

The contribution of gas storage in supporting the EC's long term vision

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Stream C: European storage









Moving to higher levels of RES requires gas seasonal storage





Higher share of RES means higher share of energy to be stored



Countries concerned:Belgium, France, Denmark France, Germany, the Netherlands, Sweden, Switzerland and the Czech Republic

Gas storage volume is more than 350 times larger than electricity storage volume in GGI countries + CZ

Source: Frontiers based on Gas Infrastructure Europe, ENTSOE and DOE



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Characteristics and key transition challenges in different phases of integration of renewables



Key challenges by phase in moving to higher levels of integrating variable renewables in power systems

Towards need for seasonal storage

Source: WEO Outlook 2018

Annual share of variable renewables generation and related integration phase in selected regions, 2017



Many regions are in Phase 1 and 2, with a handful in Phase 4

- Towards need for seasonal storage in step 4



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Converting primary energy in a cost effective way

Creating interconnected systems

Meeting the diverse needs

Enabling more efficient deployment of renewable energy resources

Accelerating the reduction of CO2 reduction

Efficiently integrating various sectors while alleviating stress on the power grid thereby increasing renewable integration







Evolving regulatory framework to unlock full potential of gas storage



Key principles of a regulatory framework for gas storage to recognise its constribution to the energy system

The regulatory framework for gas storage should...

establish market based pricing as the foundation of efficient gas storage use	 Market based pricing should be maintained/generalised in order to ensure that gas storage is allocated efficiently And to ensure that gas storage can compete on a level playing field with other sources of flexibility across the energy system
seek to ensure that value of the positive externalities created by gas storage are captured	 The regulatory framework should seek to internalise the value of externalities through incentives or obligations, depending on the regulatory approach adopted In particular, the framework should seek to capture the insurance and system values of gas storage
facilitate cost recovery for the socially optimum level of storage in the transition toward a market based decarbonised system	 Given the deterioration of merchant revenues in light of declining spreads, gas storage may require regulatory support to ensure cost recovery to maintain the socially optimum level of gas storage in the transition towards a decarbonised energy system
ensure that the role of gas storage in the energy transition is considered via a holistic approach of the energy system transition	 The framework should take a holistic view on the role of gas storage as part of the full energy system decarbonisation through cross-sector optimisation Integrated system optimisation and investment planning should factor in the cross sectoral value of storage and the long-term benefits of maintaining sufficient gas storage capacity

The role of gas storage across the whole energy sector calls for revisiting the regulatory framework to introduce a holistic approach and value positive externalities



GIE - FTI study (August 2018) Measures for a sustainable gas storage market



Evolving regulatory framework Illustration with the Italian and French case

Regulation scheme



Regulation with auctions-based mechanism

- Selling the capacities through auctions
- Defining an allowed revenue
- Compensate auctions revenues to reach allowed revenue, through transmission tariff

Evolving regulatory framework







Innovative solution



MÉTHYCENTRE project

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