Hydrogen Would Prefer Russian Pipeline Gas

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

Diversification Away From Russia At Any Cost

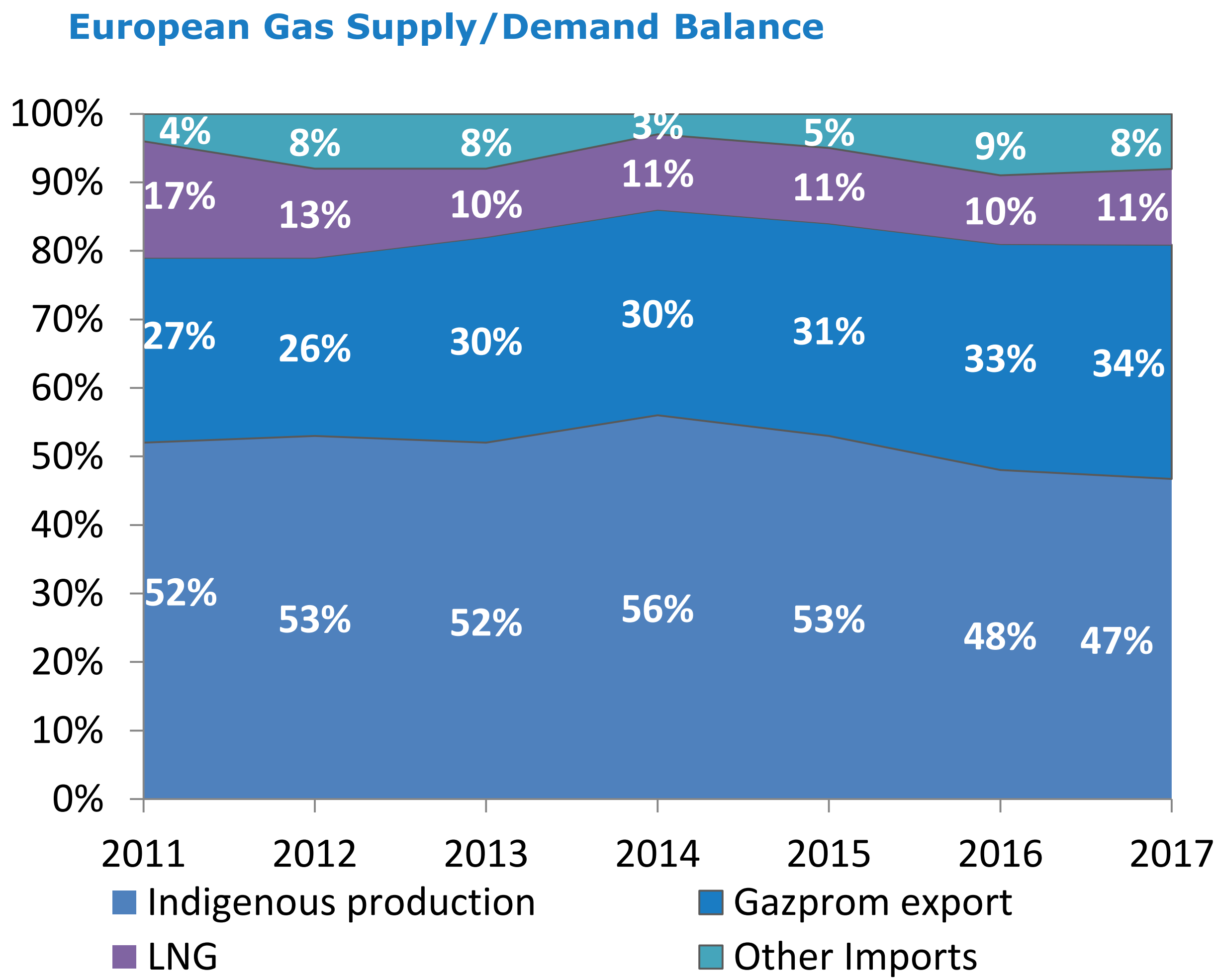
“The EU should reduce its energy dependency on Russia, but the EU should not back out of the mutual partnership”.

Günther Oettinger, European Commissioner designate for energy policy, January 14, 2010

“Time and time again, the clear feeling from Russia is that they are irreplaceable and can do what they want” …”We can get away from you; We can live without gas from Russia; It will be costly, difficult; it will take 10 years. But we can do it”.

Vaclav Bartuska, Ambassador -at- large for Energy Security in the Czech foreign ministry, May 26,2009

Does Gazprom's Growing Market Share Mean Failure of EU Diversification Policy? No, Simply Russia Has Passed a Market Test



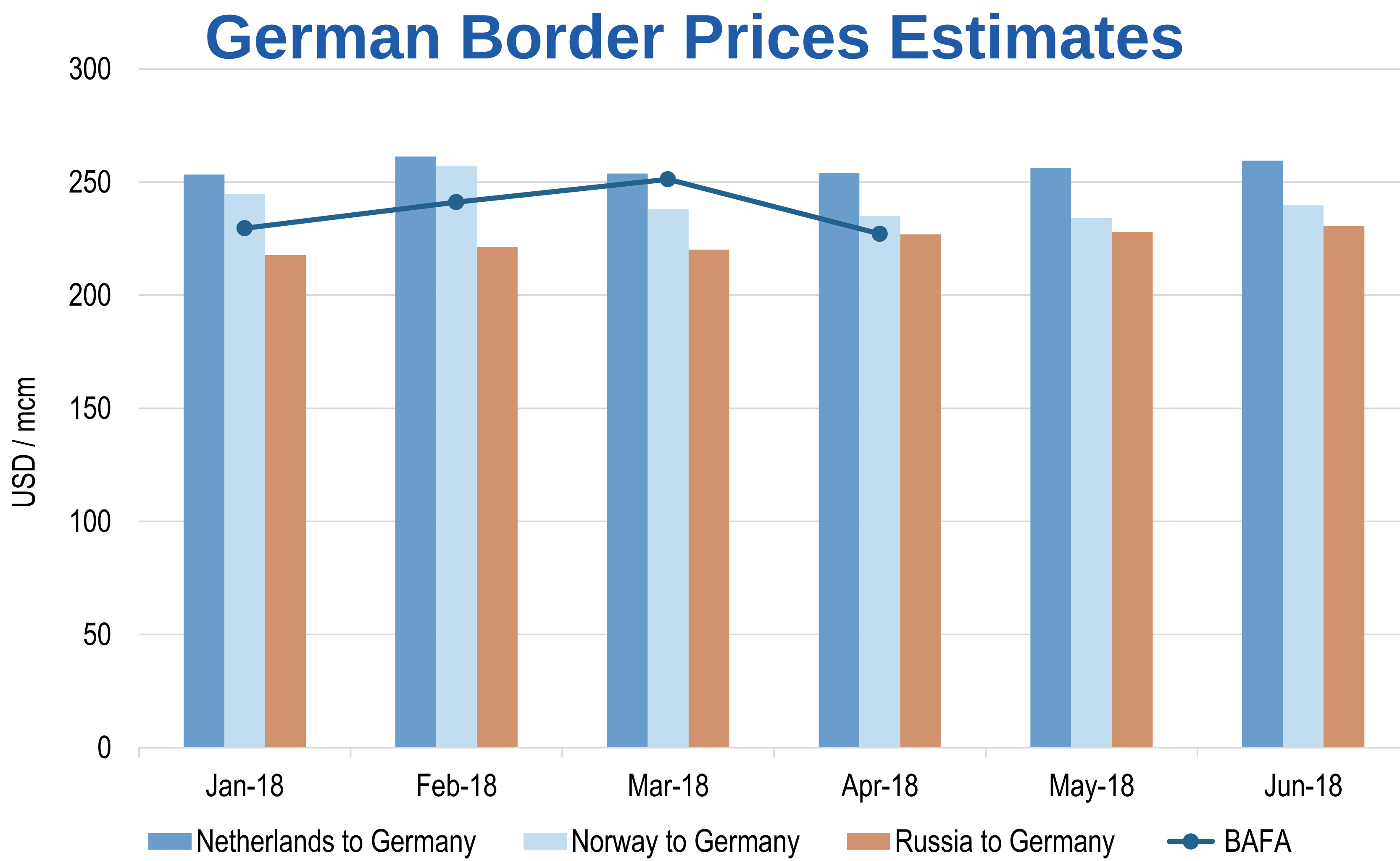
In Europe Gazprom's share in consumption was 34.2% in 2017 versus 27.3% in 2011 or up by 7 percentage points

Gazprom met two-thirds of the incremental demand growth in 2017 and proved its ability to fill in any additional supply/demand gap

Despite having modestly increased in 2017, LNG supplies to Europe still remain significantly below the 2011 record level

Source: PJSC Gazprom, Eurostat, National Statistics, IEA, IHS Markit

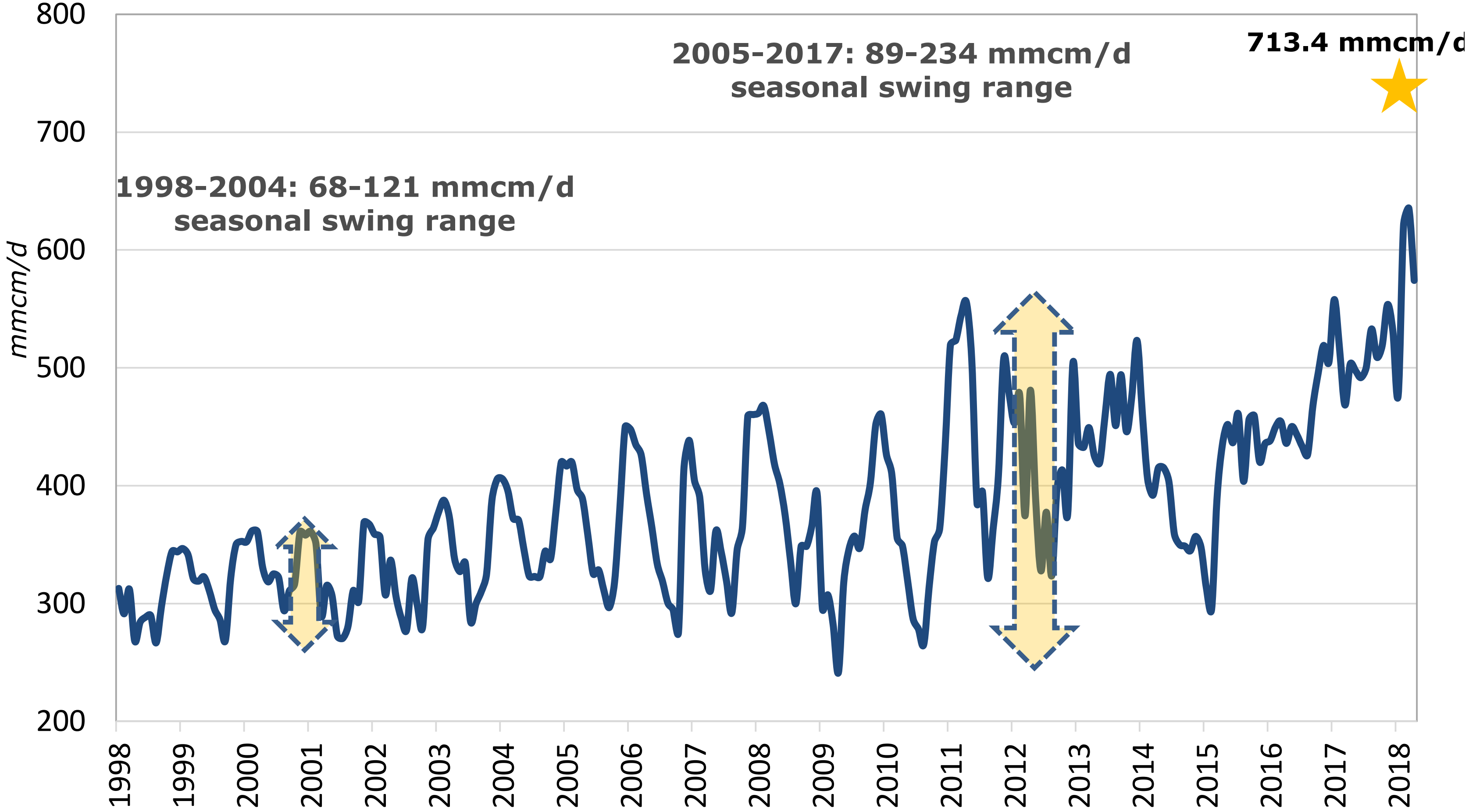
Role of Russian Gas Needs to be Reconsidered on the Integrated European Market. It is not a Problem Anymore but Part to the Solution (1)



Source: ICIS Heren, BAFA

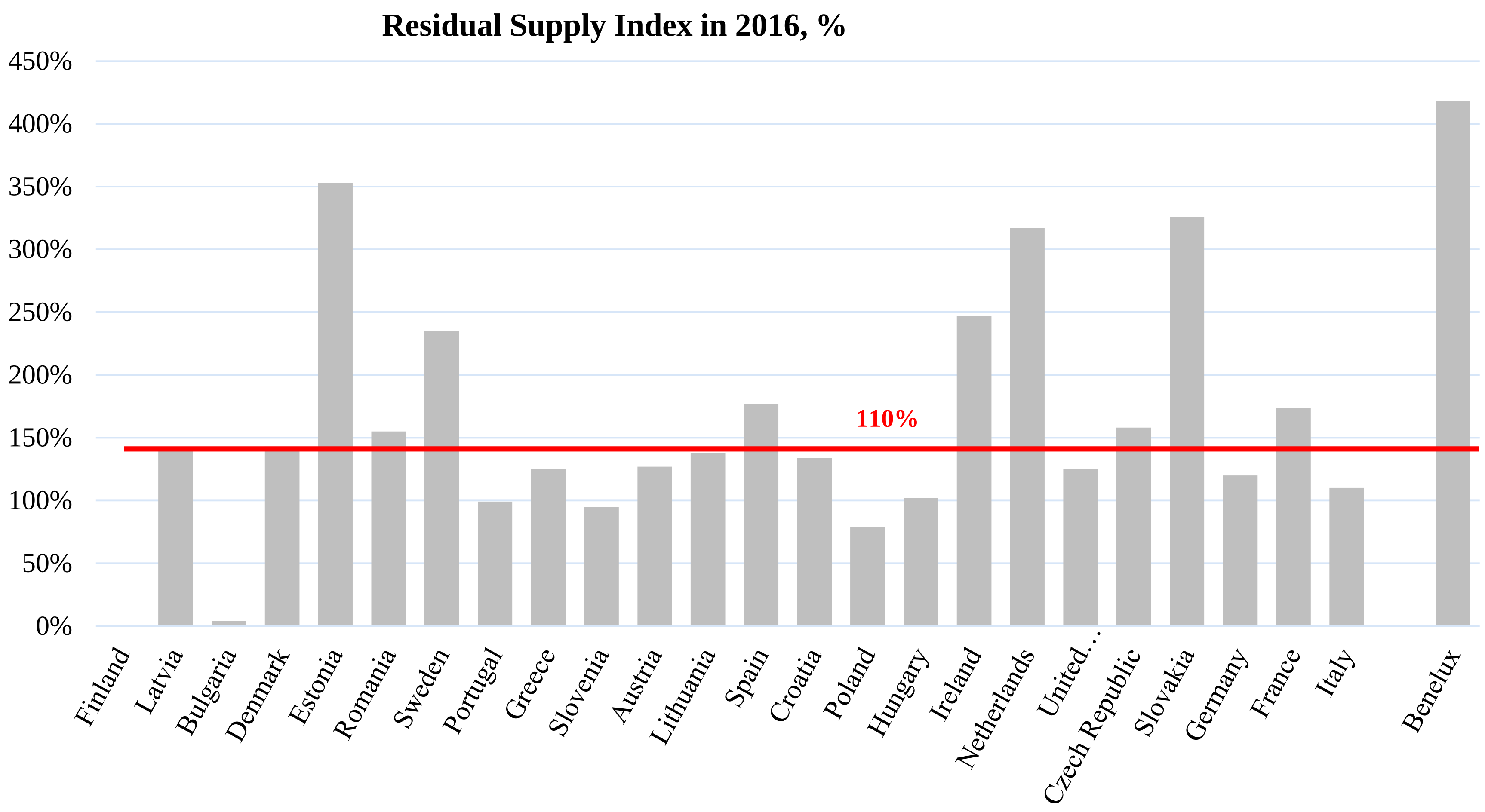
Role of Russian Gas Needs to be Reconsidered on the Integrated European Market. It is not a Problem Anymore but Part to the Solution (2)

Russian Pipeline Gas is the Most Flexible



Source: IEA, ENTSOG

Success of Diversification Should be Measured by Optionally in Supply Sources and not by Share of the Major Supplier



Source: ACER

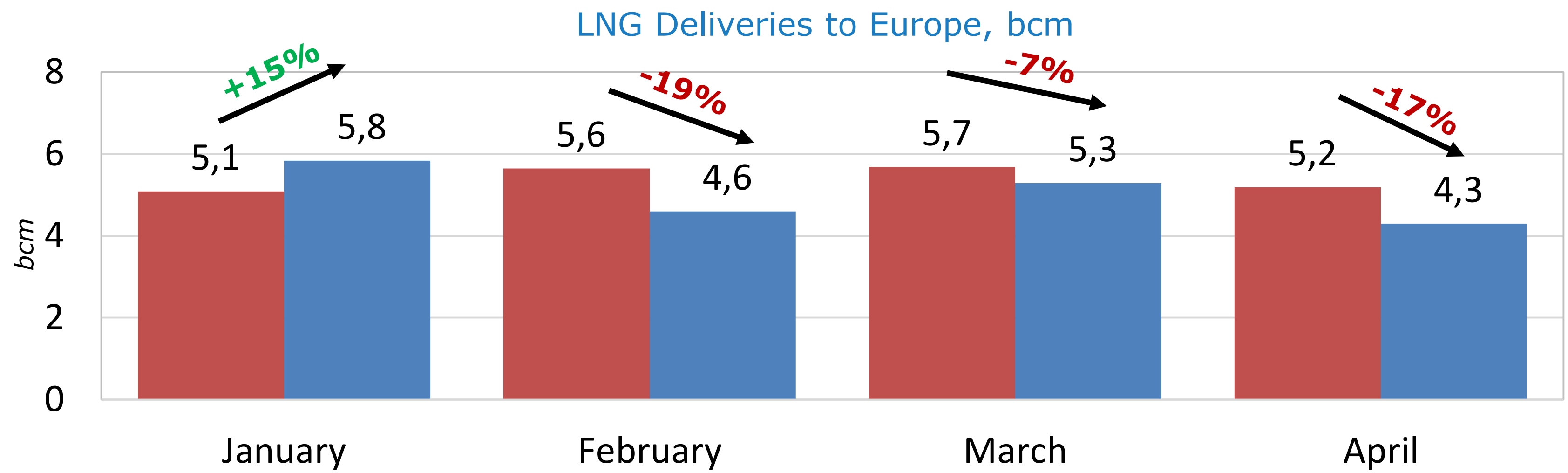
LNG Deliveries to the European Market in Q1 2018 were Down

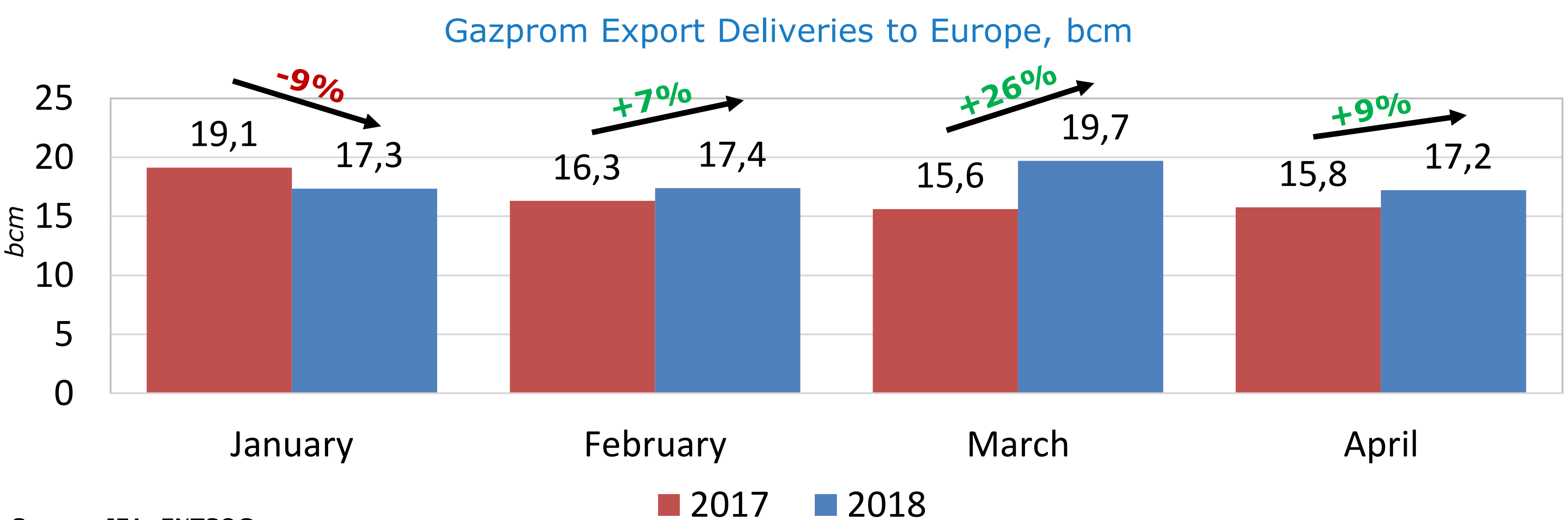
	Q1 2017	Q1 2018	change (*bcm*)	change (%)
Qatar	5.1	4.9	-0.2	-3.9%
Nigeria	3.5	3.7	0.2	5.7%
Algeria	4.0	3.7	-0.3	-7.5%
Russia (Novatek)	0.0	0.8	0.8	
Norway	1.3	0.8	-0.5	-38.5%
Trinidad and Tobago	0.2	0.7	0.5	250.0%
Peru	1.0	0.4	-0.6	-60.0%
USA	0.8	0.4	-0.4	-50.0%
Angola	0.3	0.1	-0.2	-66.7%
Equatorial Guinea	0.2	0.1	-0.1	-50.0%
Dominican Republic	0.1	0.0	-0.1	-100.0%
Lithuania (re-export)	0.0	0.0	0.0	-100.0%
TOTAL	**16.4**	**15.7**	**-0.7**	**-4.3%**

Despite growing gas demand in 1Q 2018 (+0.9 bcm or +0.5%) LNG deliveries to the European market fell in 1Q 2018, being attracted by other markets with higher margins

Source: IEA, ENTSOG

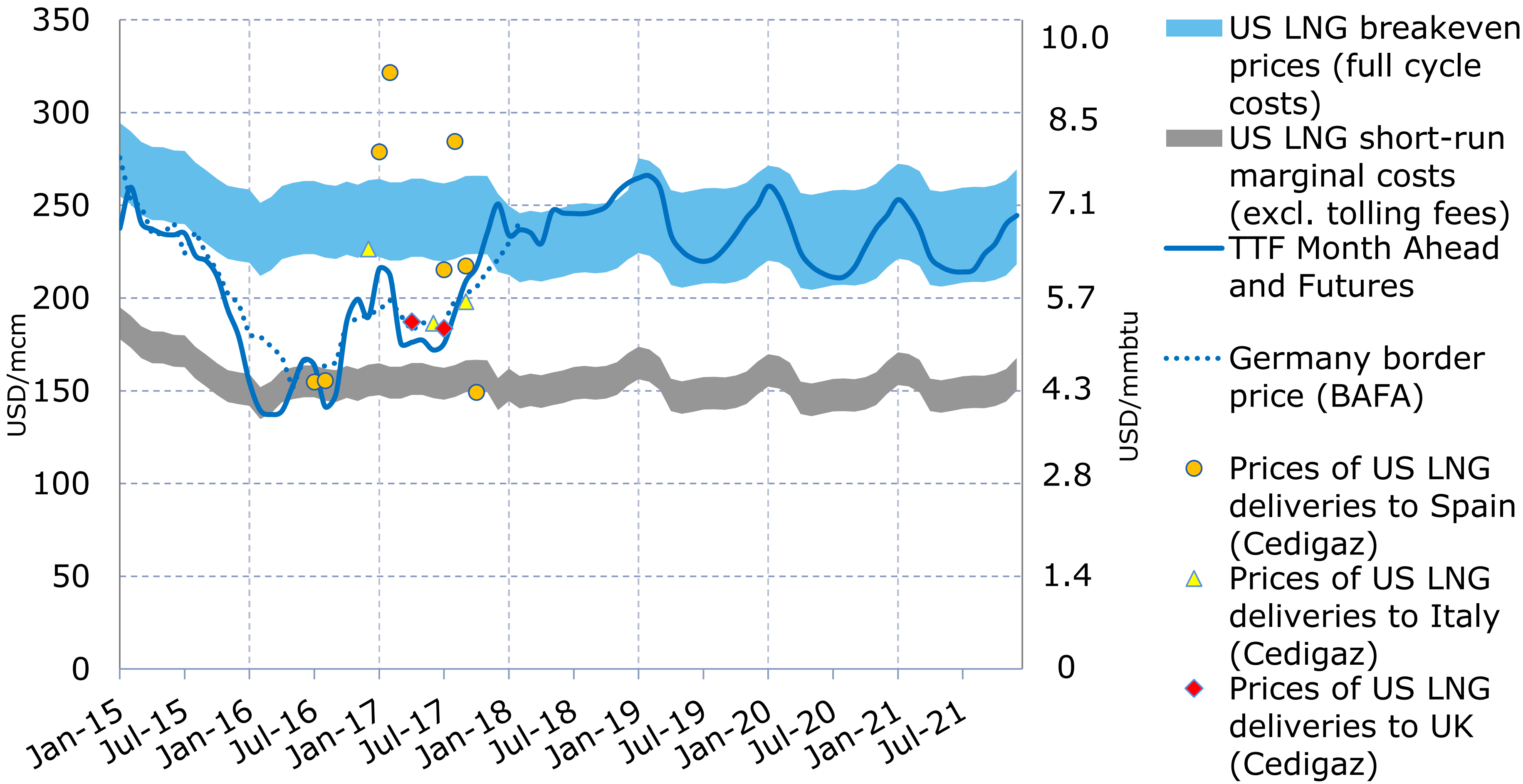
LNG Ignored Demand Hikes in Europe in January-April 2018 Despite Associated Price Hikes





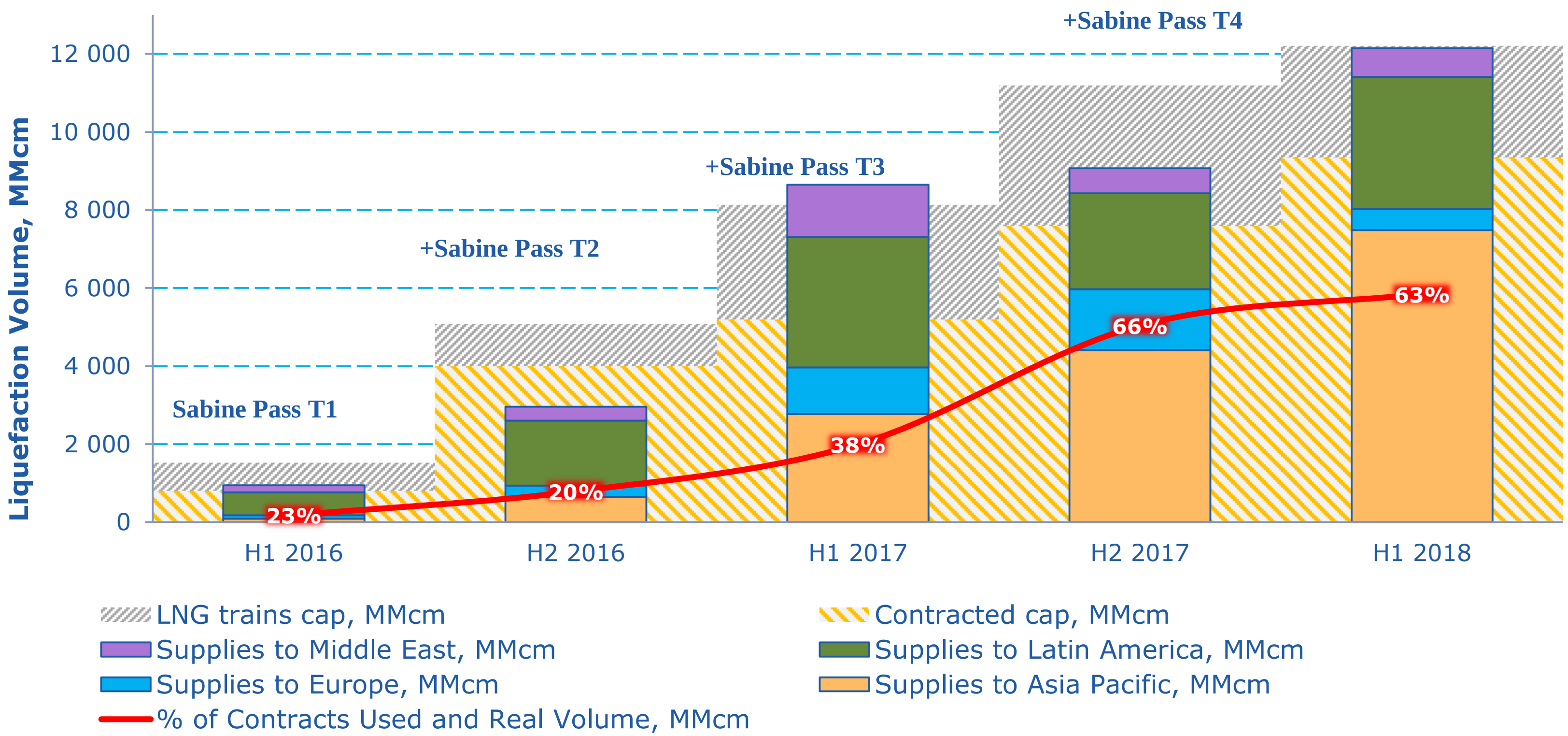
Source: IEA, ENTSOG

LNG Ignores European Gas Market Even Though Deliveries are Breakeven at Current Prices on Full Cost Basis



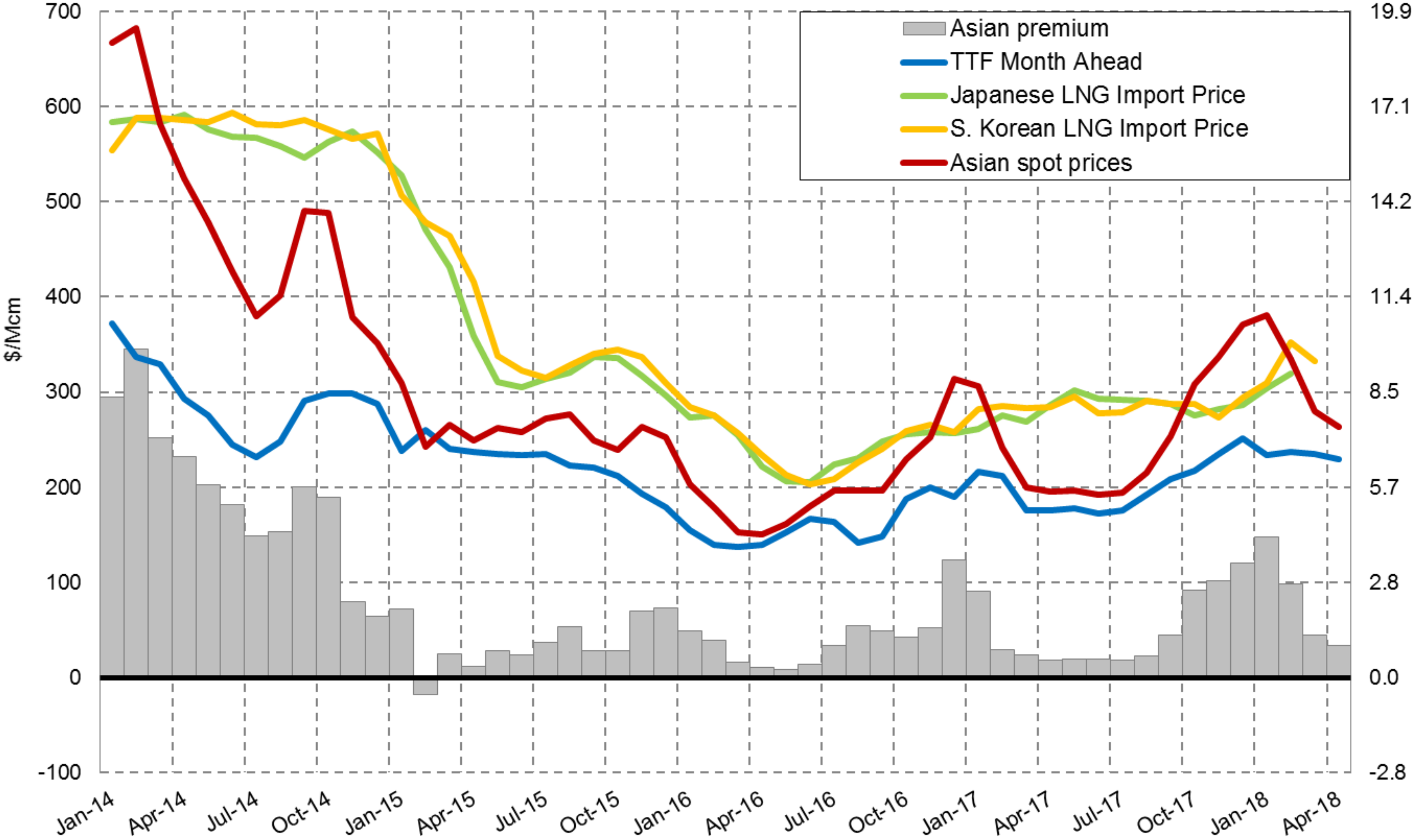
Source: Bloomberg, Cedigaz, IHS
*Calculated on the basis of Henry Hub Futures prices, P = HH * 115% + X*
where X – costs of liquefaction, shipping to Europe, regasification

As Contract Obligations are not Fully Met, Costs for Spot LNG Volumes Could be Subsidized



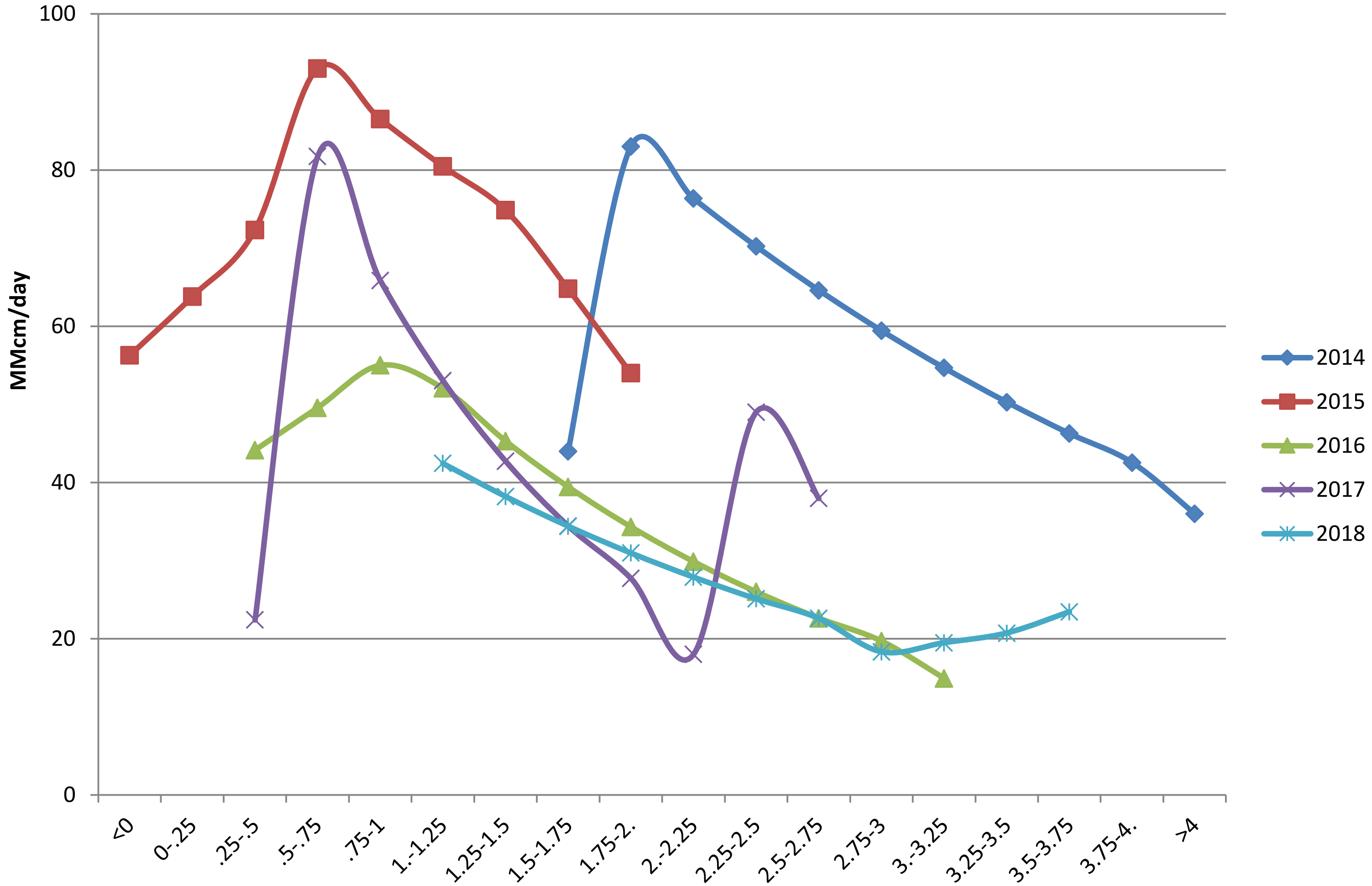
Source: IHS, Gazprom Export

Asian Seasonal Price Premium Explains LNG's Idiosyncrasy of Europe



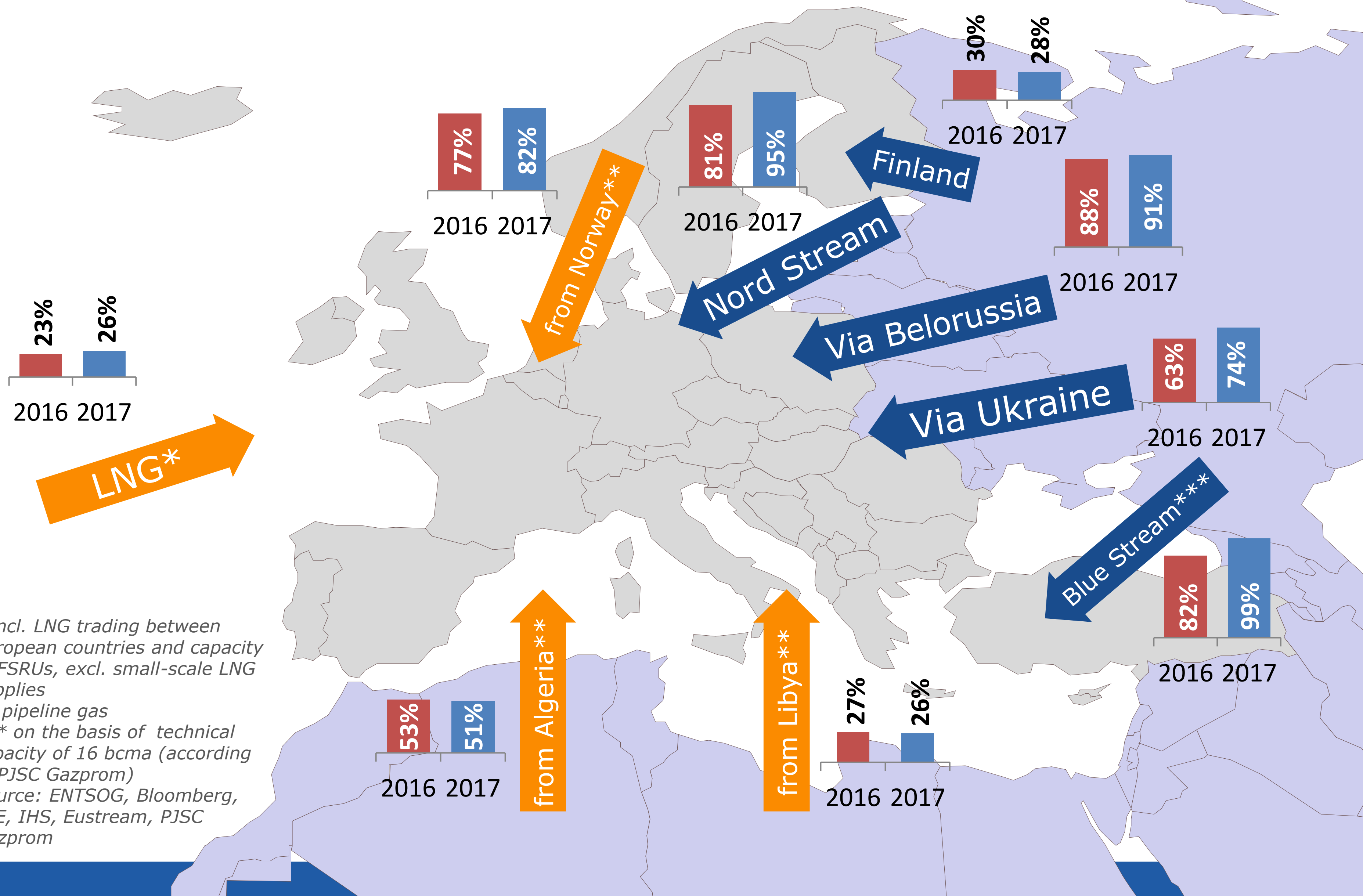
Sources: Bloomberg, Interfax-GGA, Customs Statistics of S. Korea

Year-by-Year North-West Europe Receives Less LNG for Same Size of Asian Premium



**Monthly averages*
Asian premium is JKM-NBP spread
Source: Bloomberg, IHS Markit, Interfax-GGA, Platts

High Capacity Utilization of Eastbound Routes for Gas Supplies in 2017



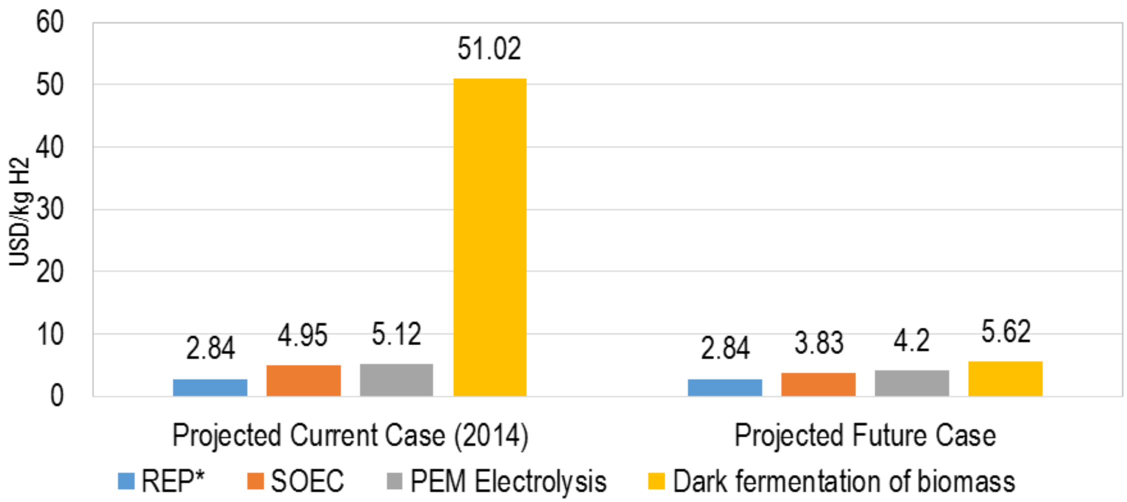
* incl. LNG trading between European countries and capacity of FSRUs, excl. small-scale LNG supplies

** pipeline gas

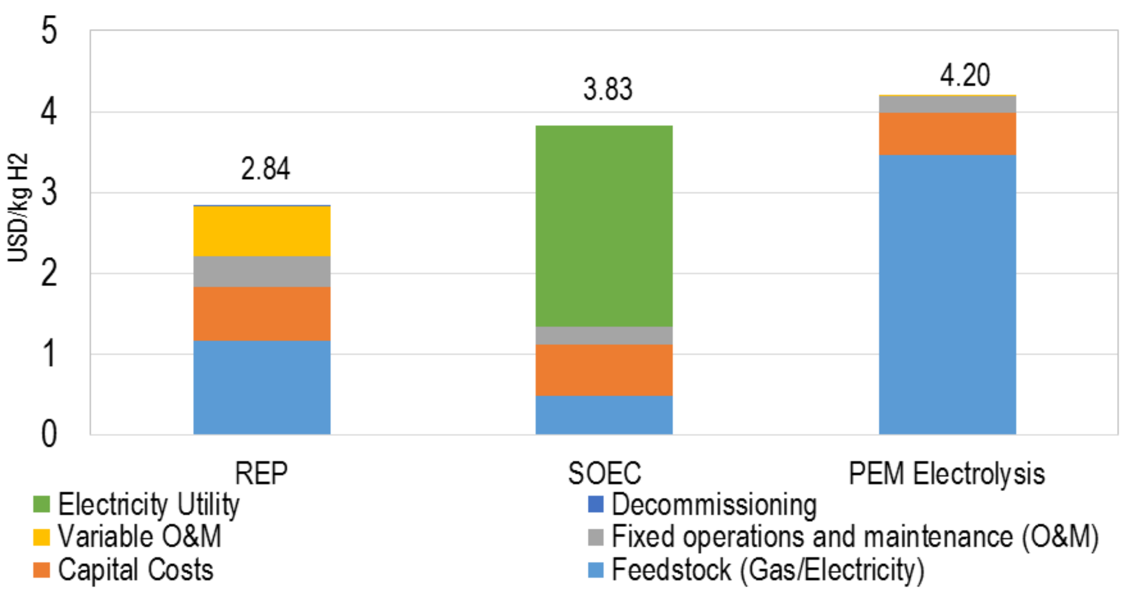
*** on the basis of technical capacity of 16 bcma (according to PJSC Gazprom)

Source: ENTSOG, Bloomberg, GIE, IHS, Eustream, PJSC Gazprom

Natural Gas as the Most Reliable And Cheapest Source Of Hydrogen



Hydrogen could be produced from natural gas at the lowest cost, both at present and in future



Technologies:
PEM - Proton Exchange Membrane
SOEC - High temperature solid oxide electrolysis cell technology
REP - Reformer-Electrolyzer-Purifier

*Average for Integrated and Standalone Cases

Source: DOE

THANK YOU FOR YOUR ATTENTION!