



**HYBRID**  
PORT ENERGY

A company of  **becker** marine systems

# Becker LNG PowerPac<sup>®</sup>

Clean and mobile power for the maritime industry



# Becker LNG PowerPac®

## The mobile power solution in port

During layovers in port the power for container ships is currently being supplied by on-board auxiliary diesel engines using fuel oil (Marine Gas Oil, MGO). By doing so, ships account for the majority of harmful emissions in ports. With Becker LNG PowerPacs® we are creating a modern, environmentally-friendly, safe and economical option for supplying power based on LNG to container ships during layovers in port.

The compact Becker LNG PowerPac® – the size of two 40-foot high cube containers – intelligently combines a gas-powered generator with an output of 1.5 Megawatts and a LNG tank in a limited amount of space. During the vessel's layover in port it provides power to the on-board power supply with decisively fewer emissions than standard operation of the ship's auxiliary engines.



With the support of

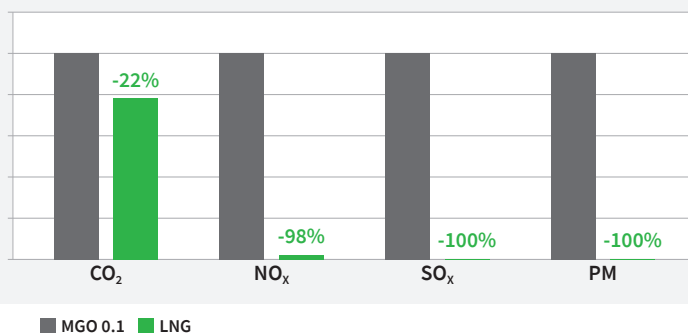


## Advantages of the Becker LNG PowerPac®

- Cold ironing customised for container ships
- A flexible, independent on-board power supply
- Significant reduction of harmful emissions
- Quick implementation – usable in any port
- 100% maritime solution
- In line with energy laws – no state taxes, grid fees etc.
- Suitable for all kinds of container terminal operations

## Liquefied Natural Gas (LNG)

An environmental-friendly alternative to common fuels with significant emission reductions.

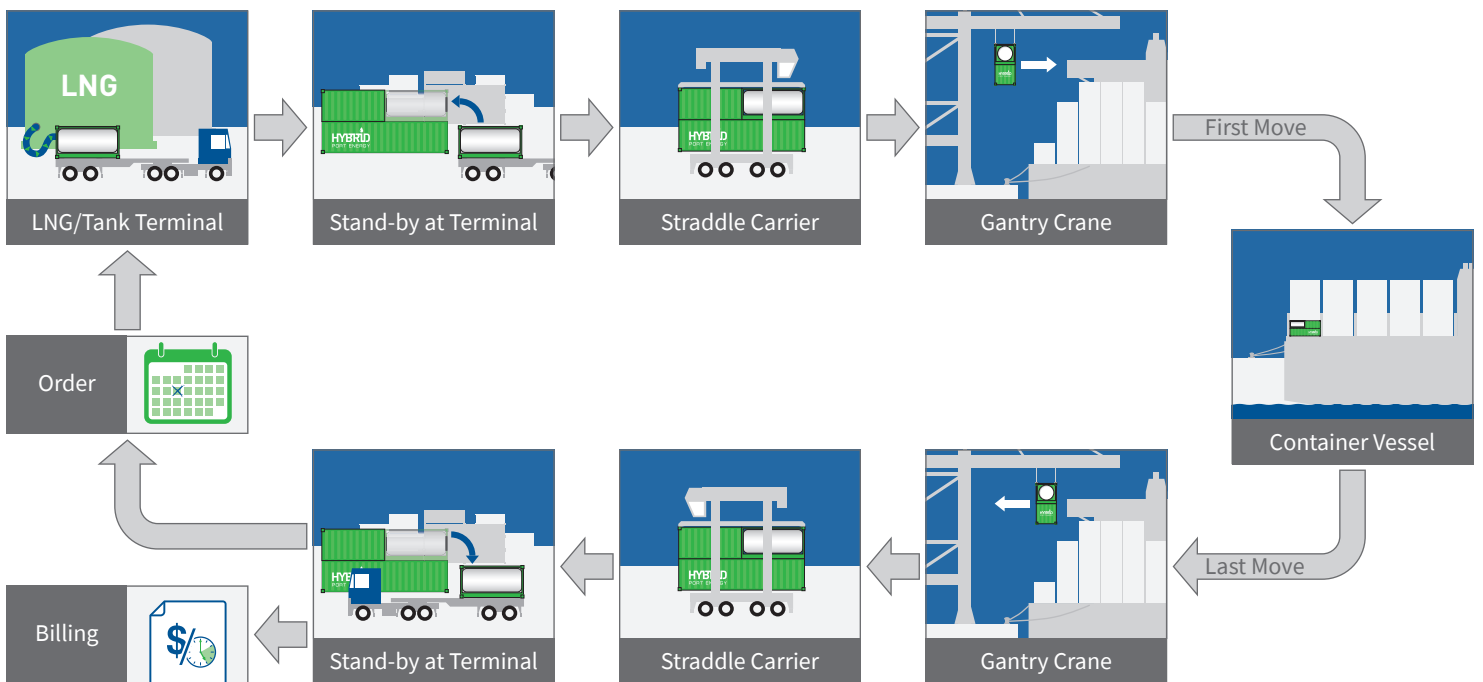


# Becker LNG PowerPac® Handling Chain

Once a container ship is moored, the first step is to place the Becker LNG PowerPac® on board via the port terminal's locally available, standardised loading equipment, such as gantry cranes, ship-to-shore cranes and van carriers. It is positioned on the aft ship/outer ship side of the vessel.

The high flexibility of the Becker LNG PowerPac® allows it to serve multiple mooring places. Due to this flexibility and its integration into standard terminal processes no additional infrastructure investments are necessary.

The Becker LNG PowerPac® weighs 60 tons including the LNG-Tanktainer. If this exceeds the terminal's weight limits the lift on board can be done in two separate moves.



# Becker LNG PowerPac®

For power demands up to 3 MW

## Simple action – significant immediate effect:

The Becker LNG PowerPac® is a quickly implemented solution with its delivery time of eight months, no required infrastructure investments and has a high impact on port emission reductions.



## Key Facts

### Becker LNG PowerPac® dimensions:

- 2 x 40 ft high cube container

### Capacity:

- Fuel: 8.2 t LNG
- 28 – 30 hrs operation (@ 90% load)

### Power output:

- 1,500 kWel. island mode
- Frequency 60 Hz
- Voltage 6.6 kV
- Electrical connection acc. to IEC 80005-1

**Weight:** 60 t (fully equipped)

### CE-Certified

Partly **classified and risk assessed** by IACS members (DNVGL/BV)

**Extendibility of operating hours by positioning a second LNG-Tanktainer on top**

**Cascadable for up to 3 MW power supply**

# HPE Hybrid Port Energy

Clean and mobile shore power

HPE Hybrid Port Energy was founded by Becker Marine Systems with the objective of supplying environmentally-friendly maritime power. With its alternative power concepts, Becker Marine Systems is proving once again the company's innovative spirit on behalf of our environment.

With the LNG Power Barge Becker Marine Systems has developed another advanced and innovative solution for improving air quality in harbour cities by reducing emissions from cruise ships in port. The LNG Power Barge produces significantly lower emissions than the diesel engines used to generate power on board of cruise ships.



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