

# Development of hydrogen infrastructure by repurposing natural gas pipelines

Dennis Wehmeyer, Head of Hydrogen & Sustainability, GASCADE Gastransport GmbH

## Why repurposing natural gas pipelines?

#### GASCADE

#### **GASCADE** at a glance:

- About 500 employees
- 3,237 km pipeline network
- 11 compressor stations
- 32 compressors units
- 255 shut off stations
- 105 exit and entry points
- GASCADE network quantity transported (2021): Approx. 120 bcm



### Hydrogen potentials on the open sea!



# Flow – making hydrogen happen: Part of German H2 backbone Flow





- Hydrogen entry capacity of up to 20 GW (depending on the pressure level) in Lubmin and along the route.
- System length of ca. 1100 km in total, including:
  - ca. 950 km repurposing of existing infrastuctur
  - ca. 150 km newly built pipelines
- Commissioning of the first section in 2025 (Lubmin Rückersdorf).
- Further expansion to the Federal State of Baden-Württemberg as of 2028.
- Integration in planned European hydrogen network.
- Projekt partners: GASCADE, ONTRAS, terranets bw

## Flow – making hydrogen happen: Step by step approach



making hydrogen happen

- Step 1 as of 2025
  - EUGAL/OPAL to CS Radeland
  - JAGAL Radeland to Rückersdorf
  - Connection to partner project "H2-Startnetz ONTRAS"
- Step 2 as of 2028
  - STEGAL West Rückersdorf to CS Reckrod
  - MIDAL South with the backing SPO-System (CH4), Reckrod to Lampertheim/Ludwigshafen/Wörth/Karlsruhe
  - EUGAL/OPAL connection to PCK-Schwedt refinary, extension to Poland possible
  - Connection to partner offshore project H2 Interconnector Bornholm Lubmin (2029)
- Step 3 as of 2030-35
  - SEL to Stuttgart
  - Perspective: repurposing of EUGAL/OPAL South to Czech Republic
  - Perspective: SEL to Bravaria and by this to Austria, Liechtenstein and Switzerland
  - Perspective: connecting France



#### **Regulation: What needs to be done?**

- Enable scenario-based development of a basic network for hydrogen
  - Ability to plan for producers, traders and consumers
  - Enables the rapid development of a hydrogen economy
  - Must be dimensioned for future expected consumption
  - No region must be excluded
  - Subsequent expensive double constructions are avoided
- Integrated network planning of natural gas and hydrogen networks is essential
  - Enables cost-effective conversion of natural gas pipelines to hydrogen
  - Creates the basis for continued high security of supply
  - Creates plannability for market participants through a transparent process

#### **Regulation: What needs to be done?**

Develop principles for covering funding gaps in the ramp-up phase

- Contributes to a competitive hydrogen price
- Favors rapid market ramp-up
- Increases industry's willingness to invest in green processes
- Minimizes risk for first-movers
- European coordination is key
  - The individual national network development plans must be coordinated
  - Technical framework conditions, such as gas quality, pressure and capacities
  - But tariffs at Cross-border points must be remained





## Flow – Making Hydrogen Happen (flow-hydrogen.com)



# AquaDuctus (aquaductus-offshore.de)

