high-capacity electric bus.

Automatic charging structure.

Flash-charging (20 sec) at certain stops.

Longer charging (4-5 minutes) at each end of line.

Full charging overnight.
TOSA

Advantages – Reduction of three types of pollution

- **Air:** 1000 tonnes of CO2/year less compared to a diesel bus
- **Noise:** Much quieter than diesel
- **Visual:** No overhead lines
TOSA

Exemplary public-private partnership

Partners

• Transports publics genevois (tpg)
• Office de Promotion des Industries et des Technologies (OPI)
• Services Industriels de Genève (SIG)
• ABB Sécheron (ABB)
TOSA

Chronology

- 2011  Idea launched
- 2013  Prototype produced by Hess, tested in Geneva
- 2014  Federal Energy Office and Canton of Geneva joined project
- 2017 Dec.  Bus launched, withdrawn for further testing
- 2018 March  Bus launched again after most bugs resolved
- 2018 End May  Twelve buses to be in operation
TOSA

Representatives of partners
Questions
## Annex: Line 23

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<thead>
<tr>
<th>Line 23</th>
<th>Technology</th>
<th>Route details</th>
<th>Benefits</th>
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</thead>
<tbody>
<tr>
<td><img src="image" alt="Bus" /></td>
<td>12 out of 50 stops flash-charging stations</td>
<td>More than 10,000 passengers a day travel on the route</td>
<td>1,000 t reduction of emissions per year for 600,000 km</td>
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<tr>
<td>18.75 m bus length</td>
<td>600 kW 20 sec flash charging</td>
<td>&gt;600,000 km per year</td>
<td>10 decibels noise level reduction Half the noise pollution generated by conventional diesel buses.</td>
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<td>12 buses</td>
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