



Gas Storage Europe

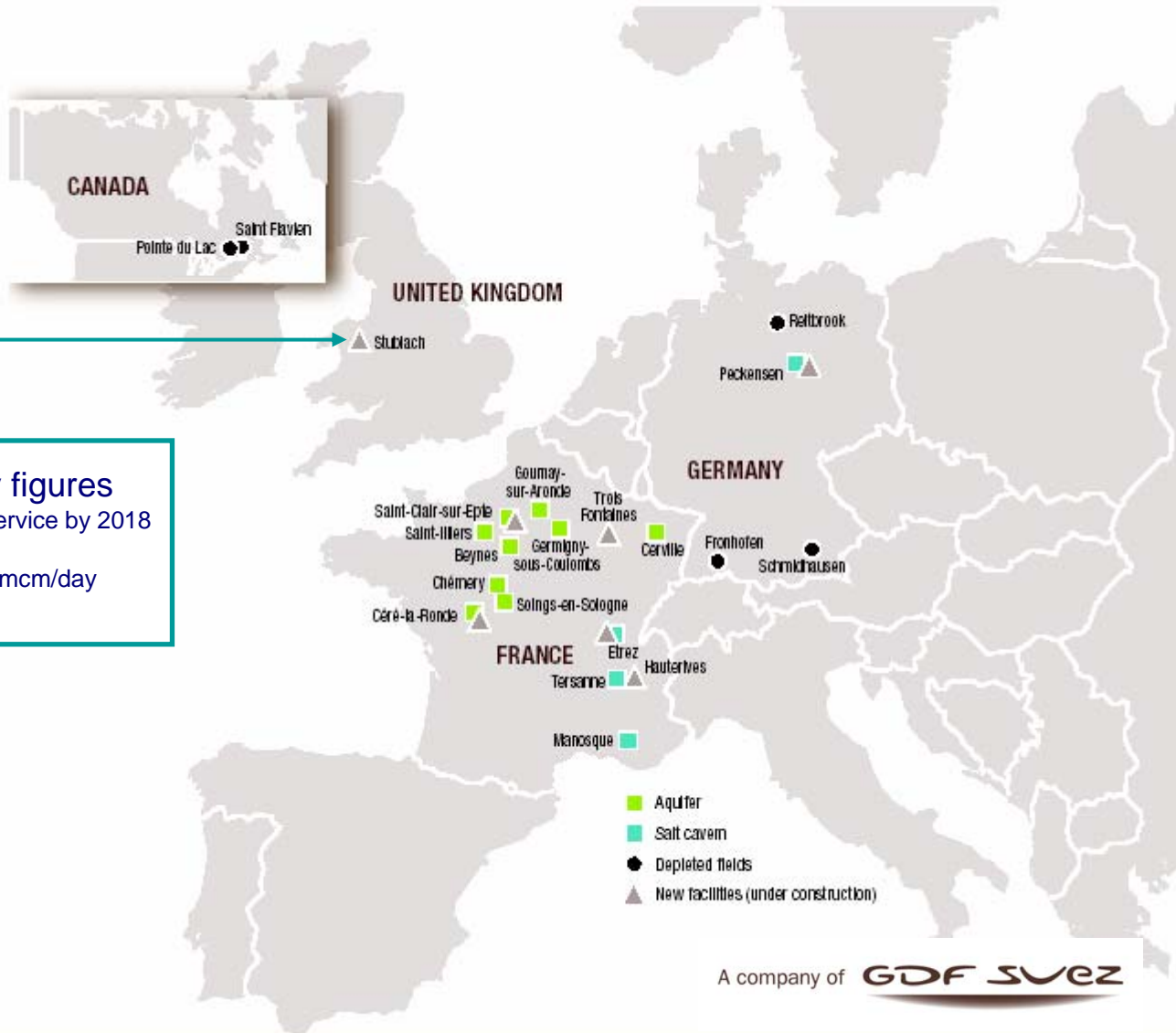
The Key Role of Gas Storage in the European Gas Market in the light of the Russia-Ukraine Crisis

Jean-Marc Leroy

GSE President, CEO of Storengy

**Gas Infrastructure Forum : Ensuring European Security of Supply
London, 15th June 2009**

Our sites and current developments



Stublach project key figures

- 28 caverns to be put into service by 2018
- Capacity: 400 mcm
- Withdrawal rates: up to 33 mcm/day
- 500 M€ Capex

Valuable tools on our website – www.gie.eu.com

- Aggregated Gas Storage Inventory



- Storage Investment Database



- and GSE Storage map

- GSE Position papers on strategic storage, on third energy Package, on capacity allocation mechanisms & congestion management methods, key messages on the flexibility market

- GSE observations on GGPSSO implementation, on Ramboll study

Agenda

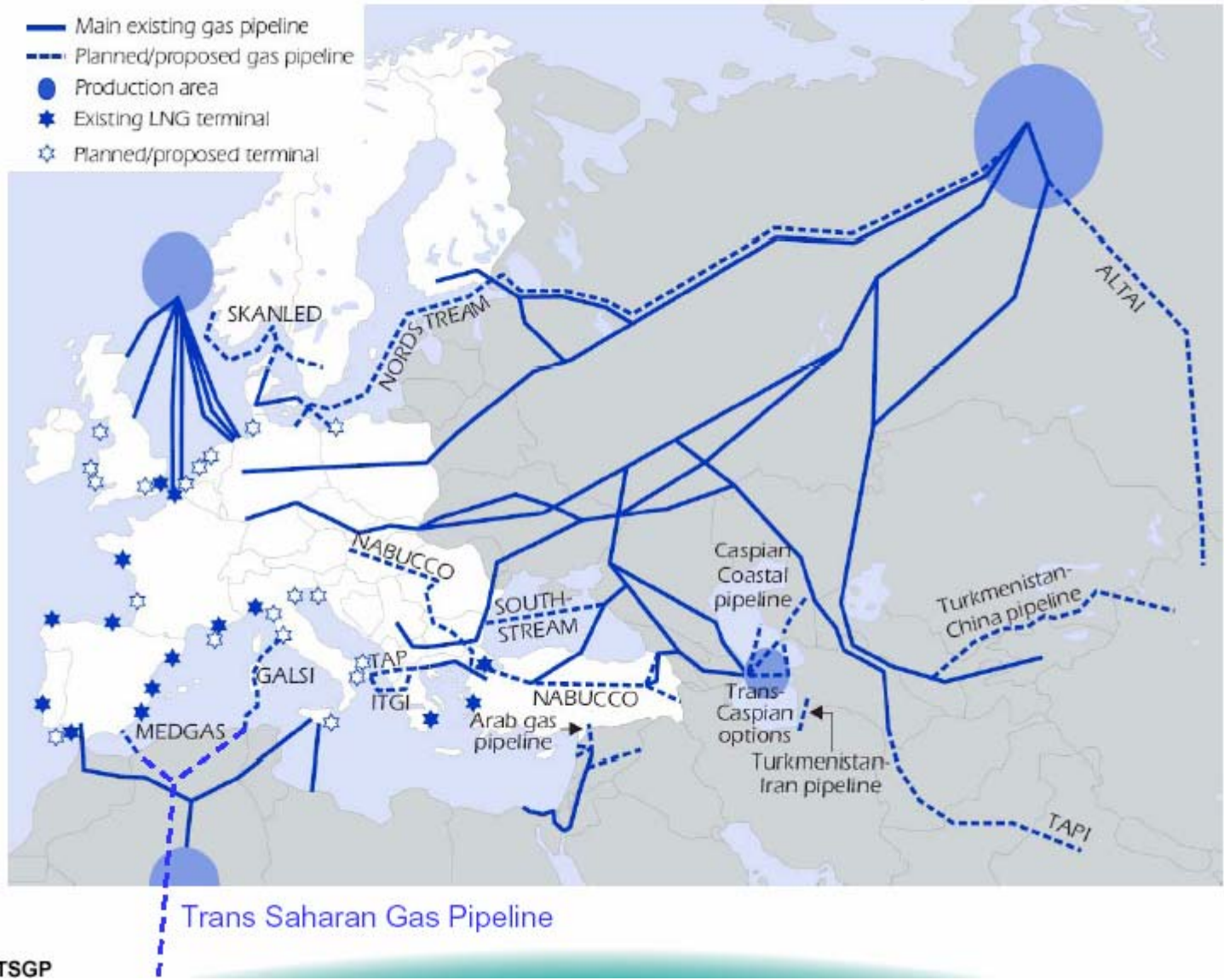
- 1. European gas storage market – Overview**
- 2. Russia-Ukraine gas crisis: lessons to be learned**
- 3. Gas Storage development and opportunities**
- 4. European legislative framework**
- 5. European gas storage market: main issues**

1. European gas storage market - Overview



European Gas Supply Transmission system

- Main existing gas pipeline
- - - Planned/proposed gas pipeline
- Production area
- ★ Existing LNG terminal
- ☆ Planned/proposed terminal



STORAGE MAP INFORMATION BY POINT

Information available for storage facilities in the European association of the Gas Storage Europe (GSE) member states. The information is provided for information purposes only and does not constitute an offer or a contract. The information is subject to change without notice.

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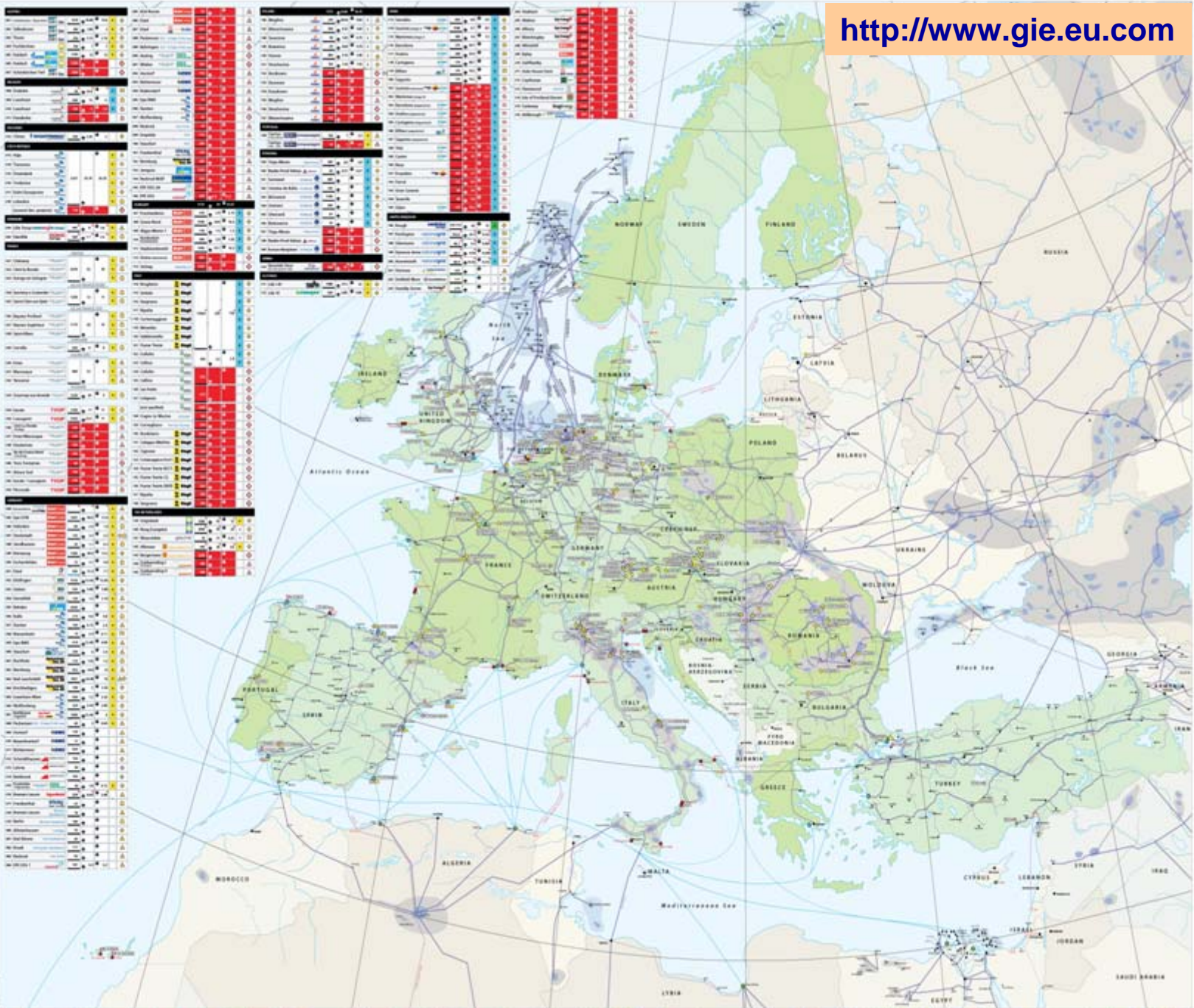
Gas Storage Europe (GSE) is one of the three pillars of the European Energy Union - the European association of the Gas Storage Europe (GSE) member states. The information is provided for information purposes only and does not constitute an offer or a contract. The information is subject to change without notice.

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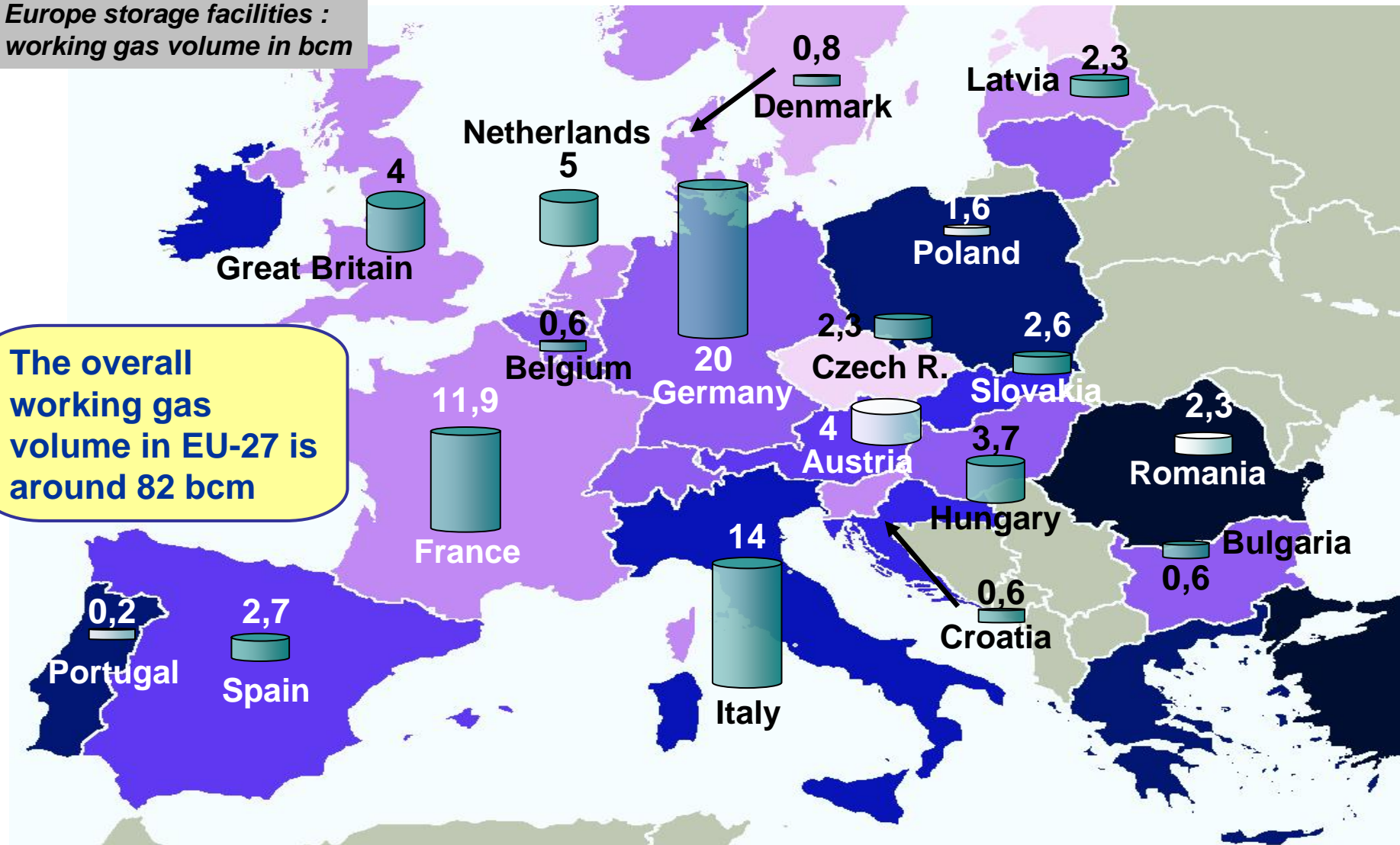
Country	Storage Facility Name	Capacity (GWh)	Operational Status	Operator
Belgium	Belgium Storage	1000	Operational	Stogit
France	France Storage	1500	Operational	Stogit
Germany	Germany Storage	2000	Operational	Stogit
Italy	Italy Storage	1200	Operational	Stogit
Spain	Spain Storage	800	Operational	Stogit
Portugal	Portugal Storage	600	Operational	Stogit
Greece	Greece Storage	400	Operational	Stogit
Turkey	Turkey Storage	300	Operational	Stogit
Poland	Poland Storage	500	Operational	Stogit
Sweden	Sweden Storage	700	Operational	Stogit
Finland	Finland Storage	900	Operational	Stogit
Denmark	Denmark Storage	1100	Operational	Stogit
Netherlands	Netherlands Storage	1300	Operational	Stogit
Austria	Austria Storage	1400	Operational	Stogit
Czechia	Czechia Storage	1600	Operational	Stogit
Slovakia	Slovakia Storage	1800	Operational	Stogit
Hungary	Hungary Storage	2000	Operational	Stogit
Romania	Romania Storage	2200	Operational	Stogit
Bulgaria	Bulgaria Storage	2400	Operational	Stogit
Slovenia	Slovenia Storage	2600	Operational	Stogit
Croatia	Croatia Storage	2800	Operational	Stogit
Serbia	Serbia Storage	3000	Operational	Stogit
Bosnia and Herzegovina	Bosnia and Herzegovina Storage	3200	Operational	Stogit
Moldova	Moldova Storage	3400	Operational	Stogit
Ukraine	Ukraine Storage	3600	Operational	Stogit
Georgia	Georgia Storage	3800	Operational	Stogit
Armenia	Armenia Storage	4000	Operational	Stogit
Azerbaijan	Azerbaijan Storage	4200	Operational	Stogit
Iran	Iran Storage	4400	Operational	Stogit
Iraq	Iraq Storage	4600	Operational	Stogit
Saudi Arabia	Saudi Arabia Storage	4800	Operational	Stogit
Algeria	Algeria Storage	5000	Operational	Stogit
Tunisia	Tunisia Storage	5200	Operational	Stogit
Libya	Libya Storage	5400	Operational	Stogit
Malta	Malta Storage	5600	Operational	Stogit
Cyprus	Cyprus Storage	5800	Operational	Stogit
Lebanon	Lebanon Storage	6000	Operational	Stogit
Syria	Syria Storage	6200	Operational	Stogit
Jordan	Jordan Storage	6400	Operational	Stogit
Egypt	Egypt Storage	6600	Operational	Stogit

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Armenia	Armenia Storage			

Storage volumes in EU-27 – current situation

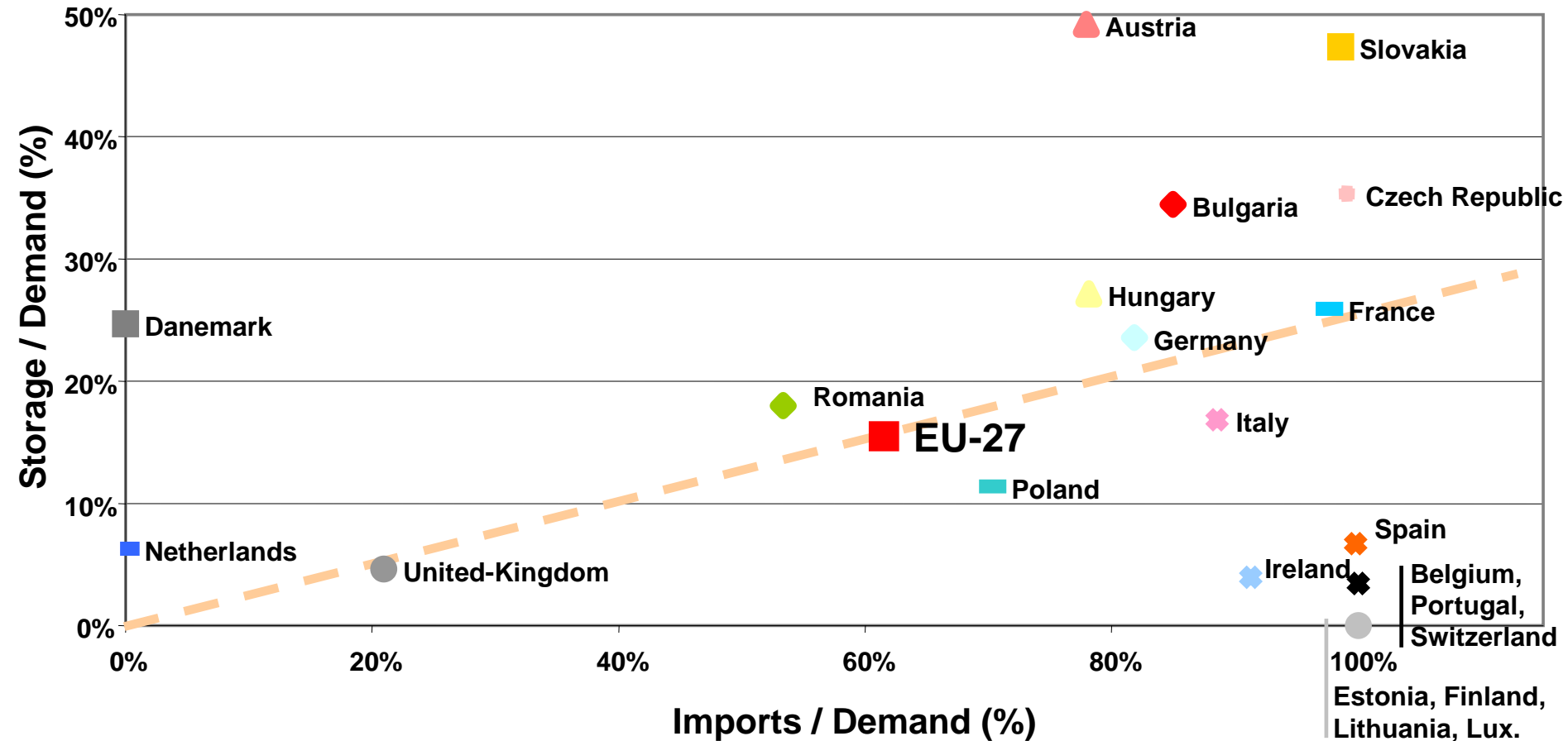
Europe storage facilities :
working gas volume in bcm

The overall working gas volume in EU-27 is around 82 bcm



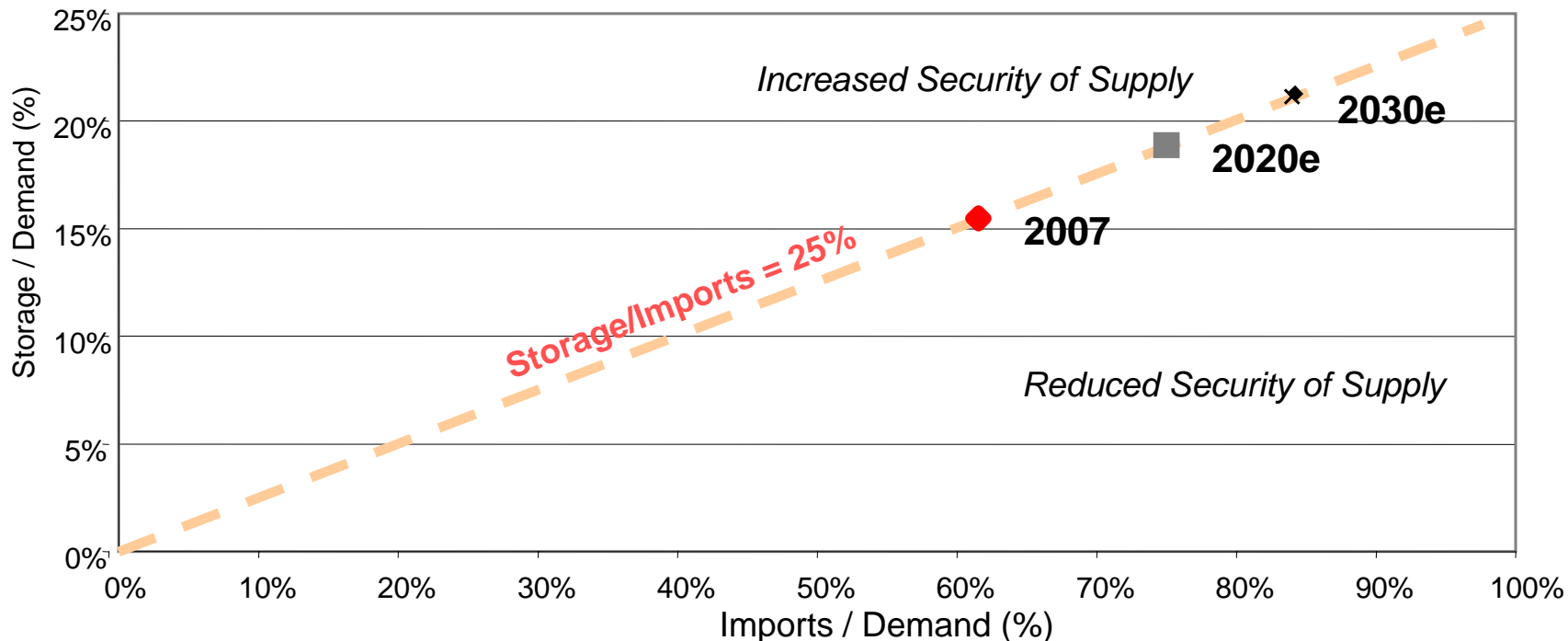
Source: GSE 2008, CEDIGAZ 2007

Another way to look at storage in Europe...



Source: SG Equity Research / Eurogas / GSE 2008

... and to assess the need for new storage



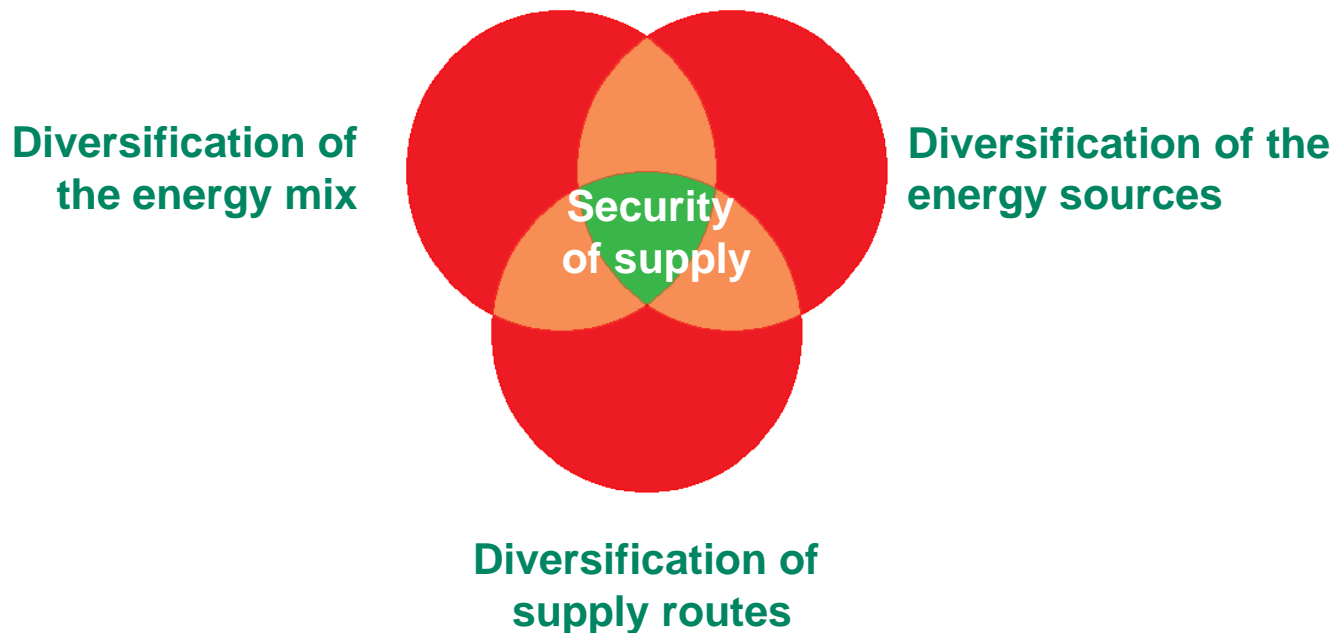
Gas demand CAGR up to 2025: 1.5%
Storage needs CAGR up to 2025: 2.8%

EU storage volumes need to be expanded by 50 bcm until 2025!

2. Russia-Ukraine gas crisis: lessons to be learned

Russia-Ukraine gas crisis : lessons to be learned (1/2)

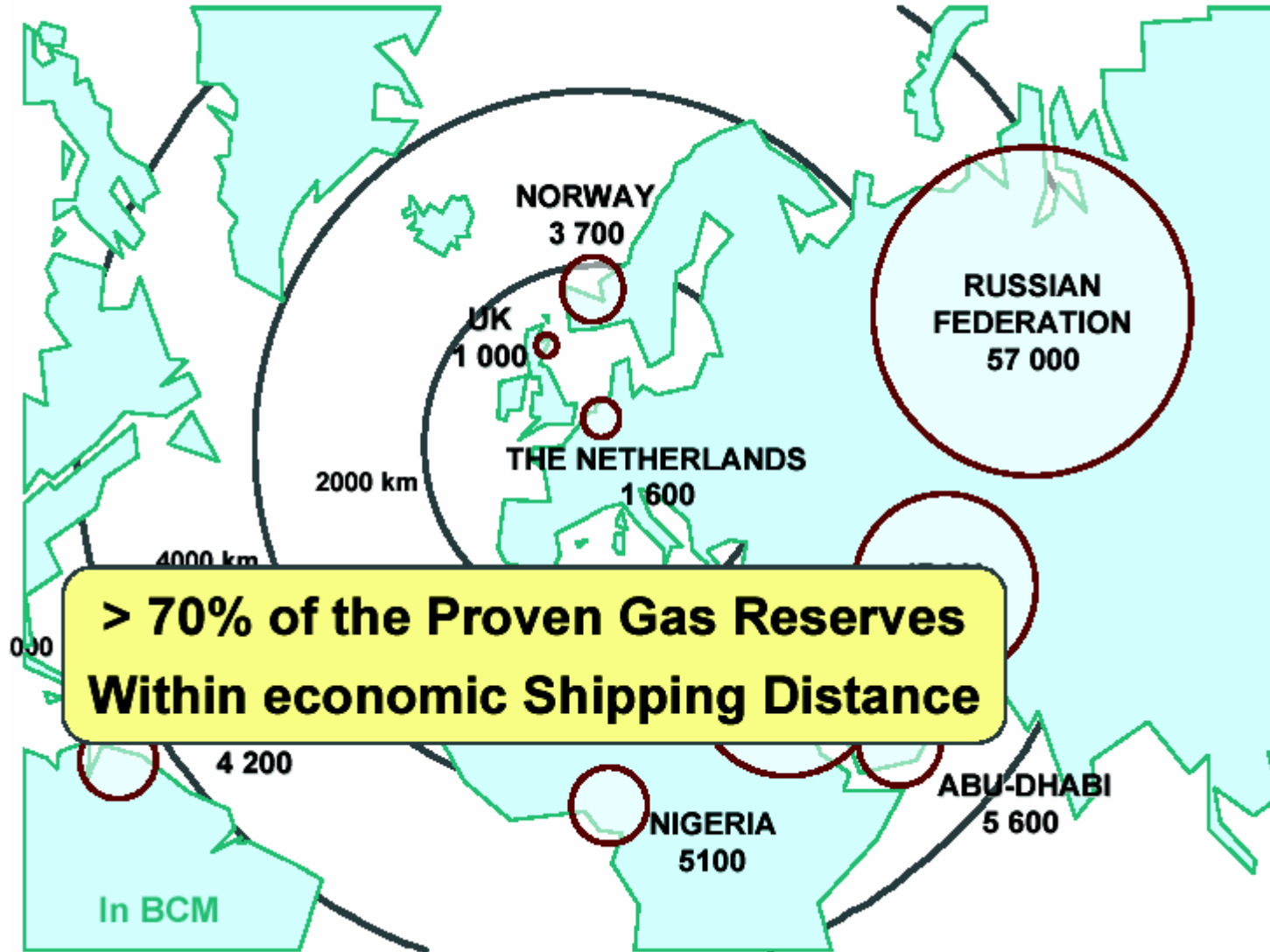
- European commercial storage facilities have played a key role in ensuring security of supply.
- The real issues in this crisis are due to a lack of diversification in supply sources and supply routes for some countries.



Russia-Ukraine gas crisis : lessons to be learned (2/2)

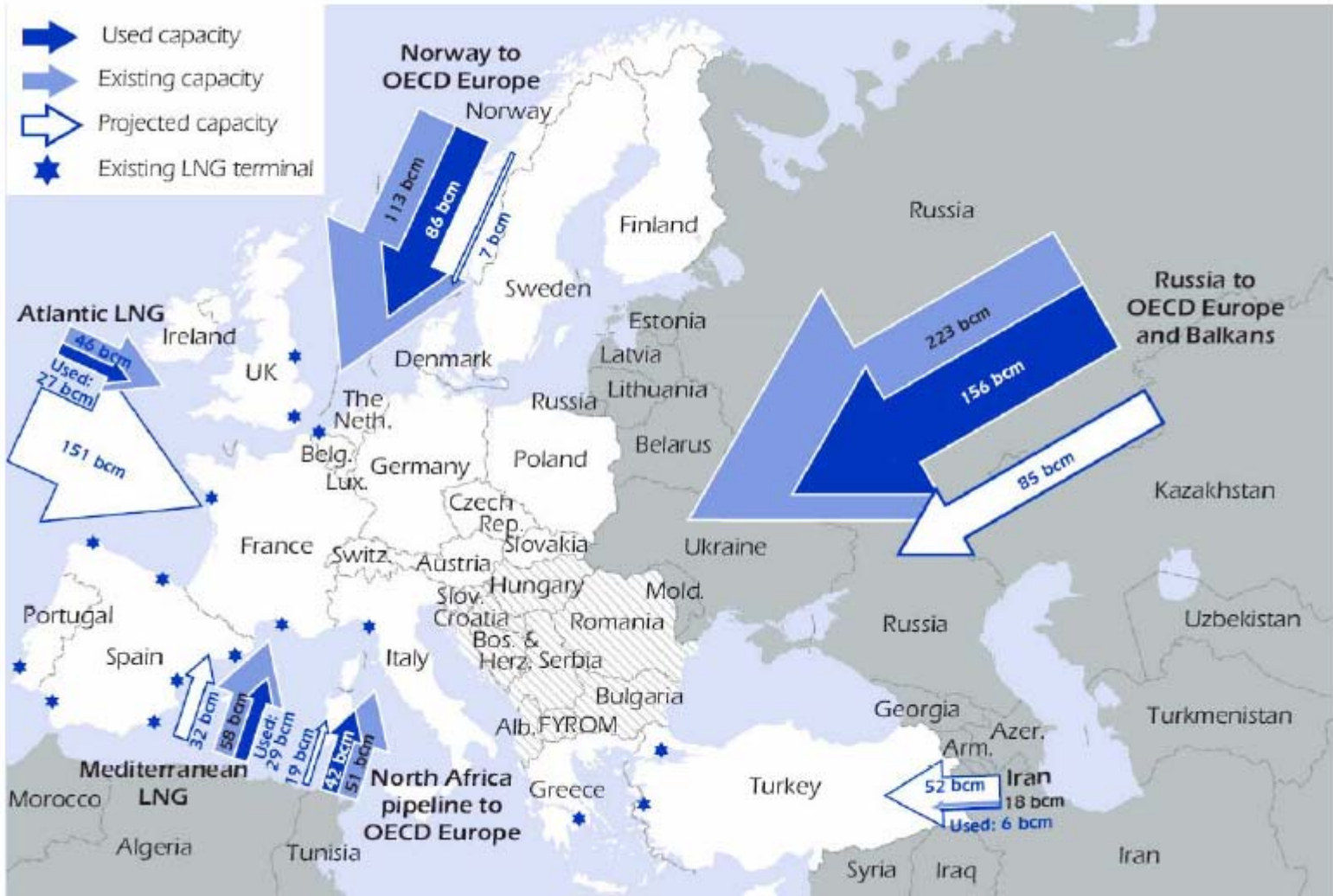
- ➔ The good functioning of the commercial storage facilities has shown that the development of commercial storage in a more interconnected market must be fostered in order to reinforce security of supply in Europe.
- ➔ Strategic stocks should not be deemed as a solution for the security of supply problem.
- ➔ There should not be a confusion between strategic storage facilities and stock obligations in commercial storage facilities (Strategic stock management) in order to ensure security of supply for the customers.
- ➔ More transparency in stocks information from system operators is paramount : GSE has decided to further upgrade its Aggregated Stock Inventory (GSE ASI) platform.

2. Gas Storage development and opportunities





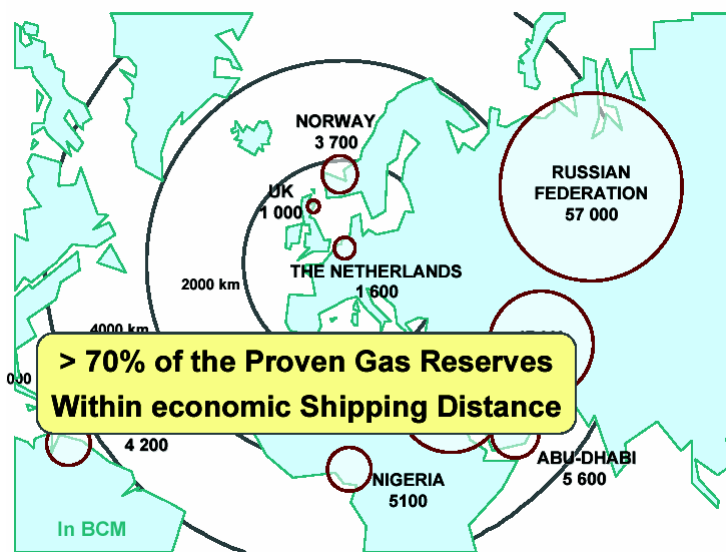
EU : Supply Capacities in 2006 & 2015



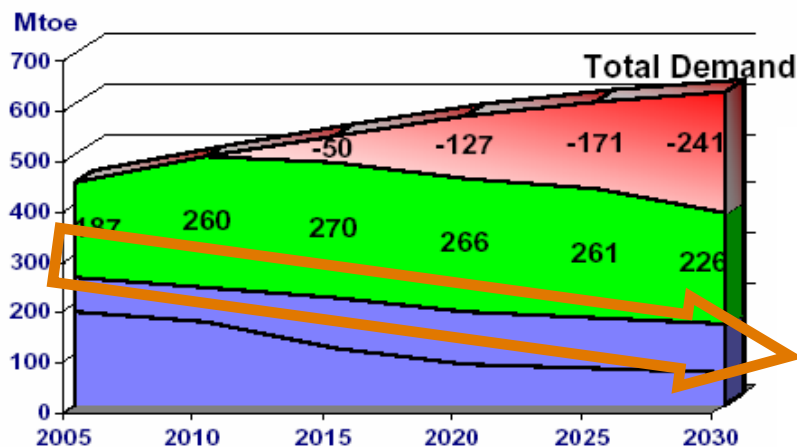
Why are gas storage needs increasing in Europe?



Longer transportation routes



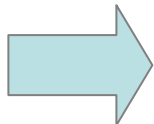
Decreasing EU gas production



EU27: Natural Gas Supply outlook
 Source : Eurogas - Natural gas demand and supply : long term outlook to 2030, 16/11/2007

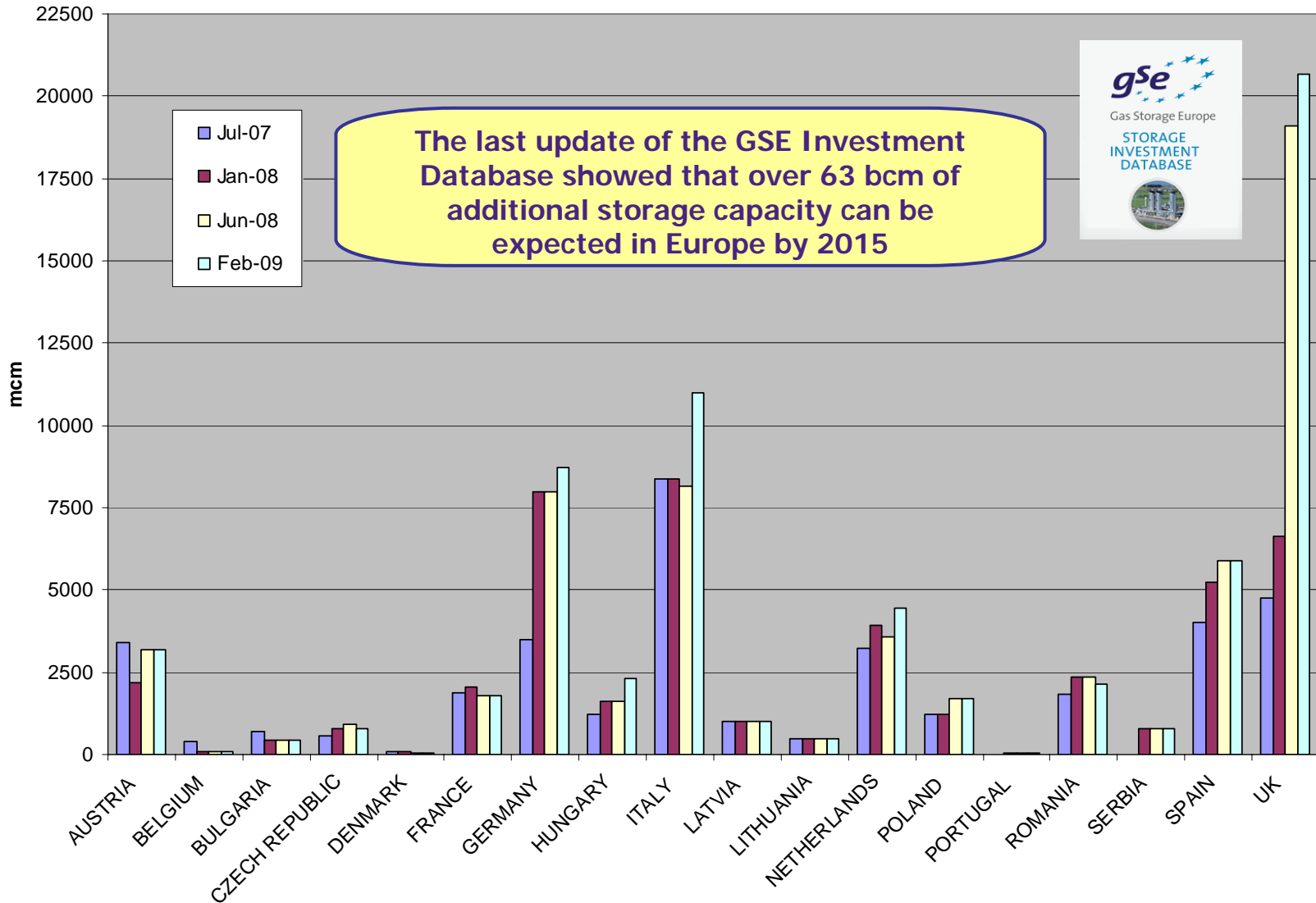
- Additional Supplies to be defined
- Contracted Imports and possible prolongations from outside Europe
- Potential Norwegian exports
- Indigenous Production (EU27)

- **Database of EU storage investments was launched in July 2007:**
 - Publicly available information
 - Projects divided into 3 categories: planned, committed and under construction
 - Updated regularly
 - From an initial **30 bcm** WG capacity increase to 2015 (July 2007) to around **63 bcm** (February 2009)
 - Grand total of around **110 projects** : **new players are increasing their role** : 25% of projects / 30% of planned new capacity (~19 bcm)
- **A powerful and transparent instrument to evaluate storage supply perspectives.**



http://www.gie.eu.com/maps_data/database/index.html

Investment : SSOs are responding to market needs



3. European legislative framework

2 directives
for 2 objectives

- European legal framework:
 - Security of supply (2004)
 - Internal market liberalisation (2003)
 - Ensures Third Party Access (TPA) to storage
 - Gives alternatives for Member states: Regulated / Negotiated
- European voluntary guidelines: Guidelines for Good Practices for Storage System Operators (GGPSSO)
 - Compliance with GGPSSO shows a transparent and non-discriminatory access to storage

3rd directive

- 3rd Energy Package including a 3rd gas directive

GSE believes that negotiated TPA should be the preferred choice wherever market conditions allow as this regime best facilitates investments and further development of the market

4. European gas storage market : main issues

European gas storage market : main issues

- European gas storage development : we will have to develop as much capacity over the next 20 years as we have developed over the last 60 years.
- Competition with other flexibility tools : indigenous gas production swing, imported pipeline gas contract flexibility, peak shaving, spot markets, imported LNG, new transmission lines, interruptible gas, ...
- Attracting funding : we have to invest up to 50 billion euros over the next 20 years to face this development in the context of the current economic crisis.
- A stable European Regulatory framework that encourages new storage developments as well as the optimal use of existing storage facilities is essential.



Gas Storage Europe

Thank you for your attention!

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