

Global renewables investments hit a speed bump

After strong growth, renewables face diverse challenges in China and Europe, while new coal build in Asia continues to show resilience. Bruno Brunetti presents S&P Global Platts Analytics' latest findings on the evolution of the global power mix



As the extent of the impact of the coronavirus outbreak on economic activity and power demand emerges, newbuild activity in global power faces old and new sets of challenges.

The short-term focus has been shifting due to coronavirus-related disruptions of manufacturing activity and logistics, but delays will most likely be short-lived.

The global power capacity mix has already been shifting toward renewables. S&P Global Platts Analytics estimates that solar photovoltaic, wind and hydro made up almost 67% of total power capacity additions over the past year. The question is whether renewables investments will accelerate, but so far we do not see major signs that this could happen soon.

Solar PV now accounts for about a third of the total incremental power capacity additions annually, but as presented in our latest Global Solar PV Outlook, 2019 marked an inflection point for the technology.

Solar additions were 4% lower year on year in 2019 and near-term challenges emerged for solar PV development, as policy support is being withdrawn across key markets and it is unclear at this time if stimulus packages that are being proposed across the globe could boost solar.

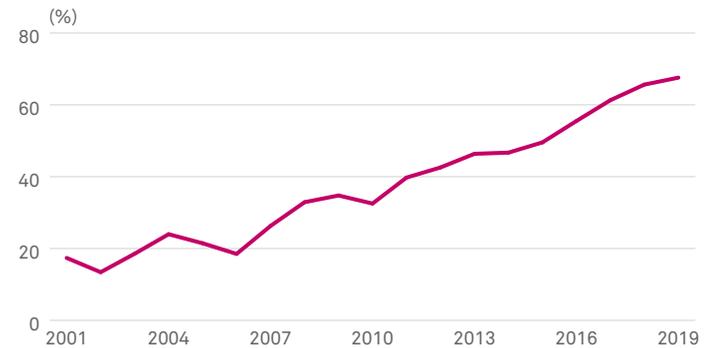
China's PV capacity growth declined by over a third, with lingering concerns around delays of subsidy payments for plants already commissioned in prior years, which are straining developers' finances. Platts Analytics expects a stabilization in the Chinese market in the second half of the year, under the assumption that the coronavirus is successfully contained.

Although logistics concerns are dampening short-term additions, down the road we see an acceleration of solar installations in a number of markets in Europe, the Middle East and emerging Asia, but as projects are becoming more exposed to wholesale markets, the current low and volatile fuel pricing environment poses further bearish risks for developers.

Commissioning of wind projects has been increasing more significantly due to some pockets of policy support that will be ending soon. Wind additions were up by 22% year on year across the globe during 2019, or around 62 GW. Over 40% of this capacity was added in China (25.7 GW, an increase of about 25% year on year). The current supporting mechanism with feed-in tariffs (FiT) for onshore wind will be phased out by 2021, so an incentive remains in place to bring projects online by then.

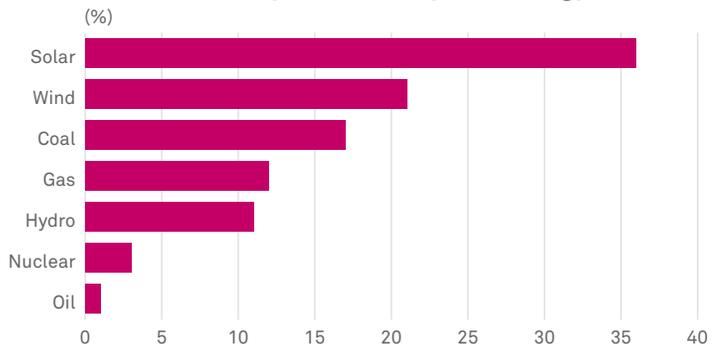
The US is the other region where wind capacity additions remain robust, with policy support through the Production Tax Credit further extended through 2020. According to EIA data, about 10 GW came online in 2019, compared to about 8.6 GW added in 2018. S&P Global Platts Analytics expects up to 15 GW to come online in 2020, the highest annual increment in history.

Renewable share of global power generation additions

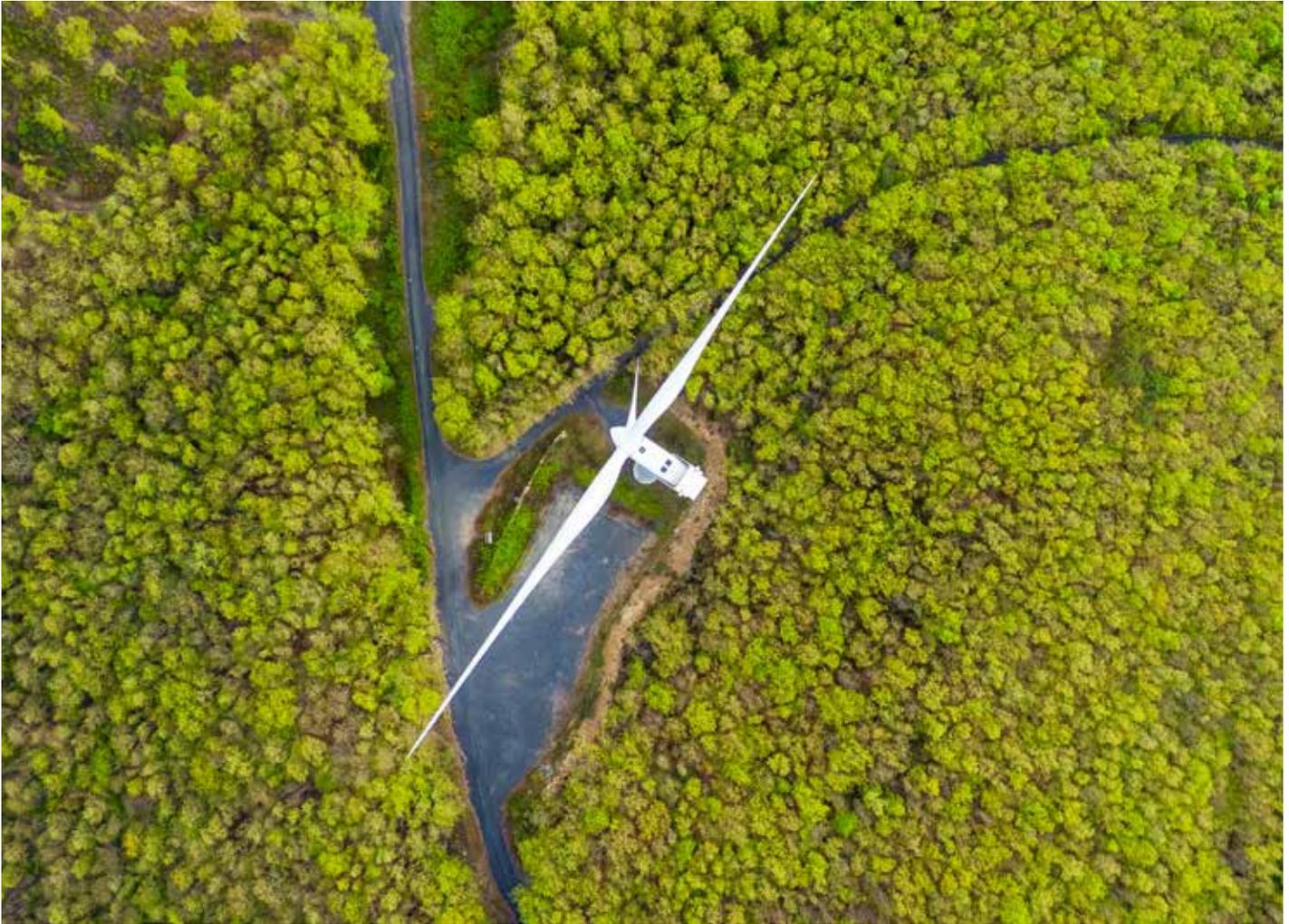


Source: S&P Global Platts Analytics, Market Intelligence World Electric Power Plant database

Global power capacity additions by technology 2019



Source: S&P Global Platts Analytics, Market Intelligence World Electric Power Plant database



Europe's wind capacity growth has been above expectations in 2019, with almost 15 GW installed, of which over 3.6 GW offshore plants. A lack of suitable space and growing local opposition have now become a major bottleneck to new onshore projects, especially in Germany.

Growth for onshore wind has been driven by Spain and Nordic markets, representing over 20% of the total, with Sweden in particular among the largest (+1.6 GW). But Europe's wind development is now shifting offshore, with 80 GW of offshore capacity targeted by 2030, which compares to 22 GW currently installed.

The pipeline of offshore projects has also become large in the US. In spite of a leveled cost of electricity (LCOE) for US offshore wind projects estimated to be in the mid \$80s/MWh (moving down to the mid \$60/MWh assuming Investment Tax Credit), offshore wind is being developed to meet state-driven mandates, with some 27 GW of combined offshore capacity targeted by

2030 across the Northeast. Energy mix diversification and emissions reductions are the main drivers of these procurements, while proximity to load centers is an additional attraction.

Coal fleet continues to grow

As investments in renewables dominate, it's remarkable that the coal fleet continues to expand globally. About 48 GW of coal capacity was commissioned in 2019, similar to the level seen in the prior year. China accounts for over 60% of these additions, followed by India with about 7.8 GW of coal newbuild (about 16% of the total).

The amount of coal capacity commissioned remains well above the approximately 20 GW of capacity retired across Europe and US. Retirements are set to increase across these major markets, as loads contract and gas prices move lower, while Germany and a number



of countries in Europe are moving ahead with plans to exit from coal.

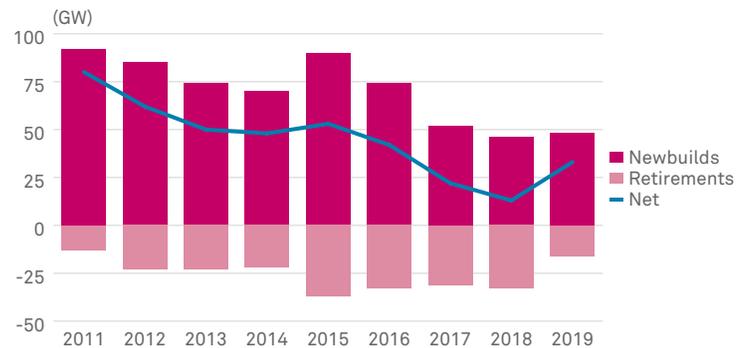
However, it's worth noting that Chinese authorities are looking at building more coal capacity as a way to stimulate the economy, in the aftermath of the coronavirus outbreak.

China's National Energy Administration has been guiding the construction and commissioning of coal-fired units across the country, based on an assessment of overcapacity, fuel availability, environmental and other resource constraints for each province. The latest guidance – issued this February – allows more provinces to bring coal units online by 2023 versus the policy issued a year ago.

As China's coal capacity grows, its role in the mix is changing, as coal is increasingly complementing intermittent renewables and higher air-conditioning usage during the summer peak.

Stronger power demand growth is the driver of the large number of coal projects in Southeast Asia. Vietnam stands out for its pipeline of projects outside of China and India. Almost 1.4 GW was commissioned during 2019, while over 40 GW of capacity is at different stages of development. Availability of capital from

Global coal fleet evolution



Source: S&P Global Platts Analytics, Market Intelligence World Electric Power Plant database

financing institutions, notably from China, has also been a driving force behind these projects.

Indonesia has about 14 GW of coal in construction and over 20 GW in the planning stage, although the country's power development plans have often seen delays. Indonesia's government announced it will replace old thermal with renewables, for a total of 13.4 GW of capacity. With all this capacity up for retirement, new thermal capacity will have to be built to meet rapid growth in electricity demand.



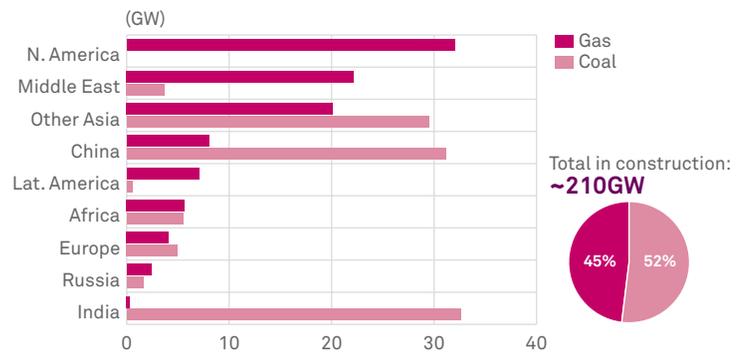
Gas-fired capacity added to the grid across the globe slowed in 2019, in spite of falling gas prices. Fewer units came online in the US (11 GW), or about a third of the global gas capacity coming online in 2019. However, the US maintains a very large pipeline of gas-fired projects, as do gas-rich countries in Middle East and North Africa.

The recent oil price crash could have an impact on the further development of gas projects in these gas-rich areas, but new opportunities for gas may now emerge in importing countries, given the low current price environment.

A number of LNG-to-power projects are underway in Asia, with 9 GW in construction and about 52 GW in planning, on top of the 127 GW of LNG-fired power capacity currently operational in the region. We see a shift away from the three traditional large LNG importers – Japan, South Korea and Taiwan – as newer LNG importing countries, including Bangladesh, China, and other South East Asian countries are building LNG to power capacities.

The appetite to invest in large-scale, gas-fired units has been fairly limited in other regions, especially in Europe, but it's worth noting the emergence of about

Total coal and gas capacity in construction by major region



Source: S&P Global Platts Analytics, Market Intelligence World Electric Power Plant database

5.7 GW of gas projects in Italy, which have secured payments in the recently-introduced capacity market.

Nuclear additions slow

Nuclear remains a more marginal technology, with plant commissioning slowing in 2019. China continues to lead in nuclear newbuild, but only about 4 GW entered commercial operations during 2019, which is considerably below the almost 9 GW of capacity



commissioned during 2018. In addition to China, South Korea, Russia, and India all have significant construction activity.

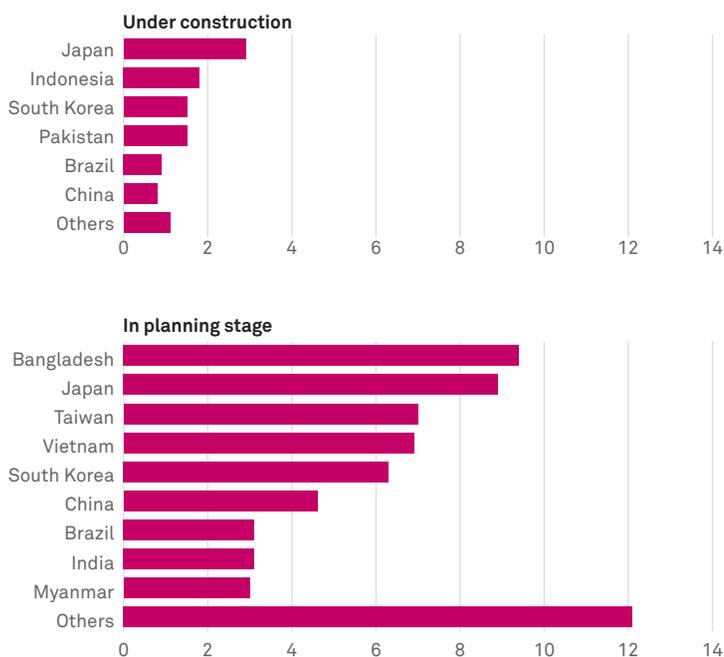
The combination of sustained lower natural gas prices, renewables penetration, and weak electricity demand, has been challenging nuclear generation in more mature wholesale power markets, especially in the US.

Retirements equivalent to 1.5 GW of capacity took place in 2019 – the 0.7 GW Pilgrim 1 and the 0.8 GW Three Mile Island #1. Approximately 1.7 GW of capacity is slated to retire during 2020 – the closure of the Duane Arnold #1 (Iowa) and 1.1 GW Indian Point #2 (New York) plants will bring nuclear output down by an average 2.2 GW year on year. Support mechanisms for other struggling nuclear units in the US remain possible after the legality of recent legislative policy measures in Illinois, Connecticut, New York State, and Ohio was upheld by courts. A more substantial amount of nuclear retirements loom down the road both in the US and Europe, while we estimate that at least 70 GW of operational coal units are ripe for retirement.

The unprecedented hit to the economy from the coronavirus pandemic is leading to significant demand destruction – with our estimates for power demand growth downgraded by about 2.5% so far this year. While uncertainties remain around the pace of the demand recovery, the world will still need to replace large amounts of ageing thermal capacity in the future.

As China is likely to continue to build more coal as a way to stimulate the economy, gas newbuild in the power sector has become more uncertain in the current market environment. Lower oil and gas prices are

LNG to power projects (GW)



Source: S&P Global Platts Analytics, Market Intelligence World Electric Power Plant database

making gas or LNG projects in a number of importing countries a more interesting proposition, but the future of a number of gas projects is less clear in regions with associated gas production fields.

The outlook is also uncertain for renewables, especially solar, as it is still too early to say whether stimulus packages that are being proposed across the globe will include clean energy, and could eventually give new impetus to green investments. ■