



4TH WORKSHOP OF THE EAP SUB-SECTORAL NETWORKING GROUP ON LNG MARKETS

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GAZ-SYSTEM – INTRODUCTORY INFORMATION

GAZ-SYSTEM



Certified gas TSO in PL, certified ISO (Yamal-Europe pipeline in PL)



Company with strategic significance for the economy and energy security in PL



Key integrator and facilitator of market development in the CEE and Baltic regions

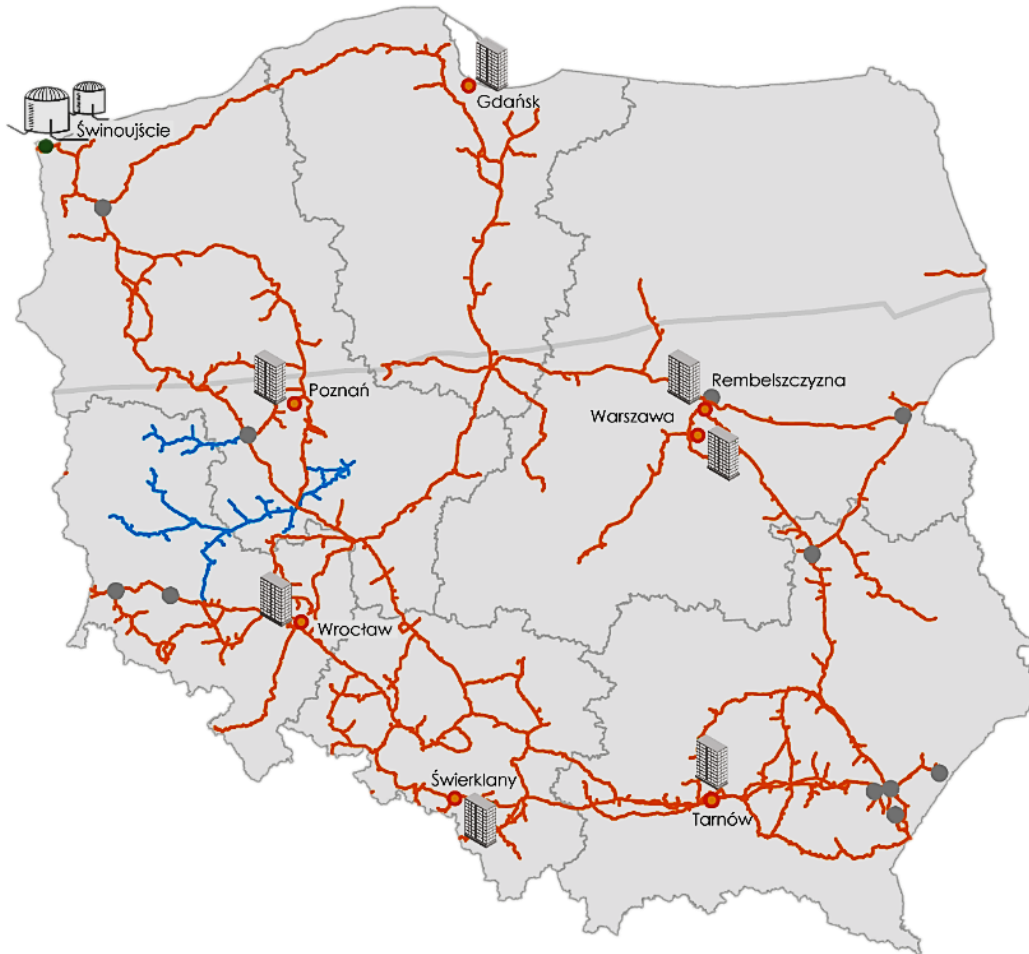


LNG terminal in Świnoujście operated by its SPV, Polskie LNG



Developing infrastructure and mechanisms to enable increased consumption of natural gas as an environmentally-friendly fuel

GAZ-SYSTEM – INTRODUCTORY INFORMATION



10,743 km
LENGTH OF TRANSMISSION SYSTEM



848 GAS STATIONS



15 COMPRESSOR STATIONS



17.2 bcm/a
VOLUME OF TRANSPORTED GAS



100% SHARES
HELD BY THE STATE TREASURY



TERMINAL LNG IN ŚWINOUJŚCIE



5 bcm/a
REGASIFICATION CAPACITY

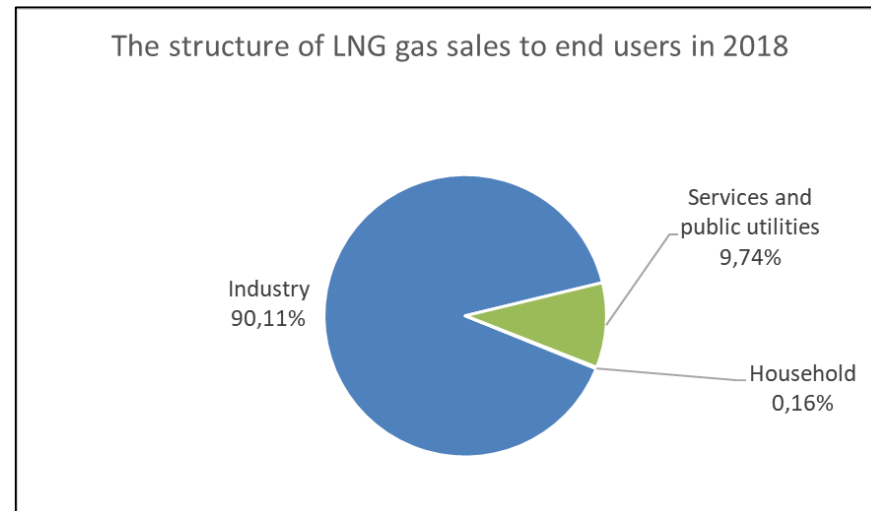
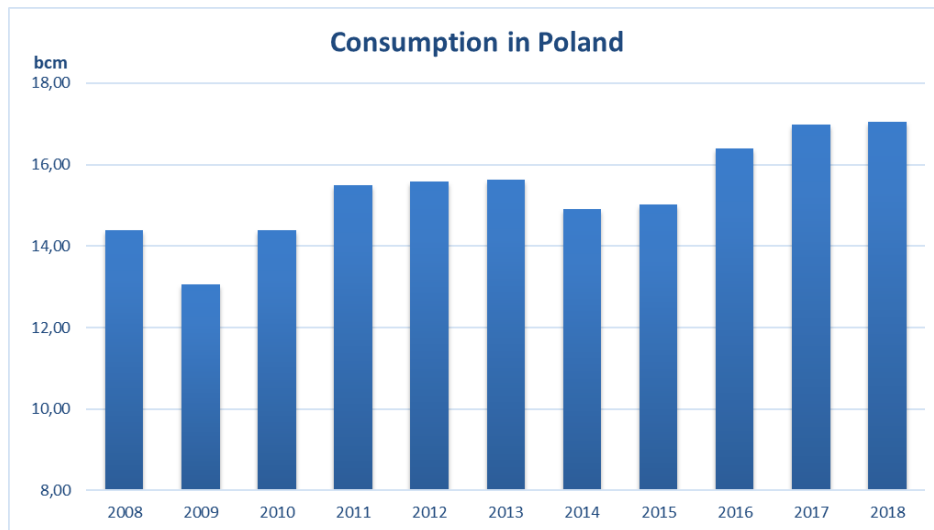


NATURAL GAS MARKET IN POLAND

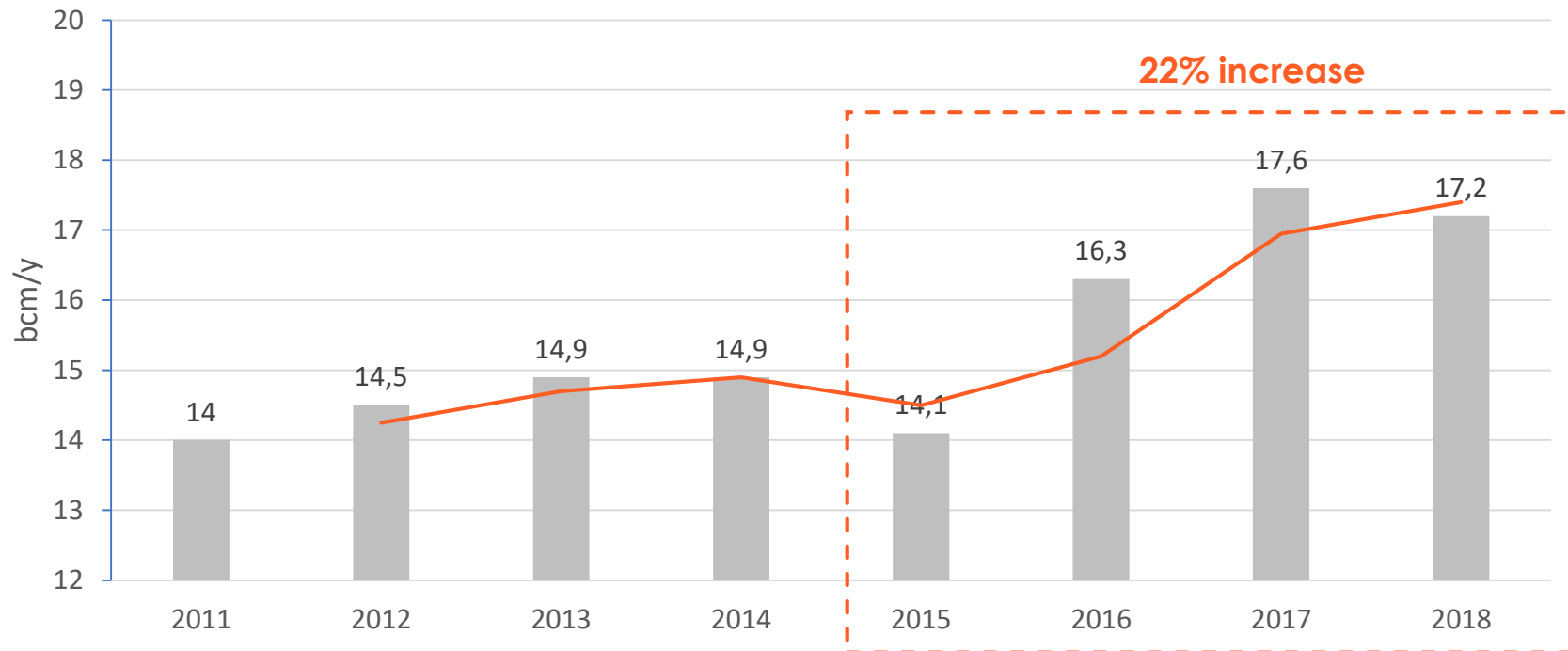
- ▶ Natural gas consumption in Poland in 2018 amounted 17,05 bcm
- ▶ Northern Gateway Project to propel natural gas market development in Poland
- ▶ Stable and incremental growth of natural gas market in Poland
- ▶ Approx. 45% of the territory without gas supply network

LNG market development in Poland:

- ▶ 75 Small Scale LNG regasification plants at present
- ▶ 3 LNG refuelling stations at present
- ▶ LNG in public transport at present
- ▶ Fleet of LNG propelled ships on Baltic Sea planned
- ▶ LNG bunkering ships planned
- ▶ LNG in intermodal transport (inc. inland transport) planned
- ▶ LNG shore-to-ship bunkering infrastructure in ports by 2025 to come (Act on electromobility and alternative fuels)



DEMAND FOR NATURAL GAS IN POLAND



Source: GAZ-SYSTEM S.A.

- ▶ Positive outlook for gas demand in Poland in recent years
- ▶ Significant increase in demand since 2015 (22% increase)
- ▶ Infrastructure providing new sources and routes of supply (LNG terminal in Świnoujście) as major contributor to the market development

PROVIDING NEW POSSIBILITIES TO THE CEE/BALTIC REGION

BALTIC PIPE (2022)

Ongoing design phase, construction works as of 2020

3 bcm/y towards DK; 10 bcm/y towards PL

PL-SK INTERCONNECTION (2022)

Under construction

4.7 bcm/y towards SK; 5.7 bcm/y towards PL

PL-LT INTERCONNECTION (2021)

Ongoing tendering for the construction works

2.4 bcm/y towards LT; 1.9 bcm/y towards PL

LNG TERMINAL (2023)

Ongoing tendering for the construction works

Capacity upgrade: 7,5 bcm/y

FSRU IN PORT OF GDAŃSK (2025)

Ongoing design phase

Capacity (I stage): 4,5 bcm/y

PL-CZ INTERCONNECTION

Design phase completed in Poland

Project under evaluation, ongoing incremental process

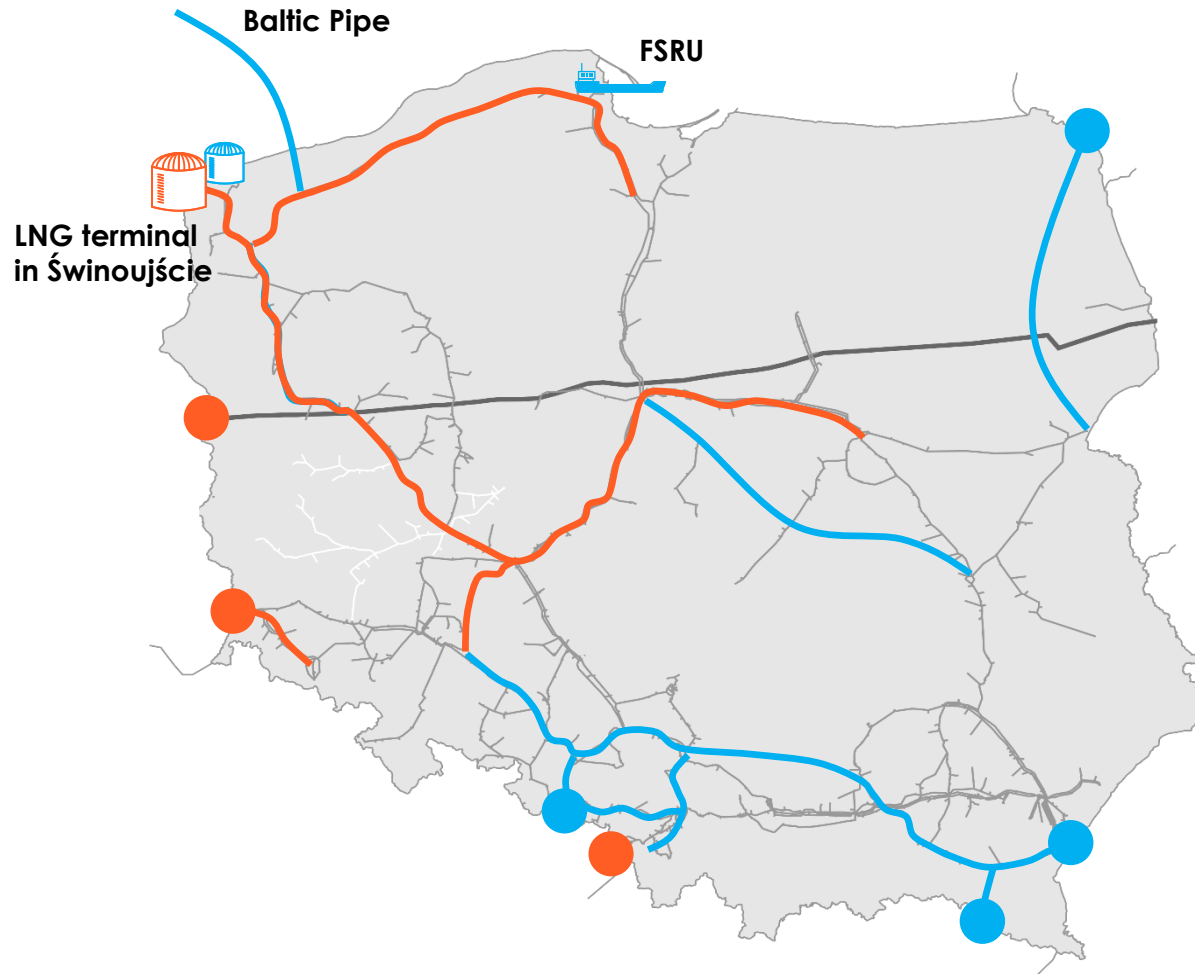
PL-UA INTERCONNECTION

Design phase completed in Poland

Project under evaluation



GAS INFRASTRUCTURE DEVELOPMENTS IN POLAND AD CEE REGION



COMMISSIONED INVESTMENT PROJECTS

- ▶ LNG terminal in Świnoujście
- ▶ Cross-border interconnections PL-CZ, PL-DE
- ▶ Reinforcement of domestic system

ONGOING INVESTMENT PROJECTS

- ▶ Extension of LNG terminal in Świnoujście
- ▶ Baltic Pipe
- ▶ FSRU Gdańsk
- ▶ Cross-border interconnections PL-LT, PL-SK, PL-UA, PL-CZ
- ▶ Reinforcement of domestic system

CONTRIBUTION TOWARDS THE EU PRIORITY CORRIDORS

DEVELOPMENT OF LNG SERVICES IN POLAND

▶ LNG – Baltic region

- ▶ bunkering
- ▶ loading onto bunkering vessels
- ▶ loading onto smaller vessels
- ▶ transshipment

▶ LNG – CEE region

- ▶ intermodal transport
- ▶ road transport
- ▶ as a fuel
- ▶ peak shaving and satellite regasification



LNG TERMINAL IN ŚWINOUJŚCIE AT PRESENT

Regasification Capacity

Currently 5 bcm/y at nominal send-out (ca. 30% of current gas consumption in Poland)

Storage

2 full containment LNG storage tanks, 160 000 m3 capacity

LNG unloading facility

3 unloading arms, 1 arm for BOG

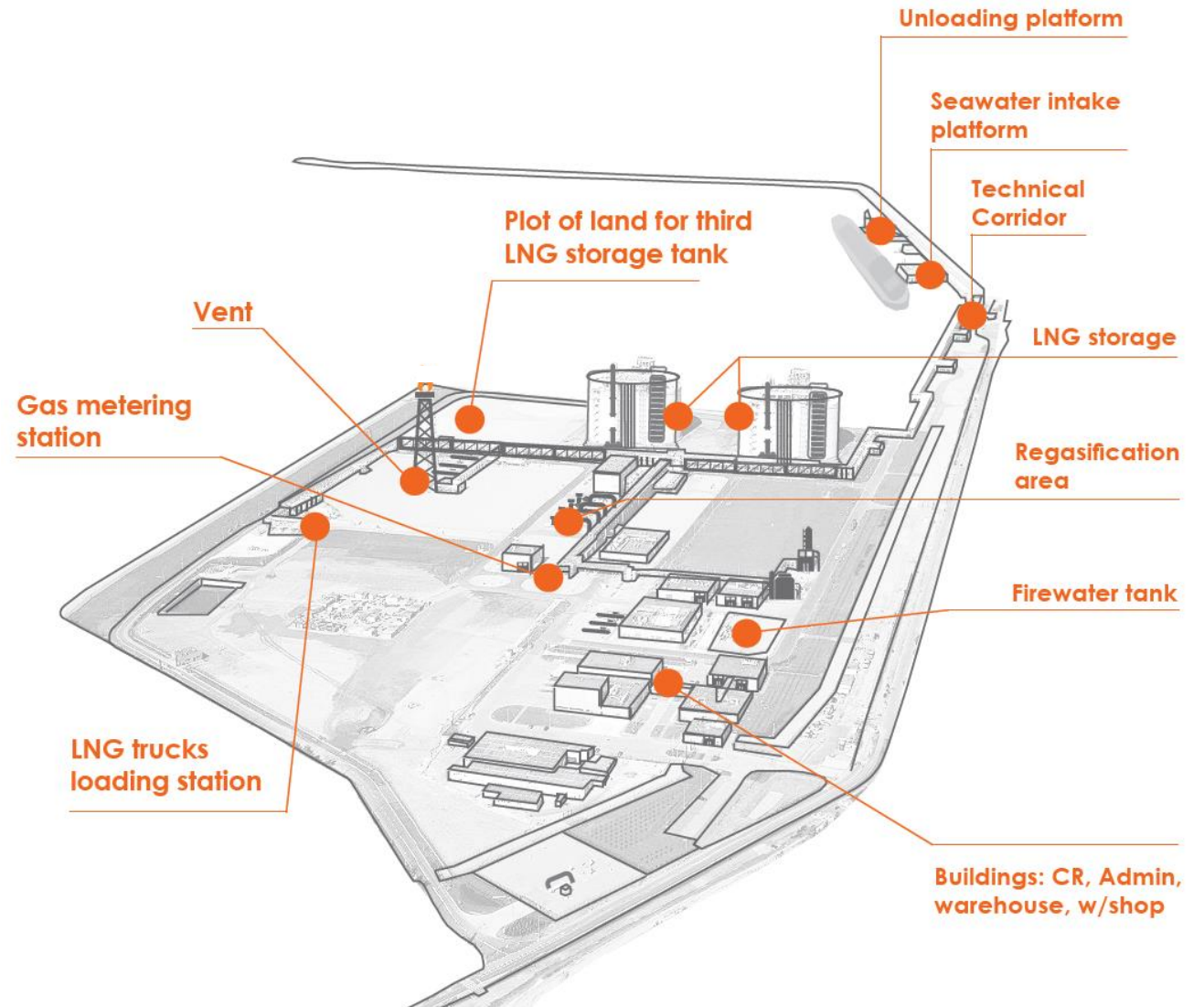
LNG trucks loading station

3 loading slots of 95 000 tones per year capacity (total)

Commercial operations

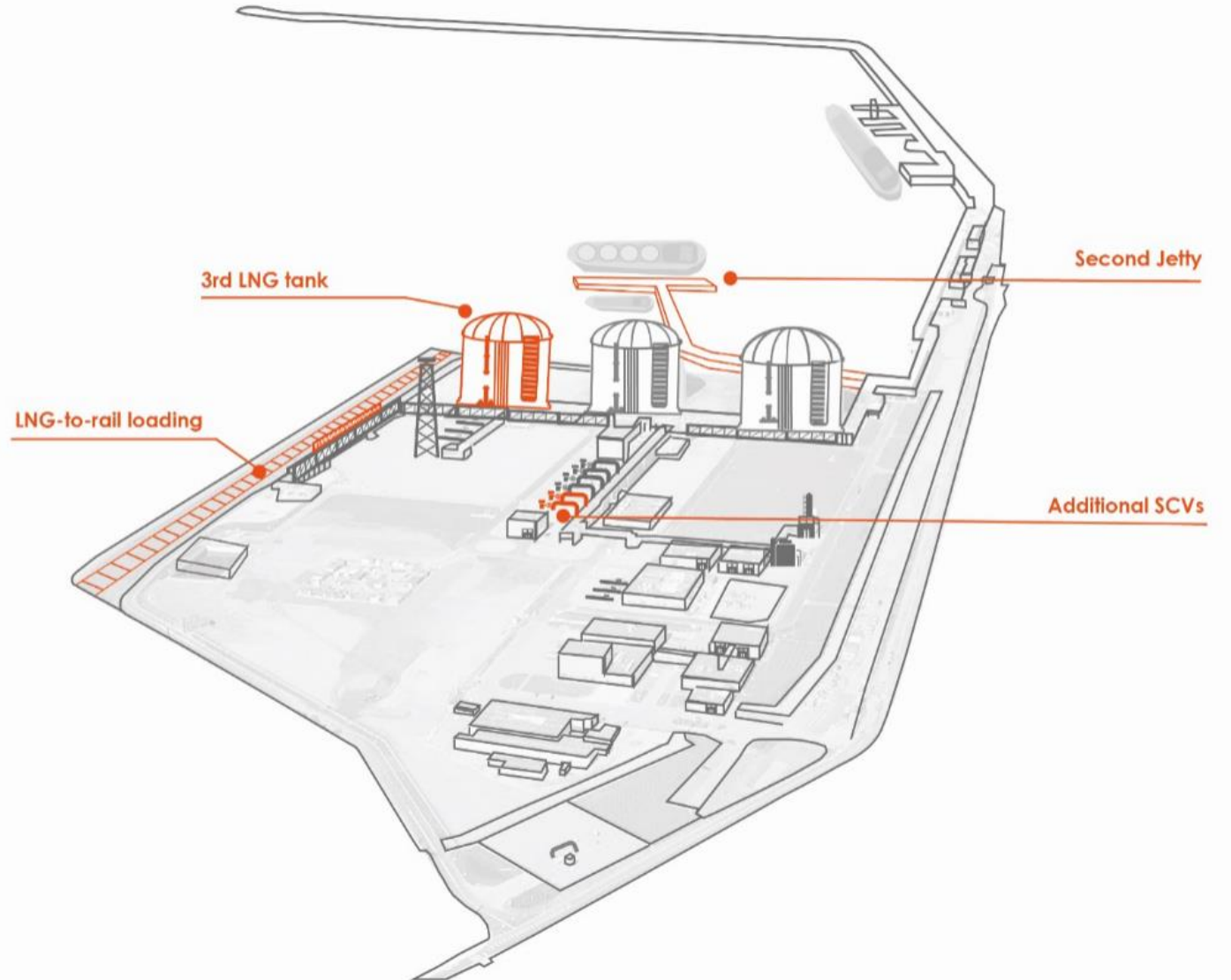
High utilisation rate as of 15th December 2019:

- ▶ Over 4.7 million tonnes equivalent to over 2.8 billion m3 of natural gas was unloaded
- ▶ 29 methane carriers were unloaded in 2019 and 2 more are expected until the end of 2019 (23 vessels in 2018)
- ▶ 2204 tank trucks loaded with LNG in 2019 (1794 in 2018)



ŚWINOUJŚCIE LNG TERMINAL EXPANSION PROJECT

- ▶ Extension of regasification capacity – additional SCVs
- ▶ Second Jetty
- ▶ LNG-to-rail loading and intermodal transport
- ▶ Third LNG Tank



LNG TERMINAL IN ŚWINOUJŚCIE – NEW PLANNED SERVICES

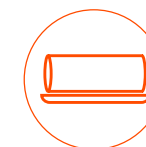
Additional LNG services to foster the deployment of LNG as a competitive and sustainable LNG fuel:

- ▶ truck loading services
- ▶ bunkering services
- ▶ reloading to smaller vessels
- ▶ storage services
- ▶ in transport sector
- ▶ as a ship fuel

**New solutions to increase business opportunities
in the CEE and Baltic regions**

TODAY

TOMORROW



FSRU PROJECT IN GDANSK

Technical parameters

- ▶ LNG storage tank of approx. 170 000 cm
- ▶ Expected capacity : 4,5 bcm/y (1 stage)
- ▶ Regasification capacity: 550 000 m³/h - 740 000 m³/h

Main scope of the project:

- ▶ Construction of a FSRU vessel
- ▶ Construction of a jetty
- ▶ Connection of a FSRU with the Polish Transmission System

Localisation

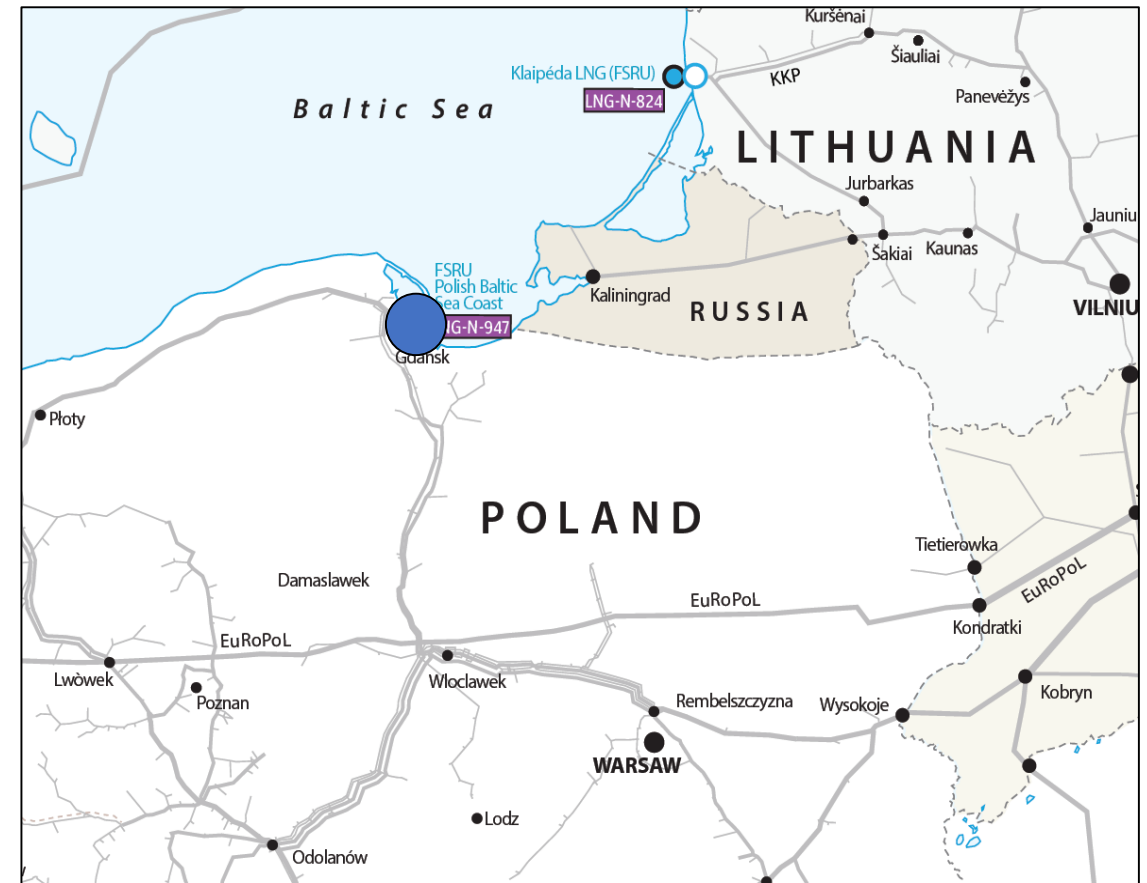
- ▶ Port of Gdansk

Commissioning year

- ▶ Up to 2025

Current status

- ▶ Pre-investment activities (inventory of the land part, permitting, FEED)

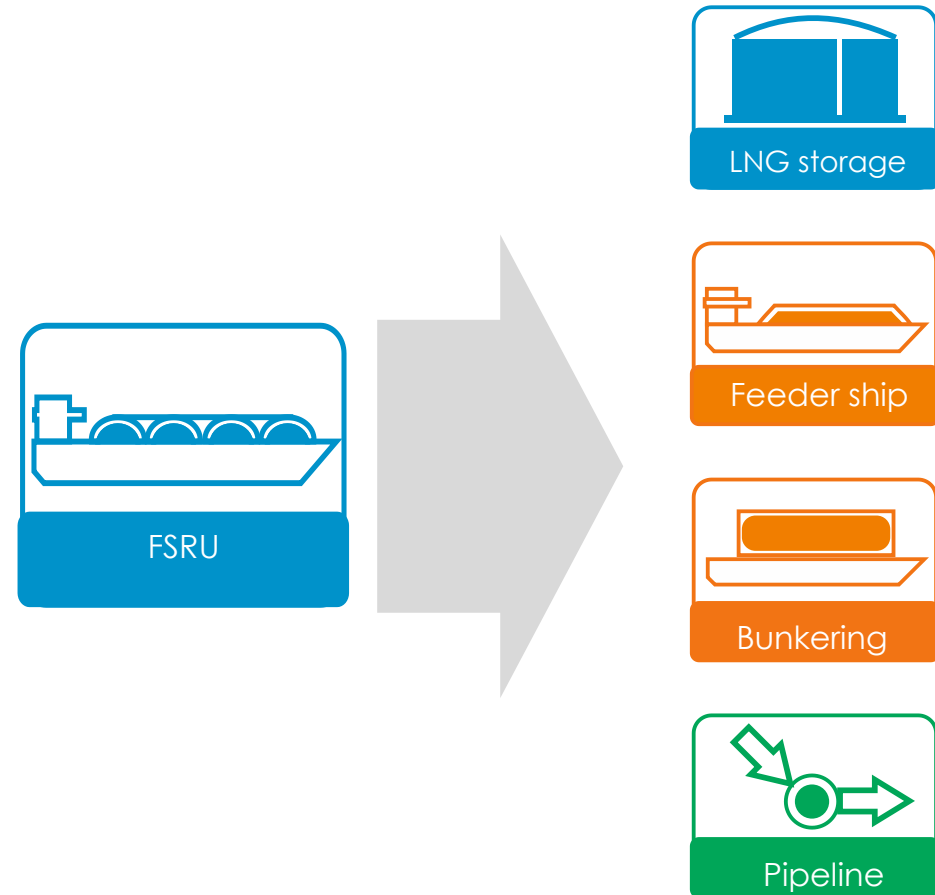


FSRU TERMINAL SERVICES

- ▶ LNG import
- ▶ LNG regasification
- ▶ LNG bunkering
- ▶ LNG reloading
- ▶ LNG storage

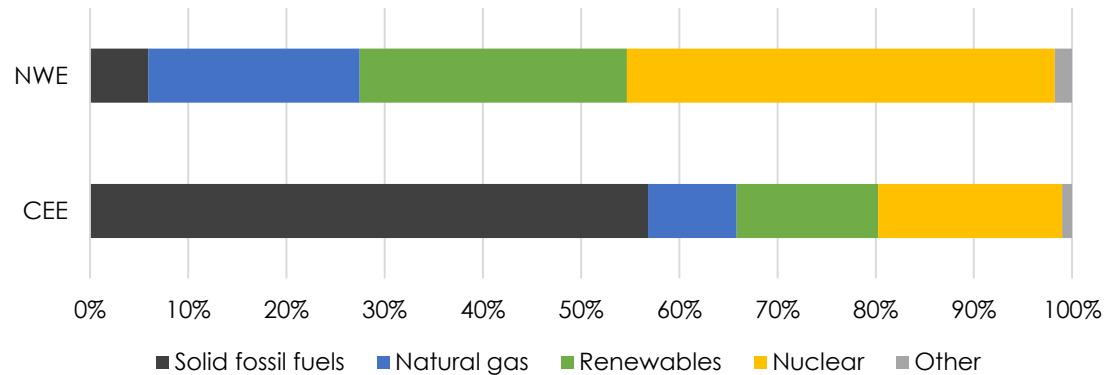
**New solutions to increase business opportunities
in the CEE and Baltic regions**

Positive influence on competition and sustainability

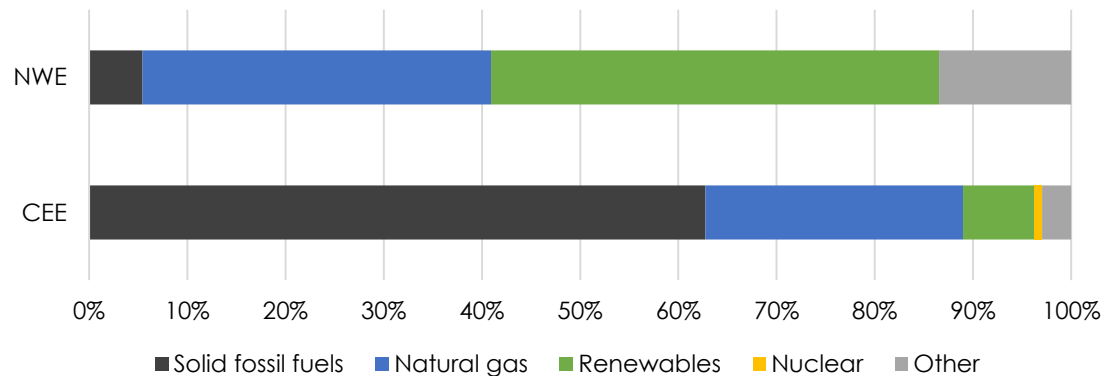


ELECTRICITY AND HEAT GENERATION

Electricity generation



Heat generation



NWE: BE, DK, FR, IE, NL, LU, SE.

CEE: CZ, HU, PL, SK.

CEE GRIP

- ▶ Coal and lignite as the primary sources in the electricity and heat generation.
- ▶ 57% of electricity produced from solid fuels in CEE. Limited but increasing role of RES (14%) and natural gas (9%).
- ▶ Solid fuels generate 63% of the heat in CEE. Natural gas with a share of 26%.

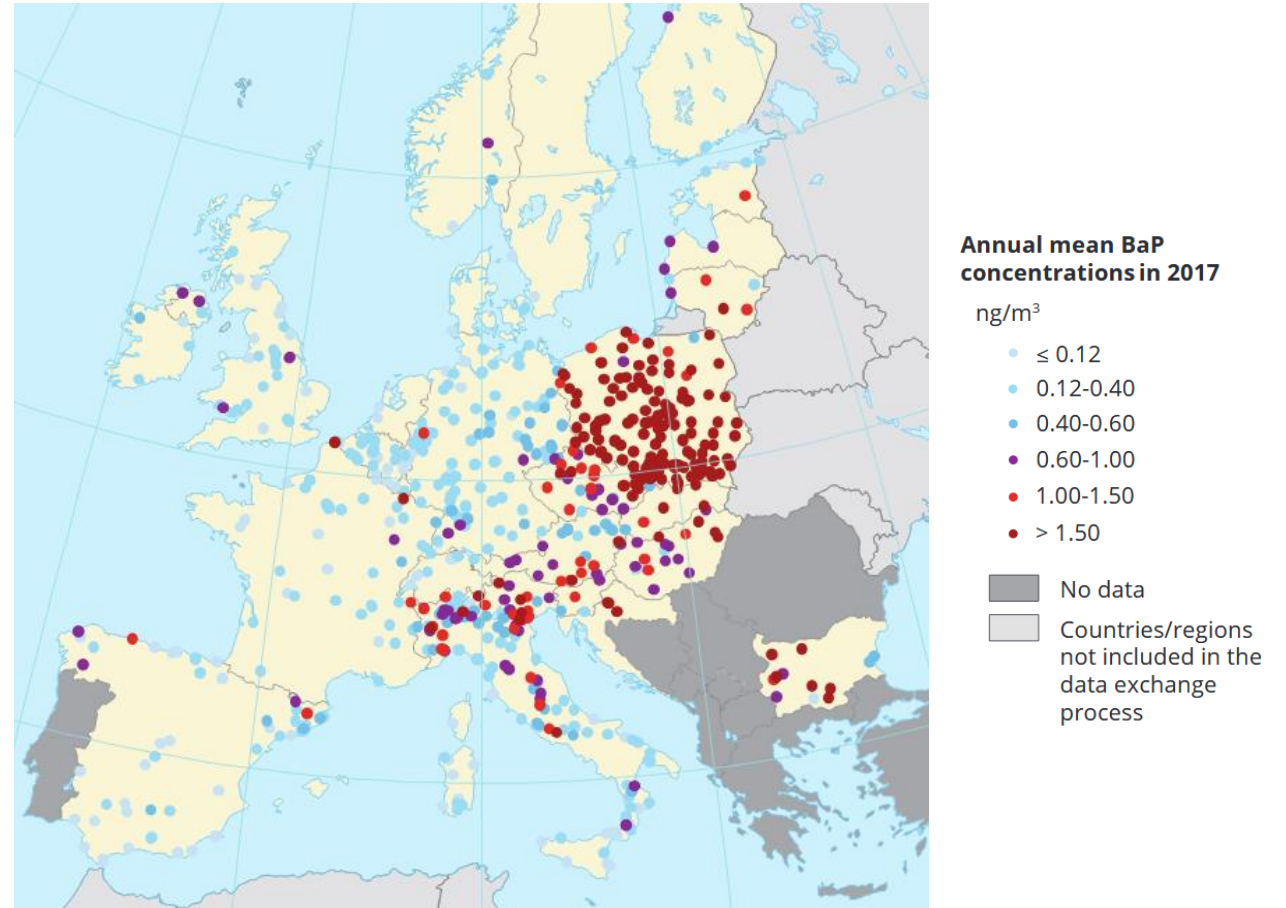
North-West Europe

- ▶ Completely different outlook in North-West Europe:
- ▶ Marginal role of solid fuels, zero-emission sources (RES, nuclear) are well-developed and supported by low emission natural gas.

AIR QUALITY IN EUROPE

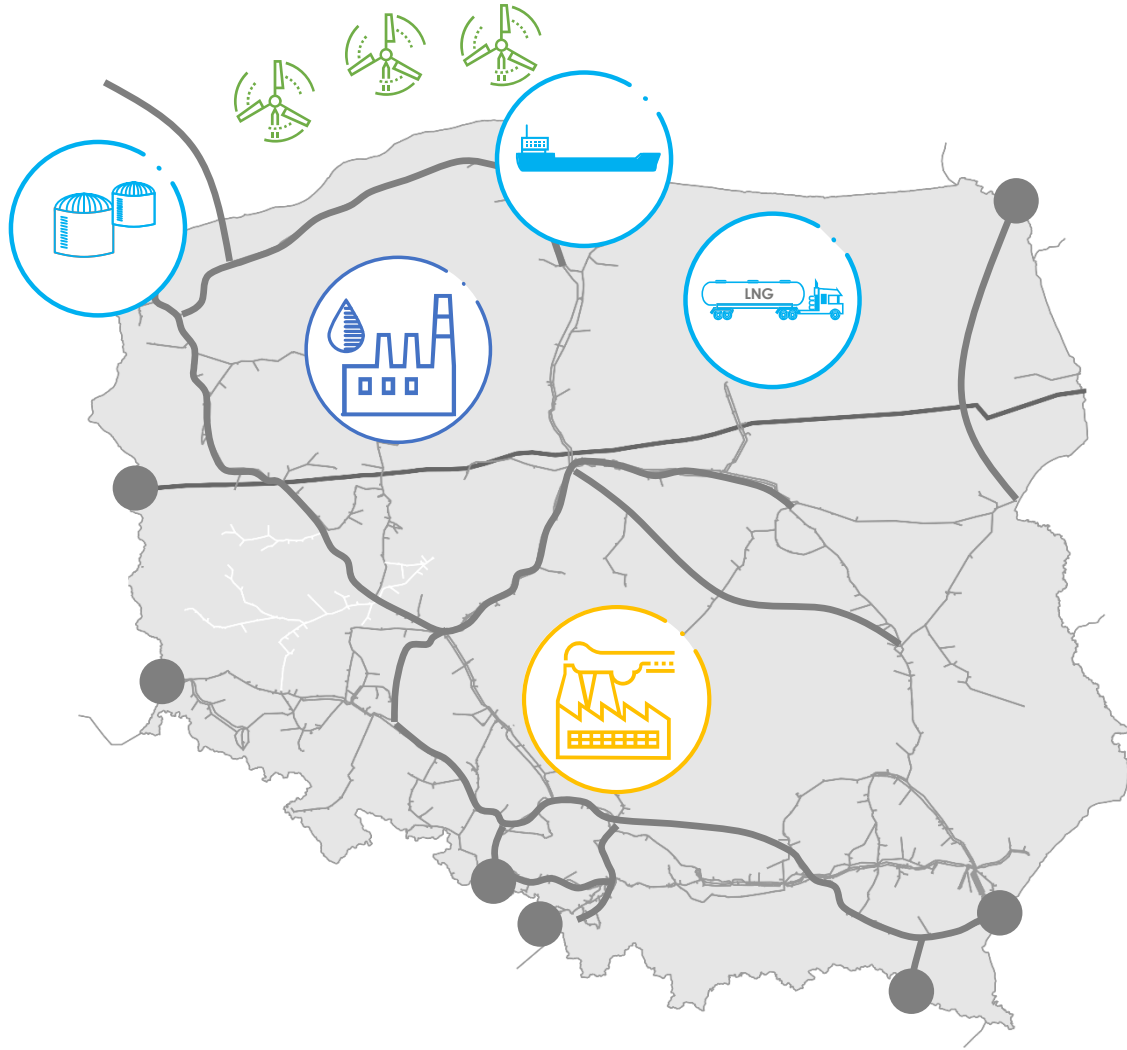
Concentrations of benzo[a]pyrene, 2017

- ▶ Concentrations of air pollutant emissions above the EU limit values.
- ▶ Air pollution in Poland and other CEE countries resulting from combustion of high emission and low-quality fuels in an inefficient way.
- ▶ Smog mainly in the heating season due to the so-called low emission (numerous sources introducing small amounts of pollutants into the air).
- ▶ Particulate matters and benzo[a]pyrene as major contributors to air pollution.
- ▶ A number of the most polluted EU cities located in Poland.
- ▶ Significant impacts on the health and economy.



Source: Air quality in Europe – 2019 report, EEA

ROLE OF NATURAL GAS INFRASTRUCTURE



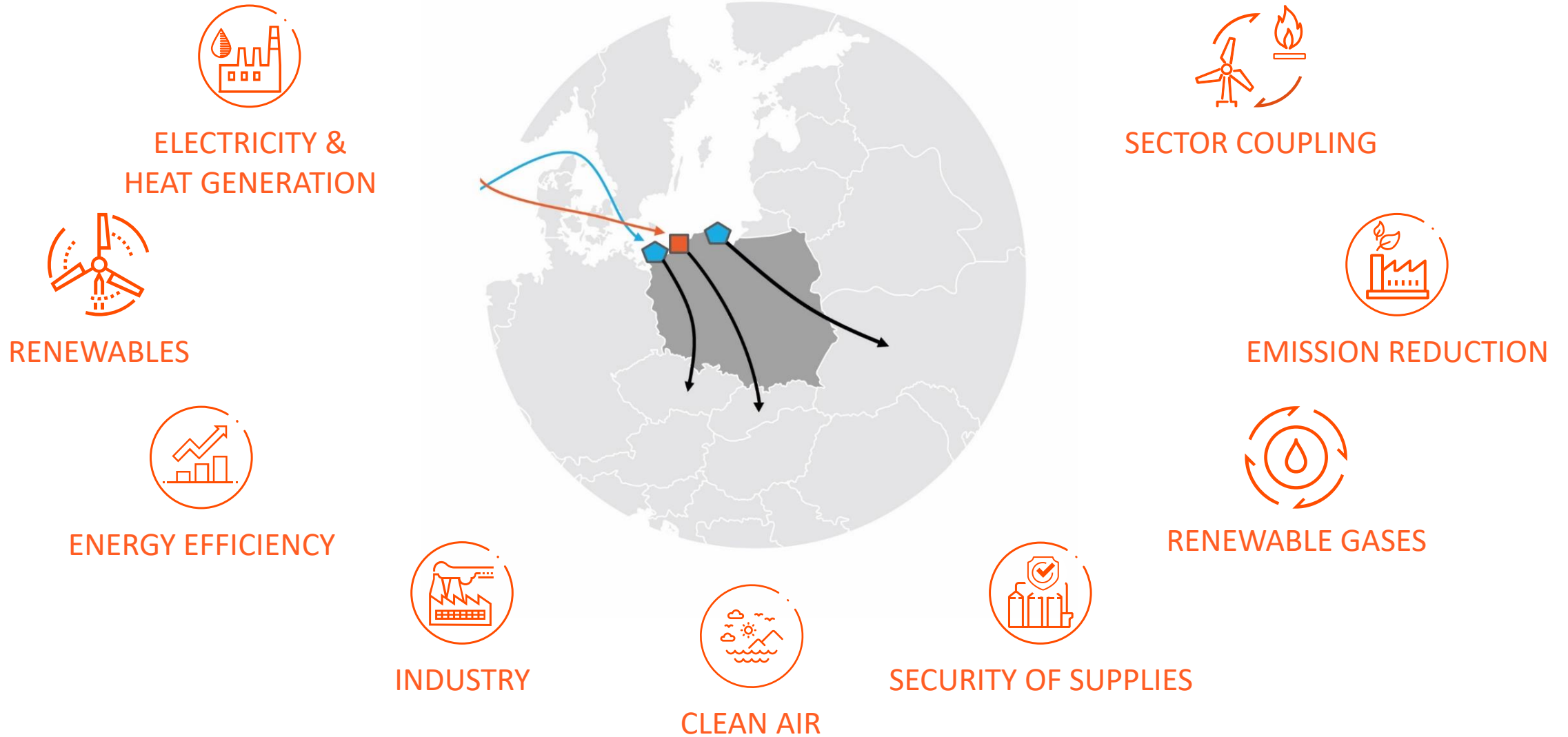
LNG in off-grid applications

Support towards integration of renewables

Natural gas in power & heating generation

Contribution towards sustainable industrial growth

NATURAL GAS INFRASTRUCTURE CONTRIBUTING TO EU OBJECTIVES



THANK YOU

