KPMG

European Power & Utilities Report

KPMG Global Energy Institute

—

Q4 2017

Contents

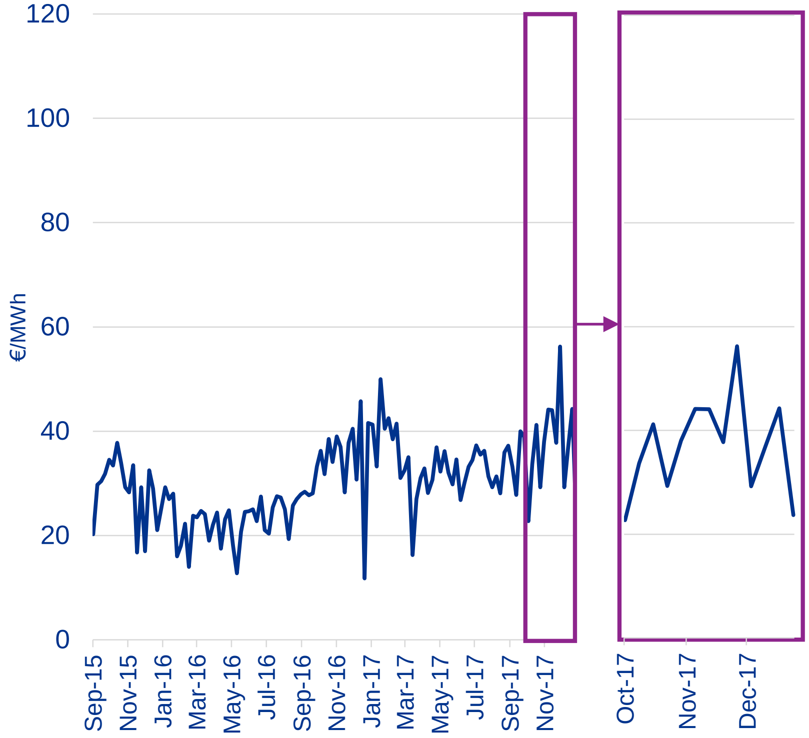
Price and margins overview

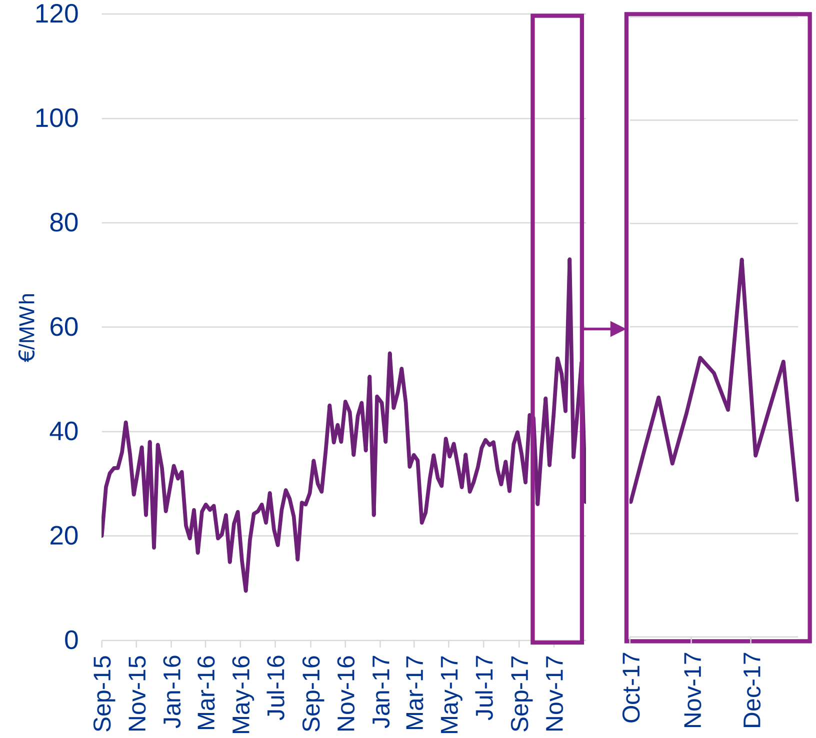
Electricity prices	Prices across continental Europe peaked in late November due to cold, dry and low wind weather conditions, driving up peak-load differentials. This situation reversed during December, bringing prices down to September levels. As a consequence, average Q4 prices were significantly above Q3. UK electricity prices, less dependent on renewables, experienced continuous increase in the quarter following the upward trend of natural gas.
Oil prices	Both Brent and WTI oil prices continued the upward trend started during the Q3, reaching at the end of the quarter US$64 and US$58/bbl respectively (up from US$58 and US$52/bbl in October). Brent and WTI oil prices initiated an upward trend during the quarter, reaching US$55/bbl and US$50/bbl in September respectively (up from US$47/bbl and US$45/bbl in June).
Gas prices	While Henry Hub average prices during the quarter fell by 2.1 percent (reaching US$2.8/MMBTU at the end of December), Both EU border and NBP prices increased (17 percent and 25 percent, respectively).
Coal prices	Both Australian and Colombian coal prices increased during Q4 2017. Australian coal led this trend and reached an average price of US$99/mt in Q4 (5.6 percent above the previous quarter). South African coal average quarterly prices fell by 2.1 percent in Q4 compared to Q3.
Carbon prices	Carbon prices continued to rise during the quarter, reaching EUR8.2/T at the end of December. Average quarterly carbon price was up 27 percent vs. Q3.
Dark/spark spreads	Dark and spark spreads experienced strong volatility in continental Europe, with high peaks in late November as electricity prices decoupled from gas and coal. The situation reversed by year end, bringing spreads back to negative values. The UK was not affected by this trend as spreads remained at close to zero values during the quarter.

Electricity price evolution

Germany

Base load	Peak load



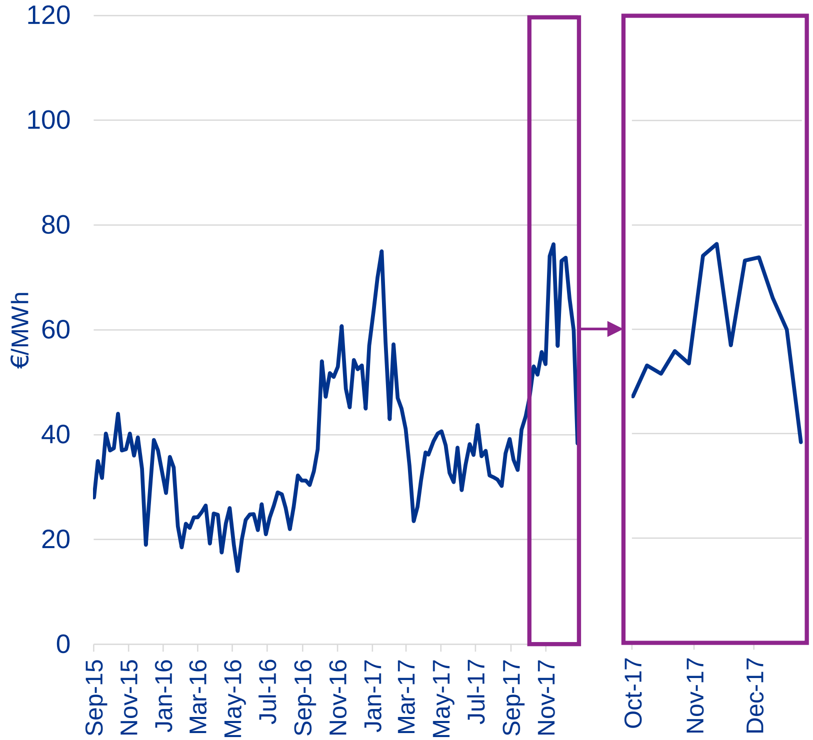


Source: Bloomberg; 2018.

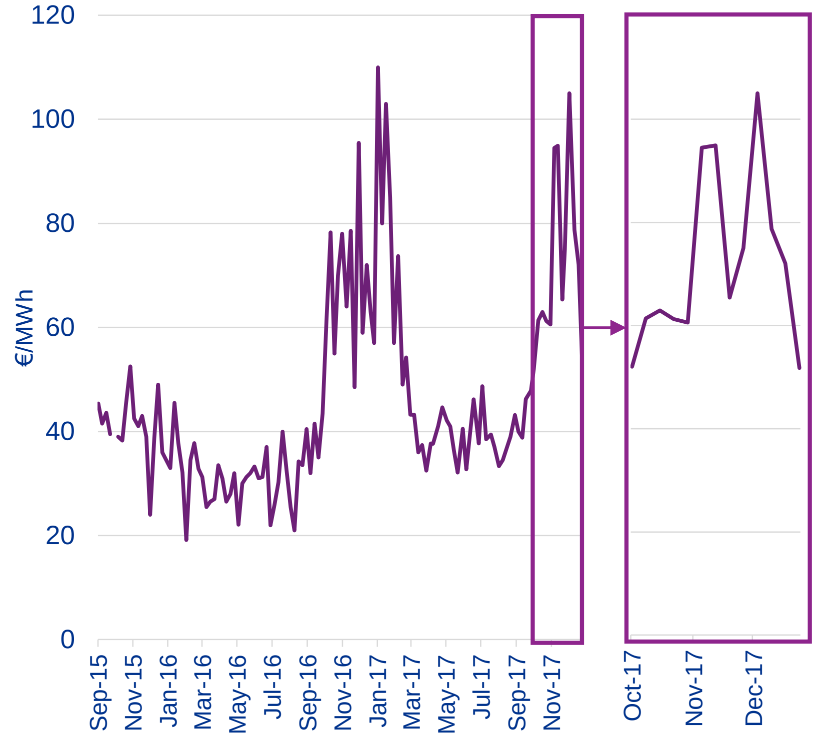
Electricity price evolution

France

Base load



Peak load



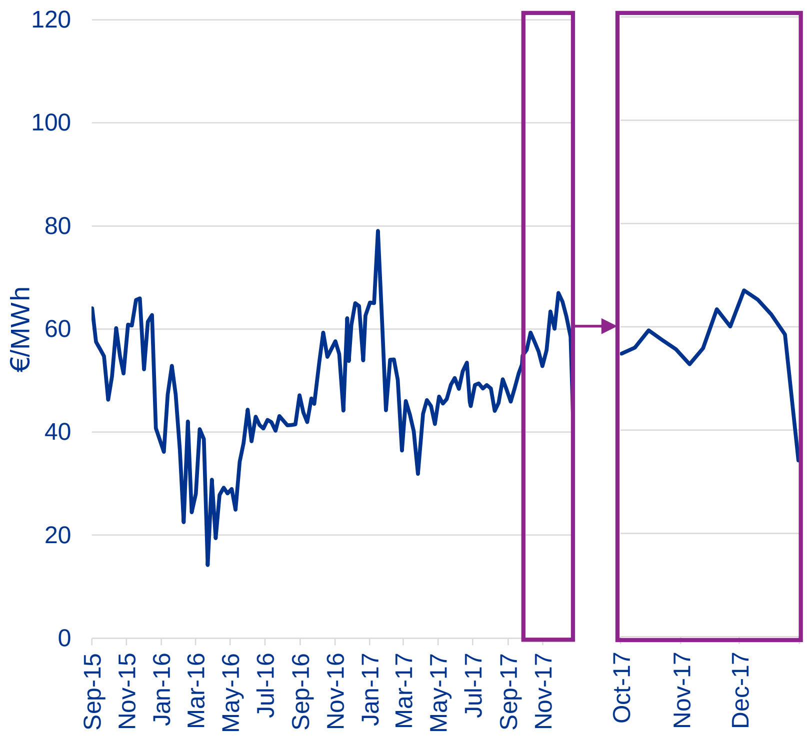
Source: Bloomberg; 2018.

Price and margins

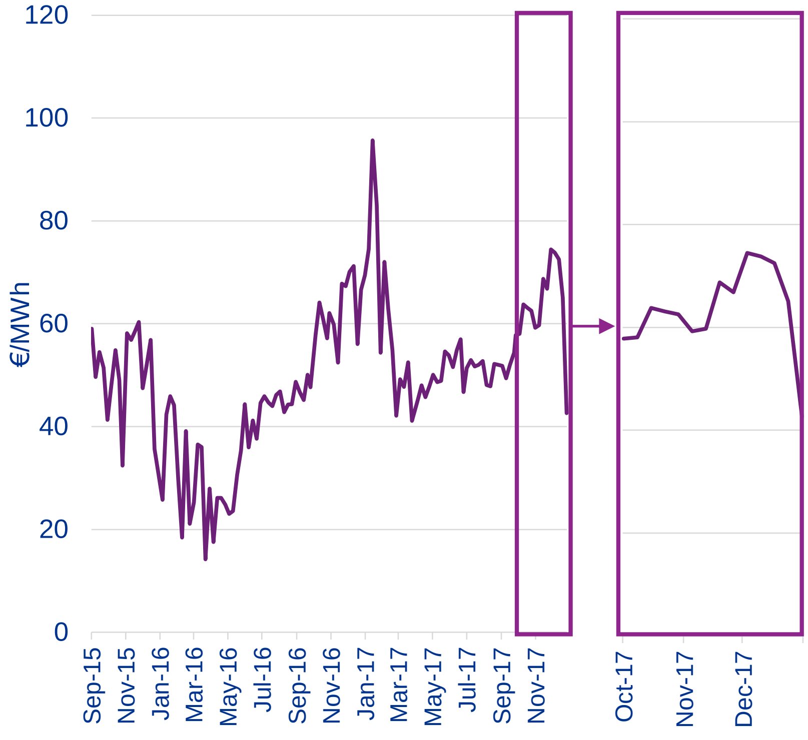
Electricity price evolution

Spain

Base load



Peak load

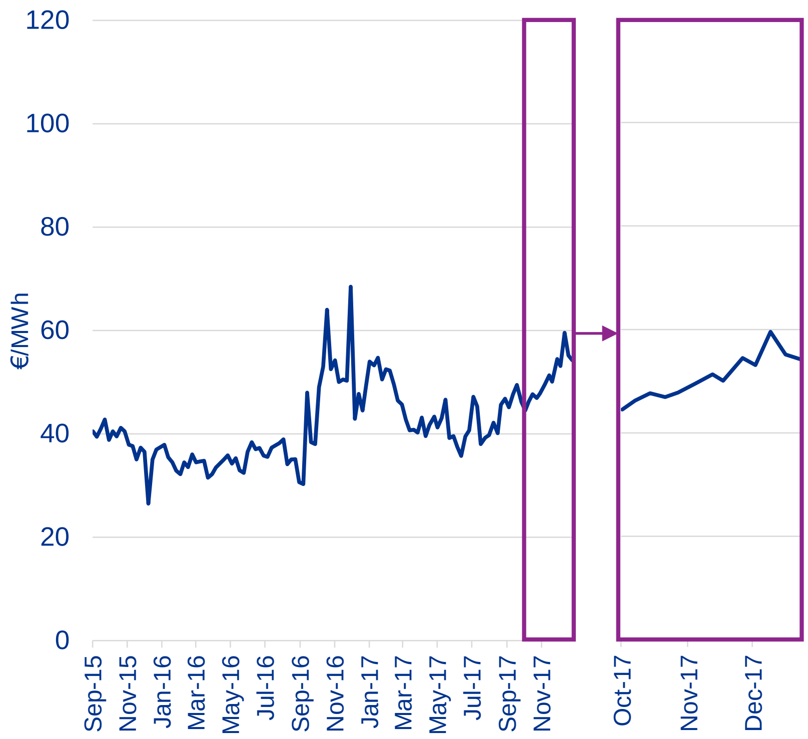


Source: Bloomberg; 2018.

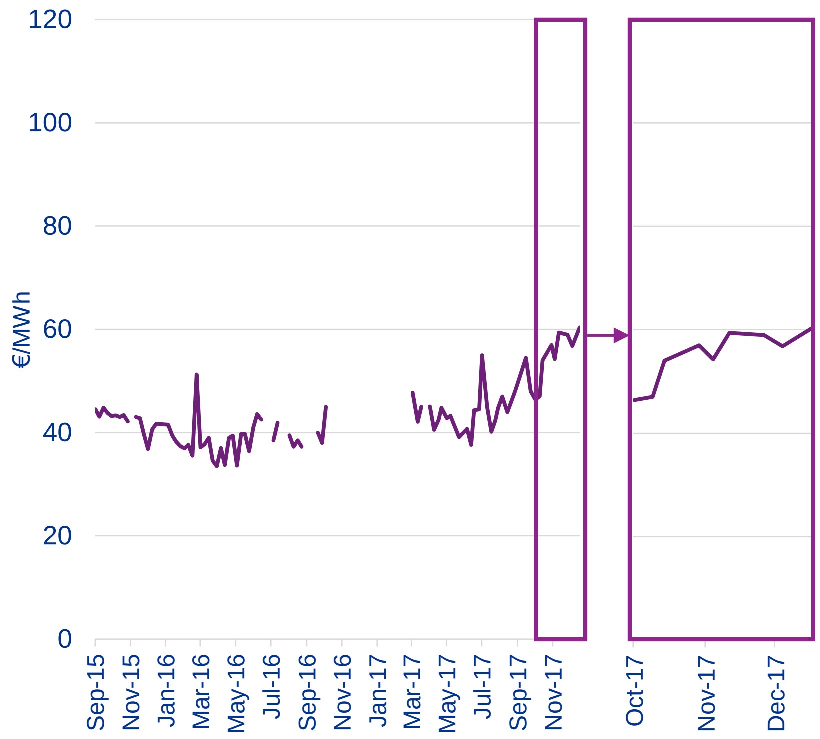
Electricity price evolution

UK

Base load



Peak load [1]



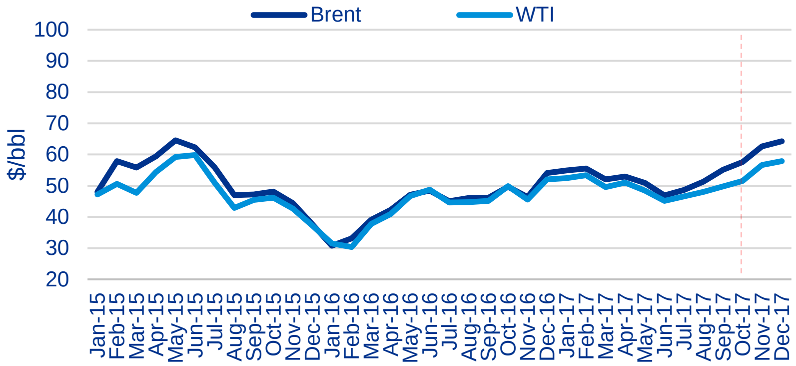
[1] Due to lack of information. the line reflecting peak load prices in 2016 and 2017 is incomplete.

Source: Bloomberg; 2018.

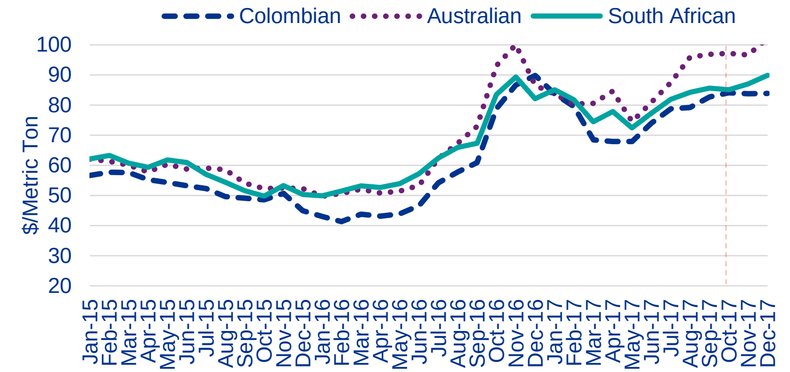
Price and margins

Fuel price evolution

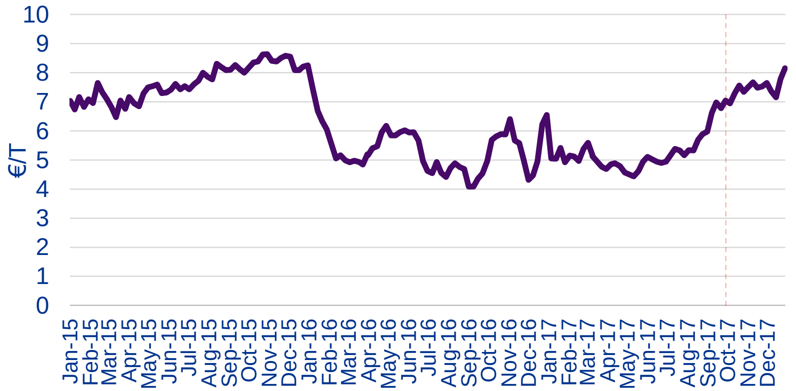
Crude oil



Coal

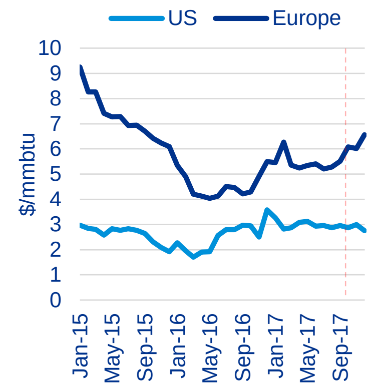


Carbon price — EU ETS

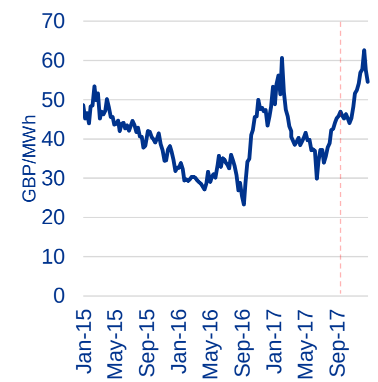


Gas prices

US (H.Hub) and EU (border)



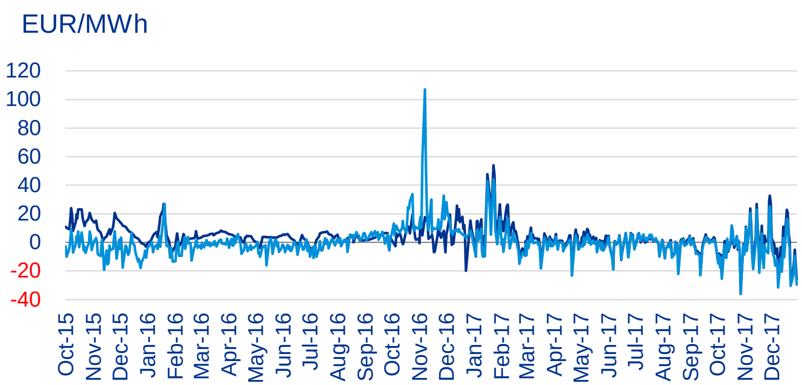
NBP



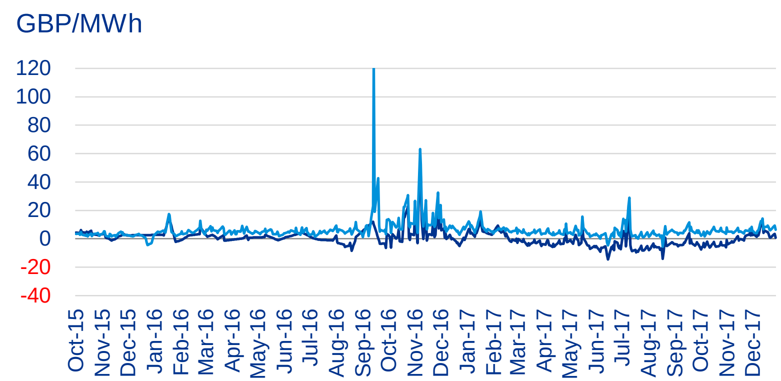
Source: World Bank/Bloomberg; 2018.

Clean dark and spark spreads

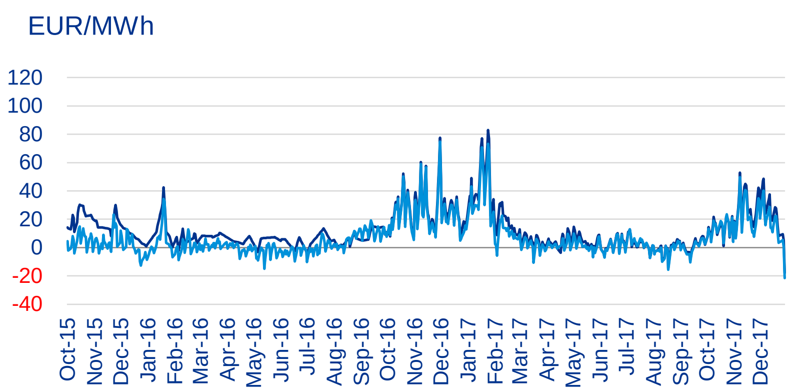
Germany



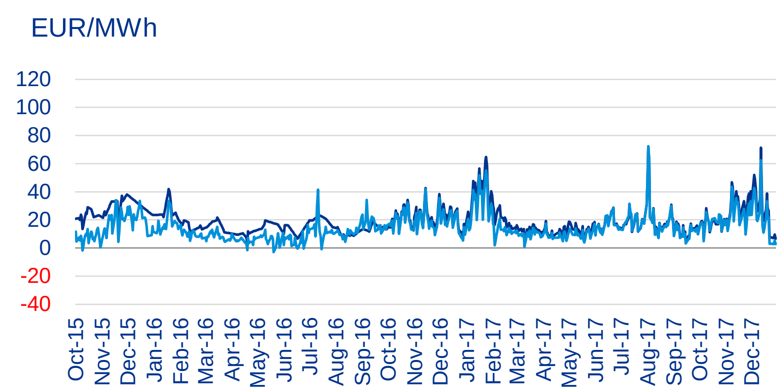
UK



France



Italy



Clean dark spread   Clean spark spread

Source: Bloomberg; 2018.

Regulatory overview

EU	A new regulation aimed at improving the security of gas supply in the EU entered into force on 1 November. The European Commission also announced that it is considering to amend the existing Gas Directive (2009/73/EC) with the aim of extending the common EU gas rules to all import pipelines.
France	Law 2016-1839-1839 was enacted, ruling that no more research permits and exploitation concessions will be granted to both traditional hydrocarbons, as well as to shale oil and gas. The French parliament issued a legislative empowerment to the government to improve the granting of off-shore concessions. The legal maximum delay would be decreased to a maximum of 7 years, down from a current average of 10 years.
Germany	On 22 November 2017, the Federal Network Agency announced the bid results for third auction for Onshore Wind Energy which took place on 2 November 2017 and was characterized by a 10 percent drop of the award prices in comparison to previous rounds. In the auction procedure, the Federal Network Agency awarded 61 bids with 1,000.4 MW. The average award price was EUR3.4ct/kWh.
Italy	The government has launched the National Electricity Strategy (SEN). Among the guidelines of the document there is the goal of renewables to 28 percent of total consumption by 2030 and 55 percent of electricity consumption, arriving in 2025 zero coal in the production of electricity.
Nordics	In 2017, 43.4 percent of the entire Danish electricity consumption was generated from wind energy. The Danish wind energy industry has strongly contributed to a development where offshore wind is now becoming more competitive. This has resulted in a subsidy-free outlook to coming offshore wind farm tenders from regimes in the region.

Regulatory overview

Portugal	The Secretary of State for Energy has determined the discount equivalent to 33.8 percent, to be applied in access tariffs to electricity networks, applicable as from 1 January 2018. The Secretary of State for Energy also declared the partial invalidity of Order No. 11566-A/2015, determining that it is not allowed to include the impact of CESE and Social Tariff in the UGS tariff.
Spain	CNMC proposed various measures for improving the liquidity of the market (e.g. development of a futures market), and it also suggested that the dominant players (Gas Natura and Endesa) act as market makers. The Ministry of Energy, Tourism and Digital Agenda followed these suggestions by issuing a resolution which establishes the conditions that apply to the dominant players in the market for natural gas which are obliged to assume the role of market makers.
UK	The Dept. of Business, Energy and Industrial Strategy released its Clean Growth Strategy, outlining the plans to meet the Carbon Budgets to 2032. The Autumn Budget confirmed the continuation of the carbon price into the 2020s at a similar level to today, re-confirmed the GBP557 million of allocated funding for further Contract for Difference (CfD) auctions for renewables, introduced a new ‘Control for Low Carbon Levies’ framework and announced GBP400 million of funding to support electric charging infrastructure A Tariff Cap Bill was issued in October 2017; designed to enable Ofgem to implement an absolute price cap on standard variable tariffs.
US	The Secretary of Energy issued a statement in relation to the Regulatory Review Report published by the Department of Energy (DOE) pointing out the main hurdles to domestic energy development and use, and offered recommendations addressing the former. These recommendations entailed: streamlining natural gas exports and reviewing the national laboratory policies, the National Environmental Policy Act (NEPA) and the DOE Appliance Standards Program.

Links to new key regulation

News

EU

A new regulation aimed at improving the security of gas supply in the EU entered into force on 1 November. The new regulation goes further than the previous one in requiring the member countries to work together in regional groups to assess the potential for disruption to their gas supplies and agree on joint actions to prevent and/or mitigate the consequences.

Link I

The European Commission approved the Spanish support scheme for electricity generation from renewable sources. The Commission stated that the auction scheme was in line with the EU's Guidelines on State Aid for Environmental Protection while preserving competitive behavior on the market.

Link II

The European Commission announced that it is considering to amend the existing Gas Directive (2009/73/EC) with the aim of extending the common EU gas rules to all import pipelines. This will ensure that all major pipelines entering the EU comply with EU rules, and operate under the same degree of transparency, accessibility and efficiency.

Link III

The latest ACER-CEER Market Monitoring Report (MMR), shows that for electricity wholesale markets the limited amount of cross-zonal capacity made available for trading by TSOs is one of the most significant barriers to further market integration in Europe. Regarding hub functioning and price convergence in gas markets, there is substantial geographical heterogeneity.

Link IV

Links to new key regulation

France

News

Research and exploitation of hydrocarbons in France

Law 2016-1839-1839 ‘Ending research and exploitation of hydrocarbons, and other topics on energy and environment.’

From the December 2017 Law enactment, no more research permits and exploitation concessions will be granted.

For existing concessions (63 in France) exploitation will be authorized only until 2040; for concessions which profitability would only be reached beyond 2040, exploitation will cease immediately after break-even.

The law applies to both traditional hydrocarbons, as well as to shale oil and gas.

Link I

Wind farm regulation in France

The French parliament issued a legislative empowerment to the government to improve the granting of off-shore concessions. The legal maximum delay would be decreased to a maximum of 7 years, down from a current average of 10 years. A winning bidder for a concession would be automatically granted all necessary administrative authorizations, those latter being the current barrier to the market.

Link II

Links to new key regulation

Germany

News

On 23 December 2017 the Federal Government decided on the amendment of the Electricity Network Access Regulation (StromNZV). The amendment aims that the Federal German power bid zone can not be decided unilaterally by the Transmission System Operators (Übertragungsnetzbetreiber) but that such decision is to be made within the European processes provided for this purpose. Size and distribution of the power bid zone determine the market area and thus electricity demand and electricity supply, from which the wholesale electricity prices result. Uniform conditions for network access, power generation and electricity procurement ensure that the wholesale price is the same throughout Germany.

Link I

On 22 November 2017 the Federal Network Agency (Bundesnetzagentur) announced the bid results for third auction for Onshore Wind Energy which took place on 2 November 2017 and was characterized by a 10 percent drop of the award prices in comparison to previous rounds. In the auction procedure, the Federal Network Agency awarded 61 bids with 1,000.4 MW. The average award price was EUR3.4 ct/kWh. The highest bid accepted, which was still awarded, was EUR3.84 ct/kWh. The Federal Network Agency announced on 7 December 2017 that a third auction will be commenced. Bids for this auction may be submitted by 1 February 2018. The volume which will be awarded is 700 MW with a starting bidding price of EUR6.30 ct /kWh.

Link II

Links to new key regulation

Germany

News

On 20 November 2017, the European Commission approved the subsidization of tenants' electricity. After the German Parliament has already decided on the funding, the funding can commence. The subsidization under the Tenant Electricity Law (Mieterstromgesetz), which entered into force on 25 July 2017, was subject to the approval of the European Commission. A prerequisite for the tenant electricity subsidy is that the electricity will be generated in a photovoltaic electricity power unit on the roof of a residential building and delivered to the final consumers (especially tenants) in this residential building or in a direct spatial connection with this building. Electricity not consumed by the tenants can be fed-in to the public network or cached.

Link III

On 19 December 2017, the European Commission approved that the total exemption of existing self-supply plants from the EEG levy tax is in uniform with the European state aid law. For example, after modernization of existing plants, only 20 percent of the EEG levy tax will be payable; furthermore if coal based plants convert to more climate-friendly energy sources, it will even be able to completely waive the EEG levy tax. In addition, the Commission also approved the levy tax for new installations generating electricity from renewable energies.

Link IV

Links to new key regulation

News

Italy

The Ministry of the Environment published the final document towards a model of circular economy for Italy. The scope of the document is to define the general framework of the circular economy and the strategic positioning of Italy on the topic.

The government has launched the National Electricity Strategy (SEN). Among the guidelines of the document there is the goal of renewables to 28 percent of total consumption by 2030 and 55 percent of electricity consumption, arriving in 2025 zero coal in the production of electricity.

Resolution 704/2017/R/idr, the authority initiates a procedure for the definition of the rules and procedures for the 2 year update required by Article 8 of Resolution 664/2015 /R/idr with the purposes of the recalculation of the integrated water service tariffs for the years 2018 and 2019.

Resolution 742/2017/R/ com initiates the procedure for the revision of accounting separation regulations (unbundling) for the electricity, gas, water and district heating sectors.

Links to new key regulation

Nordics

News

In 2017, 43.4 percent of the entire Danish electricity consumption was generated from wind energy. Building on a long legacy of wind power development, the Danish wind energy industry has strongly contributed to a development where offshore wind now is becoming more and more competitive with fossil energy resources (coal/gas). This has resulted in a subsidy-free outlook to coming offshore wind farm tenders from regimes in the region.

Link I

Ørsted faces legal action after changing name from DONG. Mr. Ørsted's (the physicist who discovered electromagnetism) descendants have accused the group of breaching Danish corporate law by using a family name. Soren Peter Ørsted told Danish newspaper Berlingske that the name change was a 'provocation' and insulting to scientist Ørsted who had always made an effort to stay independent and out of commercial business.

Link II

Norway's Wealth Fund considers divesting from oil shares. Although it is Europe's top oil producer, Norway is also a leader in the movement to control climate change. With hefty incentives, roughly 40 percent of cars bought in Norway last year were electric, and the government plans to phase out diesel- and gasoline-fuelled cars in the next decade.

The Norwegian Central Bank said in a letter to the Finance Ministry that the nation needed to diversify its investments. The fund, with Parliament's approval, decided in 2015 to begin selling off its investments in mining companies and utilities that depend on burning coal.

Link III

Links to new key regulation

Portugal

News

The Secretary of State for Energy has determined the discount equivalent to 33.8 percent, to be applied in access tariffs to electricity networks, applicable as from 1 January 2018.

Link I

The Secretary of State for Energy declared the partial invalidity of Order No. 11566-A/2015, determining that it is not allowed to include the impact of CESE and Social Tariff in the Global Using System (UGS) tariff and request the Energy Services Regulatory Authority to consider in the calculation of the next year's UGS tariff, the recovery of the amounts unduly included in previous years.

Link II

A new legal regime was established to allow more information and better conditions for an informed and complete choice of electricity price offers in Portugal, namely (i) is given the option to consumers of choosing between all existing offers, both liberalized and regulated market tariffs; (ii) the commercial companies will have to inform in a visible place the value of the difference between the market price and the regulated tariff.

Link III

Links to new key regulation

Portugal

News

Energy Secretary of State established the parameters for the calculation of the amounts paid by each power plant covered by Decree-Law no. 74/2013.

Link IV

Ordinance no. 364-A/2017, extended the transitional period for existing customers with regulated tariffs until 31 December 2020. During the transitional period, consumers who choose to remain in the regulated market will continue to be supplied by the supplier of last resort at a transitional rate fixed by the Energy Services Regulatory Authority (ERSE).

Link V

The over costs with the acquisition of special regime generation are reflected in the regulated revenues of the regulated companies for 5 years. The Energy Secretary of State establishes the remuneration parameters for the 5 years period of the 2018 special regime generations over costs.

Link VI

The Energy Services Regulatory Authority has approved new legislation, namely: Tariff Code (RT), Quality of Service Code for the Electricity Sector and Natural Gas Sector (RQS) and has introduced modifications to the Access to Networks and Interconnections Code (RARI), Networks Operation Code (ROR) and Commercial Relations Code for the Electric Sector (RRC).

Link VII | Link VIII | Link IX | Link X | Link XI

Links to new key regulation

Portugal

News

The Energy Services Regulatory Authority approved the values of tariffs and regulated prices applicable in mainland Portugal and in the Autonomous Regions of the Azores and Madeira to be in applied in 2018.

Link XII

Law no. 113/2017 and Law no. 114/2017 have been issued, which approve the Great Options of the Plan for 2018 and the State Budget for 2018, which includes the following measures:

Coal, lignite and coke peat no longer benefit from excise duty on oil and energetic products (‘ISP’) exemption and a gradual taxation until 2022 shall apply (2018: these products will be taxed at a rate of 10 percent of the ISP and with a 10 percent of the addition rate on CO_2 emissions; 2019: 25 percent rate; 2020: 50 percent rate; 2021: 75 percent rate and 2022: 100 percent).

The state surcharge rate applicable to taxable income above 35 million has increased from 7 percent to 9 percent.

The special contribution of the energy sector remains in force.

Link XIII

Link XIV

Links to new key regulation

Spain

News

The National Commission on Markets and Competition (CNMC) published a report regarding the proposed Ministerial Order which modifies the interuptibility of the demand for electricity. The modification of the Ministerial Order was a result of an investigation by the European Commission related to payments made to Spanish companies for providing demand interuptibility services. CNMC points out that the auctions used for assigning interuptibility services are complex, costly, and give a favorable treatment to large players.

Link I

CNMC published a report regarding the functioning of the organized natural gas market (MIBGAS) during 2016. In the first year of existence of MIBGAS, the traded volume barely reached 2 percent of the national gas demand. In the published report, the CNMC proposed various measures for improving the liquidity of the market (e.g. development of a futures market), and it also suggested that the dominant players (Gas Natura and Endesa) act as market makers.

Link II

On 11 December 2017, The Official Journal of the State (BOE) published the resolution of the Ministry of Energy, Tourism and Digital Agenda which establishes the conditions that apply to the dominant players in the market for natural gas which are obliged to assume the role of market makers.

Link III Link IV

On 22 November 2017, BOE published the Circular 3/2017 elaborated by CNMC which stipulates the capacity assignment mechanisms to be applied to the international gas pipeline connections in Spain.

Link V

The CNMC published two reports regarding the tolls charged for access to the electricity and gas networks. The report states that in the electricity sector the collected tolls for 2017 and 2018 are sufficient to cover the incurred costs whereas in the gas sector there would be a deficit in 2017, but a surplus is expected in 2018.

Link VI

Links to new key regulation

UK

News

Clean Growth Strategy (October 2017)

— The Department of Business, Energy and Industrial Strategy (BEIS) released its Clean Growth Strategy, outlining Government's plans to meet the legislated Carbon Budgets to 2032. This included developments across power, heat, transport and energy efficiency. Despite the new measures which were announced to incentivize additional decarbonization, the UK is unlikely to meet its fourth and fifth carbon budgets without a flexible accounting policy.

Link I

Autumn Budget 2017 (November 2017)

— The Autumn Budget confirmed the continuation of the carbon price into the 2020s at a similar level to today, highlighting its confidence in the 'total carbon price' of GBP18/tonne of CO2 (i.e. the UK Carbon Price Support plus the price of carbon in the EU Emissions Trading Scheme) which they see as 'set at the right level'.

— The budget re-confirmed the GBP557 million of allocated funding for further Contract for Difference (CfD) auctions for renewables, with the next auction expected to take place in the Spring of 2019.

— The Budget also introduced a new 'Control for Low Carbon Levies' framework, which replaces the existing Levy Control Framework, and is to be used to control total spend on subsidies for low carbon technologies. The new framework makes clear that that no new levies will be issued until the total burden of existing levies is falling in real terms, implying no new CfDs before 2025 beyond the 'up to' GBP557 million already allocated.

— The government also announced GBP400 million of funding to support electric charging infrastructure, plus GBP100 million for plug-in car grants to help subsidise the cost of battery-electric vehicles, and GBP40 million into R&D for EV charging. The Chancellor of the Exchequer backed autonomous vehicles, saying that "our future vehicles will be driverless… but electric first".

Link II

Government plans for a market wide price cap (ongoing)

— The Domestic Gas and Electricity (Tariff Cap) Bill was issued in October 2017; this is designed to enable Ofgem to implement an absolute price cap on standard variable tariffs. The new price cap is expected to be temporary and to last until the end of 2020, with an option for extension until the end 2023. Royal Assent is not expected until the end of 2018 at the earliest. This new legislation would potentially benefit around 12 million households.

— Ofgem are also introducing price cap for 1 million vulnerable customers from February 2018 (for those already on the Warm Home Discount), and are looking to extend this in future.

Link III

Links to new key regulation

UK

News

National Grid's product roadmap for frequency response and reserve (December 2017)

— *System Needs* and *Product Strategy* was published by National Grid in June 2017; it aimed to consult on ways to remove some of the current barriers in place, simplify the product suite available to participants.

— The product roadmap for frequency response and reserve has now been published; this summarizes how the product suite for these areas are to be rationalized, the products designed, and the anticipated timeline for their auctions.

Link IV

Battery storage de-rating factors (December 2017) and upcoming capacity market auctions (2018)

— Following the consultation in summer 2017 for battery storage de-rating factors, government and National Grid published the response to the consultation and updated de-rating factors to take account of the time duration of different batteries.

— The factors range from 18 percent (for batteries with a duration of 30 minutes) to 96.11 percent (duration of over 4 hours, based on the historical availability of pumped hydro).

— The Capacity Market T-1 auction (for delivery in 2018/19) is due to take place on 30 January, and the T-4 auction (for delivery in 2021/22) on 6 February.

Link V, Link VI

Brexit and energy — Phase 1 agreement (December 2017)

— A Phase 1 agreement was achieved in December 2017; this addressed the need to protect the rights of citizens in the EU and UK, the framework for addressing the unique circumstances in Northern Ireland, and the financial settlement.

— For the energy sector, both parties agreed on the need for 'regulatory alignment' between Northern Ireland and the Republic of Ireland, implying continuation of harmonized rules for gas and electricity trading, although much depends on next round of talks, which will focus on a new trade deal.

Link VII

Links to new key regulation

UK

News

Government response to unabated coal closure consultation (January 2018)

— The government confirmed its intention to ensure the end of unabated coal generation in Great Britain by 2025, a proposal initially outlined in November 2015.

— In response to the consultation, the government stated that emission limits of 450g of CO_2 per kWh will apply as part of the ongoing strategy to discourage coal generation; this is broadly in line with the existing Emissions Performance Standards that apply to new build fossil fuel plant (although the latter is based on annual emissions, while coal will be subject to instantaneous limits).

— The government is considering legislation to introduce the emissions intensity limit from 1 October 2025, preventing unabated coal from entering capacity market auctions held for the 2025/26 delivery year and beyond. Government expects the capacity market to be able to replace coal capacity coming offline, although retains the power to suspend or amend arrangements, in the unlikely event that coal capacity is necessary to maintain security of supply.

Link VIII

Cost of energy review (October 2017/ongoing)

— Professor Dieter Helm’s independent review into the cost of energy that energy bills are much higher than they need to be — gas prices and renewable costs have fallen yet bills have risen.

— Key findings included taking a more detailed look at sectors outside of power, for their impact on carbon emissions, assessing the framework for energy policy, which Helm views as conducive to high energy costs, and finding better ways of shifting cost burdens from consumers to the market.

— In response to the review BEIS has commissioned a Call for Evidence seeking views from businesses, consumer groups, academics and other stakeholders.

Link IX

Links to new key regulation

News

USA

The Federal Energy Regulatory Commission (FERC) issued a new policy on establishing licensing terms for hydroelectric projects located at non-federal dams with the aim of providing more certainty and efficiency for stakeholders engaging in the regulatory process. The new policy establishes a 40 year default license term for original and new licenses under the commission's jurisdiction.

Link I

The Federal Energy Regulatory Commission (FERC) proposed a revision of the Critical Infrastructure Protection (CIP) Reliability Standard to improve mandatory reporting of cyber security incidents, including incidents that might facilitate future attempts to harm reliable operation of the nation's electric system. This happened after the North American Electric Reliability Corp. (NERC) raised their concerns regarding the gap between the cyber security reporting requirements in place and the existing cyber-related threats.

Link II

The Federal Energy Regulatory Commission (FERC) will review its 1999 policies on certification of natural gas pipelines. These policies stipulate the criteria that the FERC uses when evaluating pipeline proposals.

Link III

The Secretary of Energy issued a statement in relation to the regulatory review report published by the Department of Energy (DOE) pointing out the main hurdles to domestic energy development and use, and offered recommendation addressing the former. These recommendations entailed: streamlining natural gas exports, and reviewing the national laboratory policies, the National Environmental Policy Act (NEPA) and the DOE Appliance Standards Program.

Link IV

Capital markets overview

Eurostoxx utilities	Eurostoxx Utilities index increased an average of 3.48 percent Q-o-Q. The Index gained 22.36 percent in the last 12 months.
Best performance	EDF, Fortum and CEZ registered the best performance in Q4 2017 in terms of share price, in a quarter where half of the top 18 European players have experienced a positive Q-o-Q price evolution.
Valutation levels	Valuation levels in the sector averaged at 8.0 EV/EBITDA in Q4 2017; 1.3 percent higher than the previous quarter. Wide differences persist in EBITDA multiples, with Enagas, Fortum, Snam, Centrica and Iberdrola receiving highest valuations, trading above x11 EV/EBITDA.
Net debt ratios	Net debt ratios averaged at 3.4 x EBITDA in Q4 2017, 8.7 percent higher than the figure registered in Q3 2017 (3.1 x EBITDA).
Credit ratings	S&P made the only changes in credit ratings in the European sector during the quarter with the upgrades of Snam, Enel and Endesa to BBB+.

Share price evolution: overview

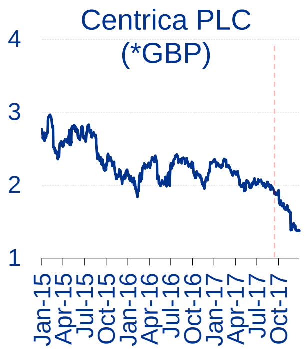
Company	Q4 2015	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Last quarter Q4 2017/ Q3 2017	Last year Q4 2017/ Q4 2017
EDF	15.19	10.94	11.29	11.22	10.12	8.85	8.86	9.25	10.93	18.20%	8.02%
Fortum Oyj	13.79	12.88	13.14	14.26	14.48	14.59	13.84	14.88	17.57	18.12%	21.36%
CEZ as (*CZK)	467.82	391.38	428.52	436.75	435.84	435.62	437.61	413.66	477.50	15.43%	9.56%
E.ON SE	9	8.62	8.65	8.33	6.45	7.14	7.74	9.01	9.79	8.60%	51.79%
Enel SpA	4.06	3.72	3.93	3.99	3.88	4.10	4.62	5.00	5.29	5.88%	36.34%
Snam SpA	4.71	5.02	5.21	5.06	4.09	3.81	4.11	4.03	4.23	5.00%	3.45%
ENGIE SA (GDF Suez S.A.)	15.85	14.19	13.79	14.41	12.4	11.88	13.48	13.93	14.53	4.31%	17.20%
RWE AG	11.81	11.28	12.21	15.06	12.7	13.28	17.01	19.26	19.98	3.73%	57.31%
Enagás SA	27.1	25.88	26.7	26.82	24.61	23.43	25.37	24.14	24.19	0.23%	-1.69%
EDP Renováveis	6.46	6.72	6.72	7.04	6.31	6.13	6.98	6.92	6.92	-0.03%	9.69%
REE[1]	78.82	73.94	77.88	19.81	17.82	17.21	19.17	18.47	18.39	-0.42%	3.20%
Iberdrola SA	6.43	6.13	5.99	5.98	5.93	6.17	6.89	6.81	6.62	-2.75%	11.69%
EDP	3.27	3.01	2.97	2.97	2.84	2.84	3.13	3.12	2.97	-4.92%	4.50%
SSE Plc (*GBP)	14.98	14.26	15.1	15.5	15.23	15.19	14.71	14.27	13.54	-5.14%	-11.11%
National Grid plc (*GBP)	9.23	9.58	9.9	10.82	9.83	9.63	10.74	9.52	8.98	-5.64%	-8.62%
Endesa SA	19.45	17.05	17.76	18.54	19.24	20.04	21.85	20.17	18.92	-6.19%	-1.64%
Gas Natural SDG SA	19.46	17	17.49	18.31	17.19	18.32	21.17	20.00	18.63	-6.89%	8.36%
Centrica plc (*GBP)	2.21	2.11	2.16	2.33	2.15	2.26	2.04	1.98	1.59	-20.12%	-26.26%
Eurostoxx Utilities	264	249.28	251.42	255.19	238.6	244.04	273.03	282.12	291.95	3.48%	22.36%

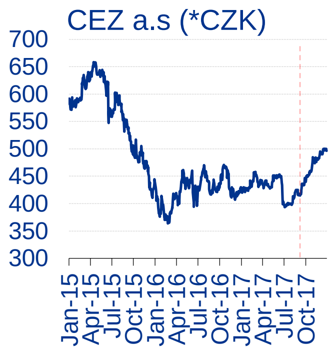
[1] On July 11th 2016, REE executed a 4-to-1 stock split. Values in Q3 2016 reflect that split.

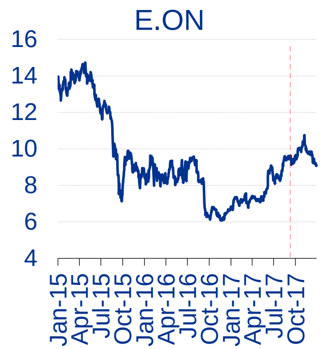
Source: Bloomberg; 2018.

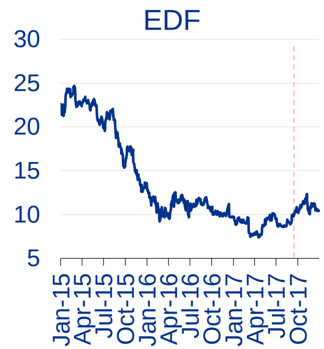
Capital markets

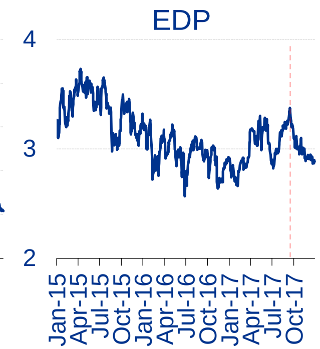
Share price evolution: individual stocks (1)

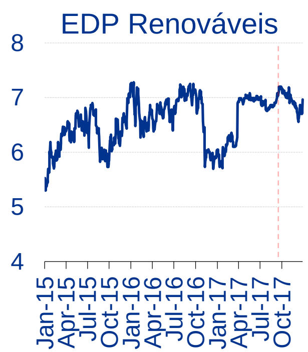


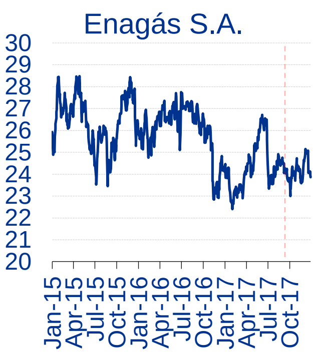


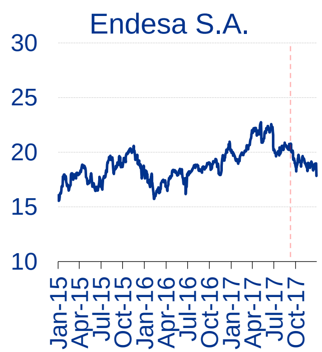


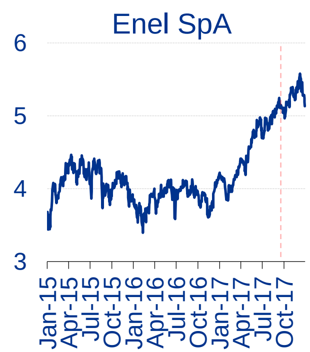


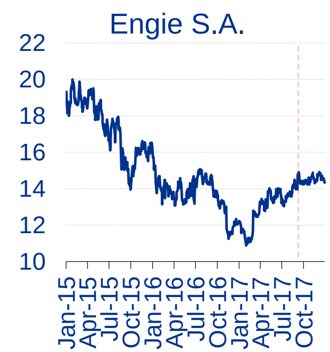






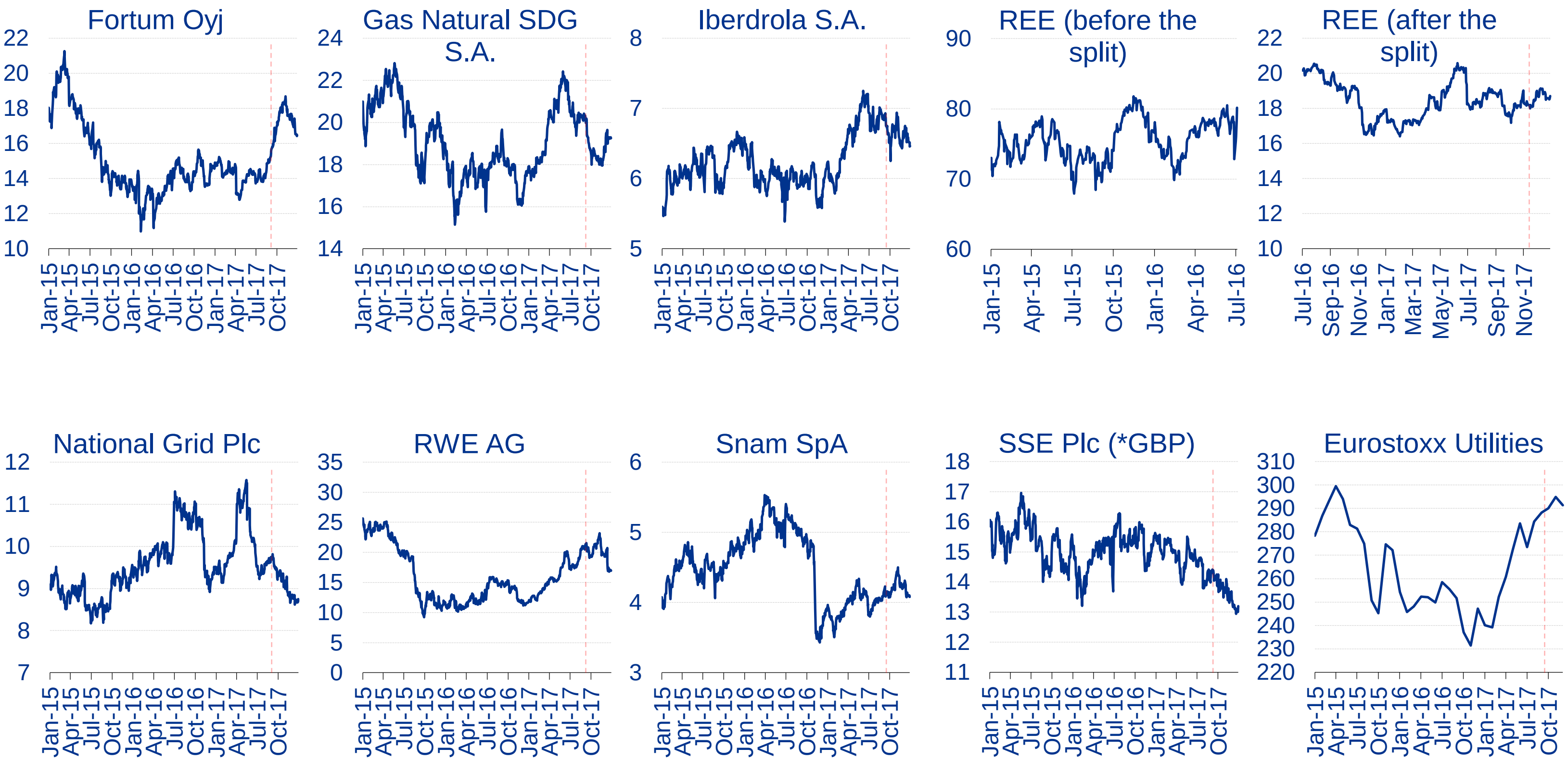






Source: Bloomberg; 2018.

Share price evolution: individual stocks (2)



Source: Bloomberg; 2018.

Relative valuation per company

	TEV (as of 31 Dec) **/EBITDA** (LTM)	**TEV (EUR million)** (as of 31 Dec)	**Market Capitalization (EUR million)** (as of 31 Dec)
Enagás, S.A.	13.4x	11,406.10	5,698.60
Fortum Oyj	12.6x	16,036.10	14,658.10
Snam S.p.A.	12.4x	25,438.00	13,932.00
Centrica plc	11.6x	13,131.90	8,615.60
Iberdrola, S.A.	11.5x	80,569.40	40,792.40
National Grid plc	10.8x	61,150.60	33,156.90
EDP — Energias de Portugal, S.A.	10.0x	31,006.40	10,486.80
Red Eléctrica Corporación, S.A.	9.9x	14,953.20	10,093.40
Gas Natural SDG, S.A.	9.1x	38,351.80	19,248.80
EDP Renováveis, S.A.	8.4x	10,596.40	6,077.40
SSE plc	8.2x	23,223.70	14,987.50
Enel SpA	8.0x	108,075.0	52,155.10
Endesa, S.A.	7.6x	23,958.00	18,904.00
ENGIE SA	6.8x	64,200.90	34,371.90
CEZ, a. s.	6.8x	14,700.50	10,399.70
E.ON SE	6.1x	31,741.40	19,699.40
RWE Aktiengesellschaft	5.4x	22,566.90	10,342.90
Electricité de France S.A.	4.8x	67,910.70	30,479.70
	Weighted average: 8.0	**659,017.10**	**354,100.20**

Source: S&P Capital IQ; 2018.

Leverage and credit ratings

	LTM net debt/ EBITDA	Rating S&P	S&P financial update	Rating moody's	Date	Rating fitch	Date
Enagás, S.A.	6,51	A-	19 Oct 17	Baa2	20 Dec 16	A-	19 Jun 17
Snam S.p.A.	5,62	**BBB+**	9 Nov 17	Baa1	12 Dec 16	BBB+	28 Sep 17
EDP — Energias de Portugal, S.A.	5,34	BBB-	9 Nov 17	Baa3	3 Apr 17	BBB-	14 Dec 17
National Grid plc	5,04	A-	10 Nov 17	Baa1	12 Dec 13	BBB	11 Oct 17
Iberdrola, S.A.	4,85	BBB+	15 Nov 17	Baa1	25 Apr 16	BBB+	25 Jul 17
Centrica plc	4,14	BBB+	2 Aug 7	Baa1	13 May 16	-	-
Gas Natural SDG, S.A	3,59	BBB	11 Nov 17	Baa2	8 Aug 17	BBB+	31 Oct 17
Red Eléctrica Corporación, S.A.	3,22	A-	4 Nov 17	-	-	A	18 Sep 17
SSE plc	3,11	A-	9 Nov 17	A3	3 Oct 16	BBB+	22 Sep 17
EDP Renováveis, S.A.	2,94	-	-	-	-	-	-
Enel SpA	2,82	**BBB+**	15 Nov 17	Baa2	12 Dec 16	BBB+	11 Oct 17
ENGIE SA	2,75	A-	30 Jul 17	A2	27 Apr 16	A	9 Oct 17
Electricité de France S.A.	2,29	A-	30 Jul 17	A3	28 Sep 16	A-	3 Aug 17
RWE Aktiengesellschaft	2,13	BBB-	15 Nov 17	Baa3	.30 Jun 17	BBB	11 Oct 17
E.ON SE	2,11	BBB	12 Nov 17	Baa2	16 May 17	BBB+	25 Aug 17
CEZ, a. s.	1,81	A-	12 Nov 17	Baa1	6 Apr 16	A-	22 Mar 17
Endesa, S.A.	1,56	**BBB+**	12 Nov 17	-	-	BBB+	11 Oct 17
Fortum OyJ	0.99	BBB+	27 Oct 17	Baa1	3 Oct 17	BBB+	28 Sep 17
Average:	**3.38**	**Mode: A-**		**Baa1**		**BBB+**	

Quarterly rating variation: **Upgrade** Unchanged **Downgrade**

Source: S&P Capital IQ/Moody's/Fitch; 2018.

Global M&A overview

Main trends	The last quarter continued to show a very active M&A market. The **total value of the top 10 deals exceeded EUR30 billion** with a broad diversification of subsector (oil, gas, infrastructure, renewables, water…) The **largest deals** during Q4 2017 targeted mostly **US companies** (five deals in the top 10).
Main transactions	Acquisition of **Rice Energy, Inc.**, a US-based natural gas exploration and production company by EQT Corporation (EUR6.875 million).
	The sale of **Veresen Inc**., a Canada-based owner and operator of energy infrastructure business to **Pembina Pipeline Corp** (EUR4.683 million).
	Purchase of 38.84 percent stake of **TerraForm Power, Inc.**, a US-based owner and operator of clean power generation assets serving utility, commercial and residential customers by **Brookfield Asset Management Inc.** (EUR4.013 million).
	Acquisition of Suez Water Technologies & Solutions, a US-based supplier of water and provider of waste water and process systems solutions by **Caisse de Depot et Placement du Quebec** (EUR3.2 million).
	The sale of a set of the North Sea oil and gas assets from Shell UK Limited to **Chrysaor Holdings Ltd** (EUR2.818 million).

Top 10 M&A operations in Q4 2017 by deal value (1)

Announced date	Target company	Target description	Target country	Bidder company	Bidder country	Seller company	Deal value EUR(m)
13 Nov 2017	Rice Energy, Inc.	US-based natural gas exploration and production company	US	EQT Corporation	US		6.875
2 Oct 2017	Veresen Inc.	Canada-based owner and operator of energy infrastructure business	Canada	Pembina Pipeline Corp	Canada		4.683
16 Oct 2017	TerraForm Power, Inc. (38.84 percent Stake)	US-based owner and operator of clean power generation assets serving utility, commercial and residential customers	US	Brookfield Asset Management Inc.	Canada	SunEdison, Inc.	4.013
2 Oct 2017	Suez Water Technologies & Solutions	US-based supplier of water and provider of waste water and process systems solutions	US	Caisse de Depot et Placement du Quebec; Suez	Canada; France	General Electric Company	3.2
1 Nov 2017	Shell UK Limited (North Sea assets)	UK-based oil and gas assets comprising Beryl, Bressay, Buzzard, Elgin-Franklin, Erskine, Everest, the Greater Armada cluster, J Block, Lomond, and a 10 percent stake in Schiehallion	UK	Chrysaor Holdings Limited	UK	Shell UK Limited	2.818

Source: Mergermarket; 2018.

Top 10 M&A operations in Q4 2017 by deal value (2)

Announced date	Target company	Target description	Target country	Bidder company	Bidder country	Seller company	Deal value EUR(m)
1 Nov 2017	Ørsted (Walney Extension 659 MW offshore wind farm project) (50 percent Stake)	UK-based Walney Extension 659 MW offshore wind farm project of Ørsted	UK	PKA A/S; PFA Pension Forsikringsaktieselskab AS	Denmark	Ørsted	2.274
31 Oct 2017	Holly Energy Partners LP (36.67 percent Stake)	US-based operator of refined product pipelines and distribution terminals	US	HollyFrontier Corporation	US		2.131
6 Oct 2017	Merey Sweeny LP; Dakota Access, LLC (25 percent Stake); Energy Transfer Crude Oil Company, LLC (25 percent Stake)	US-based company that owns and operates delayed Coker and related facilities; US-based JV between Energy Transfer Equity, Energy Transfer Partners, and Phillips 66. It is engaged in developing a pipeline to provide crude oil transportation service from point(s) of origin in the Bakken/Three Forks play in North Dakota to Patoka, Illinois; US-based JV between Energy Transfer Equity, Energy Transfer Partners, and Phillips 66.	USA	Phillips 66 Partners LP	US	Phillips 66 Company	2.007
1 Dec 2017	Yuzhno-Russkoye field (24.99 percent Stake)	Russia-based gas fields	Russia	OMV AG	Austria	Uniper SE	1.719
22 Dec 2017	Hess Norge AS	Norway-based oil and gas exploration company	Norway	Aker BP ASA	Norway	Hess Corporation	1.653

Source: Mergermarket; 2018.

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