

# OUTPUT FACT SHEET

## Pilot actions (including investment, if applicable)

Version 3

<b>Project index number and acronym</b>	CE1444 InterGreen-Nodes
<b>Output number and title</b>	Output O.T3.2 “Highly visible and practical development and demonstration of technical solutions” for Deliverable D.T3.2.2: Full electric Terminal Pilot in Berlin
<b>Investment number and title (if applicable)</b>	N/A
<b>Responsible partner (PP name and number)</b>	PP4 BEHALA
<b>Project website</b>	<a href="https://www.interreg-central.eu/Content.Node/InterGreen-Nodes.html">https://www.interreg-central.eu/Content.Node/InterGreen-Nodes.html</a>
<b>Delivery date</b>	30.06.2022

**Summary description of the pilot action (including investment, if applicable) explaining its experimental nature, demonstration character and transnational added value**

Main Challenge: Mitigate CO<sub>2</sub>-emissions of port operations, by introducing electric vehicles and demonstrate the viability of electrifying numerous processes along the complete added value chain. The specific InterGreen-demonstrator-elements are situated in the Berlin Westhafen-port, operated by BEHALA.

They consist of:

- Electric rail-shunting Vehicle
- Electric Crane
- Electric Terminal Tractor, that doubles as a 40 t road vehicle
- Electric general purpose cars
- Electric utility van (for use by maintenance personnel, equipped with maintenance tools)

Transnational value: As all pilot actions in the project, the demonstrator is easily transferable to any city with a transshipment point in or close to the city. The transnational value is raised through the common development and discussion of demonstrators, allowing ports in other countries to easily adapt the demonstrator.

All vehicles used in this demonstrator, are battery electric. As opposed to other drive-train- and energy-storage-solutions, it is not necessary to install large Meta-infrastructure for the operations of battery-electric vehicles, as the electric grid for recharging electric vehicles is already in place, while other solutions would need their own supply and production infrastructure (e.g. for hydrogen or bio-methane).

**NUTS region(s) concerned by the pilot action (relevant NUTS level)**

DE300, Berlin

**Investment costs (EUR), if applicable**

N/A

### Expected impact and benefits of the pilot action for the concerned territory and target groups and leverage of additional funds (if applicable)

Emission-effects, are expected to fall considerably, by up to 90% (depending on the concrete use case).  
**HIGH EFFICIENCY** in urban areas: Electric motors provide their maximum torque across the complete performance spectrum, enabling quick accelerations at any speed, while conventional engines only provide maximum torque over a certain rate of rotation. Practically this means, that an electric motor can accelerate with less energy-demand than a conventional motor. This leads to a lower energy-demand, especially in urban environments, where vehicles have to decelerate and accelerate often.  
**REDUCED NOISE EMISSIONS** could allow for new logistics concepts: e.g. night deliveries in urban areas for example to stores. It also allows for direct delivery into buildings, for example: transportation of trailers with production material, directly to production/assembly lines, without additional transshipment at a loading dock. Tough loading and unloading can still emit noise, this noise can be minimized by technical solutions (rubber wheels on transport carts, rubber buffers etc.). The relative quietness of electric vehicles can make them a hazard, when other road users (mainly pedestrians and cyclists) are not able to hear the electric vehicle. Technical solutions, such as noise emitters are currently being discussed.

No uptake on an institutional level, but not expected due to character of the protect. An uptake at policy or institutional level is not applicable for this demonstrator.

The demonstrator is already full scale, but uptake through other ports is possible and that could leverage additional funds.

### Sustainability of the pilot action results and transferability to other territories and stakeholders

The demonstrator was developed into a sustainable business model. The Berlin use case will keep existing far beyond the projects end.

The demonstrator is easily transferable to any city with a transshipment point in or close to the city.

All other users of (short range) commercial vehicles as well as operators of different shunting and other transshipment equipment operator.

A general step-by-step process for the selection and operationalization of electric vehicles has been developed. A detailed report on the lessons learned is available could be downloaded from: [https://www.interreg-central.eu/Content.Node/InterGreen-Nodes/CE1444-InterGreen-DT3.2.2-Report-\(2022-06-16\).pdf](https://www.interreg-central.eu/Content.Node/InterGreen-Nodes/CE1444-InterGreen-DT3.2.2-Report-(2022-06-16).pdf)

If applicable, contribution to/ compliance with:

- relevant regulatory requirements
- sustainable development - environmental effects. In case of risk of negative effects, mitigation measures introduced
- horizontal principles such as equal opportunities and non-discrimination

All relevant regulatory requirements have been complied with. These were mainly connected to obtaining the necessary national permits to operate the vehicles.

Emission-effects, are expected to fall considerably, by up to 90% (depending on the concrete use case). High efficiency in urban areas: Electric motors provide their maximum torque across the complete performance spectrum, enabling quick accelerations at any speed, while conventional engines only provide maximum torque over a certain rate of rotation. Practically this means, that an electric motor can accelerate with less energy-demand than a conventional motor. This leads to a lower energy-demand, especially in urban environments, where vehicles have to decelerate and accelerate often. Reduce noise emissions could allow for new logistics concepts:

No negative environmental effects are expected.

There is no risk of negative environmental effects, so no mitigation measures have been introduced. “Sustainable Development” is the only horizontal principle integrated into the demonstrator.

References to relevant deliverables (e.g. pilot action report, studies), investment factsheet and web-links

If applicable, additional documentation, pictures or images to be provided as annex

Demonstrator has been reported as Deliverable D.T3.2.2: Full electric Terminal Pilot in Berlin

Report:

[https://www.interreg-central.eu/Content.Node/InterGreen-Nodes/CE1444-InterGreen-DT3.2.2-Report-\(2022-06-16\).pdf](https://www.interreg-central.eu/Content.Node/InterGreen-Nodes/CE1444-InterGreen-DT3.2.2-Report-(2022-06-16).pdf)

Handbook Part 3 Vehicles:

<https://www.interreg-central.eu/Content.Node/InterGreen-Nodes/CE1444-D.T3.3.3-Part3-Vehicles.pdf>