

A large, stylized graphic of a flame in shades of light blue, positioned on the left side of the slide. It consists of several curved, overlapping shapes that suggest the movement and heat of fire.

Competition of Pipeline Gas with LNG. Impact on European Gas Prices?

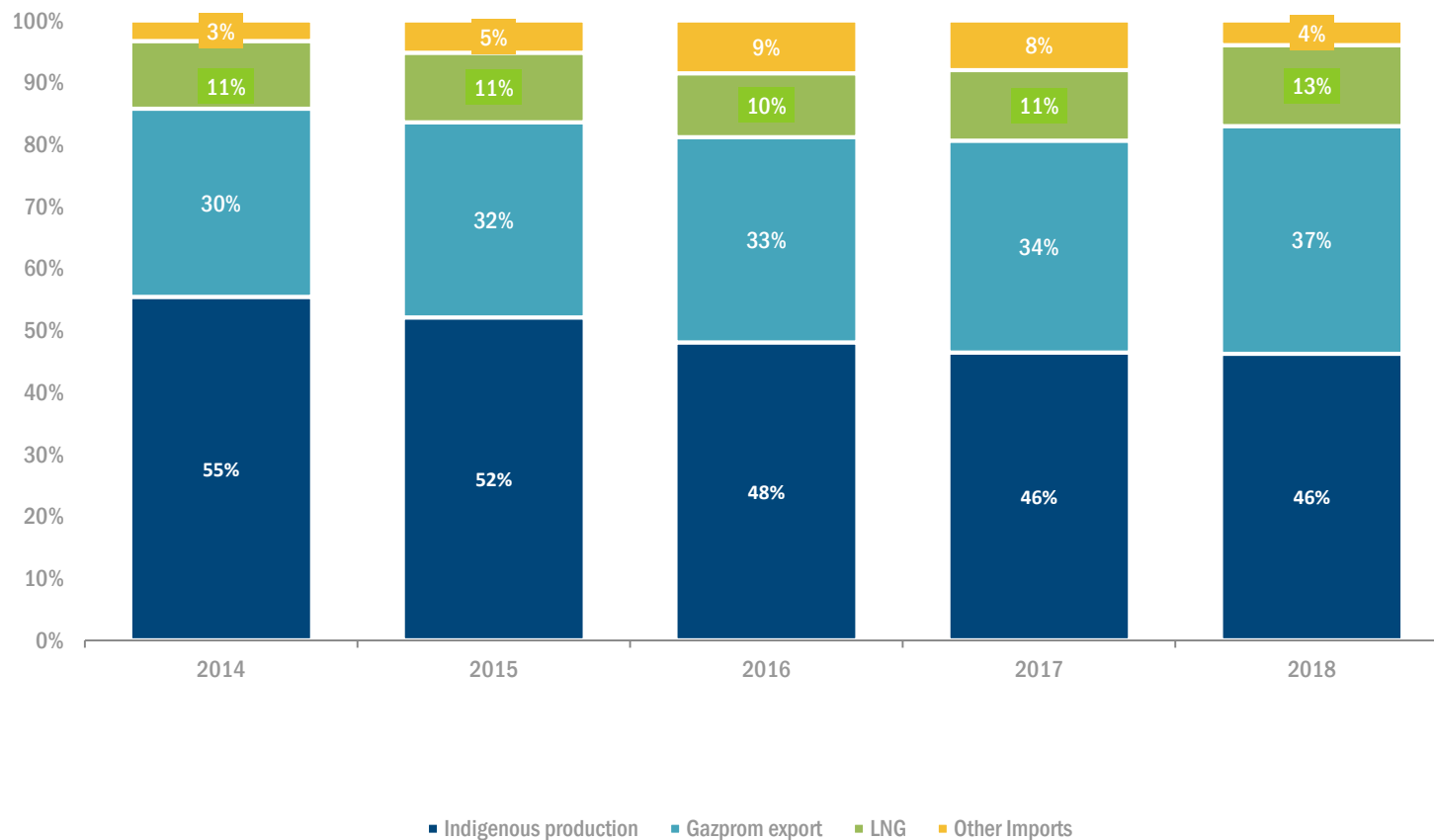
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Flame,
Amsterdam , May 13, 2019

*Views expressed in this presentation are the author's sole responsibility
and do not necessarily represent that of Gazprom Export

LNG comeback in Europe started in Q4 2018



Other imports include UGS balances

Source: PSJC Gazprom, Eurostat, National Statistics, IEA, IHS

In Q1 2019 spot LNG volumes made gains in the European market, but will a trend continue?

Deliveries by major exporters

Deliveries by major European producers

	Q1 2018	Q1 2019	change (bcm)	change (%)
PJSC Gazprom*	54.4	48.8	-5.6	-10.3%
Algeria (incl. LNG)	15.2	11.2	-4.0	-26.3%
Qatar	5.0	6.8	1.8	36.0%
Russia (Yamal LNG)	0.8	5.4	4.6	575.0%
Nigeria	3.7	4.6	0.9	24.3%
USA	0.4	4.1	3.7	925.0%

	Q1 2018	Q1 2019	change (bcm)	change (%)
Norway**	34.5	34.7	0.2	0.7%
UK	11.6	11.8	0.2	1.7%
The Netherlands	11.8	10.3	-1.5	-12.7%

* including the contracts of Gazprom Export LLC, direct contracts of Gazprom Schweiz AG, and trading via ETP.

** Pipeline gas + LNG deliveries to Europe. LNG deliveries to Asia and USA excluded

Sources: Eurostat, IEA, Bloomberg, ENTSOG, IHS, S&P Global Platts, national statistical agencies

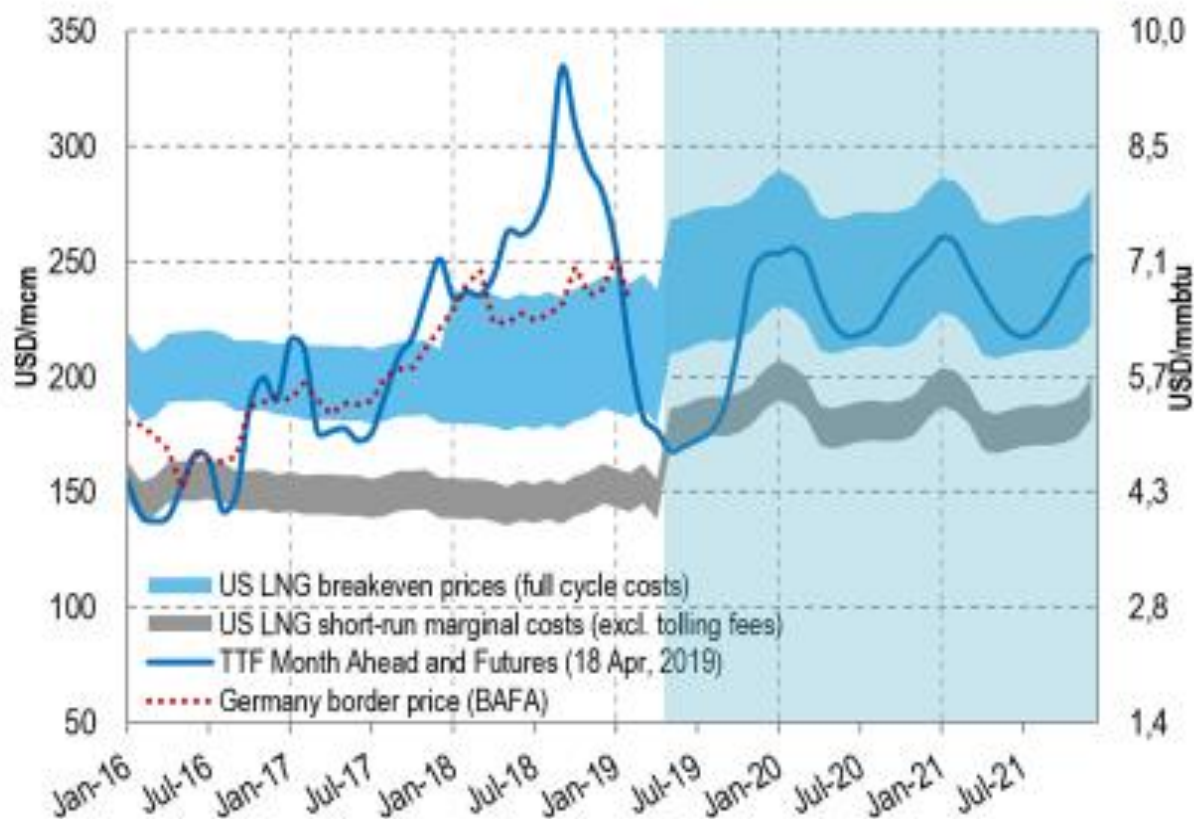
In Q1 Russian pipeline gas supplies were higher than hub prices



Sources: BAFA, Bloomberg, Norwegian National Statistics

In Q4 2018 high hub prices served as the primary attraction for LNG, in Q1 2019 it was low NE Asia spot prices

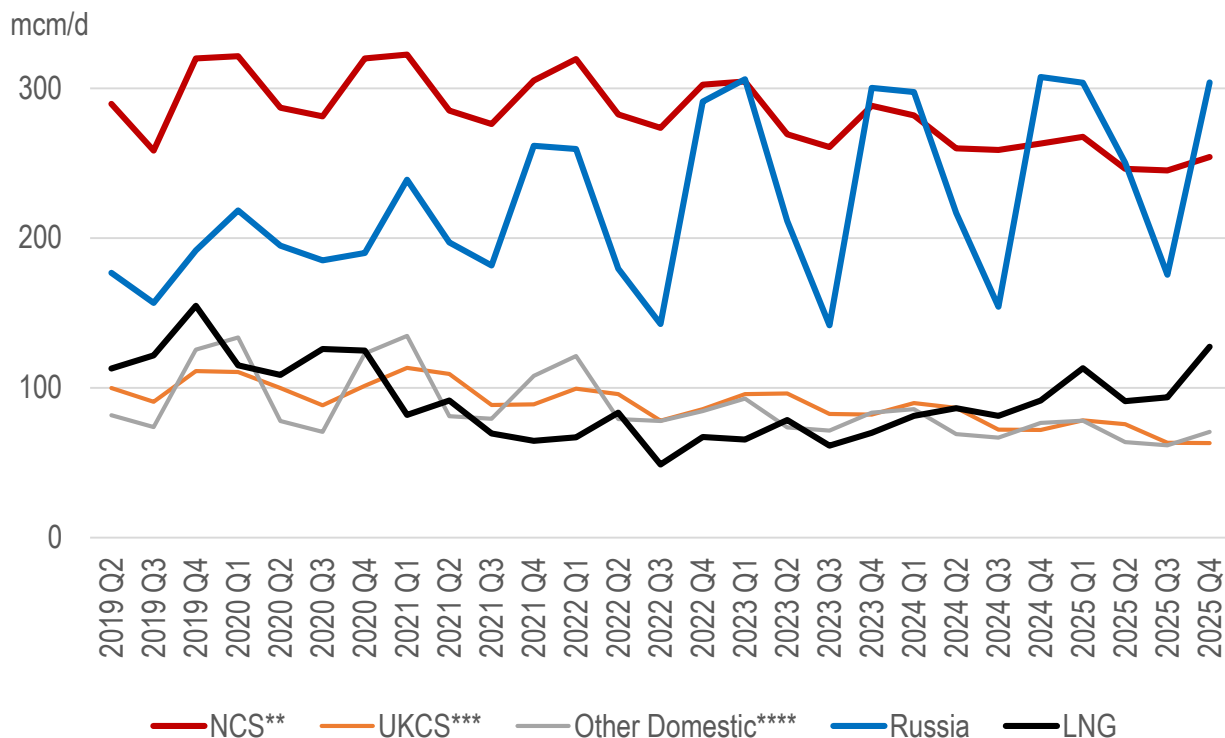
In Q1 2019 European hub prices significantly decreased below full-cycle costs of US LNG*



* Estimated on the basis of Henry Hub futures prices, $P = HH * 115\% + X$, where X – liquefaction costs, shipping to Europe, regasification

Sources: Bloomberg, IHS

Russian pipeline supplies are and will remain the major source of flexibility to NW European gas market



Russia is playing first fiddle in balancing North-West European gas market against the background of declining Groningen production and less flexible deliveries from Norway

* UK, France, Belgium, Netherlands, Germany, Denmark, Sweden, Luxemburg and Switzerland

** Norwegian Supply to Northwest Europe

*** UK North Sea and shale gas production

**** Netherlands, Denmark, Germany

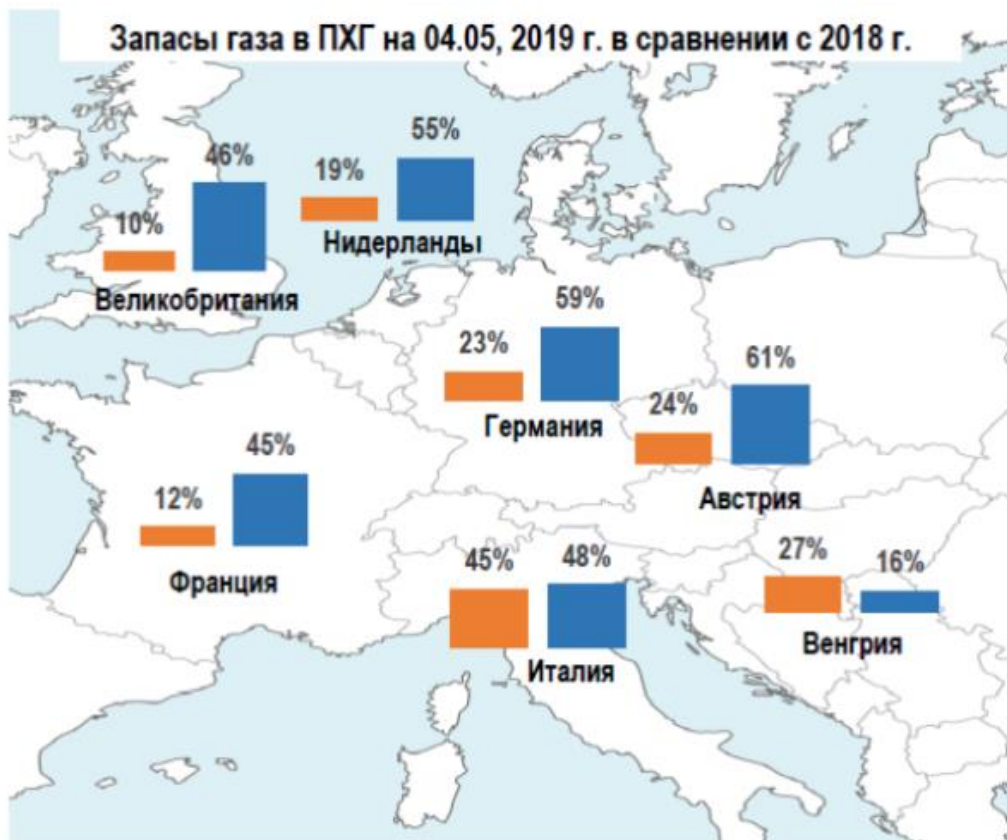
Source: Platts Analytics

Has European market bottomed out or prices will deteriorate further on?

Mainstream view is that things will get only worse. Hub prices in Europe will continue to decline sharply, and the pressure on prices is likely to continue

- Despite declines in output from some indigenous producers, the availability of imports is expected to weigh on prices over the rest of the year.
- Weak seasonal demand has hit consumption in Europe that was down by 7.8 bcm in Q1 2019 compared to Q1 2018. The ‘hole’ in demand is unrepairable.
- High storage stocks mean that injections will have to be muted y-o-y.
- Additionally, supplies from the new LNG projects are helping to maintain pressure on hub prices in Europe.
- Mild weather, high storage stocks and new nuclear capacity could discourage JKM-TTF spread from normalization.

As of beginning of May volumes of gas in the EU storages were by 23 bcm higher than a year ago and by 17 bcm higher than the six year average. That even raises a question that Europe run out of storage.



Итого по ЕС
(млрд куб. м):

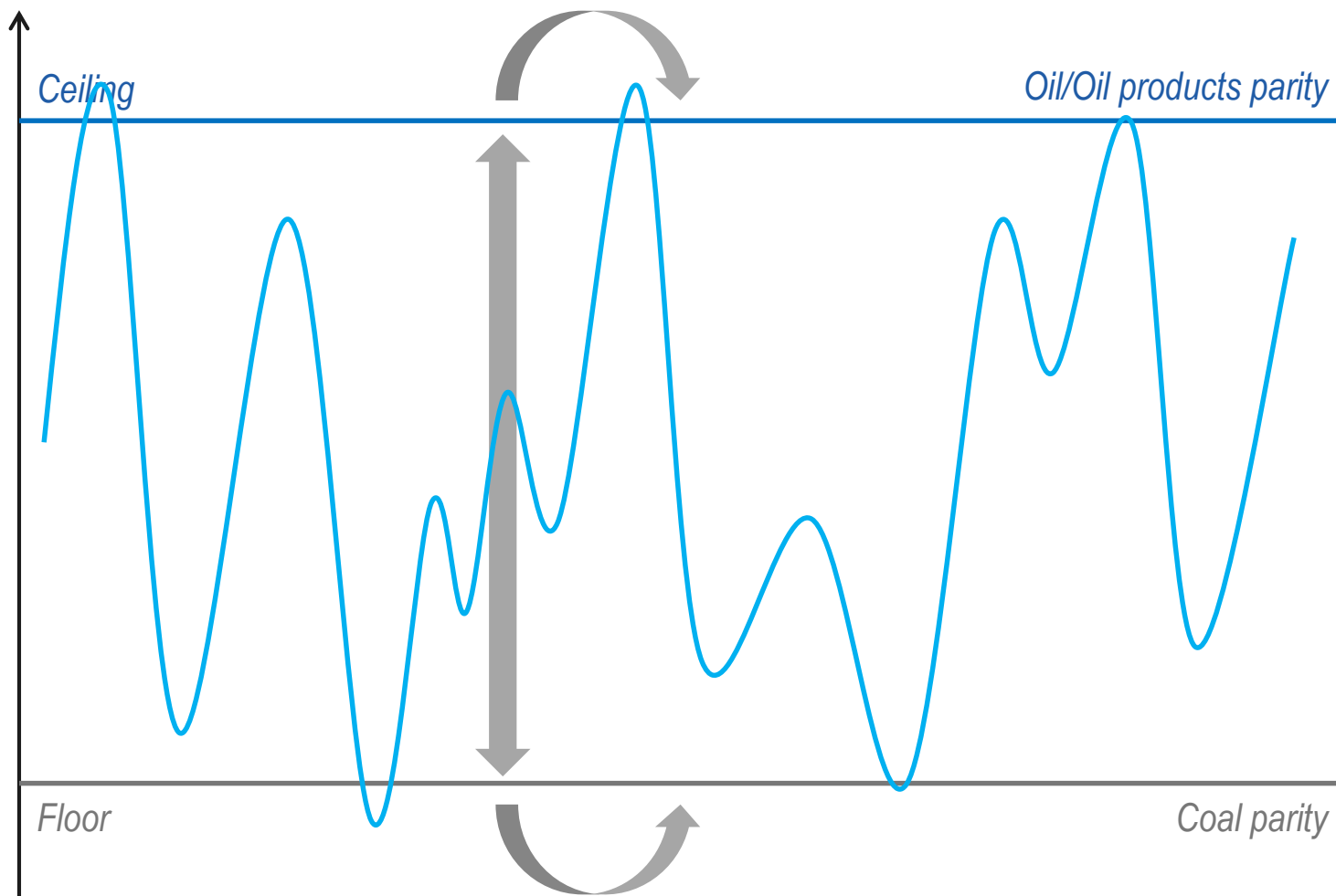
2019	51,0
2018	27,6
2013-2018	34,2

Source: Bloomberg

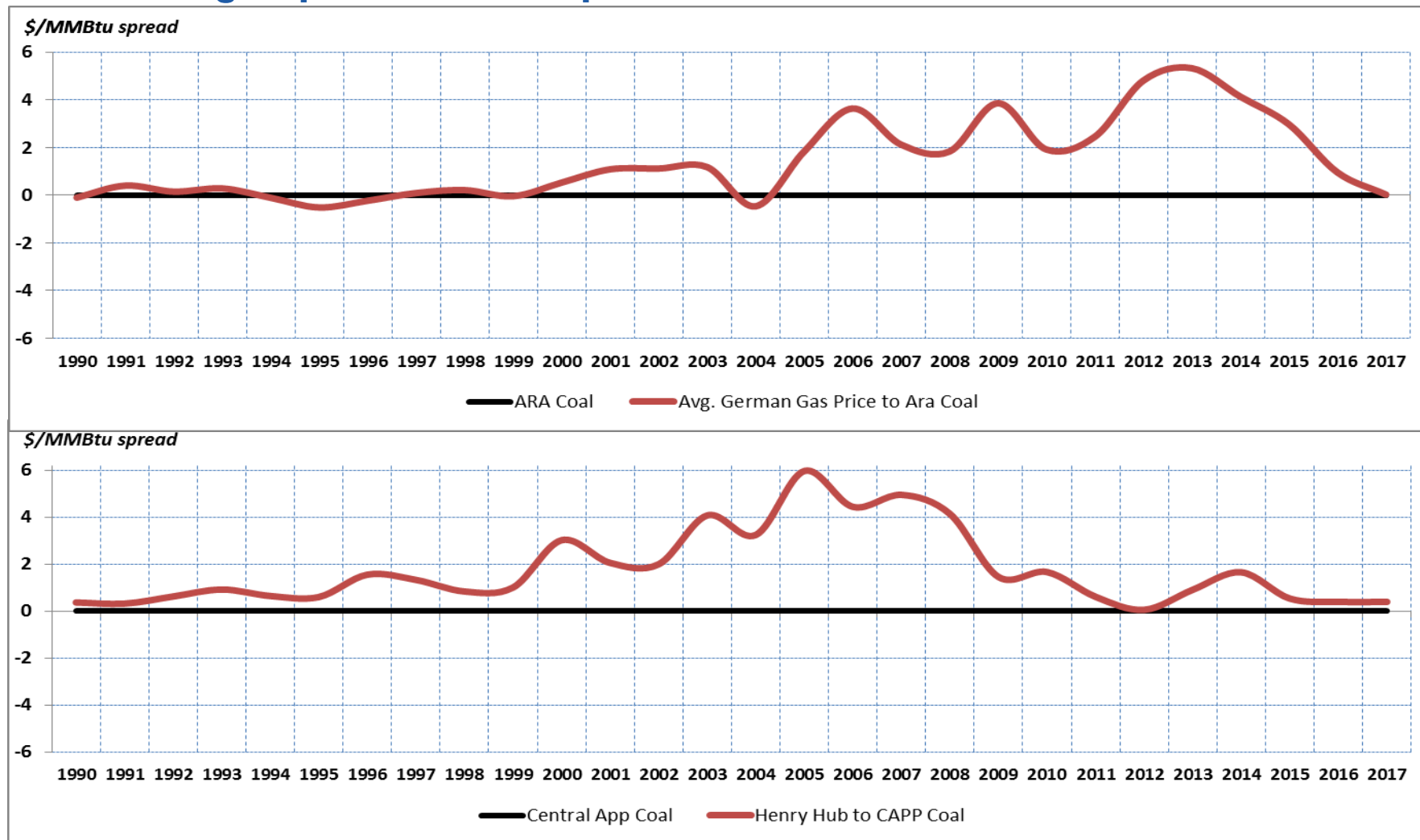
There are indications that European market has already bottomed out. Structural factors supporting prices are highly important

- Demand for gas in power generation remains strong and in Q1 2019 was by 5.6 bcm (11.5%) higher than in Q1 2018.
- Forward prices for winter 2019/2020 firmly stay from \$80/mmcm to \$100/mmcm above the current day-head prices.
- European gas markets are setting a price floor for Asian LNG. Dipping of JKM below TTF cannot last for long. Asian market has already recovered from the bottom.
- NE Asia domestic supply from Australia, Malaysia and Indonesia is not enough to satisfy regional demand. Redirection of Qatari LNG volumes to Europe leaves Asian market short and imply strong upside to JKM.
- Further hub/spot price decreases in Europe and Asia meets strong resistance level from coal prices.
- Growing oil prices are not yet priced in and will provide support to hub gas prices in Europe and augment a center of gravity for spot LNG in Asia.

Inter-fuel competition sets up corridor for natural gas prices

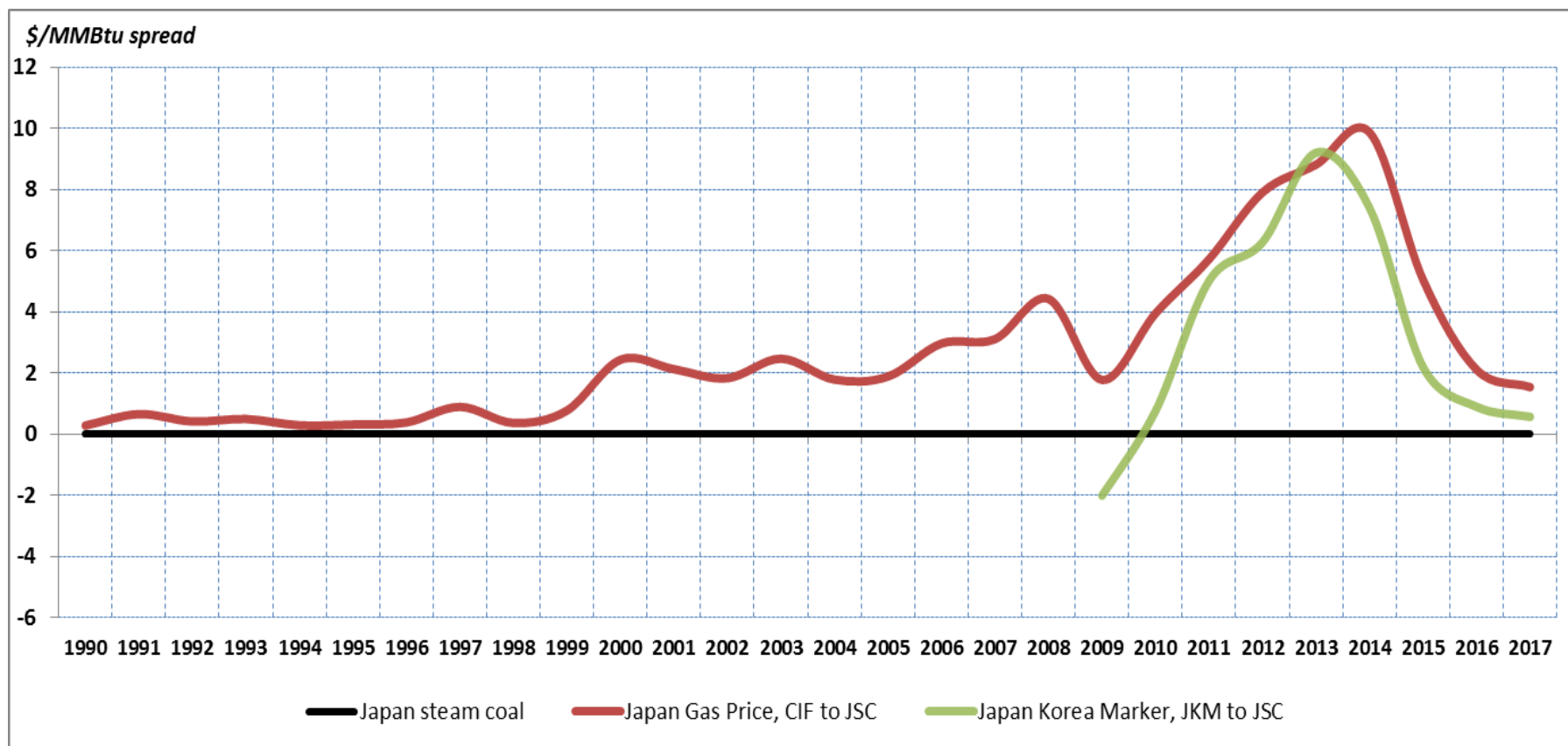


Interfuel competition at work: coal price sets a support level for natural gas prices in Europe and the USA



Source: BP, Gazprom Export

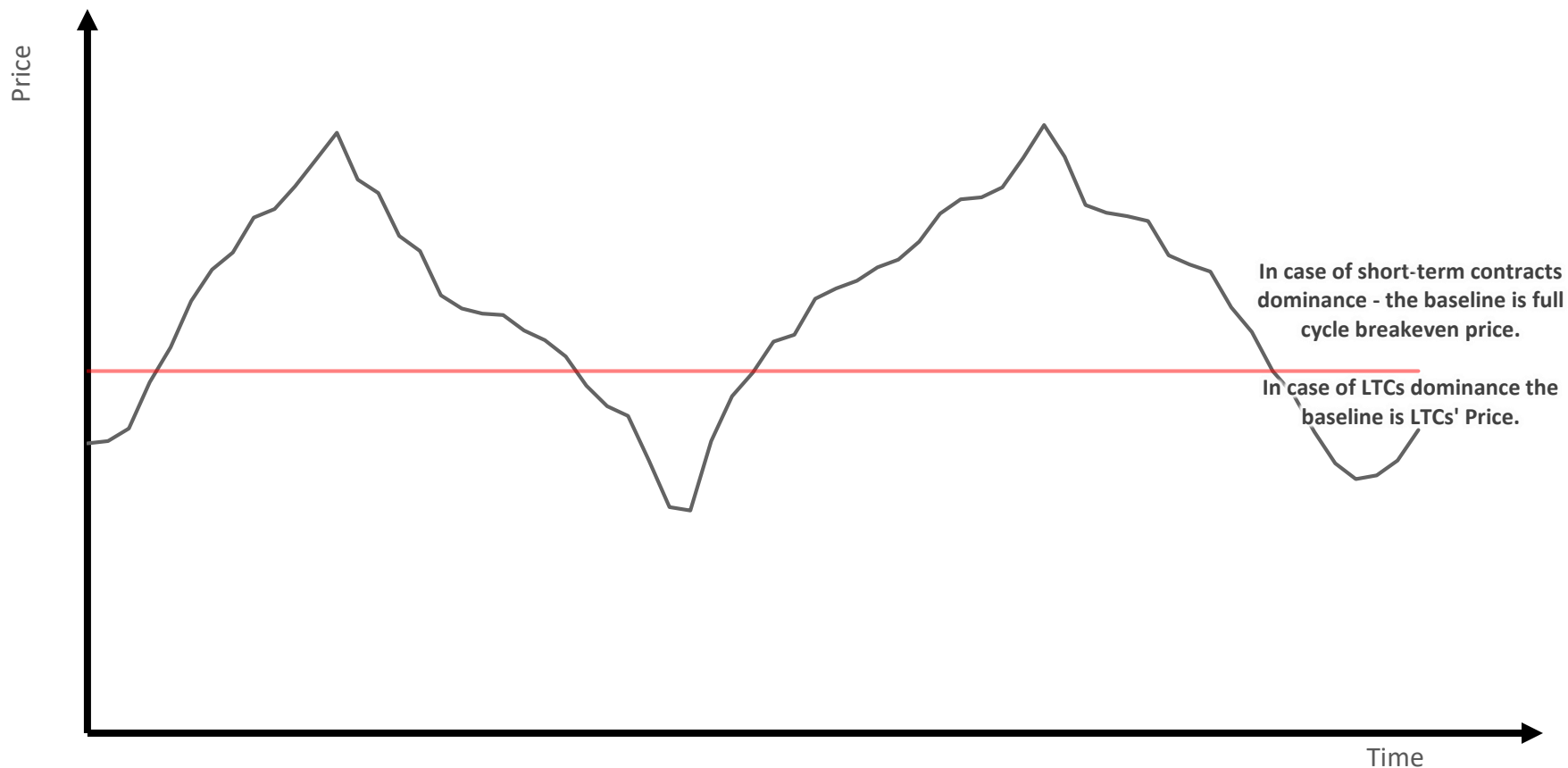
Interfuel competition at work: coal price sets a support level for natural gas prices in Japan



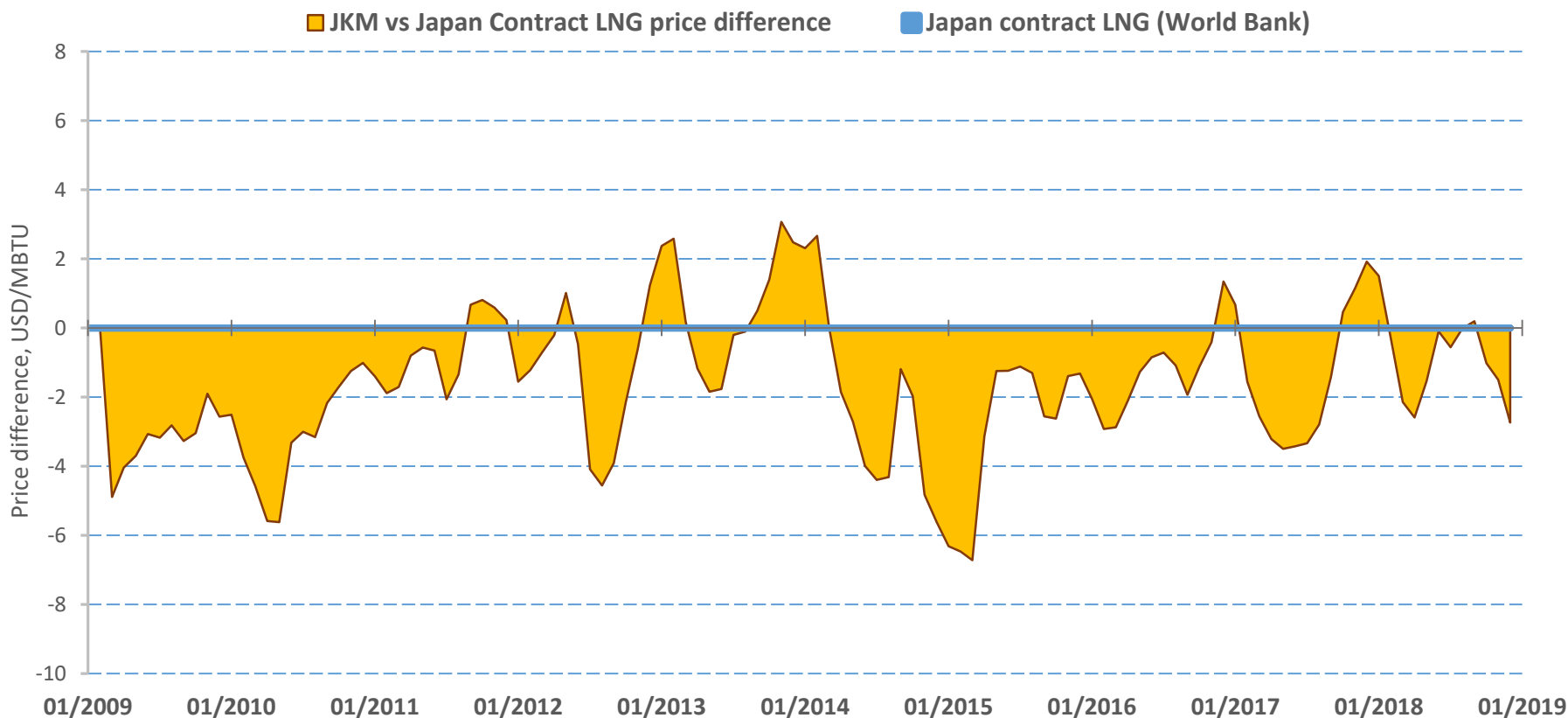
Source: BP, Gazprom Export

LTCs become a center of gravity for spot/prompt hub prices in NG industry

Commodity Price Midpoint Substitution in Case of Long-Term Contracts Market Dominance



LTCs become a center of gravity for spot/prompt hub prices in NG industry: Japan



Source: World Bank, JKM

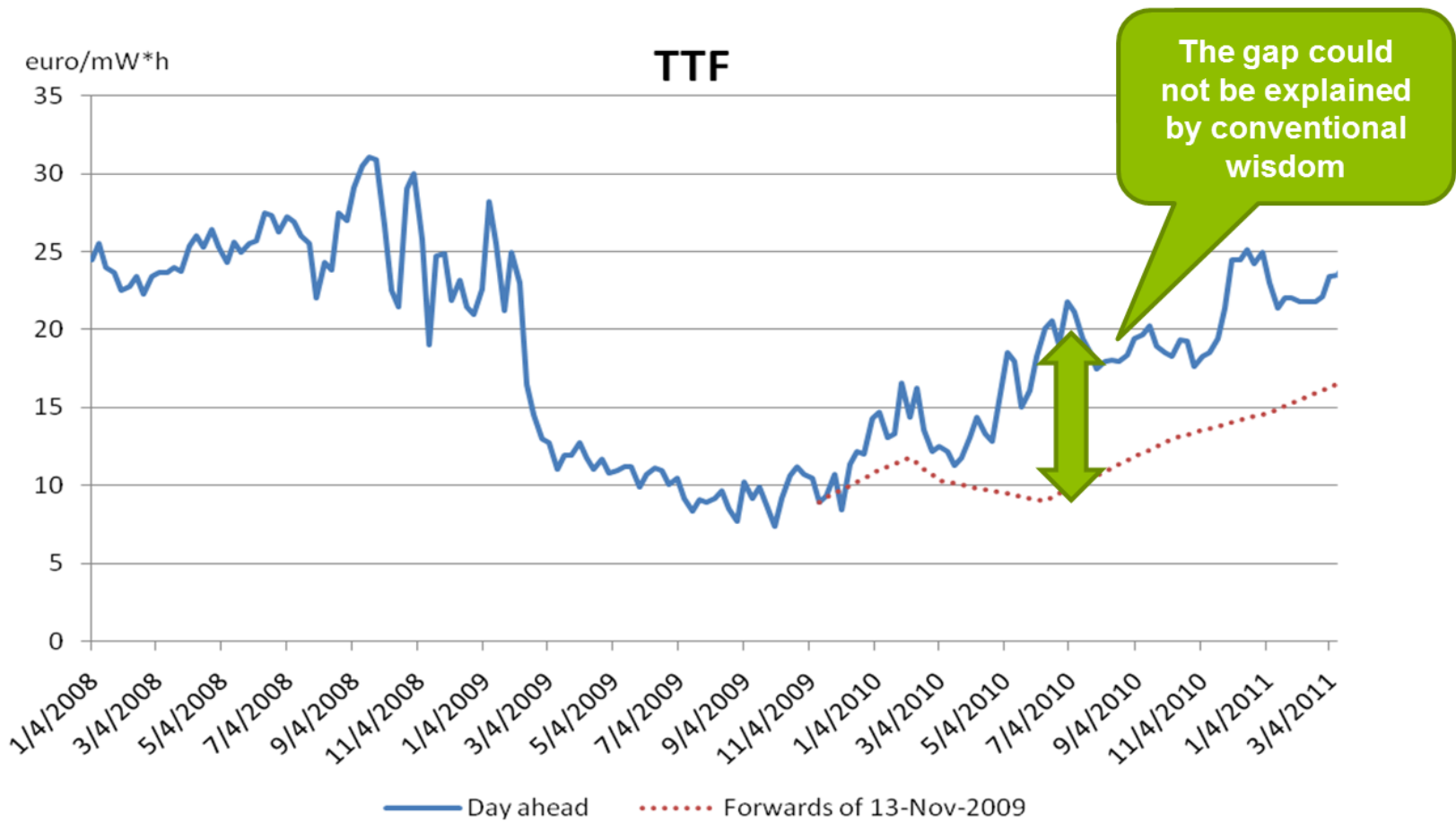
Correlation analysis indicates that TTF price is dependent on prices of gas substitutes

Correlation Ratio	2009-2018	2009-2013	2014-2018	2016-2018
Brent-TTF	82,6%	82,9%	78,1%	90,5%
Brent-TTF 3M	80,2%	77,5%	78,1%	85,6%
Brent-TTF 6M	75,4%	63,5%	81,2%	77,5%
Brent-TTF 9M	70,3%	48,7%	83,2%	69,1%
Brent 3M-TTF	84,8%	84,8%	80,9%	94,0%
Brent 6M-TTF	87,0%	89,8%	81,5%	93,8%
Brent 9M-TTF	86,1%	91,1%	79,2%	92,7%
Brent 6M(+1M)-TTF	86,7%	90,5%	80,1%	91,5%
Brent 6M(+2M)-TTF	85,1%	89,3%	77,8%	88,4%
Brent 6M(+3M)-TTF	82,1%	85,1%	74,9%	84,6%
CIF ARA-TTF	61,3%	52,9%	52,7%	84,8%
CIF ARA-TTF 3M	54,3%	47,3%	40,7%	78,1%
CIF ARAI-TTF 6M	42,2%	33,3%	24,5%	66,6%
CIF ARA-TTF 9M	29,6%	15,5%	12,3%	54,5%

Source: Gazprom Export

* TTF month-ahead price

LNG glut in 2010-2011 could not prevent hub prices from steep rise driven by oil indexes



Source: Bloomberg



THANK YOU FOR YOUR ATTENTION!