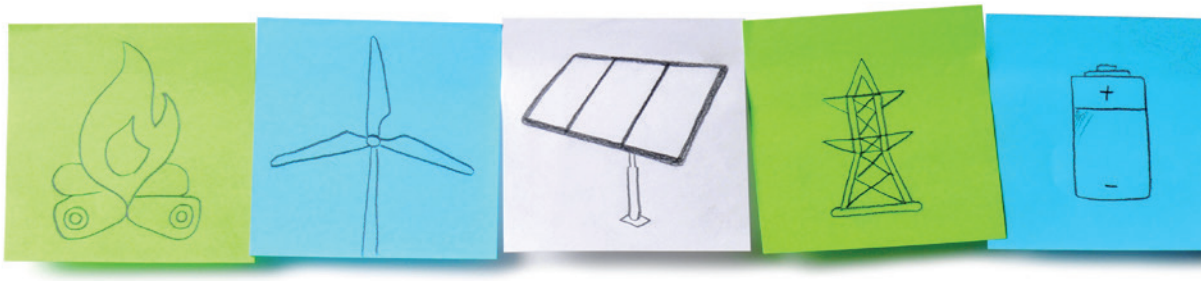
Deloitte.

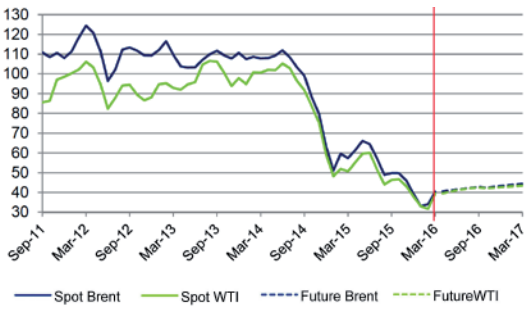
Power & Utilities
April, 2016

Newsletter
Power & Utilities in Europe



Commodities

Crude Oil ($/bbl)



Source Capital IQ

Prices were pushed by a tighter supply, a weakening of the US$ and the anticipation of coordinated action on production levels.

Oil prices have bounced back against a low point around 31 US$/bbl in February. Oil reached a three-month high early March, at around $39.4/bbl for both Brent and WTI with a reduced spread. **Prices were pushed by a tighter supply, a weakening of the US$ and the anticipation of coordinated action on production levels**, including a potential reduction of output, to take place end of April.

Oil demand stood at 94.6 mbbl/d in Q1 2016, hardly 1.2 mbbl/d up the level one year ago at the same period. Oil demand end of 2015 at 95.2 mbbl/d was also just 1.2 mbbl/d above the level of Q4 2014. With an increase in demand which is on average 1.2 mbbl/d per year, we are certainly on a **much weaker trend than the average 2 mbbl/d growth rate experienced over the past 3 years**.

Looking forward, the global oil demand growth should remain unchanged at 1.2 mb/d per annum in 2016, with the US demand, the world's biggest market, staying flat in 2016, and China, the second largest oil market increasing by only 330 kb/d, well below the ten-year average growth rate of 440 kb/d.

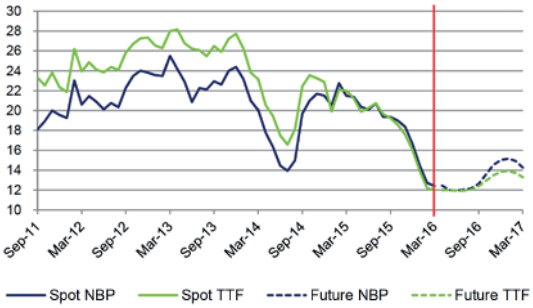
Global oil supply at the end of 2015 was 97.2 mbbl/d or almost a 2 mbbl/d excess supply against demand and 1.7 mbbl/d above the global supply level one year ago, year-on-year.

Early 2016 global oil supply was 96.5 mbbl/d, or 1.4 mbbl/d above the year before at the same period.

Non-OPEC production is estimated to have fallen to 57.0 mb/d in early 2016, down by almost 0.75 mbbl/d over the year with high-cost output falling, essentially in the US, where production is expected to fall by 530 kb/d this year, as well as in Brazil and Colombia. **OPEC crude oil production remained at a robust 32.61 mb/d with losses from Iraq, Nigeria and the UAE partly offset by a substantial rise in flows from post-sanctions Iran**. Saudi Arabia, OPEC's largest producer, kept its supply unchanged at 10.2 mbbl/d.

OECD commercial inventories stood at all-time high in excess of 3,000 mbbls early 2016, after a gain of 20.2 mb in January, a lesser increase than the previous months though.

Gas (€/MWh)



Source Capital IQ

Forward prices should not record a strong rebound as US LNG shipments are expected to hit the EU market.

Spot gas prices both in the UK and on the TTF market have gone down by 40% in March 2016 compared to previous year levels, in a context of abundant supply and sluggish demand against the backdrop of exceptionally warm temperatures. Most traders are reporting their positions as long.

This price fall is also accounted for by the decline in oil prices. At the same time, at 12 €/MWh of gas (equivalent to 22 US$/boe, versus 34 US$/bbl of oil), the Oil-Gas spread has reduced dramatically to its lowest point since 2009.

Weak winter prices also give less incentive to the forward-looking trade. As already observed in our previous Newsletters, the winter-summer gas price spread has narrowed down significantly over the years, therefore reducing the return on gas storage.

However, with a Coal Switching Price Index - the theoretical threshold at which gas is as, or more, competitive than coal in power generation - in the Netherlands of 8.30 €/MWh, spot gas at 12 €/MWh can only expect to gain ground for a few more hours of operation on the peak market.

Gas demand across the EU has been relatively stable through the end of 2015 and beginning of 2016, compared to one year before. Residential demand goes down (-3%) in the context of a continuing record warm winter but the fall is compensated by a higher demand from Combined-Cycle Gas-Fired plants as gas is now "back in the money" on the wholesale electricity markets even on quite a few of continental markets. Gas demand from CCGTs in France has been three times higher in 2015 on average compared to 2014 demand level and about 50 % higher than in 2013.

Inventories, already at a high level, have been further boosted by continued injections through an abnormally hot winter, and in the face of **continued LNG imports. However those are down by 20% compared to previous year as the Spot LNG Asia price – EU price spread started go up again through the quarter at 5 to 7 €/MWh thereby creating an incentive to reroute LNG shipments to Asia**. Prices may further ease as shippers need to empty stocks before the summer season as much as possible.

Forward prices should not record a strong rebound as US LNG shipments are expected to hit the EU market. *Gazprom* also announced its intention to increase its share on the key European market despite the slump in prices, and thanks to cost optimisation and contract flexibility.

According to the EC commissioner for energy union, EU gas demand, today around 400 bcm/y, is estimated to stay in the 380-450 Bcm/y range by 2030.

Coal ($/metric ton)

Source Capital IQ

Under the Mid-Term Coal Market Report of the IEA, the international coal markets will remain oversupplied significantly until 2020.

Coal prices are continuing to slide, save for a temporary modest rebound, in a context where OECD coal demand declines. The international seaborne hard coal trade is forecast to grow by only 1.2% per year on average over the period 2014 - 2020.

CIF ARA 15-60 day thermal coal spot price was assessed at around $47/mt March 2016, which compares to spot prices of $60/mt around the same time last year, or another 22% price fall. This took place even in the context of the protracted coal strike at Colombia's Cerrejon, one of the EU's largest coal supplier.

Coal imports in OECD Europe decline, while exports from Australia and the United States increase. The consequence is an even more abundant liquidity on the markets.

The three delivery terminals in Western Europe's Amsterdam-Rotterdam-Antwerp trading hub had combined coal stocks of around 3.84 million mt, one of their highest points earlier this year.

For a short while, the Atlantic thermal coal futures market also shows negative implied freight (CIF ARA-FOB Richards Bay, South Africa, with the ARA price higher than the South African price) spread in an oversupplied shipping market.

Under the Mid-Term Coal Market Report of the IEA, the international coal markets will remain oversupplied significantly until 2020.

According to market participants on the Atlantic market, a large supply of LNG going forward could "compete aggressively" with coal in the spot market. This will be the result of new LNG production projects ramping up in the Pacific, but also the new US LNG export terminals coming on line by the end-2019. LNG could further compete favourably against coal as the EU ETS price could make coal uncompetitive on the electricity market.

Coal plants closure versus coal plant commissioning in the EU

In order to increase the efficiency of coal-fired power plants in the Netherlands, the Dutch government introduced a rule whereby plants not running at a net efficiency of 28% by January 2016 and 40% by July 2017 will have to pay a €14.40/mt coal tax, while plants that meet the new standards would be exempt. This resulted in three plants being taken offline at the end of 2015, reducing available capacity by 1.6 GW, with a further 1 GW capacity set to close before July 1, 2017.

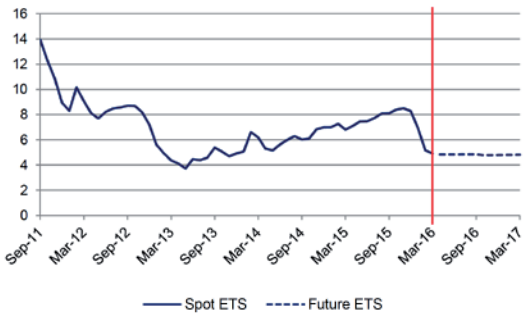
Spanish utility Iberdrola has also pledged to reduce its use of coal-fired power generation significantly by 2020 to 1.3% of its total output, down from an 8.8% share in 2015.

German power generator Uniper however, which split from E.ON at the start of the year to focus on conventional power generation, announced it will resume construction of the 1,100 MW hard-coal-fired power plant Datteln 4 in Western Germany.

Germany added an unprecedented 7 GW of modern coal-fired power plants over the past two years, adding to an already oversupplied system with wind and solar capacity on track to reach the 100 GW by 2018.

Carbon

CO_2 (€/ton)



Source Capital IQ

The EUA price fell sharply early 2016 from the 8 €/tonne price level down to the 5 €/tonne.

On December 29th, the Polish Council of Ministers approved an appeal requesting to cancel the MSR (Market Stability Reserve) proposal which is expected to enter into force in 2019. According to them, the introduction of the MSR goes against the EU Council conclusions of October 2014, and violates the principles of legitimate expectations and proportionality. This decision is likely to result in the MSR implementation's being delayed.

The EUA price fell sharply early 2016 from the 8 €/tonne price level down to the 5 €/tonne threshold, or an almost 40 % price decrease, has the following explanation:

(i) The general energy **commodity further price fall** (oil, gas, coal, power).

(ii) A second factor behind this steep price fall is the massive **EUAs sales in January and early February** which followed a re-assessment of the value of EUAs as traders anticipate an increasing supply from government auctions in 2016-2017

(iii) This year will see **carbon auction volumes rise by 100 million mt compared with 2015 levels** and by a further 200 million mt in 2017 as auction volumes return to normal levels following the end of backloading -- the EU measure which delayed 900 million mt from auctions in 2014-2016.

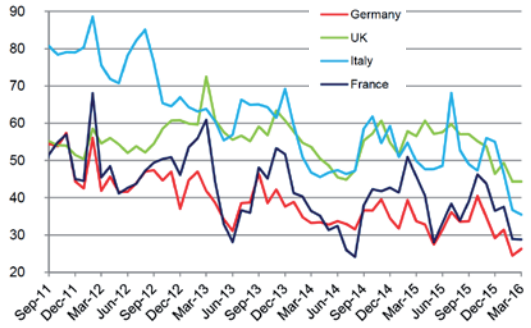
(iv) **The Market Stability Reserve, which will remove 12% of the market surplus starting in 2019**, is still three years away from operation and any new market-tightening measures under the EU's proposed post-2020 reforms could take up to two years to agree by the EU Parliament and Member States.

(v) **Regulated CO_2 emissions stay well under the declining annual cap set by the EU ETS**, leading to low demand for EUAs and hence low prices.

In addition, a number of large CO_2-emitting plants under the EU ETS are set to go offline this year, including several coal-fired power units and steel-making facilities in the UK, as well as closures or reduced operation rates at plants in other Member States.

Baseload Electricity

Baseload Spot Day Ahead (€/MWh)



Source Capital IQ

Electricity prices are affected by an usually warm winter, and by a new wave of renewable capacity commissioning.

Baseload power for day-ahead delivery was assessed at around 28 €/MWh, while peakload fell to 30 €/MWh, with a reduced spread base versus peak in France and Germany earlier this year.

Electricity prices went down again this quarter as:

(i) **Oil and other commodity prices**, to include CO2 prices, went lower (see above comments);

(ii) **Supply from renewables** increased compared to the previous year:

a) 500 MW increase in wind and a strong hydro production just under 9 GW in France

b) 2.2 GW and higher wind output reaching 10 GW in Spain,

c) Wind generation was forecast to rise 1.3 to 8.3 GW in Germany times,

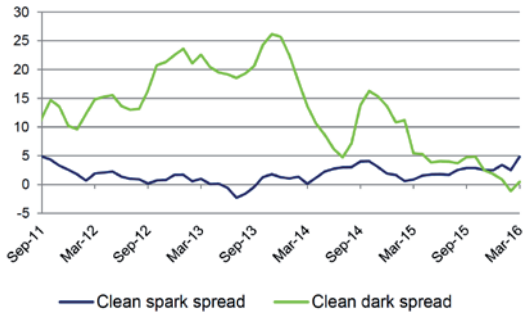
(iii) Traders took a **cautious view on the European economic prospect** in the aftermath of the terror attacks in Brussels which resulted in a bearish impact on equities and the euro, and affected power markets as a consequence.

Electricity prices are affected by an **usually warm winter**, and by a **new wave of renewable capacity commissioning**. Wind turbines in Europe's five biggest power markets - Germany, France, the UK, Italy and Spain - generated some 48.6 TWh of electricity in the first two months of 2016, up 22% from the same period a year ago. Germany, France and Spain all registered new records as favourable wind conditions and a boom in turbine installations, especially in Germany, lifted installed wind capacity in those five markets alone above 100 GW.

As normal for the winter season, solar levels remained subdued with only 6.4 TWh generated by solar installations across Europe's five biggest power markets. Across the Big 5, some 16 GW of new wind and solar capacity were added in 2015 with Germany accounting for approximately 45% that figure despite the continued slowdown in German solar installations.

The UK ranked second with more than 3 GW of new solar, while France follows with a steady 2 GW of new wind and solar added end 2015. According to Platts data, the 55.1 TWh of electricity generated by wind and solar in January and February equates to 10 billion cubic meters of gas burn (HHV 50% efficiency) or more than 110 LNG standard cargoes.

UK clean dark and spark spreads (£/MWh)



Source Capital IQ

Clean Spark Spreads in the UK as well as on the continent have gone up as spot gas prices fell faster than electricity prices.

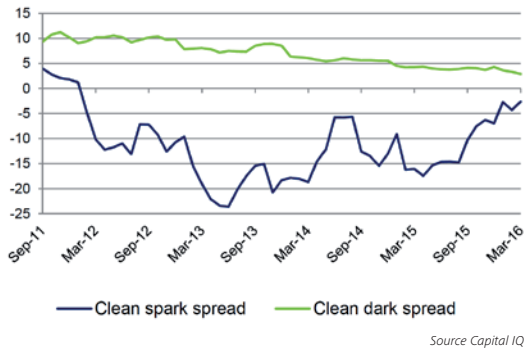
Clean Spark Spreads in the UK as well as on the continent have gone up as spot gas prices fell faster than electricity prices. The consequence being that Clean Spark Spreads are going deeper into the positive territory whilst Clean Dark Spread are turning negative, thereby pushing coal-fired power plants out of the money in the UK.

As confirmed by most analysts, a **35% efficient coal-fired power plant is out of the money with the Clean Dark Spread down to minus £2.70/MWh** (minus $3.83/MWh). **The fall in electricity prices in the UK combined to the effect of the Carbon Price Floor has sent the Clean Dark Spread into negative territory.** In comparison, the UK Clean Spark Spread with carbon price support is up to £ 4/MWh for plants with a 45% efficiency.

Unlike in Continental Europe, UK gas for power generation is supported by the Carbon Price Support, which puts a floor under the price of CO2 emissions, now capped at £18/mt (€23.17/mt, $25.73/mt), regardless of the level of CO2 allowances in the EU Emissions Trading Scheme. EU CO2 allowance prices crashed to new lows of around €5/mt ($5.57/mt) in February but the UK Carbon Price Support thus provides a significant advantage to UK gas-fired generators in competition with coal.

The UK aims to close all remaining coal-fired power stations by 2025, with five UK coal-fired plants closing during the November 2015-March 2016 period alone.

German clean dark and spark spreads (€/MWh)

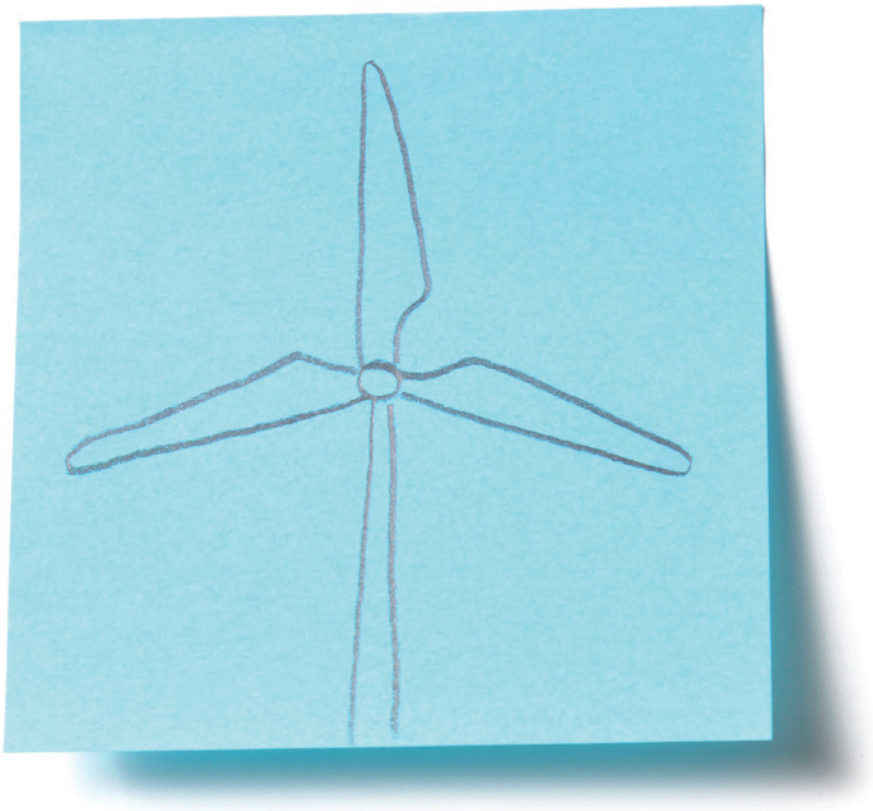


Source Capital IQ

Dark Spreads in Germany are as low as 6 €/MW/h. Clean Dark Spread are around 2 to 3 €/MW/h. Carbon costs may have gone down. With power prices hitting the 22 €/MWh threshold, and taking into account the Operation & Maintenance costs, **coal-fired power is clearly squeezed out of the market unless the efficiency ratio are going up high.** On a marginal cost basis, assuming the level of O&M costs for a typical German coal-fired power plant, coal generators with a 45% efficiency ratio are already in the negative territory.

Early this year, the German spark spread was on average at minus €7.22/MWh for plants with 50% efficiency. **In spite of a lower carbon price, gas prices falling faster than power prices have contributed to restoring the German Clean Spark Spread** and propping the same to break-even. But low power prices are not expected to put gas-fired generation back into the merit order curve. The main factor hindering both coal-burn and gas burn in Germany recently has been the strong renewable energy output.

Coal-fired power is clearly squeezed out of the market unless the efficiency ratio are going up high.

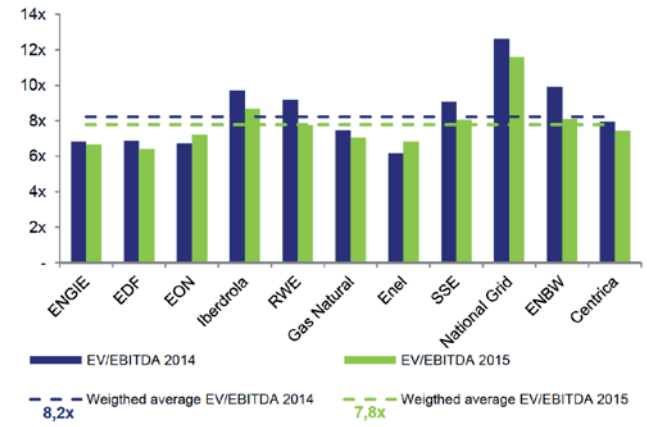


Spotlight on Power and Utilities market

Capital market overview

	Deloitte Index [1]	Iberdrola	Enel	Engie	EDF	Gas Natural	E.ON	SSE	Centrica	RWE
Market cap. ratios										
Currency		EUR	EUR	EUR	EUR	EUR	EUR	GBP	GBP	EUR
Market cap. (March 31, 2016)		**37 570**	36 197	33 187	19 465	17 195	16 400	14 539	11 379	**6 728**
3m stock price performance	**-3%**	-9%	3%	-13%	**-23%**	-4%	-1%	-1%	**7%**	3%
YoY stock price performance	**-15%**	-3%	-10%	-26%	**-56%**	-16%	-39%	**-1%**	-11%	-53%
Market multiples										
EV/EBITDA 2014	**8,6x**	**9,7x**	**6,2x**	6,8x	6,9x	7,5x	6,7x	9,1x	7,9x	9,2x
EV/EBITDA 2015	**8,1x**	**8,7x**	6,8x	6,7x	**6,4x**	7,1x	7,2x	8,1x	7,4x	7,8x
P/E 2014	**11,6x**	15,4x	16,5x	n.m.	16,4x	**11,4x**	n.m.	**21,9x**	n.m.	n.m.
P/E 2015	**12,9x**	**15,0x**	12,0x	13,0x	**6,2x**	11,8x	10,6x	12,5x	14,5x	11,2x
Price/book value 2014	**1,4x**	1,0x	1,1x	0,8x	**0,6x**	1,2x	1,0x	**2,4x**	n.m.	1,0x
Profitability ratios										
ROE forward 12m	**14%**	7%	9%	**6%**	9%	10%	9%	19%	**66%**	9%
ROCE forward 12m	**8%**	**5%**	8%	5%	5%	7%	9%	12%	**18%**	10%
EBITDA margin 2014	**19%**	**22%**	**22%**	15%	20%	19%	**6%**	7%	8%	10%
EBITDA margin 2015	**20%**	**23%**	20%	15%	22%	20%	**6%**	8%	9%	11%
EBIT margin 2014	**12%**	**13%**	**13%**	8%	8%	12%	**3%**	5%	4%	4%
EBIT margin 2015	**12%**	**13%**	12%	9%	11%	12%	**3%**	6%	5%	6%

[1]: Deloitte Index is composed of Engie, EDF, EON, Iberdrola, RWE, Gas Natural, Enel, SSE and Centrica



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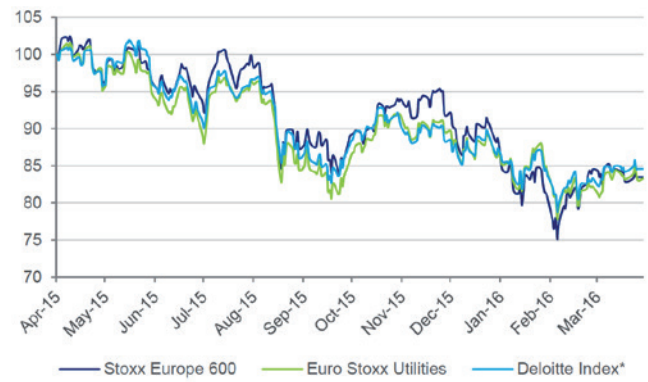

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Key messages from brokers and analysts

"Nuclear is way more out of the money than you may think …"
(UBS – April 6, 2016)

"Utilities: Revision, re-ratings, and risk …)"
(Morgan Stanley – April 4, 2016)

"Most of the utilities either met or exceeded consensus estimate at full year"
(Morgan Stanley – March 31, 2016)

"Power price outlook still negative … self-help important for all."
(Morgan Stanley – March 18, 2016)

"We don't expect the commodity price backdrop to improve, so expect little help from either coal or CO_2 prices"
(UBS – March 15, 2016)

M&A Trends

Transactions involving Power & Utilities companies

German wind turbine maker **Nordex is closing its acquisition for €785m of Spanish Acciona's wind power operations**. After this acquisition Nordex targets 2016 sales of €3.4bn.
(Reuters – March 21, 2016)

Fortum, a Finnish energy company, completed the **acquisition of 93% of Grupa DUON**, the leading independent provider of natural gas and electricity in Poland **for €100m**.
(DowJones – March 8, 2016)

PGNiG, a Polish energy company, plans to **acquire, for $503m, EDF's coal-fired heating and power plants in Poland**, representing a 15% share of heating market and 7% of electricity consumed.
(GlobalData – March 7, 2016)

Repsol sold its piped gas business, located in the Extremadura region, Spain, **to EDP**, an integrated utility company, and **Gas Extramadura**, a gas distribution company **for €136m.**
(Global Data - January 28, 2016)

IPCL, an Indian power generation and utility company, has entered into an agreement **to acquire from Engie for $208m a 89% stake in Meenakshi Energy Private Limited**, an operator of coal-fired power plants in India.
(MarketLine – February 26, 2016)

The Italian companies **API sold its 50% stake in a Southern Italian renewable JV**, planned to build and operate 350 MW capacities of wind power plants in Italy, **to its partner Iberdrola for €190m**.
(Platts – February 26, 2016)

Transaction involving equity funds

In February 2016, **Engie** signed a definitive **agreement to sell 8.5GW of merchant thermal assets in the US** to a **JV between Dynegy**, a power wholesaler, **and Energy Capital Partners, for $3,3bn**
(Reuters – February 29, 2016)

Engie entered into a definitive agreement **to sell to Public Sector Pension Investments fund for $1.2bn its hydroelectric assets portfolio** representing 1.4GW installed capacities on the Connecticut River in Massachusetts and on the Housatonic River in Connecticut.
(MarketLine – February 26, 2016)

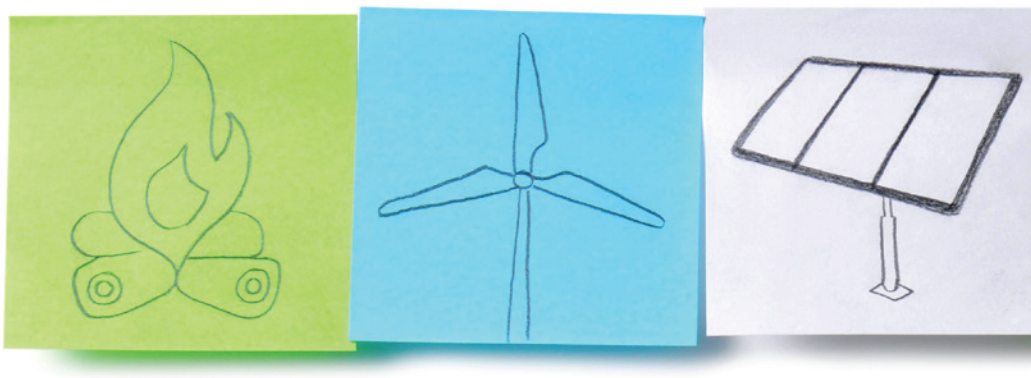
An investor Group including GLIL and UKW, two UK pension funds, and Greencoat UK Wind plc **agreed to acquire 49.9% of Clyde**, a UK 350 MW **wind farm**, from SSE **for £150m**, SSE holding the remaining 50.1%.
(Reuter – March 14, 2016)

Spanish renewable firm **Cefiro Energia**, part of conglomerate Corporacion Masaveu, has acquired as part of a consortium **330MW of renewable assets from** the private equity group **Bridgepoint** for approximatively **€400m**.
(ADP News – February 17, 2016)

UK Green Investment Bank and Funds managed by **BlackRock acquired a 61% stake in GLID**, a 194 MW wind farms operator, **from Centrica and EIG Global Energy Partners for £423m**.
(MarketLine – February 10, 2016)

Bluefield Solar, an investment company, completed the financing necessary **to acquire 6 solar power plants in the UK for £149m** representing 119 MW, from SolarCentury and Primrose Solar Management Ltd.
(GlobalData – January 28, 2016)

An **investment group controlled by the Beijing municipal government** has acquired, from Swedish private equity fund **EQT, Germany's largest waste management company**, EEW, for an equity price of €1.44bn and **€1.8bn including debt**.
(The Wall-Street Journal – February 15, 2016)



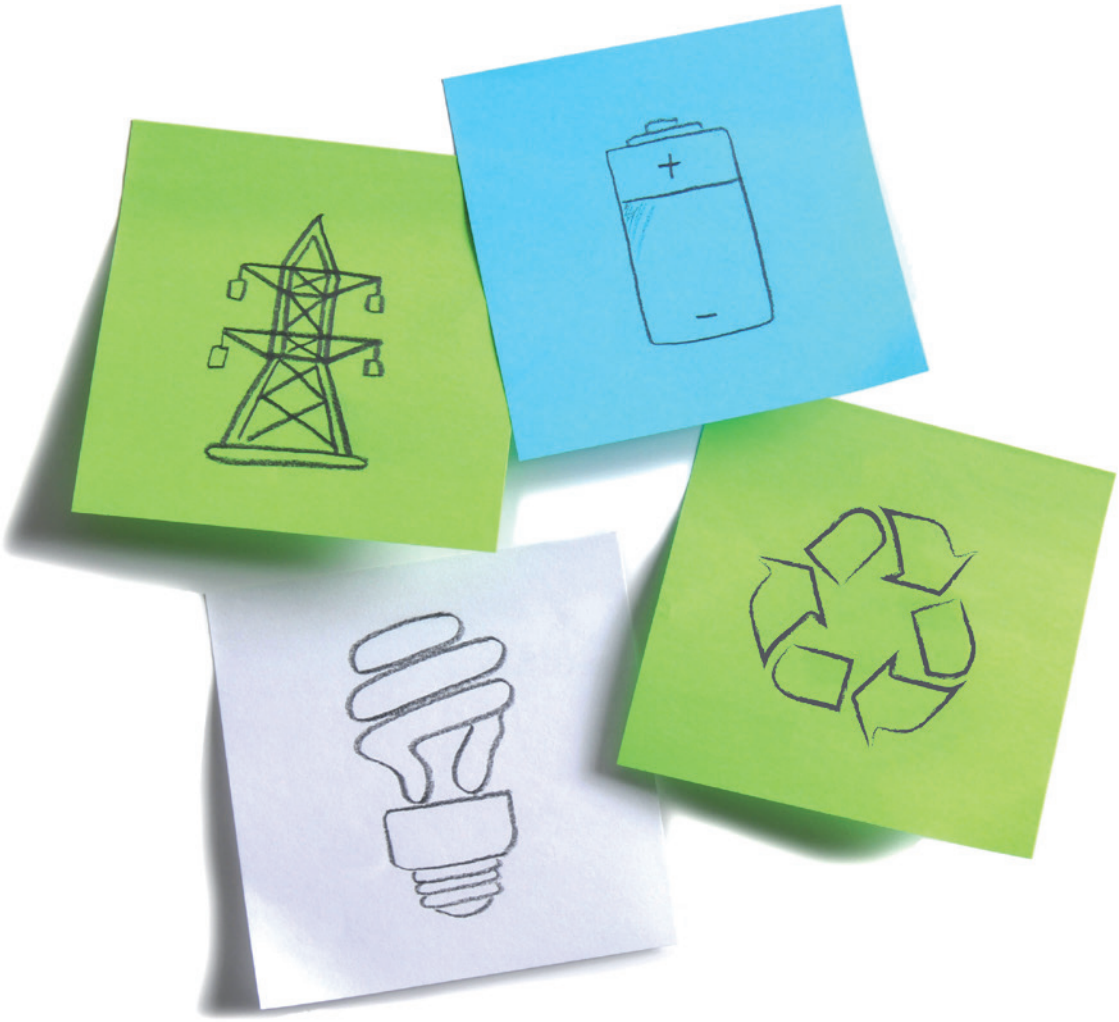
European Power and Utilities companies wrap-up

Performances continue to be pledged by low prices on wholeasale electricity market due to both **pressure on commodities prices** and a broader **slowdown in the European economy**.

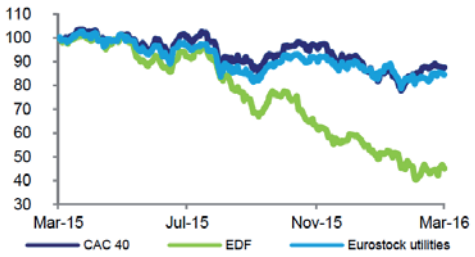
In this context **significant impairment have been recorded by European Power Utilities. For the panel followed in the Newsletter it represents about €27bn in aggregate** but in the same time some utilities companies announced that **2016 targets are overachieved**.

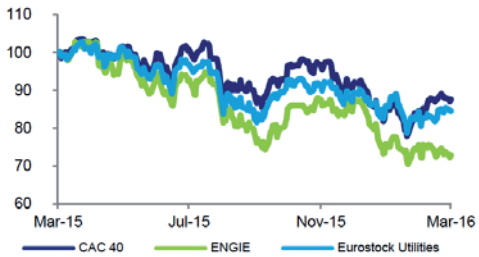
European Power Utilities are now focused on **reducing their exposure to commodity prices** with namely a focus on regulated and contracted activities.

Most of European Power Utilities present **FY2016 guidance below their 2015 results.**



Share Price Perf. 2015 - 2016





Key Reported Financials

In billion of €	2015	2014	Var.
Sales	75.0	73.4	+2%
EBITDA	**17.6**	**17.3**	**+2%**
Impairment	3.5	1.2	nm
Operating Income	4.3	8.0	-46%
Recurring net income Gr	**4.8**	**4.9**	**-2%**
Net Income Gr Share	**1.2**	**3.7**	**-68%**
Operating CF	13.5	11.7	+15%
Net Capex	-12.7	-11.9	+7%
Net debt	-37.4	-34.2	+9%

In billion of €	2015	2014	Var.
Sales	69.9	74.7	-6%
EBITDA	**11.3**	**12.1**	**-7%**
Impairment	8.7	1.0	nm
Operating Income	-3.2	6.6	-
Recurring net income Gr	**2.6**	**2.7**	**-4%**
Net Income Gr Share	**-4.6**	**2.4**	**-**
Operating CF	9.8	7.9	+24%
Net Capex	-6.5	-5.8	+12%
Net debt	-27.7	-27.5	+1%

2015 Highlights

- **Ebitda** amounted to **€17.6bn**, +2% vs 2014, thanks to **good performance in nuclear generation** and successful **arbitration on the Libyan gas contract**.
- **Strong nuclear output** in France at 416.8 TWH (+0.9TWH) and highest level in the past 10 years in the UK (60.6 TWH).
- **€3.5bn impairment in aggregate** on fossil-fuel power plants in Italy (€0.9bn) and in the UK (€1.1bn), and on E&P activities (€0.5bn).
- **Issuance of a second green bonds** ($1.25bn) dedicated to renewable energy projet.
- Completion of the **sales of the Power merchant activities in Hungary (Be Zrt) and its 25% interest in the Austrian electricity distribution company ESTAG.**
- External audit led by the French Ministery for Ecology , Sustainable development and Energy confirming EDF's estimate for the decommissing its nuclear fleet
- The French Ministery for Ecology, Sustainable development an Energy released in January 2016 a new estimate for the storage of long-lived medium and high radiactive waste of €25bn compared to the €20.8bn as determined in 2005.

- **Ebitda reached €11.3bn**, -7.2% vs 2014, due to the drop in commodity prices, the **decline in LNG activities** and the **unavailability of nuclear power plants Doel 1, Doel 3, and Tihange 2**. This was partially offset by **positive effect of US$ appreciation vs Euro** and **positive climatic conditions** despite a mild year-end winter.
- **Positive effect of actions taken to compensate adverse commodity prices**, with namely organic growth in fast growing markets, infrastrucutres (+3.9%) and services (+3.9%).
- **2015 guidance achieved**.
- **€8.7bn impairment charges** mainly focused on:
  - E&P activities, heavily impacted by the major and prolonged drop in oil and gas prices,
  - LNG supply & sales activity, impacted by the turnaround of the LNG market (€4.3bn for both).
- Power production activities in merchant markets (€3.2bn), impacted by deteriorating fundamentals and which are currently under an on-going strategic review.
- Setting up of a **3 years transformation plan to speed up Engie transformation in a fast changing environment. Engie will focus its new developments on low CO_2 energy mix, integrated customers solutions and activities not exposed to commodity prices**. The transformation plan is based on a simplified organisation involving:
  - €22bn capex (€7bn on maintenance)
  - €15bn portfolio rotation program of which 1/3 already signed
  - €1bn net opex savings

  At the end of this plan the contribution to EBITDA of regulated and contracted activities will be >85%.
- For the period 2016-2018 the group retain a net debt / EBITDA ratia below or equal 2.5x and "A" rating.

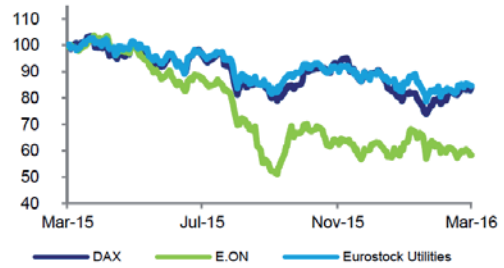
FY 2016 Outlook

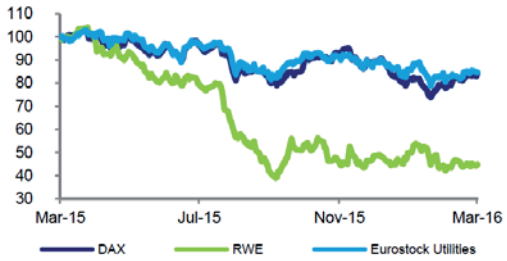
Guidance for 2016 :
- **EBITDA : €16.3bn - €16.8bn**
- Financial debt / EBITDA : 2x – 2.5x
- Pay out ratio of net income (ex. non rec. items): 55% - 65%

Ambition for a positive cash-flow after dividend in 2018 confirmed.

For 2016 Engie outlooks are:
- **A net recurring income, Group share resilient compared with 2015, between €2.4bn and €2.7bn**
- For fiscal years 2015 and 2016 confirmation of a €1 dividend per share in cash
- For fical year 2017 and 2018, the group commits to pay a €0.7 dividend per share in cash

Share Price Perf. 2015 - 2016





Key Reported Financials

In billion of €	2015	2014	Var.
Sales	116.2	113.1	+3%
EBITDA	**7.6**	**8.4**	**-10%**
Operating Income	4.4	4.7	-6%
Recurring net income Gr	1.6	1.6	-
Impairment	**8.4**	**5.5**	**nm**
Net Income Gr Share	**-7.0**	**-3.2**	**-119%**
Operating CF	6.1	6.4	-5%
Net Capex	-4.2	-4,2	-
Net debt	-27.7	-33.4	-17%

In billion of €	2015	2014	Var.
Sales	48,6	48,5	-
EBITDA	**7.0**	**7.1**	**-1%**
Operating Income	3.8	4.0	-5%
Recurring net income Gr	**1.1**	**1.3**	**-15%**
Impairment	**3.1**	**0.8**	**nm**
Net Income Gr Share	**-0,2**	**1.7**	**-**
Operating CF	3.3	5.6	-41%
Net Capex	-3.3	-3.4	-3%
Net debt	-25.1	-31.0	-19%

2015 Highlights

- **Ebitda amounted to €7.6bn** vs 2014, **in line with the upper end of outlook range.**
- **Adverse effect on EBITDA of decommissioning of hard coal generating units in Germany, and disposals of gas power plants in Italy and Spain; and lower commodity prices.** It was partially compensated by a weather-driven increase in sales volumes and higher earning at Global Commodities due to optimization.
- **The share of nuclear and fossil generations in the Group EBITDA amount respectively to €1.0bn** and €0.5bn representing respectively a €0.4bn and €0.3bn drop compared to 2014.
- **Significant impairment (€8.4bn), including €2.0bn on E&P activities and €3.4bn on generation, attributable to deteriorated assumptions in electricity and fuel prices** but also policy and regulatory environment.
- 2015 investments were focused on wind, solar and bioenergy projects, and energy efficiency services.
- **Achievement of the spin-off with two separate legal entities: Uniper and E.on starting January 1st, 2016.**

- **Ebitda is higher than expected at €7.0bn** namely due to the full consolidation of VSE, the Slovak utility energy company.
- **Slight rise in electricity sales volume** and gas supply volume (+5%).
- While the German government renounced to the climate levy for **power plants conventional power generation are still under pressure.**
- **A €3.1bn impairment charge has been recorded on German (€2.2bn) and UK (€0.5bn) conventional power plants** including the decision not to complete the building of Block D, and the written off of the value of the stake in Borsselle Dutch nuclear power plant.
- On December 1st, 2015, **RWE announced that it will pool into a separate entity its renewable, grid and retail operations and to list this new entity on the stock market.**

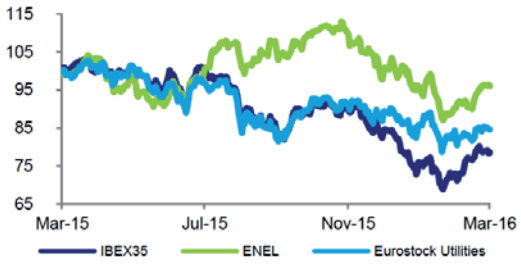
FY 2016 Outlook

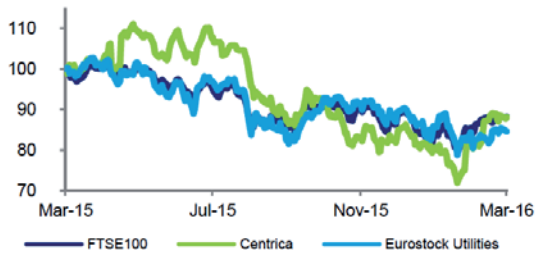
Based on pre-spin-off basis 2016 outlooks are:
- **EBITDA between €6bn and €6.5bn**
- Net income €1.2bn and €1.6bn.

E.ON's outlook for 2016 will have to be adjusted after the vote of the spinoff of Uniper during Annual Shareholders Meeting.

For 2016 RWE outlooks are:
- **EBITDA in the range between €5.2bn and €5.5bn**
- Operating result in the range between €2.8bn and €3.1bn
- Adjusted net income in the range between €0.5bn and €0.7bn

Share Price Perf. 2015 - 2016





Key Reported Financials

In billion of €	2015	2014	Var.
Sales	75.7	75.8	-
EBITDA	**15.3**	**15.8**	**-3%**
Impairment	0.9	7.5	bm
Operating Income	7.7	3.1	+149%
Recurring net income Gr	**2.9**	**3.0**	**-**
Net Income Gr Share	**2.2**	**0.5**	**+340%**
Operating CF	9.6	10.1	-5%
Net Capex	-7.7	-6.7	+15%
Net debt	-37.5	-37.4	-

In billion of €	2015	2014	Var.
Sales	39.2	41.2	-5%
EBITDA	**na**	**na**	
Operating Income	-1.2	-1.6	+25%
Impairment	3.4	2.7	nm
Recurring net income Gr	**1.2**	**1.3**	**-8%**
Net Income Gr Share	**-1.2**	**-1.3**	**-8%**
Operating CF	3.1	3.0	+3%
Net Capex	-1.2	-1.2	-
Net debt	-6.7	-7.3	+8%

* assuming a fixed exchange rate of 1.40 into euros

2015 Highlights

- **Result in line with guidance despite challenging economic scenario**.
- The slight contraction in sales is the result of a decline in electricity sales (€133m).
- **Ebitda amounted to €15.3bn vs 2014, impacted by** lower generation margin from conventional sources and **overall negative forex** (€107m), partially offset by the efficiency plan.
- Agreements signed **in Italy and Spain for early retirement plans having with a negative effect on EBITDA**.
- Positive effect of the **regulatory changes in Slovakia** that made it possible to partially reverse the provision for the disposal of depleted nuclear fuel.
- Impairment of €0.9bn on Russian conventional generation plant and Romanian renewables following a change in regulatory conditions.
- Significant progress made towards achieving the 5 pilars of the strategic plan.
- Strong increase of investments in renewable energy (+€0.8bn) to €2.5bn.

- Group revenue decrease by 5% as a result of **lower average sales prices partially offset by the consolidation over 12 months of Bord Gais Energy acquired in 2014.**
- **The operating profit increase driven by a higher nuclear output but partially offset by lower commodities prices, namely gas**.
- **Impairment and provision of €3.4bn** namely on E&P (€2.7bn) and nuclear power generation (€0.6bn)
- On February 2016 Centrica announced the sale of its stake in the GLID windfarm with a net proceed from sale estimated at £115m
- **Strategy implementation on track with groth focus on customer facing activities**
- £750m per annum by 2020 cost efficiency programm underpinned

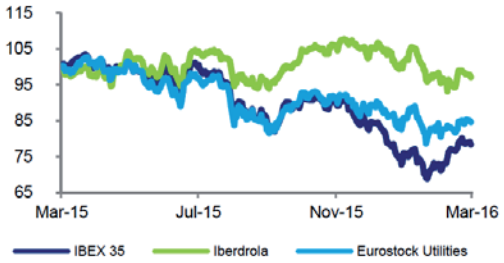
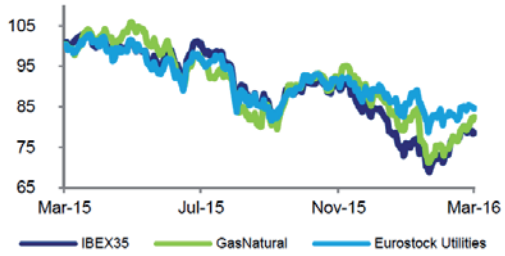
FY 2016 Outlook

For 2016 Enel outlooks are namely:

- **Recurring EBITDA approx. €14.7bn**
- Net ordinary income approx. €3.1bn
- FFO/net financial debt: 23%

For 2016 Centrica outlooks are namely:

- **adjusted operating cash flow to exceed £2bn**
- capital investment < £1bn
- £200m of cost efficiencies

	IBERDROLA	gasNatural
Share Price Perf. 2015 - 2016		

Key Reported Financials

In billion of €	2015	2014	Var.
Sales	31.4	30.0	+5%
EBITDA	**7.3**	**7.0**	**+4%**
Impairment	0.3	0.0	nm
Operating Income	3.8	3.9	-3%
Recurring net income Gr	**2.3**	**2.1**	**+10%**
Net Income Gr Share	**2.4**	**2.3**	**+4%**
Operating CF	5.9	5.5	+7%
Net Capex	-2.8	-3.2	-13%
Net debt	-28.1	-25.6	+10%

In billion of €	2015	2014	Var.
Sales	26.0	24.7	+5%
EBITDA	**5.3**	**4.8**	**+10%**
Impairment	0.0	0.5	nm
Operating Income	3.3	3.2	+3%
Recurring net income Gr	**na**	**na**	**-**
Net Income Gr Share	**1.5**	**1.5**	**-**
Operating CF	3.5	2.8	25%
Net Capex	-2.1	-4.3	-51%
Net debt	-15,6	-16.9	-8%

2015 Highlights

- **Ebitda amounted to €7.3bn, +5% vs 2014**, thanks to the renewable division (+€0.2bn) with recovery in Spain and strong UK performance.
- **Net profit of €2.4bn and EBITDA of €7.3bn having reached in advance the targets set in its 2014-2016 outlook**
- Acquisition of UIL (US gas and electricity distribution company) by a merger with Iberdrola USA to form Avangrid for a total of €2.6bn (€0.5bn in cash). In **2015 adverse effect of Avangrid consolidation with a -€60m impact on EBITDA and €-45m on net income**
- **Decision to close the Longannet coal fired plant in the UK triggering a €0.3bn impairment**
- Investment largely investment focused on Networks, renwable and regulated generation (88%)
- Release of the 2016-2020 strategic plan:
  - Investments of €24bn on which €22bn already commited
  - 88% of investments for regulated or long term contracted activities
  - 2020: 81% EBITDA coming from regulated or long term contracted activities
  - Operating cash flow over €34bn exceeding investments across all businesses
  - Annual average results growth of aroun 6% until 2020

- **Ebitda reached €5.3bn, +10% vs 2014, exceeding the target set in the strategic plan 2013-2015**.
- **Positive contribution (€499m in EBITDA) of CGE, a leading company in electricity and gas distribution in Chile acquired by Gas Natural in November 2014.**
- Growth mainly linked to the **solidity of regulated activities despite challenging commodities prices**.
- Proactive asset management with **divesting from non strategic assets (Telecoms €510m and Begagsa €97m)**
- In October 2015 **the Kuwait Investment Authority acquired 25% of the capital of Global Power Generation**, the subsidiary of Gas Natural in charge to promote international generation business, for **US$550m**.
- Investments focused on gas distribution activities representing 42% of the consolidated total
- 84% of net debt maturing from 2018 ownards and enough liquidity to cover the needs for 24 months

FY 2016 Outlook

Excluding UIL, 2016 ratios targets already achieved on year in advance :
- Net debt < 3.5%
- FFO / net debt > 22%
- RCF / net debt > 18.5%

No outlook released for 2016

Talking points

1 – EU- 2015 Report on The State of Renewable Energies in Europe: the growth of renewables is slowing down

(sources: The State of Renewable Energies in Europe, 2015, 15th EurObserv'ER Report, Inteligent Energy Europe EU, Josef Stefan Institute Energy Efficiency Center, Frankfurt School)

Less than 5 years away from the 2020 target of the European Union Energy Package, an EU report indicates that, at the beginning of 2015, renewable energy represents a 15.9 % share of final energy consumption in the EU, against a target of 20% in 2020 and 27 % in 2030.

From 2014 to 2015 the increase of the share of gross final energy consumption has only been modest by just a percentage point rising from 15 to 15.9%. This limited increase takes place against the global backdrop of plummeting fossil energy prices and despite the drop in wood-energy consumption resulting from an exceptionally mild winter. In addition to this, it has to be mentioned that total energy consumption – the denominator of the ratio – has remained stable or gone down over the past 3 years against a set of disappointing economic performances and a number of recent mild winters.

Looking at this figure into details, the total share of renewable energy in the EU 28 electricity production goes up to 25% whilst the share in transport does not exceed 5%.

Renewables have been consistently the fastest developing source of energy in the EU over the past 10 years. Renewables in the EU today represent sales of € 140 billion and more than 1 million jobs across Europe. But their growth rate is now declining for almost all renewable sources and in every EU country.

Nine EU Member States (Bulgaria, Croatia, the Czech Republic, Estonia, Italy, Lithuania, Romania, Finland and Sweden) have achieved or over-achieved the 2020 target, whilst 12 EU Member States have passed the 75% mark.

Europe's major energy consumers, Germany and France are at 76.5 and 62.7% of their respective targets, while the UK is at 46.4% of target. At the same time, Europe's major energy markets – Germany, France, the UK, Italy and Spain – are also those countries who have developed the largest renewable capacities in absolute terms, reaching 170 GW of non-hydro renewable electricity capacities, or 77% of a total of 221 GW in the EU.

Wind energy in the EU

At the beginning of 2015, the wind electricity generation capacity in the EU (both onshore and offshore) was 129 GW in total. **Wind capacities have expanded by 11 GW from 2014 to 2015, a figure going down against the 13 GW/year average increase noted over the previous years. Wind electrical capacities in the EU account for 13% of the total electricity generation mix but a little less than an 8% contribution to the electricity production.**

Against the National Renewable Energy Action Plan ("NREAP"), the EU 28 is lagging behind its target. The wind capacities are expected to be as high as 143 GW by 2015 (versus 129 GW today). By 2020, the EU wind capacity is expected to reach 213 GW, which leaves us with only 5 years to develop more than 80 GW of wind farms whilst it took us 25 years to move to the current capacity level. The wind electricity production is due to be 500 TWh in 2020 (equivalent to 100% of the French power production) versus 156 TWh today. **With all the ambitious development and capital expenditure over the past years, we are still on a "Low" development scenario against the initial ambitions stated in the NREAPs**.

Germany alone represents 30% of the total EU wind capacity and 23 % of the total EU wind generation. Spain's wind generation accounts for 20% of the EU's. At the other end of the spectrum, the French and Italian contributions to wind generation are 6% each.

Solar PV in the EU

Solar PV has posted the fastest development growth rate over the past years. But the trend is going down. The EU solar capacities have only increased by + 12% against the previous year in 2015, versus an increase of + 20% in 2013 and + 50% in 2012.
The total EU PV capacity stands at 87 GW today or 36% of the total EU non hydro renewable capacities (but 8% of the EU total electric capacities). Solar contributes 16% to the total non-hydro renewable production of the EU but only 9% of the total renewable electricity production in the EU, and a small 2.5% to the total electricity production in the EU28. **Contrary to wind energy development, solar PV capacities in 2015 are far in excess of any capacity targets under the National Renewable Energy Action Plans (NREAP)**. The capacity objective under the NREAP was set to be 54 GW by 2015 for the total EU 28 and this objective was already achieved 6 years ago. The actual connected capacity is assumed to be 91 GW at the end of 2015, equivalent to a 68% "over-achievement". 130 GW of solar PV capacity are expected to be on-line by 2020, against an objective of 84 GW in the same year, equivalent to 54% above targets.

Looking at this figure into details, the total share of renewable energy in the EU 28 electricity production goes up to 25% whilst the share in transport does not exceed 5%.

Wind electrical capacities in the EU account for 13% of the total electricity generation mix but a little less than an 8% contribution to the electricity production.

Contrary to wind energy development, solar PV capacities in 2015 are far in excess of any capacity targets under the National Renewable Energy Action Plans

The reason for this over-achievement of PV capacity target – another word for PV bubble? – is to be found in the fast increase in PV technology competitiveness and the underestimation of solar potential when the NREAP were established.

Germany alone represents 44% of the total EU PV capacities and 38% of solar electricity produced in the EU28. The French and Spanish PV electricity production only accounts for 6% and 5% of the total EU 28 respectively.

Biogas in the EU

Biogas in the EU includes gas produced by (i) anaerobic digesters (72% of the biogas recovery in the EU) recovering methane from a variety of feedstock including slurry, farming waste, green waste, food processing, waste and domestic refuse as well as cultivated farm crops such as intermediate crops and maize, etc., and (ii) waste water treatment (10%) or landfills (18%).

Biogas production in the EU stood at 15 Mtoe (million tonnes of oil equivalent) in 2015, up by over 6% against the previous year. This production is equivalent of roughly 18 billion cubic meters of natural gas annually, or 5% of the EU gas demand.

Biogas uses include primarily electricity and steam production for 90% of its final output (equivalent to 57 TWh of electricity across the EU), and 10% district heating (equivalent to 0.55 Mtoe of heat annually).

Germany on its own represents 50% of biogas production in the EU28 total, and 60% of all biogas uses in the EU. France lags behind its peers in terms of global achievement of renewable targets due to a low production of biogas: Italy's production of biogas as a primary energy source is 4 times, and Germany 18 times, the French biogas production. Biogas development in France could be a way to close the gap in respect of the French renewable targets: should the French biogas production reach the level of Germany's, at around 7 Mtoe/y, France would add another 5% to its share of renewables use in gross final energy consumption and almost close the gap with its target.

Biogas production potential in the EU have been estimated at 48 billion cubic meters of methane by 2020 roughly equivalent to 10% natural gas demand and 14% of the EU gas imports by then.

Other renewables

As far as thermal solar energy is concerned (producing heat and domestic hot water via collectors), the EU 28 with an output of 2 Mtoe/y stands slightly behind its objective of 3 Mtoe for 2015 and is not expected to reach the 6 Mtoe/y target by 2020. Germany and Austria together account for about 50% of the total solar thermal capacity in the EU. The main reasons for the thermal solar energy decline across the EU include (i) the contraction of the real estate market and drop in house sales over the past 6 years, and (ii) an unfavourable competitive position against the public incentives available for solar PV.

Finally, small hydropower in the EU – installations less than 10 MW capacity - remains relatively constrained, at 13.6 GW in total which meets the NREAP objectives. **Italy and France together account for 37% of EU28 small hydro capacities and around 40% of small hydroelectric production**. Future capacity target under the NREAP may prove difficult to be met as the small hydropower development conflict with the Water Quality Framework Directive implementation and lacks political support.

With an overall 15.9 % share of renewable use in final energy consumption, the European Commission literature voices enthusiasm about the ability of the EU 28 to achieve the 20% target by 2020. **However, in a low fossil energy price scenario now, and with reduced political support against a backdrop of significant generation capacities, it seems rather difficult to see how the EU 28 is actually going to meet the target on time.**

Biogas production potential in the EU have been estimated to 10% natural gas demand and 14% of the EU gas imports by then.

2 –The Financing of Renewables in 2015

Under a 2015 study by Bloomberg and the Frankfurt School – UNEP Collaborating Centre for Climate & Sustainable Energy Finance supported by the German Federal Government, global annual investment in renewable energy reached **an unprecedented US$ 339 bn at the end of 2014**.

This amount includes some **US$ 69 bn** relating to renewable projects or company buy-outs and other **M&A transactions**, a yearly amount that has been relatively stable since the global financial crisis. **This figure includes an overall amount in respect of project acquisition or refinancing by investment funds and investors accounting for US$ 54.5 bn, and renewable buy-outs by Private Equity Funds representing another US$ 2.5 bn.**

The bulk of the **net new investment figure (US$ 270 bn)** is made up of the three main categories of the global renewable energy investment, including:

(i) asset finance for US$ 170 bn in respect of financing utility-scale projects by way of a mix of loans and equity from corporate balance sheet;

(ii) a mix of public equity market (US $ 15 bn), corporate R&D (US$ 7bn), Government R&D (US$ 5 bn) and Venture Capital/Private Equity (US$ 3 bn, excluding Private Equity buy-outs) for an amount of US$ 30 bn globally in respect of technology development and equipment scale-up at project conceptual and development phase.

(iii) "small distributed capacity" for US$ 73.5 bn, i.e. the financing of rooftop solar panel by private households and commercial businesses.

Wind and solar (mostly PV) investments account for 92% of the global investment figure, with roughly US$ 100 bn and US$ 150 bn per annum respectively. All other energies pale into insignificance compared to these two technologies. Investments in wind and solar however differ markedly: all wind capacities are utility-scale and have been financed on a mix of corporate and project finance. About half of the solar projects relate to small capacity rooftop installations financed by individuals. China and the European Union have been by far the two main destinations of the renewable capacity development with US$83 bn and US$ 58 bn respectively.

In the European Union, both wind onshore and offshore capacities, and solar PV capacities, have been funded by way of corporate loans for 2/3 and project finance for 1/3 of the capacities. Germany accounts for 37% of the new wind development, and 80% together with the UK and the Netherlands end 2014. Regarding PV project closing in the EU, most of them took place in the UK in 2014, with France showing the strongest growth whilst Germany and Italy dropped slightly 2014- 2015.

Venture Capital (VC) and Private Equity (PE) investment in renewable energy grew notably in the EU. **VC/PE investments totalled € 2.46 billion in the EU in 2014, including EU Private Equity buy-outs, an increase by more than 30%, with an average investment growing from an average VC/PE deal size of € 43 million in 2013 to € 107 million per deal in 2014.**

VC capital investment normally takes place at early development stage, in order to support emerging companies' research and development or business plan. Venture Capital also invest at a later stage in respect of financing initial production capacities and marketing activities. In contrast, PE expansion capital is typically aiming at more mature / established companies and hence is less risky. Finally, PE buy-outs are investments taking place at operation stage to acquire a renewable company.

Wind projects account for over 86% of all VC/PE investments. France and the UK together (with almost equal share) account for 57% of all VC/PE investment in renewables at the end of 2014.

Wind and solar (mostly PV) investments account for 92% of the global investment figure, with roughly US$ 100 bn and US$ 150 bn per annum respectively.

Venture Capital (VC) and Private Equity (PE) investment in renewable energy grew notably in the EU.

3 – The "Uberisation" of the energy sector.

(sources: OIES Forum February 2016; MIT, The Future of Solar Energy, 2015; Tam Hunt, The Perils of Wholesale Distributed Generation: Can California Live Up to Its Promise? March 2016)

The deployment of distributed energy resources (DER) – solar panels and batteries, information technologies, smart meters and digital appliances – is in the process of changing the old, centralised electricity sector. An increasing proportion of electricity produced at end-user level reduces the call on the old centralised generation park and takes more and more market share away from traditional utilities.

As more renewable energy is installed and operated locally, typically roof-top solar PV, local end-users are increasingly becoming their own producers. As a result, end-users/producers have access to a zero marginal cost electricity which they can trade among themselves locally, therefore by-passing large-scale thermal electricity producers. **The "sharing economy" applied to electricity system brings together individuals with under-used assets generating energy at marginal cost** and other individuals who may wish to hire those assets for a "spot" energy supply at low cost.

For traditional utilities, the threat to the traditional business model is clear. There is a price risk added to a volume risk. A price risk: more renewable electricity means an even greater excess liquidity and lower prices. And a volume risk: more renewable electricity generated at local level means less consumers.

The traditional utility model is based on a cost-plus structure in which the utilities pass their costs, plus a return on their capital investment, to customers at a variable rate (USD or €uros/kWh). The model sustains itself with further capital investments, sales growth, and sustainable prices, with ever new capacity addition being the major driver of utilities' revenues and return.

How does the Uber model translates into the energy sector?

If my next door neighbour is my taxi driver at times, and I am his at other times, the same could apply to

An increasing proportion of electricity produced at end-user level reduces the call on the old centralised generation park and takes more and more market share away from traditional utilities.

For traditional utilities, the threat to the traditional business model is clear. There is a price risk added to a volume risk.

energy supply. My next door neighbour is a baker. I buy bread from his shop, but I also buy electricity from him when his roof-top PV panels are producing excess energy. And I may also sell electricity to him when my roof-top PV panels generation is in excess of my energy needs and he is baking bread. I may have financed part of the baker's roof-top PV panels as well as he has financed mine. Our energy system is asset-lean. Our capex are low, our opex are close to zero. We do not need an energy supply company and we have no employees. Transmission and distribution take place between his household and mine. So does generation and commercialisation. My household and his have taken over energy corporates and are in a position now to assume most of energy activities from generation to commercialisation.

When this kind of arrangement is combined with a "net metering" scheme, as is available in the US, where residential PV generators are compensated by the utilities at the retail rate for the electricity they generate, the result is a subsidy to decentralised residential producers and other distributed solar generators by way of an extra revenue paid by other customers on the network.

Germany shows us the way: end 2014, about half of all renewable energy installations in Germany were owned by citizens, rather than corporate entities. In contrast, the four energy incumbents in Germany – EnBW, E.ON, RWE, and Vattenfall – own less than 10 per cent of all decentralised renewables installations, as a recent OIES study quotes.

In actual fact, contrary to widespread perception, the Uber model is not trying to squeeze taxi drivers out of their business. It might even prefer hiring them than killing them off. What it does squeeze however is the dispatch centers, data centers and other intermediaries. **Uberisation is all about "de-intermediation".**

Google's acquisition of Nest Labs for $3.2 billion in 2014 - a 200-employee company that makes smart thermostats – is another example of this trend towards de-intermediation which will ultimately turn non energy company into new energy players. Why did Google make this acquisition? Google wants to create a relationship with the consumer by offering a Trojan horse by way of a free service - smart thermostats. When consumers use Google's smart thermostats, Google knows when the consumers are at home, how they use energy, and what their habits are. **Using that new information, Google's next step is to provide new services to help consumers optimize their energy consumption, and ultimately capture the relationship** that consumers previously had with energy providers, along with the associated profit margin. The energy providers are being commoditized and "disintermediated".

Is the old utility model doomed to disappear ? Will there be no end to the "uberisation" of the economy?

There are still two key obstacles facing a widespread uberisation of the energy system: **interconnection costs and time-adjusted energy value**.

Except for energy efficiency and demand response, everything else -- solar, wind, biomass, geothermal, small hydro, electric vehicles and energy storage -- **requires an interconnection to the grid** which is subject to utility approval and transforms the Transmission System Operator – another powerful regulated entity – into the last resort supplier. **And, given the intermittency of renewable systems, the interconnection capacity needs to be well in excess of the 15% above peak load level which is the current interconnection threshold.**

As solar penetration increases in a deregulated system, new investments are required to maintain power quality when power also flows from customers back to the network, which current networks were not designed to handle. As we already noted in a previous issue of the Newsletter (September 2015), the main obstacle to the full deployment of renewable-based decentralised system will lie in the fact that, in order for households to meet their power needs in the winter, they will have to oversize their PV parks and storage systems up to their maximum electricity requirement in the winter. This will imply that they will have a structural excess-output during the rest of the year, in the summer in particular, which will require them to stay connected to the grid in order to export the excess power they produce. We quoted (UBS study) that the figure for a typical household equipment including PV, plus battery plus back-up generator is currently assumed to amount to 40 000 € in Spain equivalent to 15 years of electricity bills, and 75 000 € in Germany or 25 years of electricity consumption. A recent MIT Study demonstrates that, even if PV penetration tends to reduce average wholesale electricity prices from 68 US$/MWh down to 58 US$/MWh as PV share increases from 10 to 40%, Low Voltage network costs more than double up at the same time. **As a consequence, the penetration of PV-based distributed energy system might be self-limiting in a fully deregulated environment.**

The second obstacle relates to the fact **that the value of energy highly depends on the time and location where electricity is needed, whether it comes from the utility or not.** California is in the process of proposing a new regulation based on "locational net benefits" methodology which would incentivise or dis-incentivise generation, typically solar PV, depending on its ability to supply a particular customer in particular location at a given point in time. PG&E, the Californian utility, has introduced

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Time-Of-Delivery adjustments as its peak demand has shifted from an early afternoon peak to an evening peak, with new rates applying to solar PV production, depending on time of the day or the year, ranging from a discount of minus 42 percent (as a weighted average) over the headline PPA price to a 72 percent deduction from the base PPA price, therefore reducing dramatically the return on solar PV generation. In a nutshell, the new solar development projects have been killed.

Even if solar PV generation is becoming more cost-competitive, revenues per kW of installed capacity decline as solar penetration increases until a breakeven point is reached, beyond which further investment in solar PV would be unprofitable.

Whether the distributed energy model – the "uberised" energy system – displaces the old utility model or not, it still comes as a major challenge to the economics of energy as a whole. The energy pricing formation is based on the short term marginal cost of the marginal unit of the supplied/requested energy supplied. The short term value of scarcity is the cornerstone of the long standing economic theory of energy. The economic principle at the heart of the Uber model sits at the other end of the spectrum. **The asset which the Uber, or AirBnB, trades is not the scarce, marginal, source of supply but on the contrary the abundant, unused assets** – the unused bedrooms at people's houses. This is where the Uber model calls for a radical change of the energy pricing mechanisms.

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4 - The Road from Paris: assessing the implications of the Paris Agreement for the EU – EU declaration on how the EU will implement the Paris Agreement, EC documents on COP 21

In the aftermath of the COP 21 Paris Agreement, December 2015, the European Commission issued a Communication to the European Parliament and the Council of Ministers called ***"The Road from Paris"*** which assesses the implications of the Paris Agreement in respect of the EU Energy and Climate policy objectives and the latest pledges made by the EU at the COP 21.

The EU contribution to COP21, otherwise known as the EU's Intended Nationally Determined Contribution or "INDC", was released on 6 March 2015. **It enshrines the 2030 climate and energy policy framework set by the October 2014 European Council and the European Commission's blueprint for tackling global climate change beyond 2020**, and therefore includes the three objectives to (i) reduce EU greenhouse gas emissions by 40% versus 1990 level, (ii) bring renewable energy sources to a 27% share of final energy consumption and (iii) achieve a 27% energy saving by way of energy efficiency measures, all by 2030.

However, **in many ways, the Paris Agreement, and the EU INDC further to COP 21 change the commitment of the EU.**

Although the EU INDC affirms the EU policy framework for energy and climate for 2030, it also goes slightly beyond. In particular:

(i) The **EU INDC includes emissions from the aviation sector**, as well as emissions from the international maritime transport industry - subject to international agreements being reached as further developed below - in the perimeter of those greenhouse gas emissions that need to be reduced. Therefore, the GHG base has now to be changed. The reduction objective in percentage term remains the same but the reduction effort will be different and does not seem to be quantified today.

(ii) The **EU INDC now includes the emissions from the agricultural and forestry sectors**, known as Land Use, Land Use Change and Forestry (LULUCF), into the greenhouse gas reduction objective. The INDC however says that the accounting rules of the Kyoto Protocol, in particular those regarding GHG perimeter and objectives, will stay the same. But the problem is the inclusion of the Land Use, Land Use Change and Forestry sectors still changes the perimeter, and therefore the overall GHG emission reduction objective by 2030.

(iii) **The 2050 objective of the EU Energy Roadmap is also stated again**, as an emission reduction target of 80 – 95% carbon reduction versus 1990 level. Here again, the percentage remains the same, the perimeter has changed.

(iv) Finally **the EU INDC clearly indicates that the GHG emissions will be restricted** to domestic emissions reduction for each Member State and that the use of international credits - CER, ERUs etc…- will be no available option, contrary to what happened in the past.

Although the EU INDC affirms the EU policy framework for energy and climate for 2030, it also goes slightly beyond.

The EU INDC: investment budget and funding

According to the IEAs figures, **the EU investment in respect of the transition to a low-carbon economy – renewables and low-carbon energy devices plus energy efficiency investments – will be in the range of US$ 115 bn over the period 2014 – 2020**. This figure compares to US$ 71 bn for the US and US$ 107 bn for China. The EU, the US and China account for over 2/3 of the global investment in renewables and energy efficiency over the outlook period.

Regarding financing the EU energy transition, **the European Structural and Investment Funds (ESIF) for climate-related actions has programmed € 114 billion over the 2014-2020 period, of which almost half – about EUR 56 billion – comes from the European Agricultural Fund for Rural Development (EAFRD)**. The climate change-related action will represent at least 20 % of the EU's overall budget between 2014 and 2020. Over the same period, the EU commits to investing in renewables three times the amounts invested in fossil fuels, and energy efficiency is to account for 50% of total energy investment.

Over the 2014 – 2030 period, the EU is embarking upon an ambitious low carbon investment programme, according to IEA figures, with a total budget of US$ 280 bn against US$ 171 bn and US$ 180 bn for the US and China respectively.

The European Climate Diplomacy after COP 21

On February 15th, 2016, the European Council paid tribute to the COP 21 achievements and defined three avenues of collective climate diplomacy priorities in support of the implementation of the Paris Agreement, targeting a long term "climate-resilient" economy. **The new EU climate diplomacy is aiming at far-reaching actions, which sometimes go well beyond energy and climate issues:**

In particular, the EU, to include its Member States, will pursue the objective of reaching an international agreement regarding:

(i) **a global market based mechanism to govern future greenhouse gas (GHG) emissions for international aviation** at the International Civil Aviation Organisation Assembly in September 2016,

(ii) negotiations in April 2016 at the **International Maritime Organisation (IMO) in respect of GHG emissions from international shipping**: these two sectors are critical in terms of CO2 emissions. One wonders how the EU is going to impose its emission reduction accounting and objectives at global level. And

(iii) an agreement on the HFCs amendment under the Montreal Protocol on Substances that deplete the Ozone Layer.

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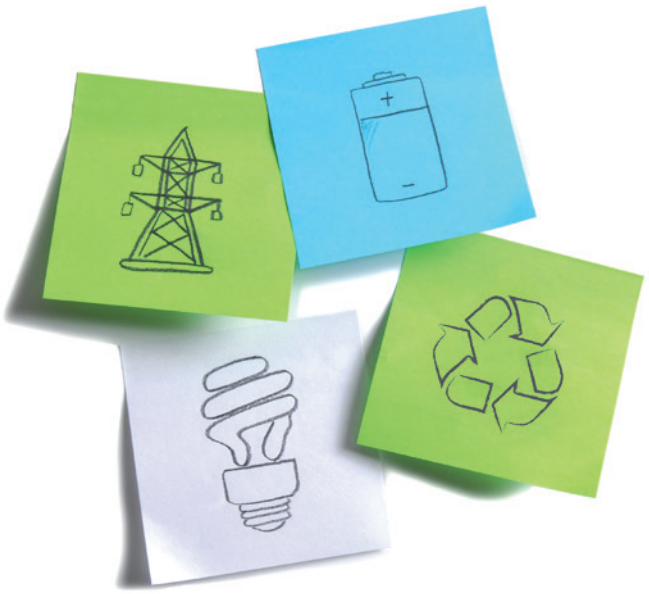

Policy and Regulation Radar

This section summarizes the key changes respectively in the EU or in the country regulation that may significantly affect the power and utilities companies..

What is changing in the EU regulation?

European Commission: key trans-European energy infrastructure projects

Key features	Insights
Last December, the European Council called for the swift implementation of **projects of common interest** in order to have an interconnected market based on the **Energy Union**. Following these conclusions, on 19th January the European Commission agreed on a Commission proposal to **invest €217 million** in **key trans-European energy infrastructure projects**. In total, 15 projects were selected. These projects will increase **energy security** and will help to **end the isolation of Member States** from EU-wide energy networks. They will also contribute to the **completion of a European energy market** and the **integration of renewables** into the electricity grid.	Of the **15 projects selected** for funding: nine are in the gas sector (financial aid worth €207 million) and six in electricity sector (€10 million); thirteen relate to studies, such as environmental impact assessments (€29 million), and two to construction works (€188 million). The European Commission proposal to select these projects was supported by the **CEF Coordination Committee**, which consists of representatives from all EU countries.
	Next steps
	Next calls for funding energy infrastructure projects are expected by March (€200 million) and June (€600 million).

Link: *Energy: EU invests €217 million in energy infrastructure*

European Commission: Energy Security Package

Key features

On February 16th, the European Commission (EC) published a **package of energy security** measures as part of the Commission's **Energy Union strategy** with a forward looking climate change policy. Security of supply is one of the five dimensions of the Energy Union.

The new proposals set out a wide range of measures in order to:

- **Prevent from gas crisis** and ensure better **coordination and support** between **EU countries** in any gas supply disruption.
- **Tighten intergovernmental agreements** in the energy field between EU and non-EU countries.
- Set out a strategy for boosting energy security through **access to LNG and gas storage**.
- Present the way forward to move towards a **smart, efficient and sustainable heating and cooling system**.

Insights

The measures are as follows:

- ***Security of Gas Supply Regulation***: Gas plays a role in the transition to a low-carbon economy and remains important in the EU energy mix. However the existing **external dependence** requires the EU to strengthen the resilience of its markets when confronted by gas supply disruptions. The new regulation introduces:
  - A **solidarity principle** among Member States to **ensure the supply of households and essential social services**, such as healthcare, in case their supply was affected due to a severe crisis.
  - A shift from national approach to a regional approach when designing security of supply measures. Member States will have to prepare **Risk Assessments, Preventive Action Plans and Emergency Plans at regional level** and update them every four years. They must also work together to decide on the construction of reverse gas flows at cross-border interconnections and involve other EU countries situated along the gas route.
  - A reinforced **cooperation** with **EU neighbours**.
  - Additional **transparency measures** for certain security of supply **relevant contracts** which will have to be automatically notified by the natural gas companies to the Commission and the Member States upon their conclusion or modification.
- ***Intergovernmental Agreements in energy***: The EU needs to ensure that intergovernmental agreements signed by its Member States with third countries and relevant to EU gas security are **more transparent** and **fully comply with EU law**. To that end it introduces **an ex-ante compatibility check by the Commission**.
- ***Liquefied natural gas (LNG) and gas storage strategy***: The EU is the biggest importer of natural gas in the world. LNG can give a real boost to the EU's diversity of gas supply and hence greatly improve energy security. However, significant regional disparities as regards access to LNG remain. The Commission sets a LNG strategy that will i**mprove access of all Member States to LNG**. The central elements of this strategy are **building the strategic infrastructure** to complete the internal energy market and **identifying the necessary projects** to end single-source dependency of some of the Member States.
- ***Heating and Cooling strategy***: The proposed Heating and Cooling strategy includes plans to boost the **energy efficiency of buildings**, improve **linkages** between **electricity systems and district heating systems** which will greatly increase the **use of renewable energy**, and encourage **reuse of waste heat and cold generated by industry**. It also aims to ease access to **information for consumers** to allow them to better understand their energy use and make informed choices that could save energy, as well as inform them on possible energy efficient renovations and options for generating their own energy with renewables.

Next steps

In the second half of 2016 the Energy Efficiency Directive and the Energy Performance of Buildings Directive will be reviewed. Towards the end of this year, a proposal on electricity market design is expected and the security of supply for electricity regulation will be reviewed.

Link: *Energy Security Package*

Country reporting on changes in the Policy and Regulation framework – March 2016

France			
Topic	**Key features**	**Insights**	**Next Steps**
Project of regulation on access to gas storage capacities	• A project is currently in progress to **reform access to gas storage capacities.** • The storage capacities are necessary to the **procurement security** and is a key element for **gas market stability**. • However the project underlines that the **remuneration model should change to provide clarity** on storage remuneration and **simplify operators' obligations**. • The remuneration of gas storage capacities **should be based on a regulated approach** and includes the **possibility of an auction process**	• The regulated remuneration would be monitored by the French Commission for energy regulation (CRE) which considers that principles should be **consistent with mechanisms applicable to grid operators**. • It means that the new model would be a **regulated assets basis approach with efficiency incentive fees.** • The remuneration for auctions is currently based on an administrative process with no market considerations. CRE considers that it should move to **a model based on market conditions.** • It should be noted that the project considers **exiting long-term contracts signed before introduction of the auction process are entitled for renegotiation or cancellation.**	The final law should be endorsed in early 2016 but the CRE foresees a **long process due to the number of existing regulations to be amended.**
Project of decree to promote Biogas	• The French energy transition law identified **Biogas as a key area for the development of renewable energy setting an objective of 10% of biogas in gas consumption by 2030** and an intermediate objective of **6-8TWH of gas injections by 2023** • For plants exceeding 300 KW a study for connection to distribution grid should be released in order to retain the most competitive projects. • Currently 408 installation are in operations representing 355 MW and about 300 projects are under review. • **The Decree is aimed at accelerating biogas plant construction namely by the way of tenders**	• As matter of interest the French Institute ADEME consider that France has a **potential of production 30-60 TWH by 2030 representing between 40%-50% of gas injections**, which is consistent with the weight of agriculture sector in France as a large source of wastes to produce biogas. • The **biogas benefits from a feed-in tariff since 2011** and since September 2015 some **operators are allowed to inject biogas into gas grid** that facilitate their integration. • In this context the **key hurdle remains the feed-in tariff for which a new formula is expected to provide clarity on financial trajectory**. However it's clear that plants with biogas injection would represent an overwhelming part of the new projects.	The new feed-in tariff should be released in 2016
Tender for offshore windfarm on Dunkerque coast	In 2011 and 2013 **two tenders for offshore windfarm have been granted for a total capacity of 3,000MW** On April 4, 2016 the French Government launched the proposal for **a third offshore windfarm on Dunkerque** coast as part of the strategy to reach 40% of renewable electricity by 2030.	• Looking back to the experience of the two first tender **some improvement have been brought in order to reduce costs and to simplify the process** • The bidding process would be conduct as a **continuous dialogue** with the **possibility to amend the proposal along the bidding period**. • **Risk analyses** related to wind, swell, sea depth and ground structure would be prepared by **State Authorities**. • The delivery of concession license would be automatically delivered to the award winner.	**The calendar has not been communicated** nor the expected production capacity.

Spain			
Topic	**Key features**	**Insights**	**Next Steps**
Remuneration for new biomass and wind facilities based on an auction	• Last January, Spanish government called an **auction** up to **500Mw of wind** power and **200Mw of biomass** power. (See last Newsletter). • The **concept auctioned was** a **percentage of reduction** on the **initial value of the investment** fixed by the Spanish government (3,335,000 €/Mw for biomass facilities and 1,200,000 €/Mw for wind facilities), that will be applied for the **calculation of the remuneration**. Each participant offered a reduction of this value according to their calculations of efficiency and profitability that they expected of each project. • The **result** of the auction was a **reduction of 100%** on the initial value of the investment.	• Successful bidders are willing to carry out projects without investment incentive. Consequently: - The successful bidders for **wind** power are willing to receive **only the market remuneration** without additional incentives. - The successful bidders for **biomass** power are willing to receive the **market remuneratio**n plus a variable compensation for the fuel cost (called **remuneration for the operation**).	In March, the successful bidders have to present the application for entry in the Register. The application should specify the power that should be equal or lower than the power awarded.
Energy Efficiency regulation	• Last February, a new regulation about **energy efficiency** was passed. • This new regulation establishes that **big companies** (with more than 250 workers or a turnover bigger than 50 million €) have to carry out **energy audits every 4 years**. • The energy audits have to cover **at least 85% of total energy consumption** of the company´s facilities. The audits will be carried out by **professional energy auditors** or by **internal personal qualified** without direct relation with the activities audited. • The regulation also establish that all **energy service providers** should **accredit** their appropriate technical **qualification**.	• It is estimated that energy audits will be applied to 3,800 companies in Spain with nearly 27,000 establishments. • The energy audits could be replaced by a certified energy management system and energy performance certificates. • An **Administrative Register of Energy Audits** has been created in order to reflect the information presented by the companies. • Furthermore, in order to promote the energy efficiency, the Spanish government will **evaluate each 5 years** the potential use of the **high efficiency cogeneration** and the **heating and cooling district systems**. The evaluation will include a cost-benefit analysis and the weather conditions and the adequacy of technical and economic viability.	The companies have 9 months to present the energy audits. The audits carried out after 5th December 2012 will be valid.

Germany			
Topic	**Key features**	**Insights**	**Next Steps**
Draft of a Digital Energy Transition Act including draft of the Metering Point Operation Act (MsbG-E)	• Key aspects of the regulation: - Legal framework for **Smart Meter** Rollout in Germany. - New approach for the **electricity metering regulation** (price cap for smart meter). - New market role of **Smart Meter Gateway Administrator** will be implemented. • Changes introduced by the new regulation: - **Network operators** are obliged to rollout of **smart meter** or issue a tender for third parties. - Possible **action alternatives** such as **cooperation** between **network operators or third parties** (e.g. telecommunication). - **Metering data provided directly to the TSO** and not any more to the DSO, it means **new requirements** for transmission system operator, **new market functions** and **new processes** needed in order to collect and evaluate the metering data.	• The Metering Point Operation Act is an opportunity for Power and Utilities companies and creates plenty of new **business opportunities** like: - **Services as Smart Meter Gateway Administrator** for other network operators. - Services for **data collection and evaluation** - In the future services according to **Smart Home** etc. • Deloitte German Smart Grid Practice analyzed the situation of 109 different German grid operators within the new Smart Grid study 2016 (only available in German). • Recent development is a huge driver for the adaption of upcoming changes. **The challenge for German DSOs and TSOs** is to analyze the situation and set-up a **fitting rollout program** in workshops, planning projects and in general the support of smart meter rollout as well as **arrangement of cooperation partners**.	Readings in the German Federal Parliament in April 2016.Commencement expected in September 2016
Regulation about the determination of the energy intensive companies	• This new regulation is driven by European state aid law. • The environmental guidelines prescribe the scheme for the determination of the **energy intensive companies**. These companies are **exempt from paying** the contribution to the **financing of power from renewable energies** (EEG levies). • This determination **cannot longer be based on the individual power prices** of the company in question. **Now**, it will be determined **based on the average branch specific prices**.	• In the past it was observed that companies agreed higher power prices, in order to be exempt from pay the EEG levies. (E.g. by shifting prices to power in combined power/heat contracts). • This is no longer possible. In reverse, **companies which were exempt in past** they **could be obliged to pay the contribution now**.	The regulation came into force at the end of February.

United Kingdom			
Topic	**Key features**	**Insights**	**Next Steps**
Hinkley Point C – Final Investment Decision	• The **Final Investment Decision** for Hinkley Point C **has been postponed by EDF** due to financial constraints on the company amid falling electricity prices, and the **potential need for further investment partners**. • This **follows approval** from the UK government in January 2016 for the **infrastructure** required for the **transmission of electricity from** the proposed **nuclear plant**. • EDF and its Chinese partner, China General Nuclear Corporation (CGN) had earlier committed to the development of Hinkley Point C in October 2015, with both companies signing a Strategic Investment Agreement.	• The UK **Government's plans for future energy supplies** are heavily **dependent on the plant coming online**. • Under current plans, the nuclear plant was due to start producing power to s**upply 7% of the UK's electricity in 2025**. This deadline is likely to be pushed back should further delays to investment decisions be realized.	The final investment decision is subject to: • finalization of long **form documentation**; • finalization by **EDF** of its **financing plan** • **Board approval** from EDF and CGN; and • **Clearance by merger control** and other **governmental authorities** in China and Europe.
Drax Unit 1 biomass conversion – State Aid investigation	• In January, 2016, the European Commission (EC) opened a **State Aid investigation** to **assess the level of support** that the **conversion of Drax's Unit 1** is planned to receive as part of its conversion **from a coal to a biomass plant**. The assessment will include consideration as to whether government support for the Drax project results in overcompensation. • The **strike price** for the biomass conversion had been **agreed at £105/MWh** (in 2012 prices) as part of the UK Government's Final Investment Decision Enabling for Renewables (FIDeR) program.	• According to the EC, further consideration needs to be given to the **impact** that the Drax conversion project has **on the global wood pellets market**, given the **significant volumes** that the Drax Unit 1 would require **for operation**. • This **could significantly distort competition** in the market such that the benefits of the project (such as in meeting EU 2020 renewables targets) will need to be weighed against any negative competition effects.	The EC's State Aid decision is expected later this year.
Consultation on Capacity Market Reforms	• The Department of Energy and Climate Change (DECC) has opened a **consultation** on further **reforms to the UK Capacity Market**. Proposed reforms include: - Buying around **3GW** of **additional capacity** under the December 2016 T-4 auction; - **Tightening delivery incentives**, including more severe penalties on agreed capacity that fails to deliver; - The introduction of an **early capacity auction in 2017** for delivery year 2017/18; and - Addressing concerns over the level of **diesel generation receiving capacity agreements**. • These reforms build on the outcomes of a **consultation which concluded in December 2015**.	• The **availability of more capacity** through future auctions is likely to **raise the auction clearing price** with the objective of reaching the expected cost of new entry. This is intended to encourage the award of agreements to more new-build capacity (and in particular, gas generation) in the future.	Responses to the consultation are required by 1 April 2016.

Snapshot on surveys and publications – April 2016

Deloitte

2016 Power and Utilities Industry Outlook – February 2016

Exponential technologies are accelerating the momentum behind the electric power industry transformation as we move into 2016. At the same time, they also support products and services that open the electric power industry to new entrants. Along with these technologies, policies such as the proposed Clean Power Plan will act as an additional accelerant, moving the industry toward renewable energy, energy efficiency, and other low or no carbon emission alternatives.

Link to the survey

Trends to watch in alternative energy: Firmly entrenched in the mainstream, alternative energy's momentum accelerates – January 2016

In recent years, there has been much discussion of alternative energy moving into the mainstream. While it hasn't yet shed the "alternative" label, alternative energy's shift to the mainstream is largely complete and likely irreversible. Despite continuing uncertainty over policy incentives and competition from historically low natural gas prices, alternative energy's momentum continues to accelerate.

Link to the survey

The power is on: How IoT technology is driving energy innovation – January 2016

As conservation efforts and alternative energy ramp up, electric utilities can no longer count on customers using more and more power. How to survive? With a new focus on efficiency and cost control, based on technology—particularly Internet of Things applications.

Link to the survey

Expanding the pie: Opportunities for utilities to monetize customer engagement – January 2016

The findings of the Deloitte Resources 2015 study point to an opportunity for utilities to work more closely with both business and household utility decision-makers to help them achieve their energy management goals. Two industry leaders discuss how utilities can leverage their ongoing customer interactions to improve customer engagement.

Link to the survey

Power and Utilities - Accounting, Financial Reporting, and Tax Update - January 2016

This publication discusses accounting, tax, and regulatory matters that P&U entities will need to consider as a result of these changes, including updates to SEC, FASB, and tax guidance, and focuses on specialized industry accounting topics that frequently affect P&U companies, including rate-regulated entities.

Link to the survey

Agencies or research institutes

International Energy Agency

Re-powering Markets: Market design and regulation during the transition to low-carbon power systems – 2016

Re-Powering Markets brings together today's best practices in new electricity market design and details the most effective and efficient ways for re-powering electricity markets to address the 21st century challenges of transitioning to low-carbon electricity.

Link to the survey

European Commission

Options for future European Electricity System Operation – January 2016

The rapid deployment of variable renewable electricity generation facilities has created challenges for power system operation. The study looks at different options for how transmission system operation functions could be reorganised to best respond to the challenges.

Link to the survey

Identifying energy efficiency improvements and saving potential in energy networks and demand response – January 2016

This report covers the identification and assessment of measures to improve the efficiency of electricity and gas networks. It focusses on the use of demand response to reduce losses and optimalise grid planning and operation.

Link to the survey

Study on energy efficiency and energy saving potential in industry and on possible policy mechanisms – January 2016

The study evaluated eight energy intensive industrial sector groups, and four tertiary sector groups. A detailed bottom-up modelling assessment of the energy consumption trends and energy saving potential through 2050 of the eight industrial sectors was conducted.

Link to the survey

Carbon impacts of biomass consumed in the EU: quantitative assessment – February 2016

This project delivers a quantitative assessment of the greenhouse gas performance of different scenarios of EU bioenergy consumption post-2020. Researchers found that sustainable bioenergy production and use can deliver significant GHG emission reductions. Savings vary depending on different bioenergy sources.

Link to the w

Study on comparative review of investment conditions for electricity and gas Transmission System Operators (TSOs) in the EU – February 2016

The overall objective of the assignment is to assess the investment requirements of the European TSOs in relation to their financing capabilities.

Link to the survey

The land use change impact of biofuels consumed in the EU – March 2016

As Indirect Land Use change (ILUC) can only be modelled not measured, the aim of this study was to model land use change and its greenhouse gas emissions related to biofuels consumed in the EU.

Link to the survey

Eurelectric

Position paper on Network Tariffs – March 2016

This study follows the ongoing work on network tariffs highlighting DSOs which are key in enabling a successful energy transition, while still providing a high-quality service to all customers through the distribution system stability, power quality, technical efficiency and cost effectiveness in the future evolution of distribution networks towards a smarter grid concept.

Link to the survey

Drivers of Electricity Bills : supporting graphs, methodology and country notes – A Eurelectric methodology note – February 2016

In this survey Eurelectric presents the weight of electricity bill for European households and the breakdown between taxes, grids and energy supply.

Link to the survey

Eurelectric's vision about the role of Distribution System Operators (DSOs) – February 2016

This paper presents Eurelectric's view on the future role of DSOs namely as key player for a successful energy transition and providing high quality services to customers that requires adapting the way they operate and plan their networks.

Link to the survey

Mitigating credit risk in the interest of electric consumes – January 2016

This paper is calling on national governments and regulatory authorities to put in place effective policies to mitigate the risks and costs associated with the single bill model and ensure that it remains sustainable.

Link to the survey

Oxford institute for Energy

Russian Gas Transit across Ukraine Post-2019 – pipeline scenarios, gas flow consequences, and regulatory constraints – February 2016

The future of the transportation of Russian gas to Europe is wide open. The role of Ukraine, historically the main transit corridor, will change after the current transit contract between Gazprom and Naftogaz Ukrainy expires on 31 December 2019.

Link to the survey

The UK in the UE – Stay or Leave? The balance sheet on energy and climate policy – February 2016

Energy may not be the biggest issue in the impending referendum on the UK's EU membership. However, energy policy is increasingly being developed at EU level and the EU is aiming to achieve a full 'Energy Union' so the UK should think about it too.

Link to the survey

Reforming Electricity reforms? Empirical Evidence from Asian Economies – February 2016

After more than two decades of attempts at electricity sector reform, there is a strong case for assessing empirical evidence on its outcomes, particularly for developing countries. Electricity reform programmes, implemented through the 'standard' or 'textbook' model, have their foundations in standard microeconomic theory and are based on the rationale that restructuring towards greater competition.

Link to the survey

Gazprom – Is 2016 the Year for a Change of Pricing Strategy in Europe? – January 2016

Gazprom's pivot to Asia has stalled and it must now continue to focus on Europe as its key export market. However, stagnant demand and increasing availability of LNG supply are set to put the company's market share under pressure from 2016.

Link to the survey

Electricity markets are broken – can they be fixed? – January 2016

This paper argues that electricity markets in Europe are broken. The increasing penetration of subsidised, zero marginal cost, intermittent generation has distorted prices to the extent that they can no longer give effective signals for investment or operation. The problem is increasingly being recognised but there is no consensus on the solution.

Link to survey

Newsletter contacts

Véronique Laurent
Partner
France - E&R leader
vlaurent@deloitte.fr

Emmanuel Rollin
Director
erollin@deloitte.fr

Nuria Fernandez
Senior Manager
nufernandez@deloitte.es

Thomas Gounel
Director
tgounel@deloitte.fr

Jean-Michel Gauthier
Director
E&R France -
Chief Economist Officer
jgauthier@deloitte.fr

Global Power Leadership contacts

Global Power Leadership	Name	Contact Details
Global Power Leader	Felipe Requejo	frequejo@deloitte.es
European Power Leader	Veronique Laurent	Vlaurent@deloitte.fr
Global Renewable Energy Leader	Jane Allen	janallen@deloitte.ca

Global E&R Function Leadership	Name	Contact Details
Global E&R Consulting Leader	Anton Botes	abotes@deloitte.co.za
Global E&R Tax Leader	Brad Seltzer	bseltzer@deloitte.com
Global E&R Financial Advisory Services Leader	Rajeev Chopra	rchopra@deloitte.co.uk
Global E&R Enterprise Risk Services Leader	Paul Zonneveld	pzonneveld@deloitte.ca
Global E&R Audit & Accounting Leader	Doug King	djking@deloitte.co.uk

Deloitte
185, avenue Charles-de-Gaulle
92524 Neuilly-sur-Seine Cedex
Tél. : 33 (0)1 40 88 28 00 - Fax : 33 (0)1 40 88 28 28