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Newsletter

Power & Utilities in Europe

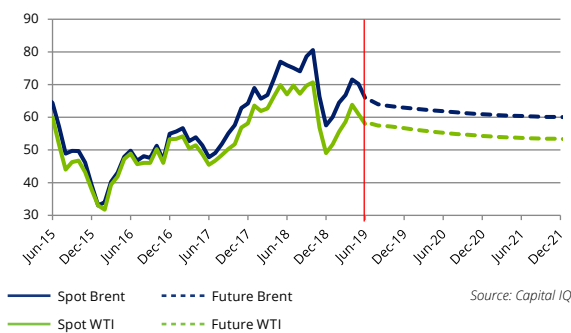
July 2019

Newsletter Power & Utilities in Europe

Commodities



Crude oil (\$/bbl)



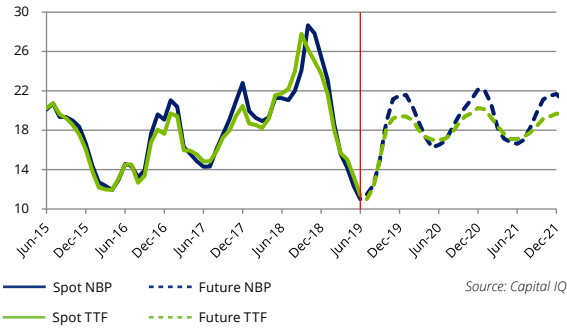
Oil markets experienced a downturn in the second quarter of 2019 in light of looser demand and supply fundamentals. Whilst April saw Brent and WTI hit their highest respective levels in six months following the removal of sanction waivers from countries importing oil from Iran by the United States, **May and June saw a fall in both benchmarks by approximately \$5 per barrel.** Furthermore, the average price throughout the second quarter for crude was around ten percent lower than recorded in Q1.

In terms of supply, data indicated that stockpiles of crude oil and petroleum products in the United States increased throughout the quarter, reaching the highest level since October 2017 in June. The **higher-than-forecasted rise in stockpiles** showed that the United States had ample supply despite production cuts by OPEC, reduced export volumes from Saudi Arabia and the impact of sanctions on Venezuelan oil. Moreover, it showed that **demand-side considerations were having a greater impact** on both the Brent and WTI benchmarks.

Weaker-than-expected demand for oil was a leading factor behind lower oil prices in the second quarter of 2019. **Poorer macroeconomic performance in emerging economies** challenged by high debt levels, such as Brazil, presents little upside potential for global oil demand. In addition, escalation in **the trade dispute between the United States and China**, which has presented material economic slowdown in both countries according to surveys, has led to a deterioration in global trade and thus, oil consumption.



Gas (€/MWh)

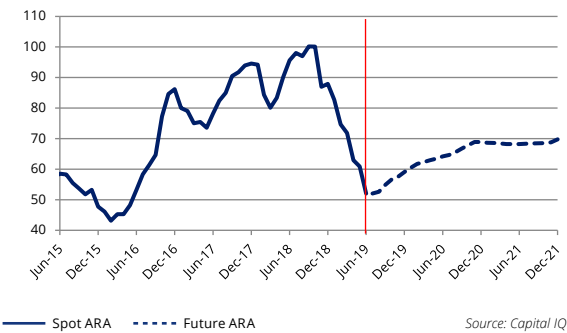


The **European gas market hit a near ten-year low during Q2 2019**. Both the UK's NBP and the Dutch TTF benchmarks fell sharply as the warmer months hit the region, with the former registering a sharper drop to €11.0/MWh in June from €15.6/MWh in March.

A number of supply-side factors have pushed natural gas prices below the seasonal trend during the second quarter. Firstly, **excess supply has flooded the European gas market**, thereby exerting downward pressure on NBP and TTF. This oversupply is coming primarily from Russia, the largest supplier of gas to the region, which is looking to protect market share in Europe from the rising production of shale-derived natural gas from the United States. Secondly, following a **milder-than-expected winter**, gas storage in Europe remained inflated going into the summer months. This exacerbated the gas glut and has consequently pushed gas storage to near full capacity.



Coal (\$/metric ton)

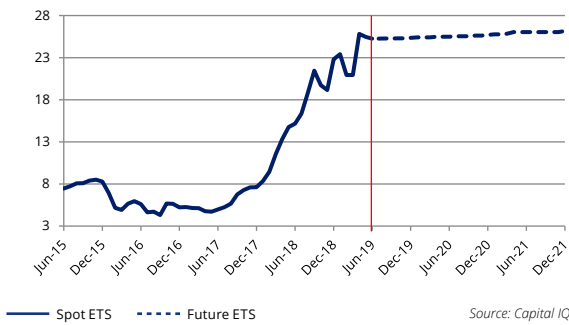


Coal prices continued to fall in the second quarter of 2019, posting its lowest quarterly average in three years amid weak demand and inflated stockpiles in Europe. This followed the general trend seen since October last year, with the spot ARA price dropping throughout the quarter to reach \$52.0/MT in June, almost half that recorded in September.

On the demand-side, a continuation of falling natural gas prices in Europe in response to oversupply from Russia, the United States, and a milder-than-anticipated winter, has provided **greater opportunities for coal-to-gas switching** and in turn a reduction in coal demand. Furthermore, carbon credits have stabilized above €25/ton over the second quarter, which has led to lower profitability of coal-fired power stations which typically emit a greater amount of carbon than their gas-fired counterparts or renewables. Meanwhile **stockpiles of coal were approximately 50 percent greater** in June when compared to one year ago, thus placing further downward pressure on the price of coal.



**CO₂ (€/ton)
Carbon**



The second quarter of 2019 saw carbon credits traded in the **European Union’s Emission Trading System (ETS) hit a record high in April**, followed by a relative stabilisation in carbon credit prices at around €25/ton. The average price throughout the quarter was approximately 80 percent higher than recorded in Q2 2018, reflecting a **reduction in the supply of credits through the Market Stability Reserve** mechanism and subsequent hedging of allowances by utilities operating in the region. In addition, with the announcement of the Brexit extension in April, prices rose to an all-time high as the downside risk of excess British permits flooding the market was alleviated.

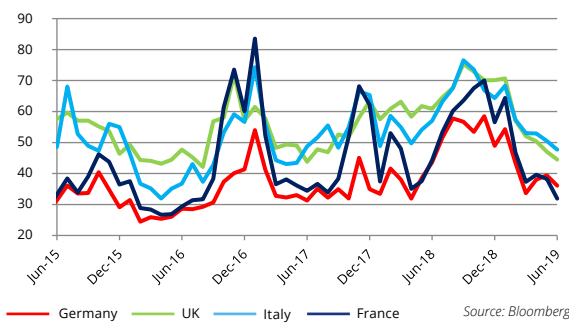
The **UK government’s stance on the European Union’s Emission Trading System (ETS) in a Brexit ‘no deal’ scenario remains unchanged** since 12th April 2019, where the Department for Business, Energy & Industrial Strategy outlined the following:

- the UK would implement a new carbon tax of £16/mt;
- this would combine with the existing Carbon Price Support tax of £18/mt; and
- the UK’s preferred position would be to launch a UK ETS which is linked to the European scheme.

Nonetheless, carbon prices softened in May and June as the prospect of a disorderly Brexit remains on the horizon. Rising wind power generation in Western Europe alongside an increasing coal-to-gas switching placed further downward pressure of the price of EU carbon.



**Baseload Electricity
Baseload Spot Day Ahead (€/MWh)**



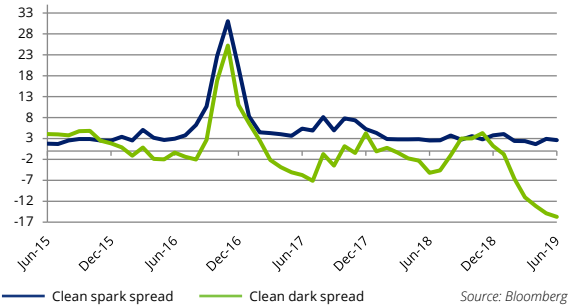
Rising power generation from renewables alongside falling prices for natural gas, both making up the vast majority of UK production, attributed to the sharp fall in price in UK baseload spot prices in Q2. The price per megawatt hour fell to €47.3 on average through the quarter, the lowest seen in three years. Italian power markets registered a similar trend to the UK, albeit with the fall being proportionally smaller in the second quarter.

The price for French baseload electricity throughout the second quarter was its lowest since Q3 2017. Whilst prices increased in April in response to EU carbon prices reaching a record high, strong wind generation and **greater-than-expected nuclear reactor availability** at over 70 percent, placed downward pressure on French power markets in May and June.

In line with France, German power markets rose at the beginning of the second quarter. Baseload electricity prices rose by about €5/mWh in April and May, from an 11-month low of €33.6/mWh in March. Unseasonably cold weather, higher carbon credit prices, and a **maintenance outage at the Emsland nuclear reactor** all attributed to this increase. Nevertheless, prices eased in June as warmer temperatures reduced demand and the supply of wind-derived energy further increased.



UK clean dark & spark spreads (€/MWh)

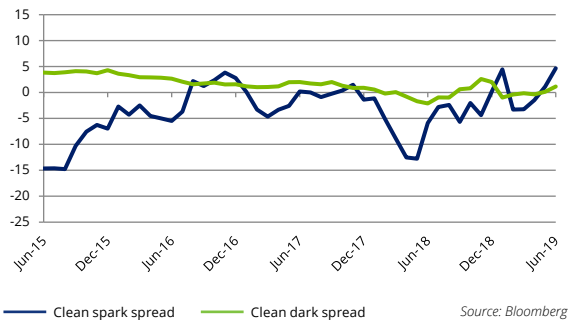


Power spreads in the UK continued to diverge at a marked rate during the second quarter as **unfavourable conditions drove the clean dark spread further into negative territory**. The clean dark spread, which takes into account the cost of coal, carbon emissions and the sale price of electricity, fell to a record low in Q2. This reflected **higher EU carbon costs** which stabilised at around €25/ton during the quarter amid a short-term Brexit extension and a reduction in the number of credits available. Whilst the spot price of coal fell from \$76/ton in Q1 to \$59/ton in Q2, its impact on the clean dark spread was outweighed by the rise in emission costs and a drop in baseload electricity prices.

Clean spark spreads decreased slightly in the second quarter registering an average of £2.4MWh, compared to £3.0MWh in Q1. In a similar trend to the clean dark spread, this reflected lower baseload electricity prices and higher emissions costs. However, given the lower emissions generated by gas-fired power stations, the rise in carbon credit prices had a smaller impact on the clean spark spread. A sharp **reduction in natural gas prices** ensured that gas-derived electricity remained profitable.



German clean dark & spark spreads (€/MWh)



German power spreads improved in the second quarter of 2019 on the back of cheaper gas and coal prices. Profitability at gas-fired generators, which are typically less profitable than their coal-fired counterparts in Germany, gained significant momentum amid **falling LNG prices** as record volumes of LNG arrived from Asia. That said, weaker baseload electricity prices placed downward pressure on the clean spark spread.

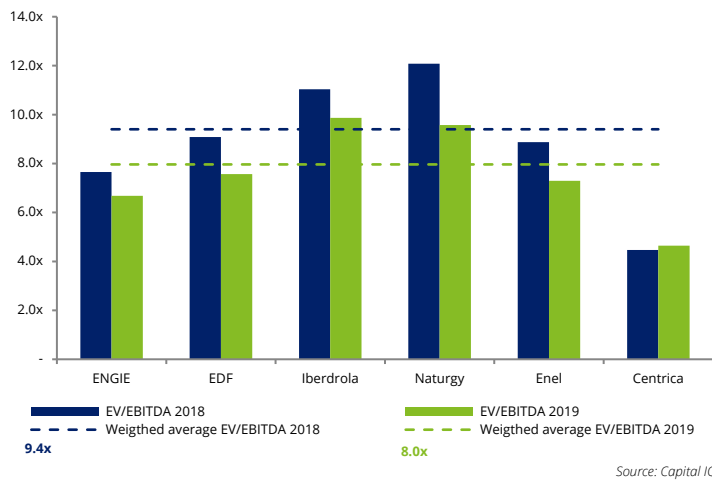
Following loss-making production in the first quarter, **coal-fired power generation became profitable once again in Q2**. This was in response to lower coal prices, which fell from \$76.4/MT in Q1 to \$58.6/MT in Q2. That said, in February 2019 the German government backed plans to decommission all of its coal-fired power plants by 2038 at the latest. Despite the share falling, coal-burning power stations still account for over a third of Germany electricity production.



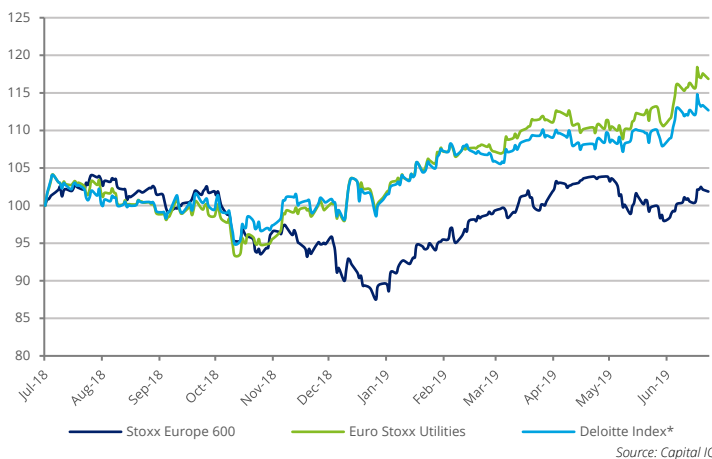
Spotlight on Power and Utilities market

Capital market overview

	Deloitte Index ⁽¹⁾	Enel	Iberdrola	EDF	ENGIE	Naturgy	EON	RWE	Centrica
Market cap. ratios									
Currency		EUR	EUR	EUR	EUR	EUR	EUR	EUR	GBP
Market Cap (June 19)		61 132	55 585	36 542	31 681	25 473	21 241	14 084	5 237
3m stock price performance	3%	10%	15%	-11%	1%	1%	-1%	-7%	-23%
YoY stock price performance	13%	31%	35%	-6%	2%	11%	6%	11%	-44%
Market multiples									
EV/EBITDA 2018	9.5x	8.9x	11.0x	9.1x	7.7x	12.1x	8.2x	n/m	4.5x
EV/EBITDA 2019	8.4x	7.3x	9.9x	7.6x	6.7x	9.6x	7.0x	15.4x	4.6x
P/E 2018	9.4x	12.8x	18.4x	n/m	n/m	n/m	6.6x	n/m	n/m
P/E 2019	13.5x	12.9x	17.1x	15.5x	12.5x	18.1x	13.9x	n/m	10.6x
Price/book value 2018	1.7x	1.8x	1.4x	0.8x	0.9x	2.3x	3.8x	1.9x	1.7x
Profitability ratios									
ROE forward 12m	9%	15%	9%	5%	7%	13%	n/m (2)	n/m (2)	16%
ROCE forward 12m	5%	10%	6%	5%	6%	n/m	n/m (2)	n/m (2)	15%
EBITDA margin 2018	18%	20%	25%	20%	14%	15%	n/m (2)	n/m (2)	8%
EBITDA margin 2019	19%	22%	27%	23%	15%	18%	n/m (2)	n/m (2)	8%
EBIT margin 2018	11%	13%	15%	7%	8%	8%	n/m (2)	n/m (2)	5%
EBIT margin 2019	11%	14%	16%	9%	9%	11%	n/m (2)	n/m (2)	4%



- (1) Deloitte Index is composed of Engie, EDF, EON, Iberdrola, RWE, Gas Natural, Enel, SSE and Centrica.
- (2) Due to the large asset swap between E.On and RWE, financials and multiples are irrelevant.



Key messages from brokers and analysts

“Carbon is an extremely volatile commodity. We wouldn’t rule out further strengthening although believe that there is also a risk of collapse at some point.”
(Deutsche Bank – June 7, 2019).

“UK Utilities: Nationalisation is a serious risk with significant public support.”
(UBS – June 6, 2019).

“While the past few weeks have been quiet, there are some important catalysts for the sector over the coming months. EDF, Uniper, Spanish regulated and Centrica have key catalysts ahead.”
(Morgan Stanley – May 6, 2019).

“Hydrogen is gaining momentum. We are seeing evidence that the hydrogen industry’s long-term growth prospects are already driving today’s investment decisions.”
(Morgan Stanley – April 29, 2019).

M&A Trends

Transactions involving power and utilities companies

EDF sold its 25.04% stake in the Swiss power utility **Alpiq** to **EOS Holding** and **Primeo Energie** for €436m. Following this acquisition, **CSA Energy Infrastructure Switzerland**, a fully-owned subsidiary of Credit Suisse Investment Foundation's investment group, announced a voluntary public takeover offer and proposed **CHF 70 (€62) per share** of **Alpiq**. (*Key Energy News* - May 31, 2019).

Lietuvos Energija Renewables, subsidiary of the Lithuanian state-owned **Lietuvos Energija** group, concluded an agreement regarding the acquisition of a **94-MW** inland wind farm project in Poland - **Pomerania wind farm** - from Spanish wind farm project company **IGE**, owned by environmental impact fund **SI Capital**. Total investment for the project approx. **€127m** with a 15-year guaranteed tariff of approx. **€50/MWh**. (*Digital Production ME* - May 29, 2019).

Microsoft Corporation signed up to purchase **90MW** from the giant **Borssele** offshore wind farm located in the Netherlands to source power for its data centers for 15 years. The project is being developed by utility company **Eneco Groep NV** and is expected to start in 2022. (*SNL Generation Markets Week* - May 28, 2019).

Sev.en Energy, a Liechtenstein-headquartered utility company operating in Czech Republic and the UK, entered into agreement for the takeover of **100% stake in Alpiq Generation**, a Czech subsidiary of the Swiss utility company **Alpiq** for approx. **€280m**. The transaction, securing roughly **1GW** of electrical output in the country, is still subject to competition authorities' approval. (*CIA Daily News* - May 19, 2019).

Axpo, a Swiss energy trading company, has signed the final deal for the acquisition of French solar power company **Urbasolar** for an undisclosed amount. **Urbasolar has** built so far a total of 457 solar farms and owns 1,000MW of projects under development. (*Capital Finance Les Echos* - May 13, 2019).

Enefit Green, a subsidiary of the Estonian state-owned energy company **Eesti Energia**, finalized the acquisition of **Nelja Energia**, a wind farm company situated in Estonia and Lithuania and operating 139MW under the brand **4energia**, for **€289m**. (*Esmerk Baltic News* - May 3, 2019).

The Greek renewables energy company **Terna Energy** agreed to acquire a wind farm in Texas with **200MW** of installed capacity for **\$310m** (approx. **€275m**) with an unnamed seller. (*SNL Energy M&A Review* - May 1, 2019).

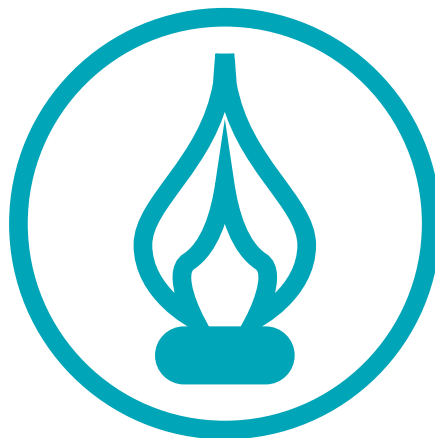
AES Corporation, an American power utility company, entered into agreement to sell its stake in six power plants in Jordan and the UK, to the power utility companies **Nebras Power Investment Management B.V**, **Mitsui and Co. Ltd** and **Energeticky a Prumyslovy**, for a total consideration of **\$211m** (approx. **190m€**). The deal totals **2.1GW** of installed capacity, mostly situated in the UK. (*Financial Deals Tracker* - April 25, 2019).

Transactions involving equity funds

Green infrastructure investment companies **Ardian Infrastructure** and **Glenmont Partners** have entered into binding offer to acquire wind and solar power plants situated in Italy and Spain from **Athena Investments**, a renewables investment fund, for a total installed capacity of **206MW** and an aggregated price of **€91m**. (*Financial Deals Tracker* - May 10, 2019).

EBRD, the European Bank for Reconstruction and Development, has bought a stake of **\$100M** (approx. **€91m**) in **Ictas Surdurulebilir Enerji Yatirimlari**, a clean energy subsidiary of Turkey-based **IC Holding** which owns a portfolio of ten hydropower facilities. This investment is part of the Turkish strategy to expand its non-hydro renewables production by 27GW in 2023. (*Elsevier Engineering Information* - May 10, 2019).

Luxcara, an asset management company specialized in renewables, acquired from **Svevind**, a German-Swedish wind farm developer, an onshore wind farm project **Önusberget** of total expected capacity of **750MW** as part of the **Markbydgen 1101** project in northern Sweden. **Svevind** will support the realization of the project until its connection to the grid in 2021. (*Private Equity Wire* - April 29, 2019).



European Power and Utilities companies wrap-up

Globally power generation volume in Q1 are lower year-on year due to less favourable hydro conditions and mild weather. However this negative impact has been largely offset, and sometimes more than offset, by sales price increase.

The momentum on sales price is question mark since they are facing a challenging period with downturn in commodities prices, notably on gas, and uncertainty on the current high carbon prices.

The UK market is still uncertain since the cancellation of auction mechanism which has not be replaced so far.

All major European Power Utilities confirmed their guidance for FY19.





Q1 2019 Highlights

- **Revenue** for the first quarter of 2019 reached **€21.0bn, +1.7% on an organic basis** driven by:
 - The positive impact of (i) **+€0.3bn due to favorable downstream market conditions in France**, (ii) **+€0.2bn positive spot price effect in January** and (iii) the **performance of the renewables segment and Dalkia** (+7.8% organic).
 - Partly offset by (i) a **drop in UK nuclear generation** (-2.5TWh) and in **French nuclear generation** (-1.1TWh) and **hydropower generation** (-4.7TWh or -32.2%), and (iii) **mild weather in Europe**.
- On a reported basis revenues increase by 2.5% due to positive exchange rate effect namely in the Renewables sector.

- **Revenues** for the first quarter of 2019 reached **€18.8bn up +4.4% on an organic basis** mainly driven by:
 - The positive impact of (i) **increase in renewable power generation** in Brazil, Mexico and Chile, (ii) **favorable market conditions** for Global Energy Management activities and (iii) the **restart of three Belgian nuclear units**.
 - Partly offset by (i) **lower hydropower generation in France** (-25%) and (ii) **lower revenues from French gas networks activities** (lower distribution due to warmer temperatures).
- On a reported basis revenues increase by 7.2% benefiting from positive foreign exchange effect and acquisitions in the US and in Latin America.

Key events in the period

- **Disposal of EDF's 25% stake in Alpiq.**
- **Taishan 2 reactor achieved fuel loading.**
- **Significant development of Renewables activities:**
 - Acquisition of Luxel which operates 90MW and manages 1GW of renewables projects portfolio;
 - Acquisitions in Greece of 20-year PPA and in China of photovoltaic assets.
 - Record level of EDF Renewables' projects under construction at 3.5GW.
- **Sustainable revolving credit facility of €300m indexed on ESG criterias signed with BBVA.**
- **Decision from the French Nuclear Safety Authority (ASN)** related to the deviations affecting welds on the main steam transfer pipes covered by the break preclusion principle at the Flamanville EPR.

- **Acquisition from Petrobras of 90% of Transportadora Associada de Gas**, leading Brazilian gas distributor, for \$8.6bn.
- ENGIE and EDP Renewables agreed on the creation of a 50/50 Joint-Venture in fix and floating offshore wind for end 2019, starting with 1.5GW under construction and 4GW under development.
- **Decarbonation:** Completion of the **sale of ENGIE's entire stake in Glow in Asia-Pacific**, coal-fired power plants and announcement of the **sell of German and Dutch coal-fired plants**.
- Issuance of one hybrid green bond for an amount of €1bn.

FY 2019 Outlook

- **FY 2019 guidance confirmed.**

- **FY 2019 guidance confirmed.**



Q1 2019 Highlights

- **Revenues** for the first quarter of 2019 **rise by 5% at €9.2bn** on reported basis, namely due to:
 - (i) the increase in Renewables’ sales due to higher output with the commissioning of new onshore and offshore wind farms, and (ii) higher prices and volumes in Germany Italy and Central Europe.
 - These impacts being partly offset by (i) negative currency effects in Sweden and Roumania, (ii) poor wind conditions in the USA and UK, and (iii) regulatory price caps and a decrease in gas sales volumes in the UK.
- **Revenues** for the first quarter of 2019 **rise by 5.1% at €9.2bn** on reported basis, namely due to:
 - (i) a 5% increase in Electricity revenue linked to higher prices in sales to distributors and large industrials, (ii) a 9% increase in Gas revenue at €0,5bn due to expanded sales to major customers and (iii) Innogy continued operations which benefited from better wind conditions.
 - Partly offset by substantially less power generation from lignite and coal in line with decommissioning and sell of several lignite and coal-fired asset on Q1 2019.

Key events in the period

- **Commissioning** of the offshore wind farms Arkona in Baltic Sea (385MW).
- **Bid** with Engie and EDP Renewables for **Dunkirk Offshore Wind 600-MW** project in France to be completed in 2025.
- **FAKT and E.ON** planned to **develop a major combined agriculture and green energy project in Hungary** for total investment of **€1bn**.
- Significant coal-fired plant divestments following German coal phase-out objective by 2032: (i) **rules out of new coal-fired power plants**, including highly efficient lignite-fired plants, (ii) **decommissioning** of hard coal-fired power station in Werne (620MW), (iii) **disposal** of the 51% stakes in Bergkamen hard coal-fired power station (720MW).
- Transferred as of January 1st of interim storage for highly radioactive waste to BGZ, the state-owned company financed by €24.1bn by German nuclear operators.
- **Cancelation of a £750m hybrid bond** without new issuance reflecting solid financial situation.
- According to asset swap with E.ON, **RWE acquire a 50.04% majority interest in Innogy Grid Holding** (Czech Grid Company) and have to transfer it to E.ON. However, **MIRA (Macquarie Group), minority shareholder in Innogy Grid Holding, exercised its right to buy the 50.04% stake** at the same condition as E.ON for approx. €1.8bn.

FY 2019 Outlook

- **FY 2019 guidance confirmed.**
- **FY 2019 guidance confirmed.**



Q1 2019 Highlights

- **Revenue** for the first quarter of 2019 reached **€20.9bn, +10.3% on a reported basis** mainly driven by:
 - (i) the positive effect of inclusion of Enel Distribuição Sao Paulo in the scope of consolidation in June 2018 (+€0.8bn vs Q1 2018), (ii) an increase in revenue from electricity trading and sale of fuels due to higher volumes sold and (iii) new electricity customers acquired in Italy, Romania and Chile with market offer;
 - These were partly offset by the adverse exchange rate developments, especially in Argentina for approx. -€0.3bn.
- **Q1 2019 performance in line with expectations but negatively impacted by:**
 - (i) The UK default tariff cap generating a £70m one-off on the first quarter, (ii) warmer than normal weather that reduced volume sold, (iii) the falling in UK natural gas tariffs and (iv) extended outages at the non-operated nuclear plants Dungeness B and Hunterston B nuclear.
 - Offset by (i) progress on cost efficiency delivery, (ii) control of capital expenditure and (iii) the completion of the sale of the non-core Clockwork-Home Services business in the USA.

Key events in the period

- **Disposal of Mercure Srl, vehicle company carrying the Valle del Mercure biomass plant.**
- **€0.1bn negative goodwill arising** from the sell of seven US RES power plans totaling 650MW owned by Enel to Enel Green Power North America Renewable Energy Partner, a JV between Enel and General Electrics (selling price: \$256m vs enterprise value of \$900m).
- **Closing of the sell of 100% of three operational solar plants in Brazil** to the Chinese utility company CGN for **approx. €0.7bn.**
- **Refinancing of subordinated hybrid bonds** through repurchase of 2 bonds maturing in 2074 and 2075 for respectively €340.2m and €215.8m.
- **Annualised efficiencies of £58m delivered to the end of April. On track to deliver over £150m of annualised efficiencies by the end of 2019.**
- **Shrink of UK Home energy supply customer accounts by 234,000.**
- Standard & Poor's downgraded the long term issuer credit and issue ratings of Centrica from BBB+ to BBB.
- **Sales and purchase agreement signed with Tokyo Gas for t2.6/year of natural liquefied gas from Mozambique LNG until the 2040s.**
- Centrica Business Solutions launched the distributed energy and power proposition in North America with planned investments of approx. \$1.0bn.

FY 2019 Outlook

- **FY 2019 guidance confirmed.**
- **FY 2019 guidance confirmed.**



Q1 2019 Highlights

- **Revenue** for the first quarter of 2019 reached **€10.1bn**, +8.5% on a reported basis **namely due to**:
 - Positive effects of (i) the tariff improvements in Brazil alongside the efficiencies achieved and the increase in demand, (ii) the increase in offshore wind production thanks to Wiker's contribution over the full quarter this year and a greater installed capacity in Mexico and (iii) the good performance of the Generation and Supply Business in Spain.
 - Being partly offset by (i) the lower production in the United Kingdom following the sale of generation assets and (ii) the entry into force of the cap on certain electricity and gas tariffs.

- **Revenues** first quarter of 2019 reached **€6.3bn**, **stagnating with -0.6% compared to Q1 2018** mainly due to:
 - The negative effects of (i) the global decline in gas prices during the quarter with lower sales in Spain on the industrial and residential segment, (ii) several asset disposals in the Gas segment in Italy and Colombia in Q1 2018 with no comparison in Q1 2019, and (iii) decrease in international LNG sales by -29% with lower volumes compared to exceptional Q1 2018 LNG results.
 - Partly offset by (i) increased tariffs in Latin America and (ii) new renewables capacities which grew by 15% compared to Q1 2018.

Key events in the period

- Signing of a **multi-currency syndicated loan** amounting to **€1.5bn** and linked to sustainability criterias.
- Commission of **Baixo Iguazu 350-MW hydroelectric plant** representing an investment of €500m.
- Planned investment of 10GW of new renewable capacity in Europe, especially in Spain in Extremadura with planned new capacity of 2GW by 2022 as part of the global investment strategy of €38bn by 2022.
- New installed renewable capacity over Q1 2019 reaching **330MW** out of the 4.1GW goal by end of 2019.
- Agreement for an elderly **phase out of the Spanish nuclear plants**.
- Total of **667MW of wind capacity under development** and Naturgy has been awarded **250MW of solar capacity** in Spanish auctions.
- Agreement signed for the **sale of Naturgy's 100% stake in its Moldova electricity distribution** activities for a total amount of **€141m**.
- Performance of cost efficiency plan to deliver €100m in 2019 in line with the €500m of total efficiencies target by 2022.
- Naturgy **secured approx. 90% of its LNG volumes** for the year.

FY 2019 Outlook

- **FY 2019 guidance confirmed.**
- **FY 2019 guidance confirmed.**

Talking points

The Tempus case: how the European Court of Justice suspended the British Capacity Market, and what happens now

The British Capacity Market was implemented in 2013 as part of the Government's Electricity Market Reform. Its main objective is to ensure sufficient capacity at peak load to respect security of supply constraints. The market remunerates existing and new generation, storage and demand-side-response (DSR)¹ according to their availability at peak electricity demand. It is based on centralized auctions, which ultimately deliver to capacity providers a fixed-price contract: in exchange for their availability during situations of power-system stress, capacity providers are paid a stable price in pounds per MW corresponding to the auction result. Over the last five years, this market has yielded about 4 billion euros in capacity contracts. The last auction 2017/2018 resulted in the procurement of more than 50 GW: this represents 79% of the total peak electricity demand for 2018 in Great Britain².

In November 2018, the European Court of Justice decided to suspend the Capacity Market, following a complaint by DSR operator Tempus Energy regarding the allegedly anticompetitive nature of the current market's auction rules.

Following this decision, capacity payments were suspended, pending a new investigation of the mechanism by the European Commission.

At the heart of the decision by the Court of Justice lies the conformity of the British Capacity Market with the 2014 Environmental and Energy Aid Guidelines (EEAG). The EEAG frame the conditions, types and amounts of support that certain state-sponsored schemes might provide, while respecting the competition treaty of the European Union. In theory, such government aid, or 'State aid', is not compatible with EU law and is thus forbidden. However, under the EEAG the Commission allows some exemptions related to specified objectives of common interest such as decarbonization or, in the present case, security of supply.

In 2014, the European Commission thus realized a preliminary assessment of the Capacity Market regarding the EEAG, required before the formal notification of the mechanism by the British government. The assessment concluded that the mechanism complied with the EEAG and ticked all criteria for compatibility with the internal market:

1. There was an objective of common interest justifying State intervention, in this case the existence of market failures and externalities which prevented adequacy between load and generation at system peaks.
2. The Capacity Market was the most relevant instrument to solve the identified issue and gave the right incentives to market players to invest in peak capacities.
3. The Capacity Market was proportional and did not lead to undue rents or over-investments.
4. And, finally, the Capacity Market had a limited impact on competition and trade between Member States.

The most contentious point, which ultimately led to the suspension decision by the European Court, concerned the conformity of the mechanism with the last two criteria. During the preliminary assessment by the EC, some actors (including Tempus Energy) expressed concerns that the mechanism might lead to competitive distortions in favor of new generation capacities, and that it did not enable to capture the full potential offered by alternative technologies such as storage or demand response. The main issue concerned the eligibility criteria for long-term contracts: while DSR operators could only benefit from one-year capacity contracts (under which they could be paid at auction price for a year, before participating in the next round of auctions), providers of new generation capacity could get access to contracts lasting up to fifteen years. This latter case was only applicable to investments in electricity generation higher than 250 £/kW. Tempus Energy called this difference of treatment between participants to the capacity market a competitive distortion. According to the company, it hindered participation in the Capacity Market of DSR operators, which could have performed better through long-term contracts, and, potentially lower cost than new generation.

At the time of the preliminary assessment, the European Commission sided with the British government on the grounds of two arguments. Firstly, the short-term contracts open to DSR operators (but also storage and existing generation units) allowed to foster competition and minimize barriers to entry in the British electricity market. Secondly, long-term capacity contracts were necessary for new generation capacities in order to reduce their cost of financing. **In its assessment, the European Commission hence concluded that long contracts "could be justified" for new generation units, while existing units and DSR "would not benefit substantially" from them given their lesser need in capital and financing securing.**

In the end, these arguments did satisfy neither DSR operators nor the European Court of Justice. Tempus Energy opted to contest the European Commission's decision before the European Court of Justice, which finally chose in 2018 to follow Tempus Energy and to suspend the Capacity Market in its current form. From a legal point of view, what is interesting in the Court's decision is that it did not conclude on the existence or impact of the distortion of competition caused by the long-term capacity contracts. Instead, the court indicated in its ruling that objective doubts existed on the respect of proportionality and competition criteria by the Capacity Market, which should have led the European Commission to launch a formal investigation procedure. According to the Court, the Commission did not take enough into account the difficulties of technical experts to assess the potential of DSR (in terms of minimization of new investment needs and reduction of the cost of the capacity market for the final consumer).

1. Foreign capacities and interconnections can also participate to the market through specific auctions.

2. 2017/2018 T-4 (four years ahead) auctions delivered 50.4 GW, while T-1 (one year ahead) auctions delivered 5.8 GW. Peak load was reached on 12 September 2018, at 71.3 GW.

In other words, the Court of Justice did not conclude on the existence of serious distortions of competition in favor of new generation capacities, but it stated that the risks were sufficiently high that a formal investigation procedure should have looked into this potential distortion.

As such, the decision of the European Court of Justice does not cancel the British Market in its current design but only suspends it. By cancelling the 2014 authorization of the Market, it forces, for now, the British government and the European Commission to return to the assessment of the Market's compatibility with EEAG. It is not yet possible to estimate whether the current Market could be finally accepted. If that is the case, already concluded capacity contracts remain valid, and capacity payments may resume. In the opposite scenario, the rules would have to be adapted to ensure technology neutrality and to foster the potential of demand response. The investigation's conclusions are hard to anticipate given the complexity of the adequacy between long-term contracts and the objective of financial cost minimization. Two scenarios can be envisaged at this point:

- If the British government chooses to pursue the current strategy of long-term contracts for new big generation capacities, they would have to justify it with a thorough economic and financial analysis. This analysis would have to compare the financing conditions of DSR and generation, and to conclude if long-

term contracts indeed improve securing and minimize cost of financing for demand response. There is not an obvious answer at this point.

- Alternatively, they can choose to scrap the current design and to establish technology neutrality for each type of capacity contract. This is the way chosen in particular in France, Belgium and Ireland, where capacity markets intend to treat demand response and generation similarly.

Notwithstanding the outcome of the investigation, both the British Government and the European Commission took steps to ensure continuity in the capacity market operation.

The European Commission appealed the decision by the European Court while Great Britain implemented interim results to continue auctions during the standstill period until newly approved (with new auctions of the Capacity market to be carried out without any payment attached)³. A new provisional T-1 Capacity Market auction thus concluded on 12 June 2019⁴, with agreements and payments to depend on the outcome of State aid approval. The Government hopes that the approval be granted before the next delivery year, in November. This would allow sufficient room for maneuver to ensure that sufficient capacity is available next winter, and that capacity contract holders are paid as soon as possible. In parallel, Tempus Energy chose to legally fight the British strategy. Whatever happens now, the next months are set to deliver interesting and crucial news for the future of the British electricity system.

3. <https://www.whitecase.com/publications/alert/capacity-market-developments-uk-uk-introduces-interim-changes-capacity-market>

4. With about 3.6 GW of capacity procurement at a price of 0.77 £/MW. See National Grid ESO's provisional auction report.

[https://www.emrdeliverybody.com/Capacity%20Markets%20Document%20Library/Provisional%20Results%20Report%20T-1%202018%20\(DY%2019-20\).pdf](https://www.emrdeliverybody.com/Capacity%20Markets%20Document%20Library/Provisional%20Results%20Report%20T-1%202018%20(DY%2019-20).pdf)



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?

Council conclusions for the future of energy systems in the Energy Union

Key features

The European Council adopted on June 25th 2019 a set of conclusions on the future of energy systems in the Energy Union.

These conclusions identify priorities and principles for the future policy-making aimed at ensuring the energy transition towards an **affordable, safe, competitive, secure and sustainable energy system**.

Insights

The **main conclusions reached by the European Council regarding the Energy Union** are the following:

- The Council underlines the importance of the EU submitting **an ambitious long-term strategy by 2020 in line with the Paris Agreement**.
- It stresses the **need for the energy transition, towards an affordable, safe, competitive, secure and sustainable energy system**. Additionally, it focuses on the **achievement of energy and climate targets towards 2030** and beyond, in particular by developing interconnected, reliable and cost-effective energy networks and by modernizing the energy system through the promotion of innovative technologies, digitalization as well as sector coupling and sector integration.
- It underlines the importance of **ambitious Integrated National Energy and Climate Plans (NECP)** and their effective implementation and regional coordination.
- It stresses the **importance of citizens and businesses to be at the core of the energy transition** process as well as the need for affordable energy for household consumers and industry.
- It underlines **the need for a level playing field for European electricity producers' to ensure competitiveness** while complying with Union's energy and climate goals.
- It remarks **the need for public and private investments to facilitate the energy transition** in all relevant sectors and the importance of ensuring adequate EU and national financial support and a stable and predictable investment framework (among others, the role of the European Investment Bank to provide multipliers for sustainable investments).
- It recognizes **the need to implement the energy efficiency** in line with the Regulation on the Governance of the Energy Union and to improve energy efficiency (in buildings, energy infrastructures, industrial appliances, etc.).
- Finally, it acknowledges **the important role of regional cooperation in ensuring the energy transition and the achievement of the objectives of the Energy Union**, including through the already established cooperation within the EU and with external actors.

Next steps

The Council calls on the European Commission **to take into account its main conclusions when presenting proposals in any policy areas**, especially regarding proposals to further develop reliable and cost-effective energy networks and to further modernize the energy system through innovative technologies.

Additionally, the Council calls on the European Commission to undertake an **analysis of sector coupling and sector integration technologies, as well as reflecting the efforts required to reach EU energy and climate targets for 2030** in the context of any future revision of the EU State aid rules.

Link: [Council conclusions for the future of energy systems in the Energy Union.](#)

Clean energy for all Europeans package completed

Key features	Insights
<p>On 30 November 2016, the Commission presented, as part of the Clean Energy for All Europeans Package (see Q4 2016 Newsletter), its proposals for:</p> <ul style="list-style-type: none"> • A new Electricity market Regulation. • A new Electricity market Directive. • Regulation on Risk Preparedness. • Regulation on the Agency for the Cooperation of Energy Regulators (ACER). <p>In December 2018, political agreement among European institutions was reached regarding the aforementioned four issues (see Q4 2018 Newsletter).</p> <p>On 26 March 2019, the European Parliament has adopted the four pieces of policy by completing the parliamentary approval process (see Q1 2019 Newsletter).</p> <p>The last milestone of this process has been the Council Adoption of these four pieces of policy on 22 May 2019 and its publication in the EU Official Journal on 16 June 2019.</p>	<p>The adoption by the Council of ministers of the EU of the four remaining pieces of EU legislation that redesign the EU electricity market concludes the elements of the Clean energy for all Europeans package and represents a major step towards completing the Energy Union:</p> <ul style="list-style-type: none"> • The end of the process provides a modern, stable legal environment and sets a clear and common sense of direction. Additionally, the EU can stimulate the necessary public and private investment and bring European benefit by addressing these challenges together. As a package, the new rules will reinforce consumer rights, putting them at the heart of the energy transition; they will create growth and green jobs in a modern economy. This set of rules are expected to enable the EU to show leadership in the fight against climate change following the Paris Agreement. • Member States will continue to choose their own energy mix, but must meet new commitments to improve energy efficiency and the take-up of renewables in that mix by 2030. • New rules on the electricity market will make it easier for renewable energy to be integrated into the grid, encourage more inter-connections and cross-border trade, and ensure that the market provides reliable signals for future investment. • These rules also require Member States to draft plans to prevent, prepare for and manage possible crisis situations in the supply of electricity in coordination with neighbouring Member States, and to enhance the role of the Agency for the Cooperation of Energy Regulators (ACER).
<h3>Next steps</h3>	
<p>After the final adoption of this set of policies, Member States shall integrate them into their local legislation in order to comply with EU commitments by 2030.</p>	

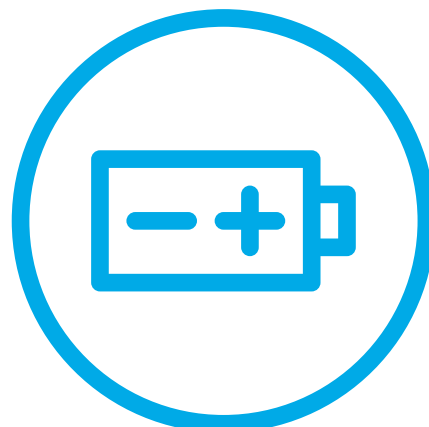
Link: [Clean energy for all Europeans package completed.](#)

Quarterly reporting on changes in the Policy and Regulation framework

Period: April-June 2019

United Kingdom			
Topic	Key features	Insights	Next Steps
The future for small-scale low-carbon generation	<ul style="list-style-type: none"> The UK government published a response to its consultation on the introduction of a mandatory supplier-led route to market for small-scale low-carbon generation of electricity. The UK government decided to implement a Smart Export Guarantee (SEG), which will enable exporters with up to 5MW capacity to receive payment for exported electricity. SEG will be available to technologies including solar photovoltaic, hydro, micro-combined heat and power, onshore wind and anaerobic digestion. Licensed electricity suppliers with 150,000 or more domestic customers will be required to offer small scale low-carbon generators a price per kWh for electricity they export to the grid. To enable development of the small-scale export market, the government will not specify a minimum tariff rate, other than the rate should always be greater than 0 at all times of export. 	<ul style="list-style-type: none"> To enable innovative approaches in setting tariffs, suppliers have the discretion to choose the form of tariffs they offer, provided they meet SEG requirements. With the closure of the Feed in Tariff (FIT) scheme on 31st March, there were concerns that small-scale renewable generators would be exporting unused electricity to suppliers for free. With the SEG, the government plans to address those concerns. However, unlike the FIT, there is no guaranteed price that generators would receive for electricity exported to the grid. With SEG, the government aims to establish a framework that allows the market to develop options, promote innovation and competition, with a focus on growth of aggregators and a digital marketplace. 	<ul style="list-style-type: none"> Suppliers will have until January 1 2020 to introduce their own versions of the new, smart tariffs that will provide a rate for any exported energy to the grid.
Enrolment of Secure SMETS1 meters in the Data Communications Company (DCC)	<ul style="list-style-type: none"> Currently, consumers with SMETS1 meter sets can lose smart services when they change their energy supplier. To resolve this, the government held a consultation inviting responses on whether a business case exists to make it mandatory for DCC to operate these meters. The government review concluded that it will require DCC to provide SMETS1 service for Secure meters, taking into account the net positive societal benefit of £331m, together with security and technical considerations. The enrolment will create a single point of responsibility for the end-to-end architecture, security, communication with devices and management of incidents of these meters. 	<ul style="list-style-type: none"> Apart from the quantitative benefit, the government also notes that there are qualitative benefits such as ensuring interoperability, protecting vulnerable customers, minimizing consumer detriment and minimizing risks to consumer confidence in the roll-out of smart meters. It would also lead to greater competition among suppliers by removing barriers to switching and when deployed in sufficient volumes, the meters will provide economies of scale to the costs of managing all SMETS1 meters. 	<ul style="list-style-type: none"> Energy suppliers will need to schedule the enrolment of their 'active' meters within 12 months and operate the 'dormant' meters (those which have changed supplier and stopped providing smart services) in smart mode in line with licence obligations once enrolled by DCC.

United Kingdom			
Topic	Key features	Insights	Next Steps
The future of UK carbon pricing	<ul style="list-style-type: none"> The government is currently consulting on its approach to carbon pricing and the design of a future pricing scheme once UK has left the European Union. The preferred option is to secure a linking agreement with the EU for a linked UK ETS (UK Emissions Trading System). In the event that a linking agreement is not secured, alternative pricing options will be considered, which include: a standalone domestic emissions trading system; a tax on carbon; or participating in Phase IV of the EU ETS. 	<ul style="list-style-type: none"> The consultation mainly focuses on proposals for the design of a linked or standalone UK ETS, which covers: scope in terms of gases and sectors; cap and trajectory; distribution of allowances; free allocation; supply flexibility; phases and reviews; small emitter opt-out, etc. The government aims that the future approach to carbon pricing will remain at least as ambitious as the current EU ETS and plans to provide a smooth transition to relevant sectors. 	<ul style="list-style-type: none"> The last date for responses is set at 12 July 2019.
Five Year Review of the Capacity Market Rules – First Policy Consultation	<ul style="list-style-type: none"> Ofgem is currently consulting on a 5-year review of the Capacity Market Rules (“Rules”). The review aims to assess whether the Rules continue to meet their objectives and whether the objectives remain appropriate. It also aims to review whether the objectives of the Rules could be achieved with less burden on participants. Ofgem wish to ensure that the CM and other legislation introduced as part of Electricity Market Reform (EMR) in the Energy Act 2013 remain compatible. 	<ul style="list-style-type: none"> The government also aims to understand the appropriateness of secondary trading arrangements to ensure that participants have the right incentives and opportunities to engage in the secondary trading market. Ofgem is of the opinion that any amendments to the Rules should have the objective of ensuring effective operation of the CM. The Rules should also not form a barrier to entry or cause excessive regulatory burden. 	<ul style="list-style-type: none"> The consultation is closed and awaiting a decision from Ofgem which is to be released by 1 August 2019.



Germany			
Topic	Key features	Insights	Next Steps
Ordinance on the Improvement of the Framework Conditions for the Development of the liquefied natural gas (LNG) Infrastructure in Germany	<ul style="list-style-type: none"> On 27 March 2019, the Federal Government adopted the Ordinance on Improving the Framework Conditions for the Development of the LNG Infrastructure in Germany. This should improve the regulatory framework for LNG and put LNG import terminals on an equal footing with pipeline gas landing points. In addition, investment barriers to the development of LNG import terminals by the private sector should be removed and competition between different gas imports strengthened. 	<ul style="list-style-type: none"> To date, the connection of LNG facilities to the transmission network has been an obstacle to the development of LNG import terminals. The high costs for sometimes very long pipelines could make LNG projects uneconomical. The regulation removes this obstacle. In future, transmission system operators would have to build the pipelines between LNG facilities and the transmission system and bear most of the costs. So far, this has been the responsibility of LNG system operators. An intelligent synchronisation of the construction of the LNG plant with the construction of the grid connection and a financial cost sharing of 10 percent by the plant operator ensured that only connection lines that are actually needed are built. Transmission system operators could contribute their costs to the gas network charges and pass them on to the network users. 	<p>In Force since 20.06.2019.</p>
Draft Act amending the Act on Energy Services and Other Energy Efficiency Measures	<ul style="list-style-type: none"> On 30.04.2019, the Government of Budes adopted a draft law amending the Law on Energy Services and other energy efficiency measures. This “draft law amending the law on energy services and other energy efficiency measures” provides for the introduction of a consumption limit of 400,000 kilowatt hours. According to projections, this would exempt around 2,800 companies, explains the federal government. In principle, the regulations would apply to around 50,000 companies in Germany that are not considered small and medium-sized enterprises (SMEs). 	<ul style="list-style-type: none"> With the amendment, the Federal Government intends to further develop existing regulations and adapt them to European law. Energy audits had to be carried out for the first time in 2015 and must be repeated every four years. Experience has now shown that it is necessary to relieve companies for which an energy audit is not cost-effective, the Federal Government justifies its planned steps. In the draft law, it also tightens audit requirements and obliges energy consultants to undergo further training. The procedure is also to become more transparent. 	

Germany			
Topic	Key features	Insights	Next Steps
Draft of the Small Electric Vehicle Ordinance (eKFV)	<ul style="list-style-type: none"> On 3 April 2019, the Federal Cabinet adopted the draft of the Small Electric Vehicle Ordinance (eKFV). The aim is to make it possible for “electrically powered vehicles without seats and self-balancing vehicles” to participate in public road traffic. Electronically driven city scooters, so-called electric pedal-scooters or e-scooters, are largely prohibited on public roads. Small electric vehicles are motor vehicles in the sense of § 1 paragraph 2 StVG, because they have an electric drive motor. Therefore, they are subject to the same legal framework as other motor vehicles. The eKFV covers vehicles with the following characteristics: <ul style="list-style-type: none"> Steering or holding bar. Maximum design speed of at least six to at most 20 km/h. Power limitation to 500 watts (1,400 watts for self-balancing vehicles). Compliance with “driving dynamics” minimum requirements. A small electric vehicle must therefore be roadworthy, be able to brake, be controllable and have a lighting system. 	<ul style="list-style-type: none"> The approval of very small electric vehicles for public road transport will enable consumers to achieve a sustainable increase in mobility. Small electric vehicles are not subject to registration, but must be insured. Therefore, a new insurance certificate in the form of an adhesive insurance sticker will be introduced, which has been specially designed for attachment to very small electric vehicles. 	In Force since 15.06.2019.
Amendment of the Energy and Electricity Tax Transparency Ordinance (EnSTransV)	<ul style="list-style-type: none"> On 11.04.2019, the Energy and Electricity Tax Transparency Ordinance (EnSTransV) was amended. According to the EnSTransV, companies that make use of tax concessions are obliged to notify or submit a declaration. A company has an obligation to notify if it makes use of a tax exemption or reduction relevant to state aid law, for example the reduced tax rate for natural gas of 5.50 Euro/Mh for use in CHP plants. Exemptions or reductions of tax which have been claimed must be indicated on a specific form. In addition to the means of administrative compulsion, the customs administration can also impose a fine of up to 5.000 € since 01.01.2018. 	<ul style="list-style-type: none"> According to the provisions of the EnSTransV, companies claiming energy or electricity tax benefits are obliged to submit notifications or declarations to the tax authorities on separate official forms each year. A violation of these obligations can be punished with a fine. The current changes make it easier to be exempted from notification and declaration obligations. 	Amendment passed on 11.04.2019.

Spain			
Topic	Key features	Insights	Next Steps
Spanish Government communicates main energy policy guidelines to Market Regulator (CNMC)	<ul style="list-style-type: none"> Royal Decree 1/2019 gave National Commission for Markets and Competence (CNMC) greater power in order to comply with European Directives regarding Regulators' role within the Union. Nevertheless, despite the Regulator (CNMC) is now defined as responsible for several aspects related to Energy Sector, it must consider the broad guidelines set by the Spanish Government regarding these topics. Order TEC/406/2019, of April 5th, contains the main orientations provided by the Spanish Ministry for the Ecological Transition concerning a set of new regulations that are currently being elaborated by the CNMC. These regulations affect several activities within the Energy sector (electricity and natural-gas transmission and distribution, market organization, etc.). 	<p>General principles set by the Spanish Ministry for the Ecological Transition regarding new regulation developments are the following:</p> <ul style="list-style-type: none"> Electricity and Gas System Operators remuneration scheme shall guarantee the independence between the system's technical management operations and the grid's owner activities as both are conducted by the same group. Electricity and gas transmission and distribution tolls shall be designed to collect enough income in order to maintain and develop the system. Moreover, the new methodology should serve as an incentive to electrify the Spanish Economy, facilitate the electrical mobility and increase the efficiency while promoting the overall country's competitiveness (industrial activities). Electricity and gas transmission and distribution remuneration methodologies shall enable renewable energies penetration as well as renewable gases injection into the system. Additionally, the new scheme shall incentivize useful life extension of existing assets instead of new assets construction as well as financial prudence principles. Changes affecting the electricity market shall also consider as a priority renewable energy penetration objectives and security of supply (including technical requirements for the participation in the markets for adjustments and balance services). Grid access is also considered as a key aspect in order to comply with the renewable energy penetration goals. In this sense, regulation of grid connection and access permits shall be developed consistently with Government action. 	<p>CNMC has initiated the public audience procedure of 4 of the 13 expected new regulations. During coming months, the rest of the regulations shall be published and opened to public audience. In this process, CNMC shall consider the main policy guidelines set by the Government.</p>
CNMC initiates the Public Audience procedure regarding 4 of the 13 new regulations of the Electricity and Gas Sectors	<ul style="list-style-type: none"> CNMC has submitted to Public Audience four new draft regulations regarding the following topics: (i) electricity transmission and distribution grid access and connection conditions for electricity production facilities, (ii) natural gas system access and capacity allocation terms, (iii) electricity production market and system operation management and (iv) natural gas balance rules. 	<p>Some of the most significant aspects included within the aforementioned new pieces of draft regulation are the following:</p> <ul style="list-style-type: none"> Grid connection process of new electricity generation facilities will be more simple and transparent in order to facilitate renewable energy development. New natural gas access regulation will enable the development of a Liquefied Natural Gas (LNG) hub based in Spain, encouraging greater utilization of plants as well as market competence and liquidity. New electricity market design will comply with European rules in order to achieve a true market integration among member states. 	<p>Public consultation process regarding these topics is open until July 5th 2019. The rest of the regulations that the CNMC shall publish are expected to go public in July.</p>

Snapshot on surveys and publications

Deloitte

Global renewable energy trends – July 2019

Technological innovation, cost efficiencies, and increasing consumer demand are driving renewables—particularly wind and solar—to be preferred energy sources. This report examines seven trends that are driving this transformation.

[Link to the survey](#)

Energy management: Balancing climate, cost, and choice – June 2019

Most businesses and residential consumers surveyed realize the need to address climate change. But while businesses are upping the ante in managing resources, some residential consumers are still held back by cost and complexity.

[Link to the survey](#)

Agencies or research institutes

International Energy Agency

Nuclear Power in a clean energy system – May 2019

This report focuses on the role of nuclear power in advanced economies and the factors that put nuclear power at risk of future decline. It is shown that without action, nuclear power in advanced economies could fall by two-thirds by 2040. The implications of such a “Nuclear Fade Case” for costs, emissions and electricity security using two World Energy Outlook scenarios – the New Policies Scenario and the Sustainable Development Scenario are examined.

[Link to the survey](#)

Status of Power System Transformation 2019: Power system flexibility – May 2019

This report identifies challenges and opportunities to unlock system flexibility and accelerate power system transformation (PST) efforts. It provides an overview of the policy, regulatory and market instruments which can be implemented in different power sector contexts to mitigate these challenges.

[Link to the survey](#)

Transforming Industry through CCUS – May 2019

This report describes how Carbon capture, utilization and storage (CCUS) is expected to play a critical role in the sustainable transformation of industry sector as it is one of the most cost-effective solutions available for large-scale emissions reductions by contributing almost one-fifth of the emissions reductions.

[Link to the survey](#)

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European Commission

Identification and analysis of promising carbon capture and utilisation technologies, including their regulatory aspects – May 2019

This study's objectives are to build a better understanding of novel CCU technologies by assessing the readiness and map the roll out of different CCU technologies in order to clarify which types of technologies are viable for support, examining the EU regulatory set up related to the technologies and engaging with stakeholders for better understanding of the technologies and the legislative setup.

[Link to the survey](#)

The pricing of green bonds – May 2019

The financial system plays a major role in the transition to a low-carbon economy. We investigate this issue analyzing the recent developments and challenges in the bond and debt markets.

[Link to the survey](#)

Eurelectric

EV charging infrastructure: myths and reality – May 2019

A number of myths tend to hijack the European debate on EV charging infrastructure. To challenge these myths, the report considers supporting facts and evidence as well as industry examples.

[Link to the survey](#)

EV Public Charging Infrastructure Factsheet – May 2019

In order to meet its objective of 40 million electric vehicles by 2030, European countries need to bolster electrification of road transport. This factsheet shows electrification and strategic charging infrastructure build-up are already happening in some countries.

[Link to the survey](#)

TSO-DSO Report - An integrated approach to Active System Management – April 2019

In the present report, Active Power Management, as a part of Active System Management (strategy and tools used to achieve cost-efficiency and to secure management of electricity systems) is described and analysed from the perspective of a close collaboration of TSOs and DSOs, for congestion management in both distribution and transmission grids and system balancing when such services are provided in a market-based approach by flexibilities owned and operated by third parties.

[Link to the survey](#)

Oxford institute for Energy

Decarbonization and industrial demand for gas in Europe – May 2019

So far, the electricity sector has been the main focus of EU low-carbon policies, but if Europe is to meet its objectives, decarbonization efforts will need to expand to other sectors. The objective of this paper is to propose a simple analytical framework to get some granularity into the possible evolution of industrial gas demand as a result of decarbonization policies in Europe.

[Link to the survey](#)

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