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Zero emission buses in the Netherlands



When the Zero Emission Bus Foundation was established in 2012 uncertainties about the technological, operational and financial aspects of battery electric and fuel cell driven buses reigned. They are now on the way towards making sure all public transport buses in the Netherlands will be energy efficient and zero emission by 2025.

ELENA is a program by the European Commission and the European Investment Bank (EIB) to provide grants for technical assistance to ensure successful implementation of energy efficiency, distributed renewable energy and urban transport projects and programmes. To support the ZEB initiative in the Netherlands, an ELENA grant allowed the foundation to hire staff and external advisors to support them in decision making support on business cases and cost calculations had to be improved and developing a new concept of tendering, procurement and contract management.

Getting local authorities to collaborate

Public bus transportation is usually managed by regional and local authorities and a move to zero emission buses (ZEB) further involves operators, suppliers, financiers and various other parties. The technical assistance financed by the EIB helped the foundation to achieve collaboration of transport operators, manufacturing industry and public authorities in the whole transport chain and provide a framework for calculating the lifecycle cost of the new 'normal', and templates for the various transport authorities to procure the ZEB services. These are examples of homework each authority would have had to complete to move forward with the project, and which has now done by a separate entity, without the burden of "how we've always done things", for the benefit of all of them.

A web based Total Cost of Ownership application was created that balances the interests of all parties and includes the social return. A number of investments depend on total cost of ownership "neutrality" between employing ZEBs compared to diesel buses – essentially preferring buses with lower total cost of ownership, regardless of power source. Based on models prepared under the program, first tenders have already been successfully carried out and more than 60 zero emission buses are already in operation in Maastricht and other municipalities in the country. Cost and performance data acquired from the first pilot schemes have been used to establish a baseline for the neutral total cost of ownership measurement and can be used by others in the future.

Leading to substantial investment

Technical assistance under the program is not linked to a loan and does not bind the promoter to working with a specific financier – they must simply prove that investment has been secured. However, the program does stipulate that the project for which technical assistance is granted must lead to an investment at least 10 times the amount of the grant, otherwise the grant must be paid back.

The total related investment level in zero emission buses and in charging infrastructure in the Nether-

lands is planned to reach a level of about EUR 150 million. Strong positive effects will materialize in the near future: the Well to Wheel energy consumption of the total planned 490 buses in pilot provinces of Limburg and Brabant will be reduced to about one quarter of what is used to be leading so important reduction in greenhouse gas and NOx emissions. The emission of PM10 will be limited to the particulate matter of tyres and brakes and noise levels will be reduced considerably. This all has a major positive impact on the health of citizens as well as on reducing climate change. The results of the new zero emission bus concession tenders in both pilot provinces, and the overall success of the Foundation and the achievement of new strategic alliances and business models in Brabant and Limburg have demonstrated that energy efficient zero emission bus transport is already viable by now, and will be even more so in the near future. The project also played a significant role in knowledge transfer to and capacitating of personnel at the provinces. A formal agreement affirming the ambition was signed between the Dutch Ministry of Infrastructure and Environment and the 14 Dutch regional authorities that are responsible for public transport.

The Foundation now will transfer the responsibility to transition to ZEB to the direct responsible parties in public transport. The platform created will remain accessible to realize the objective of energy efficient zero emission bus transport in the years to come.

With ELENA, grants are provided for cost of additional staff or external experts who are preparing project development tasks such as feasibility and market studies; programme structuring; business plans; energy audits; financial structuring; preparation of tendering procedures and contractual arrangements. This should lead over a time frame of four years to the implementation of mature investment projects with total investment costs of at least EUR 30 million. Smaller projects can be supported when they are aggregated into larger investment programmes. ELENA's annual budget for grants for urban mobility projects is around EUR 5-10 million. Further information about the ELENA facility are available on the dedicated web site www.eib.org/elena.