

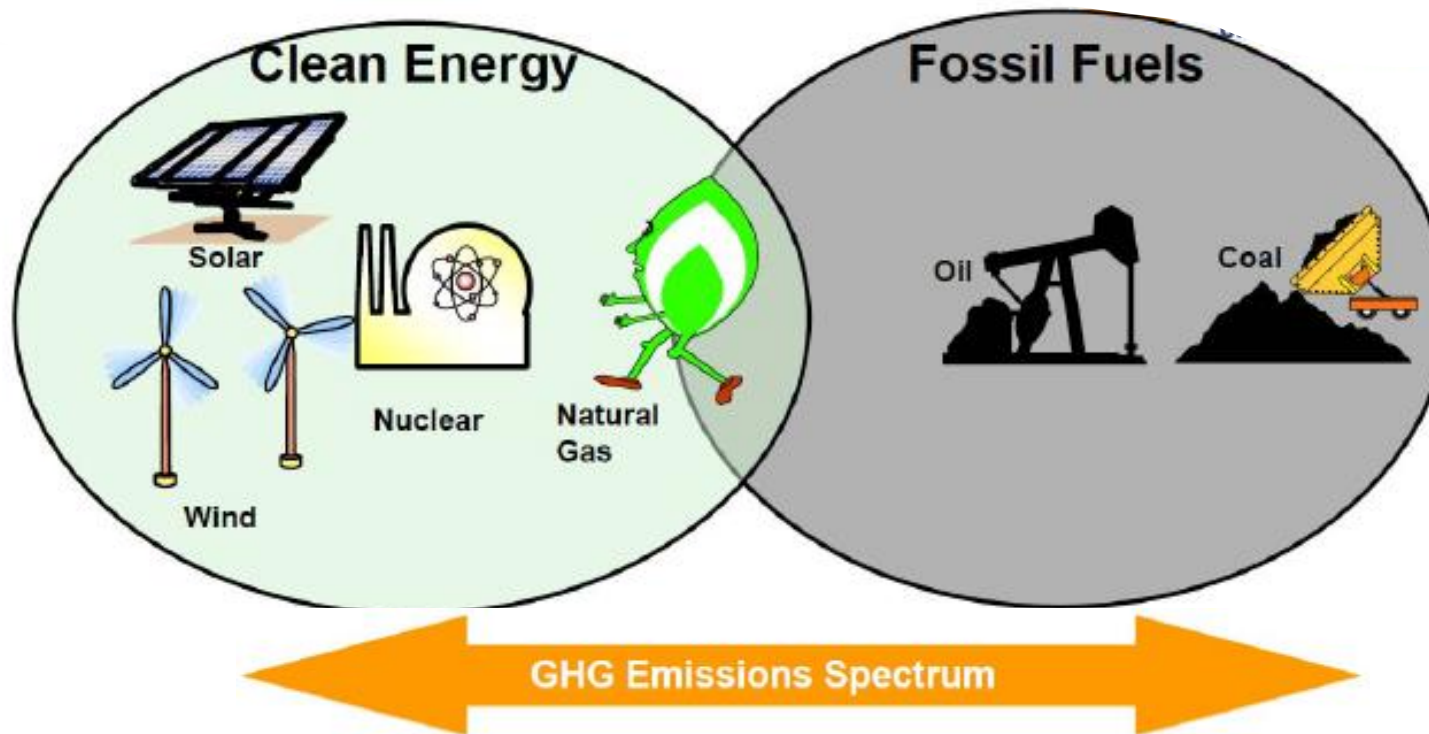
energia cria energia

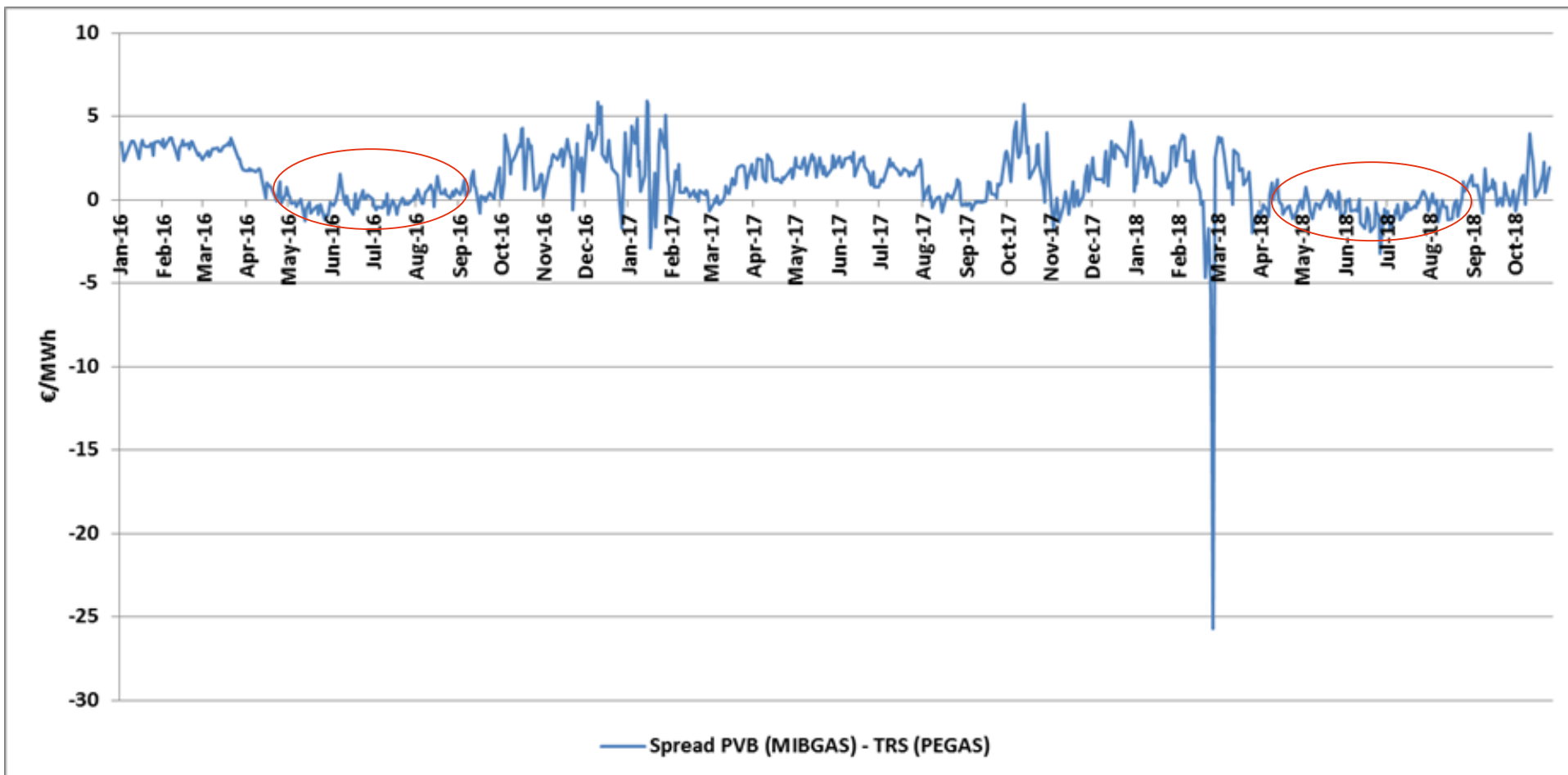


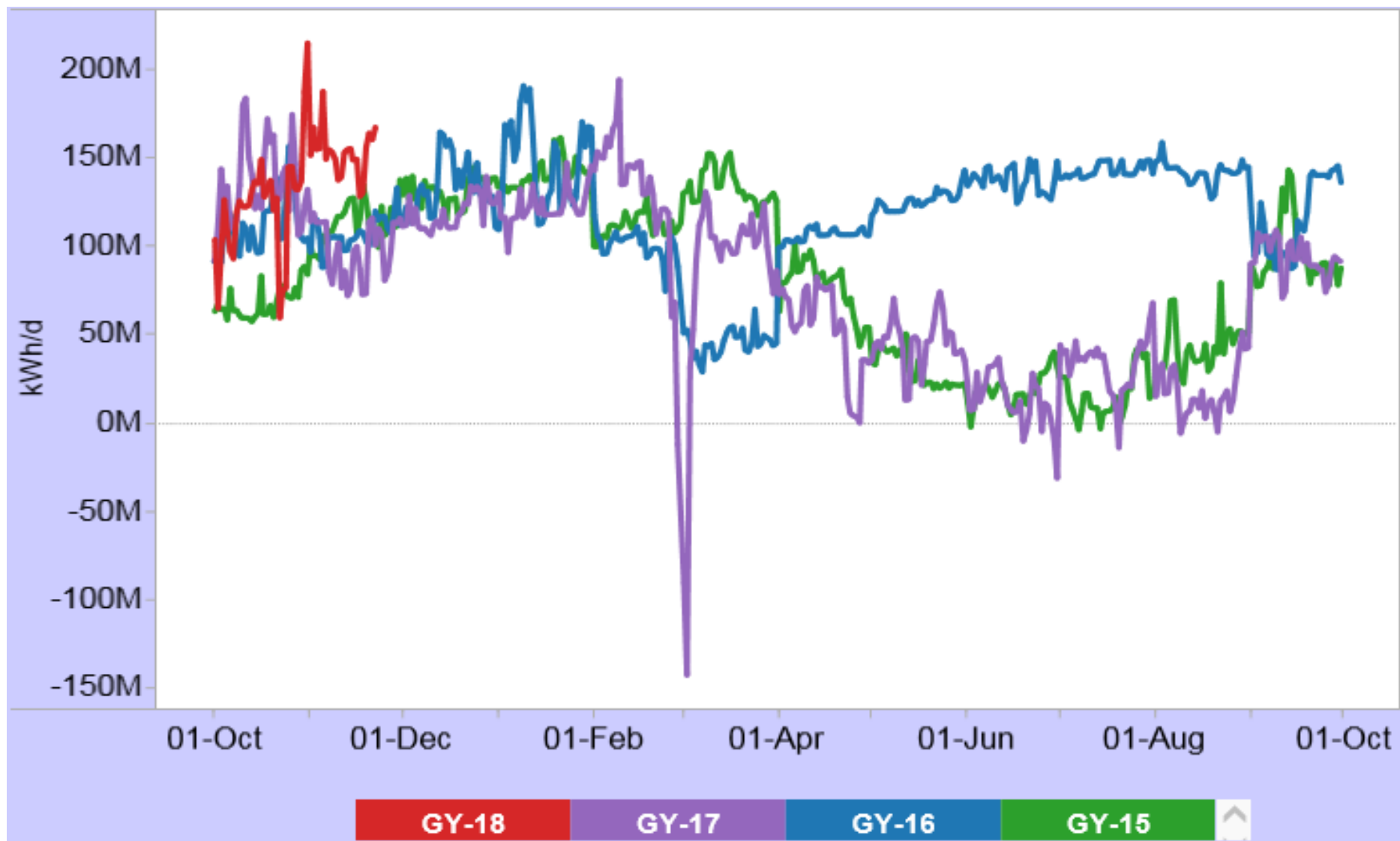
27 Novembro 2018

Encontro Anual AGN 2018

Natural Gas as primary sponsor of Sustainability

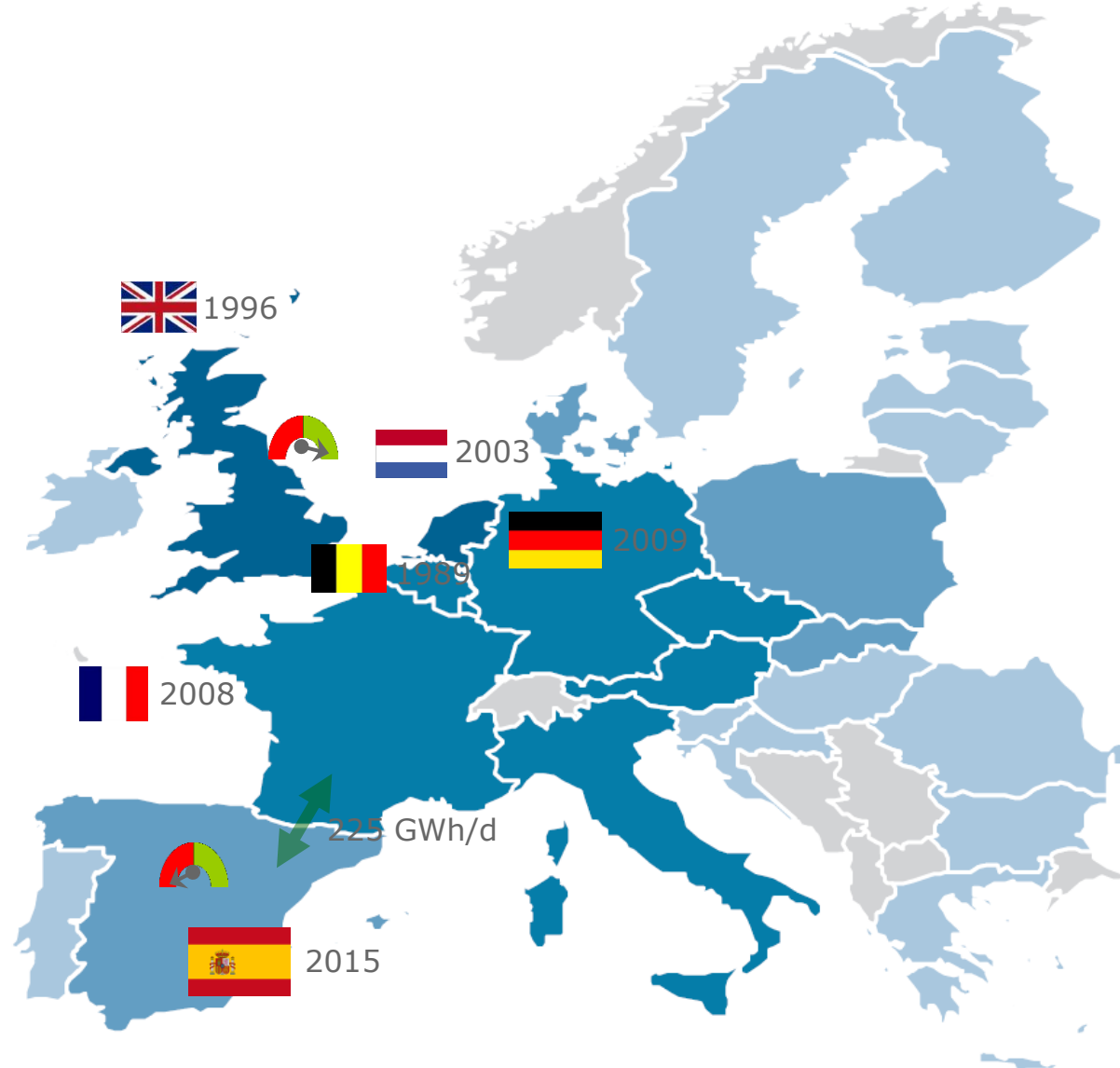






Valores (+) correspondem a fluxo FRANÇA → ESPANHA

Ranking of EU hubs based on monitoring results - 2016



■ Established hubs

- Broad liquidity
- Sizeable forward markets which contribute to supply hedging
- Price reference for other EU hubs and for long-term contracts indexation

■ Advanced hubs

- High liquidity
- More reliant comparatively on spot products
- Progress on supply hedging role but relatively lower liquidity levels of longer-term products

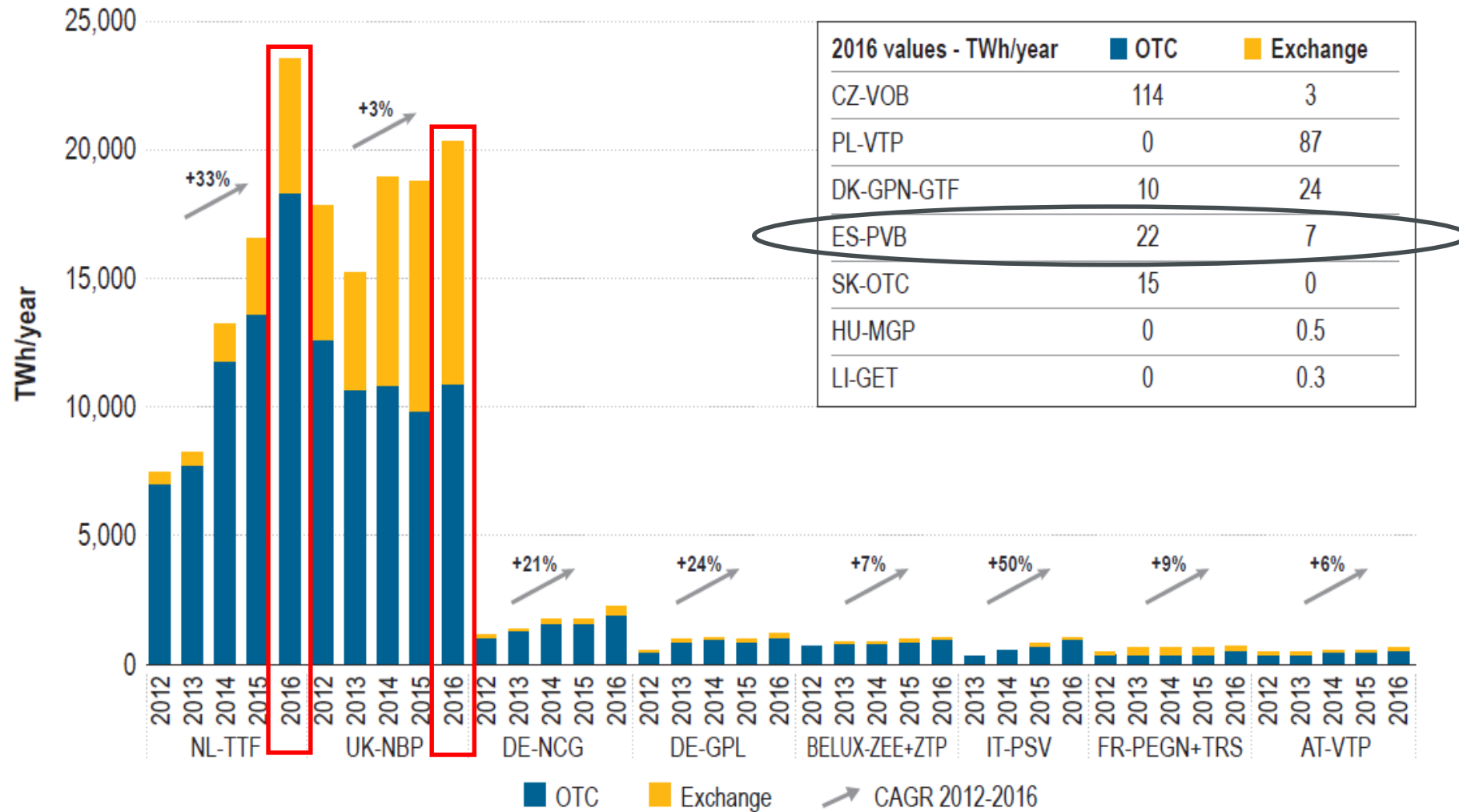
■ Emerging hubs

- Improving liquidity from a lower base taking advantage of enhanced interconnectivity and regulatory interventions
- High reliance on long-term contracts and bilateral deals

■ Illiquid-incipient hubs

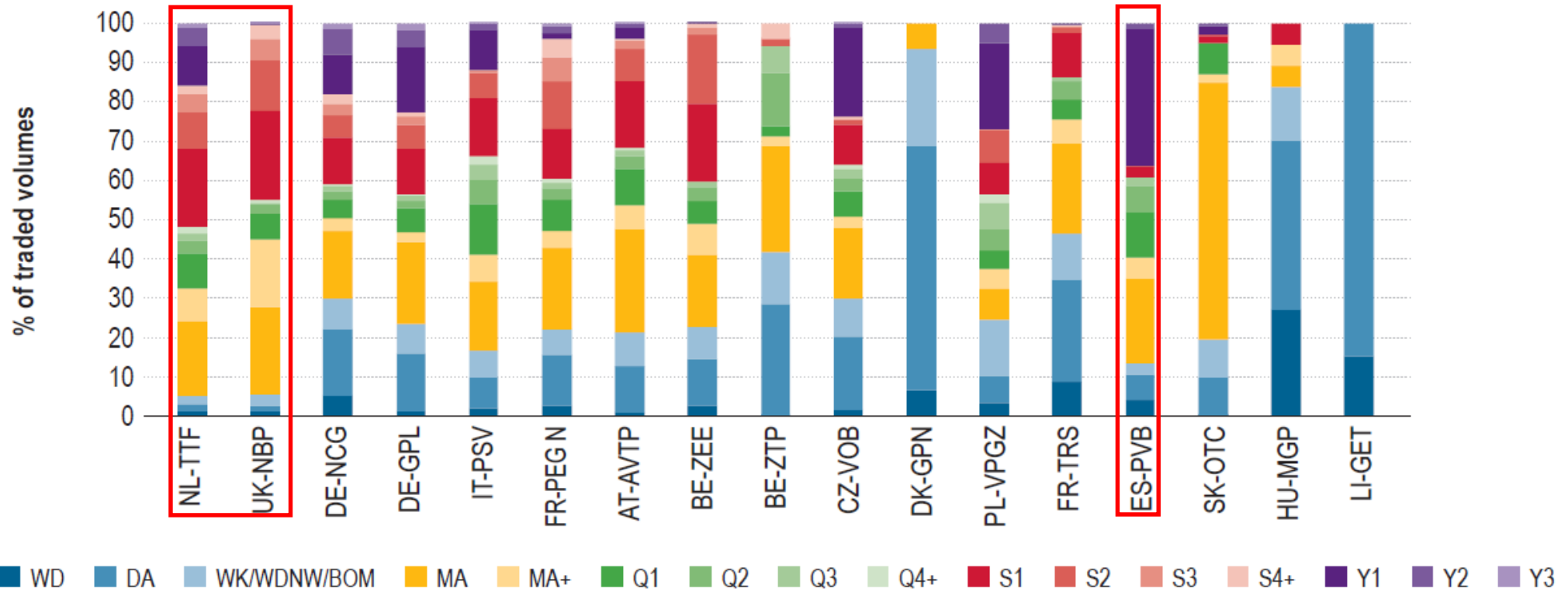
- Embryonic liquidity at a low level and mainly focused on spot
- Core reliance on long-term contracts and bilateral deals
- Diverse group with some jurisdictions having
 - organised markets in early stage
 - to develop entry-exit systems

Traded volumes and CAGR at EU hubs via market platforms – 2012 to 2016 (TWh/year - %)



Source: ACER based on REMIT data, Trayport and hub operators.

Breakdown of traded volumes per product at EU hubs – 2016 (% of traded volumes)



Source: ACER based on REMIT data.

Churn rates: 2008-2016

(Mature hubs are shown in green; active hubs in amber; and the poor hubs in red.)

HUB	TRADED GAS HUBS CHURN RATES*				
	2008	2011	2014	2015	2016
TTF	3.3	13.9	36.0	45.9	57.1
NBP	14.4	19.8	26.2	26.2	22.1
CEGH/VTP	2.4	2.2	4.8	3.9	5.7
ZEE+ZTP	5.1	4.1	4.9	4.3	4.1
NCG	0.4	1.8	4.2	3.9	4.0
GPL		0.8	3.0	2.5	2.5
PEG Nord	FRANCE 0.4	FRANCE 1.0	1.6	1.7	1.7
PSV	0.2	0.2	0.8	1.0	1.2
VOB	n/a	n/a	0.4	1.0	1.1
PEG TRS	n/a	n/a	SUD 1.0	0.6	0.6
			TIGF 0.1		
PVB	n/a	n/a	n/a	<0.1	0.1

*Calculated on a **Net Market Churn** basis; not the same methodology in all years.

Sources: 2008: Heather (2010), Table 6, p.19; Komlev presentation 2011; calculated from BP and IEA;
 2011, 2014: LEBA; ICE ; ICE-Endex ; EEX ; Powernext ; CEGH; GME; P. Heather
 2015, 2016: LEBA, ICIS, ICE, ICE-Endex, PEGAS, CME, CEGH, GME; MIBGAS; P. Heather



Questions

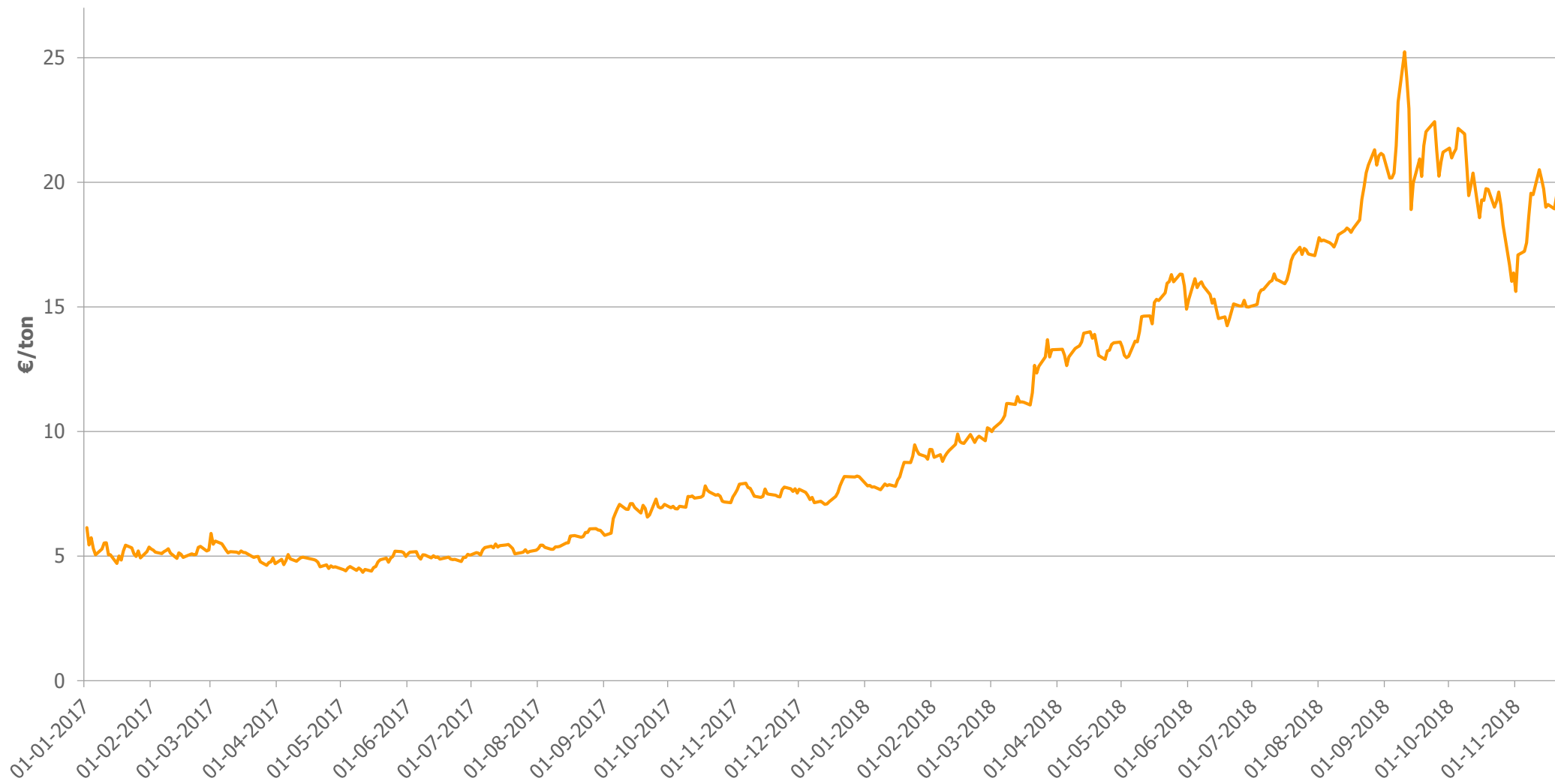
OBRIGADO!

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suporte



— Daily Settlement price, DEC Y