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Final Conference

14 - 15 September 2022
Hamburg (Germany)

SMART PEOPLE – SMART ECONOMY – SMART CITIES



Focus: e-Busway, an iconic mobility action

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 731297.



Line 4 and e-Busway

Key features

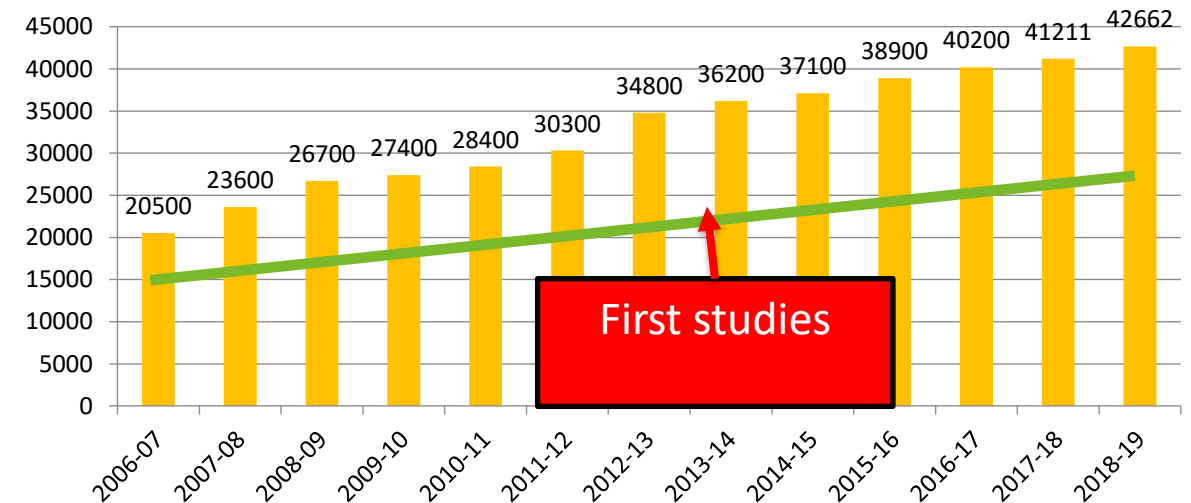
- 7 km – 15 stations
- 95 % priority lane + priority at all crossroads
- 10 X 600 kW opportunity charging stations
- 22 Hess 24,5 m buses with ABB TOSA charging system and 130 kWh battery
- 18 buses in operations at peak period
- 1 bus every 3 min
- 19 operating hours per day
- 80 000 km/month (1 M/year)
- 1 depot with 2 X 600kW charging stations



Main objectives and results of the project

- Increase vehicles capacity → + 35 % passengers / 18 to 24 metres vehicles
- Energy transition → 100% electrical
- OPEX → No impact on operations (automatic opportunity charging)
- → No need of overnight charging at depot

Ligne 4 - Nb montées / jour

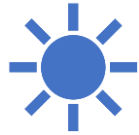


Results



Availability /
Reliability:

+ then ++



Energy
Consumption:

+++



Maintenance:
+ then ++

Robustness in
degraded mode

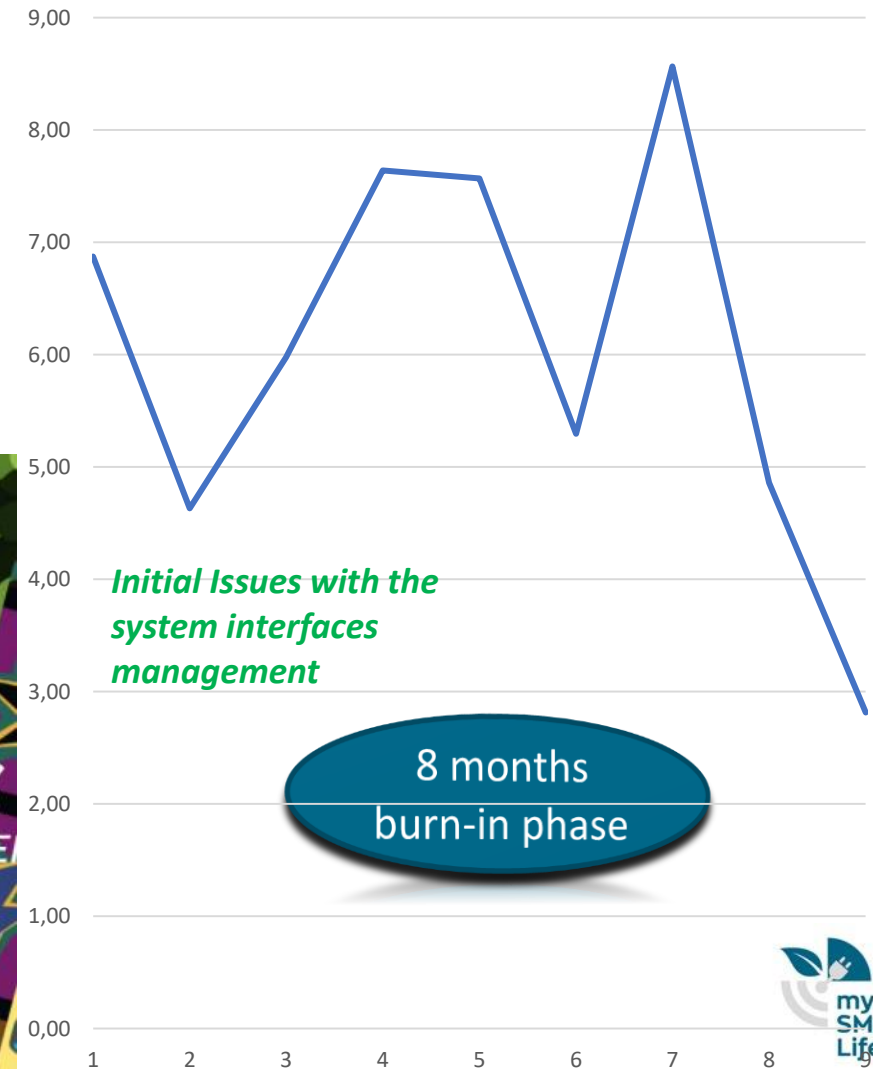
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Noise / Comfort
Urban integration:

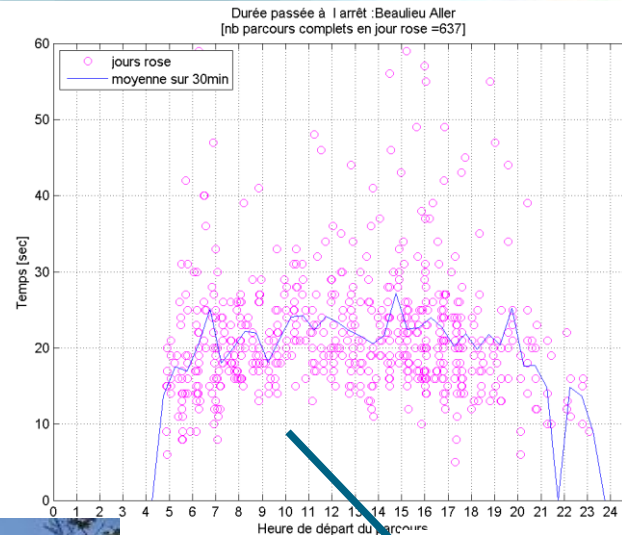
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Monthly failure rate



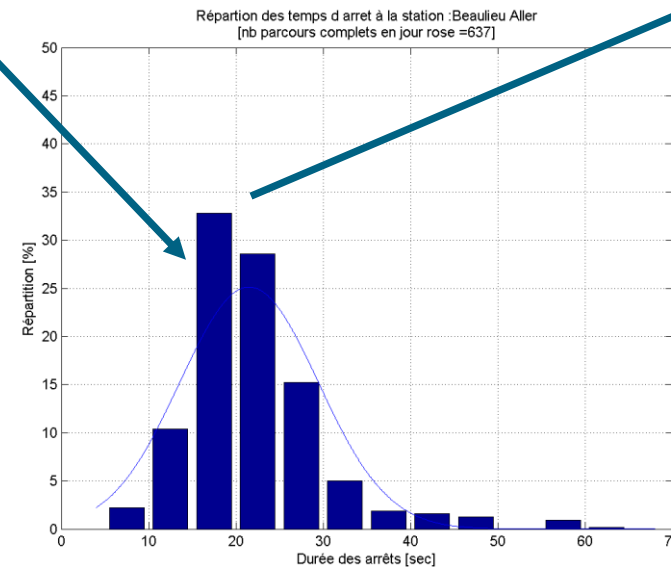
Efficiency of opportunity charging



Energy consumption
as expected
< 3 kWh/km



Station	Average charging time [s]
Grèneraie quai 1	16,86
Beaulieu quai 1	17,2
Foch quai A&B	56,56
Beaulieu quai 2	17,55
Grèneraie quai 2	16,39
Porte de Vertou quai 1,2,3 et 4	152,48
Total	277,04



Average charging
time per rotation:
4'36 at 600 kW

Efficiency of opportunity charging – upgradation?

Yearly consumption : 2,5 M kWh
Power installed : 62 M kWh
4% used

Electric substations:
Permanent operation for limited use
=> overconsumption to reduce

Pooling the power with other uses?
Electric vehicles charging (cars, bikes,...)
in parkings or fueling stations

Thank you for your attention!

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