

SECTOR IN-DEPTH

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Contacts

Benjamin Leyre +33.1.5330.3373
VP-Sr Credit Officer
benjamin.leyre@moodys.com

Knut Slatten +33.1.5330.1077
VP-Sr Credit Officer
knut.slatten@moodys.com

Sven Reinke +44.20.7772.1057
Senior Vice President
sven.reinke@moodys.com

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454

Energy Transition – Europe

Expansion of O&G in utilities' space credit positive for former, negative for latter

- » **European Oil and Gas (O&G) companies will accelerate their expansion in the European utilities' space.** We expect O&G companies to increase significantly their exposure to the utilities industry in the next 2-3 years. This reflects that (1) growth in consumption of electricity will substantially exceed that of other types of energy, including oil; (2) O&G companies seek to improve their environmental, social and governance (ESG) credentials; (3) O&G companies will diversify away from some upstream assets at growing risk of being stranded; and (4) there are interlinkage opportunities between various energy systems peripheral to both the O&G industry and the utilities industry, notably in electric transportation and in green hydrogen production.
- » **Targeted M&A will increase as O&G companies seek to gain exposure to specific elements of the utilities' value chain.** O&G companies will likely continue to make targeted acquisitions to establish a foothold in certain parts of the renewable power value chain as well as to improve their skills. Although most of the European oil majors have strong balance sheets and very high liquidity, we do not think that they will acquire any of the large, established utility companies in the next 2-3 years as the oil majors' equity valuations are currently very low and because they do not want to assume nuclear and coal power legacy issues.
- » **Impact on European utilities' credit quality is negative long term.** More investment by O&G companies in power generation will exert downward pressure on wholesale electricity prices. Auctions will become more competitive, reducing returns. In addition, expansion by O&G companies in electricity retail will weigh on utilities' margins. These factors are credit negative for utilities long term. However, in the next 2-3 years the impact will be mitigated by (1) more renewables projects being auctioned; (2) the falling cost of renewables; (3) the limited overall exposure of utilities to those activities attracting O&G companies; and (4) O&G companies sharing construction costs of some renewables projects or buying assets that utilities seek to divest.
- » **Credit impact for O&G companies is neutral in the medium term, positive longer term.** Expansion of the European O&G companies into renewable power will improve their chances of keeping their social license. This will enable them to continue to produce oil and gas for some years to come while they focus capital expenditure on low carbon activities. However, we do not expect such investment to benefit the O&G companies' profitability over the next 5 years and their leverage could rise if free cash flow proves insufficient to fund it.

European O&G companies will accelerate their expansion in the European utilities' space

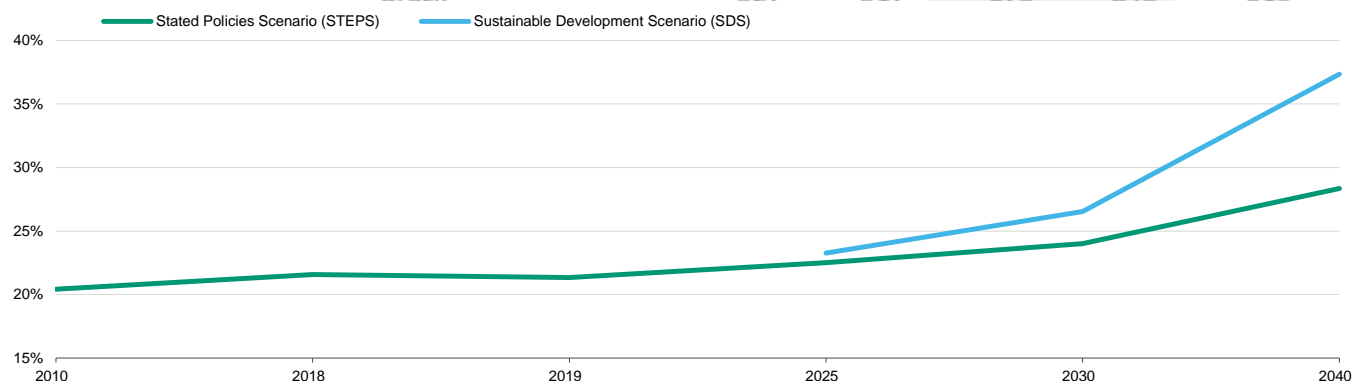
We expect European O&G companies to increase significantly their exposure to the European utilities industry in the next 2-3 years. This reflects that (1) growth in consumption of electricity will substantially exceed that of other types of energy, including oil; (2) O&G companies are seeking to improve their ESG credentials; (3) O&G companies will diversify away from some upstream O&G assets at increasing risk of being stranded; and (4) there are interlinkage opportunities between different energy systems peripheral to both the O&G industry and to the utilities industry, notably in electric transportation and in green hydrogen production.

European electricity consumption is set to outpace markedly other forms of energy

We expect growth in electricity consumption will exceed significantly that of other forms of energy, notably oil and gas, over the long term. This is because of policy actions taken by governments to encourage the use of electricity generated by renewables as a way to decarbonise the energy fuel mix and the evolution of customer preferences towards the use of greener power. As the exhibit below shows, the International Energy Agency (IEA) in its 2020 World Energy Outlook foresees a significant increase in the share of primary energy coming from electricity globally and in particular in Europe, with the share increasing from 21.3% of total energy usage in 2019 to 28.3%-37.4% by 2040. This would represent a 0.9%-1.2% annual growth rate for electricity consumption over 2019-2040, compared with a 0.4%-1.5% yearly decline for total energy consumption over the same period.

Exhibit 1

Electricity's share of energy demand will increase significantly in the Stated policies Scenario and the Sustainable Development Scenario



Source: IEA World Energy Outlook 2020

In early 2020 all European Union (EU) countries¹ submitted to the European Commission their draft National Energy and Climate plans (NECP), detailing how they will contribute to the EU's 2030 CO₂ emissions reduction objective laid out in the Paris Agreement. These NECPs place significant emphasis on the importance of electrification to reach CO₂ emissions reduction objectives, with concrete policy actions proposed that increase the likelihood of electrification being one of the main building blocks. .

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The exhibit below shows, for a few selected countries, the expected growth in electric passenger cars within each NECP.

Exhibit 2

Several EU countries display ambitious electric vehicle (EV) growth objectives in their NECPs

	Target in NECP (thousands)	Total number electricity passenger cars, 2019 (thousands)	Increase (times)
Spain - by 2030	5,000	47	106.5x
France - by 2022	1,000	223	3.5x
Italy - by 2030	4,000	40	100.2x
Germany - by 2030	8,500	245	33.6x
Finland - by 2030	250	20	11.7x
Poland - by 2025	1,000	5	188.3x

Source: European Commission², Moody's Investors Service

We expect the trend toward electrification to accelerate because the coronavirus pandemic is likely to hasten the energy transition, notably in Europe where the EU Commission has proposed a €750 billion recovery package that supports the objectives of the European Green Deal³. In the framework of the Green Deal, the EU Commission anticipates that the share of electricity in final energy consumption will grow from 23% currently to around 30% in 2030 and towards 50% by 2050. In comparison, that share has increased by only five percentage points over the last thirty years⁴.

O&G companies are just starting to set ambitious climate targets, whereas European utilities are well along the path toward decarbonisation

Both European O&G companies and European utilities will continue to face pressure from stakeholders – including investors – to further reduce their carbon footprint and thus improve their ESG credentials. We believe this will act as a catalyst for investment by oil majors into the utilities sector.

Most European integrated O&G companies have, over the last two years, set ambitious climate targets. The three largest oil majors, [Royal Dutch Shell Plc](#) (Shell, Aa2 negative), [Total SE](#) (Total, Aa3 negative) and [BP p.l.c.](#) (BP, A1 negative), which deliver in aggregate around 10% of the world's oil production, aim for net zero carbon emissions by 2050 or earlier. The definition and scope of the net zero ambition differ between the companies and shorter term targets are not aligned. However, it is clear that achieving the net zero ambition requires a material shift of the companies' business mix away from oil and gas production. So far only BP has published plans that foresee a substantial decline of fossil fuel production volumes – around 20% by 2025 and 40% by 2030 compared to 2019 levels.

Exhibit 3

Most European integrated O&G companies have set ambitious climate targets over the past two years

Long-term Ambition		Scope of Emissions	Intermediate Targets	2050 (or sooner) Targets	Annual Capital Investments (billion)	Baseline
BP	Net zero company by 2050 or sooner	Scope 1 and 2	By 2030: 30% - 35% absolute reductions (operated)	100% absolute reductions (operated)	\$3-4 by 2025 \$5 by 2030	2019
			Reduction in methane intensity (timeline to follow)	50% absolute reductions		
		Scope 3	By 2030: 30% - 40% absolute reductions (upstream)	100% absolute reductions		
			By 2030: > 15% carbon intensity reduction of sold products By 2030: > 15% carbon intensity reduction of sold products	50% absolute reductions		
Shell	Net-zero emissions energy business by 2050 or sooner	Scope 1 and 2	By 2025: maintain methane emissions intensity below 0.2%	Net-zero on all emissions from manufacture of all products	\$1-2 in 2019-20 \$2-3 in 2021-25	2016
		Scope 3	By 2021: reduction by 2% - 3% By 2022: reduction by 3% - 4% By 2035: reduction by 30%	65% reduction in Net Carbon Footprint Net-zero Scope 3 emissions on sold products		
Total	Net Zero by 2050 together with society for its global business	Scope 1 and 2	By 2025: maintain methane emissions at operated gas facilities close to zero, with a target of less than 0.1% of commercial gas produced	Net zero on operations (Scope 1+2) Net zero in Europe (Scope 1+2+3)	\$2 (floor) rising over time	2015
		Scope 3	By 2030: 30% absolute reductions in Europe By 2030: absolute levels lower than in 2015	60% or more Net Carbon Intensity reduction (Scope 1+2+3)		

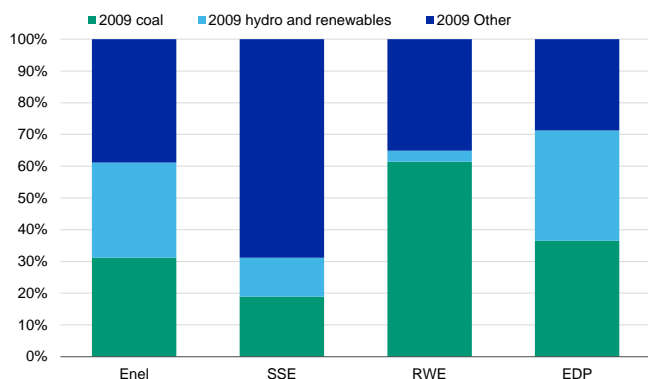
Source: Company reports and presentation

While European O&G companies will continue to face pressure to further reduce their carbon footprint, utilities have already made considerable progress along the path towards decarbonisation.

The exhibits below show that the generation fuel mix of several large European utilities has shifted significantly towards greener energy sources, rendering them less vulnerable to environmental stakeholder pressure.

Exhibit 4

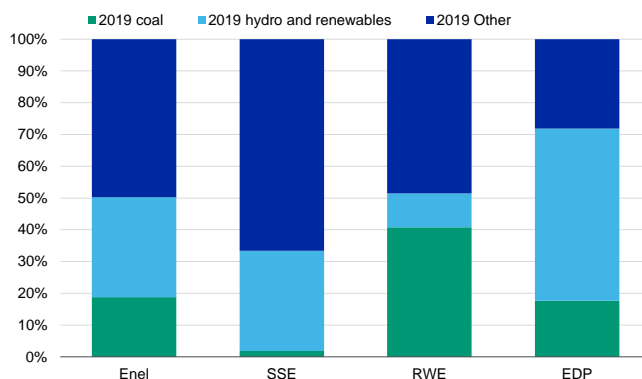
2009 European power generation output breakdown by technology for selected European utilities



Source: Annual Reports, Moody's Investors Service

Exhibit 5

2019 European power generation output breakdown by technology for selected European utilities



Source: Annual Report, Moody's Investors Service

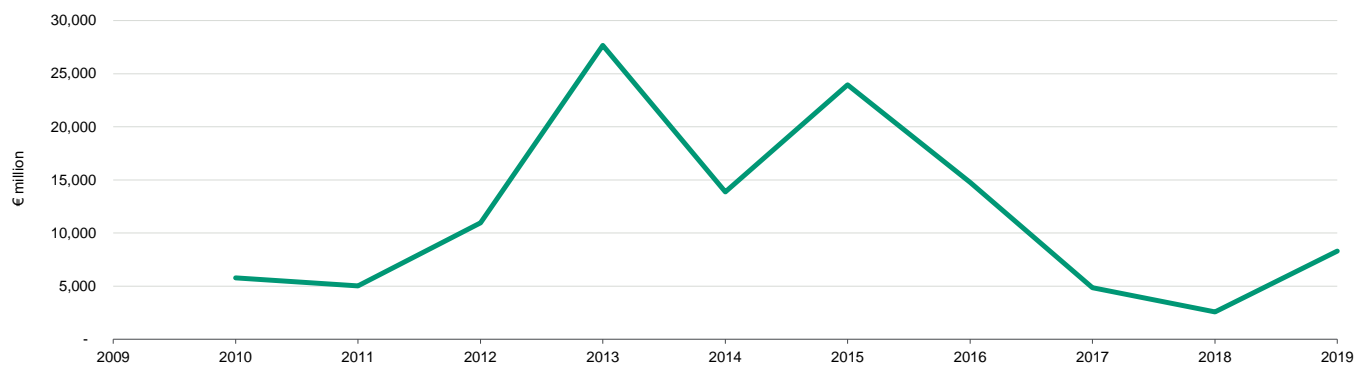
The motivation of utilities to reorient their business activities towards cleaner sources of energy has partly reflected a rising awareness that the energy transition will structurally change the profitability of thermal generation, as exemplified by the large impairments taken by the companies over the past ten years. The exhibit below shows that cumulative asset impairments for eight of the largest European utilities amounted to €158 billion over 2010-2019. Arguably, some of these impairments were in part justified by overcapacity in European power markets following the Great Recession of 2008 and the associated decline in electricity consumption, or by the rebasing of commodity price (coal, oil and gas) expectations that reduced the value of upstream merchant assets. In addition, an

increase in renewables penetration and in CO2 prices has made high CO2 emitting technologies less competitive. Also we believe expansion of renewables was one of the drivers of lower global energy commodity prices as demand for them reduced.

Exhibit 6

Yearly impairments for eight of the largest European utilities peaked in 2013-15

The pick-up in 2019 is mostly attributed to [ENEL S.p.A.](#)'s (Enel, Baa2 positive) coal asset impairments in Italy, Spain, Chile and Russia



Source: Annual reports Enel, EDF, EDP, Engie, Fortum, Iberdrola, RWE, SSE, Vattenfall, Moody's Investors Service

O&G companies have a number of options to expand their low carbon businesses with renewable power being a main pillar

While the current core activities of the European O&G majors are likely to shrink over the next two decades, these companies are investing increasingly large sums in a wide range of low carbon activities, including biofuel production and electric vehicle charging infrastructure. We believe that the O&G majors will direct the largest part of their low carbon investments into renewable power generation alongside power supply and trading. Renewable power has substantial growth potential and the oil majors can leverage some of their project development capabilities in offshore wind power, which has similarities to offshore oil and gas in terms of skills, knowledge and experience required.

Total aims to become a world leader in renewables and plans to increase its renewable power generation capacity from 5.1 gigawatt (GW) currently to 35 GW by 2025. The company has a strong position in solar in France and Spain, also operates assets in India and has a project in the pipeline for Qatar. In terms of wind power, the company has onshore wind assets in France and is currently developing its first large offshore wind project in the UK in partnership with [SSE plc](#) (SSE, Baa1 negative). In addition, Total is developing its first floating offshore wind projects in the UK and South Korea as it sees the potential for floating offshore wind to exceed substantially the global generation capacity of fixed offshore wind.

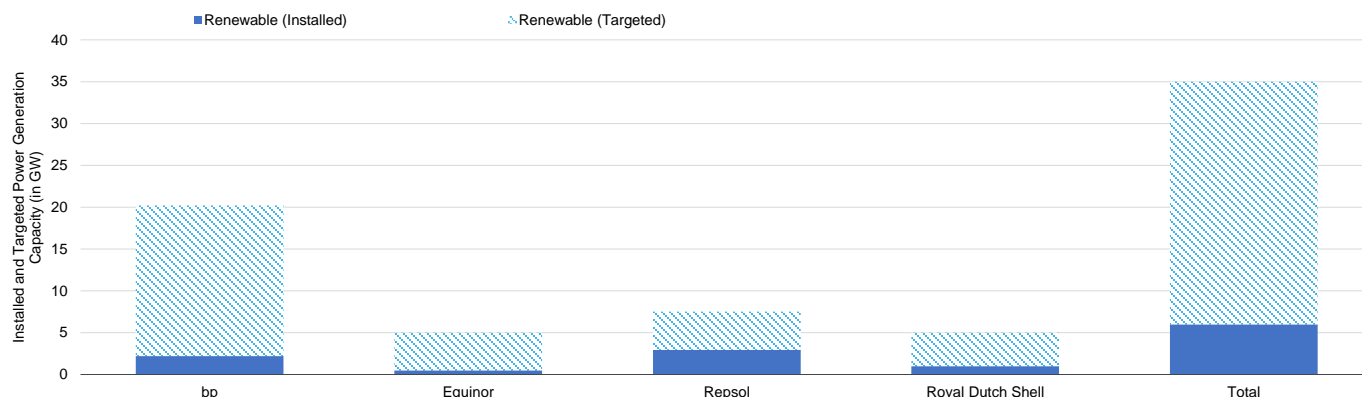
[Equinor ASA](#) (Equinor, Aa2 negative) is building a sizeable renewable energy portfolio, mainly focusing on offshore wind, and expects to direct 15%-20% of its investment towards renewable energy and low carbon projects by 2022-23. Equinor's renewable energy power capacity reached 0.5 GW in 2019 and the company aims for this to rise by 4-6 GW by 2026 (Equinor's share in projects), mainly based on the current project portfolio, and 12-16 GW by 2035, dependent on availability of attractive projects opportunities. Equinor took another large step forward in its ambition to become a global offshore wind power major when, in September 2019, the company and its joint venture partner SSE Renewables were awarded contracts to develop three large scale offshore wind projects in the Dogger Bank region off the North Sea. This will be the world's largest offshore wind farm development with a total installed capacity of 3.6 GW, sufficient to power around 4.5 million UK homes. SSE Renewables will lead the project construction and development phases, while Equinor will be responsible for operations following completion of the construction phase.

Shell plans to increase its renewable power generation to 5 GW by 2025, a fivefold increase over the current capacity of around 1 GW, although other European oil majors are even more ambitious when compared to their smaller overall size. BP has recently set ambitious targets, including to build a portfolio of renewable power generation assets with a capacity of 20 GW by 2025 and 50 GW by 2030. In September 2020, BP acquired a 50% non-operating interest in Equinor's offshore wind power project Empire Wind in New York State, which requires investment of around \$3 billion and will power over 500,000 homes in New York when it is scheduled to start operations in late 2024. At the same time, BP also acquired a 50% non-operating interest in Equinor's Beacon Wind project off the coast

of Massachusetts for a total consideration of \$1.1 billion before adjustments for both projects together. Through this transaction, the two companies are also establishing a strategic partnership for further growth in offshore wind in the US.

Exhibit 7

Growing presence in renewable power generation is a key component of European oil majors' expansion into low carbon operations



Repsol targets to have 7.5 GW of capacity installed by 2025 while some peers' target refers to approved but not yet installed capacity.

Source: Company reports and presentations

O&G companies aiming to become less reliant on their traditional fossil fuel upstream operations

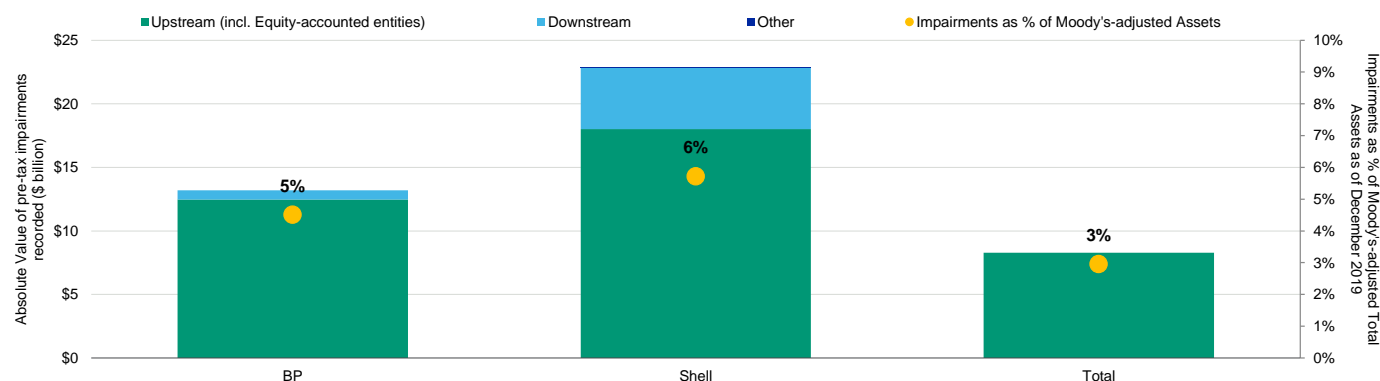
O&G companies' upstream assets are increasingly at risk of being stranded should the energy transition accelerate. While oil prices will not necessarily be lower once global demand for oil and at a later stage gas starts to decline – peak oil will only be reached around 2040 under the STEPS scenario – primarily because of an uncertain supply situation in 2030 and beyond. Oil and gas prices are more likely to be under pressure in a rapid transition scenario where oil demand has already peaked and will not fully recover to the pre-coronavirus level of 2019, despite some recovery in 2021.

Many O&G companies have made substantial impairments of their upstream assets related to lower long term oil and gas price assumptions. Shell and BP have recently announced the largest impairments - in H1 2020 BP took a charge of \$12.6 billion and Shell \$23.1 billion, both on a pre-tax basis. Shell now assumes average Brent prices of \$35/bbl in 2020, \$40/bbl in 2021, \$50/bbl in 2022 and \$60/bbl in 2023, with a long-term price of \$60/bbl (real terms 2020). BP revised its long-term Brent price assumptions to an average of around \$55/bbl between 2021 and 2050 (real terms 2020), compared with its previous price assumption of \$70/bbl. Elsewhere, Total's H1 2020 pre-tax impairment charge of \$8.1 billion reflects its lower Brent price assumptions of \$35/bbl for 2020, \$40/bbl for 2021, \$50/bbl for 2022 and \$60/bbl for 2023.

As shown in Exhibit 8, the impairment charges, while large, are relatively manageable in the context of the companies' balance sheets. They represent 3%-6% of Moody's-adjusted total assets as of December 2019, although, at 9%-14%, are more material in relation to Moody's-adjusted equity as of December 2019.

Exhibit 8

European oil majors have taken material impairment charges in H1 2020, driven by lower assumptions on long term hydrocarbon prices



Source: Company reports, Moody's Investors Service

Although these impairment charges are non-cash items, they are indicative of weaker future cash flow generation from the core oil and gas upstream assets and support the rationale of O&G majors to expand their renewable power activities.

Rising interlinkage opportunities across different energy systems during the energy transition will blur the lines between O&G companies and utilities

O&G companies are seeking to play to their strengths and expand in areas that are peripheral to their current activities and supported by the energy transition. These include EVs (O&G companies already have networks of refuelling stations where EVs could be recharged) or green hydrogen production (O&G companies are already among the biggest hydrogen producers and consumers globally, as hydrogen is needed in refineries processes).

However, these activities are also peripheral to utilities, as they seek to provide recharging points for EVs and to connect them onto electricity networks to provide grid balancing services, or seek to expand into green hydrogen production which relies on renewables generation.

The interlinkage opportunities arising from the energy transition will redefine the scope of activities undertaken by the O&G companies and utilities and will blur the lines between them.

European O&G sector involvement in European utilities is not new, but has traditionally faced obstacles

A few O&G companies ventured into the electric utilities space in the early 2000s, but this was an exception rather than the norm.

Such action was often driven by opportunities arising from the liberalisation of the European electric and gas sectors. For instance, Italy's Eni S.p.A. (Eni, Baa1 stable) ventured into the gas-fired power generation market in Italy when it opened to competition in the early 2000s and then built on its presence in power generation to expand into the supply of gas and electricity (dual fuel) to industrial clients.

Some companies, for example, Equinor (previously Statoil) and BP expanded into the renewables business in the 2000s. Equinor was an early mover, launching offshore wind projects in Norway and the UK during that period. BP established BP Alternative Energy in 2005, an alternative and low carbon energy business combining the group's interests in solar and wind power, biofuels, carbon capture and storage, and gas-fired power generation. However, BP wrote off its high-profile solar business in 2011, as it had not been able to generate the necessary margins.

Repsol S.A. (Repsol, Baa2 negative) was historically involved in the utilities business indirectly through a large (30%) stake in Naturgy Energy Group SA (Naturgy, Baa2 stable), following a reorganisation of the energy sector in Spain in the 1990s. Repsol disposed of its stake in Naturgy in two steps in recent years.

O&G companies have been cautious in the past about expanding significantly in the electric and gas utilities industry, for several reasons. These include:

- » A long history of political intervention: even though the European utilities industry has made significant progress towards deregulation since 1997, when the first Electricity Directive introduced competition in power generation and retail, the utilities industry has remained heavily scrutinised by policymakers, given the industry's direct relationship with a large pool of customers. There are many examples of intervention by governments or regulators across Europe in the past few years, including the introduction of an electricity tariff freeze for residential customers in Belgium in 2009; the introduction of a Robin Hood tax in Italy in 2008 – later declared unconstitutional in 2015; the introduction of a price cap on prepayment meter energy tariffs in 2017 and on default electricity and gas tariffs in 2019 in the UK; retrospective remuneration adjustment for renewables plants in Spain in 2013. While O&G companies also face political risks in their core industry, these risks are different to those utilities have been facing, as they relate mostly to their relationship with local governments and authorities, not to the inherently politicised nature of the mass market.
- » The view taken by O&G companies that returns on investment in the utilities industry would remain below the double digit levels that they had customarily earned⁵).
- » The O&G sector's specific skills in large and extremely complex projects with long lead times, rather than in customer interface, services, small scale renewables or more traditional power generation projects. For example, a large 840 megawatt (MW) CCGT (source SSE) would typically cost £350 million, large scale photovoltaic a few €10 millions or €100 millions, versus traditional multibillion \$ projects in the O&G industry, such as Total's Mozambique LNG project of \$20 billion FIDed in 2019, or Johan Sverdrup \$9 billion (NOK83 billion) commissioned in 2019).

Targeted M&A will increase as O&G companies seek to gain exposure to specific elements of the utilities' value chain

O&G companies have mostly built their existing presence in the utilities space through new developments, often in partnership with utilities, complemented by acquisitions. With investment budgets set to rise materially over the next few years, we anticipate further targeted acquisitions by O&G companies to support their ambition to further establish renewable power operations and to scale them up.

The strong credit quality of the European oil majors, with some ratings in the Aa and A category and very high liquidity (Shell, Total and BP, for example, each have available liquidity of \$40 billion or more) would enable them to make large acquisitions. However, we believe that it is unlikely that any of the European oil majors will acquire one of Europe's leading utility companies. The current coronavirus-driven economic downturn will hit the earnings and cash flow of the oil majors materially and has substantially reduced their equity valuations.

This would make a large scale acquisition, most likely through a debt/equity mix, less attractive. Also oil majors do not want to assume the long-tail risks most European utilities carry with their nuclear and coal power assets.

O&G companies have individual strategies and may target different parts of the European utilities value chain when seeking acquisition opportunities. Equinor, for example, aims to develop offshore wind power generation assets organically rather than through acquisitions and is partnered with utility company SSE on the Dogger Bank offshore wind project in the North Sea. However, in 2019 Equinor acquired Danske Commodities, one of Europe's largest electricity traders, for a cash consideration of \$535 million, to strengthen its ability to capture value from its own production of renewable electricity.

Some O&G companies are pursuing a vertical integration model (power generation and retail) to secure the delivery of power generation output. Total seeks integration along the entire electricity value chain, including supply to end customers, and acquired French electricity and gas production and distribution company Direct Energie in 2018 for \$1.7 billion. This helped to bring Total's market share in France and Belgium closer to the 2025 target of 15% in terms of number of clients reached for electricity and gas combined. Similarly, Shell acquired UK's First Utility a couple of years ago. After having rebranded First Utility to Shell Energy Retail, it now offers its close to 1 million end-customers 100% renewable electricity.

While Repsol targets substantial growth in its renewable power generation capacity to 7.5 GW by 2025, it is also focused on power and gas retail and wholesale operations. In November 2018, Repsol completed the acquisition of Viesgo for €750 million, which added 2.3 GW of low-carbon power generation and around 750,000 gas and electricity retail customers to the group.

The Polish refiner [Polski Koncern Naftowy ORLEN S.A.](#) (PKN ORLEN, Baa2 positive) is pursuing an even fuller vertical integration model. The company is combining its refining and fuel station retail operations with [Energa S.A.](#)'s (Baa2 stable) Polish energy distribution network, power plants and almost 3 million power end customers. PKN ORLEN is also currently in the process of acquiring a 71.88% stake in the majority of Poland's dominant natural gas company [Polskie Gornictwo Naftowe i Gazownictwo S.A.](#) (Baa2 stable) and the second largest Polish refinery Grupa Lotos (unrated). In addition, PKN ORLEN targets to step up its investment into renewables, including through the development of a large offshore wind project with an installed capacity of up to 1,200 MW in the Baltic sea. It also envisages to build gas-fired power plants in order to replace coal-fired power plants, the predominant source of electricity in Poland. The enlarged PKN ORLEN group will be Poland's dominant energy company, combining power generation from fossil fuels and renewable sources with energy distribution, refining and power, fuel end customers operations and a modest oil and gas upstream portfolio. Although this business model is supported by the Polish government and consistent with its energy policy, we do not believe that other European O&G majors will establish a similar strategy.

European Exploration & Production (E&P) companies such as [Wintershall Dea GmbH](#) (Wintershall Dea, Baa2 negative) and [Aker BP ASA](#) (Aker BP, Ba1 stable) are continuing to focus on their core business and are unlikely to expand into power generation, in contrast to other European integrated oil companies. Aker BP is exploring opportunities to use offshore wind energy at its oil and gas platforms off the coast of Norway to further reduce its already very low scope 1 carbon emissions, but the company is unlikely to operate offshore wind assets for commercial power production. Wintershall Dea will continue to focus on producing gas (about 70% of its production) and distributing it, which it expects to play a key role in the transition to carbon free energy generation. The more narrow focus of E&P companies creates much higher hurdles for them to expand into lower carbon operations, such as renewable power generation, power trading and electricity supply operations.

Overall, targeted M&A activity in the European utilities space by integrated O&G companies is likely to intensify in the next 1-2 years as they seek to build a greater presence in these markets. Although they are unlikely to make transforming acquisitions, for example, by buying one of the large European utility companies, they will continue to form partnerships, mainly to develop large-scale renewable power generation assets. Competition for renewable power generation as well as power and gas supply businesses will increase and oil majors are likely to gain a stronger foothold in the utilities' current core business.

Impact on European utilities' credit quality is negative in the long term, with mitigants over the next 2-3 years

The increasing investment by O&G companies in power generation, particularly renewables, will exert downward pressure on wholesale electricity prices. Separately, renewables auctions will become more competitive, which will reduce new renewables projects' cash flow generation under decreasing subsidies. In addition, O&G companies' likely expansion in electricity retail will weigh on utilities' retail margins. These factors will ultimately lower the credit quality of utilities over the medium to long term. Over the next 2-3 years, however, the credit negative impact will be buffered by (1) the expanding pipeline of renewables projects being auctioned, (2) the decreasing cost base of renewables fuelled by further economies of scale, (3) the limited overall exposure of utilities to the parts of the value chain that are attracting O&G companies, namely merchant generation and retail, and (4) support brought by O&G companies to some utilities, through sharing construction costs of some large renewables projects, notably offshore wind, or through purchasing some assets utilities seek to divest to support their balance sheet.

European utilities that are particularly exposed to merchant retail and power generation will be the most at risk from increased competition

Whereas O&G companies are pursuing a variety of strategies, we believe their presence will be mostly felt in merchant generation and retail, and utilities that have a high exposure to these segments will experience increasing competition.

Indeed, as O&G companies seek to increase their exposure to power generation by accelerating the construction of renewables projects, they will add to downward pressure on wholesale prices. This will be negative for the cash flow generation of all merchant power generation assets exposed to the local wholesale price.

As renewables auctions become increasingly competitive, this will weigh on the subsidy levels obtained for these projects. This would diminish the future cash flow generation of new projects won, or simply reduce the success rate of utilities bidding into these auctions, but not directly impact the cash flow generation of existing assets. Utilities, such as [Orsted A/S](#) (Orsted, Baa1 stable) and [Iberdrola S.A.](#) (Iberdrola, Baa1 stable) are planning to participate in further offshore wind auctions and could face more intense competition than they would have expected.

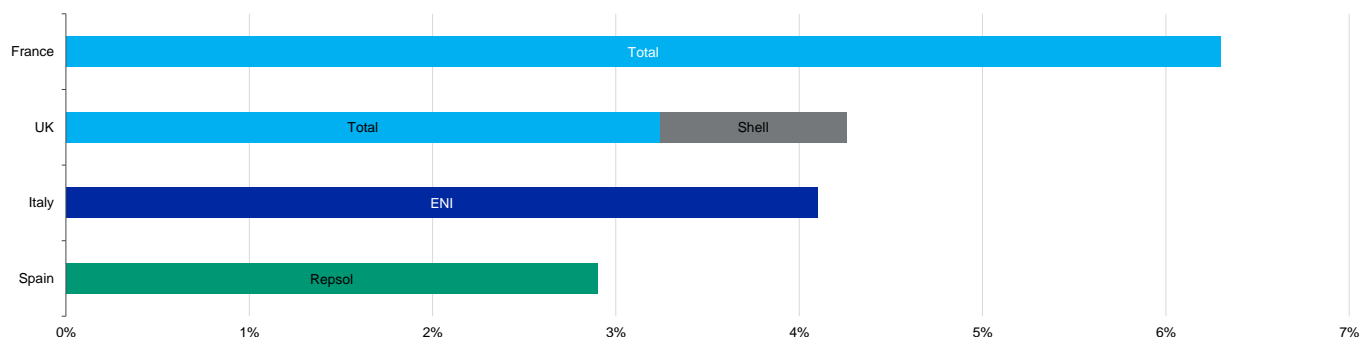
We generally expect that renewables investments will occur more and more on a merchant basis, rather than through subsidies, as renewables costs continue to fall. For example, while offshore wind had traditionally been a subsidised industry, a progressive change to merchant started to materialise with the two subsidy-free offshore projects of OWP West and Borkum Riffgrund West 2 won by Orsted in Germany in 2017.

Those renewables developers most optimistic about their cost structure (including financing costs), wholesale power price prospects or their own capabilities to extract higher prices are likely to lead the development phase. We see a risk that O&G companies will adopt an aggressive stance when bidding for projects, which may have the effect of depressing wholesale power prices.

Utilities, and increasingly O&G companies, see a strategic opportunity to pursue more vertical integration and notably seek to develop a presence in the retail channel, which is largely opened to competition across Europe. Power purchase agreements can provide renewable generators with cash flow certainty as subsidies decline. However, because the market for power purchase agreements with large industrial customers is still immature in Europe and the wholesale electricity forward market offers little liquidity beyond five years, renewables developers are likely to increasingly invest in projects backed by their own, relatively sticky, retail customer base. This will reduce project risk and thereby the cost of capital, a major component of a largely fixed-cost technology.

This trend has been observed in countries such as Italy, Spain and France where O&G companies have been involved in the supply of electricity. For instance, Total's acquisition of Direct Energie has given it a foothold in the French retail market where the incumbent, [Electricite de France](#) (EDF, A3 negative), is by far the leading company enjoying a share of almost 80% in the French residential market. Whereas we expect some O&G majors will seek to strengthen their position in retail, their market shares are currently modest, as the exhibit below shows.

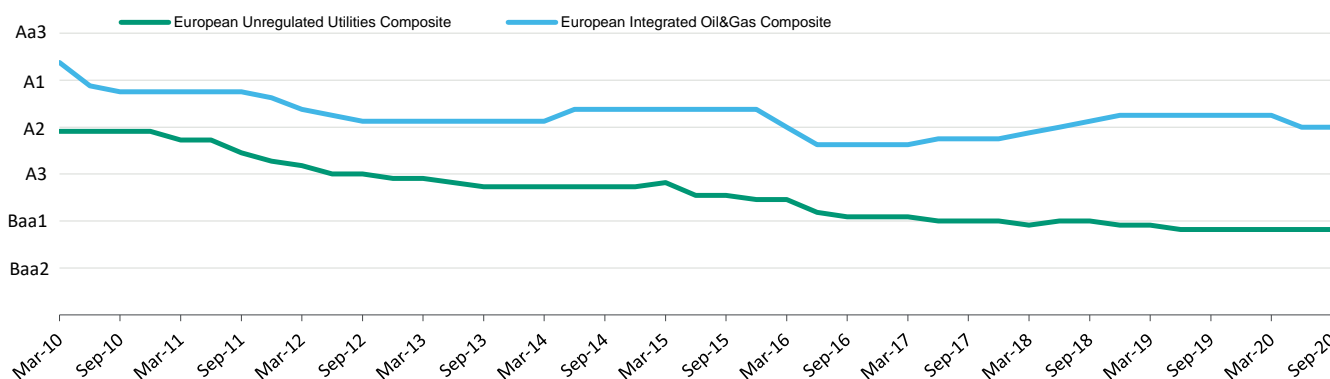
Exhibit 9

Estimated 2019 retail market share (in volumes) for the O&G companies with the largest presence in their respective markets

Source: Autorita di Regolazione per Energia Reti e Ambiente, Office of Gas and Electricity Markets, Annual reports, Moody's Investors Service

Against the background of intensifying competition in power generation, European utilities have in general less financial capacity than O&G companies to withstand a deteriorating operating environment that may result from potential overinvestment, as shown by the sector's overall weaker credit ratings. As a result, a deterioration of the operating environment could put pressure on utilities to adopt mitigating actions including, for instance, reducing investment.

Exhibit 10

European integrated oil companies have on average a higher credit rating

European integrated oil and gas composite comprises: Shell, Total, BP, Eni, Equinor, Repsol, [MOL Hungarian Oil and Gas Plc](#) (Baa3 stable) and [OMV AG](#) (A3 negative)

European unregulated utilities composite comprises: Enel, EDF, Iberdrola, [ENGIE SA](#) (Engie, Baa1 stable), [Vattenfall AB](#) (Vattenfall, A3 negative), Orsted, [EDP - Energias de Portugal, S.A.](#) (EDP, Baa3 stable), [Fortum Oyj](#) (Fortum, Baa2 negative), SSE, [EnBW Energie Baden-Wuerttemberg AG](#) (EnBW, A3 negative) and [RWE AG](#) (RWE, Baa3 positive)

Source: Moody's Investors Service

A number of mitigants will buffer the negative credit impact on European utilities

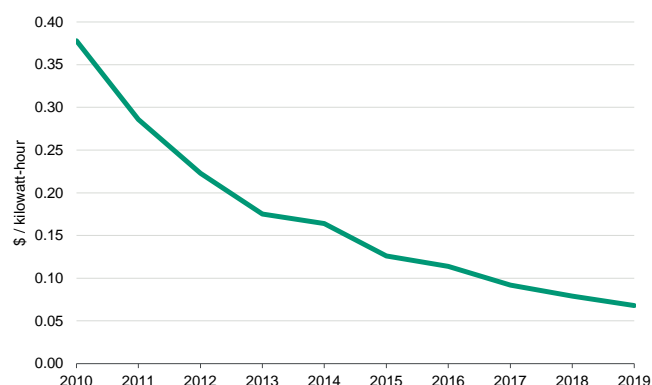
A number of mitigants will buffer the negative credit impact from the increasing presence of O&G companies in the utilities value chain.

Firstly, the current pipeline of renewables projects is large and expanding and will, in the short to medium term, offer opportunities for many companies. The increasing pipeline reflects a combination of (1) the increased focus of governments and political institutions – including the EU – on the necessity of building out renewables; and (2) increasing electrification in the coming years. A number of sectors – including transport – have proved very difficult to decarbonise. With a number of projects underway - including hydrogen production fuelled by renewables – there will be a growing need for incremental renewable energy and we believe the pipeline will only deepen over the coming years.

Secondly, lower pricing eventually achieved in renewables auctions will be partly offset by economies of scales and improved procurement efficiencies for power operators. This is because the levelised cost of energy (LCOE), which measures the average net present cost of an electricity generation plant over its lifetime, for different technologies – such as photovoltaic and wind (both

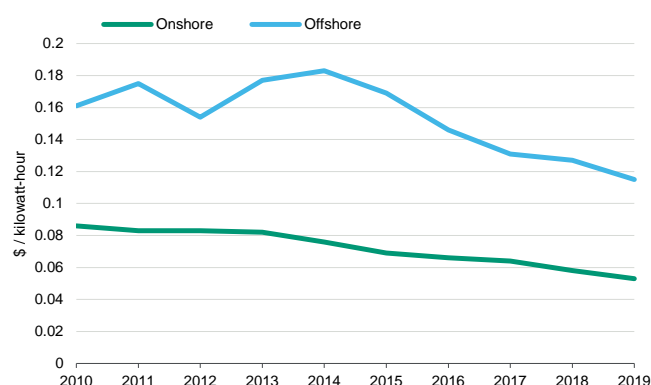
onshore and offshore) – has fallen considerably. For example, according to The International Renewable Energy Agency (IRENA), the global weighted LCOE for large scale photovoltaic plants declined by 82% in the period from 2010-2019. We expect this trend to continue and expect a further annual percentage decline in these costs in the high single digits on average over the next 2-3 years.

Exhibit 11

Global weighted average LCOE of solar photovoltaics

Source: IRENA Renewable Cost Database

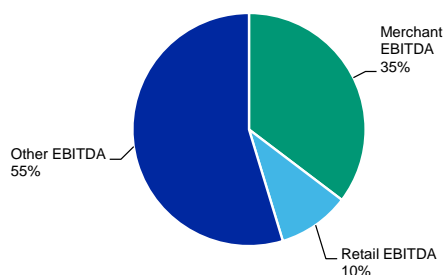
Exhibit 12

Global weighted average LCOE of wind

Source: IRENA Renewable Cost Database

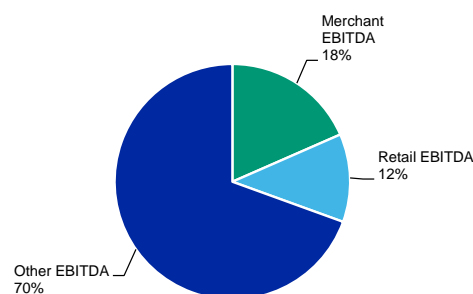
Thirdly, O&G companies have tended to focus on parts of the value chain – such as power generation and retail – which are already opened to competition. While we estimate that revenue from power generation represents almost half of the utility sector's EBITDA, the vast majority of this is protected for several years thanks to various mechanisms, such as feed-in-tariffs. As the exhibit below shows, the proportion of earnings stemming from merchant generation is currently below 20% of the sector's EBITDA – and has steadily fallen over the past eight years on the back of lower wholesale power prices. Also, while retail activities are also likely to experience enhanced competition from the rising interest of the O&G companies, albeit to a lesser extent than power generation, these activities represent only 12% of the utility sector's EBITDA. As a consequence, we believe the overall portion of utilities' cash flow that could be at risk from increasing competition is modest in the next few years.

Exhibit 13

2011 EBITDA mix for the 20 largest EMEA rated utilities⁶

Source: Annual reports, Moody's Investors Service

Exhibit 14

2019 EBITDA mix for the 20 largest EMEA rated utilities

Source: Annual reports, Moody's Investors Service

Fourth, utilities and O&G companies will not necessarily always compete head to head and may choose to work together on certain projects. For example, in large-scale projects, several companies will be involved in the construction and operation phases to spread the risk – similar to the way O&G companies often develop large O&G fields through a consortium. For instance, SSE and Equinor have partnered in a 50/50 joint venture to develop the 3.6 GW Dogger Bank Wind Farm in the UK. In addition, utilities may sell down part of their ownership stake (farm-down) in a project. This was seen for instance in Total's agreement with SSE to acquire a 51% stake in the Seagreen 1.14 GW offshore wind farm project in June 2020. Also, this can provide a valuable source of funding and an opportunity

to strengthen a company's balance sheet, as was evidenced by the announced disposal of EDP's B2C retail business and two gas-fired plants in Spain to Total for €515 million in May 2020.

We have not as yet seen any O&G company expanding in electricity networks, and believe this is unlikely to occur in the next 2-3 years, given their lack of ambition to invest in purely regulated activities. If this were to take place, we would see this as overall credit neutral for utilities, as it would not worsen their business risk environment.

Exhibit 15

Fusion: utilities and O&G companies

Overview of selected transactions

Deal value (million)	Month-Year	Acquirer	Value Chain	Description	Ownership stake, %
N/A	Oct-20	Total SE	Power	EolMed floating wind pilot project	20
N/A	Sep-20	Total SE	Other	EV charging network	100
\$357.1	Jul-20	Galp Energia SGPS SA	Power	Photovoltaic power plants (450MW)	50
N/A	Jun-20	ENI SpA	Power	Three wind farms (35.2MW)	100
\$162.9	Jun-20	Total SE	Power	Offshore wind farm project (1.14 GW) acquired from SSE plc	51
\$557.2	May-20	Total SE	Power/ Supply	Two gas-fired power plants (850MW) and B2C energy supply business of Energias de Portugal SA	100
N/A	Feb-20	Repsol SA	Power	Wind farms (860MW)	100
N/A	Feb-20	Total SE	Power	Photovoltaic solar energy projects (1.2GW)	100
\$51.3	Feb-20	Motor Oil (Hellas) Corinth Refineries SA	Power	Photovoltaic power plants (47MW)	100
\$982.0	Jan-20	Galp Energia SGPS SA	Power	Photovoltaic energy projects (2.9GW)	75.01
N/A	Dec-19	Repsol SA	Power	Photovoltaic solar energy projects (126.6MW)	100
N/A	Dec-19	Equinor ASA	Power	Offshore Wind Farm	50
\$2,890.0	Dec-19	Polski Koncern Naftowy Orlen SA-PKN	Power/ distribution	Power generation and distribution	80
\$871.0	Jun-18	Repsol SA	Supply	Low Carbon generation assets and retail business	100
\$3,090.6	Apr-18	Total SE	Supply	Electricity supplier	73.04
N/A	Dec-17	Royal Dutch Shell plc	Supply	Supplier of gas and electricity	100
\$200.0	Dec-17	BP plc	Power	Developer and operator of solar power plants	43
\$284.6	Sep-17	Total SE	Power	Developer of renewable energy projects	23

Source: Dealogic, Moody's Investors Service

Credit impact for O&G companies is neutral in the medium term, positive longer term

The expansion of the European oil majors into renewable power generation and in some cases also power wholesale and retail is inevitable, as the global energy market moves towards renewable energy sources and away from oil and gas. European integrated O&G companies also face growing pressures from investors and regulators to accelerate their transition as the focus on ESG factors increases. In order to keep their social license to continue to produce oil and gas – even with declining volumes – for many years to come they need to make tangible progress towards decarbonising their product mix.

As maintaining the status quo is no longer an option, at least for the European oil majors, establishing a scalable renewable power generation business, accompanied by operations along the power value chain, is likely to provide the best growth opportunities in the longer term. Despite rising competition, which will put downward pressure on investment returns, the projected growth of renewables will provide sufficient space in the market for more established utility companies as well as new entrants such as the European oil majors. Future returns on renewable power generation investments are likely to be lower than what O&G companies have on average achieved in the past on their oil and gas upstream projects, but renewable assets could generate steadier and less volatile cash flow.

However, investments made by the O&G companies, although large, are unlikely to generate significant earnings and cash flow over the next five years and will therefore not improve their financial strength in the short to medium term. For some oil and gas companies these investments could actually result in a weaker financial profile over the next few years until the renewable power generation assets are built and produce power. The short and medium term impact on their financial strength depends very much on capital allocation decisions, as unchanged levels of shareholder remuneration and investment into the oil and gas core business alongside rising investment into renewable power assets could lead to higher leverage. However, some companies such as Shell and BP have stated that their recent

dividend cut is not just a temporary measure to offset currently low oil and gas prices, but is required to fund rising investment into low carbon operations. Consequently, their credit quality could remain largely unchanged over the next five years despite material investment without immediate returns.

Moody's related publication

Outlook:

- » [Integrated Oil & Gas - Global: Outlook turns stable on nascent recovery from deep Q2 trough](#), 9 September 2020
- » [Unregulated electric and gas utilities - EMEA: Outlook changed to stable as coronavirus hits power prices, political intervention rises](#), 2 April 2020

Sector In-Depth:

- » [Europe's electricity markets: In Europe, the energy transition is accelerating \(Slides\)](#), 19 October 2020
- » [Europe's electricity markets: In Britain, net zero emissions target will create opportunities, require further and faster decarbonisation \(Slides\)](#), 14 October 2020
- » [Europe's electricity markets: In France, concerns around nuclear availability highlight need to make renewables transition \(Slides\)](#), 14 October 2020
- » [Europe's electricity markets: In Germany, coal will fade further in importance as government aims to accelerate energy transition \(Slides\)](#), 14 October 2020
- » [Europe's electricity markets: In Italy, progress towards decarbonisation is accelerating \(Slides\)](#), 14 October 2020
- » [Europe's electricity markets: In the Nordics, 2020 shows the dark side of a clean grid \(Slides\)](#), 14 October 2020
- » [Europe's electricity markets: In Poland, the energy sector faces deep restructuring, driven by government policy \(Slides\)](#), 14 October 2020
- » [Europe's electricity markets: In Iberia, the decarbonisation of the power sector is accelerating \(Slides\)](#), 14 October 2020
- » [Oil & Gas - Global: FAQ on how carbon transition risk informs our credit views on the sector](#), 24 August 2020

Sector Comment:

- » [Integrated Oil & Gas - Europe: Lower long-term price forecasts lead to impairments, a credit negative](#), 8 July 2020

To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

Endnotes

- 1 With the exception of the UK
- 2 European Commission National energy and climate plans (NECPs), https://ec.europa.eu/energy/topics/energy-strategy/national-energy-climate-plans_en, last updated 14 October 2020
- 3 https://www.moody's.com/researchdocumentcontentpage.aspx?docid=PBC_1226346
- 4 https://ec.europa.eu/energy/sites/ener/files/energy_system_integration_strategy.pdf
- 5 [The Energy Transition and Oil Companies' Hard Choices](#), The Oxford Institute for Energy Studies, July 2019
- 6 The 20 largest EMEA rated utilities list includes [A2A S.p.A.](#) (Baa2 stable), [Centrica plc](#) (Baa2 negative), [CEZ, a.s.](#) (Baa1 stable), [E.ON SE](#) (Baa2 stable), EDF, EDP, EnBW, Enel, Engie, [EWE AG](#) (Baa1 positive), Fortum, Iberdrola, Naturgy, Orsted, [PGE Polska Grupa Energetyczna S.A.](#) (Baa1 stable), RWE, SSE, [Statkraft AS](#) (A3 stable), Vattenfall, [VERBUND AG](#) (A3 stable).

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