

Trayport Euro Commodities Report

Trayport Analysis Team
April 2017

Legal disclaimer

DISCLAIMER

The content may not be copied, reprinted, published, transmitted, transferred, disseminated or distributed in any manner without prior written approval by Trayport Ltd.

The contents of the report are provided AS IS. Trayport does not make any representation or warranty as to the accuracy, reliability, fitness of purpose, completeness, and or merchantability of the contents of the report or any part thereof and Trayport expressly disclaims liability of any kind whether statutory or implied whatsoever whether arising of and or in relation to the report or any part thereof. Nothing contained in the report shall be construed as legal, technical or other professional advice or be relied upon as such advice. Any clause of this disclaimer that is declared invalid shall be deemed severable and not affect the validity or enforceability of the remainder.

Trayport and the names of Trayport's products are Trademarks and Service Marks of Trayport Limited, and where relevant have been registered as such.

Other products, services, or company names mentioned herein are the property of, and may be the service mark or trademark of, their respective owners.

© **Trayport Limited 2016**. All Rights reserved.

Editorial summary

April 2017: Volumes down across the board after a strong March, YTD Power focus highlighting declines in French Power.

The high volumes seen in March were not a sign of things to come. April starts the second quarter with 5.879m total month contracts traded, down 29.6% over Mar-17 and the lowest number of monthly contracts traded since Sep-15. YTD total monthly contracts traded were 28.358m, down 14% vs. 2016.

Power volumes are down across the board whether on MoM, YTD or a YoY comparison basis. MoM saw all commodities see double figure drops; German Power saw the smallest percentage but largest nominal decline, down 19% (126 TWh) from Mar-17 to 542 TWh. YTD UK Power has dropped 44 TWh (26%) vs. YTD 2016 while YoY saw French Power down 99 TWh (64%) vs. Apr-16. Market shares remained consistent with the only notable change being Spanish Power who saw a 9% shift to broker bilateral, at the cost of the cleared market.

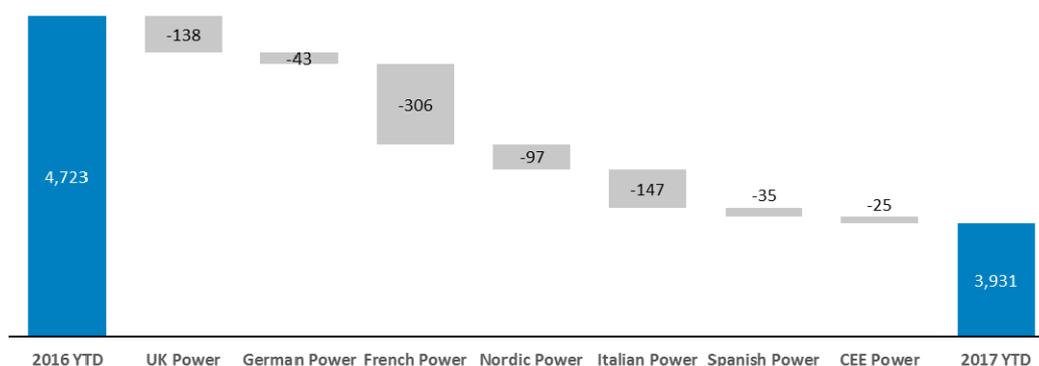
The YTD trend of 2017 Power has been one of lower traded volume and declining prices. Across the first three months of 2016, volumes have been consistently higher. This trend continued in April as low monthly volumes pushed YTD to close the month 17% (762 TWh) down over 2016.

Chart 1: Cumulative YTD Euro and UK Power TWh traded (2016 vs. 2017).



The interesting point is what markets are driving the decline. German Power, which accounts for over half of all Power traded, only accounted for 5% of the total YTD decline. French Power was the largest contributor, down 55% vs. 2016. This is in stark contrast to the April 2016 Euro Commodities Report where French Power had seen record volumes with the cleared market being the big winner. Although the French Power cleared market share has remained strong YTD, 42% vs. 39% 2016, this is the lowest YTD volumes seen since 2013.

Chart 2: Euro and UK Power volume bridge, YTD 2016 – YTD 2017 (TWh).



Volumes are not the only factor to see declines; Power prices are down across the board. French Power is leading the way with front-month baseload prices down 44% since January. Meanwhile, German, UK and Italian Power front-month baseload prices have declined 35%, 27% and 18% respectively.

Gas follows much the same story but with one key difference; Austrian VTP volumes are up 5% (7 TWh) YTD vs. 2016. High volumes in March are the driver for the YTD growth as April only saw 26 TWh traded, down 55% MoM. TTF was another commodity affected by strong March volumes posting the highest nominal MoM decline, down 831 TWh vs. Mar-17. TTF volume was 113% of NBP in Apr-17 maintaining its dominance in a lower volume environment. NBP saw 1,327 TWh traded in Apr-17 down 21% MoM and down 18% YTD. PSV saw the highest percentage decline both MoM, down 61% and YoY, down 43%.

No change in theme when it comes to Coal. Markets have fallen from the volumes seen in 2016 with API2 dropping 52% YTD vs. 2016 and 63% YoY (vs. Apr-16). API4 has followed suit, down 69% YTD vs. 2016 and 63% YoY (vs. Apr-16). What's interesting about Coal market is that prices have remain relatively strong even in the face of slowing demand, API2 front month prices are 28% up over Apr-16. The market dynamics shift towards broker bilateral and exchanged execution has remain in 2017 as API2 booked 66% broker cleared, down from 96% in Apr-16. Exchange execution is the main winner accounting for 22% of traded volume in Apr-17, up from 4% in Apr-16.

2017 has definitely defined itself as a new year in terms of market trends; volumes and prices have largely declined, while the market dynamics remain relatively unchanged. What factors are driving the decline in volumes? Can the volume decline be explained by fundamentals; warmer weather and reduced factors affecting supply? Alternatively, is the impending MiFID II regulation creating a caution in the market? Only time will tell.

High Level Market Summary

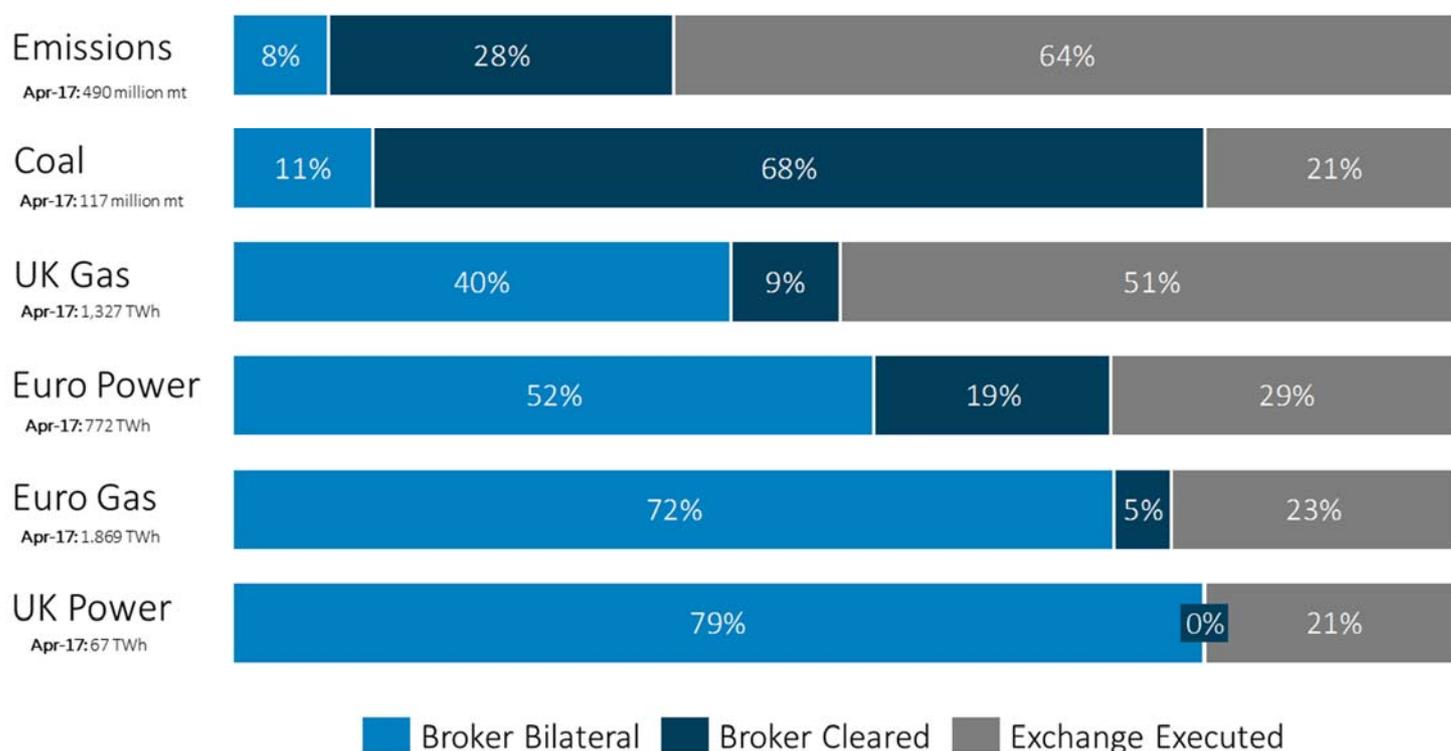
- UK Power volumes down 45% YoY. Market share split 79% broker bilateral / 21% exchange executed. 12.69 TWh of the 14.07 TWh exchange executions were traded via auction, with the remaining 1.38 TWh from continuously traded exchange markets.
- German Power volumes down 21% YoY. Market share split 61% broker bilateral / 16% broker cleared / 23% exchange executed.
- French Power volumes down 29% MoM. Market share split 58% broker bilateral / 14% broker cleared / 28% exchange executed.
- Nordic Power volumes down 38% MoM. Market share split 35% broker cleared / 65% exchange executed.
- Italian Power volumes down 39% MoM. Market share split 30% broker bilateral / 52% broker cleared / 18% exchange executed.
- Spanish Power volumes down 53% YoY. Market share split 46% broker bilateral / 50% broker cleared / 4% exchange executed.
- CEE Power volumes down 39% MoM. Market share split 65% broker bilateral / 35% exchange executed.
- NBP volumes down 21% MoM. Market share split 40% broker bilateral / 9% broker cleared / 51% exchange executed.
- TTF volumes down 36% MoM. Market share split 68% broker bilateral / 6% broker cleared / 26% exchange executed.
- NCG volumes down 38% MoM. Market share split 84% broker bilateral / 16% exchange executed.
- Gaspool volumes down 12% MoM. Market share split 87% broker bilateral / 13% exchange executed.
- France Hubs volumes down 13% MoM. Market share split 73% broker bilateral / 27% exchange executed.
- Austrian VTP volumes down 20% YoY. Market share split 84% broker bilateral / 16% exchange executed.
- ZEE volumes down 12% YoY. Market share split 92% broker bilateral / 2% exchange executed.
- PSV volumes down 61% MoM. Market share split 99% broker bilateral / 1% exchange executed.
- API2 volumes down 38% MoM. Market share split 12% broker bilateral / 66% broker cleared / 22% exchange executed. Cleared market share CME 41% / ICE 59%.
- API4 volumes down 63% YoY. Market share split 3% broker bilateral / 90% broker cleared / 7% exchange executed. Cleared market share CME 42% / ICE 58%.
- EUA volumes down 14% MoM. Market share split 7% broker bilateral / 28% broker cleared / 64% exchange executed.
- CER volumes down 77% MoM. Market share split 89% broker bilateral / 11% exchange executed.

European Energy Markets Composition: Broker Bilateral, Broker Cleared and Exchange Execution

Information as at: 30 April 2017

Estimates based on Trayport analysis and market research

April 2017



Note: Data sources on page 11.

Table 1: Key Term Definitions

Term	Definition	Calculation
Broker Bilateral	Total volume executed at a broker and settled bilaterally, without the involvement of a clearinghouse	LEBA published total volume minus LEBA published cleared volume
Broker Cleared	Total volume executed at a broker or off-exchange and given up for clearing to a clearinghouse	Aggregated clearinghouse reported broker cleared volume
Exchange Execution	Total volume executed directly on exchange and cleared with the relevant clearinghouse	Aggregated exchange reported executed volume
Cleared Market	Total volume cleared at a clearinghouse	Broker cleared plus exchange execution
Total Execution	Total executed volume, at a broker or an exchange	Broker bilateral plus broker cleared plus exchange executed

European Energy Markets Composition: YTD Trends

Information as at: 30 April 2017

Estimates based on Trayport analysis and market research

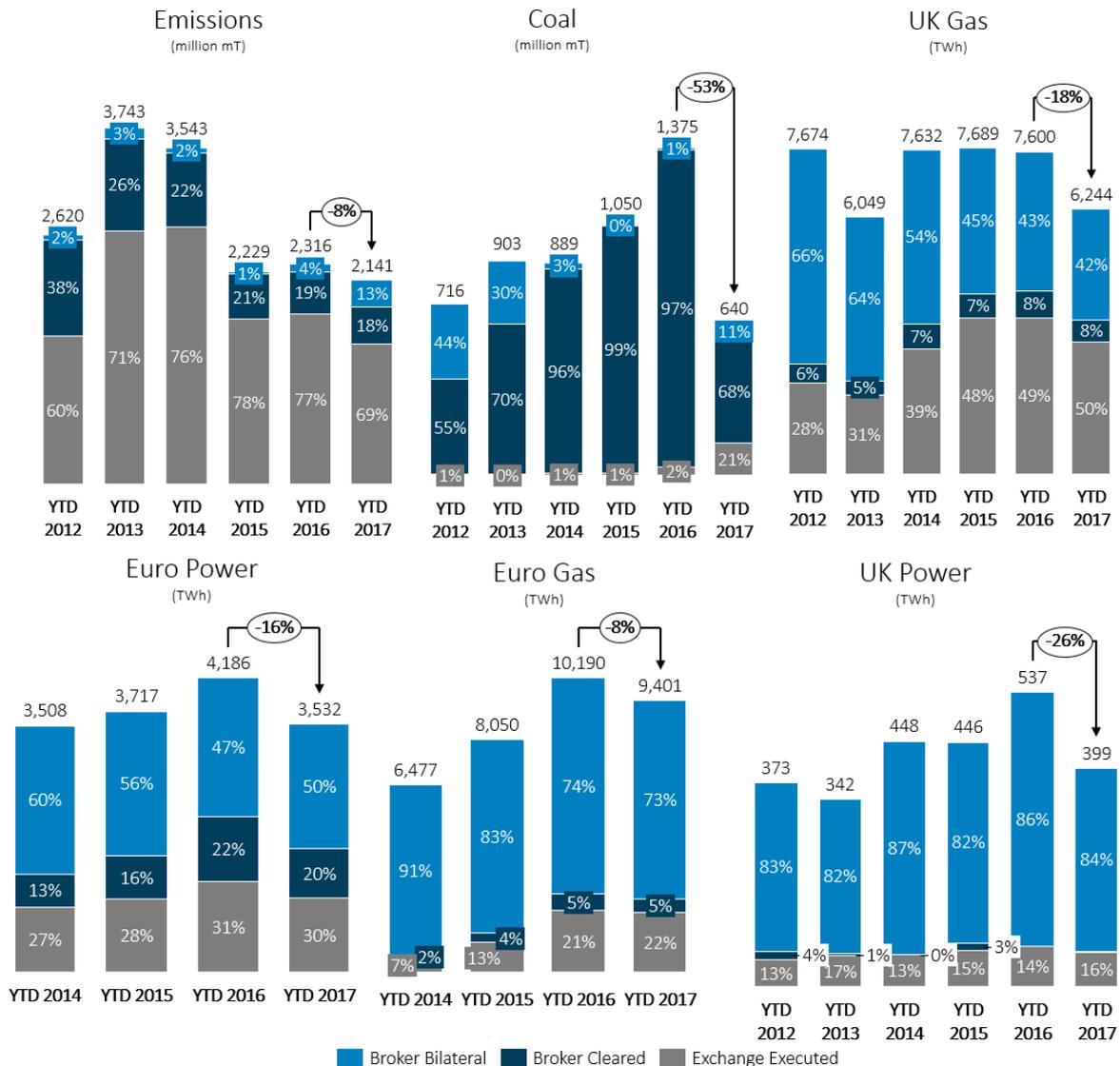


Table 2: Volume Traded Change

Commodity Class	MoM	YoY	YTD	Term	Definition
Emissions	-15%	-16%	-8%		
Coal	-37%	-64%	-53%	MoM	Current month volume versus previous month volume (e.g. October 2012 vs. September 2012)
UK Gas	-21%	-25%	-18%		
Euro Power	-25%	-32%	-16%	YoY	Current month volume versus same month last year volume
Euro Gas	-36%	-26%	-8%		
UK Power	-40%	-45%	-26%	YTD	Total volume YTD 2014 versus total volume YTD 2013 (e.g., Jan – Oct 2014 vs. Jan – Oct 2013)

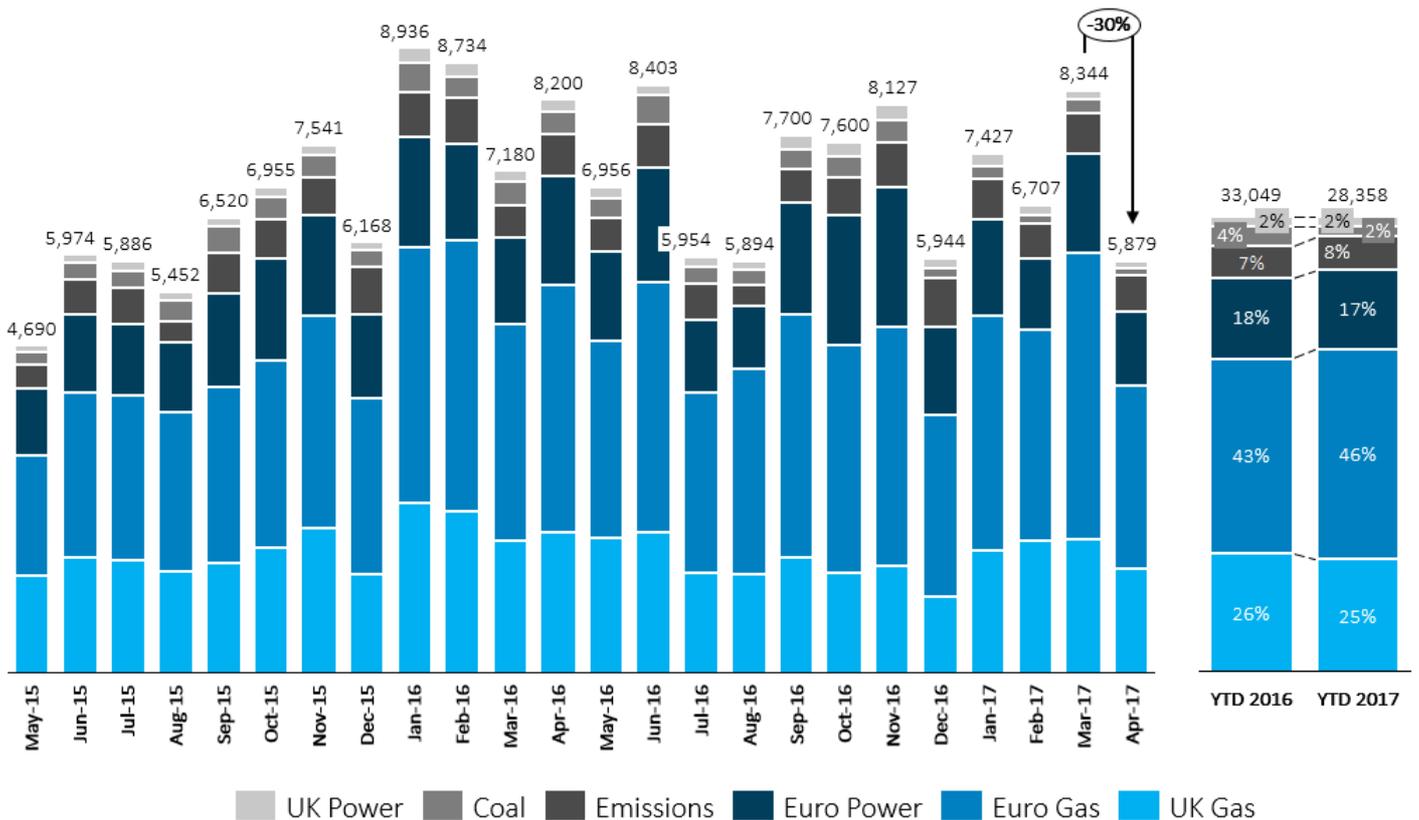
Note: Data sources on page 11.

European Energy Markets Composition: Total Euro Commodity Market Volumes

Information as at: 30 April 2017

Estimates based on Trayport analysis and market research

(Monthly Contract Equivalents* 000's)



Note: Data sources on page 11.

*Monthly Contract Equivalents calculated as total volume divided by a standard monthly contract lot size (30 day month):

Commodity Class	Volume Unit	Standard Monthly Contract Lot Size	Monthly Contract Equivalent Calculation
Emissions	Metric tonnes	1,000 tonnes	Total volume in metric tonnes divided by 1,000 tonnes
Coal	Metric tonnes	1,000 tonnes	Total volume in metric tonnes divided by 1,000 tonnes
UK Gas	Therms / MWh	30,000 therms / 879 MWh	Total volume in MWh divided by 879 MWh
Euro Power	MWh	720 MWh	Total volume in MWh divided by 720 MWh
UK Power	MWh	720 MWh	Total volume in MWh divided by 720 MWh
Euro Gas	MWh	720 MWh	Total volume in MWh divided by 720 MWh

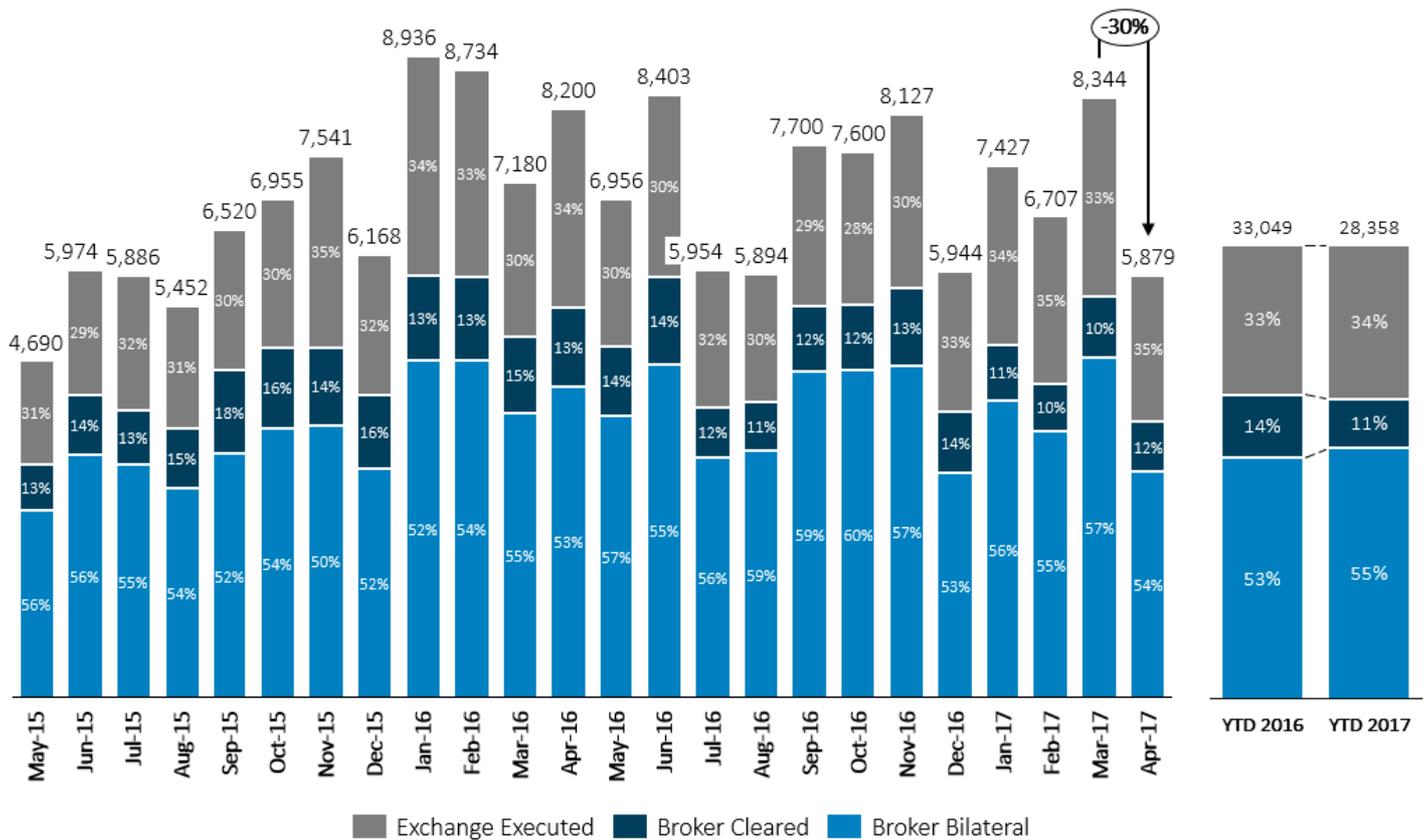
Monthly Contract Equivalents allow us to compare trading volumes across commodity classes that are traded in different volume units.

European Energy Markets Composition: Total Euro Commodity Market Volumes

Information as at: 30 April 2017

Estimates based on Trayport analysis and market research

(Monthly Contract Equivalents* 000's)



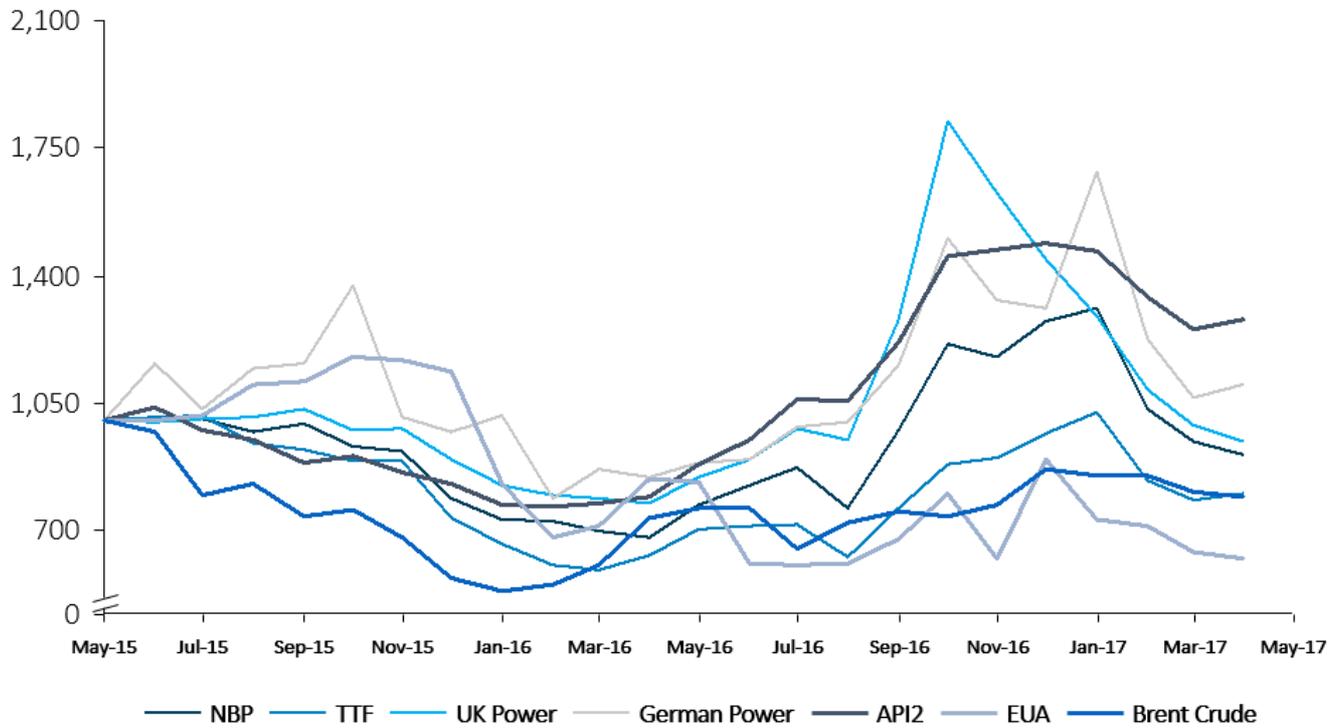
Note: Data sources on page 11.

*Monthly Contract Equivalents calculated as total volume divided by a standard monthly contract lot size (30 day month):

European Energy Markets Composition: Rebased Price Trends over Time

Information as at: 30 April 2017

Estimates based on Trayport analysis and market research



All prices are Front Month, except EUAs, which are Front Vintage.
Prices rebased 24 Months previous

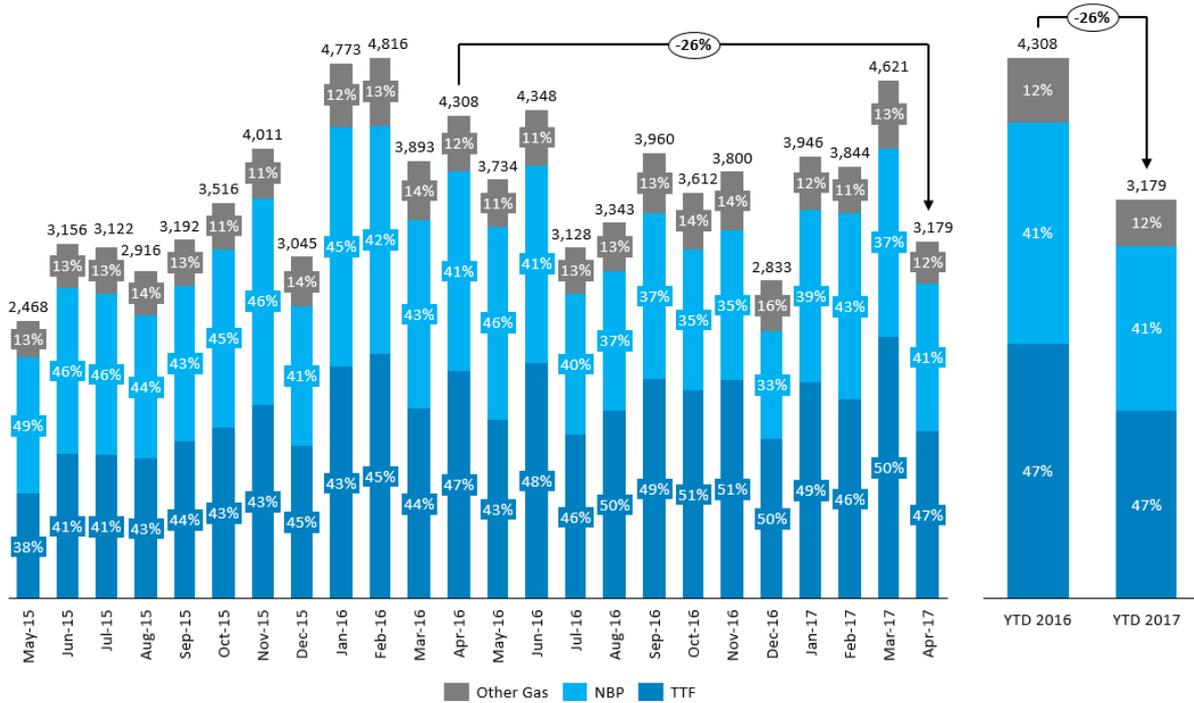
Note: Data sources on page 11.

Gas Hub Evolution

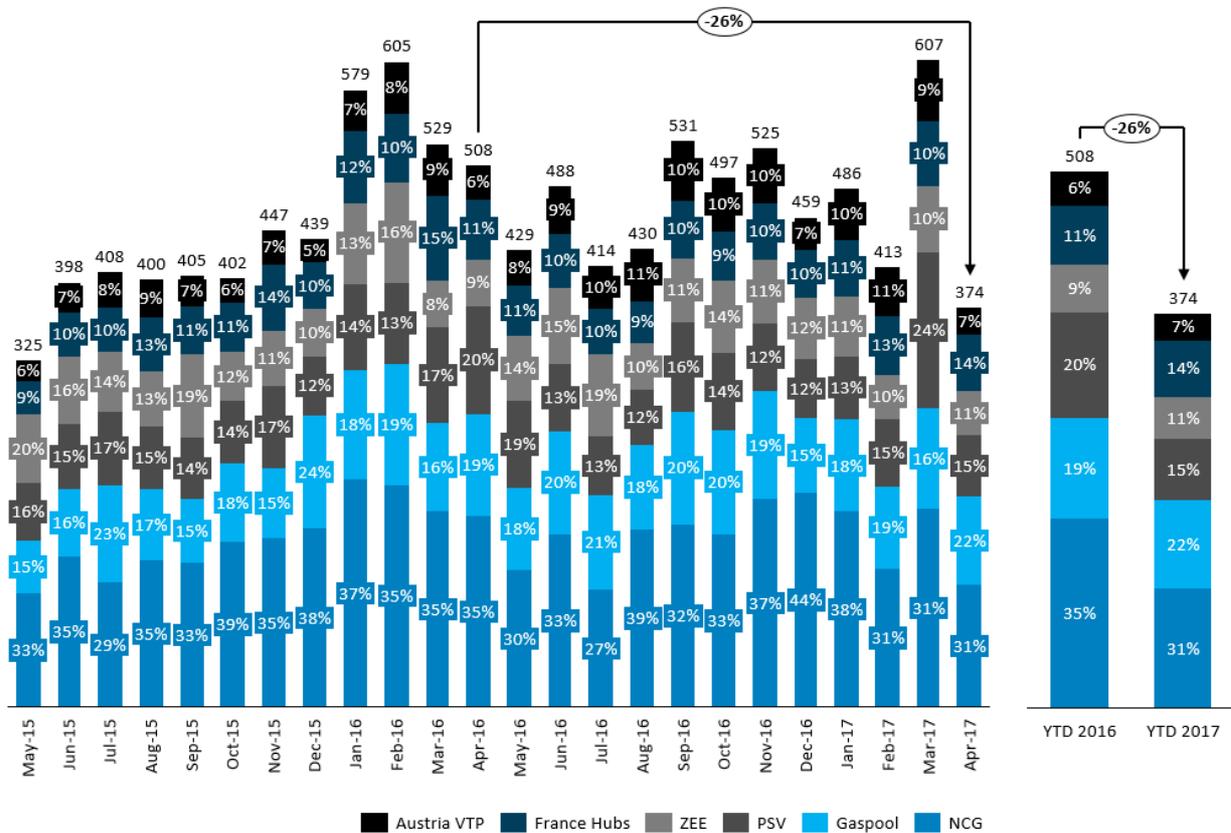
Information as at: 30 April 2017

Estimates based on Trayport analysis and market research

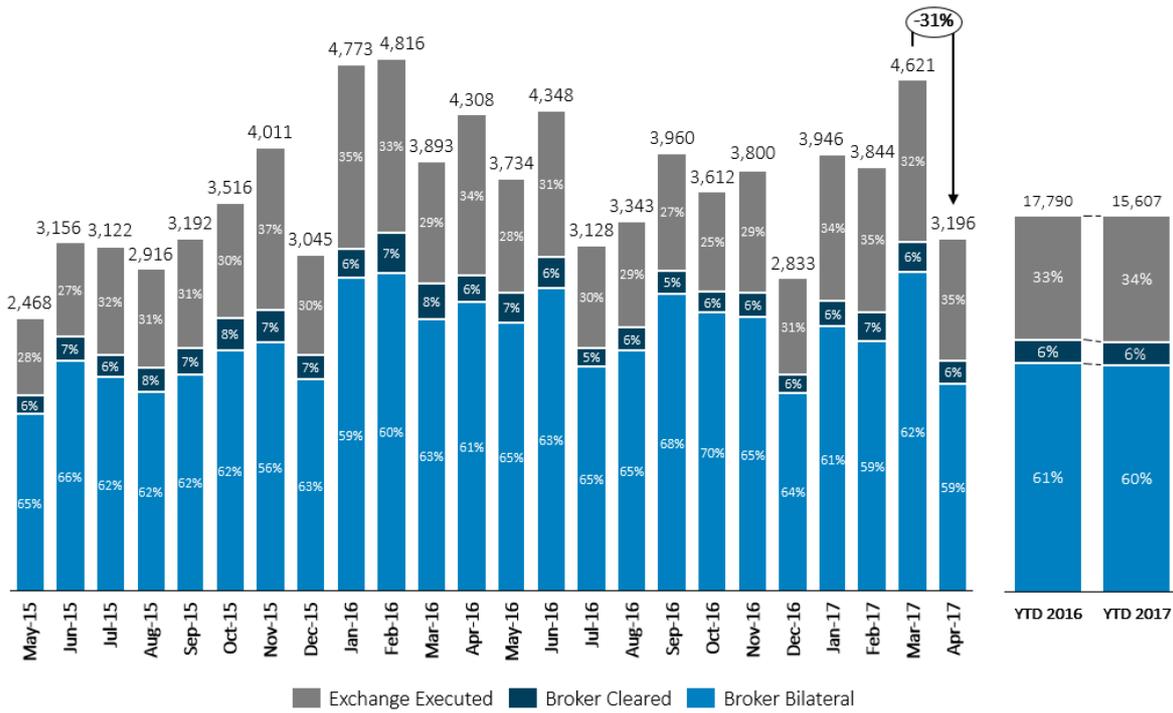
NBP, TTF & Other Gas Chart



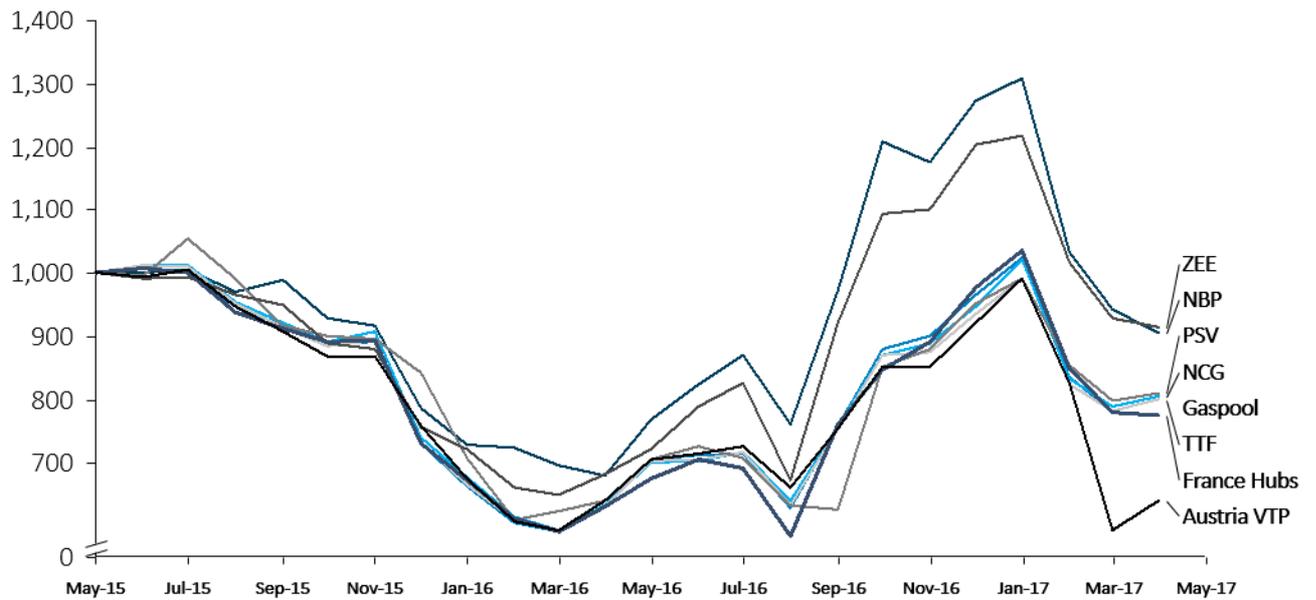
Other Gas Chart



Broker Bilateral / Broker Cleared / Exchange Executed chart



Price Indexation Chart



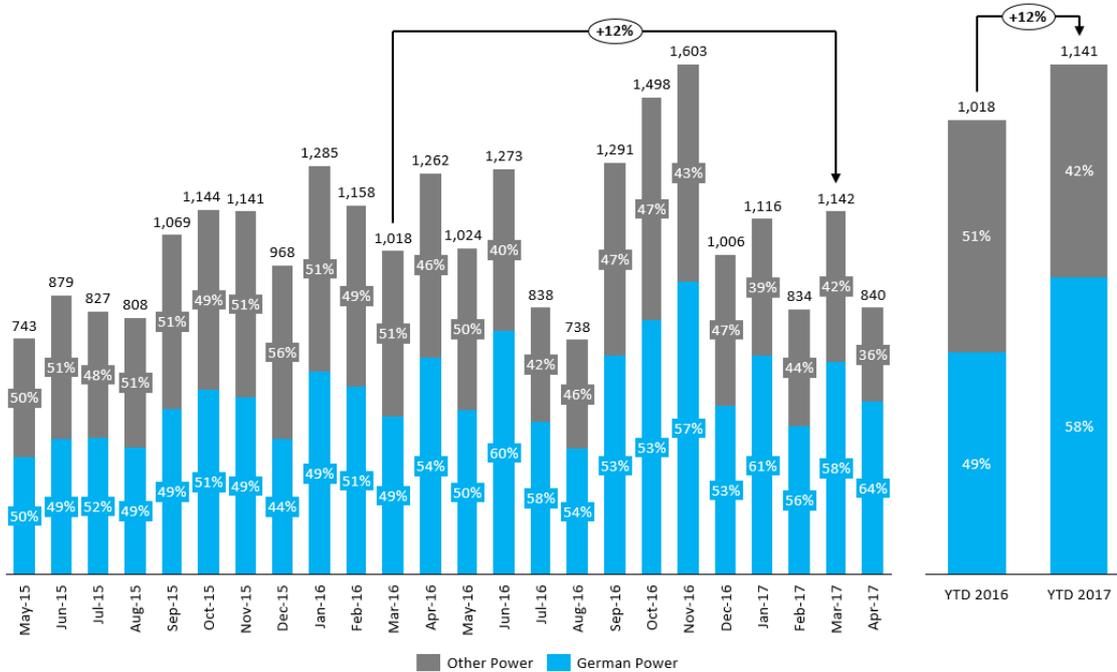
Prices rebased to 1,000 May 2015

Power Market Evolution

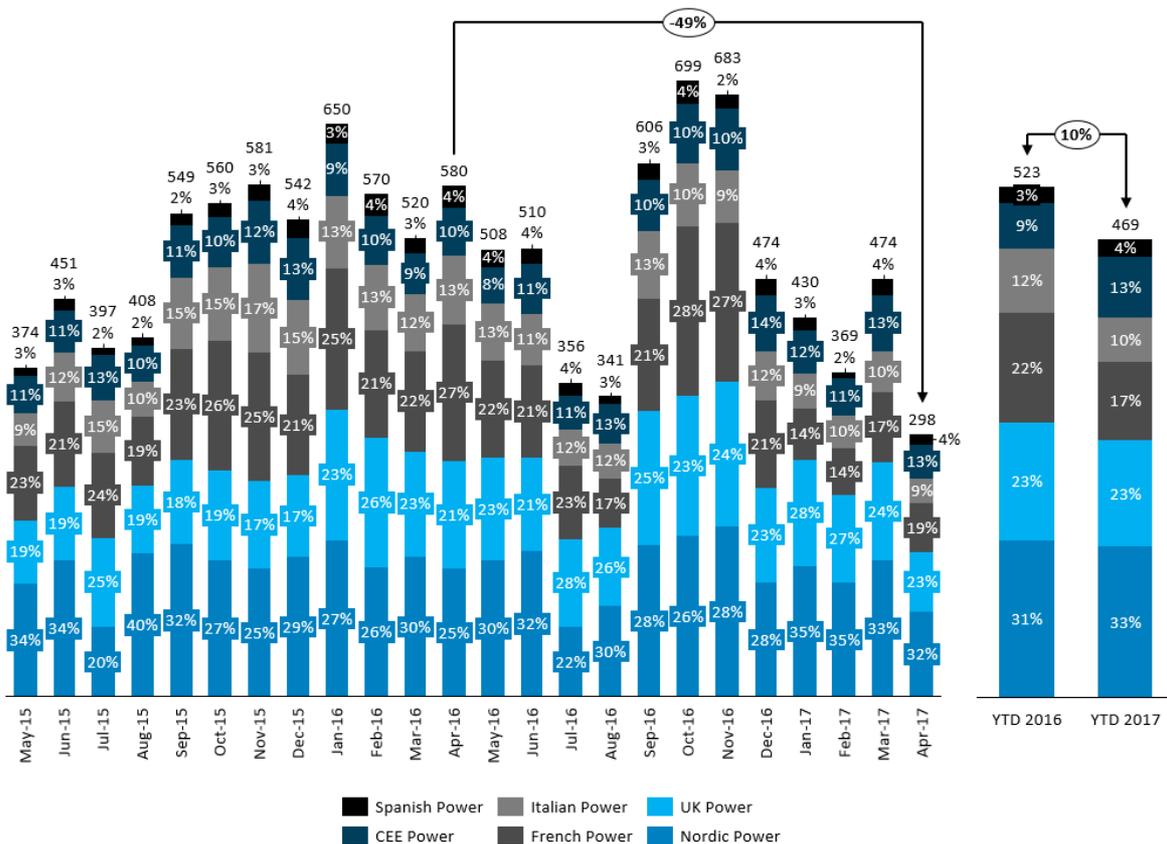
Information as at: 30 April 2017

Estimates based on Trayport analysis and market research

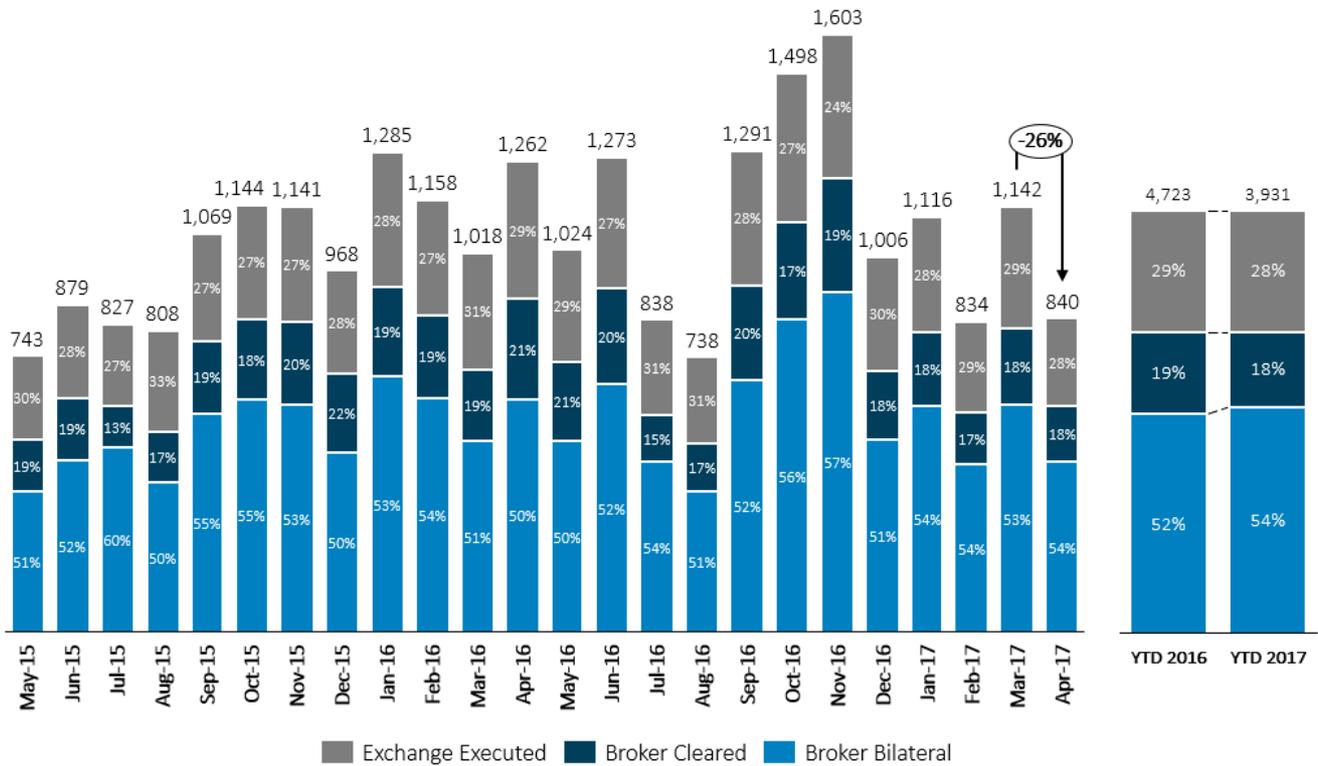
German Power & Other Power Chart



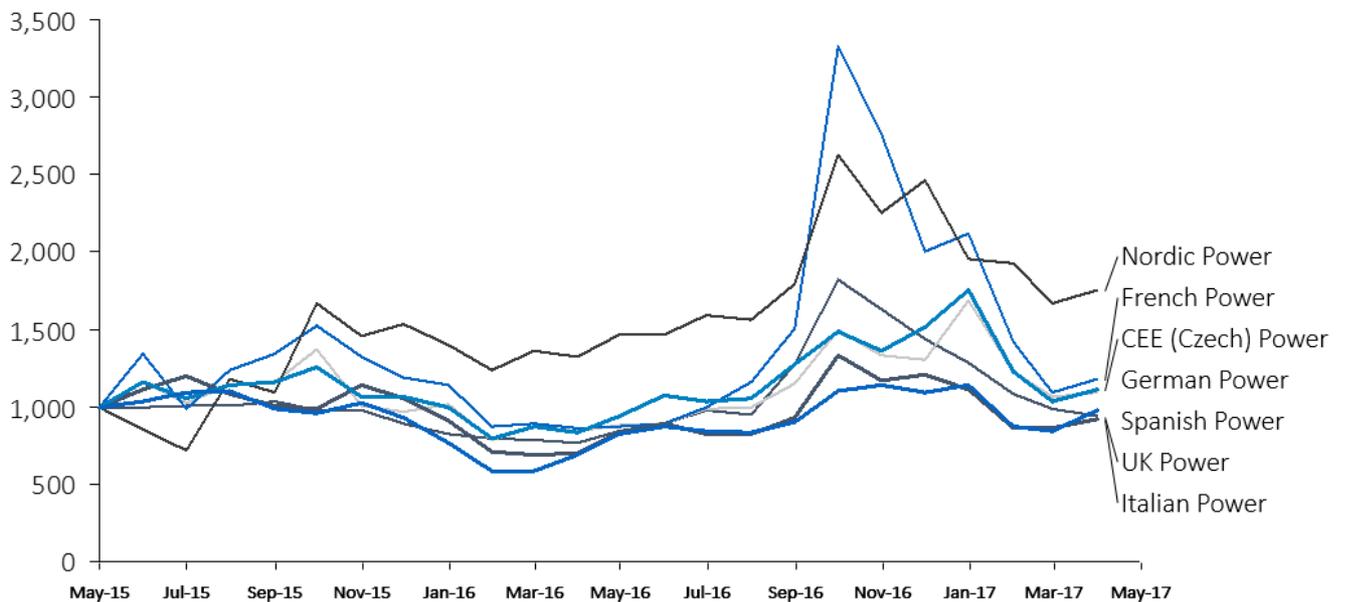
Other Power Chart



Broker Bilateral / Broker Cleared / Exchange Executed chart



Price Indexation Chart



Prices rebased to 1,000 May 2015

Data Sources

OTC brokers data

LEBA www.leba.org.uk

Exchange data

APX-ENDEX Data source Jan 2011 – Oct 2013, TTF futures data only; source no longer available

Borsa Italiana S.p.A. <http://www.borsaitaliana.it/>

CME <http://www.cmegroup.com>

EEX <http://www.eex.com/>

ICE www.theice.com

NASDAQ OMX www.nasdaqomxcommodities.com

BMEClearing <http://www.meff.es>

OMIP <http://www.omip.pt>

CEGH <http://www.cegh.at>

Nord Pool Spot <http://www.nordpoolspot.com>

PolPX Terms of use of PolPX data are available on <http://www.tge.pl>

GME <http://www.mercatoelettrico.org>

Bluenext Data source Jan 2011 – Nov 2012; source no longer available

Clearing house data

LCH www.lchclearnet.com

Trayport Analysis Team

Andrew McSherry, CFA

Analysis Team Lead

Trayport Limited

analysisteam@trayport.com

(020) 7960 5500

(020) 7960 5823

David Seager

Market and Financial Analyst

Trayport Limited

analysisteam@trayport.com

(020) 7960 5500

Luis Urbina

Data Engineer

Trayport Limited

analysisteam@trayport.com

(020) 7960 5500

Chris Smith

Commercial Support Administrator

Trayport Limited

analysisteam@trayport.com

(020) 7960 5500