



Conexus Baltic Grid conference:

**Contribution of the underground gas storages
in solving the supply security issues**

22 November 2018, Riga

Gas Infrastructure Europe (GIE)



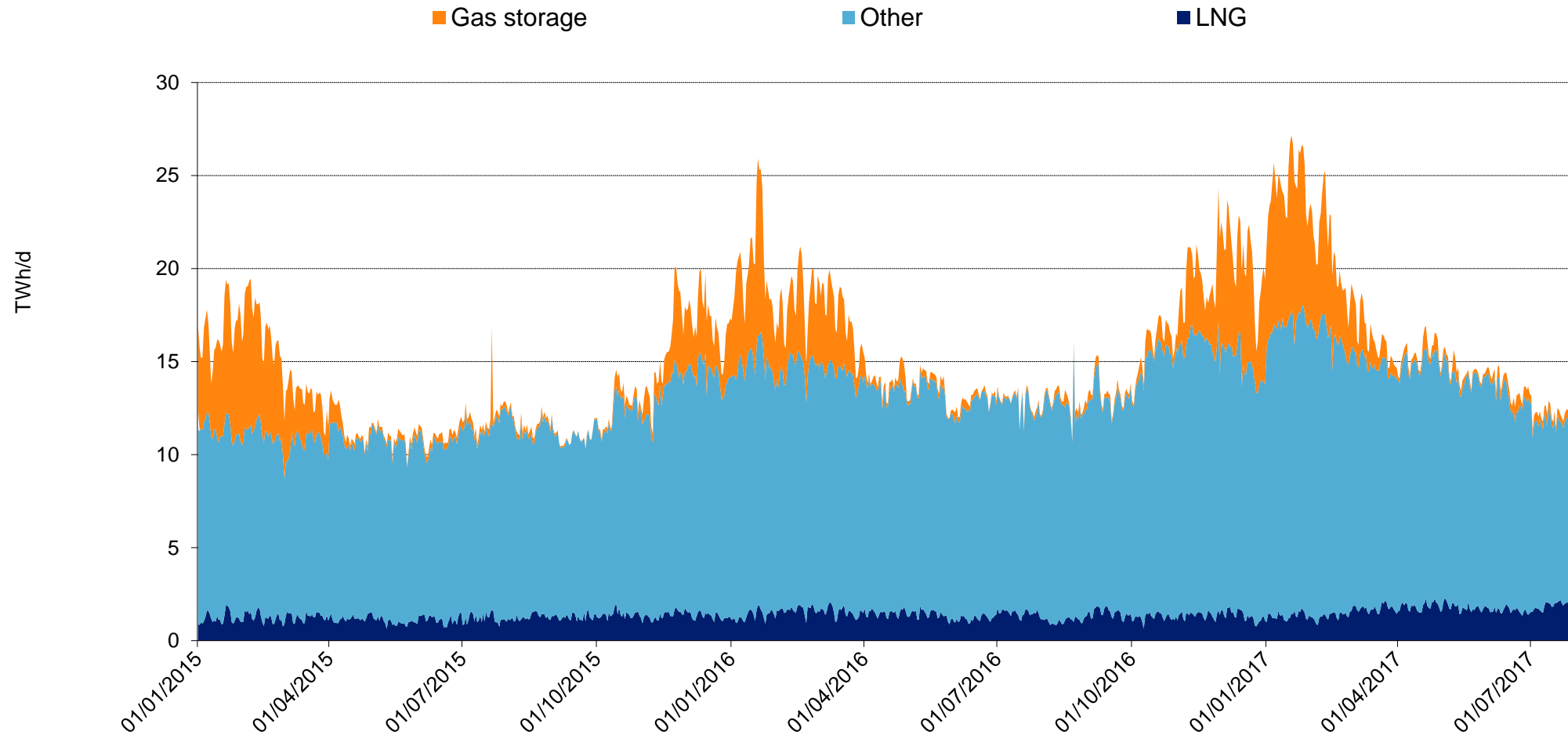
- is an association representing the interests of European natural gas infrastructure operators active in natural gas transmission, storage and LNG regasification
- 68 member companies, 6 observers, 25 countries
- committed to actively contribute to the design and implementation of a transparent, secure, sustainable and competitive gas market in Europe
- GIE enhance transparency (AGSI, ALSI, maps, databases etc)



Gas storage plays and will continue to play a vital part in the EU gas market



European Gas Flows 2015-17

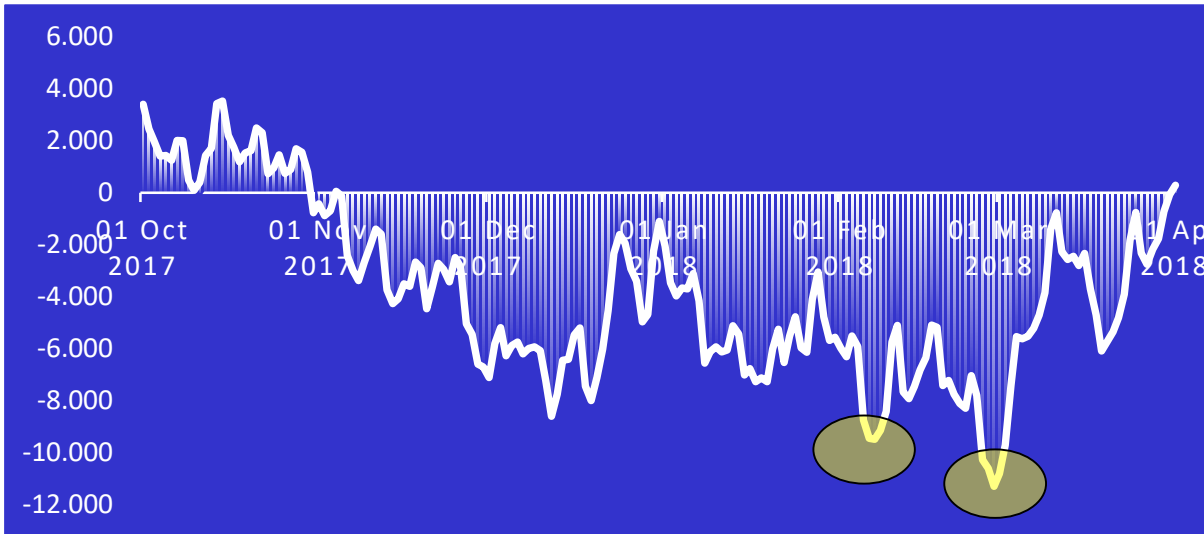


Source: ENTSOG Transparency Data, National Grid

Key highlights from last winter

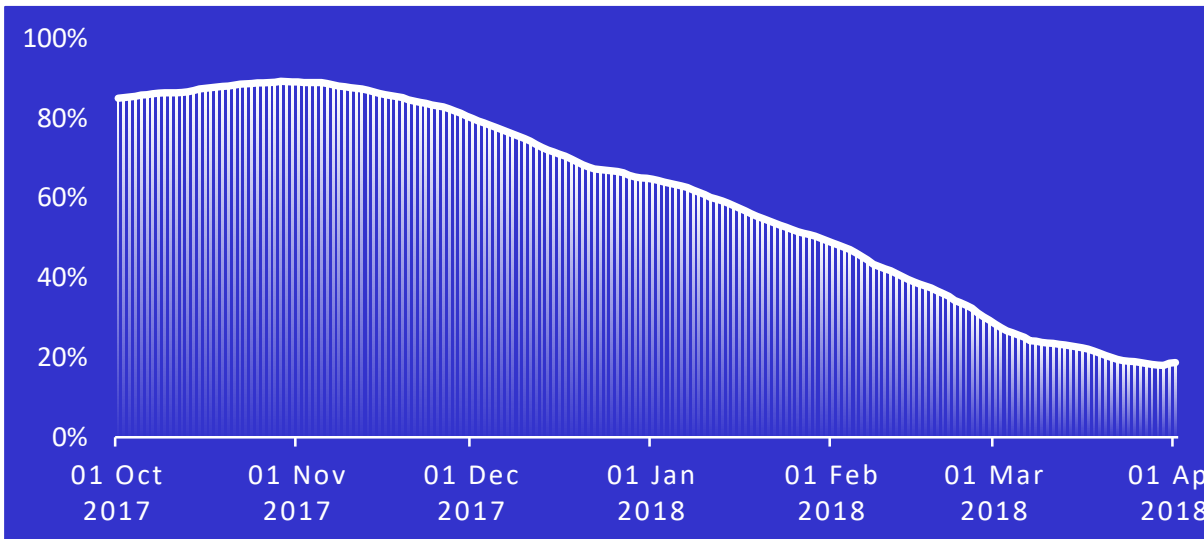


GWh/d



✓ The response to the higher demand for gas was an increase in send-out rates from gas storage

✓ During cold snaps, the storage daily withdrawals reached 11.4TWh (28/02/2018), the highest since 2011

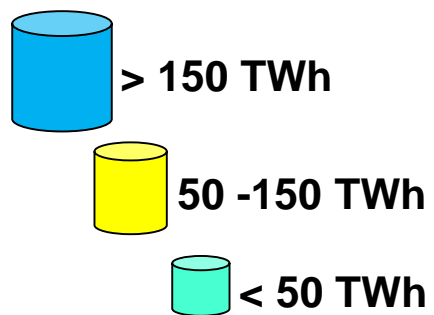


✓ Gas stock level at the end of winter season was at 18% or 190TWh (the lowest in 5 years)

✓ In some countries the gas stock level dropped as low as 2%.



European gas storage working volumes per MS



The EU regulatory framework for the gas storage market

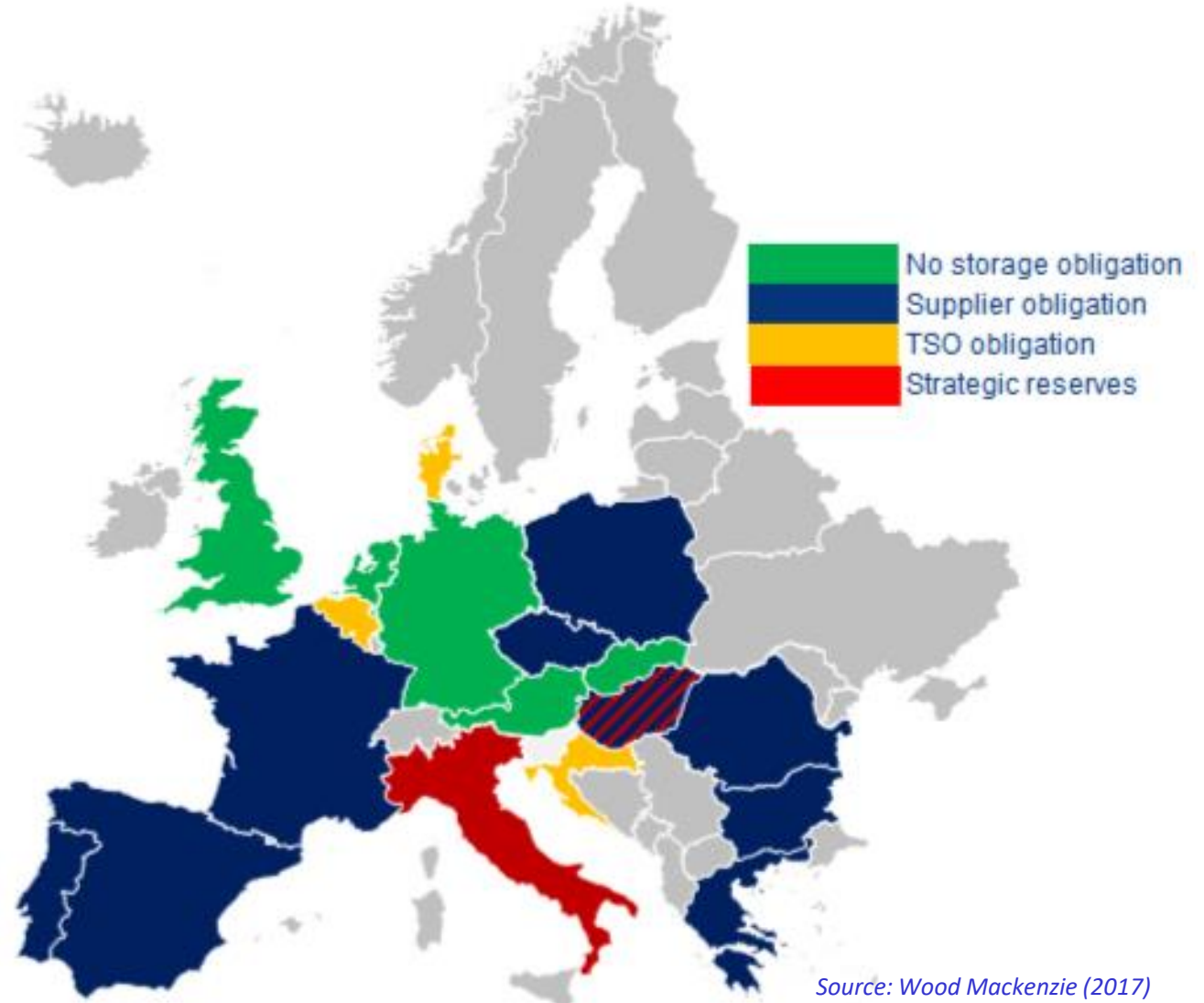


3rd energy directive

- ✓ Ownership unbundling (generation from transmission)



- ✓ Network codes





Source: Wood Mackenzie (2017)

VISIBLE

INVISIBLE

The market value

Physical adjustment of seasonal and peak demand

- **The intrinsic value** 
Temporal arbitrage between summer and winter
- **The extrinsic value** 
Temporal arbitrage in balancing variable supply and demand across days or weeks

The system value

- *Reducing the need for extra-large networks*
- *Aiding pressure and congestion management*

The insurance value

- *Avoiding risks to SoS and extreme prices*

Gas storage provides multiple benefits to the energy system

- Gas storage brings insurance and system value to market participants and system operators

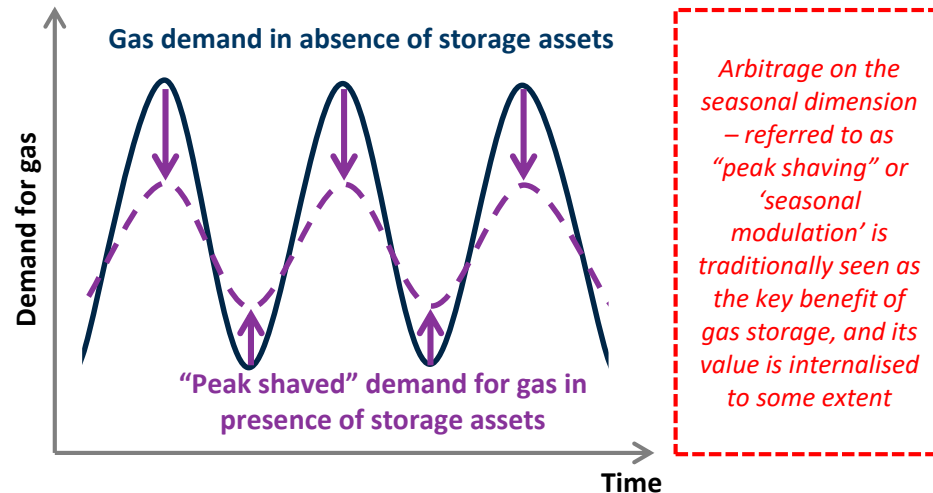
Insurance value

Gas storage brings benefits to the whole gas and electricity value chain as it enables arbitrages on broad spectrum of temporal dimensions (hourly, daily and seasonal) and contributes to security of gas and electricity supplies even at regional level.

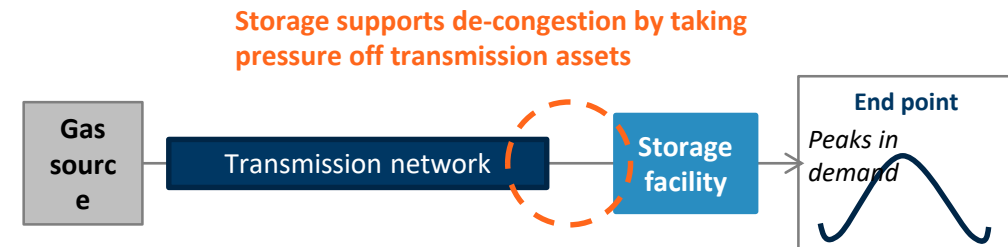
System value

Gas storage brings value to gas networks owing to its ability to support localised system services, e.g. by supporting network de-congestion and offering the possibility of optimising capital expenditures to meet peak demands.

Gas storage enables arbitrages on a range of temporal dimensions



Gas storage supports efficient dimensioning and use of networks



The role of gas storage in offering insurance and system values will drastically increase in a decarbonized integrated energy system

- The future evolution of the energy system will increase the insurance and system value of gas storage

Insurance value

As energy system becomes yet more integrated, with more interdependent flows across greater distances, resilience will be even more valuable

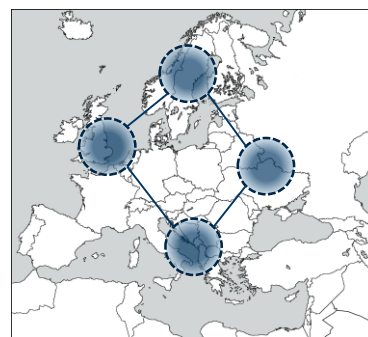
Even across greater distances, resilience will be required at ever shorter timescale

System value

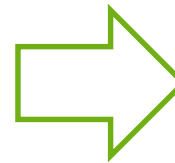
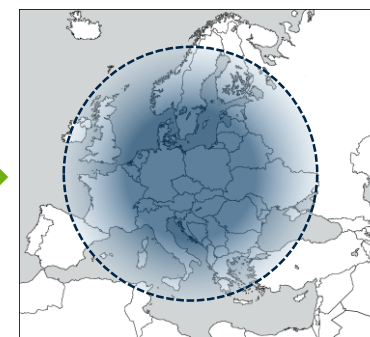
Overall, gas storage will help to ensure, in the energy transition:

- Expansion of the energy system as a whole at the lowest cost
- Efficient investment
- Optimisation of decarbonisation pathways
- Future energy security

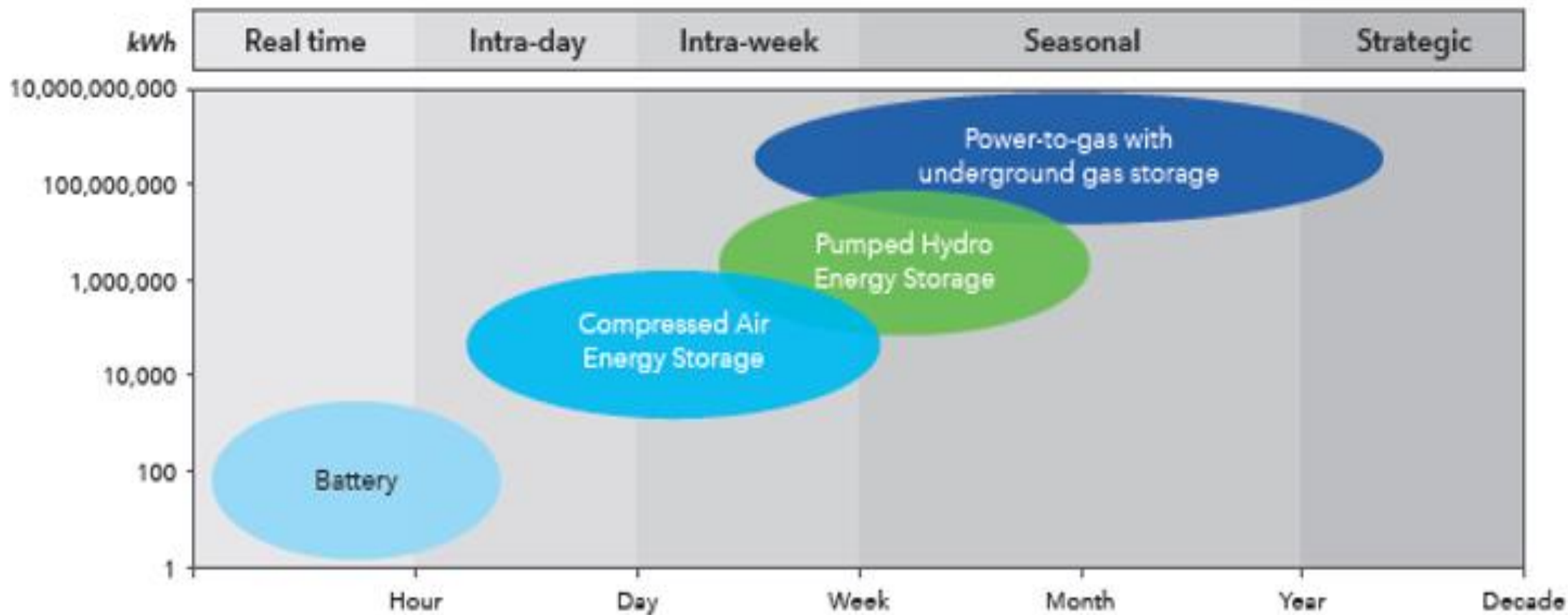
Now – gas storage acting across Europe but largely locally



Future – more integrated pan-European energy system will increase footprint of gas storage effects



Typical storage capacities and time scales of different network scale technologies



The current market conditions



TTF summer-winter spreads (2007-2017)



Declining spread lead to a closure of too many storages in the wrong locations

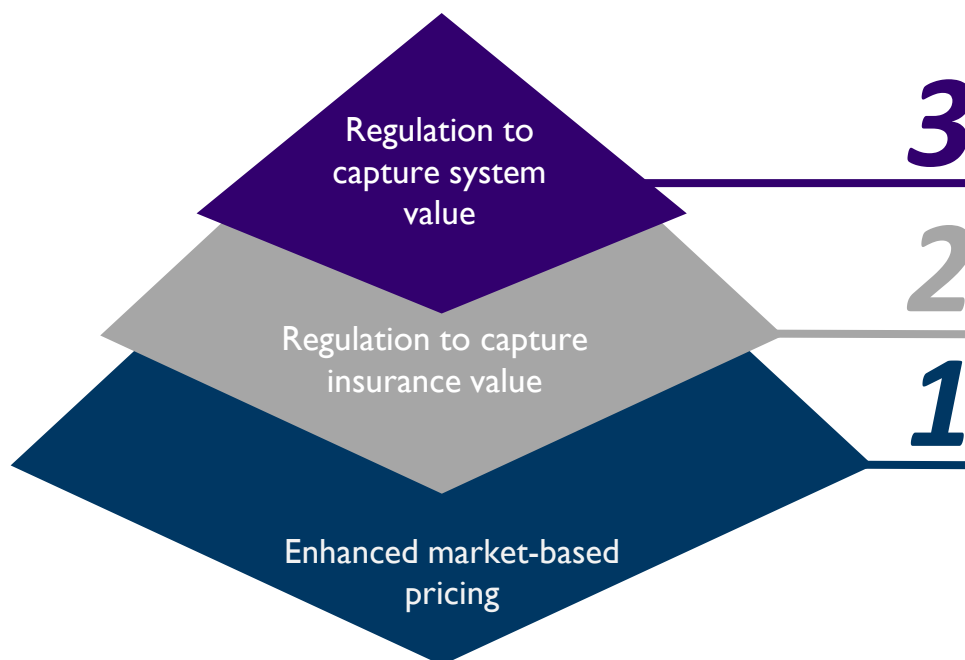
FTI-CL Energy study

Enhanced market-based pricing should be the backbone, supported by regulatory measures which address externalities



Storage business model in an energy integrated system

- Enhanced market-based pricing should continue to be central to the gas storage business model.
- Regulatory measures should be deployed to internalise externalities which market-based pricing does not capture.



Social benefits:

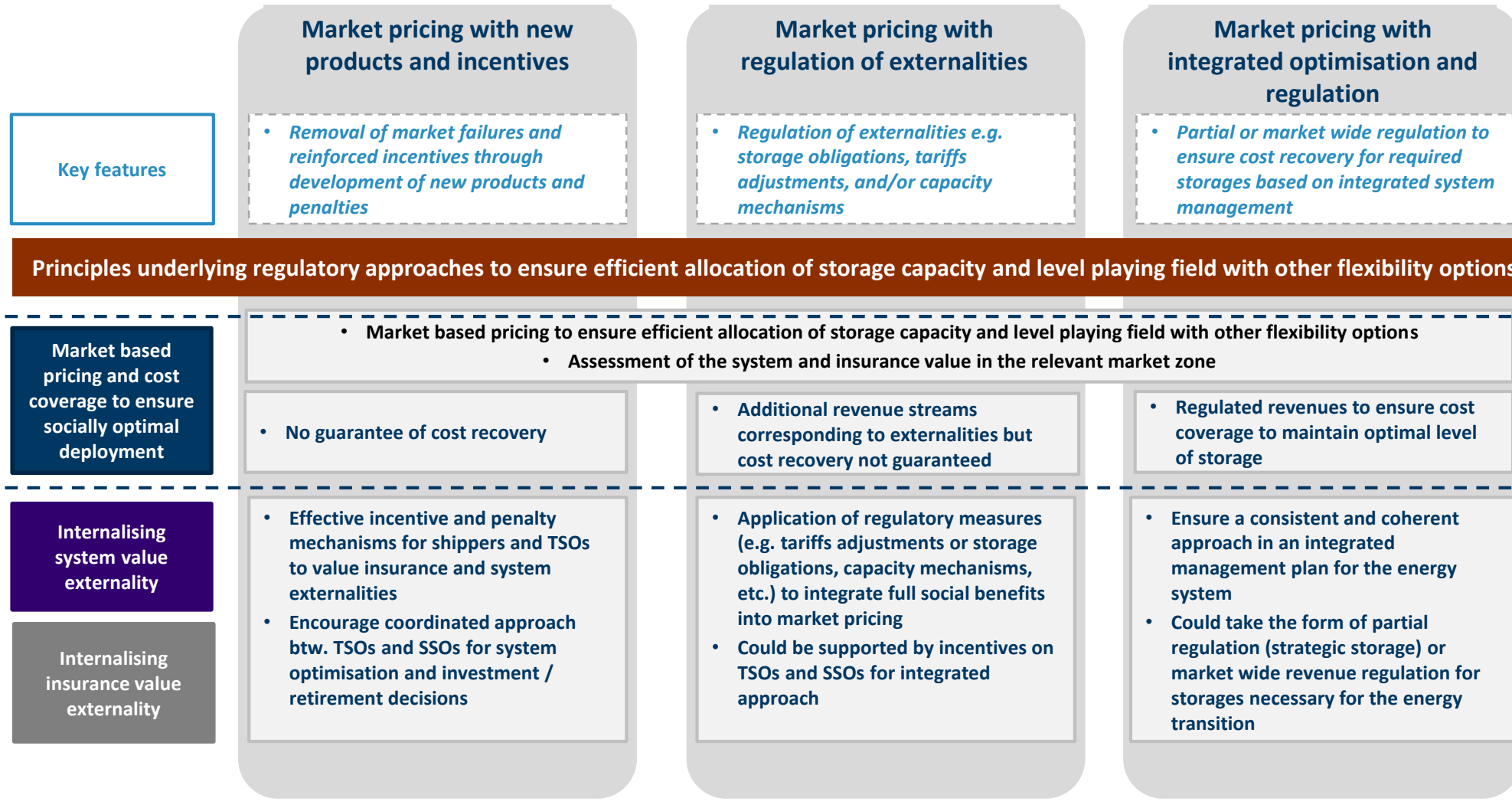
- Additional measures could be considered to ensure that society continues to benefit from the insurance and system value of gas storage
- Consistent and “coupled regulation” to support efficient sector coupling
- If deemed necessary, facilitate cost recovery to ensure SSOs can maintain a socially optimum level of storage

Market enhancements:

- Enhanced market-based pricing to capture arbitrage benefits across different times frames and geographies
- Removal of market failures through development of new products and penalties

FTI-CL Energy study

Various regulatory approaches can be deployed to account for positive externalities and ensure long-term sustainability of gas storage



- 1) Gas storage as major flexibility provider could further facilitate market convergence towards the greener-mix by fostering the spread of renewable gases**
- 2) Only an evolving regulatory framework integrating the exploitation of positive economic and environmental externalities will meet emissions targets in a cost-effective manner**
- 3) Wherever the current framework does not already recognize/reward the full value of the underground gas storages, GIE supports an evolving EU regulatory framework that enables to move to market-based pricing, in order to achieve efficient gas storage use in a level playing field**
- 4) Government and NRAs need to ensure that value of positive insurance and system externalities created by gas storage are assessed and adequately captured in the regulatory framework**
- 5) In doing so, a ‘silo’ approach should be abandoned and instead a holistic view could be adopted to optimize an investment planning across the full energy system.**



Thank you for your attention and interest