

# The Role of LNG – RWE's Experience

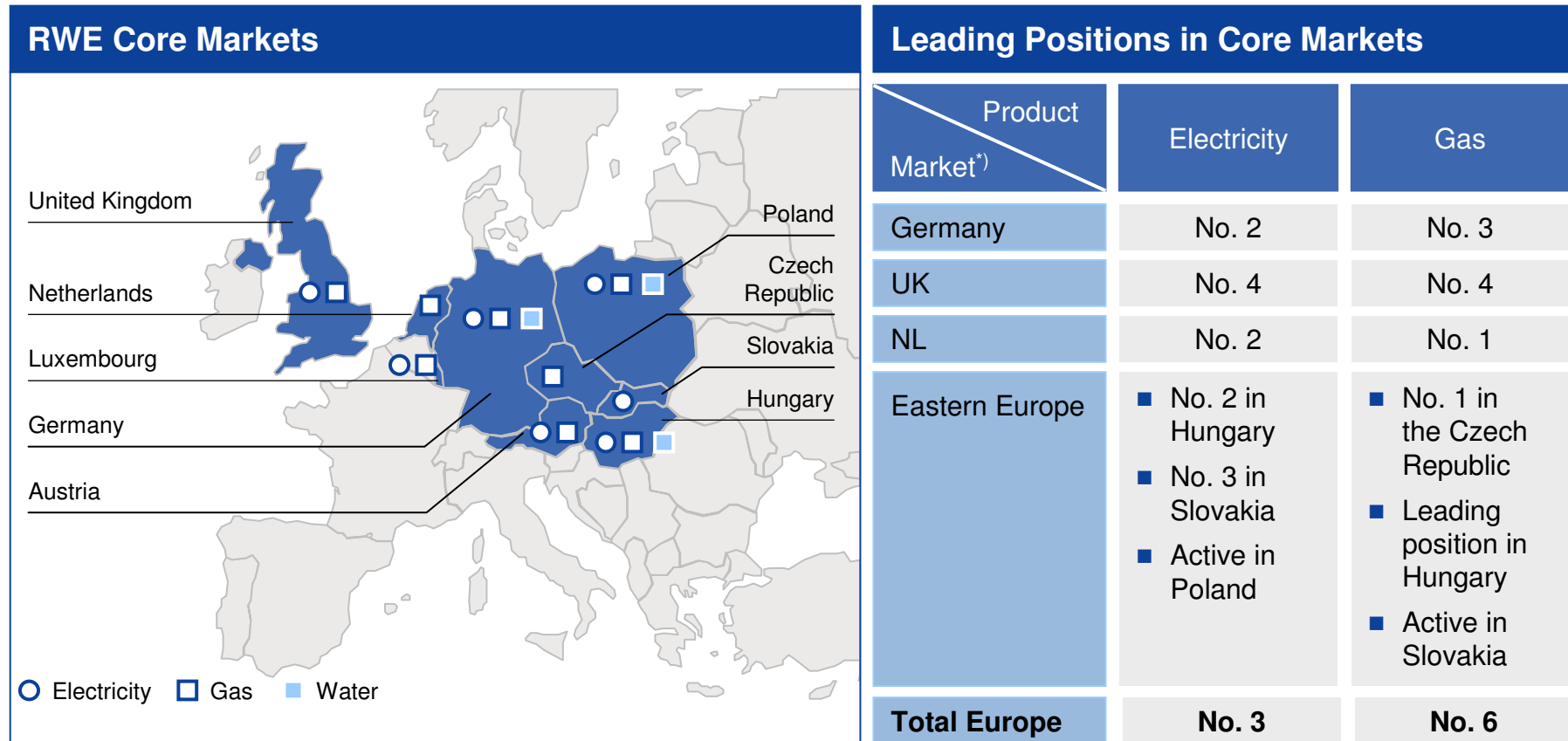
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Venice, April 15<sup>th</sup> 2010

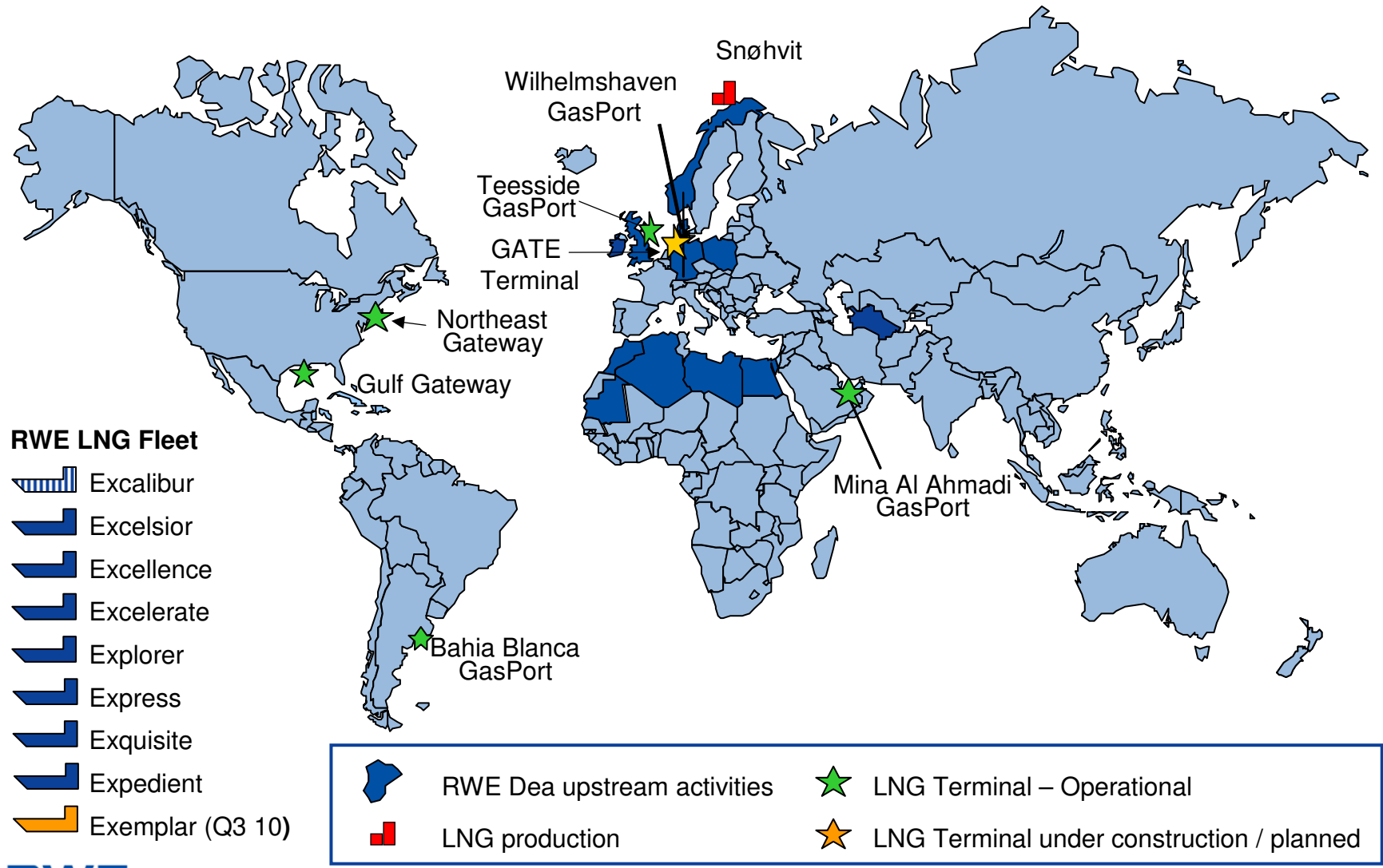
# RWE Group – Who are we?

## One of the Top 5 European Utilities...



\*) Market positions of the RWE Group in terms of sales.

# ...with a growing upstream and LNG position in the Atlantic Basin



# The Future of Gas Markets – What do we believe?

## Gas Market Scenarios

### “Evolution”



- > Economic recovery in the mid-term
- > Oligopolistic behaviour of international producers preserves oil-linked pricing being predominant for imports



### “Competitive revolution”



- > Current gas oversupply results in full competition and gas-to-gas pricing for imports
- > Erosion of gas prices to long-run marginal costs

### “Climate heaven”

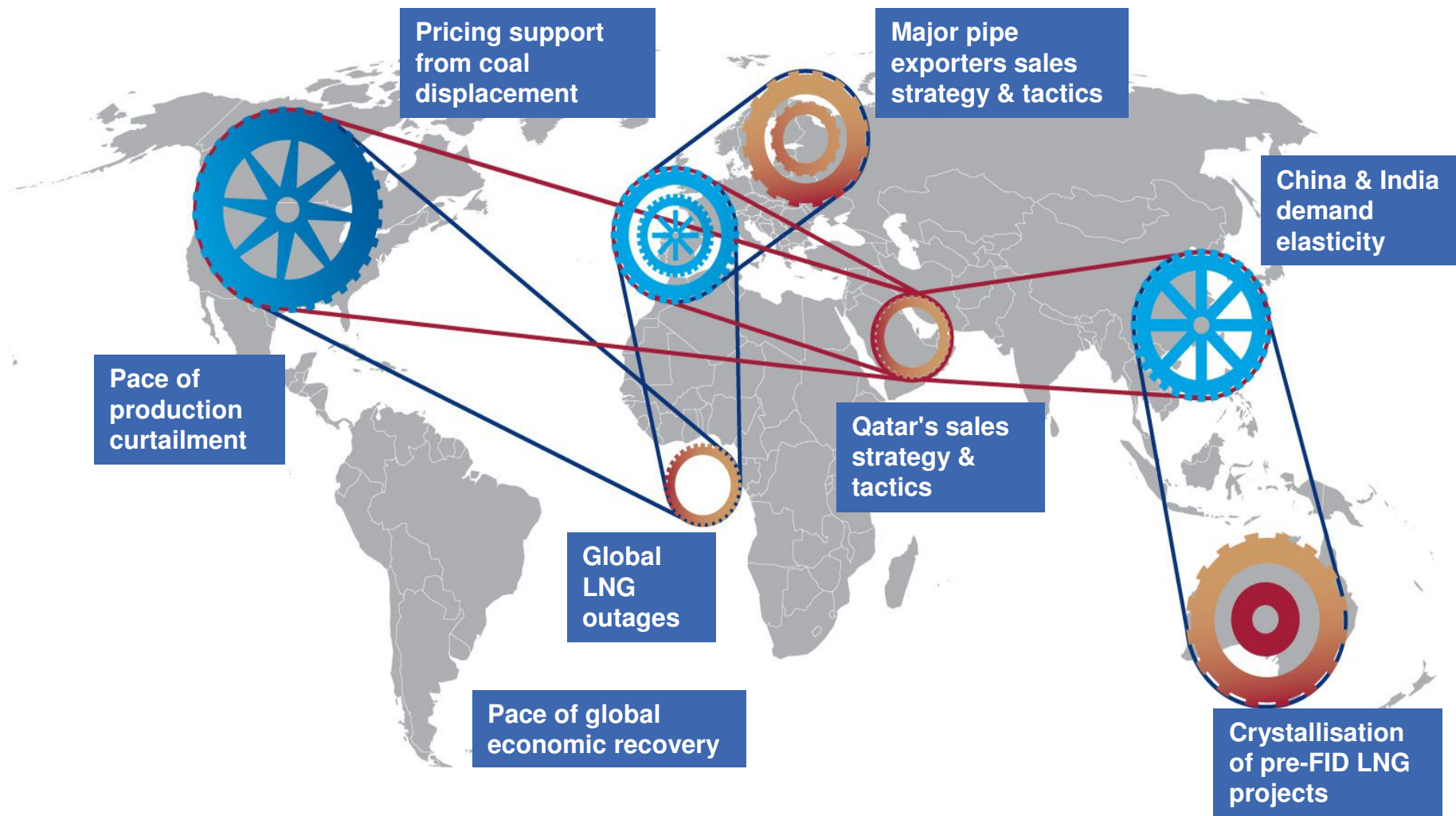


- > Strict climate policy induces long term stagnation/decrease of global gas demand
- > Predominantly oil-linked import pricing mechanisms



**Gas spot markets remain volatile and continue to become more liquid in all scenarios**

# LNG connects previously independent gas regions to a global market



# What is the contribution of LNG?

## Flexibility

- > LNG supply is not physically linked to a specific destination
- > Ships can be re-routed flexibly, providing options for regional arbitrage and thus procurement from the cheapest market

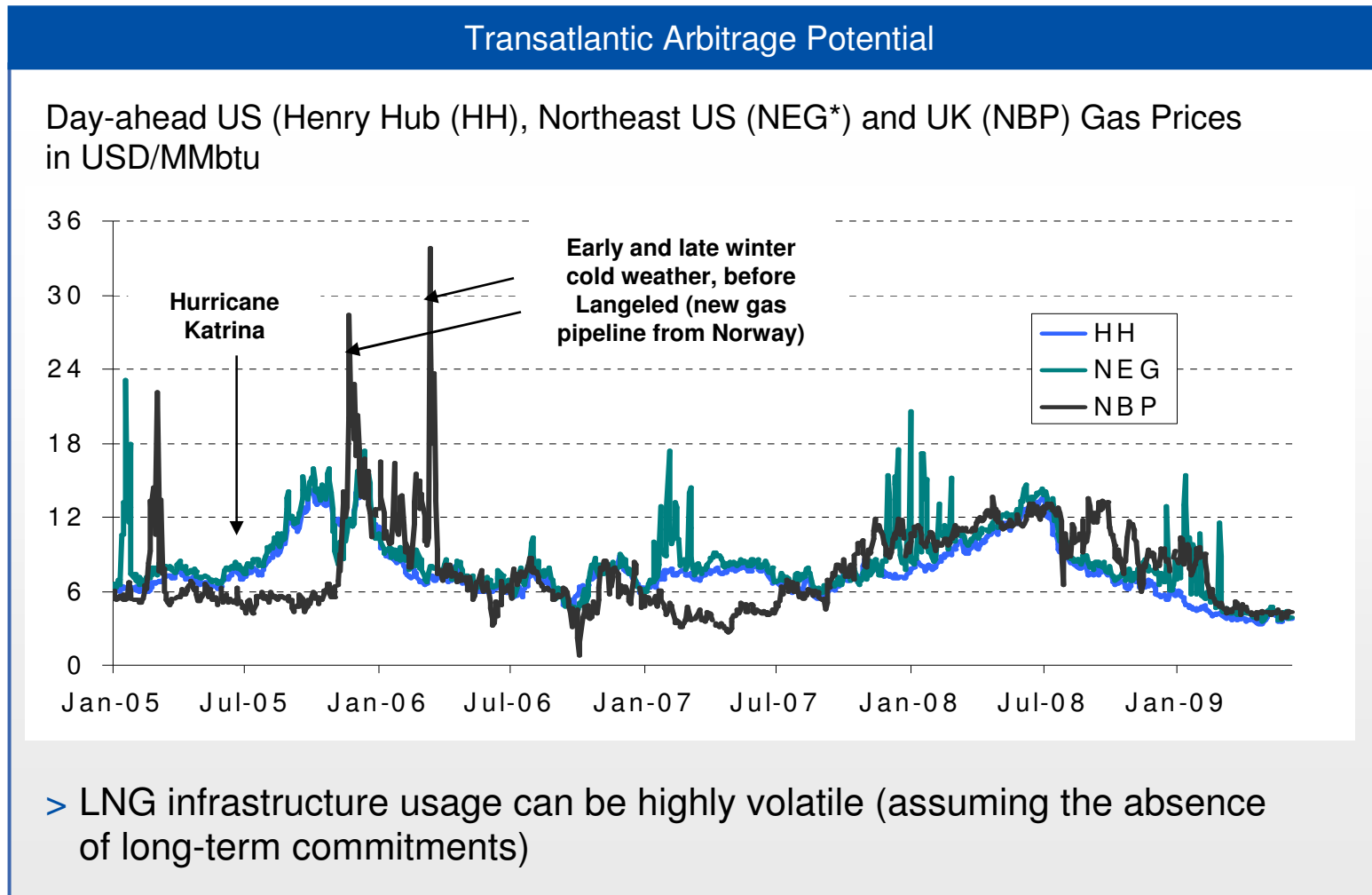
## Security of Supply

- > LNG allows diversification of supply sources, e.g. LNG enables supplies from the Middle East to Europe
- > No commitment of (mid-/ downstream) infrastructure to one specific supplier

## Access to gas markets

- > Regional markets without access to pipeline gas can be supplied via LNG with potentially lower capex and lower barriers (e.g. resulting from international agreements required for pipelines)

# “Flexibility becomes the name of the game” – volatility as key risk and source for value creation



# On-board regasification is ideally suited for managing volatility and accessing new markets

## Onshore Regasification



- > Investment of approx 1 Billion €, high fixed operational costs
- > Large space required
- > Significant impact on environment (e.g. storage)
- > Planned lifetime of 25 years

## “Excelerate Energy” On-Board Regasification



Gateway



GasPort

- > LNG regasification (through heating) on board of the LNG vessel
- > Reduced investments of only 10% of onshore terminals, low operational costs
- > Very limited space requirements
- > Reduced infrastructure (e.g. no storage) and reduced environmental burdens

On-Board Regasification avoids large investments in fixed landing infrastructure and thus allows for economic operations even with limited utilisation rate (e.g. seasonal or spot deliveries only)



# Innovative infrastructure concepts – Example LNG gas supply to the Middle East



- > The gas demand varies substantially in Middle East countries over the year – with a winter low and a summer peak
- > Even though most countries in the Region remain net-exporters throughout the year, they increasingly depend on gas imports in the summer
- > Utilising LNG to meet peak demand represents a flexible, clean and economic solution



## Mina Al-Ahmadi (Kuwait) GasPort

- > Project completed August '09
- > Terminal owned and operated by Kuwait National Petroleum Company
- > Excelerate / RWE acts as EPC contractor for entire construction
- > Concept to commercial operations in only 24 months

# Summary

- > RWE is an up- and midstream centred gas player with a focus on Europe and the Atlantic Basin
- > We believe that liquidity and volatility of gas markets will increase – whatever the precise development of e.g. oil-indexation may be
- > LNG connects previously independent regional gas markets
- > “Flexibility will become the name of the game” for LNG infrastructure
- > RWE has build up a flexible portfolio of mid- and upstream assets
- > RWE/Excelerate’s flexible on-board regasification technology is ideally suited to access new markets at low cost and provides a maximum of flexibility for any LNG portfolio