

WOC 2 Storage – Triennium 2012–2015
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Introduction of Storage Activities in Slovakia

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SLOVAK GAS INDUSTRY

TRANSIT

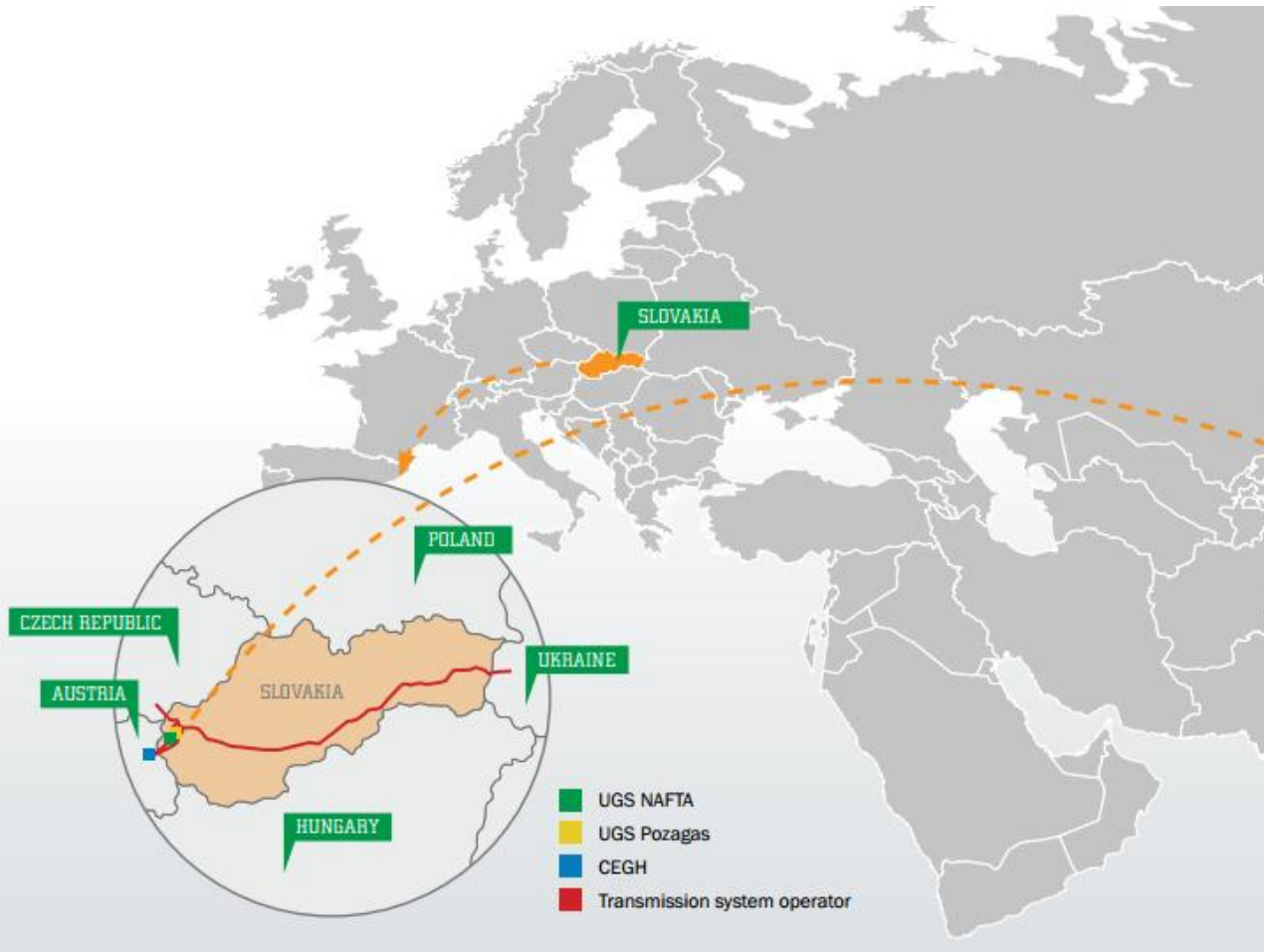
- Slovakia – Europe’s No.1 gateway for gas imports
- Transport capacity: 90 bcm/y (954 TWh/y)

DISTRIBUTION

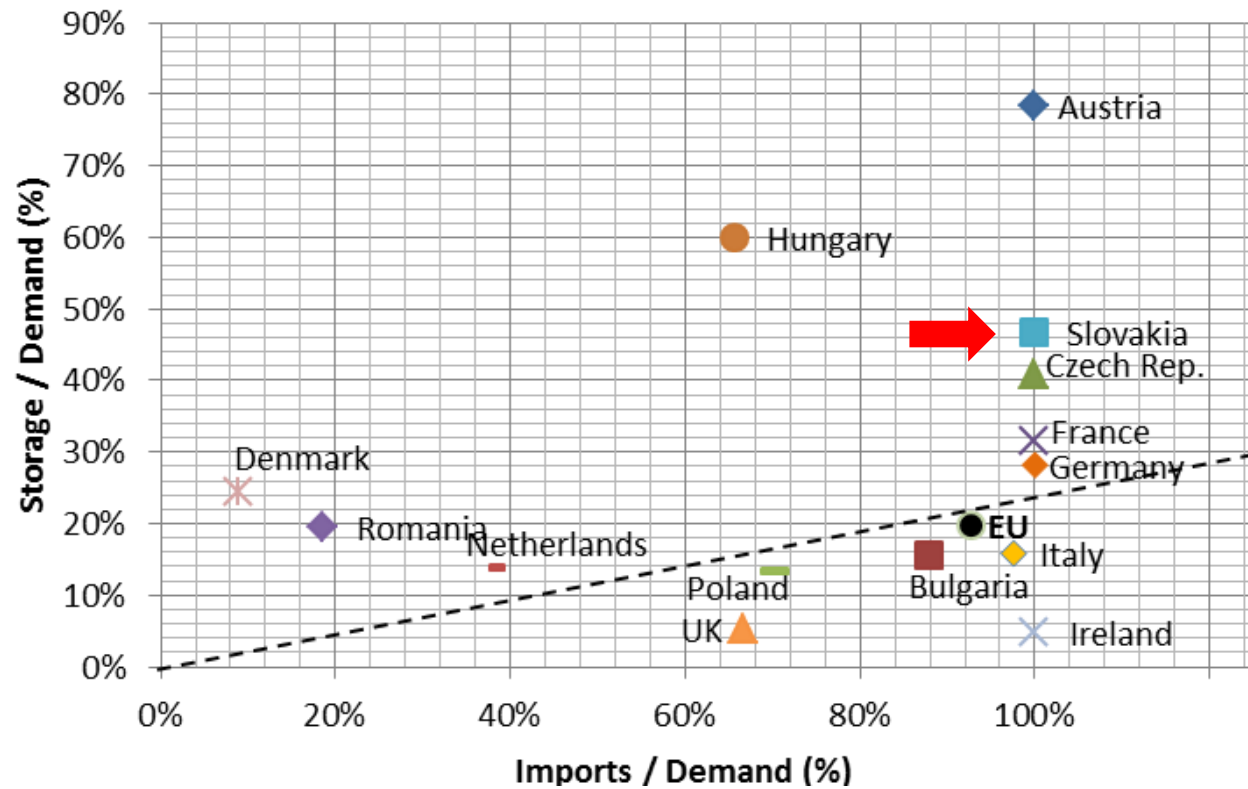
- Slovakia – Europe’s No.2 most gasified country in the EU
- Gas consumption: 5.5 bcm/y (58 TWh/y)

STORAGE

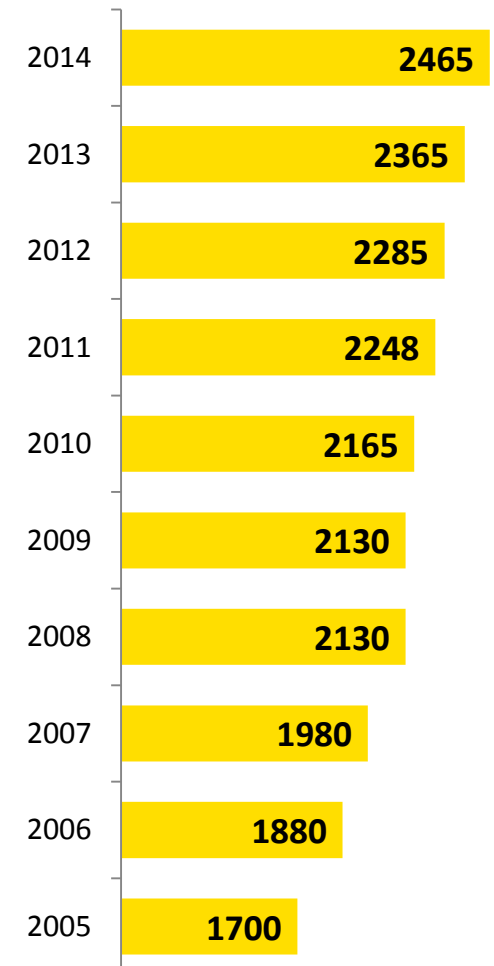
- Slovakia – Europe’s third highest storage-to-consumption ratio
- UGS capacities of 3.4 bcm (36 000 GWh)



POSITION OF SLOVAKIA IN GAS STORAGE



NAFTA'S STORAGE CAPACITY INCREASE



Relatively high ratio of total storage capacity to natural gas consumption in Slovakia due to

- High import dependency
- Export of storage capacity

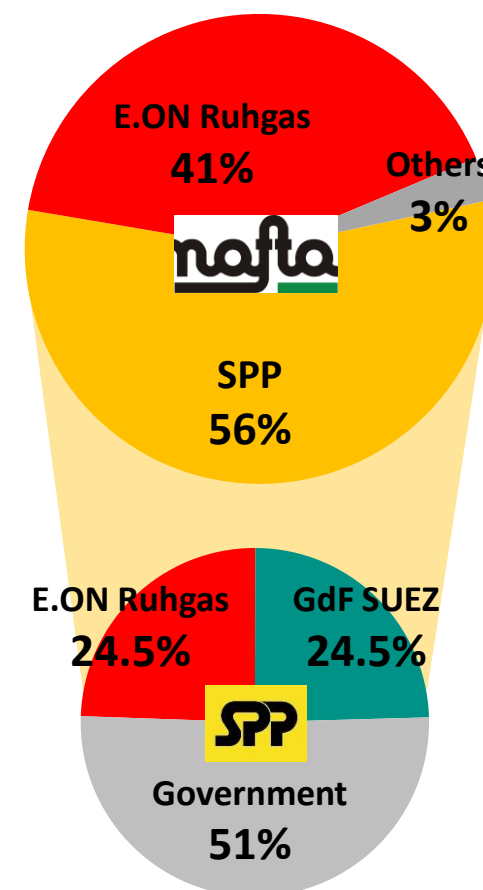
NAFTA

- Key Slovak SSO
- 40 years of reliable UGS operations after 100 years of E&P
- Operating unique storage asset – portfolio of 8 geological structures
- Variety of grid interconnections, strategic location
- Important tool of security of gas supplies
- Flexible business partner

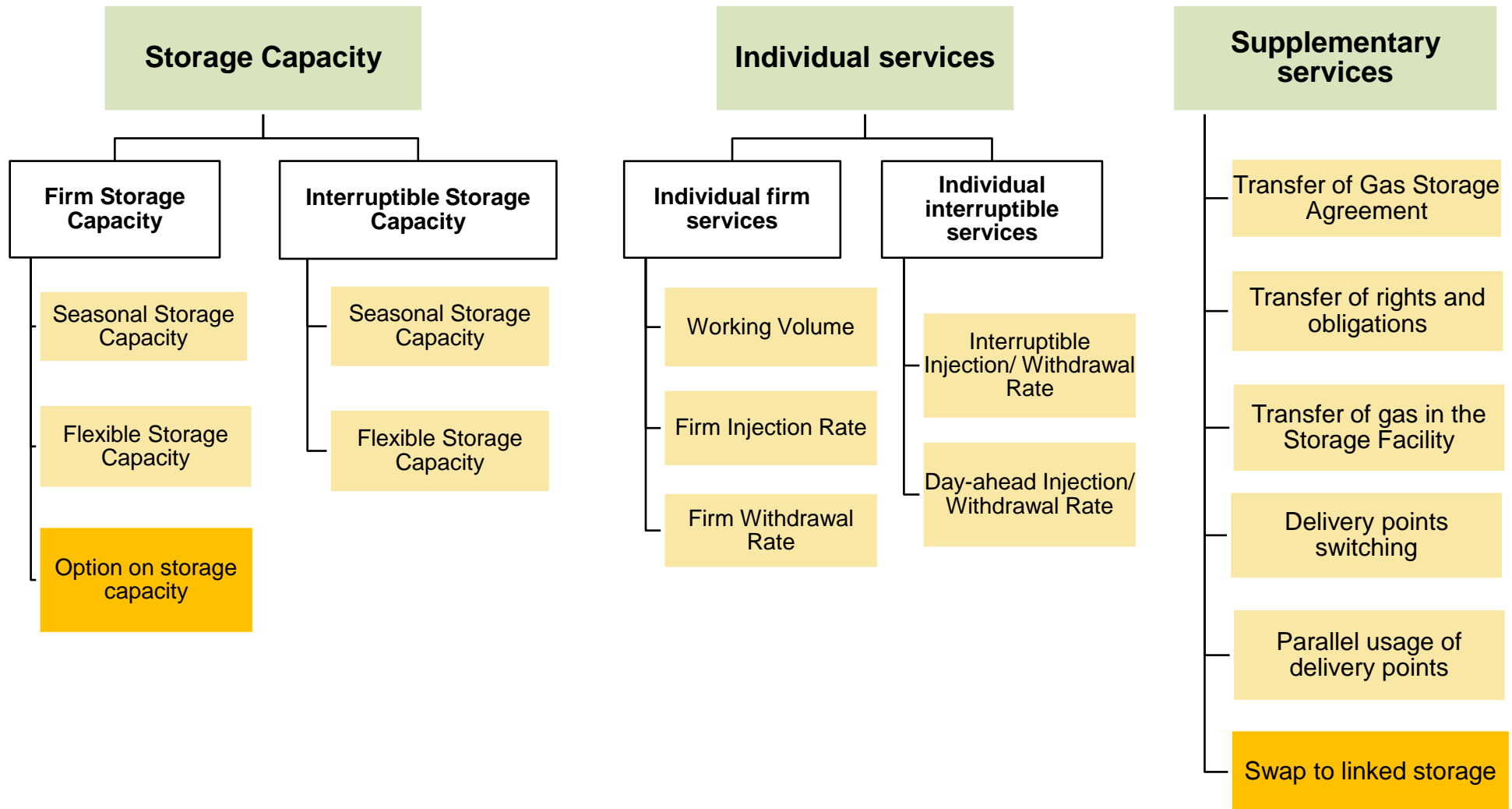
UGS SPECIFICATION

Storage Capacity	2.28 bcm	24 168 GWh
Max Injection Rate	23.5 mcm/d	249 GWh/d
Max Withdrawal Rate	31.1 mcm/d	330 GWh/d

NAFTA'S SHAREHOLDER STRUCTURE



STORAGE SERVICES PORTFOLIO



NAFTA'S INTERCONNECTIONS & UNIQUE LOCATION

- Junction point of Slovakia, Austria and Czech rep.
- Close to eustream split point towards CZ & AT
- Dedicated interconnections to:
 - MAB pipeline (AT)
 - Lanžhot border point (CZ)
 - Slovak Distribution grid

MARKET REACH

eustream	AT, CZ, DE, FR, IT, CH UA*, PL*, HU*
MAB	CEGH, AT, DE, FR, IT, CH etc.
Slovak distribution grid	Slovakia

* Considering planned interconnections



GAJARY-BÁDEN DEVELOPMENT

- In 2008 NAFTA recognized demand for new storage capacity in Central Europe and strategic location potential
- Project's importance recognized by the EU

3 STAGES OF DEVELOPMENT

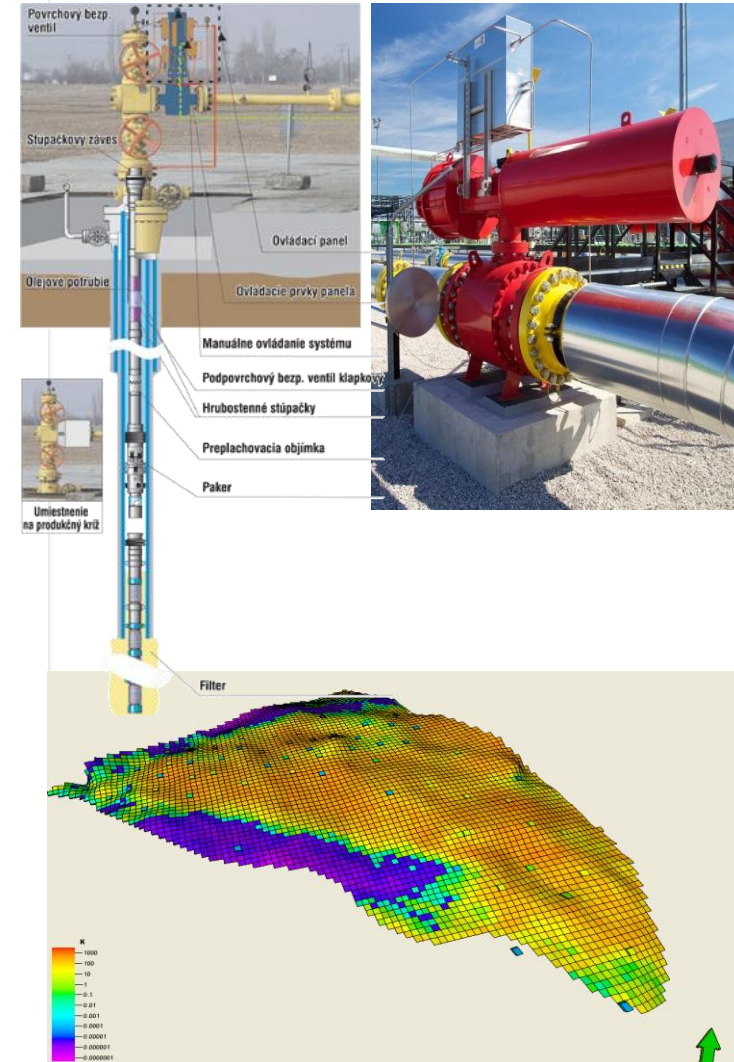
1	2008	150 mcm	1 590 GWh
2	2013	400 mcm	4 240 GWh
3	2014	500 mcm	5 300 GWh

GAJARY-BÁDEN FINAL STORAGE PARAMETERS (2014)

Working Gas Volume	500 mcm	5 300 GWh
Max. Injection Rate	5 mcm/d	53 000 MWh/d
Max. Withdrawal Rate	6 mcm/d	63 600 MWh/d

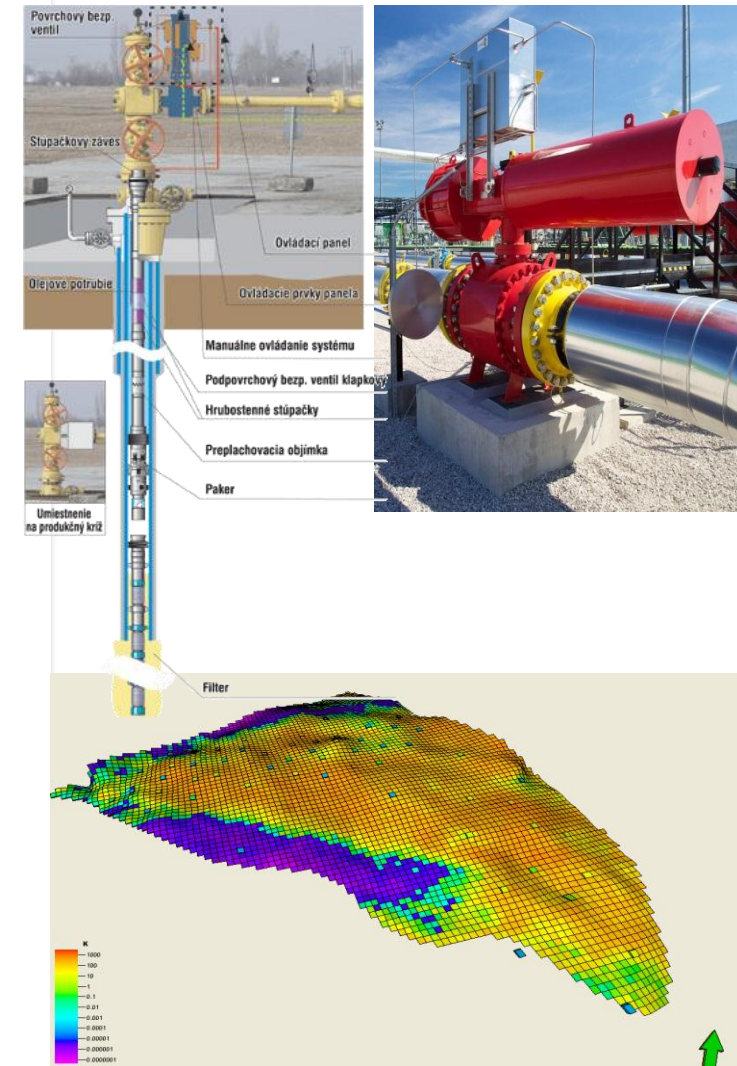
Key advantages:

- Reverse-flow-ready
- State-of-the-art technologies



UNDERGROUND GAS STORAGE – RELIABILITY & SAFETY

- **Reliable storage operation for more than 40 years**
- **Investments in equipment modernization and renewal**
 - SW for geological and technical modeling
 - Reconstruction of collection centers and increase in their withdrawal rates
- **Implementation of the measures improving safety of operation**
 - Preventive maintenance
 - Surface and subsurface safety valves on wells
 - Safety isolation valves on gas pipelines
 - Venting system of gathering centers
 - Safety management system



CONTRIBUTIONS

- **Reliable element supporting the role of gas in the energy mix**
- **Improvement of security of gas supplies in the region**
- **Further gas market development**
 - Storage extension
 - Flexible products
 - Adding daily rates to the system
- **Reduction of environmental footprint**
 - Reduction of NOx and SOx emissions
 - Noise reduction measures
 - Removal of environmental burdens (app. 300 wells, 16 collection centers, waste dumps)

COMMERCIAL TRENDS

	BEFORE	NOW
Customers	<ul style="list-style-type: none"> • Market incumbents 	<ul style="list-style-type: none"> • Commodity traders • Regional distributors • Large industrial customers
Products	<ul style="list-style-type: none"> • Long-term • Seasonal • Big volumes 	<ul style="list-style-type: none"> • Short-term • Flexible, Multicycling • Day-Ahead rates • Smaller lots
Technical performance	<ul style="list-style-type: none"> • Lower deliverability • Maintenance periods 	<ul style="list-style-type: none"> • Limited maintenance period • No shut-downs • No minimum flow • Short start-up time

Future storage products:

- Bundled storage & transmission products
- E-booking platforms
- Tailor-made products (customization)
- Energy derivatives e.g. storage options
- Title transfer within storages

Value of short-term storage influenced by:

- Summer-winter spreads (intrinsic), short-term volatility (extrinsic)
- Interconnections to grids
- Vicinity to gas hubs

Thank you

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NEW PRODUCT - OPTION ON STORAGE CAPACITY

- Result of NAFTA's innovative & customer-oriented approach to spot-market trading
- NAFTA to be the first SSO in Europe to offer an option on storage capacity
- Underlying asset: 1-year firm flexible storage capacity:

Characteristics	Overall Option		1 SBU	
Standard Bundled Unit	100		1	
Working Gas Volume	100 mcm	1060 GWh	1 mcm	10.6 GWh
Withdrawal Rate (flat)	1 mcm/d	10.6 GWh/d	10 000 cm/d	0.106 GWh/d
Injection Rate (flat)	1 mcm/d	10.6 GWh/d	10 000 cm/d	0.106 GWh/d

- Subject to a Take-It-Or-Lose-It condition if spread Q1'2014-Q3'2013 reaches 6.20 €/MWh
- The price consists of a premium (bid) and a fixed component (due only if the option is exercised) of 0.052€/cm