Energy Storage:
a Key Resource for Cross-Sectoral Flexibility

Thursday, 2nd July 2020

Ákos Kriston - CEO of Hungarian Gas Storage

Agenda

I. GIE - The voice of Gas Infrastructure in Europe

II. GIE-GSE studies

III. Storage is not only an enabler, but a driving force of the energy transition and beyond

IV. Gas storage, provider of flexibility services in the gas sector

V. Gas storage prevents higher operating and investment costs in the electricity sector

VI. Gas storage reduces variability of electricity prices

VII. Zoom on Aquamarine Project, an integrated energy system solution

VIII. Many other GSE innovative projects...

GIE - The Voice for Gas Infrastructure in Europe

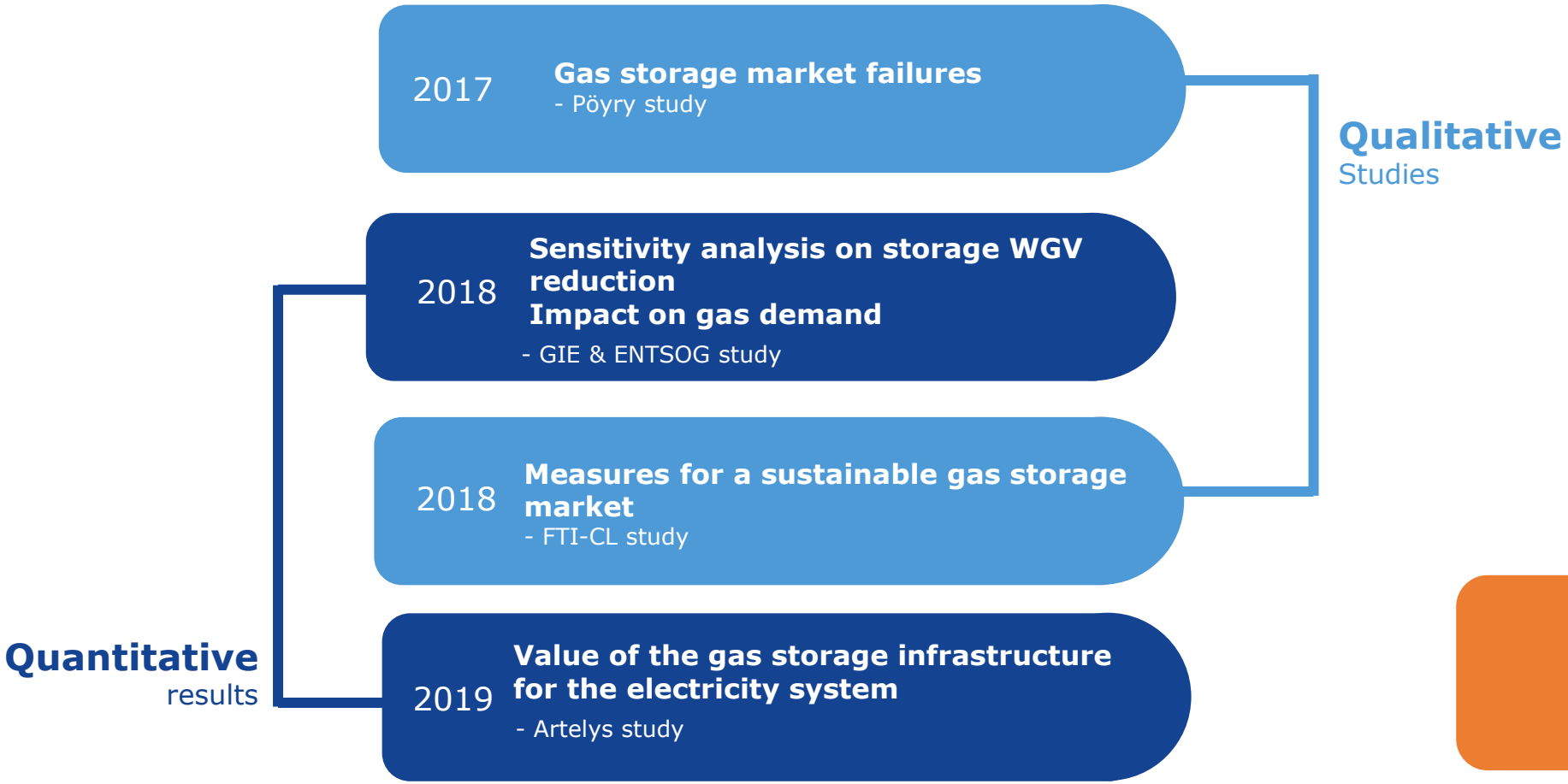
Established in 2005, **GIE** is a European representative association with 69 members from 26 countries.

GIE represents the sole interest of the infrastructure industry in the gas business under three columns:

- Transmission (TSO)
- Storage (SSO)
- LNG (LSO)

GIE focuses on the value created from our assets for consumers and users.

GIE - GSE studies



Inputs for Madrid Fora
(2017 – 2019)

Storage is not only an enabler, but a driving force of the energy transition and beyond

2020

A cross-flexibility tool

2030

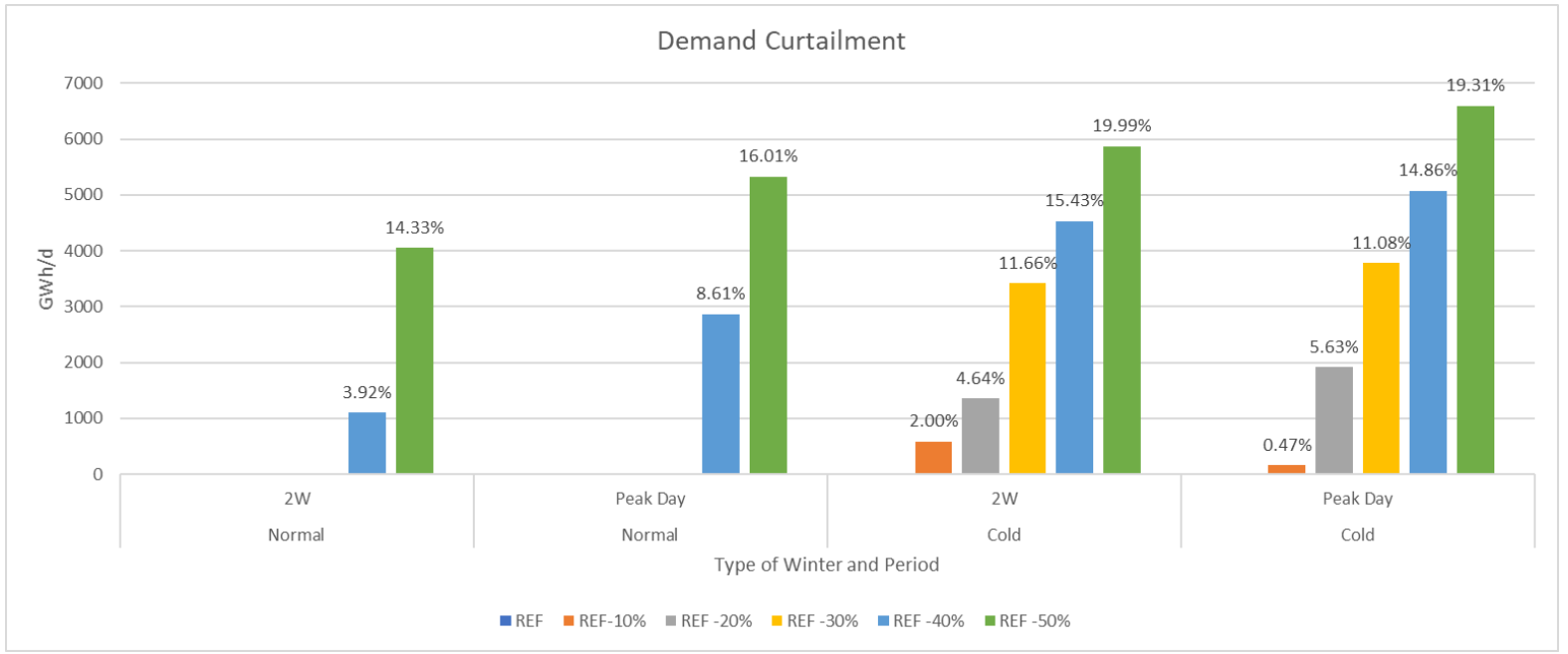
Enabler of energy transition

2050

A key driver

Gas storage, provider of flexibility services in the gas sector

Source: GIE-ENTSOG study, 2018



At **10%** reduction > **Gas** demand curtailment

Today **Molecules ≈ 80%** final energy consumption in the EU

Gas demand curtailment much higher with further reduction

Gas storage prevents higher operating and investment costs in the electricity sector

Main outcome

Sufficient flexibility in the electricity system to compensate for the reduction of gas storage capacity only to a certain level

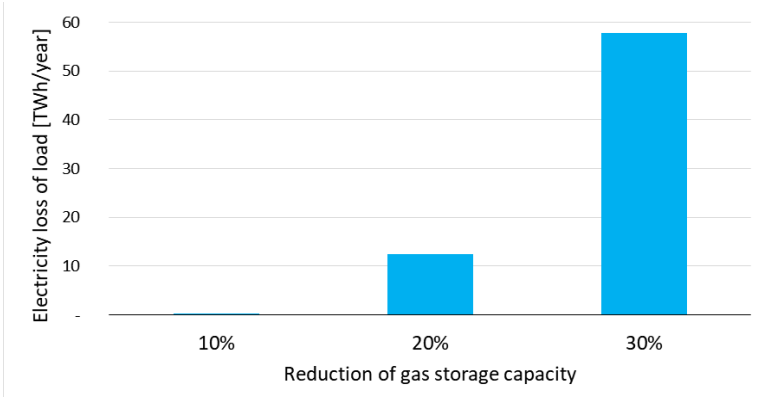
System value

Important investments can be avoided thanks to the presence of gas storage at the European level

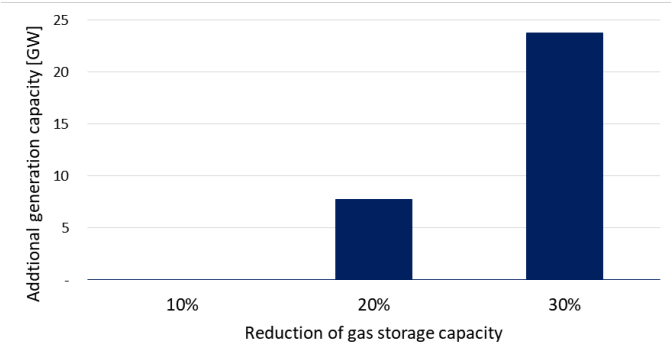
Extra-costs in the electricity system from 10% of gas storage capacity reduction → Additional operating costs of more expensive units 1B€/year

Between 10% and 20% of gas storage capacity reduction, electricity demand curtailment arises.

System value with 30% of gas storage capacity reduction → 23 GW
CAPEX 55B€ + OPEX 8B€/year



Gas storage flexibility is essential to ensure security of supply



Gas storage assets prevent investments in electricity generation

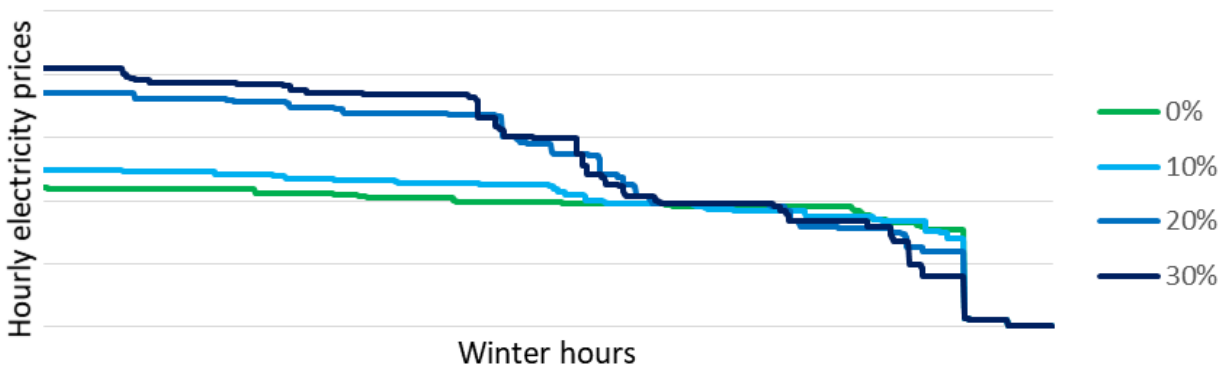
Source: GIE/Artelys study, see Madrid Forum 2019 background documents

Gas storage reduces variability of electricity prices

Price volatility

The presence of the gas storage ensures lower electricity price volatility

With 30% reduction of gas storage, the variability of power prices is found to double

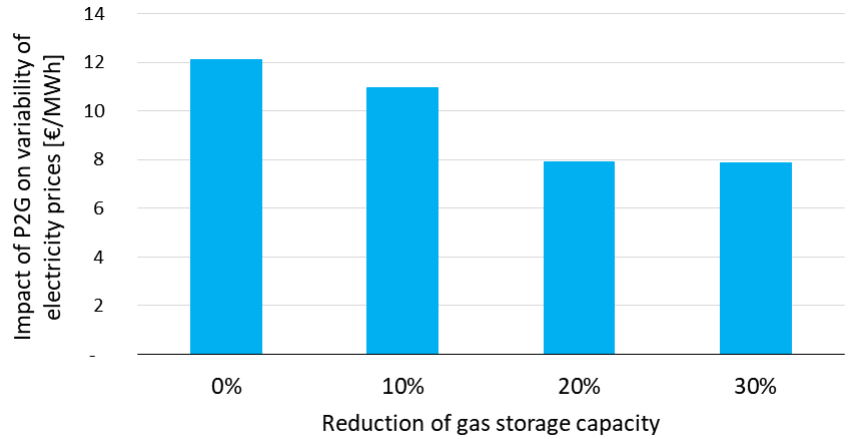


Gas storage reduces the variability of power prices

Insurance value - P2G

The ability of P2G to reduce electricity price variability is most effective with high gas storage capacity

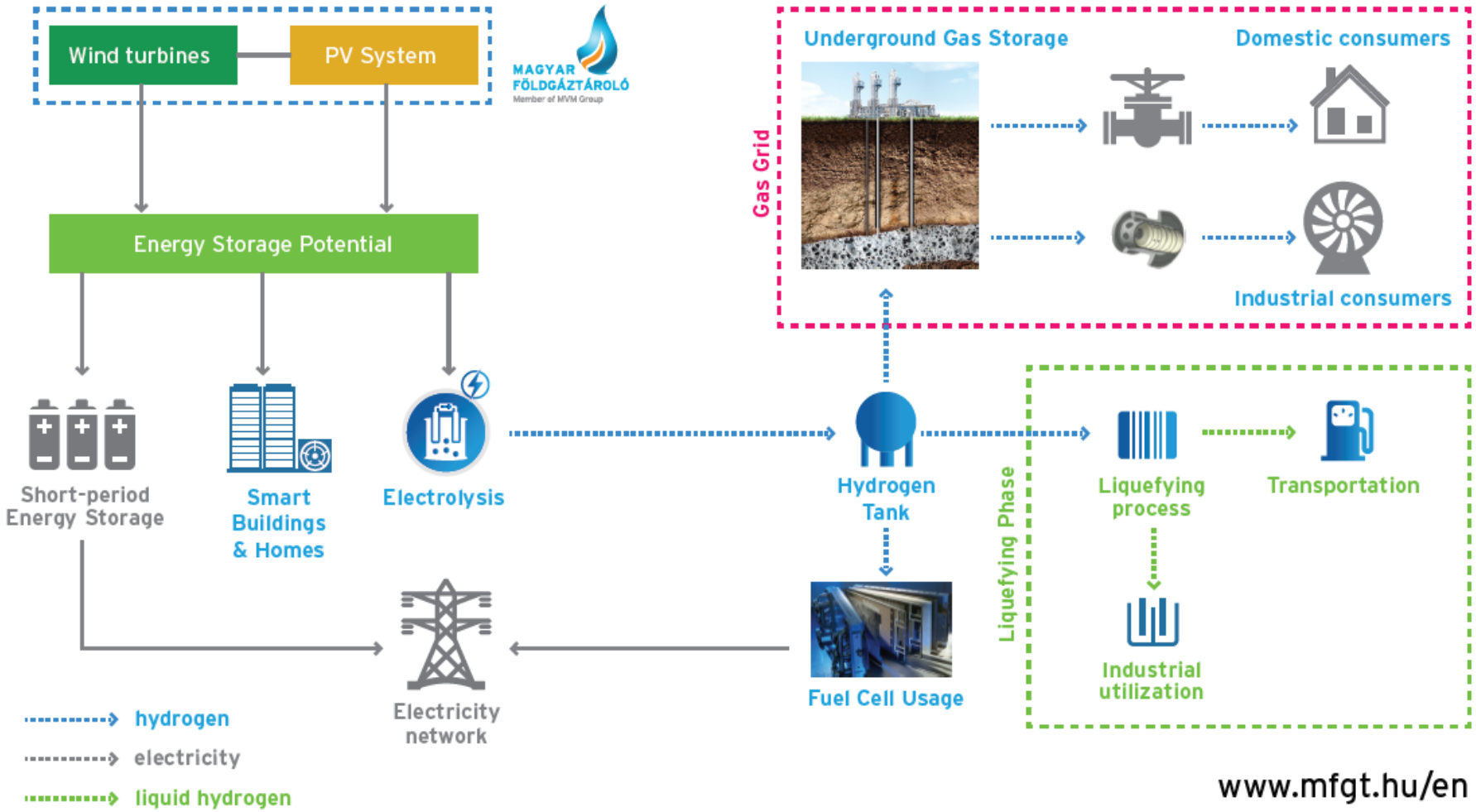
The impact of P2G on the standard deviation of price of electricity decreases from 12 to 8 €/MWh



The ability of P2G to reduce the variability of electricity prices is less effective as the gas storage capacity decreases

Source: GIE/Artelys study, see Madrid Forum 2019 background documents

Zoom on Aquamarine Project, an integrated energy system solution



A video of the project is available online.

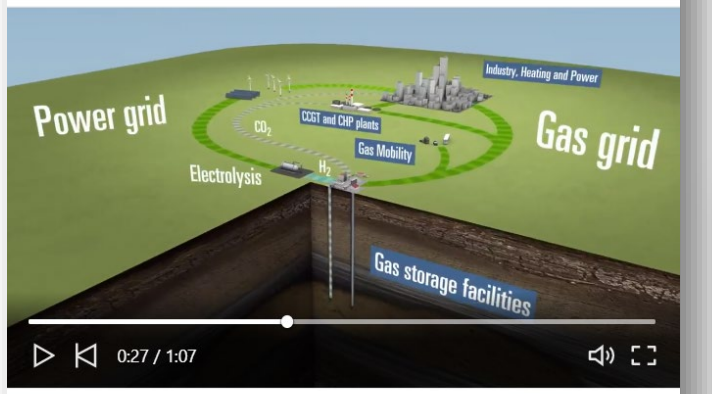
Many other GSE innovative projects...

Gas Infrastructure Europe (GIE)
2 471 abonnés
3 mois •

Underground Sun Conversion - Refining renewable energy

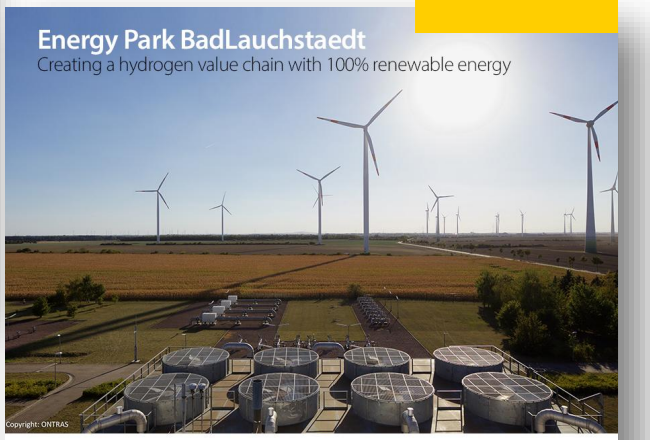
The production of #GreenGas will be investigated for the first time using ...voir plus

Voir la traduction

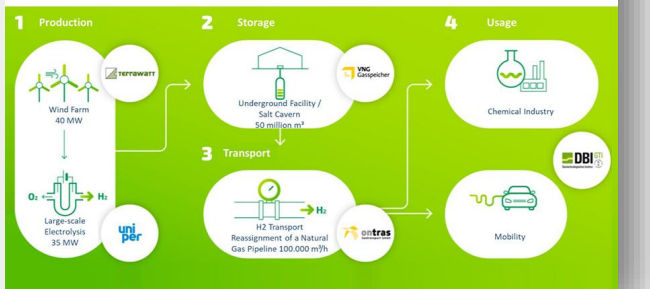


Innovative project Underground Sun Conversion

21 • 1 commentaire • 1 779 vues



Renewable hydrogen produced from wind energy making full use of existing gas networks and a salt cavern storage facility in Germany.



Gas Infrastructure Europe (GIE)
2 471 abonnés
3 sem. •

The HyGreen Provence project partners, DLVA, Air Liquide, ENGIE and its subsidiary STORENGY, expressed their interest to the French Ministry of Ecological Transition, to have the project included in the French and European plan to accelera ...voir plus

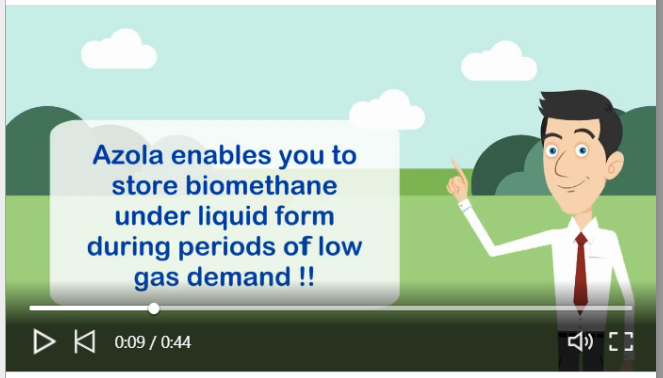
Voir la traduction

63 • 1 commentaire

Gas Infrastructure Europe (GIE)
2 471 abonnés
3 mois • Modifié •

Azola, supported by STORENGY and ENGIE Lab CRIGEN, developed an innovative solution aiming at storing #biomethane production surplus under liquid form (bio-LNG) during periods of low gas demand. ...voir plus

Voir la traduction



Innovative projects : Azola

64 • 3 commentaires • 2 843 vues

Thank you
for your attention

For further information:
gie@gie.eu
www.gie.eu