

Russian Gas and European Energy Security : Beyond Clichés

World Energy Council Workshop
Energy Vulnerabilities in Europe

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What clichés are we talking about?

1

- Future of European energy security depends on renewables

2

- Energy security = energy independence

3

- EU energy security depends on the will and capacity of European authorities to put pressure on suppliers

4

- Further liquidity of energy exchange market places will foster more energy security

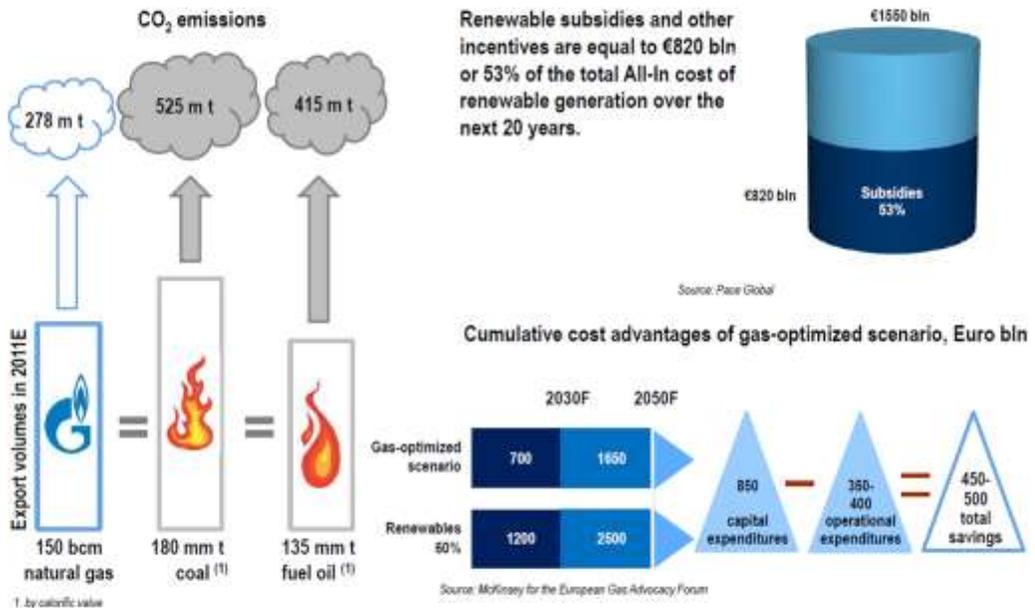
Cliché #1 :

Future of European energy security depends on renewables development



European energy security depends on the viability of its energy mix, which also must fulfil the EU's climate ambitions

Cost-efficiency of "gas scenario" model



Based on renewable resource options, up to \$1500bn (820 bn from EU State budgets) must be invested; under the "gas scenario" model 500 bn dollars less by 2030, and 850 bn less by 2050.



On 6 June 2012, the European Commission kick-started the debate on how Europe should approach renewable energy post-2020. A frank discussion is indeed required, and not just because regulatory uncertainty is the number one risk factor making Europe a less attractive place to invest in energy infrastructure.

Current policies have led to absurd outcomes, with on the one hand support schemes for renewable energies having spiralled out of control and on the other hand, heavily polluting coal and lignite plants celebrating a revival under the current regulatory regime.

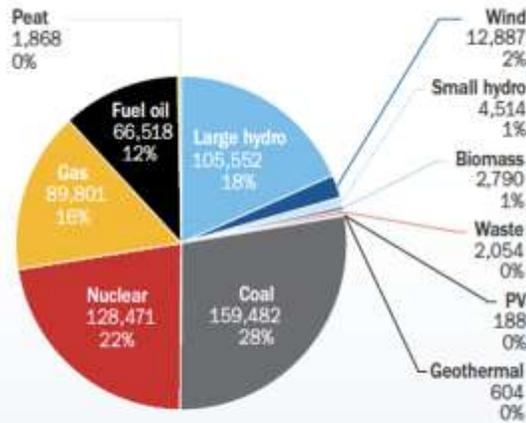
Natural gas is more environmentally friendly than oil or coal. Burning gas instead of oil reduces CO₂ emissions by 20% and if used as a replacement for coal by 50-60%. Increasing the share of gas in the EU energy mix by only 1% will reduce the emissions by 3%.

EU energy security is also power generation security

→ Gas power production is flexible: it can provide a “base load”, mid-merit, cover peak loads, or act as a back-up for downfalls in renewable energy production

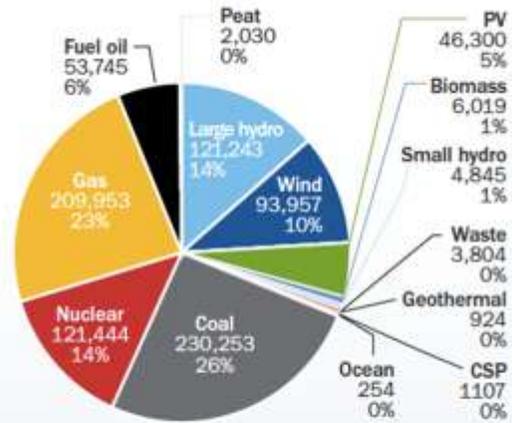
EU POWER CAPACITY MIX 2000

FIGURE 2.3



EU POWER CAPACITY MIX 2011

FIGURE 2.4



Source: EWEA, 2012



The share of natural gas in the EU electricity mix has increased from 16 to 23% in 11 years.

Looking at nuclear, there are issues with safety and in the Western world everybody knows that constructing nuclear power stations may well be a project for decades, not years. In contrast, modern gas combined-cycle power stations are quickly constructed, highly reliable and provide clean, competitively-priced power.

It is not a secret that renewables are prone to short-term fluctuations in their energy output, which need to be balanced by sophisticated technology in order to ensure energy security. For instance, in the U.K. the seasonal load of the wind power generators is less than 50%, and these facilities, at best, stay idle for half of the time.

Cliché #2 :

Energy security = energy independence



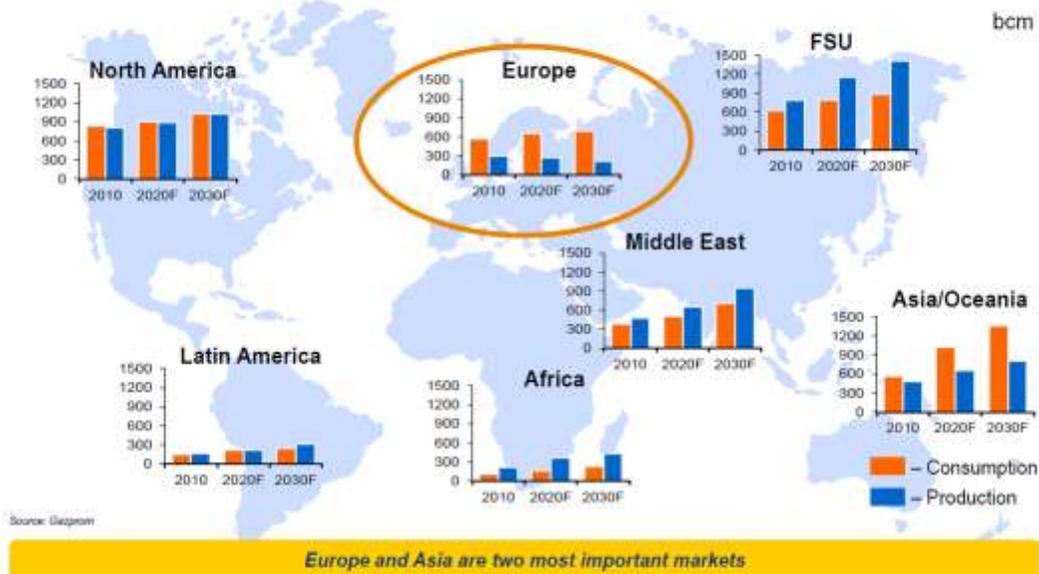
*Energy security =
security of supply
security of transit
security of demand*



This is one of the most widespread clichés, especially in France. Energy security of a region or a country depends on its level of energy independence.

But let's look at the facts: if Europe remains an import market for fossil fuels, then the conditions for an effective energy security depend on three main factors. The question is: how does Gazprom contribute to these forms of security?

Growing dependence of the European market

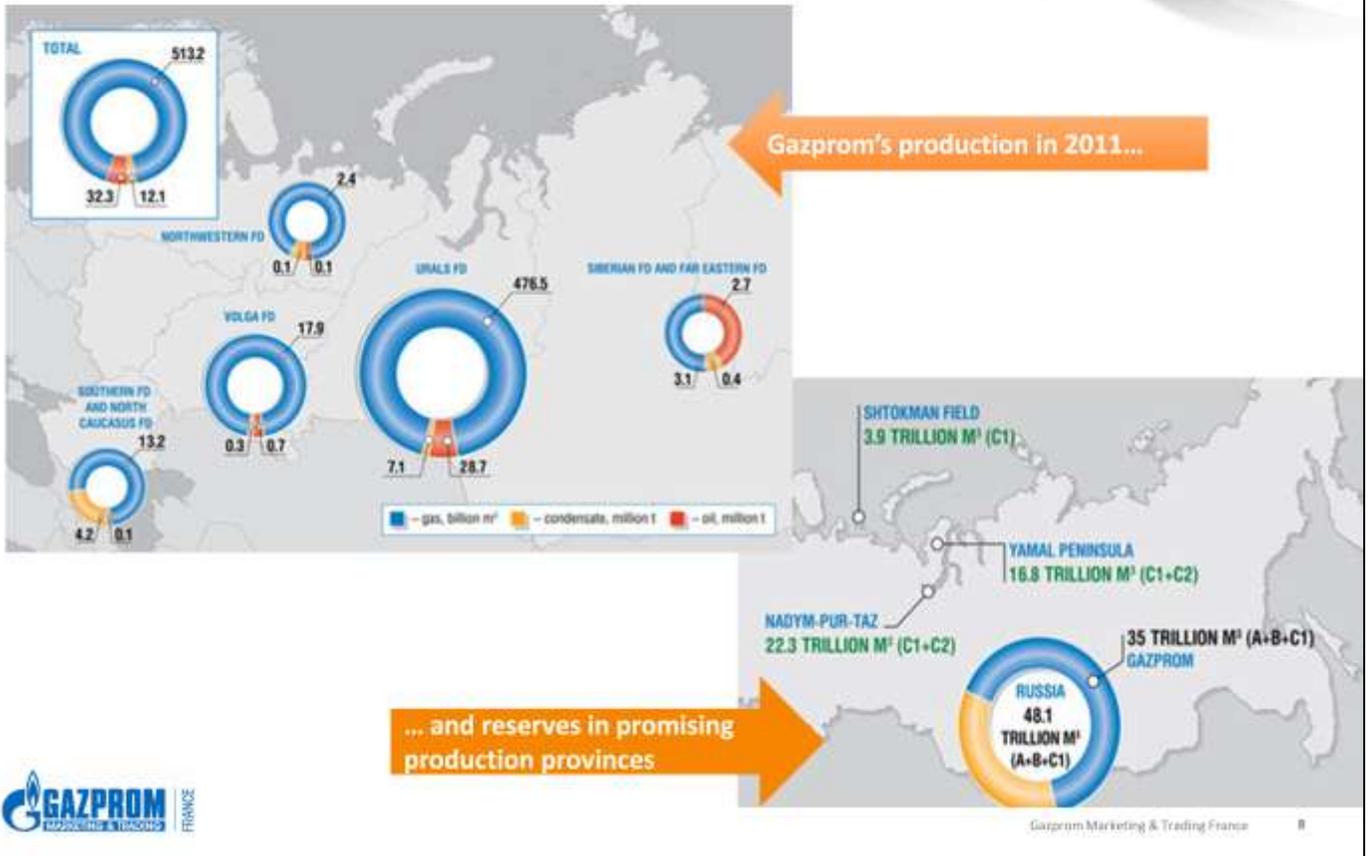


Uncertainties are growing in the global picture of the gas business:

- Uncertainties about gas importation demand in EU and in USA;
 - Uncertainties about price dynamic;
- But growth of gas demand is not contested as a solid fundamental

All realistic scenarii show that Europe and France will remain highly and increasingly dependent on energy (be it oil, coal, uranium or natural gas), like for any other raw material generally speaking.

Gazprom's production and reserves



500 bcm per year of production, 25% are exported, 2/3 of which to Europe, 14,5% of global production; 17% of global reserves

Supply routes from Russia



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Gazprom is already strongly committed to EU energy security. The strongest evidence of our commitment to the European market is the major investments we have and the new transportation routes we will build to carry our gas to Europe. In particular, both the Nord Stream and South Stream pipelines are and will be built to stay and provide additional supplies, flexibility, independence from transit countries, and more energy security to the European market. It is worth stressing as well that they have been or will be built together with European partners – they are in that sense truly European projects.

Nord Stream

1,224 kilometres = length of gas pipeline

55 billion cubic metres (bcm)

26 million = number of European households that can be supplied

South Stream

Length: over **900 km** under the surface of the Black Sea

Number of gas pipeline strings: **4**

Total transportation capacity: **63 billion cubic metres** of natural gas per year

Shareholders: OAO Gazprom, Russia - **50%**, Eni S.p.A., Italy - **20%**, EDF, France - **15%**, Wintershall Holding GmbH (BASF Group), Germany - **15%**

Start of commercial operations (first line): **End 2015**

Achievement of full capacity: **End 2018**

Cliché #3:

EU energy security depends on the will and capacity of European authorities to put pressure on suppliers



Energy security depends on the ability to foster an apolitical, business-oriented dialogue with suppliers



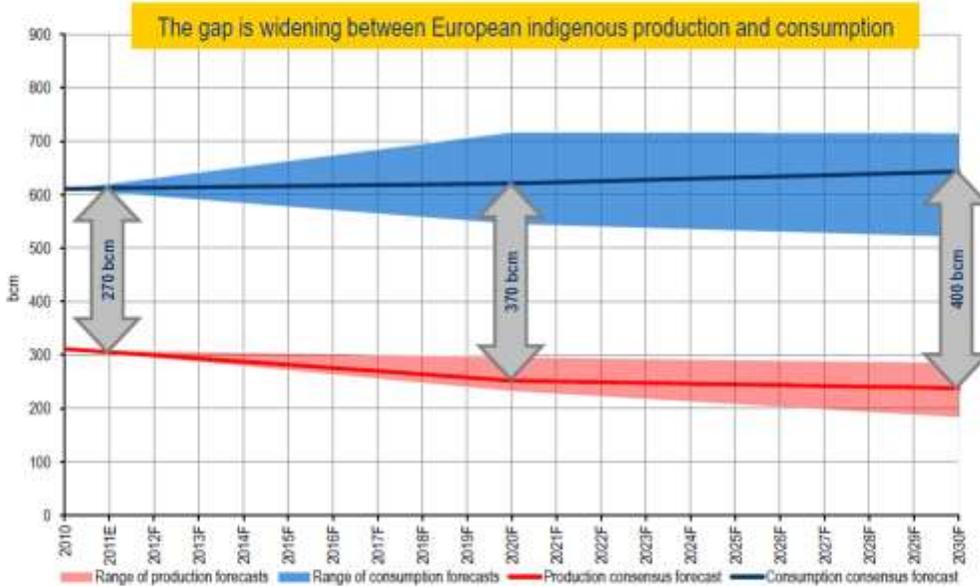
For all the reasons that we have seen before, it seems obvious that the energy security of the EU cannot be addressed independently from the global context.

1- the EU remains and will remain an import market for fossil fuels, and for natural gas in particular.

2 – to some extent, there is a globalisation of the natural gas market

Consequently, what we at Gazprom would like to promote, is a business-oriented, economic discussion between the EU and its main gas suppliers. Interdependence is the key: like I said, 2/3 of Gazprom exports go to EU markets.

Europe's decrease of indigenous production and need for extra imports



Source: Consensus projections derived from EIA, CERA, Greenpeace, IEA, EuroGas, PIRA, E.C., Gedgaz

On a long term basis, Europe is a first class market for the Gazprom Group, with an increasing demand for gas imports.



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The experts, relying on the data from the most authoritative think tanks and institutes in the world, offered a kind of consensus forecast.

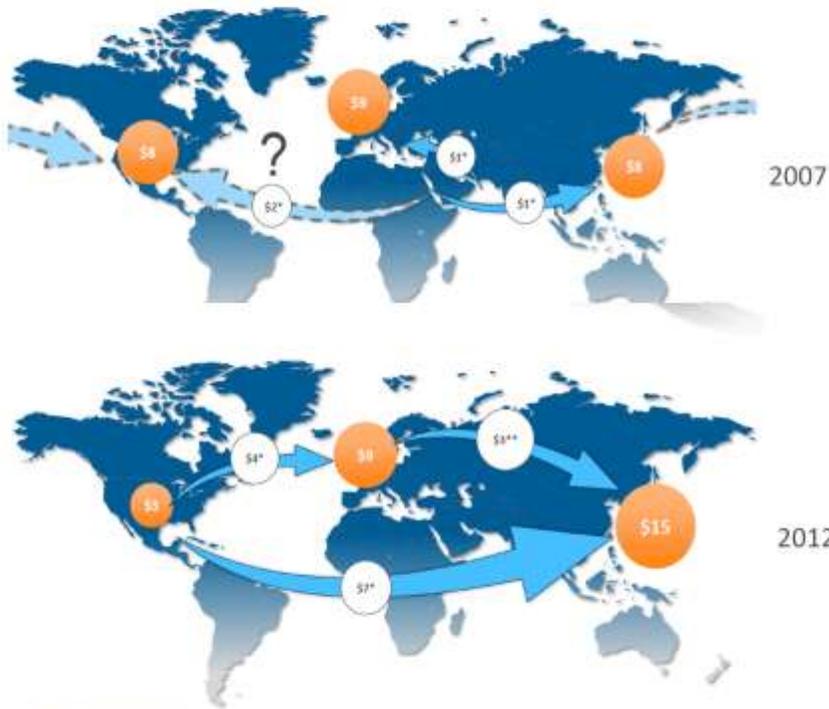
It implies that Europe's need for imported gas will reach 380 billion cubic meters by 2020 and 430 billion cubic meters by 2030. Two medium-term trends look indeed irreversible:

Increase in gas consumption, mainly due to environmental characteristics of natural gas that I already mentioned. Decrease of the domestic supply, with the end of many North Sea fields in the years to come.

In other words, Europe by 2030 will need at least 130 billion cubic meters of "new gas" above the current level of imports. Even when adjustments on future increases in LNG delivery are made, and let there be an ambiguous, but all the same, existing possibility of shale gas production, import pipeline gas, including that from Russia will still remain the main source of meeting the needs. New pipelines are needed to bring this amount onto the market.

I would also like to point out that if you compare the figures of 130 bcm with the volume of the planned gas pipeline projects voiced, and it will be obvious that there is plenty of room for Nord Stream, South Stream and other projects in the European market.

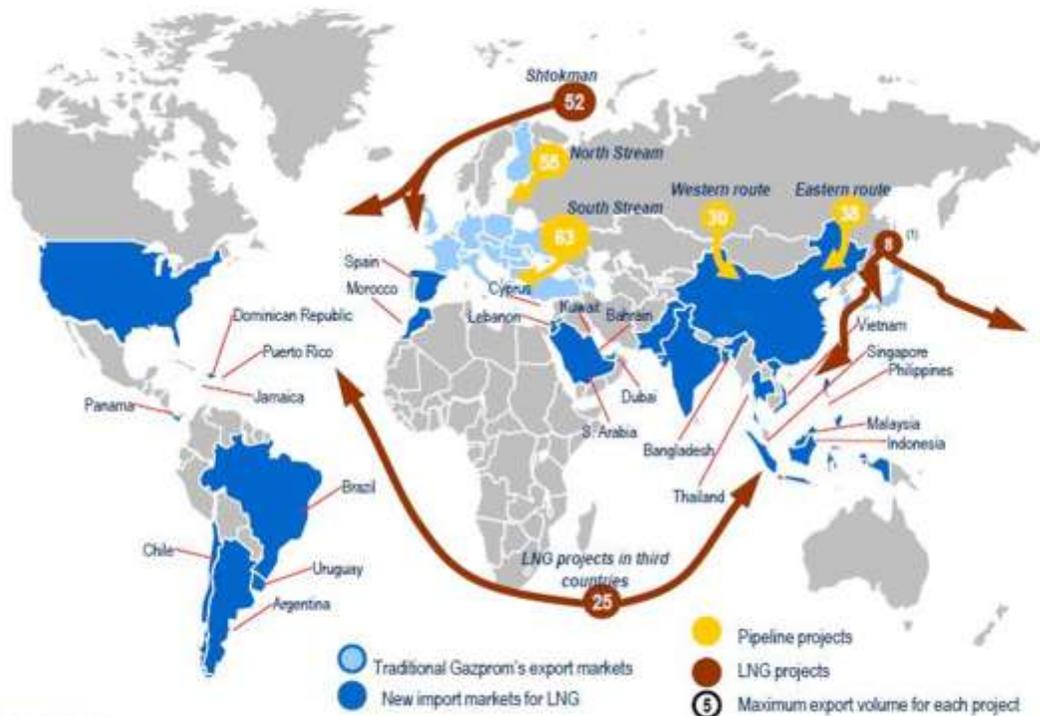
Emerging trends in the global gas business



- Price differentiation between regional areas will keep driving the spot LNG flows and gas project development
 - LNG role is growing but is only dominant in Asian markets, and will remain marginal in US & Europe;
 - Shipping costs are more and more a key factor
 - Back on the way to « a single global gas market » model ?
 - Only if price volatility can be kept under control
- **Uncertainty about forecasts is growing in energy markets – is it good to increase this tendency?**

But one also has to consider that the global gas market is changing. The discussions between the EU and its gas suppliers must also take these elements into consideration.

Example: diversification of GP marketing routes



Cliché #4:

Further liquidity of
exchange market places
will enable more energy
security



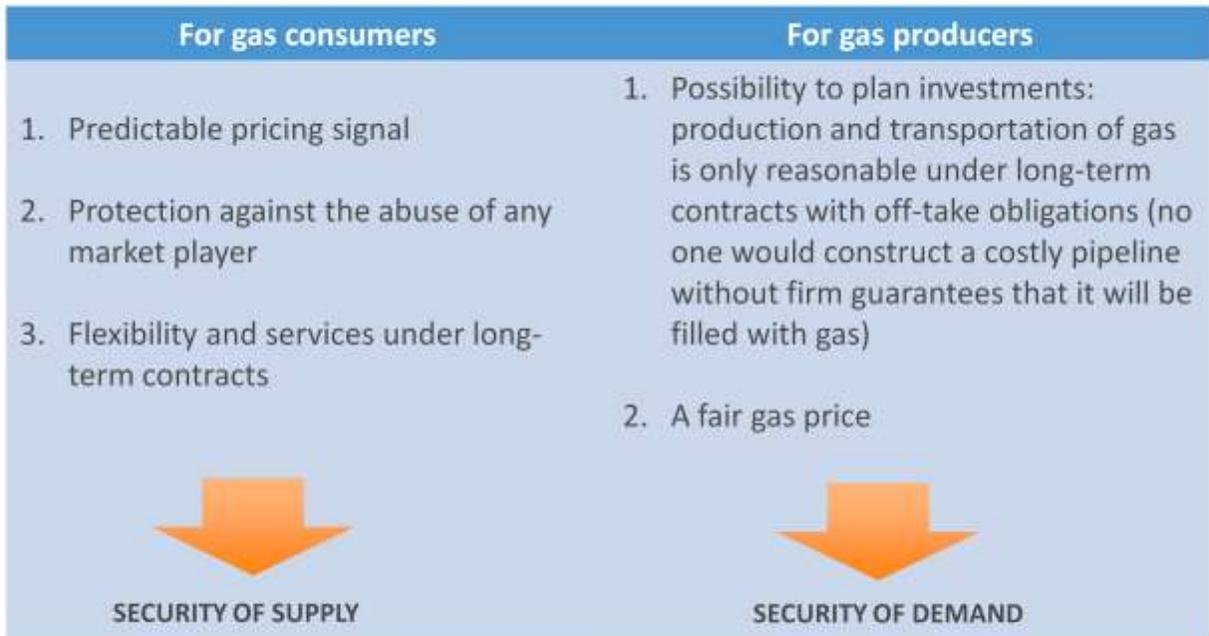
*EU energy security
depends on long-term
projects, and thus on
long-term contracts*



- (1) There is currently a media buzz, in Paris and Brussels, about the necessity to put pressure on the long-term contracts system and oil indexation.
- (2) It's very important to be clear about what is going on: The appetite for «spot gas» in the EU is linked to the low level of spot gas prices- it is not an appetite for a market design revolution.
- (3) Moreover, the reliance on a permanently low spot price level (versus long term) is a risky gamble on a long term basis and in particular for energy security.

Therefore I would like to stress that the open-minded and apolitical dialogue the EU must have with its suppliers is about the fundamentals of the natural gas market and the specificities of the EU market.

Long-term gas contracts: a win-win option for sellers and buyers

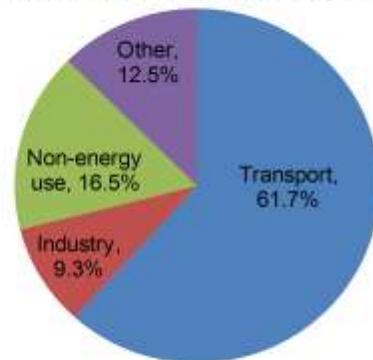


Critics of oil indexation often claim that it is outdated because there is not much demand side substitution between oil and gas nowadays. However, demand side substitution has not been the case in Europe for more than 20 years. Residential users that switched once to gas from fuel oil were not keeping a fuel tank in their backyard in order to use it should gas prices become the higher cost fuel choice. Limited day-to-day substitution or even its absence does not rule out a deep rooted relationship between oil and gas.

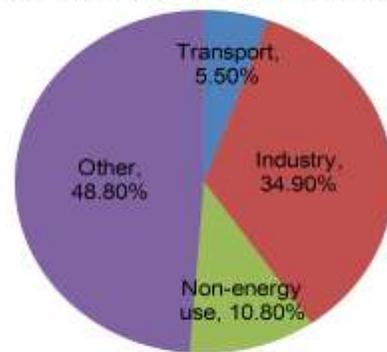
Rational behind oil-indexation

- Oil and gas continue to share many commonalities; price indexation is a natural extension of this:
 - Similar exploration and drilling technologies
 - Similar cost structures
 - Increasing convergence in end-use markets

World Oil Consumption



World Gas Consumption



There are several reasons the days of oil indexation have not passed, apart from its unique role in supporting long-term investments:

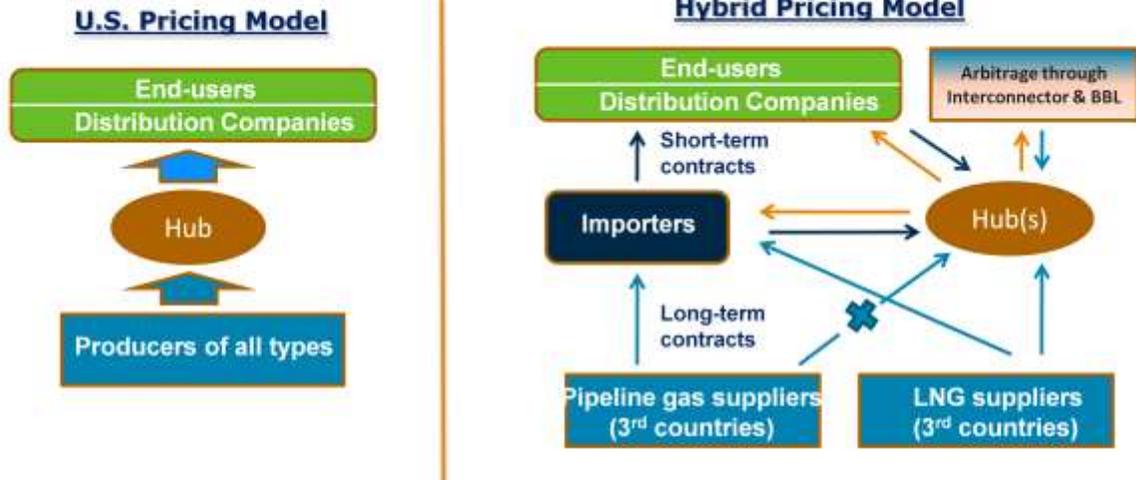
1. Gas competes with oil in the residential sector. One third of houses in Germany still use oil products for heating.
2. Gas nearly replaced oil in European power generation 20 year ago. Therefore, the argument presented by the Oxford Institute for Energy Studies suggesting this means there is no longer a rationale for oil indexation is invalid.
3. Even though there is not much demand-side substitution between oil and gas in power generation in Europe, there is still more than a virtual relationship between the two fuels;
 - Merit order puts oil products and gas in the same category of fuels used in peak or semi-peak. In that sense, there is stronger competition with oil products than with coal which is used in base load only.
 - Oil products are a reserve fuel for many power plants and industries if gas supply fails.
4. The oil-gas linkage will only strengthen in the future as a result of direct competition in the transportation sector due to the increasing popularity of natural gas-powered vehicles and the use of LNG as a marine bunker fuel. Gazprom anticipates that European consumption of gas in transportation applications may grow from the current 3 billion cubic meters per annum to as much as 100 bcm in 2030.

The specificities of Continental Europe

Fundamental differences between US & Continental Europe Pricing Models

1	USA	Hub price is a function of total demand and supply
	Continental Europe	Hub prices are a function of multiple examples of arbitrage
2	USA	One price at a level determined by Henry Hub
	Continental Europe	Multiplicity of prices Company supply managers determine the price of gas portfolio
3	USA	Majority of gas is sold on hubs Majority of LT export contracts incorporate diversion clause
	Continental Europe	Small volumes of physical trade on hubs represent primary sales The remaining volumes of gas traded come from LT contracts for pipeline gas
4	USA	High churn ratios
	Continental Europe	Churn ratio below 4 (low, but sufficient for balancing market)

Hybrid pricing model: how does it work ?



A hybrid pricing model in Europe's gas market

1. Long-term contracts and oil-indexation: leading role, secured supplies
 2. Spot-market: balancing role, arbitrage for companies at the margin
- Closely interconnected, healthy balance between its two components

Summary: gas price models & contracts

(1) Be aware that except in the UK & US, the oil index reference dominates the natural gas business:

- 90% of LNG contracts are oil indexed;
- Asia, Africa & South America business - purely oil indexed;
- In Europe, nearly all producers are mostly or entirely working with oil-indexed contracts.

(2) Bear in mind that the recent appetite of EU regulators and some EU utilities for « spot » gas indexed reference is due to the low level of spot prices.

- However, very few European end-customers are ready to sign spot market indexed contracts: balancing gas delivered at day ahead price reference ? Flexibility no more included in the contract but delivered at spot market price value ?
- There is large confusion between « price level » (spot price level versus LT contractual price level), « contractual model » (long term contract with TOP principle, availability guarantee & large flexibility included versus short term contracts with no flexibility and no guaranty of delivery) and « price indexation principle » (oil versus gas index).

(3) The relevance of the hybrid pricing model has to be assessed with regards to the European market's own characteristics and should take into consideration concerns over energy security:

- The European market is far from becoming liquid – and it will take a long time to build up the infrastructure necessary to change the historical design of the European gas industry;
- Increasingly dependent on imports.

(4) Cooperation with external historical suppliers & partners is the best way to build up supply security in EU (instead of unilateral ukase), and there is no supply security without demand security



Thank you for your attention!