The role of storage in a liberalized market

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• Unbundled SSO since 1.1.2013
• Operating a storage-pool in Austria - CEGH
• TOV: 13,4 TWh / 1.196 Mio. m³
• Injection & Withdrawal capacity: 6,6 GW / 590.000 m³/h

• New capacities from 1.4.2014: 60.000 m³/h
• Connection to CEGH and NCG
• Further potential: 100.000 m³/h
OVERVIEW

• The evermore important role of storage in the future
  • The EU gas market – some statistics
  • Potentials
  • Storage market & new storage products

• Market >< Storage interconnection
  • Need for correctly dimensioned grids
  • Role of TYNDP for storages

• PCI status for storage projects
  – Market integration - cross border criteria
  – TYNDP
The EU gas market – some statistics:
- the way towards a golden age has stopped in 2010

Evolution of European gas consumption
(Source: ENTSOG TYNDP - Converted from Eurostat figures)

Evolution of European yearly demand and its breakdown (Source: ENTSOG TYNDP)
The EU gas market – some statistics:
- slow but steady growth, IEA even less optimistic

Evolution of European gas consumption
(Source: ENTSOG TYNDP - Converted from Eurostat figures)

Yearly demand, evolution and breakdown
(Source: ENTSOG TYNDP)
The EU gas market – some statistics:

How predictable are policy makers

Evolution of European gas consumption
(Source: ENTSOG TYNDP - Converted from Eurostat figures)
No golden age for gas in EU - the arguments:

- Gas prices too high/low
  - cheap coal will be the winner
  - LNG ships deviated to Asia
- CO2 prices are too low - ETS is not working properly
- EUs` gross domestic product (GDP) growth below 2%
- Wind and solar are heavily subsidised to further increase

It is the reality today ! – but self-fulfilling prophecy ?

- There is still substantial demand
- Demand ≠ Capacity – Flexibility needs will challenge infrastructure
- Technology potential and R&D – shale gas, what`s next?
- Policy options…what about renewables 10 years ago?
Potentials:

Integrated view with electricity – Renewables as stand-alone?

- wind and sun will not balance themselves
- triggers massive shortfalls and overproduction

Aggregate hourly output across North Europe for four months (GWh) Source: Pöyry
Potentials:

Integrated view with electricity – where will Flexibility come from

Simulation: German electricity grid at 600 TWh/a with a 78% share of Renewables and residual load (after consumption and balancing) at ideal grid development

- Gas storages will ensure efficient flexibility !!!
Potentials:

Technology innovation, Renewable Gas: **POWER2GAS**

- Allows the efficient diversification of gas and electricity infrastructure
- Enables the use of existing gas infrastructure for electricity (storage and pipeline)

Transport of 14,000 MW electrical Energy

**5 pylons 380kV - Power Transmission Line**

**1 invisible Gas pipeline DN900**

Source: IGU Sept. 2010 adapted by RAG ES
Potentials:

CNG Mobility – EU is an attractive market:
- AAA technology – Available, Affordable, Accessible
- Supported by ECs’ “Clean Fuel Strategy”
- A real policy-initiative is needed!

Motor Vehicles per 1,000 People
(Source: STATOIL)

Gasoline Pump price
(Source: STATOIL)
Storage market & new storage products:

- **Growth** – even on a low level – and
- **Flexibility needs** combined with
- **Innovative gas technologies**

indicate an **increasing demand for gas storage** on a technical level

**BUT...**

- **Market interventions**, especially on the **electricity side** have eroded market signals

**NEW PRODUCTS  ...  WHO WILL PAY FOR WHAT?**

- **SOS** is almost no motivation any more
- **Flexibility and balancing** are seen rather virtual than physical
- “**New products**” are mostly defined by their **price**
- **Transport and related costs** are becoming more and more important
Market <-> Storage interconnection

The reality is based on physical flows though!

Need for ideally dimensioned grids

- Real life shows need for improvement:
  - Cold snap in Feb. 2012: in South Germany interruption of transports from storages

- How to mitigate that evolving situation:
  - Firm capacities for storage transports are needed!
  - National development plan 2013 under progress, but…

  TSO-argument: "costs are not justified under the assumption of declining demand"!
Market <> Storage interconnection

Role of TYNDP:

- Highlighting bottlenecks regarding storage deliverability

- Need for right assumptions in network development
  - Demand ≠ Capacity
  - Typical flow scenarios from/to storages (summer, winter)
  - ENTSO`s Integrated view for electricity and gas

➢ Potential for TYNDP
PCI Status for Storage Projects

What are the benefits:

- Permitting: non-binding guidance, reversal of responsibility public interest for non-PCIs?
- Financing: meeting with the EIB

…it’s all a bit vague, obligations are manifold

The Process, so far:

- Criteria – mostly designed for pipeline projects
- Evaluation of criteria within groups seems tricky

Role of ENTSOG:

- Fair evaluation of all kind of projects
- Taking into account storage specifics
THANK YOU FOR YOUR KIND ATTENTION!

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Are batteries an alternative?

~67 bn Car batteries are needed to substitute the capacity of RAG Storage

~800 Mio Tons of lead would be needed

>200 years to produce it

~Vienna 6 layers with batteries or

~350x around the globe battery next Battery

No solution for a sustainable world of renewable energy!!!