

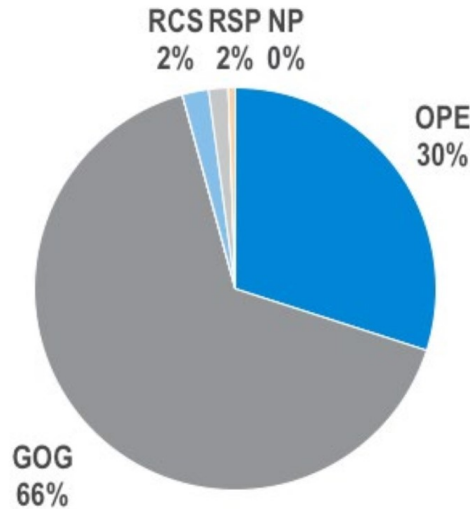
Oil indexation versus hub based gas pricing

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Magyar Energiakereskedők Szövetsége
VI. Országos Konferencia, Visegrád, 2018.
március 8-9.

Hub pricing is expanding in Europe

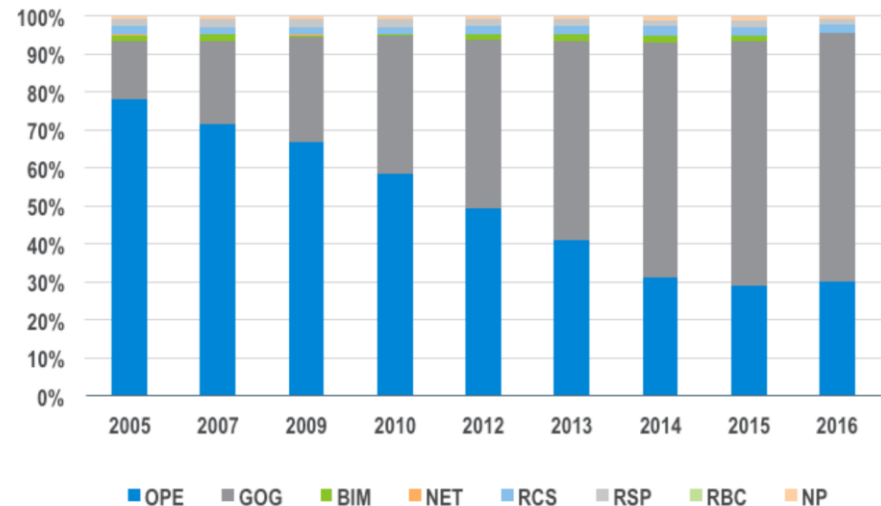
Figure 5.3 Europe Price Formation 2016



GOG: gas-on-gas competition
OPE: oil price escalation

European consumption: 523 bcm in 2016, 14% of global gas consumption

Figure 5.4 Europe Price Formation 2005 to 2016



Source: IGU Wholesale Gas Price Survey 2017

Long term contracts are changing

Gazprom: 58 renegotiations in 6 years

- Contract length decreasing
- Take-or-pay moratorium
- Hub indexation features in the price formulas

Statoil: contract prices indexed to European hubs (e.g. in France to PEG)

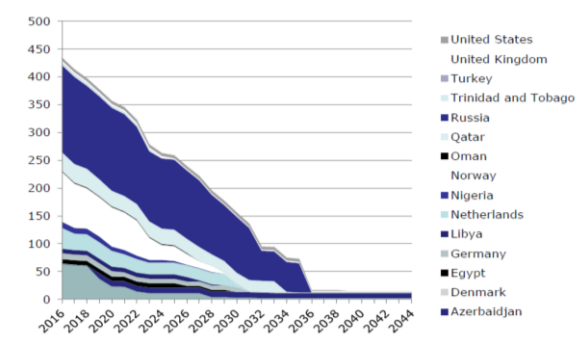
Sonatrach: contract prices renegotiated and indexed (e.g. in Italy to PSV)

#	Country	Company	2009	2010	2011	2012	2013	2014	review application
1	Austria	Centrex		1		1		1	
2	Austria	EconGas OMV		1			1		
3	Austria	Erdgas Import Salzburg				1			
4	Austria	Gazprom Austria (GWH Gashandel)		1		1		1	
5	Bulgaria	Bulgargaz	1				1		
6	Czech Republic	RWE Transgas (RWE Supply & Trading)				1	1	1	
7	Czech Republic	Vemex s.r.o.				1			
8	Denmark	DONG				1			
9	Estonia	Eesti Gaas AS			1				
10	France	GDF SUEZ		1	1		1		•
11	Germany	E.ON		1		1			
13	Germany	Verbundnetz Gas AG			1				
14	Germany	WIEH		1					•
15	Germany	Wingas		1	1				•
16	Greece	DEPA			1			1	
17	Hungary	Centrex Hungary Zrt					1		
18	Hungary	Pannusgas Gas Trading Plc.					1		
19	Italy	Axpo Trading (EGL)		1		1			
20	Italy	Edison (Promogas)			1				•
21	Italy	ENI		1		1	1	1	
22	Italy	ERG		1				1	
23	Italy	PremiumGas			1		1	1	
24	Italy	Sinergie Italiane		1	1		1		
25	Latvia	Latvijas Gaze			1				
26	Lithuania	Lietuvos Dujos						1	
27	Netherlands	Gas Terra		1		1			
28	Poland	PGNiG				1			
29	Slovakia	SPP			1			1	
30	Serbia	Srbijagas			1			1	
31	Turkey	Botas			1				
32	Turkey	Akfel Gaz, Avrasya Gaz, Bosphorus Gas, Bati Hatti, Kibar Enerji, Enerco Enerji, Shell Enerji A.S.	1					1	
33		Shell Energy Europe (SEEL)				1			
		Renegotiated contracts (by years)	2	12	13	12	9	10	

1 - Contract renegotiated according to Gazprom's data
 - Discount made (inc. discount that is made without amendment to contract) according to Gazprom officials statements or media Mitrova (2015)



Long-term commodity contracts show a quasi linear decrease until 2036 and beyond
 Development of long-term commodity contracts (bcm) – initial analysis



Source: CEDIGAZ, DG ENER analysis

Why is that happening?

Demand side

- Economic crisis
 - ▶ 10% demand drop in Europe in 2008
 - ▶ Slow recovery
- Energy transition
 - ▶ RES in heat and in power generation
 - ▶ Energy Efficiency
 - ▶ Future role of gas is uncertain
- Retail liberalization

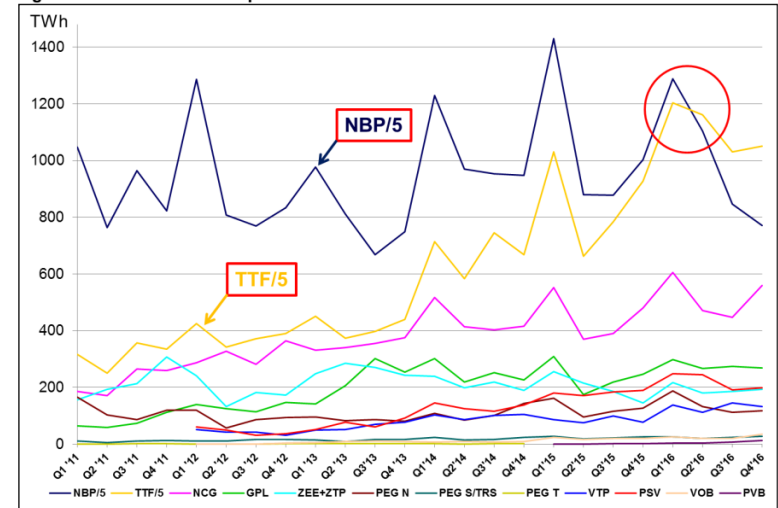
Supply side

- LTCs
 - ▶ take-or-pay clauses: surplus gas triggers liquidity on hubs
- US shale gas
 - ▶ indirect and direct effects
- Japan
 - ▶ After Fukushima invested in Australian gas upstream

European hubs are developing

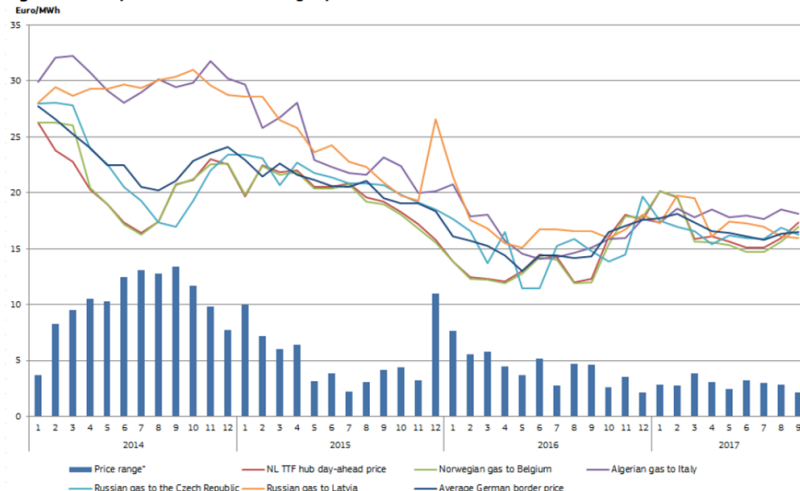
- Volumes traded on hubs dramatically increased since 2011
- Prices converge

Figure 2: Hub volume development 2011-2016



Sources: OTC: LEBA, ICIS; Exchange: ICE, ICE-Endex, EEX, Powernext; PEGAS,CME, CEGH, GME; MIBGAS; P. Heather

Figure 26. Comparison of EU wholesale gas price estimations



Source: Eurostat COMEXT and European Commission estimations, BAFA, Platts

*The difference between the highest and lowest price depicted on the graph

Note: Border prices are estimations of prices of piped gas imports paid at the border of the importing country, based on information collected by customs agencies, and are deemed to be representative of long-term contracts.

The future of long term contracts

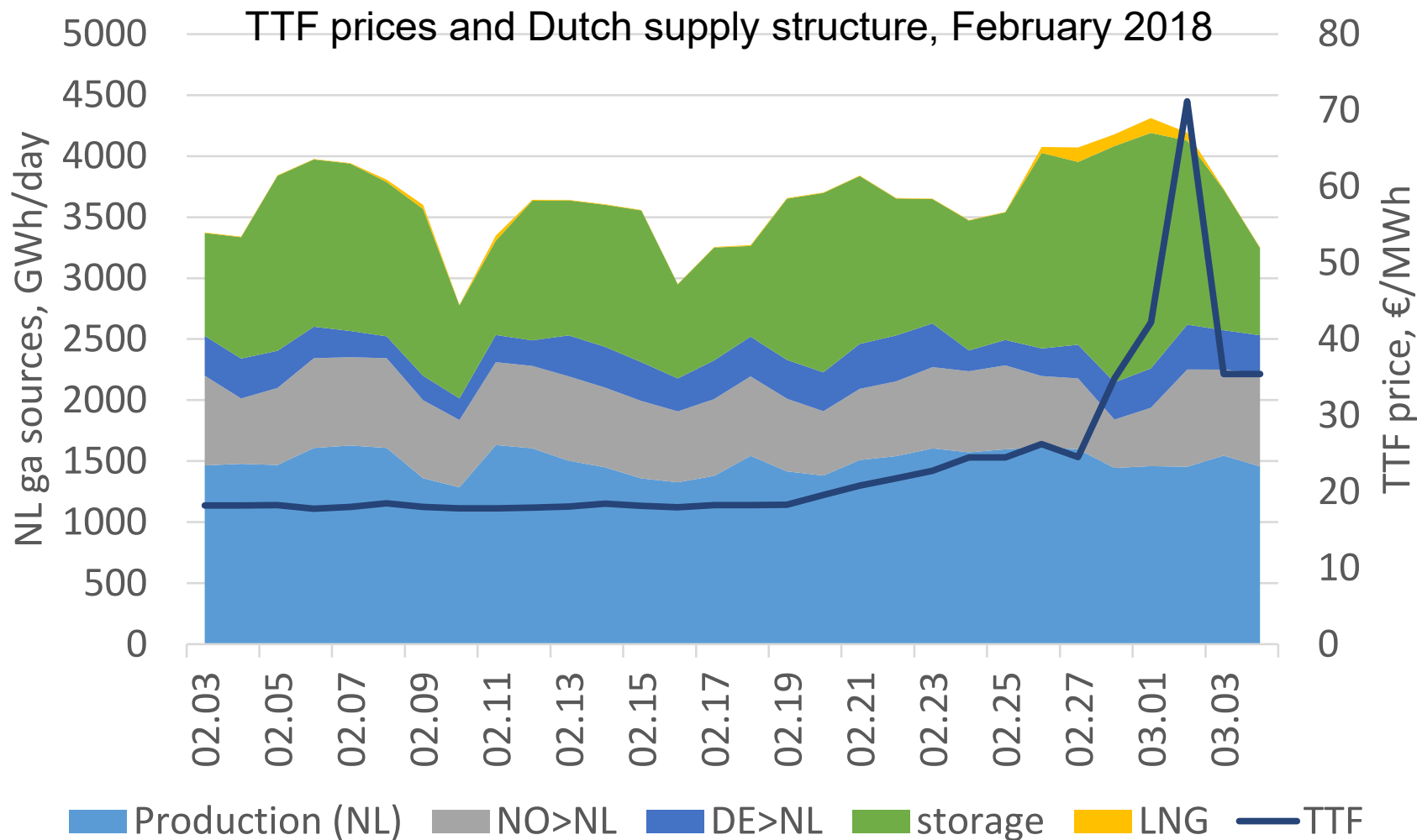
- Taking long term commitment on the wholesale market is getting difficult in Europe, as final consumers are not keen on taking long term commitments
- Reasons for LTCs to remain:
 - ▶ Hedging against spot price volatility (over a 1-2 year timespan)
 - ▶ Supporting large investment (upstream, pipeline, LNG terminal)



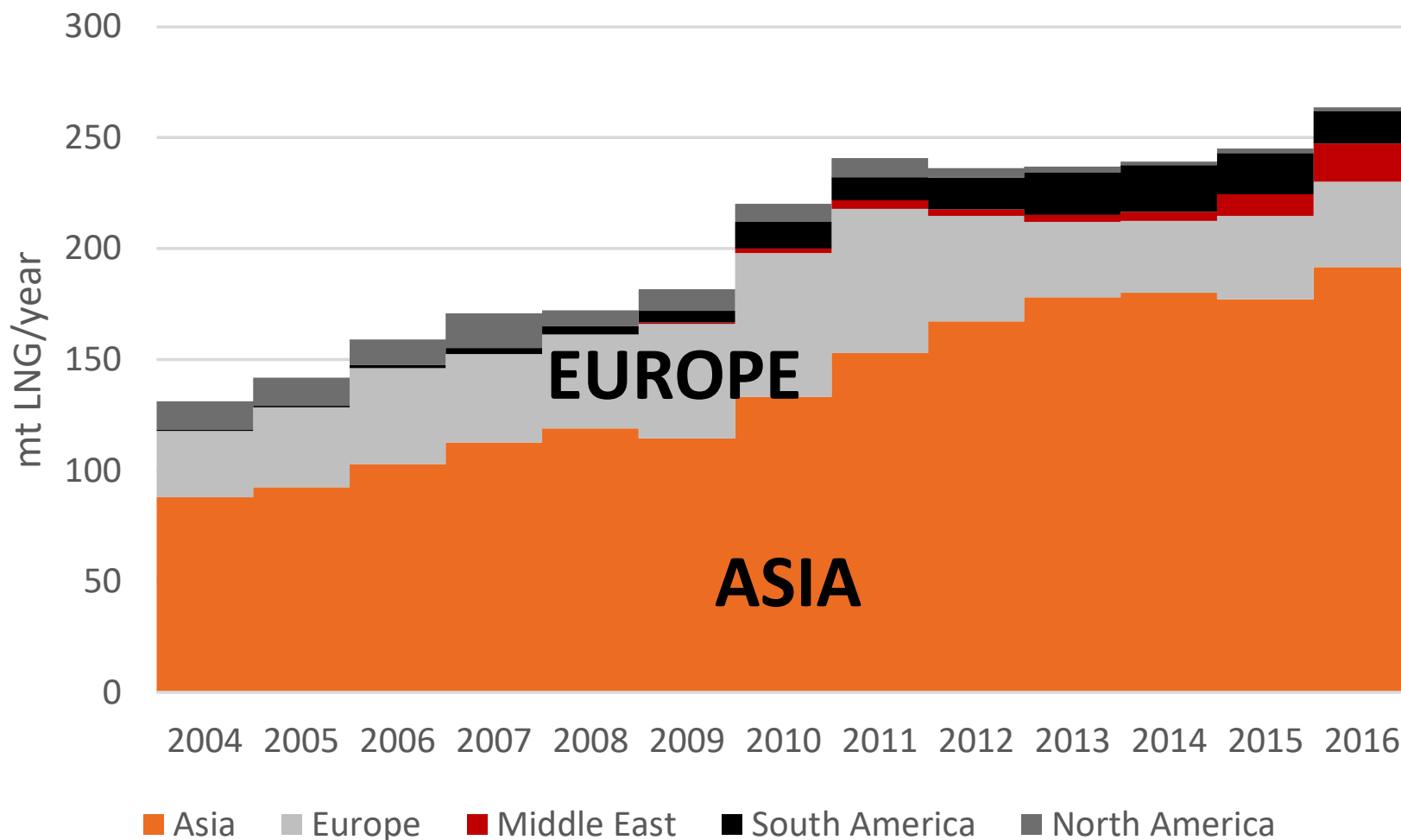
As TOP obligations and LTC capacity contracts are phased out:

- spot prices will be more reflective of potentially very different demand and supply conditions
- regional prices might diverge again, because of tariffs and physical congestion:
 - ▶ EU Markets with access to global LNG markets may import global LNG price dynamics
 - ▶ EU Markets with no access to LNG markets may be exposed to market power exploitation.

LNG may become the marginal source of gas to Europe



Global LNG markets are driven by Asian demand



Source: REKK figure based on GIIGNL 2004-2017

... Japanese market price is the dominant price signal, which is driven by oil indexation

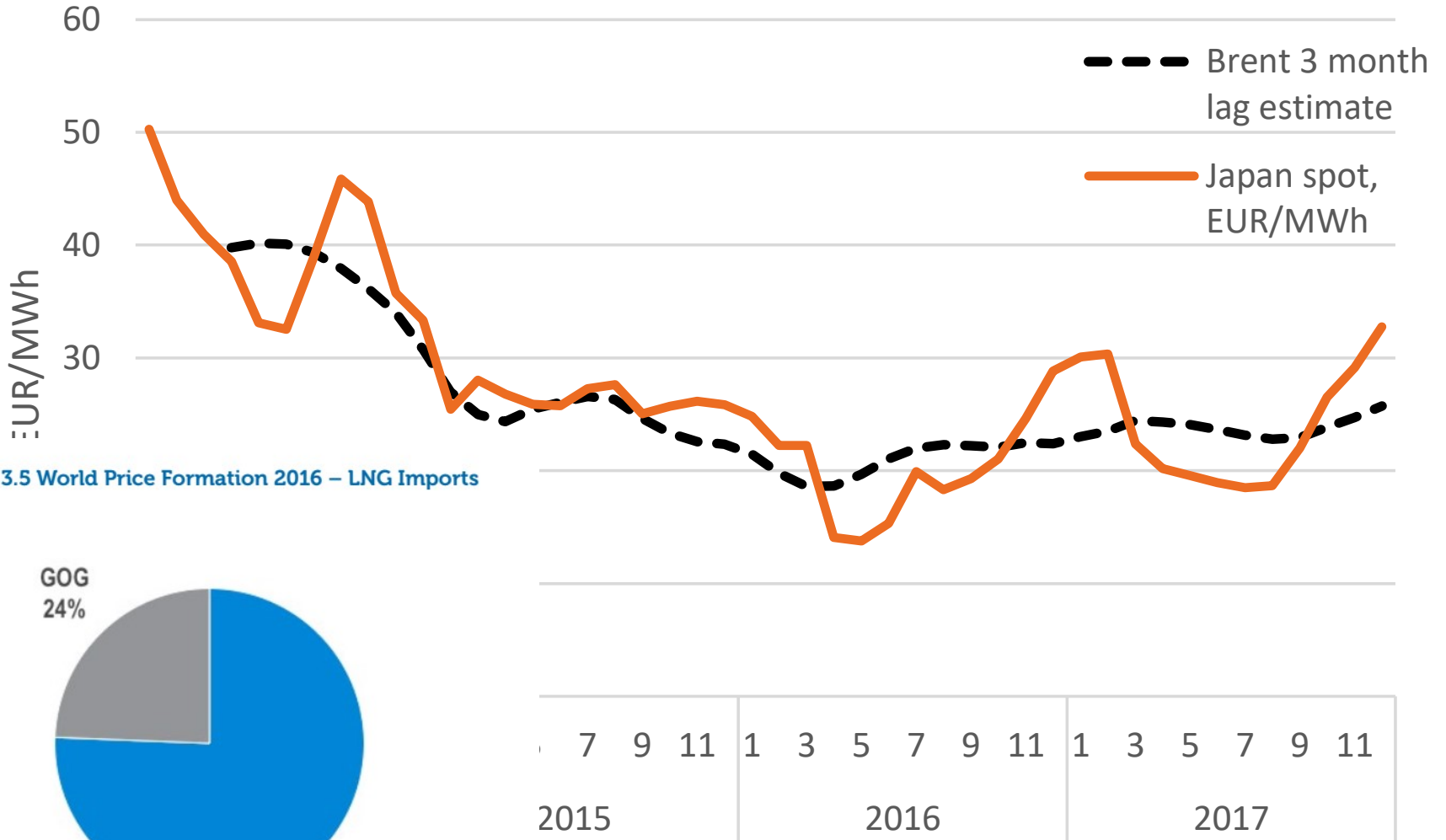
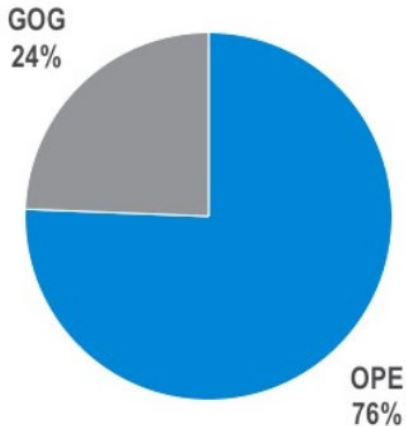


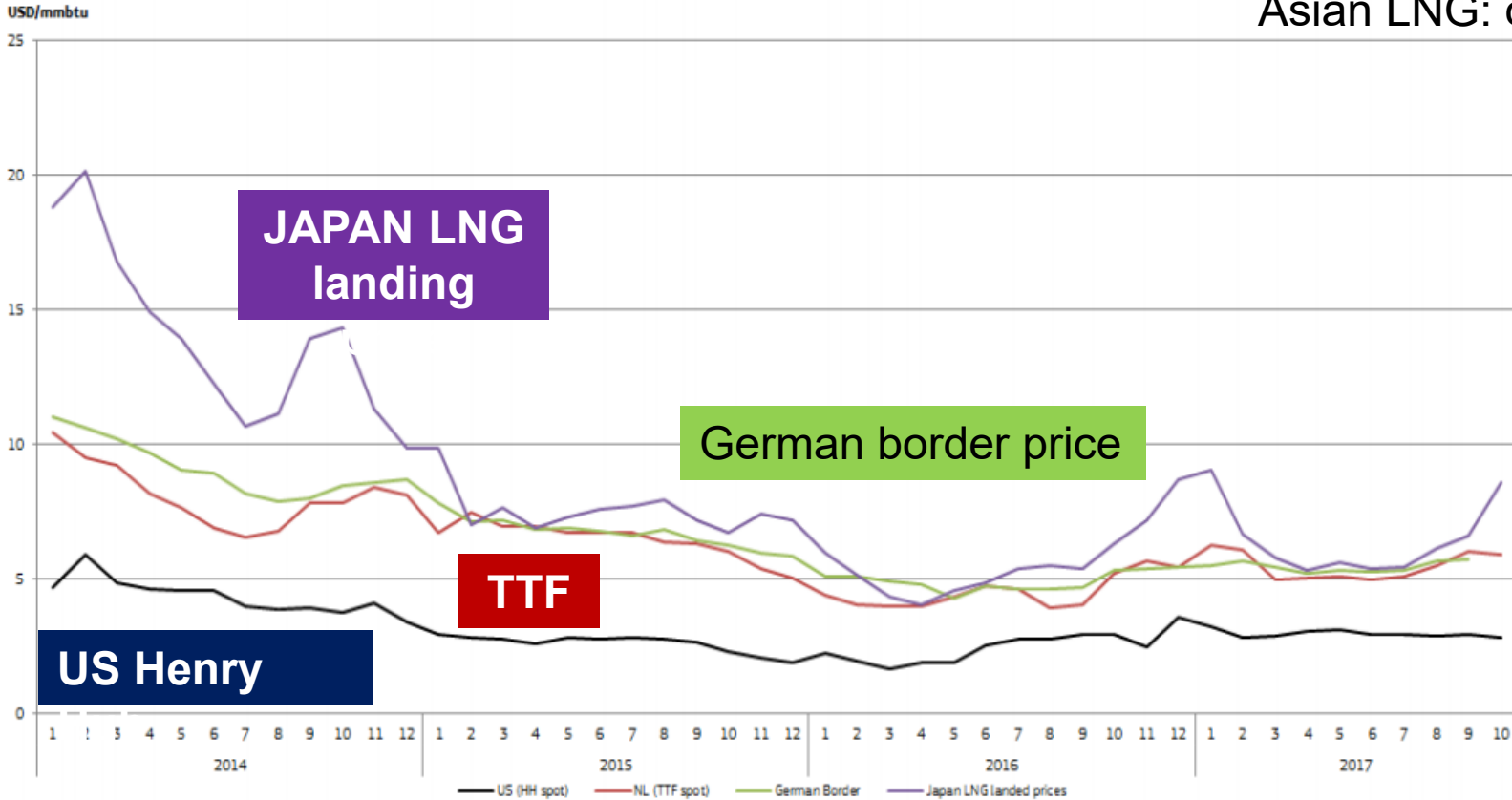
Figure 3.5 World Price Formation 2016 – LNG Imports



Source: REKK figure based on METI, EIA

but global prices tend to converge to US prices, which are not oil indexed ...

Figure 17. International comparison of wholesale gas prices



US LNG: HH +
Asian LNG: oil based

Sources: Platts, Thomson-Reuters, BAFA

Source: DG Energy 2017 Q3 Report on European Gas Markets

- In Europe, oil price indexation has been associated with long term contracting; retail liberalisation threatens sustainability of both
- Whether (and for how long) oil indexation will be imported via the dynamics of the global LNG market depends on the impact of US gas pricing on the LNG market
- In any case, the future hedging requirements and risk-taking logic for the players in the EU market will be fundamentally different from what we have experienced so far.



Thank you for your attention



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