Shore Power

With mobile batteries

Greener
Power Solutions

Why use shore power?

- Marine generators can be switched off when a vessel is docked at the quay side.
- Improved air quality (less CO2, nitrogen and particulate matter).
- More sustainable sailing.
- Less noise and odor for both residents and crew.

Why use mobile batteries for shore power?

- When the vessel's power connection exceeds the capacity of the shore-based connection
- When there is uncertainty regarding the grid's ability to meet energy demand
- When no grid connection is available at a location, a battery can be utilized in combination with a (sustainable) energy source to provide reliable power.

Greener Power Solutions

- Global market leader in the rental of mobile batteries and controlling local energy systems.
- A fleet of more than 100 batteries.
- More than 250 completed projects in the Netherlands and the rest of Europe.
- Completed 10+ shore power projects. Rotterdam, Genemuiden, Druten and Eindhoven being a few of the locations where these took place.
- Actively involved in various sectors: construction & infrastructure, events, grid congestion and EV charging being the main sectors.

Savings

In diesel, CO2 and generator running hours
till November

2.809.962 L

9.075.000 KG

180.154 hours

Our mission ‘25

Eliminate the carbon footprint of (temporary) energy markets through provision of mobile batteries and EMS software.

Greener Services

Greener Batteries

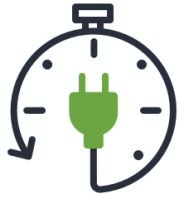
Batteries used at location to reduce the carbon footprint of the energy system.

Greener Energy Management System

Controlling software ensuring that local energy sources are used optimally, with a central role for the battery.

Greener Projects

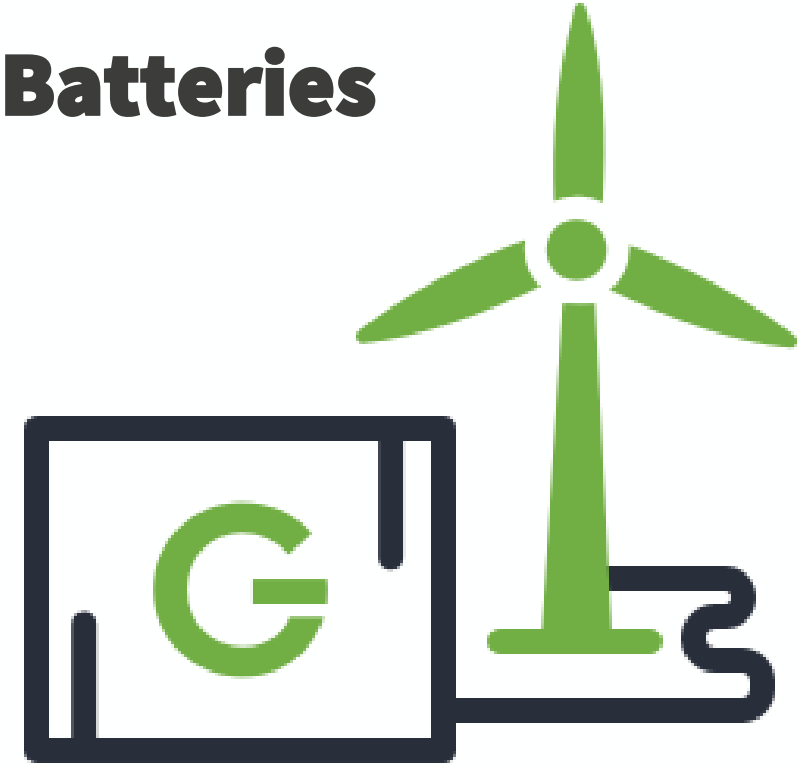
Insights in usage and achieved savings in online customer dashboard.



Greener Support

Greener is here to assist you in all phases during project execution.

The Batteries



Battery Specifications

Type 1;
Capacity: 318 kVA / 336 kWh
Battery Technology: Li-ion NMC BMW technology
10 ft. reefer, 8200 kg: Sustainable, reliable and easily transported

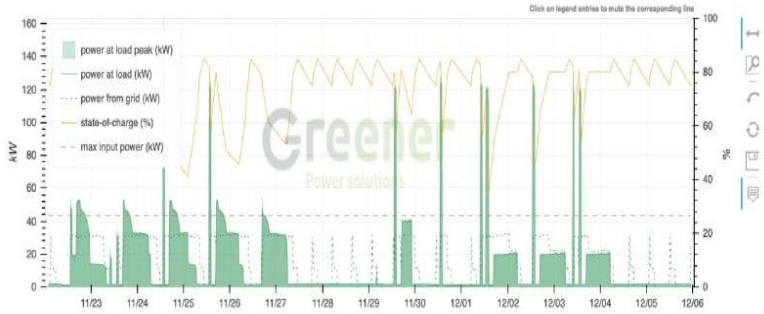
Type 2;
Capacity: 318 kVA / 422 kWh
Battery Technology: Li-ion NMC BMW technology
10 ft. reefer, 9000 kg: Sustainable, reliable and easily transported

Type 3;
Capacity: 225 kVA / 281-561 kWh
Battery Technology: Li-ion NMC Northvolt technology
2500-6000kg: Modular and easily transported, AC and DC loose components

Energy Management System

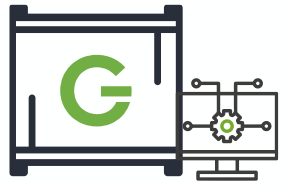
Greener Energy Management System

Controlling & regulating software for the complete energy system to utilise batteries and other sources of energy as efficient as possible.



- Control / Regulate complete energy system:
  - Peakshaving
  - Cycling with battery
  - Loadshare with grid
  - Endlessly varying set ups

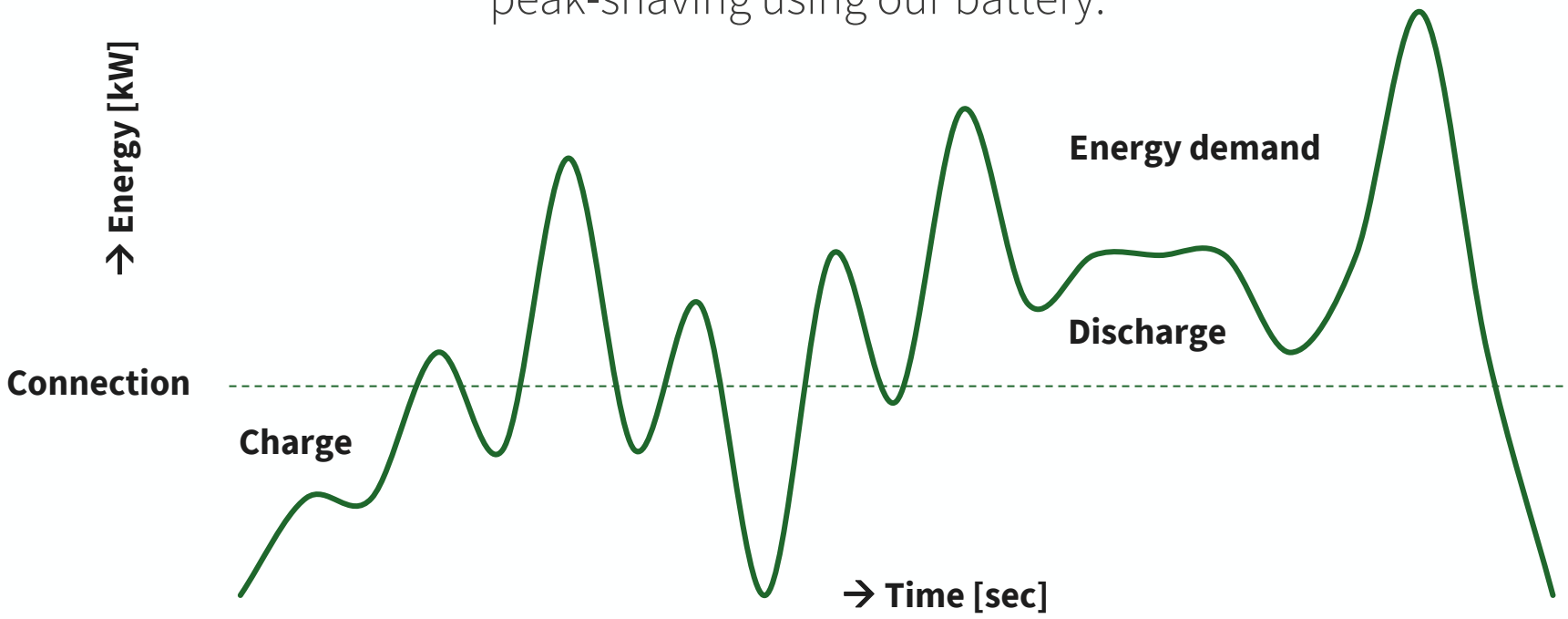
- Integration of various energy sources
- Remote monitoring and controlling
- Connect unlimted amount of energy assets
- Both a bespoke EMS and standard EMS are possible



Peak-shaving explained

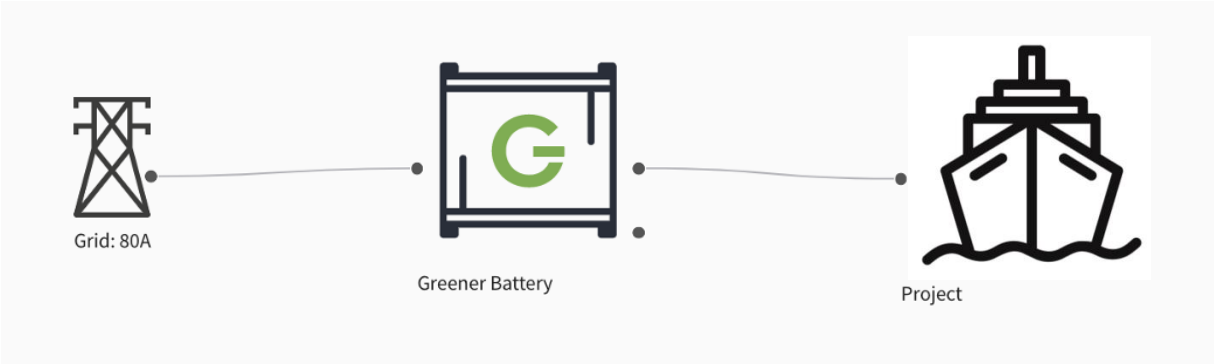
Read more about peakshaving, or have a look at this video.

Get more out of the available shore connection by peak-shaving using our battery.



The energy demand of the vessel is not constant, and can fluctuate depending on various factors such as the operation of cranes, cooling systems, and accommodation usage. If the demand exceeds the capacity of the power connection, the vessel's battery is used to make up for the shortfall. On the other hand, if the energy input exceeds the demand, the battery is charged. By capturing these peaks in energy demand with the battery, the vessel can avoid the need for a larger and more expensive power connection.

Greener EMS software – Set ups



Peak-shaving on the grid

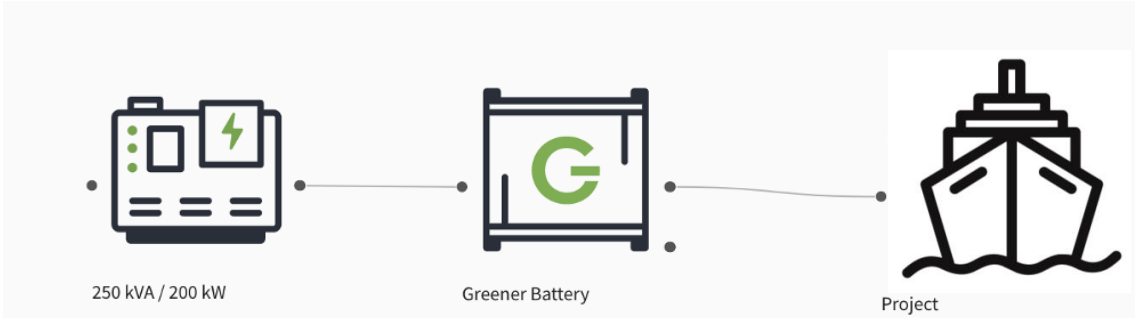
Maximum usage of the grid connection, where the battery charges and discharges at the right moment.

Savings CO2 & diesel: 100%

Cycling with a generator

The software ensures the most ideal generator setpoints such that maximum savings are achieved. The battery decides when to cycle and when to peak-shave.

Savings CO2 & diesel: 30-60%

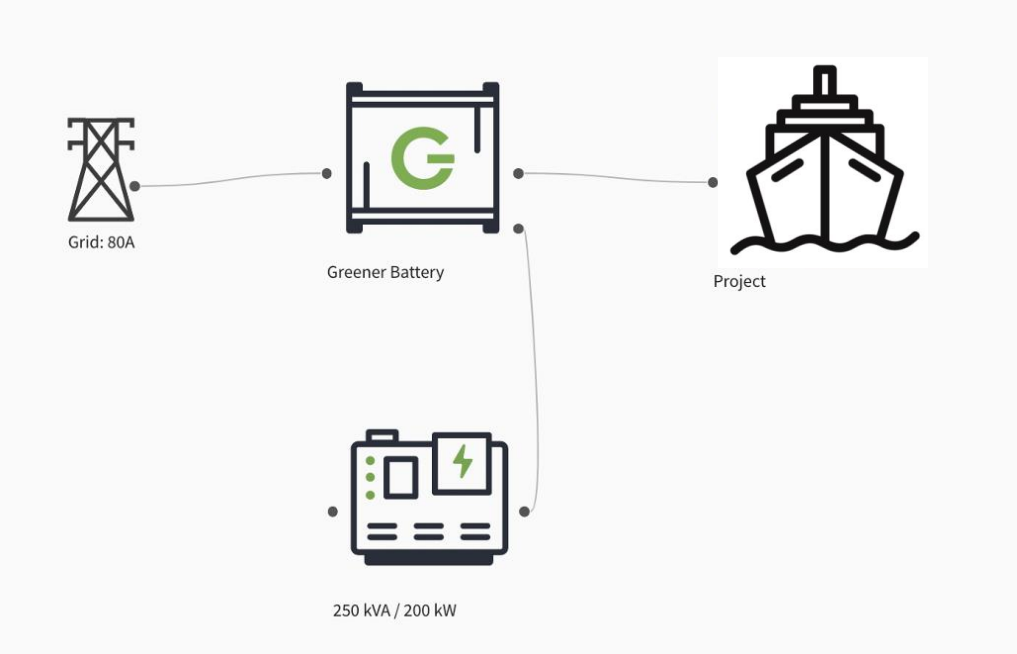


Greener EMS software – Set ups

Greener Loadshare

Maximum usage of the grid connection, where the battery peakshaves and switches on a generator when there is too little energy available from the grid or battery.

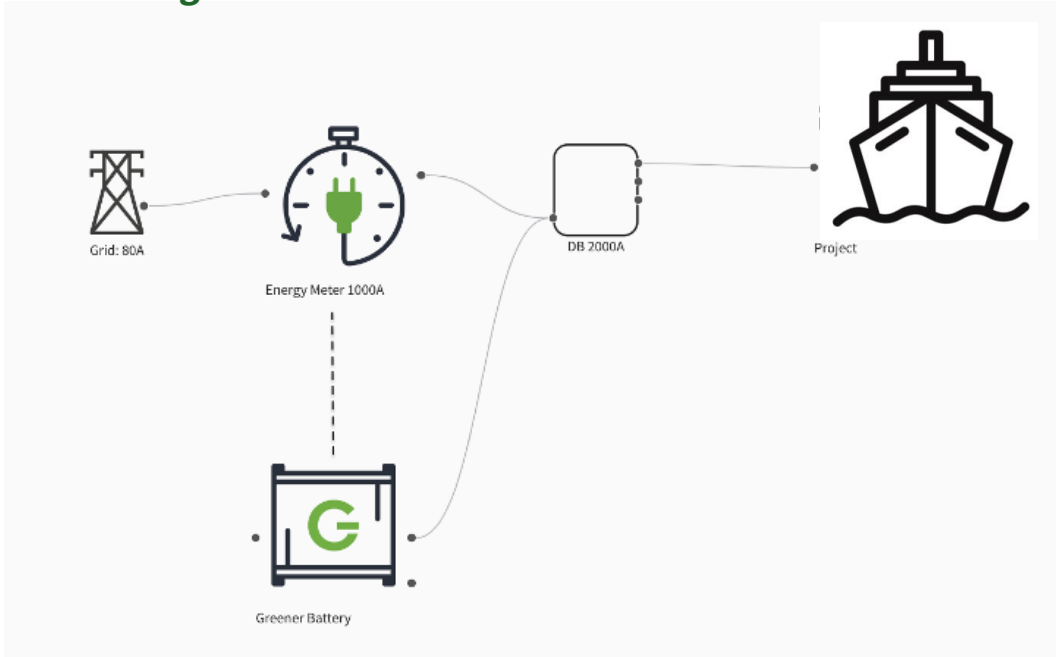
Savings CO2 & diesel: 50-100%



Greener Grid Boost

Maximum usage of the grid connection, where the battery is able to deliver higher peaks because the battery is positioned parallel and communicates with an external meter.

Savings CO2 & diesel: 100%



Greener EMS software – Advanced

Greener Advanced EMS

Through Greener's advanced EMS an endless array of energy assets can be connected to each other.

Savings CO2 & diesel: 60-100%

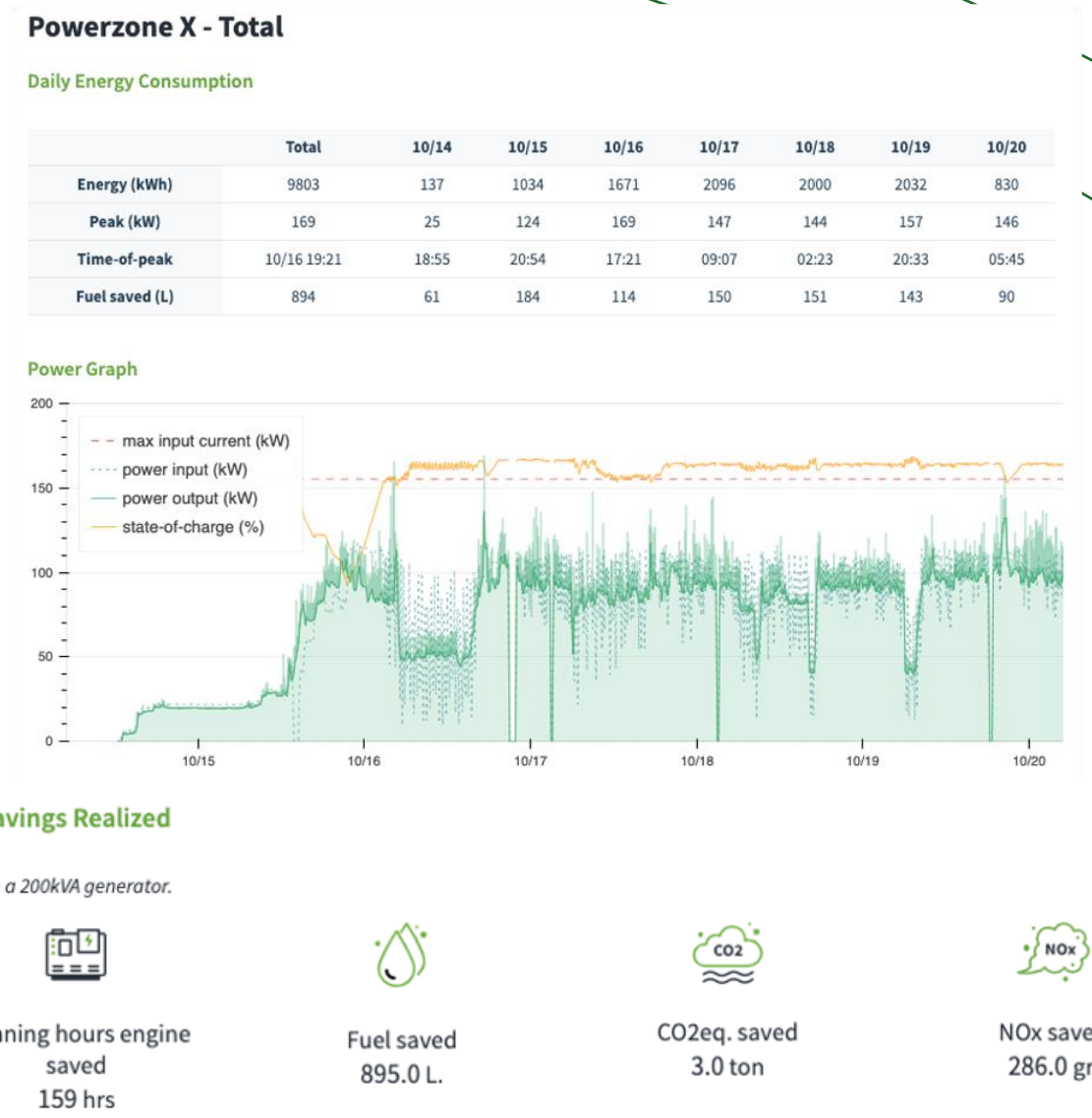
Greener Projects

Greener Projects

Insights in usage and achieved savings in online customer dashboard.

- Live insights in energy use
- Live status of all connected energy assets
- Data captured consists of and is not limited to: State of Charge, energy, power and capacity
- Greener models and visualises the savings compared to an alternative diesel generator
- Insights in savings of:
  - Operational hours generator
  - Litres of diesel saved
  - CO2 savings
  - Nitrogen savings

More about Greener Projects in this video.



Powerzone X - Total

Daily Energy Consumption

	Total	10/14	10/15	10/16	10/17	10/18	10/19	10/20
Energy (kWh)	9803	137	1034	1671	2096	2000	2032	830
Peak (kW)	169	25	124	169	147	144	157	146
Time-of-peak	10/16 19:21	18:55	20:54	17:21	09:07	02:23	20:33	05:45
Fuel saved (L)	894	61	184	114	150	151	143	90

Power Graph

Total Savings Realized

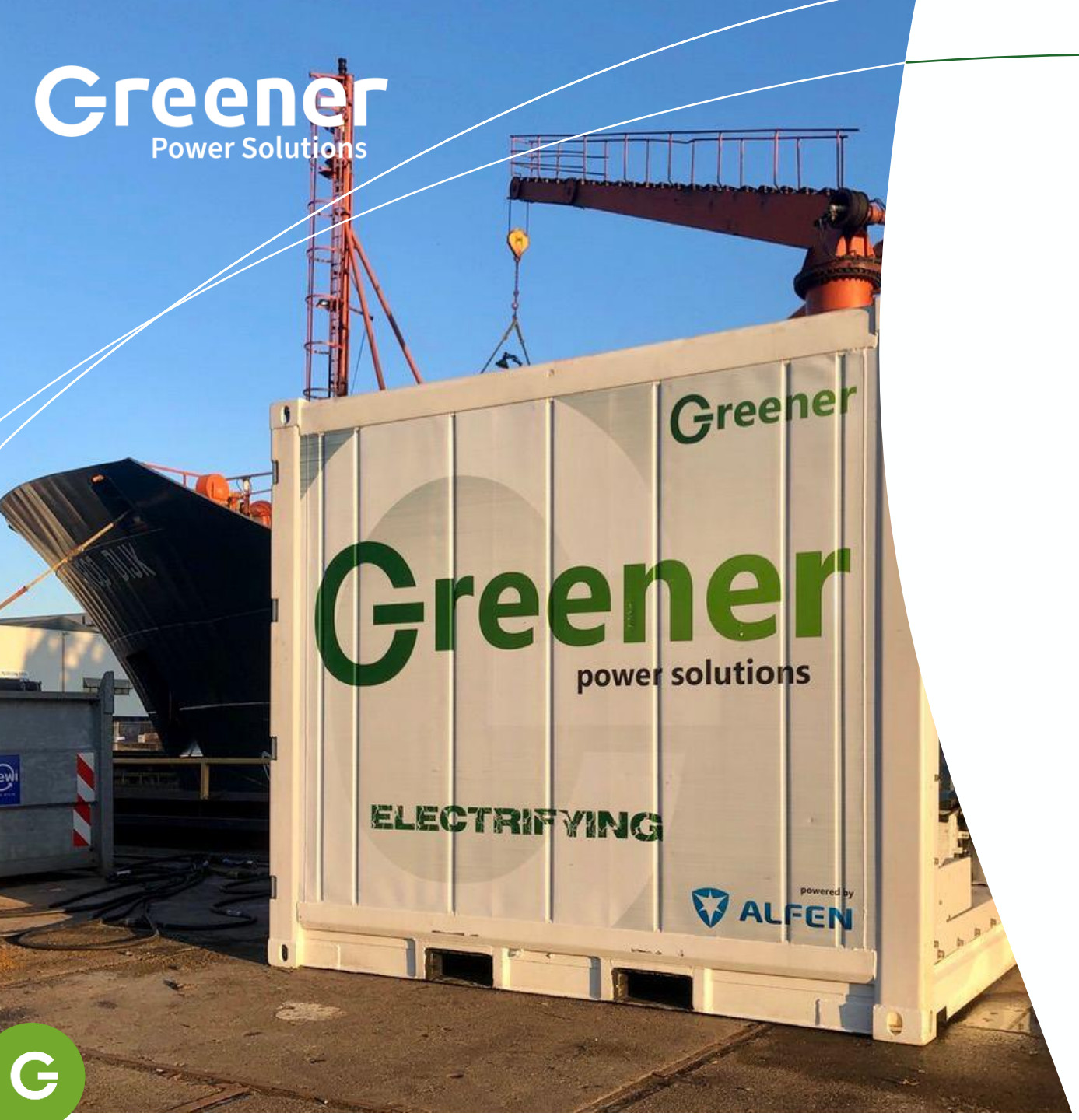
*Based on a 200kVA generator.

Running hours engine saved 159 hrs

Fuel saved 895.0 L.

CO2eq. saved 3.0 ton

NOx saved 286.0 gr.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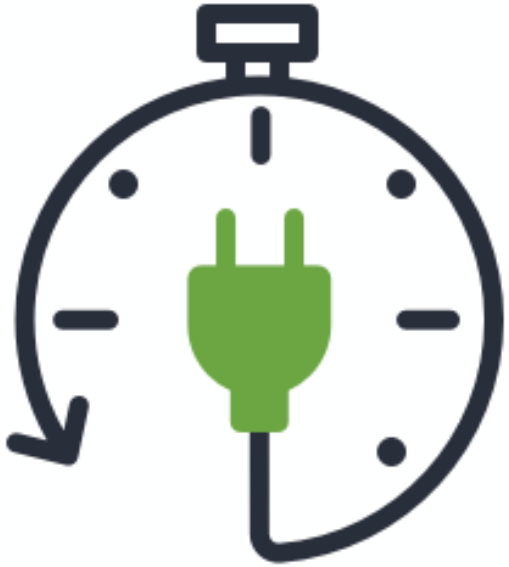


Greener Services

Greener assists during all operational phases of the project.

- Bespoke advice
- Energy meters
- Delivery of complete energy system (incl. cables, generators etc.)
- Available 24/7
- Monitoring energy assets 24/7
- Placement often possible within one day

Looking for non-binding advice with regards to using batteries.

Please feel free to contact us at.
https://www.greener.nl/nl/contact/

Follow Greener on LinkedIn and subscribe to our newsletter!

Case study

Shore power for temporary shelter in the centre of Rotterdam.

Goal; to minimize the negative impact on the local community's air quality and noise levels caused by generators while also reducing diesel

Gemeente Rotterdam

SLAAPSCHEPEN.NL
wakker worden op het water

Set up with 3x80A grid connection

Key Facts

- Peakshaving at the grid (buffer)
- 318 kVA / 336 kWh battery
- Sleeping ship from Slaapschepen.nl

Solution:

- Prevented use of generator on shore
- 100% savings on diesel

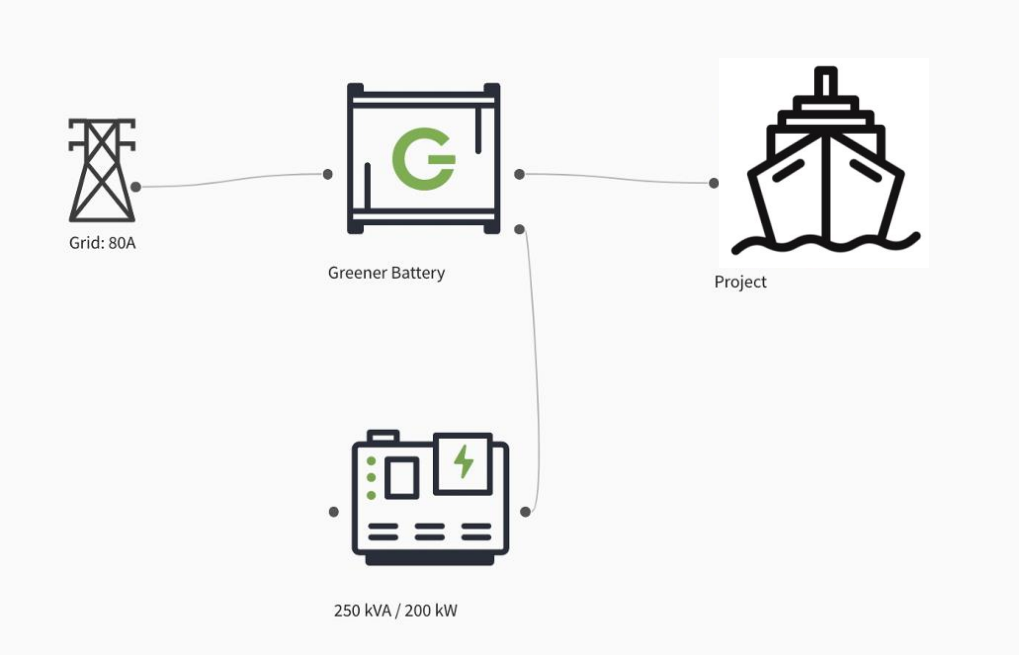
Set up with grid connection and generator

Key Facts

- Loadsharing with generator and grid
- 318 kVA / 336 kWh battery
- Sleeping ship from Slaapschepen.nl

Solution:

- Minimised operating window of generators, giving the local residents quiete nights.
- Through optimal use of the generator, a 60% saving on diesel was achieved.



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