# Management summary

**Introduction:**

The Dutch Ministry of I&W granted a subsidy of about €0,5 mln by the end of 2021 to the Port of Rotterdam, Port of Amsterdam, the Royal Association of Dutch Shipowners (KNVR) and Stenaline. Within this program, various projects were initiated on innovations and implementations of Shorepower for seagoing vessels aiming and optimizing the shorepower network for inland shipping as well. Within project 3 “Smarter Shorepower Solutions” possibilities were investigated to improve the shorepower business cases for implementation.

Implementing shorepower connections require significant investments. Production, consumption and storage need to be resourcefully combined to make a shorepower implementation more viable. The main goal of this project was to discover new ways to improve the business case for shorepower.

**Approach:**

For this project Exlence – a strategic advisory firm – was involved, bringing in experience in both the naval- as in the energy industry. Together with Darel – also a Dutch consulting firm with a broad experience in the naval industry – current business cases of shorepower were analysed, reveiling the merites originating from the scope, ingredients and approach of the current way of working. Based on this analysis, the steering committee of the program agreed upon developing a business case tool in cooperation with Stratergy, a bureau focused on development, financing and exploiting durable projects within the energy transition. After developing a new approach of the business case and a tool to operationalize, Exlence concluded the project in delivering the final report of the project including improved business cases.

**Analysis & Findings:**

In analyzing current business cases various possibilities to improve the business case occurred, both on shoreside as on board of the vessels. As technical developments towards standardization are already in scope of projects, this project mainly focused on the financial side.

The main finding of analysis was that the volume included in the business cases needs to increase, regardless of the utilization of the shorepower connection by ships, otherwise the pace at which ships are electrified remains the limiting factor. Including batteries into the shorepower configuration adds a new beneficial element to the business cases of shorepower, as batteries can be exploited for more purposes than only serving the ship with relatively cheaper electricity. The idea is that operationalization of a battery on on the imbalance market and frequency market generated income based on the availability of battery capacity, which sometimes leads to the actual delivery to the grid by unloading. Taking the increasingly available capacity in batteries into account and therefore a possibly decreasing benefit from this way of exploiting a battery, it appears to be still a significant positive factor in the total business case for the next 7-8 years giving the market enough time to make the turnaround toward electrification to generate sufficient revenue from ships.

As part of the project, a business case tool was developed including this new factor and proving the theory in actual practice. Looking further ahead, the exploitation of batteries could be extended towards the electricity market as well, day ahead as well as intraday, but probably also within local markets targeted at balancing local grids arbitraging on price levels in cases of scarcity. Adding this element – for which the new Distro initiative from Rotterdam seems promising – is expected to improve the business case even further.

The energy market is moving towards more flexibility. Making a shorepower installation including batteries part of this movement opens up new possibilities to integrate and exploit (storage) facilities linked to the shorepower installation and further improve business cases.

Kennard Brandenburgh

Exlence