

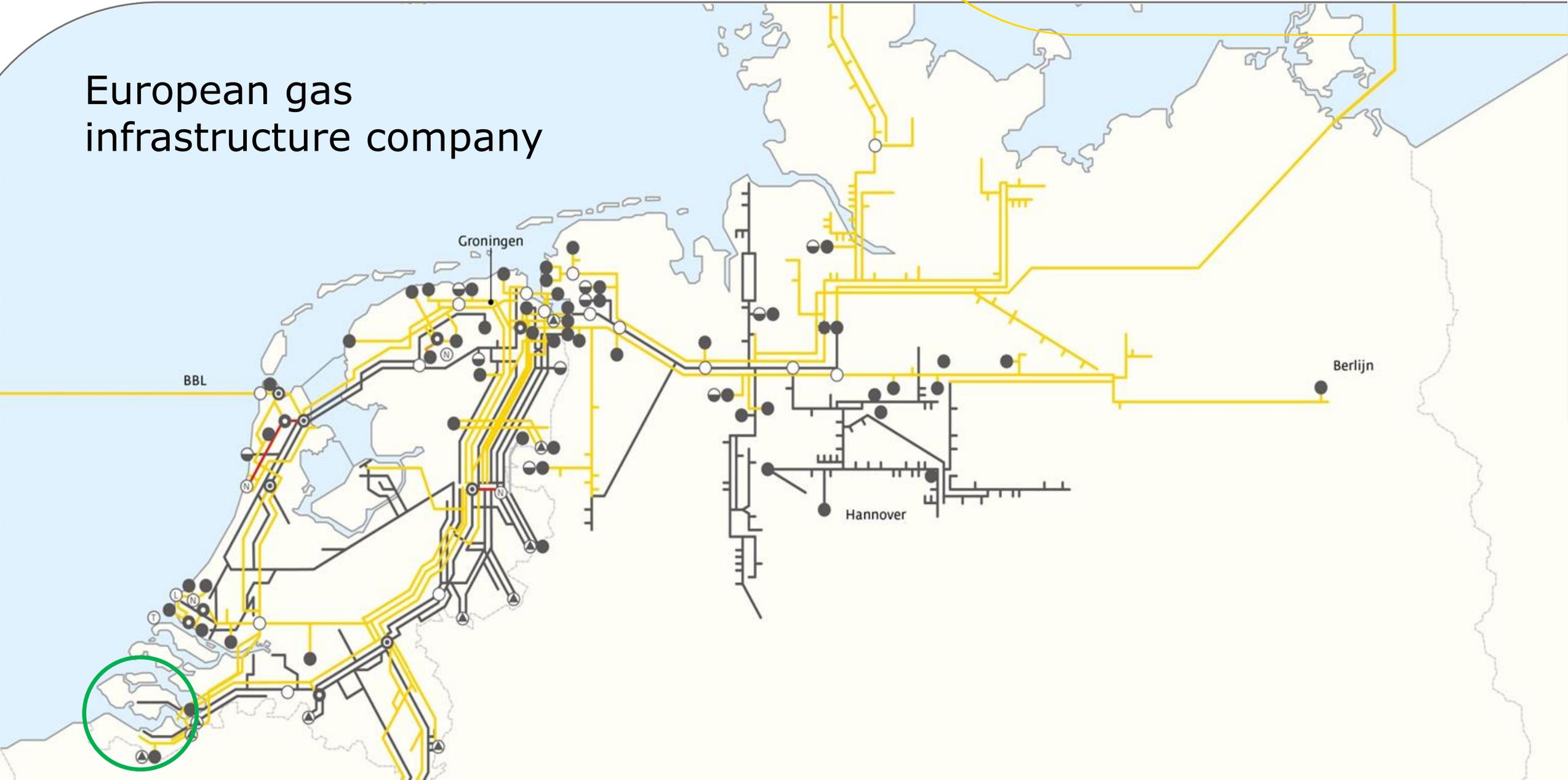
Using existing infrastructure for transport of hydrogen

Field deployment, experiences and next steps

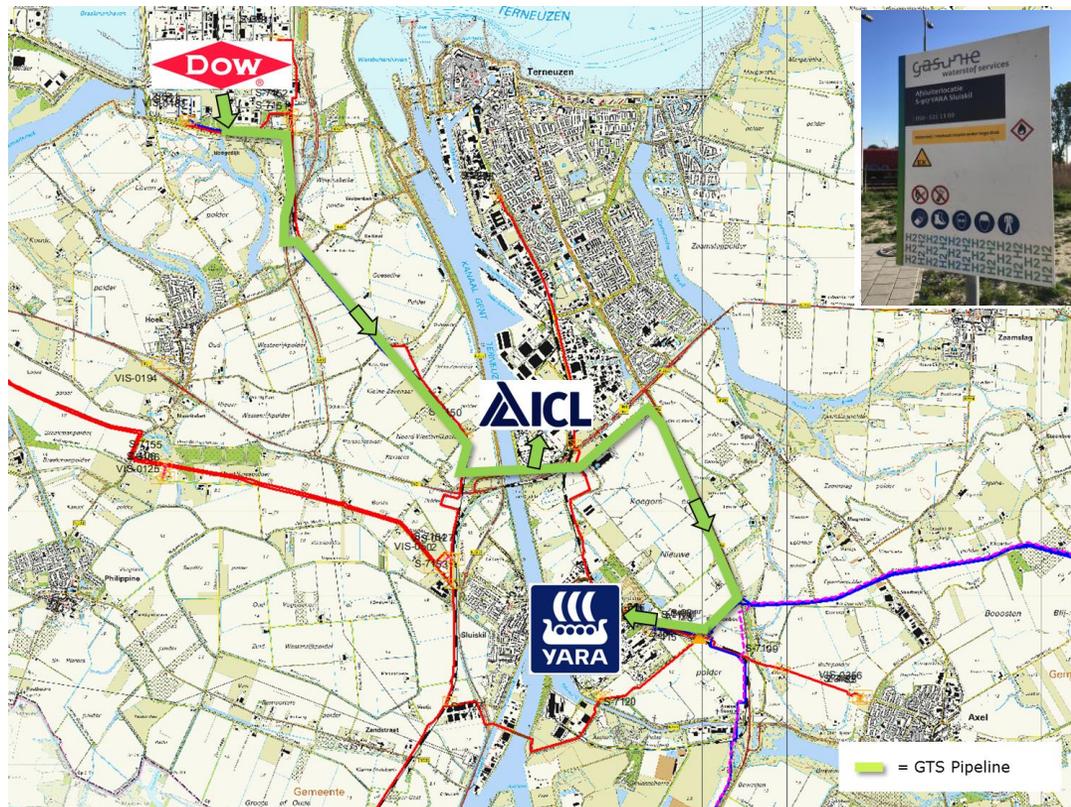
Jeroen Zanting



European gas infrastructure company



Hydrogen transport – in operation since 2018



- Former natural gas pipeline
- 12 km of steel pipeline
- No compression or metering
- Adjusted maintenance, repair and emergency procedures

Technical solutions

- Existing hydrogen infrastructure consists of steel pipeline
- Static and dynamic pressure behaviour within safe operating range
- Integrity not affected by hydrogen
- Other compressor type required
- Fiscal metering is being developed

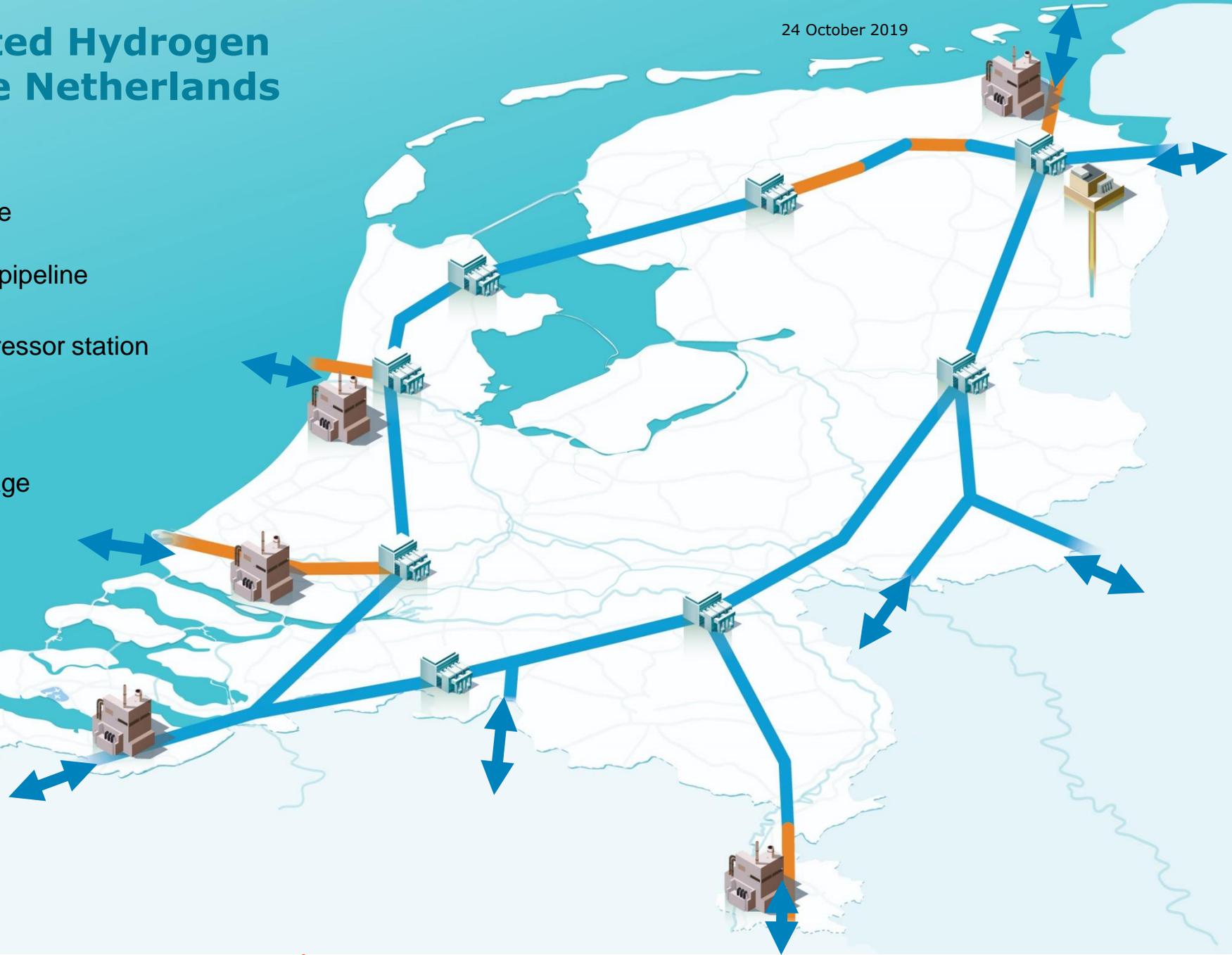


Future dedicated Hydrogen Network in the Netherlands

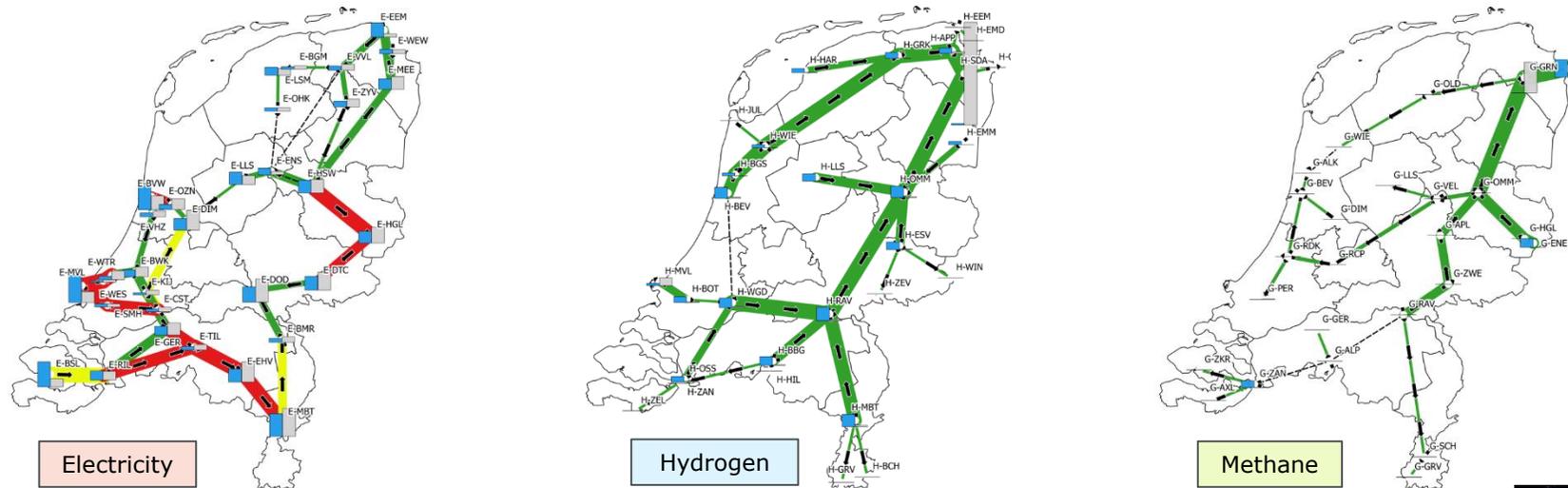
24 October 2019

#5

- Existing pipeline
- New hydrogen pipeline
- Modified compressor station
- Industry cluster
- Hydrogen storage



Electrolysers should be located near wind and sun



Local scenario: sun + onshore wind

June 2050, 12:00 noon

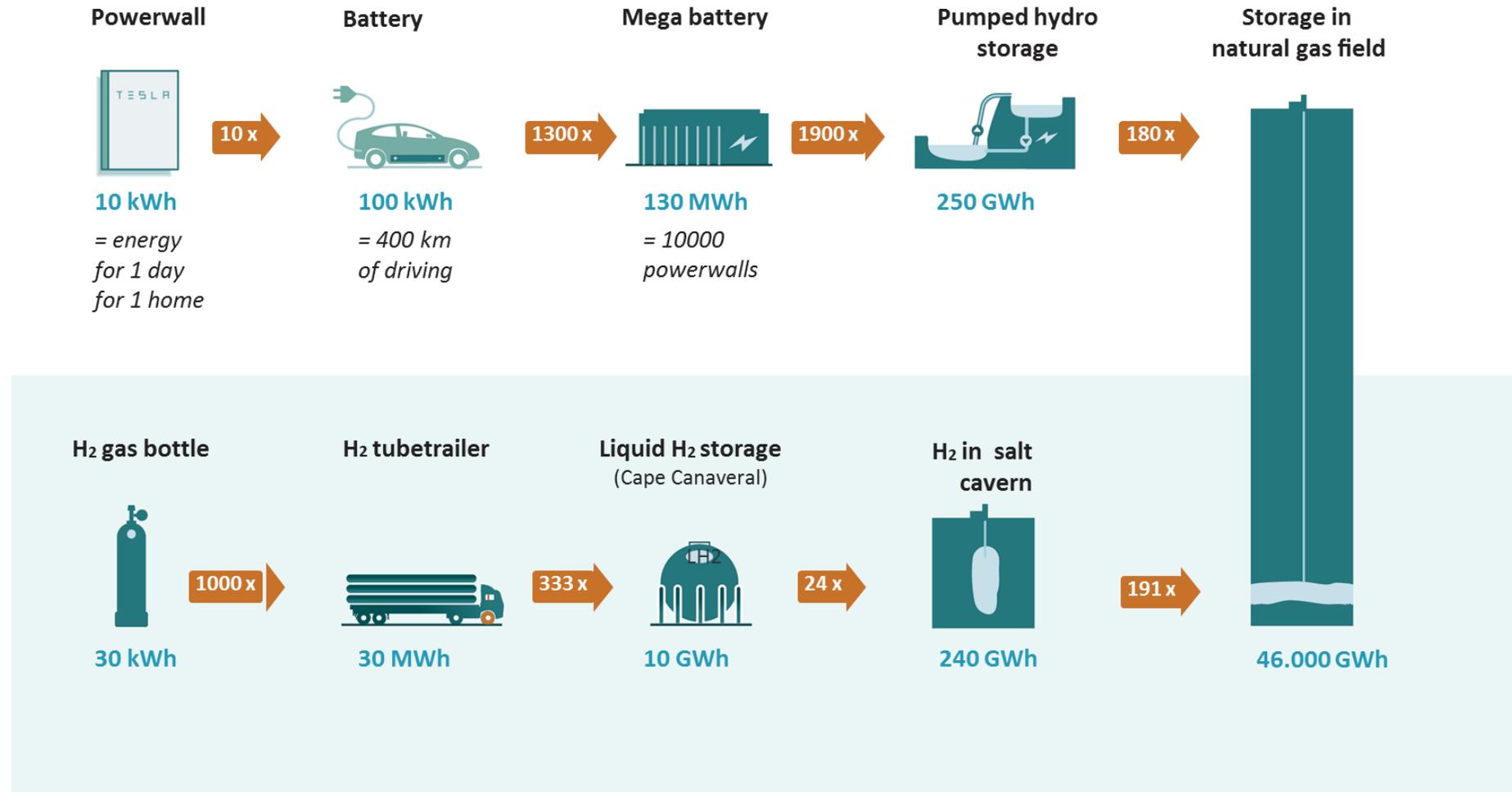
Electrolysis near the market

Supply
Demand

Loading
---None---
Normal
High
Overloaded



Electron and Molecule Storage in perspective



Towards a hydrogen economy – Next steps and requirements

- ✓ Infrastructure company model facilitates hydrogen infrastructure development
- ✓ Blending into existing networks complementary to dedicated hydrogen transport
- ✓ A future energy system is coupled electricity, gas and heat networks
- ✓ Development of a market means push & pull factors for production and supply
- ✓ Eligibility of funding for network adjustments/refurbishments
- ✓ Cooperation between all market parties