European Investment Bank

ELENA Completed Project Factsheet

HELSINKI OPEN CHARGING SYSTEM (HOCS)

Location of planned investments	City of Helsinki
Final Beneficiary	Helsinki Region Transport Authority (HSL)
Final Beneficiary's address	Opastinsilta 6A, Itä-Pasila 00077 Helsinki Finland
CoM signatory	Yes (2009)
Sector	Urban Transport
Total PDS costs	EUR 1,620,904.18
ELENA contribution	EUR 1,458,813.76
Project development services financed by ELENA	• Project coordination, project management and capacity building on procurement. • Promotion of market dialogue: involvement of the different bus operators in the metropolitan area. • Technical support to roll-out and project deployment through simulations and analysis.
Description of ELENA operation	Helsinki Transport Authority, HSL, together with the central municipalities in Greater Helsinki, is in the process of electrification of the urban buses. The ELENA facility supported the effort to renew the existing public bus fleet with new electric buses and to establish the required charging infrastructure and to open it to use by heavy public service vehicles (e.g., garbage collection vehicles) and private service vehicles (e.g., freight delivery vehicles).
Timeframe	January 2020 – June 2024
Investment programme description	At project completion, the following investments were mobilised: • 156 electric buses, including the automatic charging interfaces and fast chargeable batteries. The investments were done either by the public transport operators offering transport services, or service providers offering services related to batteries. • 156 Depot chargers: Slow, medium-power or fast chargers for urban buses, trucks, mobile machinery and other commercial vehicles at depots. • 8 Fast chargers: Dedicated power units with one or multiple charging points each. These are for ultrafast opportunity charging and plug-in charging of fully electric urban buses in strategic locations of the transit system.
Investment in implementation phase	EUR 77,983,160.00
Results expected to be achieved	The project contributed to the promotion of clean urban public transport, by means of a modal shift from private car users to cleaner electric buses.

Leverage factor achieved	53.46
Lessons learnt	**Technology development:** Electric bus technology is in a state of constant development, which generates continuous change and uncertainty. Electric bus battery aging speed is still largely unknown as are best practices of what to do when the battery reaches its end of life (should the whole battery be replaced or only the weakest modules or cells?). Electric bus driving range has been a limiting factor from the start, but in just a few years the battery sizes have increased greatly, and it remains to be seen whether the driving range will remain a limiting factor in the future. **Heating:** Heating an electric bus in Finnish climate is challenging. If the heating is done electrically, the range of the electric bus is diminished, while if the heating is done with a diesel-burning auxiliary heater, there are emissions involved. In this project, it has been solved by using biofuel (HVO diesel) in diesel-burning auxiliary heaters, reducing the net CO2 emissions. **Lifetime Aging:** of electric buses remains still to be seen. Also, the aftermarket for used electric buses is a still unknown, as lack of offering leaves the demand and pricing of used electric buses unknown. **Sustainability:** Sustainability themes have shown rise in all sectors of the Finnish society, including public transport, and the adoption of electric buses has changed the bus market in Finland from mostly European to mostly Chinese bus manufacturers. These two factors combined have manifested in increased debate on topics such as raw material sufficiency, sustainability of mining, human rights in production chains and the life-cycle emissions of electric buses compared to other powertrains. **Knowledge building**: The HOCS-project has greatly increased the know-how and understanding of electric buses at HSL. This has led to more ambitious zero emission requirements in public transport tenders than what could have been possible without the project. HSL has also changed their contract terms and tender requirements to focus on the essential issues, thus able to keep the cost level reasonable despite the change in technology.
Further information sources	Only source of information is the Final Beneficiary's reporting
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