



Gas storage for supplies from the South Stream

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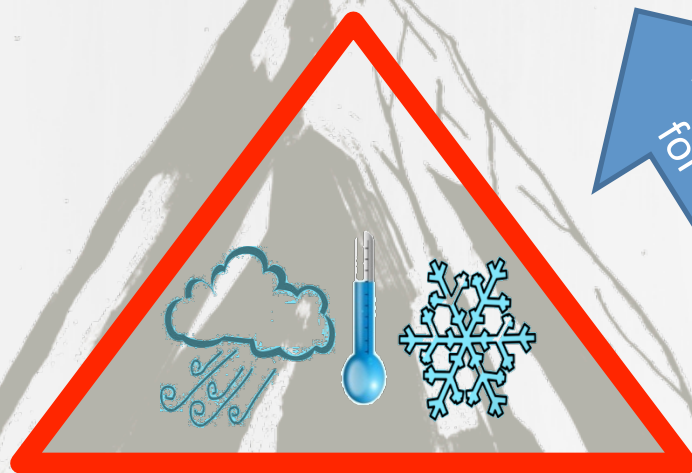
The Four Seasons Hotel, Budapest, 11.18.2013

Sales, Marketing & General Affairs Manager



Hungarian Storage Facilities in context

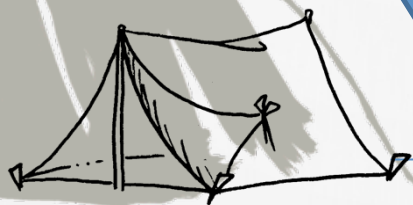
The Full Potential of the South Stream in Europe



Effective Storage Solutions
for optimal distribution

Many businesses employ such storage and distribution strategies to ensure uninterrupted supply; e.g. Wal-Mart which utilizes storage facilities all around the world to ensure the availability of all its products to customers

Why should that be different for natural gas providers?



Base Camp -- Magyar Földgáztároló Zrt.



Agenda

Flexibility market

Sources of flexibility & their merit order

Underground storage & the South Stream



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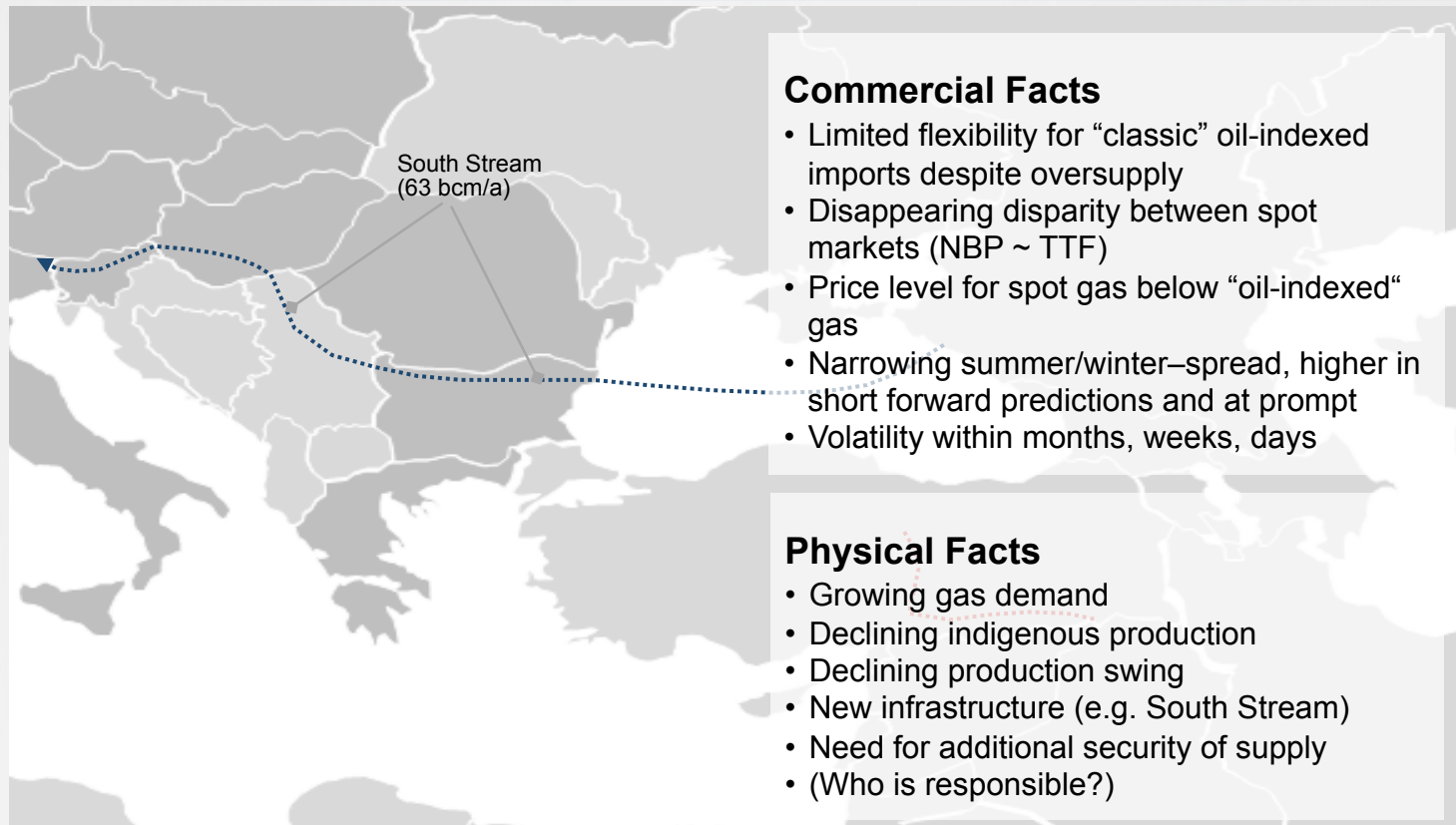
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Increasing need for imports and thus additional pipelines in the EU to diversify supplies



New pipelines (base load) imply demand for storage flexibility

Increasing number of market participants with diverging rationales & value drivers for flexibility



Situation for storage has changed fundamentally

Development of Summer-Winter spread during 2012 (TTF)



Overall development

- Temperature as a pricing factor has lost its dominant relevance
- Summer/winter spread major indicator for storage value

2011/12 – Market affected by ...

- High availability of flexibility
- High liquidity but with relatively low volatility
- Changes in flexibility value

2012/13 – market development so far ...

- Special market constellation lead to low spreads not seen for quite some time
- Development of spread level 13/14 not really clear

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Flexibility has different sources and characteristics (1/2)

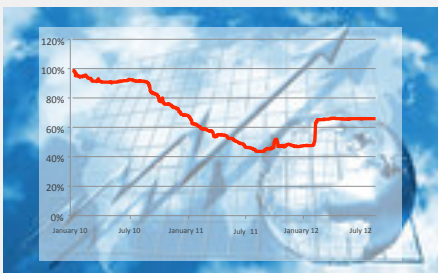
Line pack



- Limited availability
- Low price
- Often dedicated to TSO
- Short term
- Quick response time

Line pack cannot be the prime source of flexibility to structure significant supply volumes

Trading



- High risks
- Limited predictability
- Virtual
- Not ensuring real security of supply

Trading is effective in liquid markets, however does not represent physical flexibility, therefore has a limited effect on security of supply

Production swing



- Costly
- Not ensuring optimal operation
- Not effective from large distance

Production swing has similar effects as underground storages, but it is ineffective to structure supplies from large distance

Flexibility has different sources and characteristics (2/2)

Underground storage

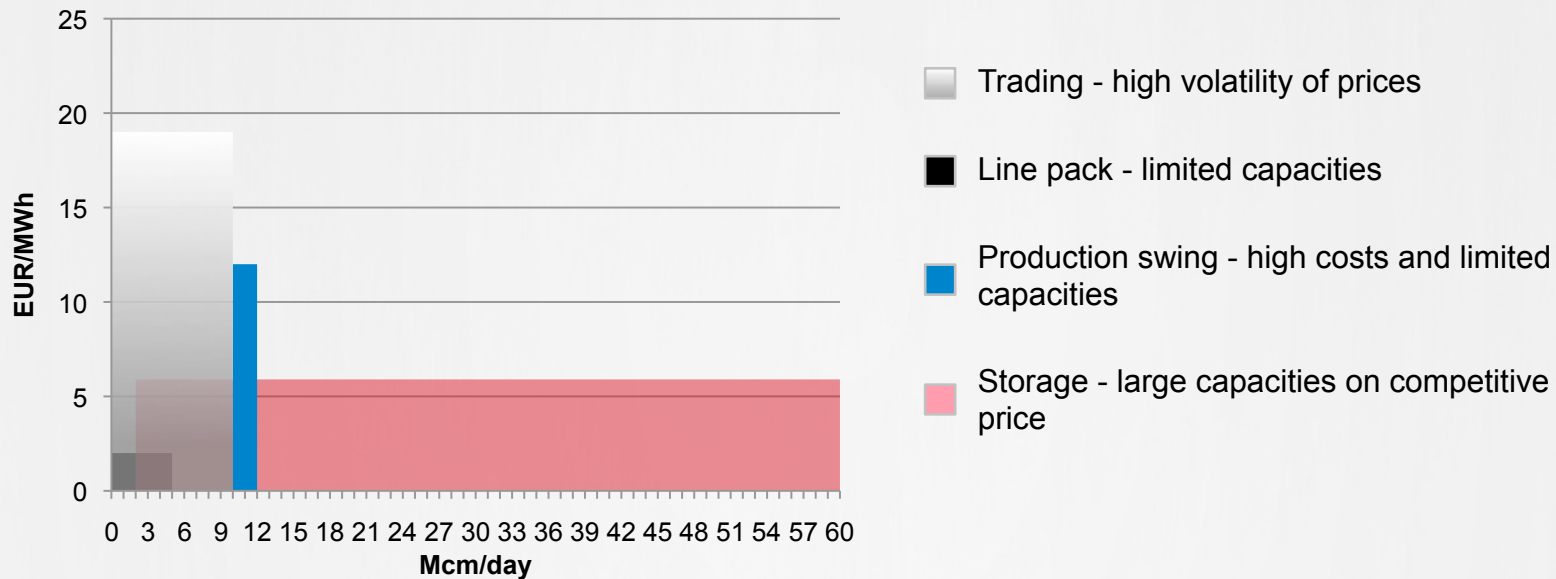


- High capacities
- Easy access
- Essential for security of supply
- Good response in case of proper technological standards and regular maintenance
- Optimal for seasonal balancing
- Additional products available to cover other than seasonal balancing (e.g. trade driven optimisation)
- Predictable pricing structure
- Opportunities for continuous product development
- High importance of geographical location

- Underground storage is the optimal solution to structure large base load pipeline supplies
- Plenty of storage capacities are available in Central & Eastern Europe to be utilised in short time

Underground storage is the only source of flexibility with preferable merit order position and high availability

Typical capacities and costs by source of flexibility in Central & Eastern Europe*



In general, underground storage is the favourable solution to ensure flexibility and security of supply, while traded flexibility is limited by physical constraints and liquidity

* Estimated costs and capacities from a typical Central & Eastern European gas market

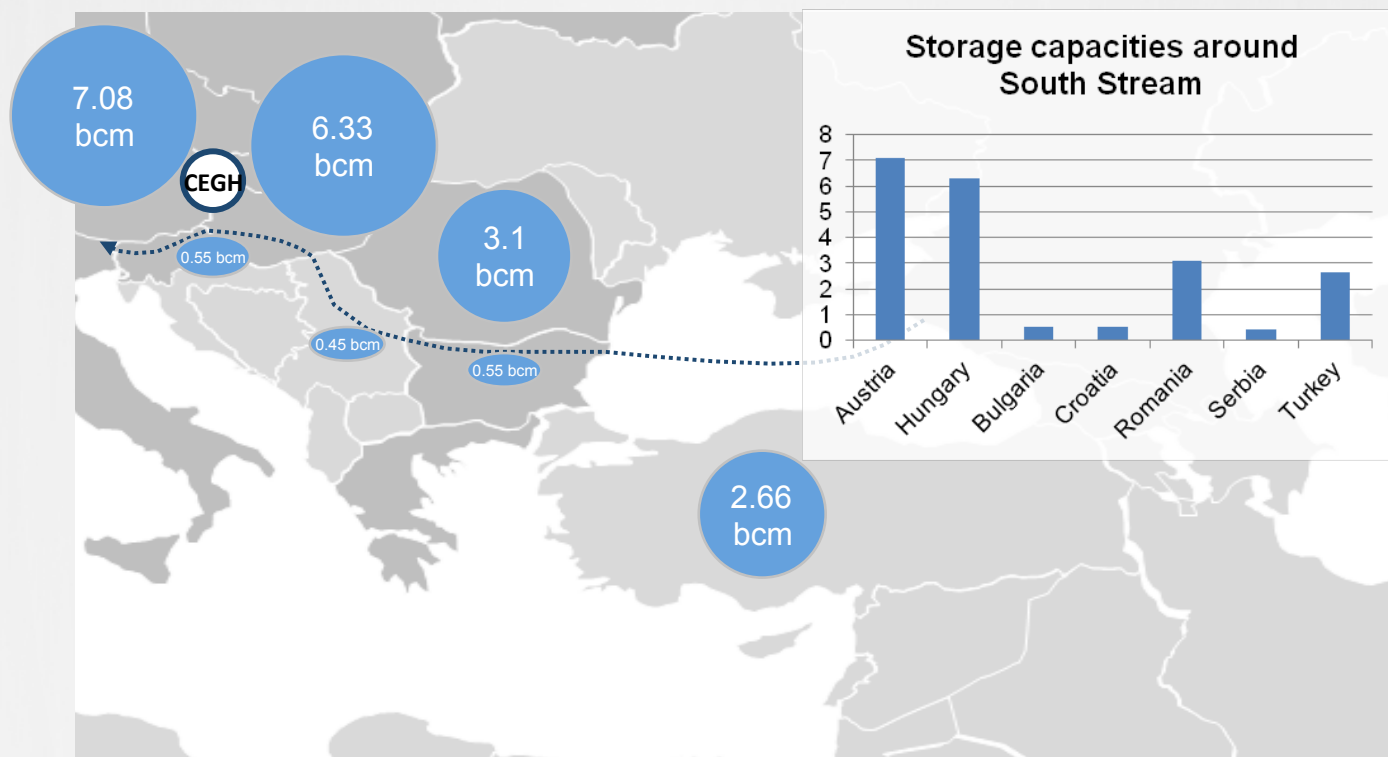
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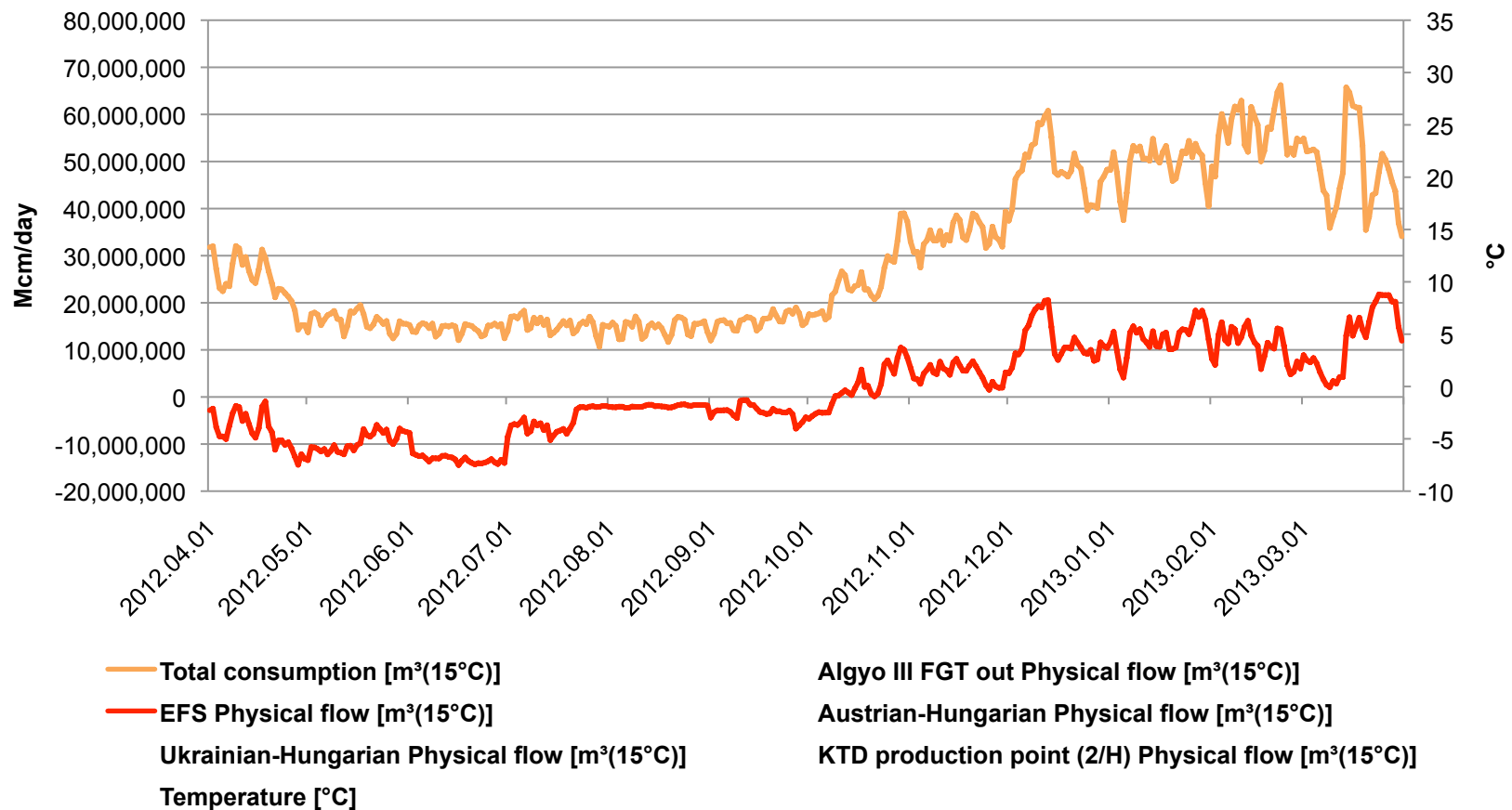
Storage facilities around the South Stream have different potentials



Largest capacities available in Hungary and Austria, with optimal geographical location to structure large pipeline deliveries towards Western Europe

Large import quantities require underground storage to provide flexibility

Sources of flexibility (example Hungary)



Optimizing with storage facilities driven by intrinsic and extrinsic value (I./II.)

Ability to capture the summer/
winter spread trough the total size

Relatively „slow” products,
with high working gas
capacities

Main purpose to ensure
security of supply and
flexible supplies

Key role in product
structuring

Intrinsic
value

Ability to capture spreads
trough faster churns

High injection & withdrawal
peak (fast churn)

Main purpose to capture
spread

Key role in daily/monthly/
quarterly arbitrage deals

Extrinsic
value

Storage captures value from seasonal to daily price spreads

Optimizing with storage facilities driven by intrinsic and extrinsic value (II./II.)

Seasonal storage will keep strong position

- Although extrinsic value and volatility sensitivity of seasonal storage is low, the market indicates that there is substantial demand
- Effects
 - Effectively structure gas supplies
 - Ensure security of supply

Intrinsic value

High churn storage could celebrate a come back

- Value potential on intra-year spreads
 - Competitive position with room for improvement
- Fast storage could play major role if assumptions on liquidity, market development and renewables are right

Extrinsic value

Products and services of underground storage are emerging over time

Focus on product development

Storage+

Flow against official seasonal period

Value: Full flexibility – injection and withdrawal at any time



Peak+

Additional peak capacities on top of seasonal storage product

Value: Faster injection (less than 133 days) and/or withdrawal (less than 70 days)



Flat capacities

100% availability of injection and withdrawal capacities irrespective of storage level

Value: Full predictability and access



Long term

Booking commitments for longer than 1 year

Value: price stability and advantage, predictability



Customs free zone

Store gas in a customs free zone

Value: support of non EU export – customs fee and VAT financing advantage



Seasonal storage service

System storage concept,
4 storage sites in Hungary,
4.2 Bcm working gas capacity

1. Seasonal balancing
2. Price optimization
3. Security of supply

133

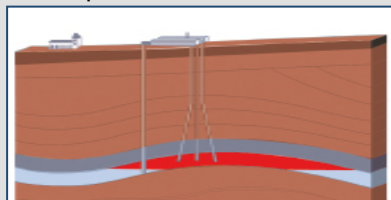
days injection

70

days withdrawal



1st April – 30th September 1st October – 31st March



temperature driven portfolio



capturing spreads, trading



industrial demand



high speed injection/withdrawal



managing risks



price advantage

Gas loan

Allows traders to borrow gas from the storage

Value: cover supply losses or market needs



Interruptible peak

Partnership in operation optimization – daily interruptions in case of capacity congestion

Value: price advantage



Quick start

Standby framework contract without obligations

Value: immediate access to storage in unpredicted situations



Flex+

100% options on daily nomination

Value: capturing extrinsic value of daily nominations on balancing market



Hub products

Injection / withdrawal at Hub or interconnector point

Value: complex service – storage and cross-border transport



Summary



New pipeline projects imply additional demand for storage capacities

The combination of supply diversifications (new pipelines) and storage facilities in Europe are the basis of sustainable, secure and competitive gas supplies and fulfil wide range of requirements.



Storage is the heart of the business around flexibility

Underground storage keeps its important position in the flexibility market

Storage plays a key role from daily and short-term arbitrage deals to seasonal balancing, and so generating intrinsic/extrinsic value



Storage stays competitive by developing product range

New storage products developed to provide flexibility and the technical background to meet the customer needs



Thank You

