



European Power & Utilities Report

KPMG Global Energy Institute
Europe, Middle East & Africa

Q4 2016



Overview of last quarter performance in the EUR P&U sector

1 Prices and margins

- Baseload prices have maintained their upward trend, with France and UK recording the highest growth compared with the previous quarter.
- During Q4 2016 baseload / peakload power price differentials have widened in Germany, France and Spain.
- Brent prices have stabilised at around \$45 per barrel.
- Both HH prices and EU border prices have increased, ending the period at 3.58 and 5.5 USD/MMBTU, respectively.
- Coal prices have risen notably in Q4 (especially for Colombian Coal).
- Carbon prices have increased reaching an average of 5.7 €/T.
- Gas-fired power margins in Germany, Italy and France have returned to positive levels.
- Coal-fired margins have also experienced an increase in Germany, Italy France and the UK.

3 Capital markets

- The Eurostoxx Utilities index decreased an average of 6.5% QoQ. The index has accumulated losses (-2.8%) in the last 12 months.
- Endesa SA and Fortum Oyj had the best performance in Q4 2016 in terms of share price, in a quarter where all other European players experienced a drop in price QoQ.
- Valuation levels in the sector averaged x6.6 EV/EBITDA in Q4 2016, down from x6.9 in the previous quarter.
- Large differences persist in EBITDA multiples, with National Grid, Enagas and Fortum Oyj reaching the highest values, trading above x10.5 EV/EBITDA.
- Net debt levels remained stable at 3.05 x EBITDA in Q4 2016, very close to the figure in Q3 2016 (3.1 x EBITDA).
- No changes in credit ratings in the sector during Q4.

2 Regulatory news

- After ratifying the Paris Agreement on October 5th 2016, the European Commission has published the “Clean Energy for all Europeans” document.
- The Spanish Ministry of Energy has published some of the new values of the commercialisation costs for Regulated Retailers.
- The UK’s National Grid is set to legally separate its system operator function from the rest of its business following proposals from Ofgem.
- The Italian energy regulator (AEEGSI) has postponed the reform of the electricity market imbalance system until 2018.
- The Portuguese Energy Services Regulatory Authority published the procedures for the assignment of a social rate to economically vulnerable customers, for gas and electricity.
- KfW has announced that it will restart subsidy payments for PV plants with storage for the German market.
- The French Energy Regulator has approved TPA tariffs for the natural gas transport network of GRTgaz and TIGF. These tariffs have been designed to enhance cost efficiency and improve quality of supply

4 M&A

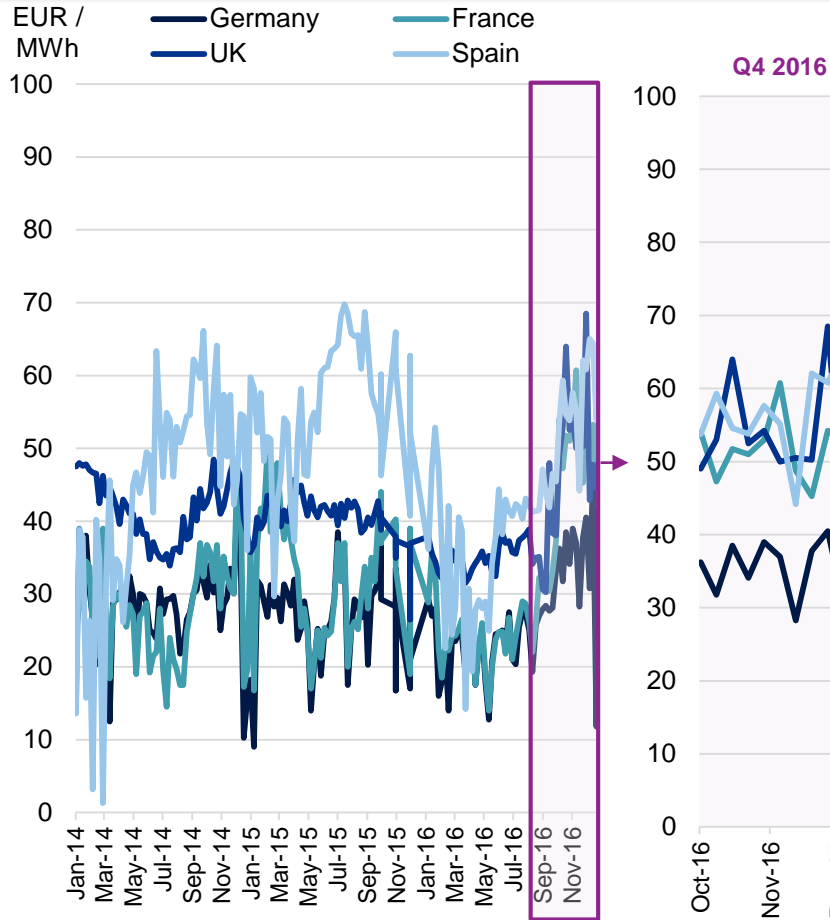
- The largest deals during Q4 2016 mostly targeted US companies (6 companies in the top 10).
- The main transactions have included:
 - The acquisition of 50% of Ausgrid, L.L.C. by Industry Funds Management Pty Ltd (€12.574m)
 - The sale of 50% of Bashneft ANK OAO to Rosneft Oil Company OAO (€6,622m)
 - The acquisition by Occidental Petroleum Corporation of 35,000 acres in Reeves and Pecos counties (Texas) owned by Patriot Resources (€2,000m)
 - The purchase by SM Energy of 35,700 net acres in Howard and Martin Counties (West Texas) owned by QStar, LLC (€1,600m)
 - The acquisition of Silver Hill Energy Partners, LLC by RSP Permian, Inc (€1,231m)

Prices and Margins: Overview

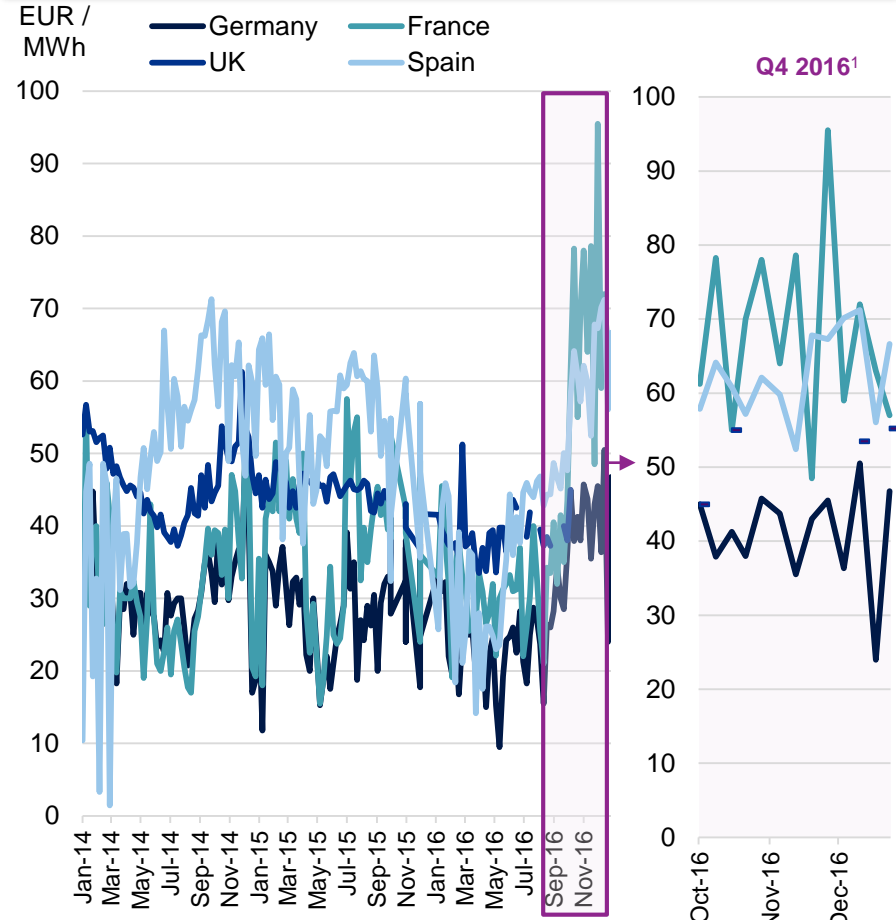
- Baseload prices have maintained the upward trend started the second quarter, with France and UK recording the highest growth compared with the previous quarter.
- During Q4 2016 baseload / peakload power price differentials have widened in Germany, France and Spain.
- Brent prices have stabilised at around \$45 per barrel.
- Both HH prices and EU border prices have increased, ending the period at 3.58 and 5.5 USD/MMBTU, respectively. Differentials between both indicators have increased. After a significant decrease, reaching levels below 25 GBP/MWh in the first few weeks of September, NBP has rebounded and ended the quarter at 53.3 GBP/MWh.
- Coal prices have risen notably in Q4 (especially Colombian Coal), surpassing 80 USD/mt and reaching the highest values since 2014.
- Carbon prices have reversed the downward trend started in June and during Q4 they have also increased reaching an average of 5.7 €/T, up from 4.6 €/T in the previous quarter.
- Gas-fired margins (spark spreads) have decreased in the UK. In Germany, Italy and France margins have returned to positive levels.
- Coal-fired margins (dark spreads) have experienced a quarterly increase in France, Italy, the UK and Germany, with average values in Q4 2016 of 26.4€/MWh, 6.7€/MWh, 5.3 GBP/MWh and 1.3€/MWh, respectively.

Electricity price

Baseload



Peakload

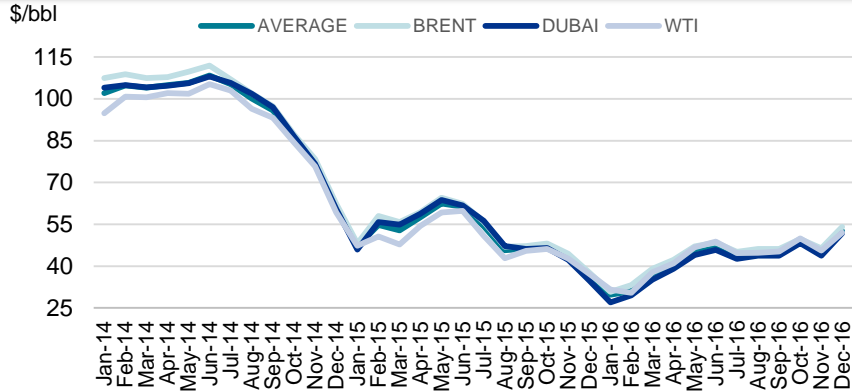


¹ Due to lack of information, the line reflecting peak prices in the UK in Q4 is incomplete.

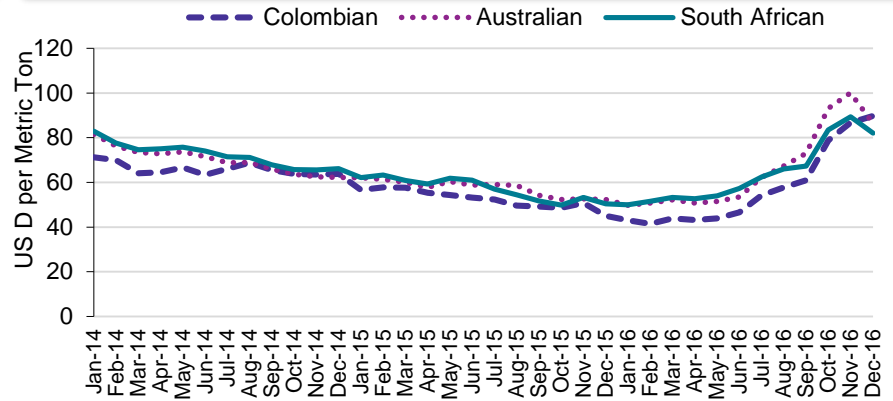
1. Prices and Margins

Fuel price

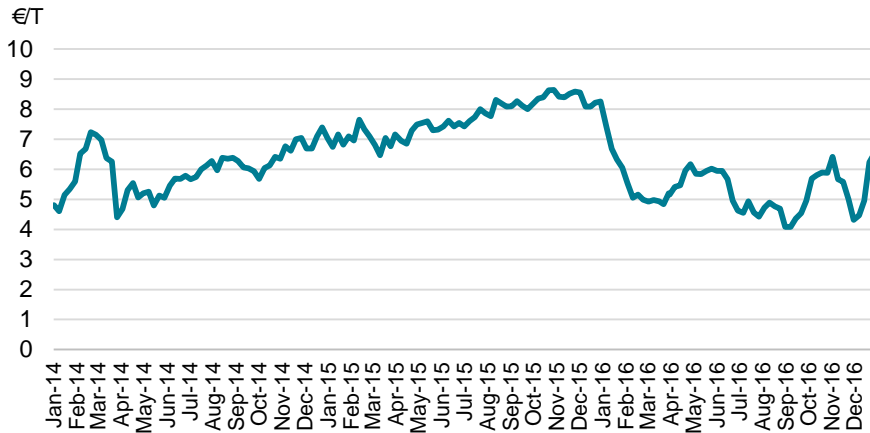
Crude oil



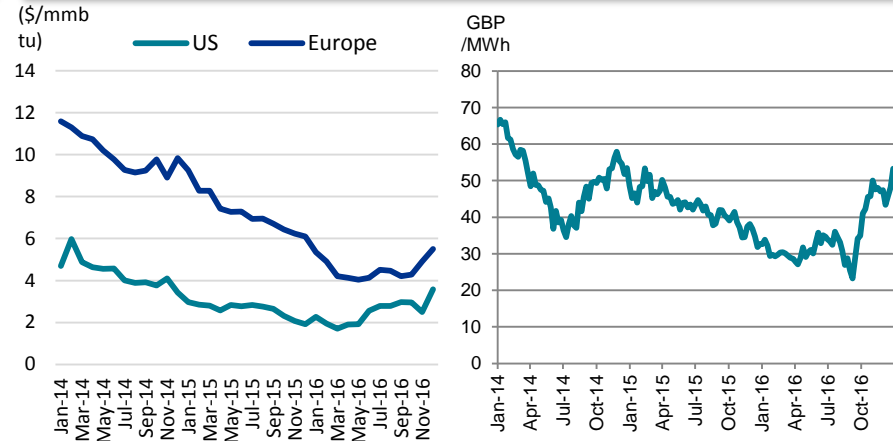
Coal



Carbon price – EU ETS



Gas prices: US (H.Hub), EU (border prices) and NBP



Source: World Bank / Bloomberg; 2016.

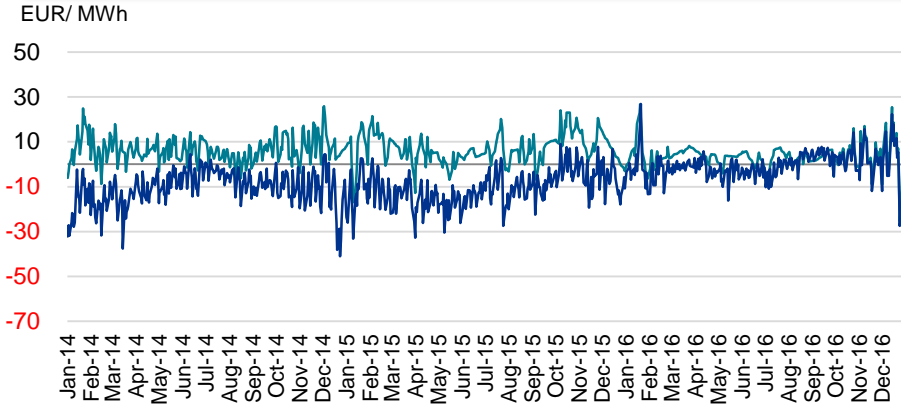


1. Prices and Margins

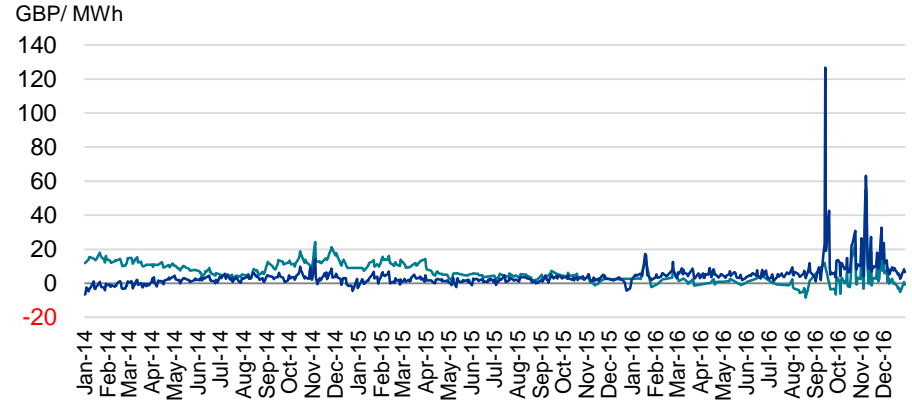
Clean dark and spark spreads

— Clean dark spread — Clean spark spread

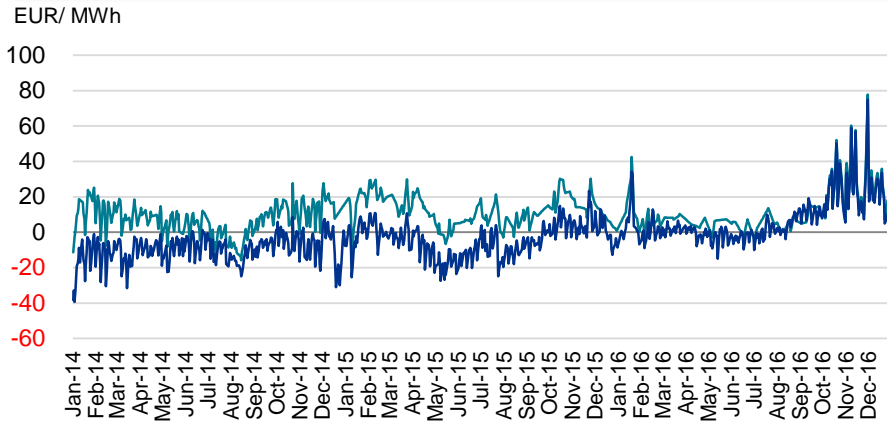
Germany



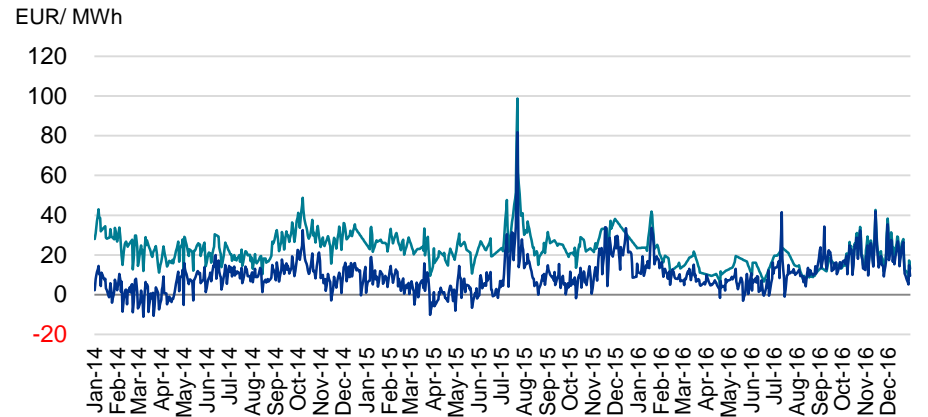
United Kingdom



France



Italy



Source: Bloomberg; 2016.



Regulatory News: Overview

- After ratifying the Paris Agreement on October 5th 2016, the European Commission has published the “Clean Energy for all Europeans” document, which presents a “winter package” of measures aimed at fulfilling its commitment to cut CO₂ emissions by 40% by 2030. The proposals mainly cover energy efficiency, RES, the electricity market, security of supply and governance rules for all the EU.
- The Spanish Ministry of Energy, Tourism and Digital Agenda (MINETAD) has published Order ETU/1948/2016 that determines some of the new values of the commercialisation costs for Regulated Retailers to be included in the computation of the regulated electricity tariff (PVPC) during 2014-2016.
- The Italian energy regulator (AEEGSI) has postponed until 2018 the reform of the electricity market imbalance system.
- The UK’s National Grid is set to legally separate its system operator function from the rest of its business following proposals from Ofgem.
- Kreditanstalt für Wiederaufbau (KfW), the development bank owned by the German government, has announced that it will restart subsidy payments for photovoltaic plants with storage for the German market. The grant amounts to €30 million and will be in place until 2018.
- In November 2016, the French Energy Regulator (CRE) approved TPA tariffs for the natural gas transport network of GRTgaz and TIGF. These tariffs have been designed, as stated by the CRE, to enhance cost efficiency and well as ameliorate quality of supply.
- The Portuguese Energy Services Regulatory Authority (ERSE) published the procedures and model for the assignment of a social rate to economically vulnerable customers, for gas and electricity.
- The Federal Energy Regulatory Commission (FERC) in the United States of America has proposed, in its report of November 2016, to more effectively integrate electric storage resources into organised wholesale markets to enhance competition and help ensure that these markets produce fair and reasonable rates.
- The Energy Market Regulatory Authority in Turkey postponed the much anticipated wind licence applications to the beginning of April, 2017. They were expected in October, 2016. The total capacity to be auctioned will be 2,000 MWe.

2. Regulatory News

Regulatory news per region / European Union (1)

EU



- After ratifying the Paris Agreement on October 5th 2016, the European Commission has published the “Clean Energy for all Europeans” document, which presents a package of measures aimed at fulfilling its commitment to cut CO₂ emissions by 40% by 2030. The proposals mainly cover energy efficiency, RES, the electricity market, security of supply and governance rules for all the EU.
- The Agency for the Cooperation of Energy Regulators (ACER) has published an Implementation Monitoring Report on the Capacity Allocation Mechanism where the Agency urges Transmission System Operators (TSOs) and National Regulatory Authorities (NRAs) to promptly implement all the remaining provisions of the EU legislation, giving priority to capacity bundling, virtual interconnection points and capacity maximisation.
- The Council for European Energy Regulators (CEER) published on September 22nd 2016 its 6th Benchmarking report on the quality of electricity and gas supply, assessing network performance. The report finds good levels of harmonisation in commercial quality indicators for electricity among countries, while it states that more efforts should be made regarding monitoring gas quality and security.

Spain



- Order ETU/1948/2016 determines some of the new values of the commercialisation costs for Regulated Retailers to be included in the computation of the regulated electricity tariff (PVPC) during 2014-2016.
- The MINETAD has published electricity and natural gas TPA tariffs and canons for 2017 and allowed revenues for regulated companies.
- The Secretariat for Energy approved the calendar and characteristics of the auction system for allocating the service of electricity demand interruptibility for electricity in 2017.
- The CNMC has approved long-term-capacity allocation rules for the management of Spain-France and Spain-Portugal connections.
- The MINETAD has published the Royal Decree-law regulating the mechanism for financing the cost of the social bonus and other measures protecting vulnerable electricity consumers.
- The electricity sector ended 2015 with a €217.8 million surplus, as stated under the 15th economic settlement of the system.

Italy



- The Italian energy regulator (AEEGSI) has postponed until 2018 the reform of the electricity market imbalance system.
- AEEGSI has published consultation document 629/2016/R/gas which proposes X-factors for gas distribution and metering for the mid-period 2017-2019. The proposed X-factors for gas distribution range between 1.8% and 2% for large DNOs and between 2.7% and 3.3% for medium and small DNOs. For gas metering companies, the proposed X-factors range between 0.2% and 0.8%. For gas marketing companies, the regulator proposes 0% or between -1% and -2%.
- A new regulatory framework for 2G electricity smart meters has been approved, starting in 2017. The new framework is based on the British RIIO model

UK



- National Grid is set to legally separate its system operator function from the rest of its business following proposals from Ofgem.
- Further details provided for the 2017 allocation round, including the CfD Draft Budget Notice, Updated supply chain guidance and Provisional timelines from the LCCC.
- Joint BEIS/Ofgem call for evidence seeking views on how the UK energy system could be made “smarter & more flexible”.

2. Regulatory News

Regulatory news per region / European Union (2)

Germany



- Kreditanstalt für Wiederaufbau (KfW), the development bank owned by the German government, has announced that it will restart subsidy payments for photovoltaic plants with storage for the German market. The grant amounts to €30 million and will be in place until 2018.
- The European Commission has approved the new German aid package for certain high performance cogeneration plants. In parallel, the Commission has opened an investigation regarding reductions in the rate to finance this measure to determine whether they constitute illegal state aid.
- The European Commission has approved the mechanism proposed by Germany to reduce when necessary the electricity consumption of large consumers to ensure network stability and energy supply. The mechanism entitles producers to reduce consumers' supply by 1,500 MW in a short period of time. To do so, producers must pay consumers a fee that will be established by auction, where consumers will offer the capacity reduction they are willing to be remunerated for.
- The Federal Network Agency has launched the first cross-border auction for PV installations in cooperation with Denmark. Thereby, for the first time, photovoltaic installations in Denmark can participate in a German auction alongside photovoltaic installations from Germany.

France



- In November 2016, the CRE approved TPA tariffs for the natural gas transport network of GRTgaz and TIGF, namely the "ATRT6". This tariff will be applied from 1st April 2017 for a duration of four years. These tariffs have been designed, as stated by the CRE, to enhance cost efficiency and ameliorate quality of supply. The average tariff for HGRTgaz will decrease by 3.1% in 2017 and decrease annually by 0.4% from then on. For TIGF, the reduction in 2017 is 2.2% and annual increases will be of 0.8%. Initial decreases are due to the reduction of capital costs, while the increase of the following years considers the creation of a single market.
- The CRE has published a favourable report regarding the transition of the mainland wind energy sector into the additional compensation scheme, ending with the exception it had enjoyed compared to other renewable technologies. The CRE values the premium at €2/MWh for the first five years of the purchase agreement and €1/MWh during the last 10 years.
- The CRE has approved an electricity transport investment programme for 2017, which envisages a budget of €1,525 million (1.55% lower than 2016). 37% of the budget will be earmarked for regional networks.

Portugal



- Energy Services Regulatory Authority (ERSE) published the procedures and model for the assignment of a social rate to economically vulnerable customers, for gas and electricity.
- ERSE published a new directive with new information requirements to be included in the electricity bill, in order to obtain improved access to information by consumers.
- A new set of legislation was issued, establishing new standards for the installation and operation of charging points for electric vehicle batteries, namely technical, commercial and safety requirements, including mandatory insurance coverage.

2. Regulatory News

Regulatory news per region / Other markets

US



- The Federal Energy Regulatory Commission (FERC) has proposed, in its report of November 2016, to more effectively integrate electric storage resources into organised wholesale markets to enhance competition and help ensure that these markets produce fair and reasonable rates.
- FERC has issued in December 2016 an assessment of demand response and an advanced metering report.
- FERC launched in September 2016 a review of market power analysis. The Commission noted there are several areas where its market power analyses for both areas differ. While some of those differences may be appropriate, others may not be, so the Commission is asking whether increased harmonisation of the two analyses is warranted and feasible.

Turkey




- The Energy Market Regulatory Authority postponed the much anticipated wind licence applications to the beginning of April, 2017. They were expected in October, 2016. The total capacity to be auctioned will be 2,000 MWe.
- The Ministry of Energy announced that the renewable energy resource areas (RERA) tender was postponed to 21/02/2017 and the applications have to be submitted by 14/02/2017.
- RERA regulation was announced in order to incentivise utility scale solar and wind projects with local manufacturing. For solar, a PV module production facility, with a capacity of 500 MWp per year, has to be built for a 1,000 MWp license.

2. Regulatory News

2 Regulatory news


Links to new key regulation

| Spain | News | Link |
|---|--|--|
|  | <p>Order ETU/1948/2016, published by the Ministry of Energy, Tourism and Digital Agenda (MINETAD), determines some of the new values of the commercialisation costs for Regulated Retailers to be included in the computation of the regulated electricity tariff (PVPC) during 2014-2016. These are based on Royal Decree 469/2016, which modifies the calculation methodology of the PVPC and defines its legal hiring regime. On average, it implies a final price increase of 0.48%.</p> | <p>Link I (a) Link I (a)</p> |
| | <p>The MINETAD has published electricity and natural gas TPA tariffs and canons for 2017 and allowed revenues for regulated companies, under Orders ETU/1976/2016 and ETU/1977/2016, respectively. These Orders have followed the corresponding assessment reports from the CNMC. TPA tariffs and canons remain stable.</p> <p>Order ETU/1977/2016 also settles the system's deficit for 2014 and 2015 which is €1.02 billion and €20 million, respectively.</p> | <p>Link II (a) Link II (b) Link II (c)</p> |
| | <p>The Secretariat for Energy approved the calendar and characteristics of the auction system for allocating the service of electricity demand interruptibility for electricity in 2017.</p> | <p>Link III</p> |
| | <p>The Directorate General for Energy Policy and Mines has approved the 2017 consumption profiles and calculation methods for the liquidation of types 4 and 5 energy consumers without hourly consumption records.</p> | <p>Link IV</p> |
| | <p>The natural gas regulated tariff for 2017 has been published by the Directorate General for Energy Policy and Mines. It results in an average increase of 3.5% with respect to the previous quarter of 2016.</p> | <p>Link V</p> |
| | <p>The CNMC has approved long-term-capacity allocation rules for the management of Spain-France and Spain-Portugal connections, in response to the Directive by the EU requiring a progressive harmonisation of these rules in all European interconnections.</p> | <p>Link VI</p> |


2. Regulatory News

2 Regulatory news

Links to new key regulation

| Spain | News | Link |
|---|--|---|
|  | <p>The MINETAD has published Royal Decree-law regulating the mechanism for financing the cost of the social bonus and other measures protecting vulnerable electricity consumers. This social bonus will translate in those consumers considered severely vulnerable to be treated as “essential”, so that their electricity supply cannot be interrupted, in addition to a 25% discount for all vulnerable consumers, to be financed by the electricity suppliers in order of their average number of clients</p> | Link VII |
| | <p>Sanctions by the CNMC to: two filling stations for non-compliance with their weekly obligation of communicating retail prices, and seven electricity retailers for non-fulfilment of different aspects of the Electricity Sector Law, such as: obligation of presenting guarantees as required by the System Operator (REE), buying the necessary energy in the wholesale market according to retailing commitments, and providing information about their Client Support Services. All are considered serious infringements.</p> | Link VIII (a) Link VIII (b) Link VIII (c) |
| | <p>As of 31st October 2016, the 10th economic settlement of the natural gas sector (a) produces a deficit of €462 million, 63% higher than that of October 2015. On the other hand, the 10th economic settlement of the electricity sector (b) shows a deficit of €1.66 billion, €407 million lower than expected by the CNMC.</p> <p>The coverage ratio of the natural gas system and the electricity sector is 81% and 86.1%, respectively.</p> | Link IX (a) Link IX (b) |
| | <p>The electricity sector ended 2015 with a €217.8 million surplus, as stated under the 15th economic settlement of the system. This surplus will be deposited into a specific account of the CNMC until the necessary regulation regarding the reduction of deficits from previous years.</p> | Link X |

Links to new key regulation

| Italy | News | Link |
|---|--|--------------------------|
|  | <p>The Italian energy regulator (AEEGSI) has postponed until 2018 the reform of the electricity market imbalance system.</p> | Link I |
| | <p>AEEGSI has published consultation document 629/2016/R/gas which proposes X-factors for gas distribution and metering for the mid-period 2017-2019. The proposed X-factors for gas distribution range between 1.8% and 2% for large DNOs and between 2.7% and 3.3% for medium and small DNOs. For gas metering companies, the proposed X-factors range between 0.2% and 0.8%. For gas marketing companies, the regulator proposes 0% or between -1% and -2%.</p> | Link II |
| | <p>A new regulatory framework for 2G electricity smart meters has been approved, starting in 2017. The new framework is based on the British RIIO model.</p> | Link III |

Links to new key regulation

UK



News

Link

Brexit and the impact on the energy market:

- The Prime Minister has confirmed the Britain will no longer be a part of the Single Market
- Most commentators assume that this means Britain will also leave the Internal Energy Market
- A new Free Trade Agreement will be needed to ensure gas and electricity can continue to flow tariff free under harmonised rules
- The commercial case for interconnection between the GB and EU markets remains strong, so there remains a decent prospect of this being achieved, although transitional arrangements might be necessary if it cannot be concluded in 2 years

[Link I](#)

Embedded Benefits review & Air Quality Consultation from Medium Combustion Plants – aimed at limiting the growth in diesel generation:

- Ofgem is seeking to address rising TNUoS demand residual payments to Embedded Generators, it is expected to consult on a 'minded to' position and draft an impact assessment in 'early 2017'
- The Air Quality Consultation proposes that, from 1 Jan 2019, all generators will be required to meet new pollution standards to meet MCPD standards and will need a permit to operate, with the overarching objective to tackle "air pollution" and "protect air quality"

[Link II \(a\)](#)
[Link II \(b\)](#)

December 2016 T-4 Capacity Market auction cleared at £22.50/kW/year, slightly higher than in previous years, securing 52.4 GW of capacity for delivery in 2020-21. This was at a gross cost to consumers of around £1.2 billion in the first year (2020-21). This auction has resulted in a diverse range of technologies winning capacity agreements:

- Around 500 MW of new-build battery storage;
- Over 1.4 GW of demand-side response (DSR)

[Link III](#)

Only one new Combined Cycle Gas Turbine was awarded an agreement – Centrica's re-powered 333 MW plant at Kings Lynn. Close to 8 GW of new CCGTs dropped out earlier in the auction. The majority of contracts went to existing plants, including CCGTs, coal and nuclear. Limited small-scale diesel generation won contracts, reflecting the steps taken by the Department for Business, Energy & Industrial Strategy (BEIS) and Ofgem to deter diesel generators

Links to new key regulation

UK



News

Link

National Grid is set to legally separate its system operator function from the rest of its business following proposals from Ofgem. Greater separation is thought to allow the new system operator to play a more proactive role in managing a more flexible electricity system. A consultation document has been issued on the “Future arrangements for the electricity system operator: its role and structure”

[Link IV](#)

Further details provided for the 2017 allocation round, including:

- CfD Draft Budget Notice: Confirming £290m annual support available across two open years (2021/22 and 2022/23) for less established technologies. There will be a cap on “fuelled technologies” (biomass CHP, ACT, AD)
- Updated supply chain guidance
- Provisional timelines from the LCCC

As part of this, the Government also published a call for evidence on fuelled and geothermal technologies to seek views and evidence on these technologies in the CfD scheme going forward. In response to the Scottish Remote Island onshore projects, the Government also released a consultation on the treatment of non-mainland GB onshore wind projects to seek views on whether these projects should be treated differently to onshore wind projects more generally

[Link V](#)

Smart, flexible energy system call for evidence:


Joint BEIS/Ofgem call for evidence seeking views on how the UK energy system could be made “smarter & more flexible”. The Government set out beliefs that a smarter, flexible system will result in significant savings to consumers (£17-40bn cumulative up to 2050), increased security of supply and easier to integrate low carbon technologies. Consultation responses due 12 January 2017

[Link VI](#)

2. Regulatory News

2 Regulatory news


Links to new key regulation

| Germany | News | Link |
|---|--|--------------------------|
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| | <p>The European Commission has approved the new German aid package for certain high performance cogeneration plants. In parallel, the Commission has opened an investigation regarding reductions in the rate to finance this measure to determine whether they constitute illegal state aid.</p> | Link II |
| | <p>The European Commission has approved the mechanism proposed by Germany to reduce when necessary the electricity consumption of large consumers to ensure network stability and energy supply. The mechanism entitles producers to reduce consumers' supply by 1,500 MW in a short period of time. To do so, producers must pay consumers a fee that will be established by auction, where consumers will offer a the capacity reduction they are willing to be remunerated for.</p> | Link III |
| | <p>The Federal Network Agency has launched the first cross-border auction for PV installations in cooperation with Denmark. Thereby, for the first time, photovoltaic installations in Denmark can participate in a German auction alongside photovoltaic installations from Germany.</p> | Link IV |

2. Regulatory News

2 Regulatory news

Links to new key regulation

| France | News | Link |
|--|---|--------------------------|
|  | <p>In November 2016, the CRE has approved TPA tariffs for the natural gas transport network of GRTgaz and TIGF, namely the “ATRT6”. This tariff will be applied from 1st April 2017 for a duration of four years. These tariffs have been designed, as stated by the CRE, to enhance cost efficiency and ameliorate quality of supply. The average tariff for HGRTgaz will decrease by 3.1% in 2017 and decrease annually by 0.4% from then on. For TIGF, the reduction in 2017 is 2.2% and annual increases will be of 0.8%. Initial decreases are due to the reduction of capital costs, while the increase of the following years considers the creation of a single market.</p> | Link I |
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| | <p>The CRE has approved the electricity transport investment programme for 2017, which envisages a budget of €1,525 million (1.55% lower than 2016). 37% of the budget will be earmarked for regional networks.</p> | Link III |

Links to new key regulation

Portugal



News

Link

During the last quarter, the Energy Secretary of State has set the discount rate to be applied in electricity networks tariffs, which must correspond to a value that allows a discount of 33.8% on the transitional tariff applicable to final customers of electricity, for 2017.

[Link I](#)

During the last quarter of 2016, the Portuguese Government, issued a new set of legislation, with the purpose of reducing the electricity price, the tariff deficit and, consequently, the costs of the tariff debt, as well as with the objective of reducing the costs of future overcharges for the electricity sector, in order to obtain better results towards the sustainability of the National Electric System.

[Link II \(a\)](#)
[Link II \(b\)](#)
[Link II \(c\)](#)
[Link II \(d\)](#)

The Energy Services Regulatory Authority (ERSE) approved the Procedures Manual for the Global Technical Management of the National Natural Gas System.

[Link III \(a\)](#)
[Link III \(b\)](#)

On 28 December 2016, the State Budget for 2017 was approved. On the same day, the Major Options of the Plan (MOP) for 2017 were also approved, addressing the following matters: Energy Sector Extraordinary Contribution, canons for rights-of-way and underground occupation, capacity payments, CMEC final adjustment, electricity tariffs, interruptibility service, liquefied petroleum gas sector regulation, natural gas social tariff costs, Logistics Operator for Switching Suppliers.

[Link IV \(a\)](#)
[Link IV \(b\)](#)

The Energy Services Regulatory Authority established the electricity regulated tariffs and prices for 2017 applicable in Portugal, in accordance with the Tariff Regulation for the electricity sector.

[Link V](#)

The Energy Services Regulatory Authority issued Directive 2/2017, published in January, which establishes the energy distribution loss profiles, consumption profiles, production profiles and self-consumption profiles applicable in 2017.

[Link VI](#)

In November, the National Water Plan was approved by the Government. This new plan intends to define the major strategic options for the national water policy, to be applied in particular by the hydrographic management plans for the period 2016-2021.

[Link VII](#)

Capital Markets Overview

- The Eurostoxx Utilities index decreased an average of 6.5% QoQ. The index accumulated losses (-2.8%) in the last 12 months.
- Endesa SA and Fortum Oyj had the best performance in Q4 2016 in terms of share price, in a quarter where all other European players experienced a drop in price QoQ.
- Valuation levels in the sector averaged x6.6 EV/EBITDA in Q4 2016, down from x6.9 in the previous quarter.
- Large differences persist in EBITDA multiples, with National Grid, Enagas and Fortum Oyj reaching the highest values, trading above x10.5 EV/EBITDA.
- Net debt levels remained stable at 3.05 x EBITDA in Q4 2016, very close to the figure in Q3 2016 (3.1 x EBITDA).
- No changes in credit ratings in the European sector during the Quarter.

3. Capital Markets

Share price: overview

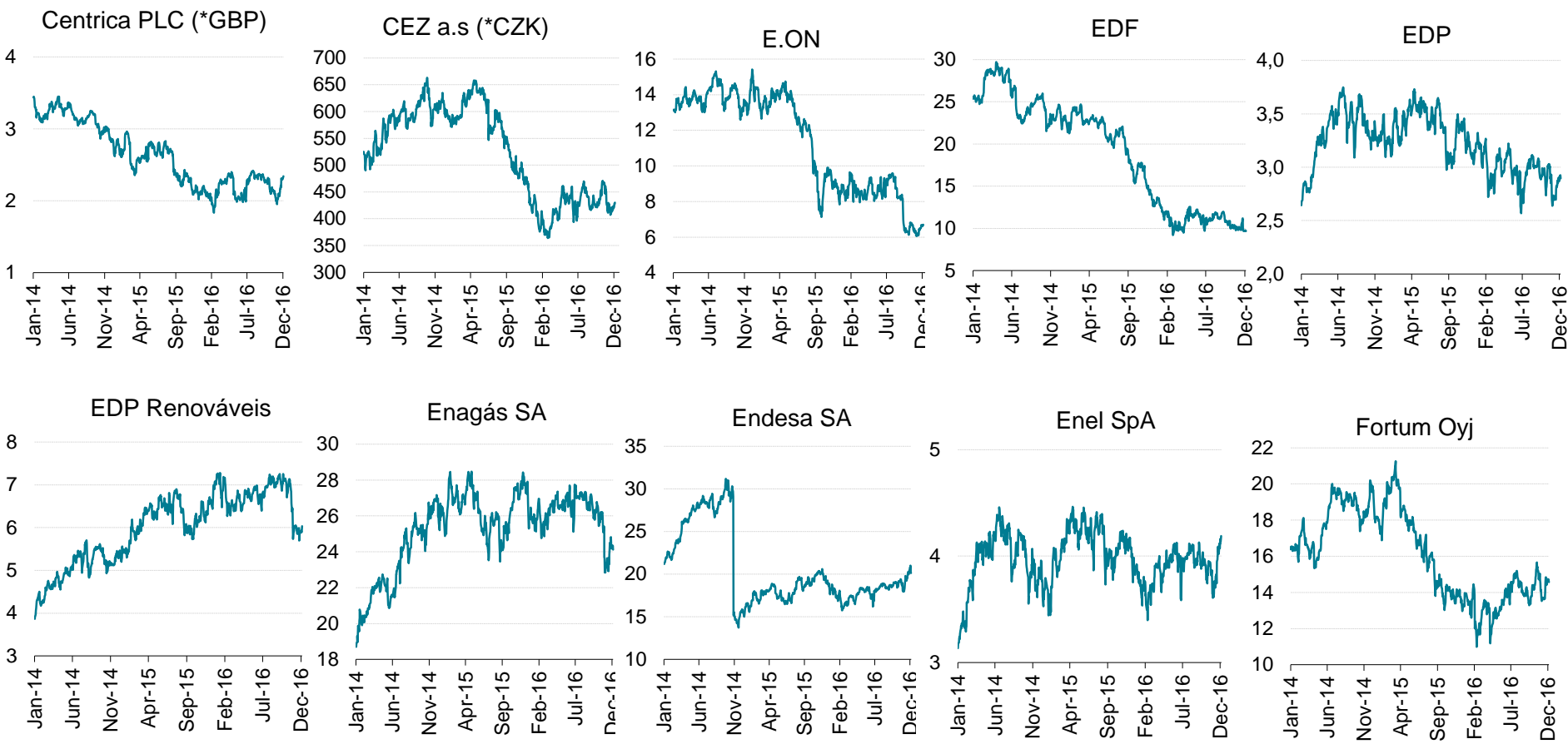
| Company | Q2 2014 | Q3 2014 | Q4 2014 | Q1 2015 | Q2 2015 | Q3 2015 | Q4 2015 | Q1 2016 | Q2 2016 | Q3 2016 | Q4 2016 | Last Quarter Q4 2016/ Q3 2016 | Last Year Q4 2016/ Q4 2015 |
|--------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------------------|----------------------------|
| Endesa SA | 27,61 | 28,51 | 19,76 | 17,29 | 17,56 | 18,57 | 19,45 | 17,05 | 17,76 | 18,54 | 19,24 | 3,78% | -1,08% |
| Fortum Oyj | 17,46 | 19,27 | 18,57 | 19,4 | 17,61 | 15,24 | 13,79 | 12,88 | 13,14 | 14,26 | 14,48 | 1,54% | 5,00% |
| CEZ as (*CZK) | 585,88 | 607,16 | 606,78 | 600,33 | 624,53 | 557,01 | 467,82 | 391,38 | 428,52 | 436,75 | 435,84 | -0,21% | -6,84% |
| Iberdrola SA | 5,2 | 5,51 | 5,59 | 5,91 | 6,14 | 6,13 | 6,43 | 6,13 | 5,99 | 5,98 | 5,93 | -0,82% | -7,76% |
| SSE Plc (*GBP) | 15,34 | 15,06 | 15,79 | 15,5 | 16 | 15,08 | 14,98 | 14,26 | 15,1 | 15,5 | 15,23 | -1,77% | 1,64% |
| Enel SpA | 4,15 | 4,12 | 3,8 | 3,96 | 4,28 | 4,12 | 4,06 | 3,72 | 3,93 | 3,99 | 3,88 | -2,71% | -4,39% |
| EDP | 3,48 | 3,46 | 3,29 | 3,39 | 3,54 | 3,3 | 3,27 | 3,01 | 2,97 | 2,97 | 2,84 | -4,28% | -13,06% |
| Gas Natural SDG SA | 21,18 | 22,92 | 22,06 | 20,7 | 21,84 | 19,11 | 19,46 | 17 | 17,49 | 18,31 | 17,19 | -6,13% | -11,68% |
| Centrica plc (*GBP) | 3,29 | 3,15 | 2,9 | 2,65 | 2,69 | 2,54 | 2,21 | 2,11 | 2,16 | 2,33 | 2,15 | -7,86% | -2,86% |
| Enagás SA | 22,05 | 24,7 | 25,94 | 26,78 | 26,66 | 25,16 | 27,1 | 25,88 | 26,7 | 26,82 | 24,61 | -8,23% | -9,17% |
| National Grid plc (*GBP) | 8,45 | 8,75 | 9,09 | 8,99 | 8,84 | 8,54 | 9,23 | 9,58 | 9,9 | 10,82 | 9,83 | -9,16% | 6,48% |
| EDF | 27,28 | 24,23 | 22,06 | 23,12 | 22,11 | 19,52 | 15,19 | 10,94 | 11,29 | 11,22 | 10,12 | -9,82% | -33,39% |
| REE ¹ | 61,55 | 63,83 | 69,69 | 74,06 | 75,75 | 72,12 | 78,82 | 73,94 | 77,88 | 19,811 | 17,82 | -10,04% | -9,57% ² |
| EDP Renováveis | 5,02 | 5,35 | 5,26 | 5,95 | 6,48 | 6,3 | 6,46 | 6,72 | 6,72 | 7,04 | 6,31 | -10,34% | -2,29% |
| ENGIE SA (GDF Suez S.A.) | 19,93 | 19,37 | 18,95 | 18,9 | 18,25 | 16,36 | 15,85 | 14,19 | 13,79 | 14,41 | 12,4 | -13,98% | -21,80% |
| RWE AG | 28,8 | 30,53 | 27,62 | 23,97 | 22,1 | 15,78 | 11,81 | 11,28 | 12,21 | 15,06 | 12,7 | -15,66% | 7,54% |
| Snam SpA | 4,32 | 4,38 | 4,12 | 4,32 | 4,56 | 4,45 | 4,71 | 5,02 | 5,21 | 5,06 | 4,09 | -19,11% | -13,10% |
| E.ON SE | 14 | 14,25 | 13,77 | 13,61 | 13,58 | 10,6 | 9 | 8,62 | 8,65 | 8,33 | 6,45 | -22,55% | -28,32% |
| Eurostoxx Utilities | 284,87 | 288,6 | 280,3 | 292,9 | 291,9 | 269,1 | 264 | 249,28 | 251,42 | 255,19 | 238,60 | -6,50% | -9,62% |

¹ On July 11 REE executed a 4-to-1 stock split. Values in Q3 reflect that split.

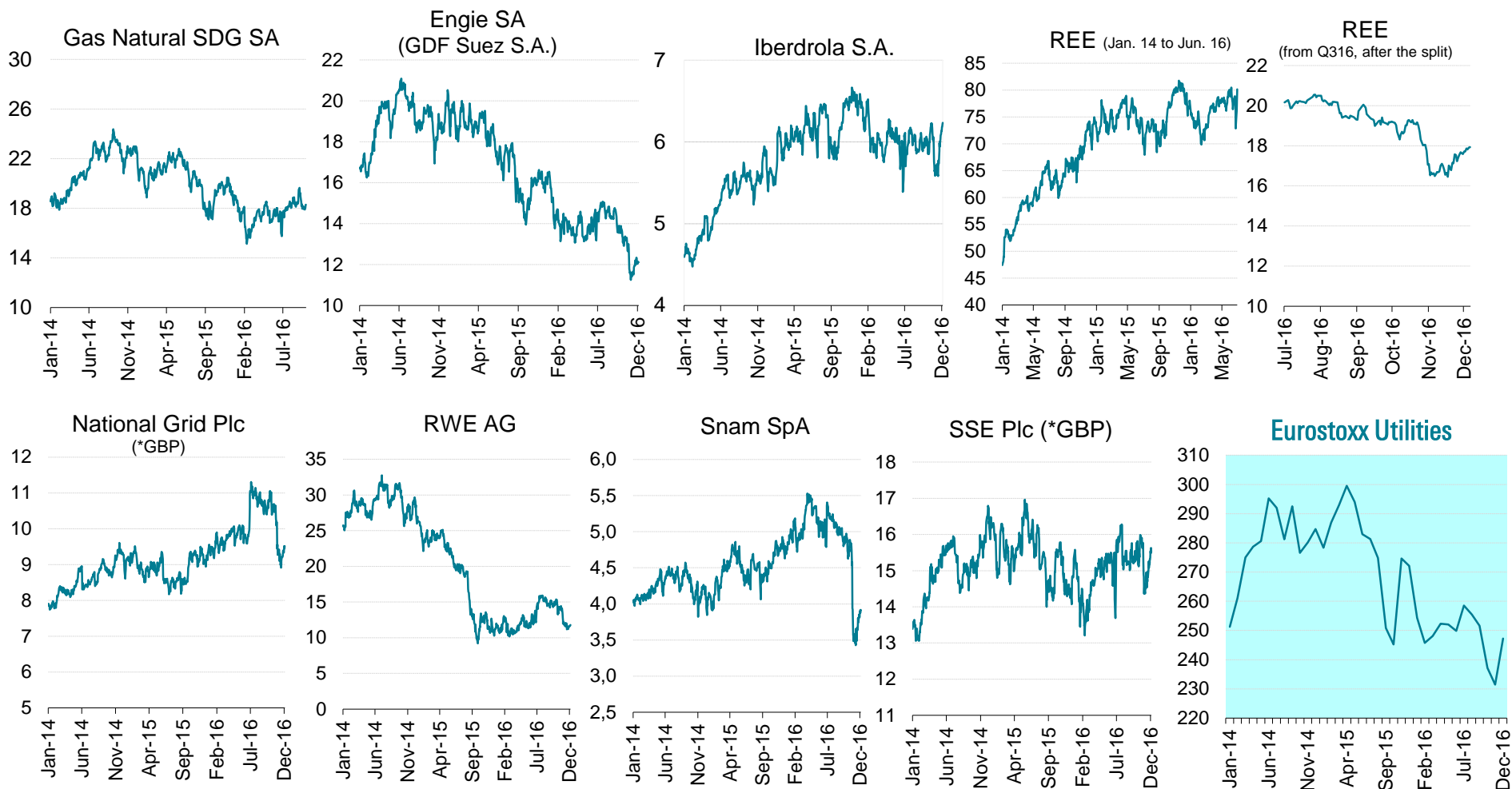
² Percentages are calculated assuming a Q4 average stock value of 71.28. Otherwise due to the 4-to-1 stock split the percentage would not reflect the actual variation of the value.

Source: Bloomberg; 2016.

Share price: individual stocks (1)



Share price: individual stocks (2)



Source: Bloomberg; 2016

Relative valuation per company

| | TEV (as of Dec 31) / EBITDA (LTM) | TEV (EUR million) (as of Dec 31) | Market Capitalisation (EUR million) (as of Dec 31) |
|--------------------------------|--------------------------------------|-------------------------------------|---|
| National Grid plc | 11,9 | 77.412,80 | 41.245,40 |
| Enagás, S.A. | 11,7 | 10.313,20 | 5.759,50 |
| Fortum Oyj | 10,8 | 13.062,50 | 12.943,50 |
| Snam S.p.A. | 10,3 | 27.717,10 | 13.697,10 |
| Red Eléctrica Corporación S A. | 10 | 14.848,80 | 9.672,50 |
| Iberdrola, S.A. | 9,9 | 70.266,60 | 38.980,60 |
| EDP-Energias de Portugal, S.A. | 9,7 | 31.824,20 | 10.519,30 |
| Centrica plc | 8,3 | 20.423,00 | 14.810,40 |
| EDP Renováveis | 8,1 | 26.278,50 | 18.009,20 |
| SSE plc | 8,1 | 37.599,40 | 17.922,40 |
| Gas Natural SDG SA | 8,1 | 9.957,30 | 5.265,30 |
| Endesa SA | 7,9 | 26.090,40 | 21.307,40 |
| Enel SpA | 6,6 | 97.253,10 | 42.578,10 |
| Engie SA | 5,8 | 61.969,00 | 29.038,00 |
| CEZ, a.s. | 5,6 | 12.971,00 | 8.500,70 |
| Electricite de France SA | 4,6 | 67.256,00 | 20.394,00 |
| RWE AG | 4,2 | 17.811,10 | 7.135,10 |
| E.ON SE | 1,7 | 23.890,10 | 13.081,10 |
| | Weighted average: 6,6 | 646.944,10 | 330.859,60 |

Source: Capital IQ; 2016.

Leverage and credit ratings

| | LTM Net Debt/ EBITDA | Rating S&P | S&P Financial Update | Rating Moody's | Date | Rating Fitch | Date |
|---------------------------------|-------------------------|------------|-------------------------|-------------------|-----------|-----------------|-----------|
| National Grid plc | 5,61 | A- | Nov 12-16 | Baa1 | Dec 13-13 | BBB | Mar 07-16 |
| Enagás, S.A. | 5,57 | A- | Oct 9-16 | Baa2 | Dec 20-16 | A- | Oct 26-16 |
| EDP, S.A. | 5,21 | BB+ | Nov 15-16 | Baa3 | Feb 13-16 | BBB- | Oct 31-16 |
| Snam S.p.A. | 5,21 | BBB | Nov 16-16 | Baa1 | Dec 12-16 | BBB+ | Oct 26-16 |
| Iberdrola, S.A. | 3,99 | BBB+ | Oct 29-16 | Baa1 | Apr 25-16 | BBB+ | Oct 26-16 |
| Red Eléctrica Corporación, S.A. | 3,50 | A- | Oct 27-16 | - | - | A | Oct 26-16 |
| Gas Natural SDG, S.A. | 3,45 | BBB | Nov 08-16 | Baa2 | Feb 13-16 | BBB+ | Aug 02-16 |
| EDP Renováveis, S.A. | 3,41 | - | Aug 01-16 | - | - | - | - |
| Electricite de France SA | 2,86 | A- | Jul 30-16 | A3 | Sep 28-16 | A- | Oct 26-16 |
| SSE plc | 2,78 | A- | Nov 11-16 | A3 | Oct 3-16 | BBB+ | Aug 04-16 |
| ENGIE SA | 2,67 | A- | Jul 30-16 | A2 | Apr 27-16 | - | - |
| Enel SpA | 2,48 | BBB | Nov 16-16 | Baa2 | Dec 12-16 | BBB+ | Oct 26-16 |
| Centrica plc | 2,37 | BBB+ | Jul 28-16 | Baa1 | May 13-16 | A- | Aug 31-16 |
| RWE Aktiengesellschaft | 2,14 | BBB- | Nov 15-16 | Baa3 | Nov 03-16 | BBB | Oct 31-16 |
| CEZ, a. s. | 1,84 | A- | Nov 15-16 | Baa1 | Apr 6-16 | A- | Aug 08-16 |
| Endesa, S.A. | 1,38 | BBB | Nov 11-16 | - | - | BBB+ | Oct 26-16 |
| E.ON SE | 0,41 | BBB+ | Nov 11-16 | (P) Baa1 | May 13-16 | BBB+ | Sep 21-16 |
| Fortum Oyj | 0,04 | BBB+ | Oct 26-16 | Baa1 | Feb 13-16 | BBB+ | Nov 30-16 |
| Average: 3,05 | | Mode: A- | | Baa1 | | BBB+ | |

Quarterly rating variation: Upgrade Unchanged Downgrade

Source: Capital IQ / S&P / Moody's / Fitch; 2016.

M&A Overview

- The largest deals during Q4 2016 mostly targeted US companies (6 companies in the top 10).
- The main transactions have included:
 - The acquisition of 50% of Ausgrid, L.L.C. by Industry Funds Management Pty Ltd (€12,574m)
 - The sale of 50% of Bashneft ANK OAO to Rosneft Oil Company OAO (€6,622m)
 - The acquisition by Occidental Petroleum Corporation of 35,000 acres in Reeves and Pecos counties (Texas) owned by Patriot Resources (€2,000m)
 - The purchase by SM Energy of 35,700 net acres in Howard and Martin Counties (West Texas) owned by QStar, LLC (€1,600m)
 - The acquisition of Silver Hill Energy Partners, LLC by RSP Permian, Inc (€1,231m)

4. M&A

Top-10 M&A operations in Q4 2016 by deal value ⁽¹⁾

| Announced Date | Target Company | Target Description | Target Country | Bidder Company | Bidder Country | Seller Company | Deal Value EUR(m) |
|----------------|---|--|----------------|---|----------------------|--|-------------------|
| 10/20/2016 | Ausgrid (50.4% Stake) | Australia-based company engaged in the distribution of electricity | Australia | Industry Funds Management Pty Ltd.; AustralianSuper | Australia; Australia | Government of New South Wales | 12574 |
| 10/10/2016 | Bashneft ANK OAO (50.08% Stake) | Russia-based vertically integrated oil company | Russia | Rosneft Oil Company OAO | Russia | The Federal Agency for State Property Management | 6622 |
| 10/31/2016 | Patriot Resources (35,000 Pecos/Reeves County net acreage) | US-based oil and gas assets including 35,000 acres in Reeves and Pecos counties, Texas as well as enhanced oil recovery (EOR) and CO2 properties | USA | Occidental Petroleum Corporation | USA | | 2000 |
| 10/18/2016 | QStar, LLC (35,700 net acres in Howard and Martin Counties, West Texas) | US-based 35,700 net acres in Howard and Martin Counties, West Texas owned by QStar, LLC | USA | SM Energy | USA | QStar, LLC | 1600 |
| 10/13/2016 | Silver Hill Energy Partners, LLC | US-based company engaged in oil and gas exploration and production | USA | RSP Permian, Inc. | USA | Kayne Anderson Capital Advisors, L.P. | 1231 |

Source: Mergermarket; 2016.

4. M&A

Top-10 M&A operations in Q4 2016 by deal value ⁽¹⁾

| Announced Date | Target Company | Target Description | Target Country | Bidder Company | Bidder Country | Seller Company | Deal Value EUR(m) |
|----------------|---|--|---|---|----------------|--------------------------------|-------------------|
| 10/10/2016 | Duke Energy Corporation (LatAm business excluding Brazil) | Peru-based energy assets of Duke Energy Corporation located in Peru, Chile, Ecuador, Guatemala, El Salvador and Argentina | Argentina, Chile, Ecuador, Guatemala, Peru, El Salvador | ISQ Global Infrastructure Fund | USA | Duke Energy Corporation | 1200 |
| 10/10/2016 | Geracao Paranapanema S.A. | Brazil-based company engaged in operating 10 hydroelectric facilities along the Paranapanema River and the Sapucaí-Mirim River | Brazil | China Three Gorges Corporation | China | Duke Energy Corporation | 1200 |
| 11/18/2016 | Anadarko Petroleum Corporation (Carthage Upstream and Midstream Assets in East Texas) | US-based upstream and midstream assets of Anadarko Petroleum Corporation | USA | Castleton Commodities International LLC | USA | Anadarko Petroleum Corporation | 1000 |
| 10/14/2016 | Freeport-McMoRan Inc. (Onshore California oil and gas properties) | US-based onshore oil and gas properties of Freeport-McMoRan Inc. in USA California | | Sentinel Peak Resources LLC | USA | Freeport-McMoRan Inc. | 742 |
| 10/11/2016 | Luxe Energy LLC | US-based oil and gas company that focuses on the acquisition of unconventional oil and gas assets | USA | Natural Gas Partners LLC | USA | | 524 |

Source: Mergermarket; 2016.

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