

IX CONFERENZA NAZIONALE SULL'EFFICIENZA ENERGETICA

For a sustainable world

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Natural gas is conquering new markets

Global interest in LNG is driven by

- Energy security considerations and lower energy costs
- Requirements for emission reduction in power generation, industry and shipping
- Rapid growth of intermittent renewable power generation and escalating demand fluctuation. LNG/gas is a perfect balancing fuel.

By 2035 LNG will have overtaken pipelines as the dominant form of traded gas – BP Energy Outlook 2035

Enabling LNG projects by clustering consumers

Power generation

- Baseload & peaking Power plants

Energy intensive industries

- Mines & Drilling rigs
- Metal processing plants
- Petrochemical plants
- Manufacturing plants, e.g. fertilizer, cement, gypsum boards, glass, chemicals

Gas driven transportation

- Ships
- Trucks

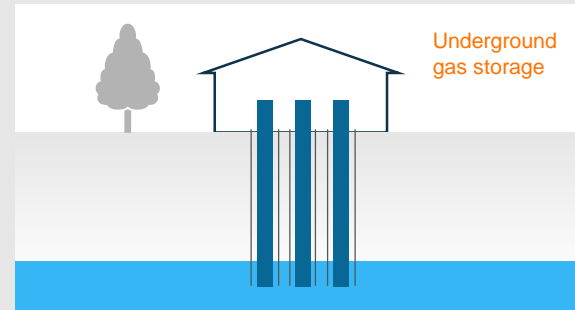
Domestic gas consumption

- Cooking & heating

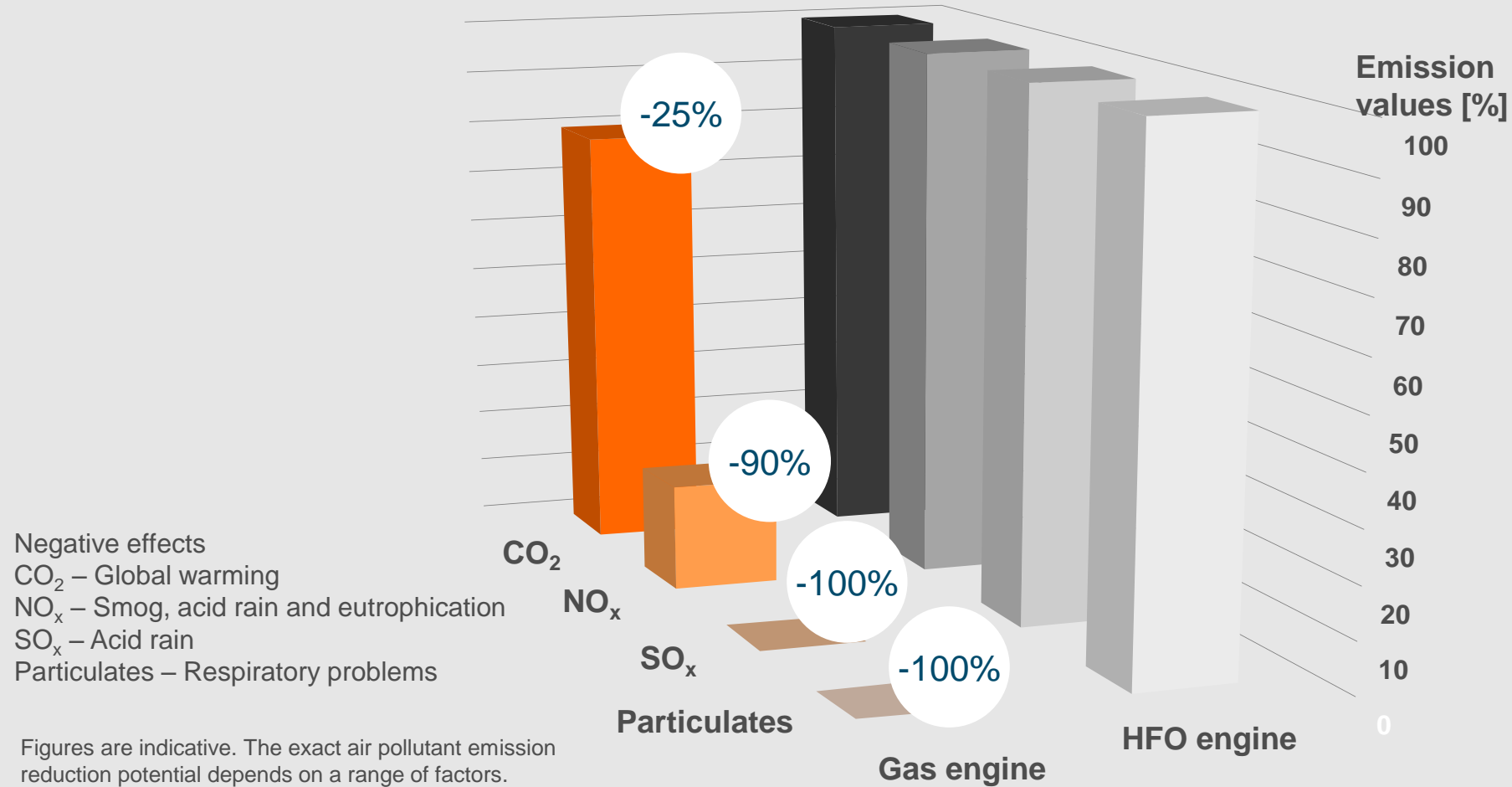


Affordable **energy security**:

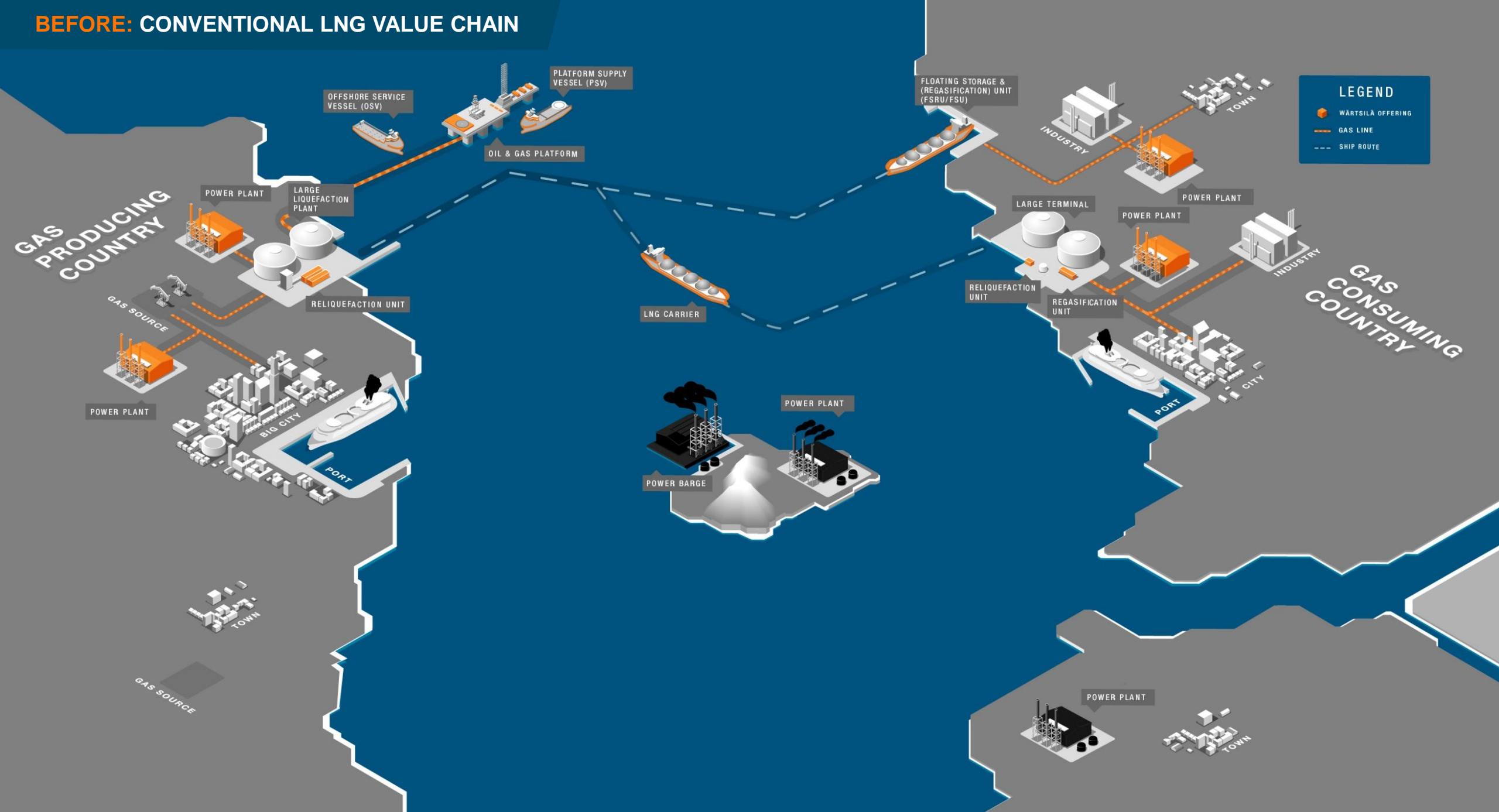
- **Fraction of the cost of battery storage**
 - Limited lifetime with recycling/waste problem of batteries
- **Superior to underground gas storage**
 - Less location specific as it can be built anywhere next to the pipeline
 - Gas can be more quickly inserted to the grid
 - Less risk of gas leakage
- **LNG has considerably less volume than compressed natural gas**
- **Less environmental impact and a fraction of the cost of pumped hydro**



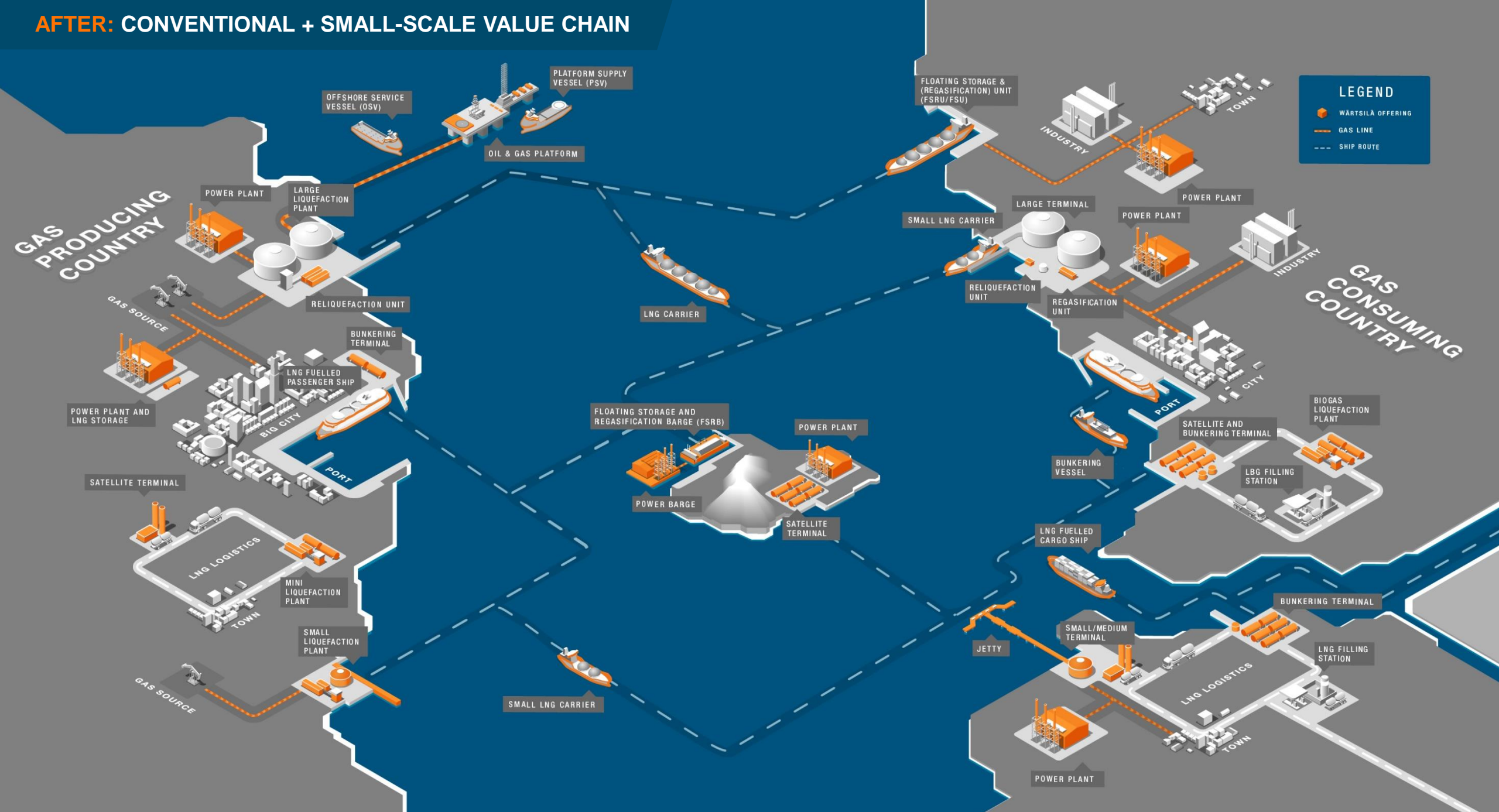
Emission reduction potential with LNG

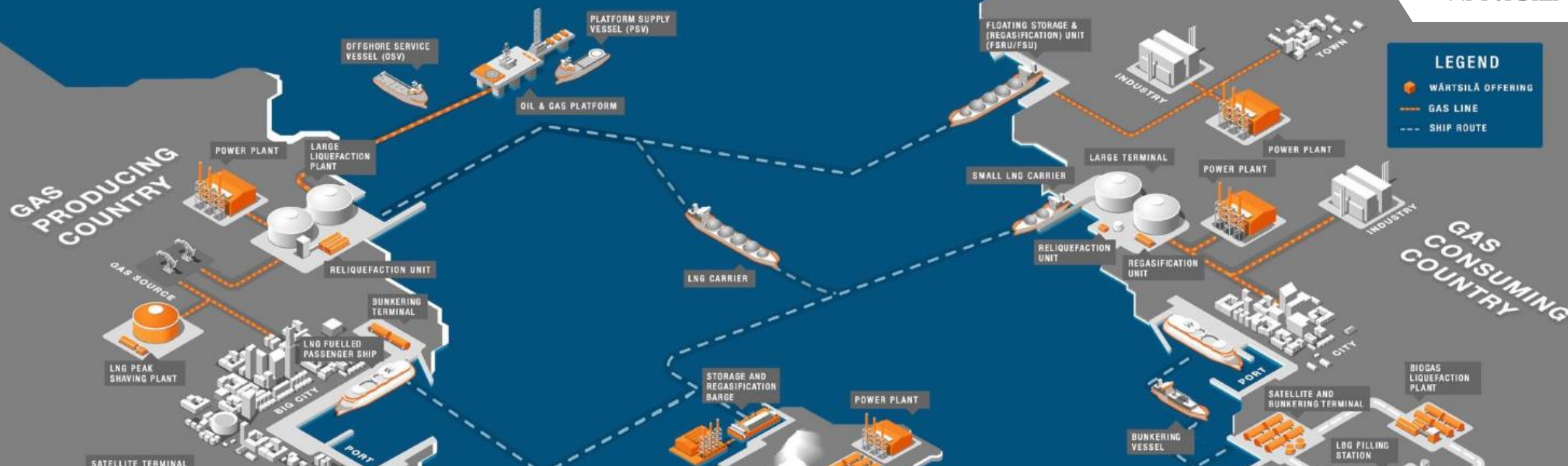


BEFORE: CONVENTIONAL LNG VALUE CHAIN



AFTER: CONVENTIONAL + SMALL-SCALE VALUE CHAIN





Exploration & Drilling

- LNG fuel gas systems for OSVs
- Gensets

Production & Liquefaction

- On- & Offshore small scale Liquefaction
- Antiflaring/VOC
- Oil separation
- Gas FPSO

Transport & storage

- LNG fuel gas systems
- Engines
- Gensets
- LPG, LEG & LNG cargo handling

Receiving terminals & Regasification

- Jetty & Floating regasification
- Bunkering & barges
- Receiving terminals

Distribution & transport to the users

- Gas/LNG distribution/logistics
- Feed gas to Power plants

LNG:

EFFICIENCY, ENVIRONMENT, ECONOMY

IT CAN BE **DONE**

THANK YOU.



WÄRTSILÄ