



## ELENA Completed Project Factsheet

### The Zero Emission Buses in Netherlands

<b>Location</b>	The provinces of North Brabant and Limburg, the Netherlands
<b>Beneficiary</b>	Zero Emission Bus Transport Foundation (ZEB)
<b>CoM signatory</b>	Yes (The cities of Helmond, Eindhoven, Breda, 's-Hertogenbosch and Tilburg in the province of North Brabant have signed the CoM in 2009)
<b>Sector</b>	Public transport
<b>Total PDS costs</b>	EUR 2 335 000
<b>ELENA contribution</b>	EUR 2 102 000
<b>Project development services financed by ELENA</b>	<p>The main parts of PDS included :</p> <ul style="list-style-type: none"> <li>• Development of decision support system (Total Cost of Ownership analysis) including business cases and financial models</li> <li>• Development of standardised procurement strategies and procurement documents</li> </ul> <p>Furthermore also program coordination, investment validations and assessments of legal impacts on tax and finance were part of PDS.</p>
<b>Description of ELENA operation</b>	The ZEB Foundation hired specialist consultants to support them to organise, coordinate, procure and facilitate all relevant actions and expertise in order to realise all investments in the provinces of North Brabant and Limburg implementing successful tenders for Public Transport concessions featuring large-scale zero emission investments.
<b>Timeframe</b>	2012 – 2016
<b>Basis for investment identification</b>	<p>In the previous research phases, all partners and stakeholders of the ZEB Foundation are contributing to the proof of principle of the proposed TCO, business and service provider models, and have proven the economic feasibility and bankability of the envisaged new business models within Zero Emission concessions, through representatives of the Dutch Association of Banks (NVB).</p> <p>Representatives from PTO's, automotive supply chains and OEM's have confirmed the feasibility of the proposed production of series of electrical bus configurations for The Netherlands. Main other technical issues have been solved i.e. available power trains, battery stacks, and (fast) charging systems. The main types stakeholders that have been contributing to the ZEB.</p>
<b>Investment programme description</b>	<p>The objective of the project was to replace the complete fleet of diesel buses currently used in the province of North-Brabant and Limburg by Zero Emission Buses.</p> <p>A total of 489 Zero Emission Buses were included in the investment programme.</p>
<b>Investment in implementation phase</b>	EUR 150 000 000
<b>Expected results</b>	The annual reduced emission of CO <sub>2</sub> is estimated at some 63 000 eq. t per if the energy source would be 100% renewable, but with the current mix of the Netherlands, an annual reduction of some 32 000 eq t. can be expected

<b>Leverage factor</b>	71
<b>Lessons learnt</b>	<ul style="list-style-type: none"><li>• The project was very successful in enabling not only authorities and operators, but also manufacturers and suppliers in the working groups of the projects. By doing so, all valid interests were taken into account and facilitated a constructive process for the project developments;</li><li>• The concept of Total Cost of Ownership (TCO) was a key driver in designing and developing a decision support tool for economics and financing, especially since the differences between capital expenses and operational expenses for different types of bus technologies were not visible and transparent;</li><li>• The development of standardised procurement documents enabled deployment of smaller fleets of zero emission buses which was needed in order to obtain a better knowledge of the available technical solutions. An approach of scalable pilots turned off to become a successful method for deployment of zero emission buses.</li></ul>
<b>Further information sources</b>	<a href="https://www.youtube.com/watch?v=lr_a03hGcog">https://www.youtube.com/watch?v=lr_a03hGcog</a>
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