

The Covid-19 crisis is undermining efforts to invest in a secure and sustainable electricity sector

Article — 27 May 2020

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The economic crisis that unfolded with the spread of the Covid-19 pandemic has upended expectations

At the start of 2020, many companies and investors were optimistic that this year would bring a boost to capital spending in the power sector, with renewables, grids and flexibility options like storage set to benefit. However, the economic crisis that unfolded with the spread of the Covid-19 pandemic has upended those expectations.

The picture that emerges from *World Energy Investment 2020* – the IEA's annual benchmark analysis of investment and financing across the entire energy sector that was released today – is a sobering one in which emerging investment risks intensify security and sustainability challenges.

These risks, and the policy responses that can mobilise investments for secure and sustainable power systems, are taking centre stage at a high-level roundtable discussion on Friday May 29 involving global energy leaders from government and industry. The virtual meeting will be co-chaired by Dr Fatih Birol, IEA Executive Director, and Kwasi Kwarteng, the United Kingdom's Minister for Business, Energy and Clean Growth.

A shock to the system

According to the new report, power investment around the world is set to decline this

year by almost \$80 billion, a record 10% drop that takes spending down to the level it was at a decade ago. While the crisis has highlighted how much modern societies depend on electricity, it has also squeezed the capital flows on which a healthy electricity sector depends.

The constraints on investment in 2020 vary by country and by technology, but have come from two directions. First, many companies have been hit by a fall in revenues, in response to weaker demand, lower prices and, in some cases, a rise in non-payment or deferred payments.

The most exposed companies are typically fossil fuel-based electricity producers that rely on revenues from wholesale markets. While many of them currently benefit from price hedging, this may be limited in duration and scope. Renewable power producers that sell on long-term contracts, supported by policies and corporate buyers, have a greater degree of protection. But they may also face growing payment risks from cash-strapped utilities and market risks in regions where policies are shifting.

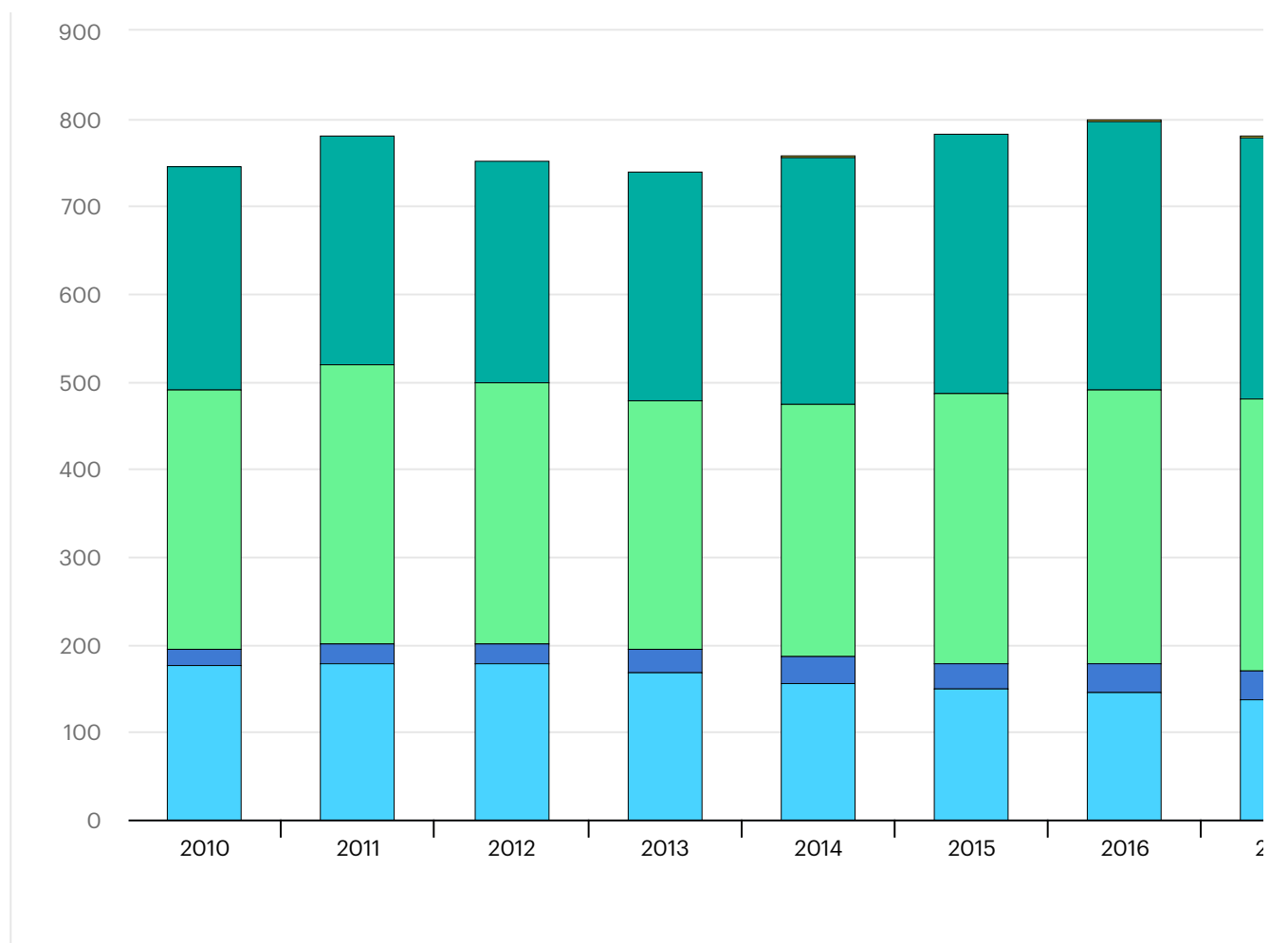
Second, the industry is having to adjust to the practical implications of lockdowns, mobility restrictions and disrupted supply chains. Many production, shipping and construction schedules have slipped as a result, deferring spending and pushing project completion dates out into the future.

Spending on fossil-fuel power plants is expected to fall by 15% in 2020. Investment in coal-fired plants had already been falling sharply in recent years, and that trend continues in 2020. However, while these investments may be down, they are not out. The size of the overall global coal fleet continues to grow as additions to capacity – concentrated in Asia – outweigh retirements. Declines in hydrocarbon revenues are hitting investment in new gas-fired power plants in regions such as the Middle East and North Africa.

Global investment in the power sector by technology, 2010-2020

Open ↗

billion USD (2019)



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Overall, capital expenditures for renewables – the largest segment of total power sector spending – are set to fall by 10% in 2020. Investment in renewable power has held up better than in other generation technologies, reflecting supportive policies for wind, solar PV and other renewables.

The crisis is pushing back development timelines for some projects. A major drop in distributed solar PV is expected as individual households and small-to-medium-sized enterprises install fewer solar panels at home or on business premises in 2020. Final investment decisions for new utility-scale solar and wind projects in the first quarter of 2020 fell back to the levels of 2017 and remain well below what would be required to meet international climate goals. That said, investments in offshore wind and hydropower – technologies with long project lead times – are set to rise as projects around the world that were already underway before the crisis continue.

Warning signs for electricity security

Investments in generation are only one part of the story. Electricity networks are the backbone of today's power systems and they become even more important in clean energy transitions. Initiatives are underway in Europe, the United States, China and elsewhere to upgrade the resilience and reliability of grid infrastructure. Even so, the

global trajectory for investment is discouraging. Worldwide spending in grids, which has been declining in a number of countries in recent years – especially in emerging economies – is set to fall again in 2020 by 9%.

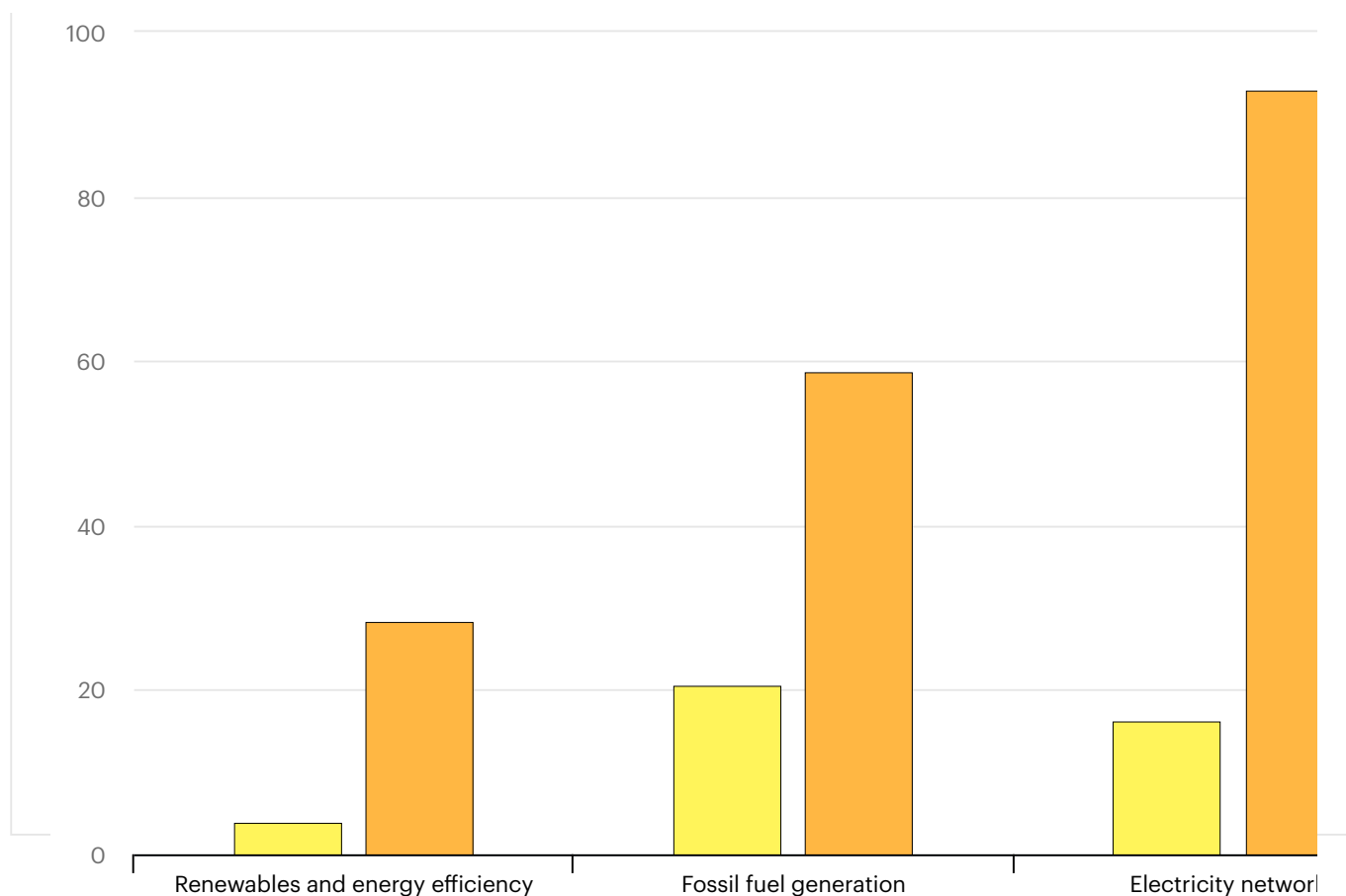
This trend – together with a slump in approvals for flexible low-carbon power, constrained spending on natural gas plants, and a levelling off of battery storage investment – should provide a clear warning to policy makers. Tomorrow’s power systems have to remain reliable as they are transformed by the rise of clean energy technologies and growing trends toward electrification of demand, which are driven by ambitious targets and commitments around the world. Key electricity infrastructure can often take much longer to develop than fast-moving technologies, such as solar PV and electric vehicles. In that context, today’s investment levels in networks, flexibility and storage are out of step with future pathways that would safeguard electricity security.

The state’s role in investment varies widely by country

As a result of the crisis, utilities and developers face additional uncertainties about their future revenues as well as their ability to finance new investments. How this plays out in practice will vary widely in different parts of the world, depending on the types of companies, governments’ budget constraints and the broader financial and institutional environment. One of the starkest variations across different geographies, analysed in detail in this year’s *World Energy Investment* report, is the respective roles of state versus private actors in the ownership of generation and networks.

In many developing economies, state-owned enterprises dominate the picture for investment in thermal and nuclear generation, and in electricity networks. By contrast, private actors take the lead everywhere in renewables – with the notable exception of hydropower – even though many renewable projects rely on incentives set by governments and contracts with state-owned utilities.





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● Advanced economies ● Developing economies All investors face a more challenging environment for new projects

In Europe, North America and other advanced economies, some large utilities and power producers have so far maintained robust guidance on capital expenditures. Some have even increased profits in certain cases during the first quarter of 2020 as a result of higher shares of renewables being dispatched.

While many utilities can absorb a near-term decline in revenues, signs of stress could become more apparent as delays from lockdowns affect deployment targets and earnings, although many governments have stepped in to extend timelines and eligibility for incentive schemes. The picture is less rosy for smaller companies (e.g. distributed solar developers) and equipment providers with already tight profit margins. A number of these businesses have suspended capital guidance, and several announced lower revenues and losses in the first quarter of 2020, compared with the same period a year earlier.

Even in an environment of low interest rates, utilities face credit risks from non-payment by customers and banks are reassessing lending terms. Utilities could see their borrowing costs increase, especially in developing economies. This is a critical issue in an increasingly competitive market. At the same time, developers may find fewer

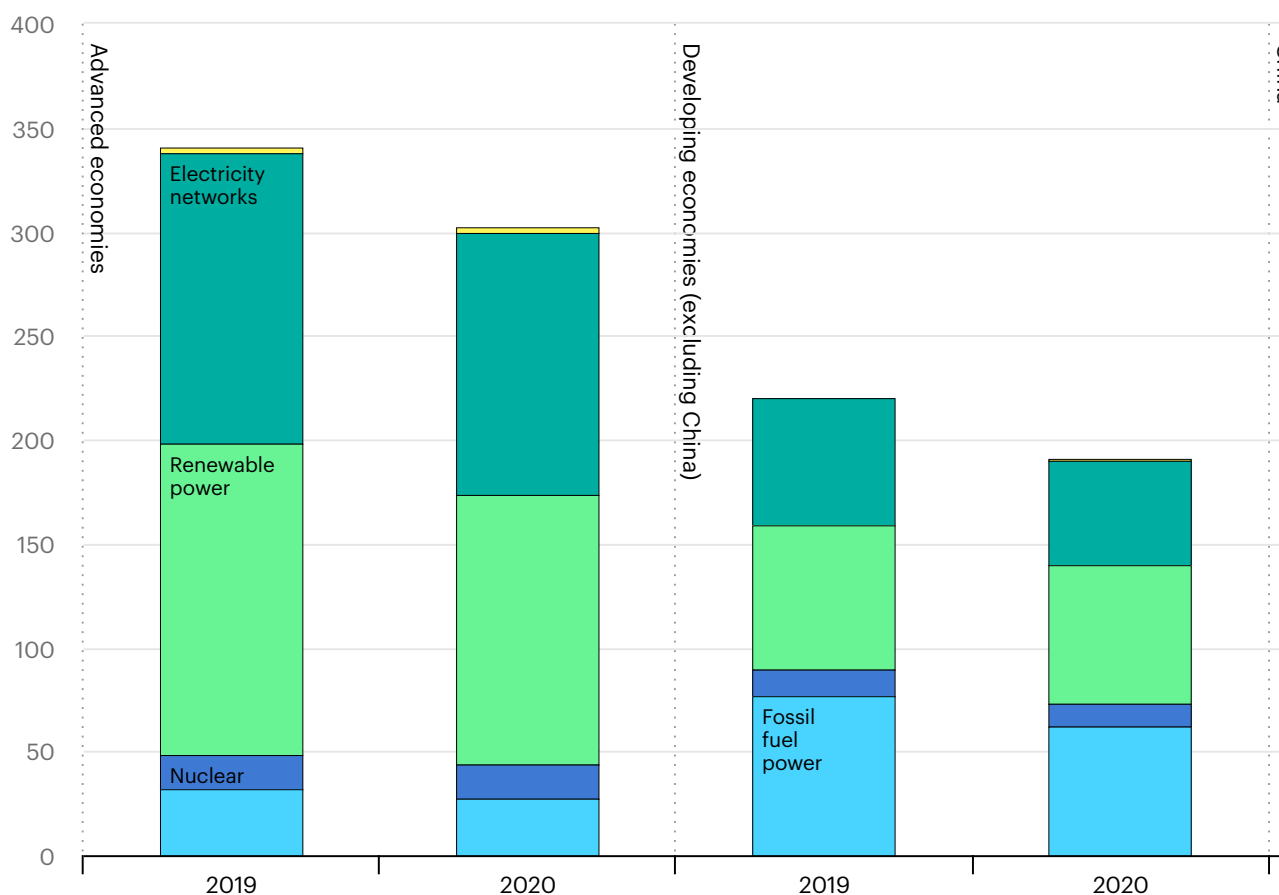
opportunities to conclude long-term power purchase agreements amid uncertainties over demand and weaker credit positions of corporate buyers.

Developing economies accounted for 55% of global power investment in 2019. After decreasing over the past two years, their share is set to rise in 2020 due to a rebound in investment activity in China, where lockdowns that had disrupted planned spending in the early months of the year have now eased. The State Grid Corporation of China, for example, recently increased its planned investments for the year. Chinese spending on a range of power generation technologies and transmission infrastructure is expected to remain relatively robust. China's investments also include coal-fired power plants. The authorities approved an additional 8 gigawatts of coal capacity in March 2020, a similar amount to all the projects that received the go-ahead for investment over the whole of 2019.

Investment in the power sector by region, 2019-2020

[Open](#)

billion USD (2019)



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● Fossil fuel power ● Nuclear ● Renewable power ● Electricity networks ● Battery storage

The sharpest declines in power sector investment are expected in some developing economies in South and Southeast Asia, Africa and parts of Latin America. These are also the places where the prospects for recovery are most uncertain. Acute financing gaps are being widened by the downturn, and state-owned power companies are competing with many other urgent priorities for government support. The credit-worthiness of these incumbent state-owned enterprises – which are at the centre of all power sector transactions – is likely to worsen, especially where weaker domestic currencies cause dollar-denominated debts to balloon. This can increase the risk of delayed payments or breach of power purchase contracts with generators in the absence of solid guarantees.

The outlook for power sector investments will be shaped by governments

Over 95% of the investments in the power sector either are made directly by state-owned entities or respond to specific incentives and returns that are established by regulation. Government actions therefore play a hugely influential role in shaping the overall environment for power sector investment, the financial health of the actors in this sector and the cost of finance made available from banks and investors.

The crisis is intensifying the risks for the future security and sustainability of power systems. Liquidity constraints could well become a lasting impediment to investment, especially in long-term or capital-intensive infrastructure projects. Some countries may also fall back on familiar carbon-intensive levers for economic development or delay the replacement of older, more polluting assets.

Yet, there are opportunities as well. A focus on value-for-money, relatively quick delivery and environmental gains should favour cleaner generation technologies, especially in the electricity sector where solar PV and wind are among the cheapest options for new generation and also have relatively short investment cycles. Nuclear lifetime extensions, where acceptable, can also provide a cost-effective option for reliable low-carbon

generation. Investments to strengthen grids and to integrate smart digital technologies can be integral parts of measures for a sustainable economic recovery.

The importance of public finance institutions is set to grow, particularly in providing funds and guarantees to support actors under financial stress. However, the right conditions could also unlock additional sources of private capital. The growing push for sustainable finance, notably from institutional investors, is a natural fit for assets with reliable revenue profiles such as renewables and grids. While financial market uncertainties abound in the near term, conditions may become ripe for refinancing and acquisitions that can help lower the cost of finance and improve the confidence of developers to invest with the knowledge that they can quickly recover their capital.

The Covid-19 pandemic has created many new uncertainties for energy. But clean, reliable, affordable power retains its position at the centre of strategies and visions for the future. In mobilising investment to realise these visions, the responsibility lies with governments not only to use their limited resources effectively but also to provide the long-term clarity that investors are seeking.

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