Gas Storage Europe

Introduction GSE

Workshop DG ENER, 22 September 2015

About GIE

GIE is the umbrella organization for its three subdivisions:

Gas Transmission Europe (GTE)

Gas Storage Europe (GSE)

Gas LNG Europe (GLE)

GTE – Gas Transmission Europe
representing Transmission System Operators (TSO)

GSE – Gas Storage Europe
representing Storage System Operators (SSO)

GLE – Gas LNG Europe
representing LNG Terminal System Operators (LSO)


gse
Gas Storage Europe
30 member companies
16 countries
2 observers
centrica storage
nationalgrid
ENERGINET.DK
(observer)
Gas Storage Netherlands
NAM
GAZPROM
EDF ENERGY
TAQA ENERGY B.V.
storengy
energystock
VNG Gasspeicher
OPERATOR SYSTEMU MAGAZYNOWANIA
FLUXYS
E.ON Gas Storage
RWE
The energy to lead
RWE
The energy to lead
POZAGAS
INES
(observer)
nafta
astora
OMV
MAGYAR FÖLDGÁZTÁROLÓ
RAG.ENERGY.STORAGE
MMBF
storengy
PSP
TIGF
EDISON
Edison Stoccaggio Spa
BULGARTRANSGAZ
REN Armazenagem
enagas
SNAM
STOGIT

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Role of Gas Storage for Security of Supply

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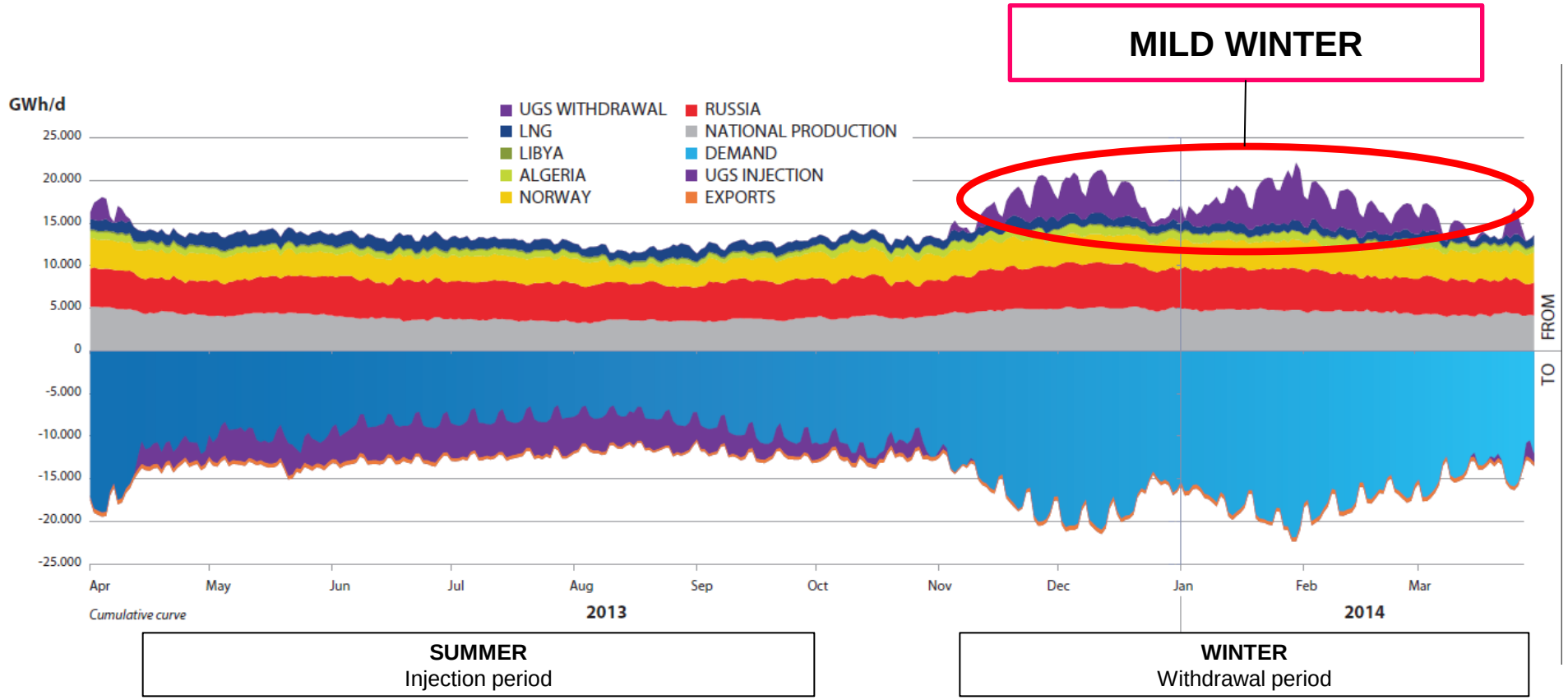
Use of gas storage 2013-2014



Source: ENTSOG data

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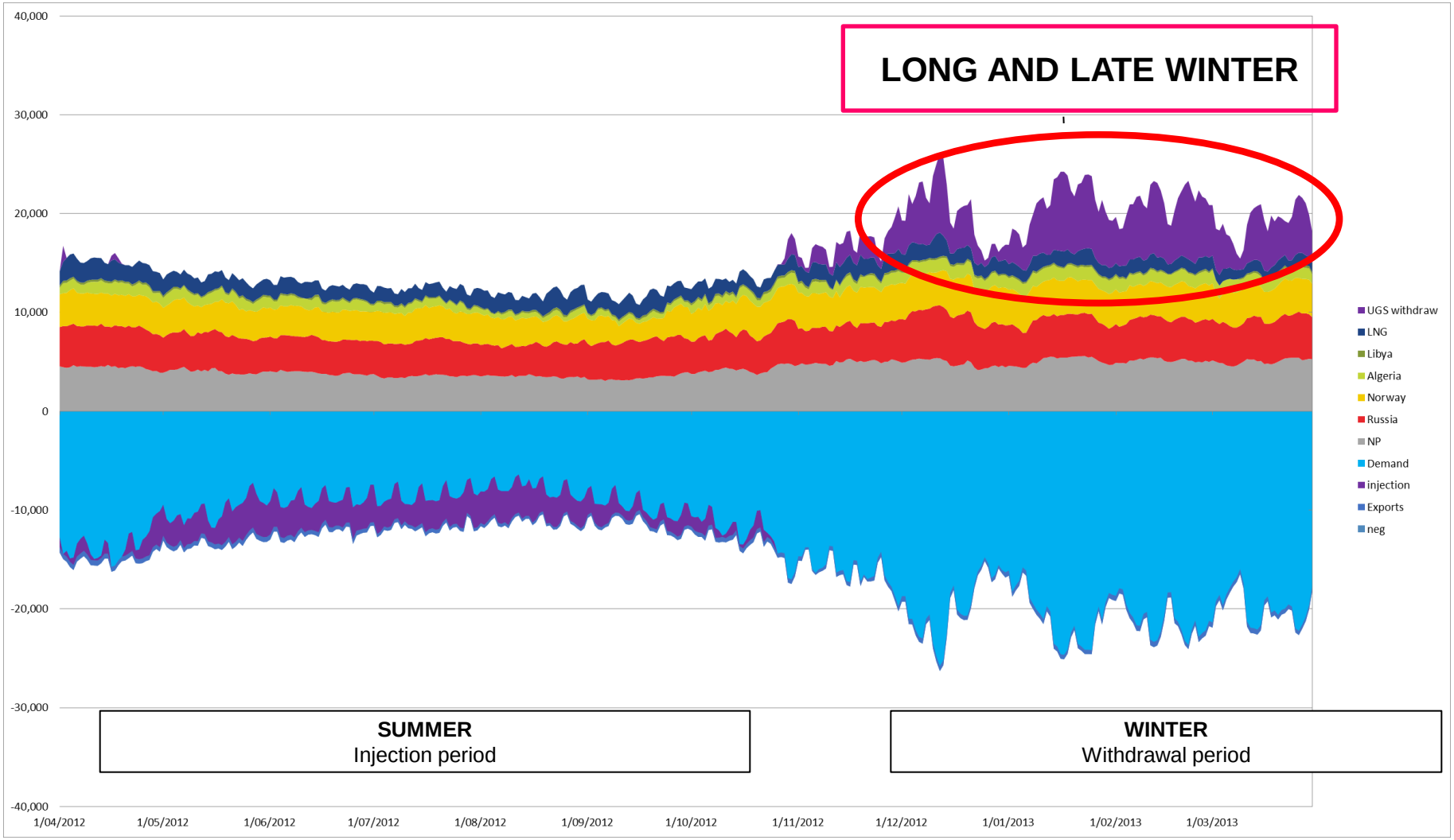
Use of gas storage 2012-2013



Source: ENTSOG data

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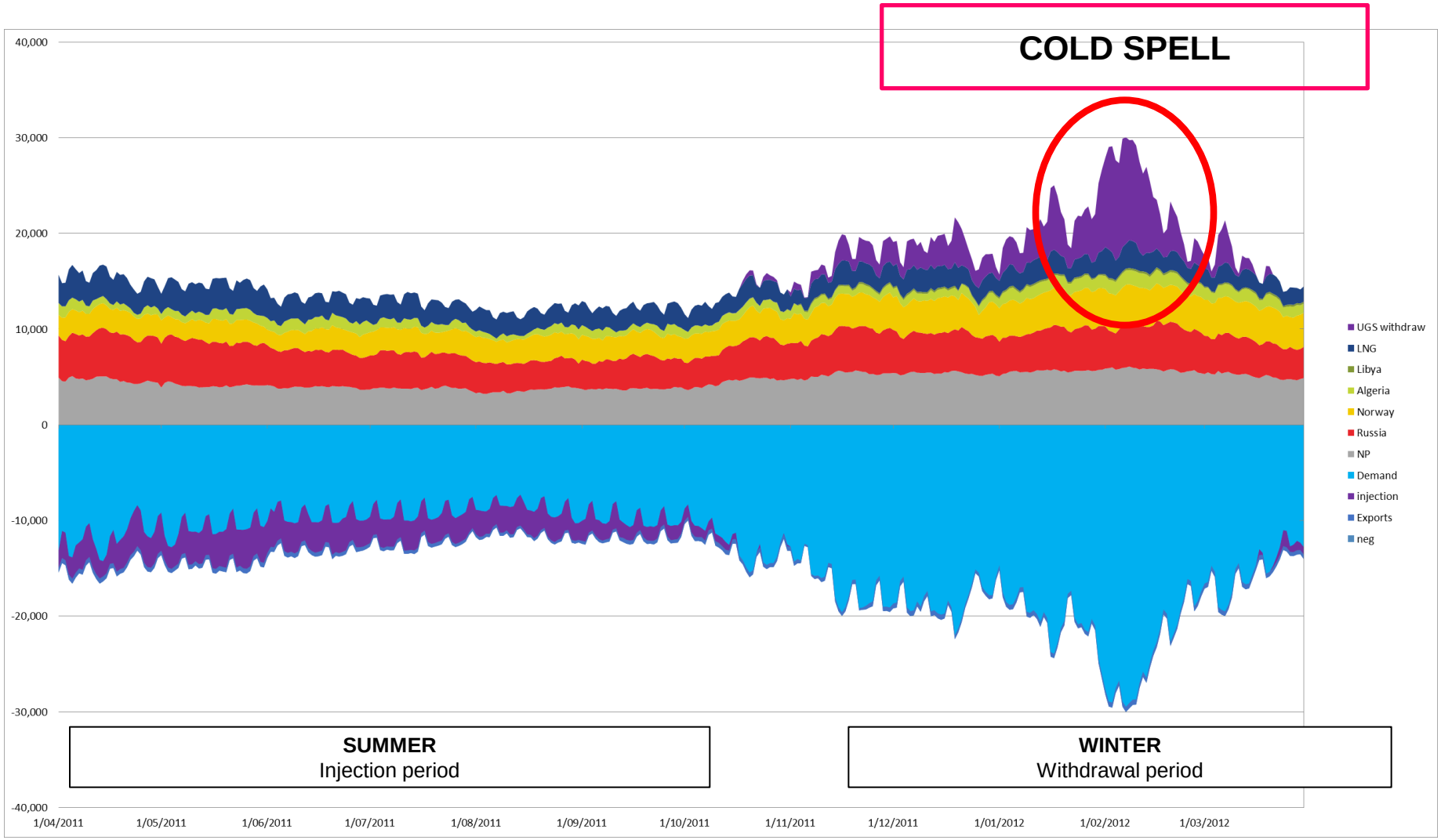
Use of gas storage 2011-2012



Source: ENTSOG data

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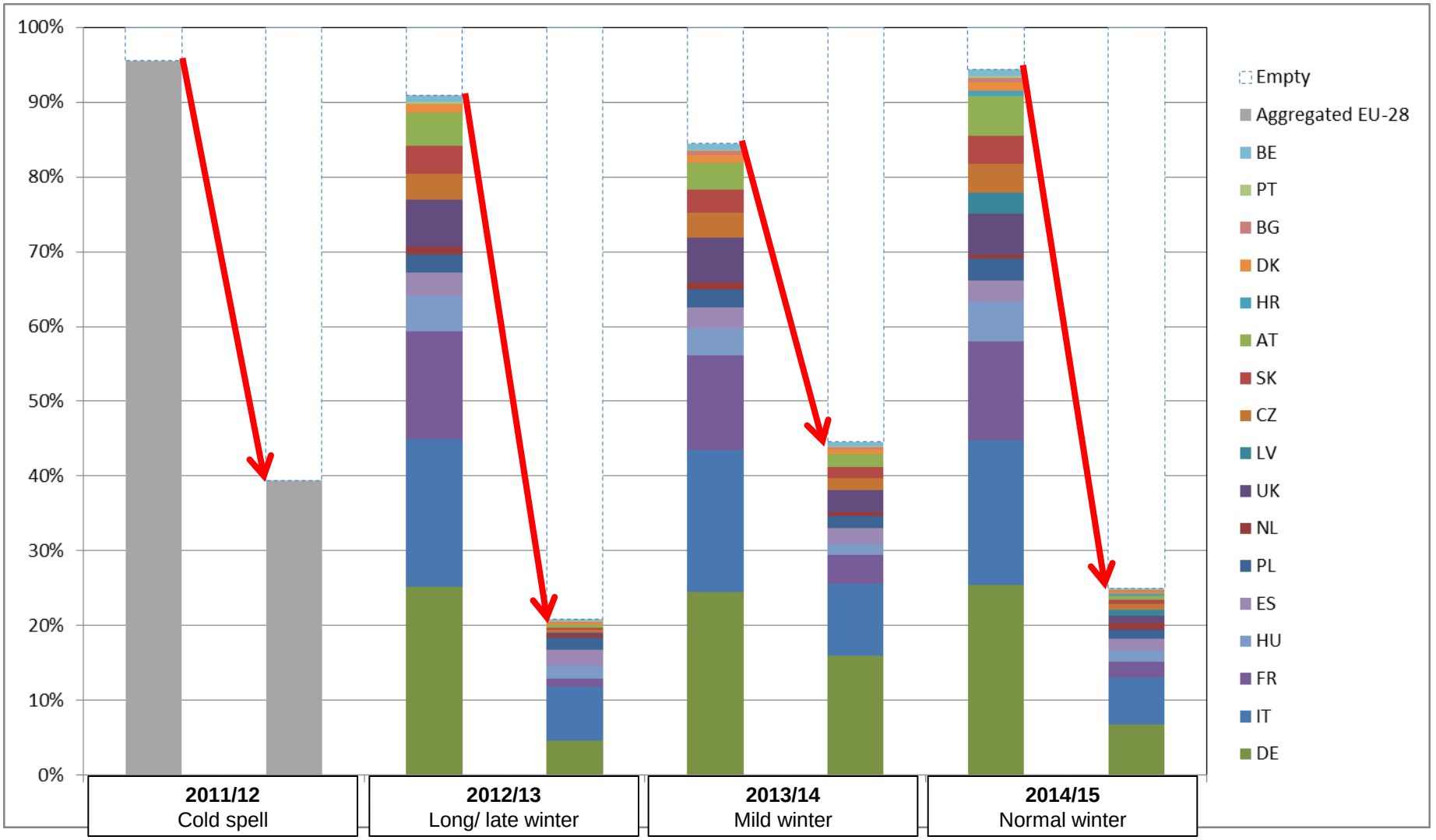
Gas storage levels (beginning and end of heating season)



Source: GIE AGSI+ data

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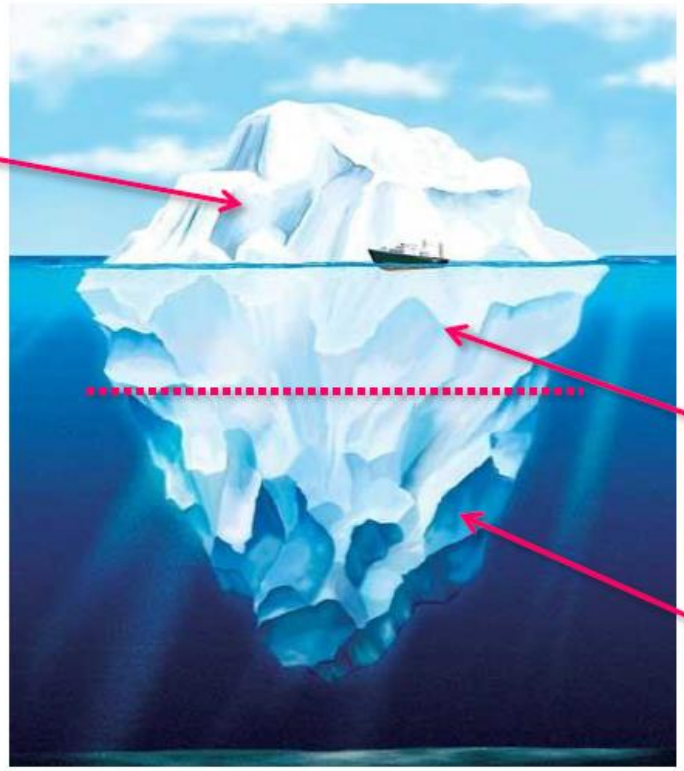
Gas Storage Market

The Value of Storage is like an iceberg ...

THE VISIBLE

Market values

- Intrinsic
- Extrinsic



THE INVISIBLE

System value

Insurance value

...with the greater part remaining invisible

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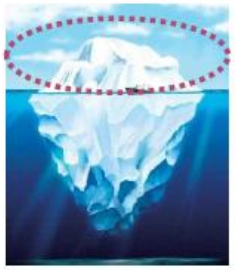
"Market values" of Storage



Intrinsic Value

- Based on difference between gas price in summer (injection) and winter (withdrawal).
- Reflects seasonal demand pattern.
- "Static view" of the seasonal forward curve.

Extrinsic value

- Based on shorter-term price differentials : day-ahead, weekend, month ahead etc.
- Dynamic and complex function of price volatility, asset flexibility, optimization strategies.
- Potentially high value from small price variations but limited price visibility.

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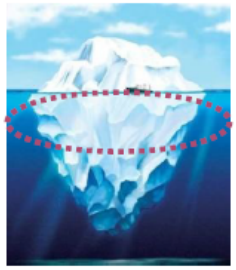
"System value" of Storage



Optimized gas production

- Avoided investment in wells and surface facilities (up to 80% of avoided CAPEX).
- Optimized operations and maintenance (plateau vs. swing).
- Maximization of gas production (up to 15% of volume).

Cost-efficient gas transport

- Avoided investment thanks to lower peak load requirement (avoided CAPEX of 9%-16%*).
- Reduced operating and maintenance costs thanks to optimized gas compression.
- Reduction of local bottlenecks.

Storage is 5-7 times less expensive than the extraction of the corresponding reserve and construction of transmission facilities (source : Gazprom)

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"Insurance value" of Storage

Hedge against supply risk

- Timely response to demand at all times: prolonged periods of high demand, cold peaks; back-up for renewables integration etc.
- Safeguard against unexpected high impact events: technical failures (production, pipeline), geopolitical risk.
- Lesser vulnerability and higher bargaining power in politically sensitive situations.
- Avoidance of high social welfare costs.

Some examples:

⇒ 2009 Russia-Ukraine dispute: storage and reverse flows were the main mitigating measures.
⇒ 2012 cold snap: storage was key in covering high demand (up to 55% daily demand coverage)
⇒ 2013 prolonged winter end: prolonged draw-down and cross-border use of storage.

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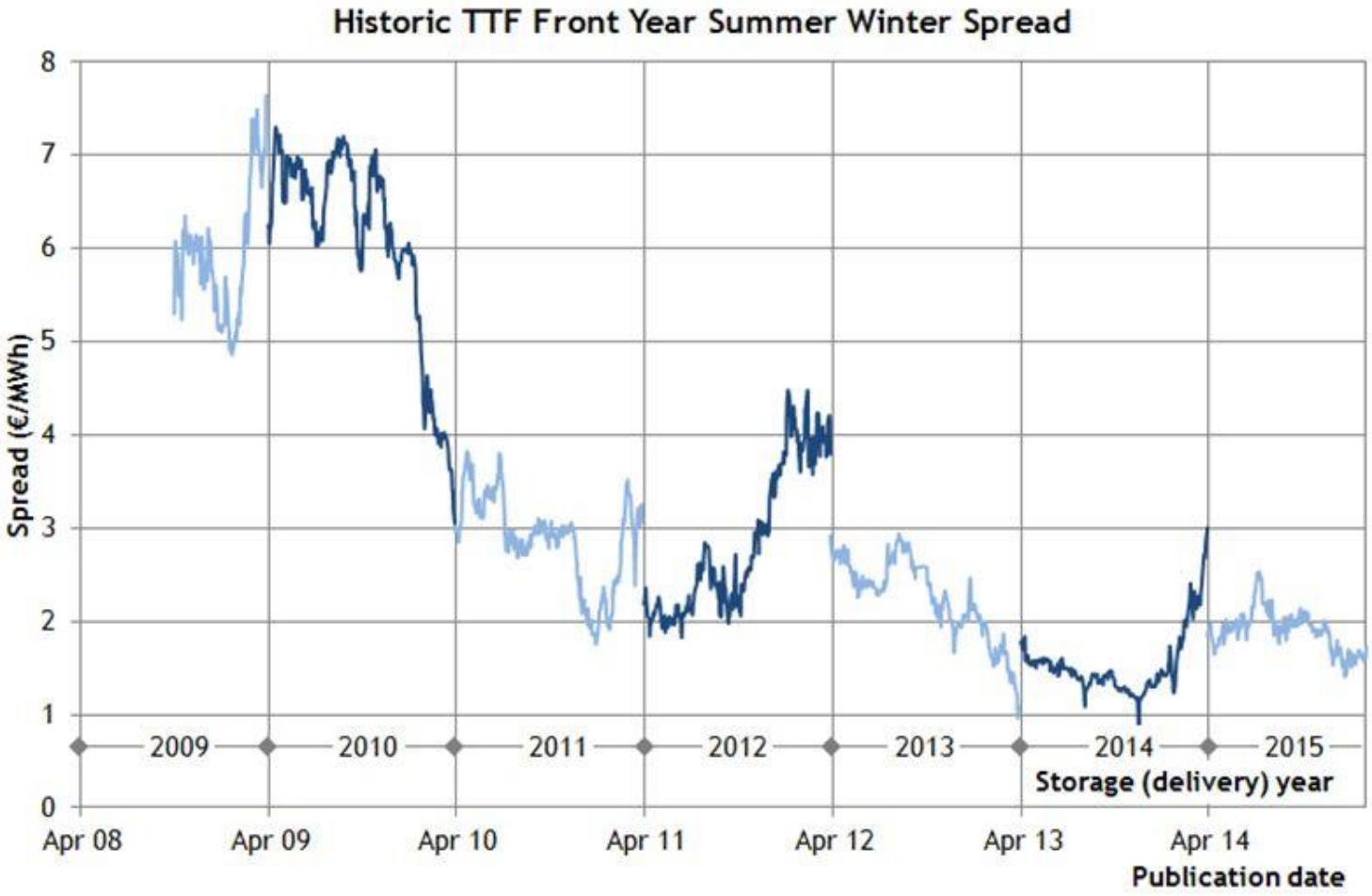
Summer-winter spread is an important driver for gas storage use



Summer-winter spreads currently historically low

Source: Timera Energy, (http://www.timera-energy.com/market-benchmark-for-gas-flexibility-value/) TTF

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Summary gas storage market

- AGSI+ and ENTSOG data show that gas storages play an important role as a flexibility provider, but willingness to pay is low
  - Low prices for indexed contracts
  - Unsold capacity (e.g. failed auctions)
- Market prices are low: risk of decommissioning/ mothballing, not a driver for investments
- Gas storages is key to ensure Security of Supply

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Inputs for LNG & Storage Strategy

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Gas storage also needed in the future

- Gas as partner for **renewable energy**
  - Flexible power generation (replacing coal)
  - Gas storage is an efficient way of storing energy
- Gas storage for dealing with higher **import dependency** as a result of lower flexible domestic production
- Partner for **LNG imports**
  - Shippers can benefit from arbitraging volatile prices in the LNG market

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Market conditions no incentive for use of gas storage

Very **low summer-winter spread** since 2010

Low willingness to pay for gas storage

- **Lower fill levels**
- No reinvestment, **gas storage facilities going offline**
  - returns do not justify (re)investment in gas storage facility
  - more profitable to sell cushion gas and abandon gas storage facility

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Security of Supply at stake when gas storages go offline

Security of supply at risk on medium to long term

- **Gas storage capacity once taken offline cannot easy be put back online** (at very high cost)
- **Realising new gas storage capacity takes almost a decade** given permitting procedures and construction time needed

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Intermezzo: gas and gas storage markets differ a lot!

- Demand for flexibility
  - Share of **gas in the energy mix**
  - Percentage **household**, **power** and **industrial** consumption
  - **Seasonal differences** in gas demand

  (depending on climate and percentage of household consumers)
- Supply of flexibility:
  - **Amount of gas storage** (volume, speed)

  → market, regulation, geological circumstances
  - **Other sources** (production, import)

Insurance value should be recognised

The regulatory framework must evolve:

Fully recognize the **insurance value** of storage

- Through storage-related security of supply measures or market-based measures (**no one size fits all**)
- **Physical availability** of supply sources must be considered in the SoS Regulation
- **Minimise market distortion**

Market distortions should be repaired

Repair current market distortions and create a **level playing field** with other flexibility sources

- Fair **transmission tariffs** for gas storage points (NC TAR)
  - Entry and exit fees already paid at entry of system (production/ import) and exit of system (consumption/ export)
  - Benefits for transmission network
- **Sufficient firm transmission capacity** for gas storage points*
- Eliminate barriers to offer **innovative commercial products.**

* not curtailing current capacity or access rights in other points

Gas Storage Europe

GIE is proud to support gas naturally
making a clean future real

Gas Naturally

GN is a campaign to showcase the essential role of natural gas in the forthcoming energy revolution. The mitigation of climate change has become one of the most important issues for the gas industry.

Thank you for your attention

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