Study on the role of gas storage in internal market and in ensuring security of supply

Presentation of Preliminary Results to Madrid Forum

Madrid, 20 April 2015

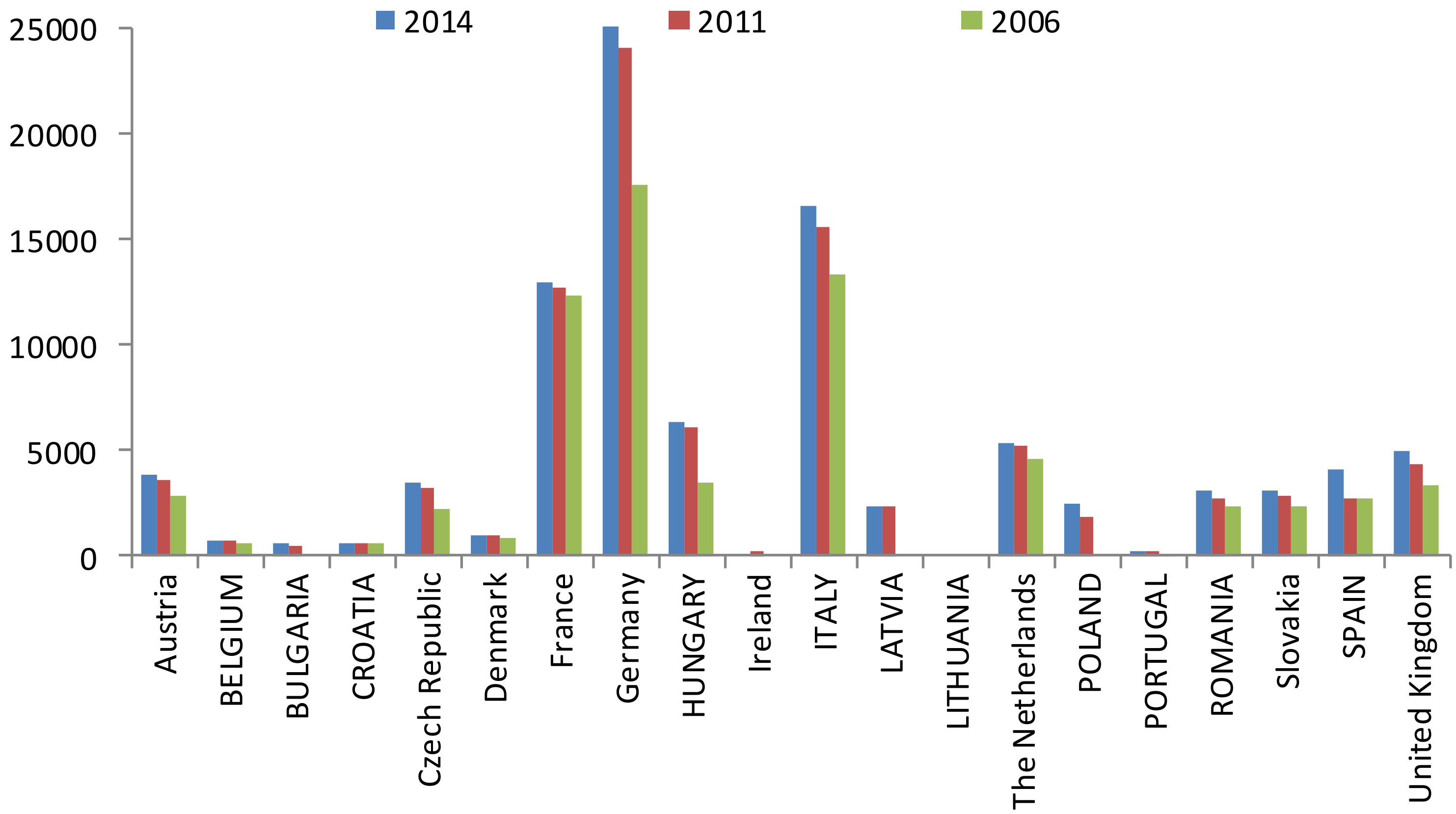
Project Contents

1. **Data Analysis: Factual gas storage situation in the Member States, including prices and main access rules and extended analysis of storage driving factors**
2. **Comparative analysis (USA, Japan, Australia, oil related IEA measures)**
3. **Storage Related SoS Measures (SRSMs) in different Member States (in depth analysis of 11 MSs covering 78% of EU storage market, followed by summary and comparison)**
4. **Assessment (at European level): Effectiveness and efficiency (costs and benefits) of SRSMs under key emergency scenarios**

Storage evolution, 2006-14

Storage development in Regulated and Negotiated regimes

Mcm



Source: GSE

Note: Countries in capital letters: Regulated TPA; Sites located in AT but serving DE included in DE

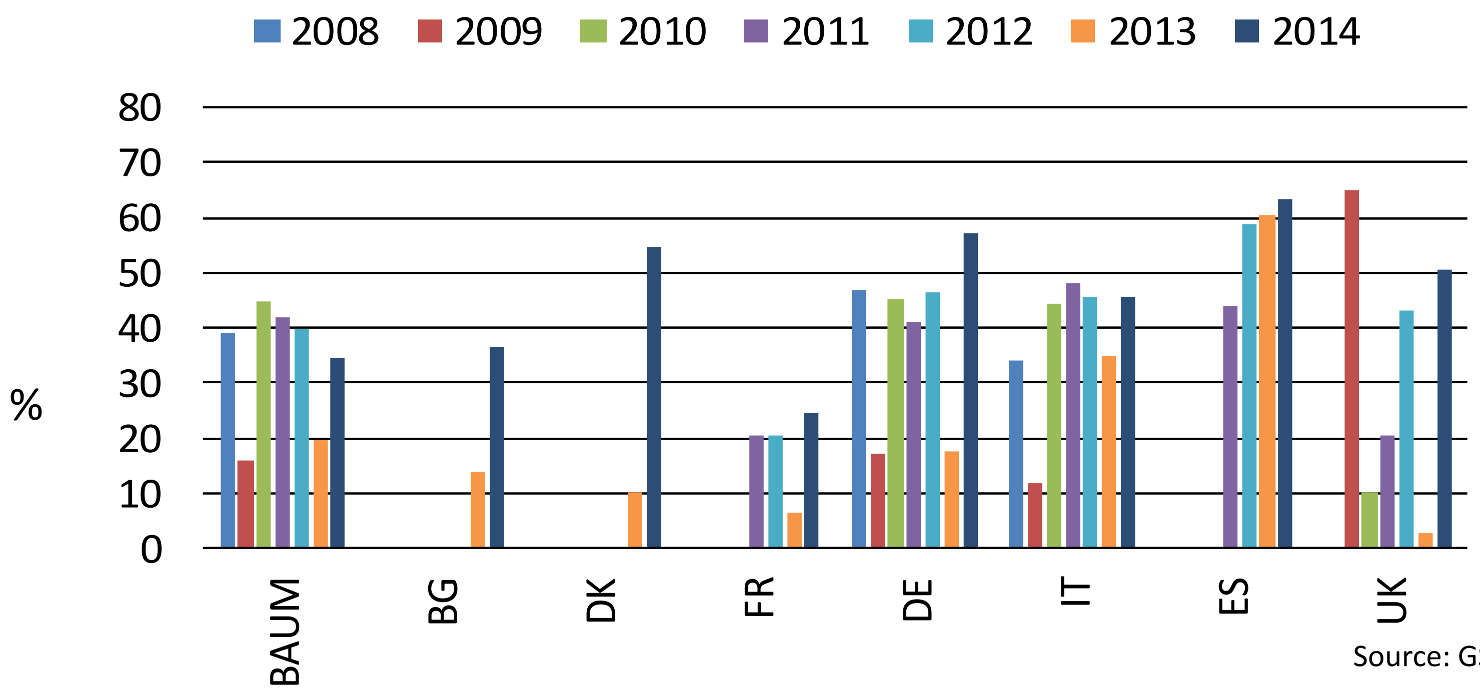
Storage evolution, 2006 - 2014

Storage capacity in GSE databases					Annualized growth rates	
		2006	**2011**	**2014**	**2006-11**	**2011-14**
Regulated	Member States	8	10	10		
	Working Gas (Mcm)	23178	33154	37034	7%	4%
Negotiated	Member States	8	9	8		
	Working Gas (Mcm)	46038	57163	60894	4%	2%
Total	Member States	16	19	18		
	Working Gas (Mcm)	69216	90317	97929	5%	3%

Source: GSE, 2006, August 2011 and July 2014

- **Strong storage growth under negotiated and (even more) under regulated regimes**
- **Outpaced growth of demand (-0.2%/year) & imports (+1%/y)**
- **Slowing down lately**

Filling rate at end of withdrawal period, 2008-14



Source: GSE

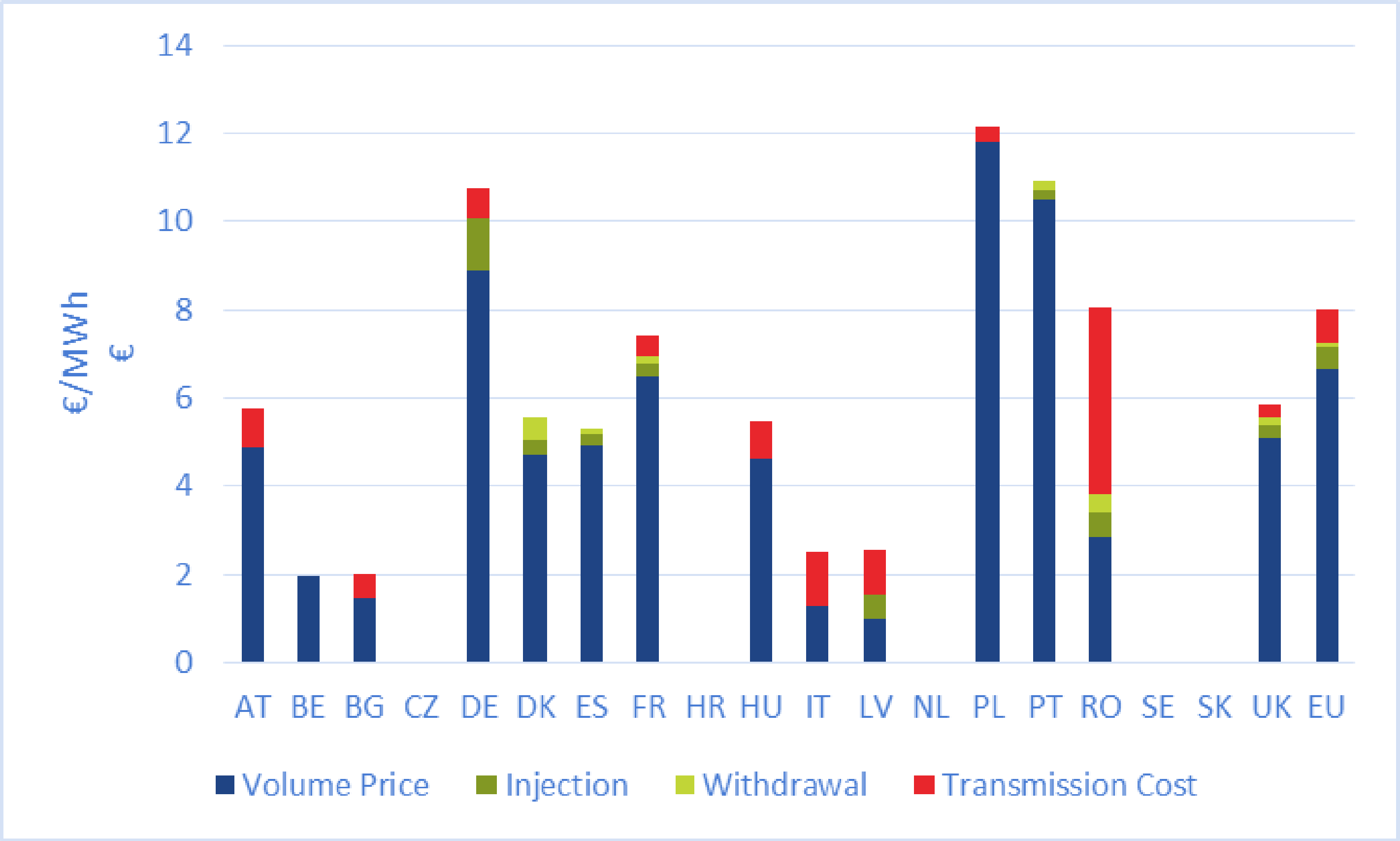
- **Inventories never fully depleted: after the winter on avg. 30% full**
- **Filling rate after the winter mostly explained by temperature**
  - **in 2014 storages exceptionally full, due to mild 2013/14 winter**
  - **in 2013 extremely low levels (<10%) due to cold April**
- ***FRANCE on avg. the emptiest storage after the cold season,* ESP the fullest**

*** Minimum filling level** by year in order to take into account different withdrawal patterns, BAUM includes AT, CZ, PL, HU, SK

What drives storage filling?

- **Price-incentive** to storage use is **low** due to declining W/S spreads and declining volatility
- LDC curves analysis shows that other flexibility tools **have not displaced storage**
- **Other reasons**, rather then the price-incentive only, bring suppliers to stock gas:
  - Risk of reputation loss
  - Insurance value of storage towards unexpected events
  - Lack of cheaper alternatives for flexibility
  - Long term commitments
  - SRSMs (if they are effective)

The composition of ***STORAGE COSTS***



- **Analysis based on posted prices, market prices often lower**
- **Several countries have discounted or zero transmission tariffs to / from storage**

Overview of SRSMs (= *obligations*)

Country	Total mandatory storage obligations (TWh, latest available value)	Total strategic storage (TWh, latest available value)	Total mandatory storage/yearly consumption (2013)
Austria	0	0	0%
Germany	0	0	0%
United Kingdom	0	0	0%
Czech Republic	2,3	0	3%
Denmark	2,3	0	5%
Poland	9,3	0	5%
Spain	18,1	0	5%
Italy	0,0	48,3	7%
Bulgaria	2,6	0	9%
Hungary	11,2	12,6	24%
France	122,4	0	25%
Source: Eurostat, case studies			

- Three «clusters» of SRSMs: Zero%, Light (<10%), Tight (>20%)

Overview of SRSMs

- Mandatory storage obligations in the **majority** of sample countries: DK, IT, FR, PL, ES, SK and HU
- Mandatory storage obligations on suppliers defined with reference to:
  - **Protected consumers' winter demand** (which generates «storage rights» in FR)
  - **Imported quantity** in a given period (30 days in PL)
  - **Past firm sales** in a given period (20 days in ES)
  - **Total consumption** (10% of one year in HU)
- Mandatory storage stocks **mostly located within domestic boundaries but with exceptions (CZ, PL)**
- SRMSs also include
  - **Storage allocated with priority to TSO**, employed to maintain operational safety (DK, IT, FR but also UK Safety Monitor Tool)
  - **Explicit restrictions on the withdrawal profile** (IT)

Analysis of effectiveness, costs and benefits of SRMSs

Issues:

- **Are SRSMs effective where they are enforced?**
- **What are the costs of SRSMs?**
- **What are the benefits of SRSMs?**
- **What is the benefit-cost balance under the main SRSM models and expected emergency scenarios?**

Concluding remarks

- **Gas storage is a valuable and healthy European industry, despite reduced growth and prices in the last two years**
- **A majority of EU countries have light storage obligations (5-10% of consumption, *few have more (>20%)* or less (zero)**
- **Strong storage growth in negotiated and (even more) regulated regimes**
- **Limited relationships between SRSMs and storage development**
- **SRSMs probably ineffective in several countries, as they crowd out commercial storage**
- **Results about costs and benefits of SRSMs from optimal allocation model coming, will provide insights into value of national SRSM policies**

Thank you for your attention!

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