Capgemini

22nd Edition

November 2020

World Energy Markets Observatory

Key Climate Change and Energy Transition Takeaways

Philippe Vié
Vice President and Sector Head for Energy, Utilities and Chemicals, Capgemini

In preparing the 22nd Edition of the World Energy Markets Observatory (WEMO), Capgemini's annual thought leadership and research report that tracks the development and transformation of energy markets around the world, our team had the unusual and unenviable task of balancing two opposing narratives: a continuation of trends related to energy transition, climate change, technological advancement and energy markets evolution throughout 2019; and the dramatic and profound industry-wide impact of COVID-19 in 2020 that has, in many ways, reset the baseline and established a so-called "new normal."

The effects of COVID-19 can already be seen in the form of significant electricity and gas demand decreases with total consumption falling by up to 20 percent during lockdown periods as business operations and global travel came to a standstill. As countries emerge from lockdown, consumption remains 5-10 percent lower than normal—suggesting that the industry could expect a full recovery by the end of 2021 or 2022.

Through the lens of this "new normal", I share my main climate change and energy transition takeaways from this year's WEMO report—and what they mean for an industry in dire need of agility, recovery and reinvention.

The world experienced a significant reduction in emissions—but long-term climate change goals remain out of reach

With the worldwide economic slowdown in 2019, GDP for G20 countries grew 2.9 percent—a 0.8 percent decrease compared to 2018. Energy demand, which is directly correlated to GDP growth, also slowed with consumption increasing just 0.7 percent, as compared to 2.2 percent in 2018. While global emissions continued to increase by 0.6 percent in 2019, those in the energy sector actually fell 0.4 percent due to a combination of factors including: a shift from coal to gas; renewables growth; and energy efficiency improvements.

The significant drop in consumption due to COVID-19 has led to the largest reduction of GHG emissions since World War II. In fact, emissions have decreased an estimated 8.5 percent in 2020, as a result of mobility restrictions and a sharp industrial slowdown. However, this decrease is conjunctural and nonstructural, meaning that emissions will likely rise as the world recovers from the pandemic and daily life resumes. The crisis has also demonstrated that lifestyle changes, such as decreasing travel and reconsidering daily commutes, has a significant impact on emissions.

In this year's report, we see the need to take a more ambitious and concrete plan to address this dire need—and COVID may be an unlikely impetus for change. As governments pass economic stimulus bills and recovery packages, it is possible to prioritize "green" initiatives, accelerating energy transition and sustainability goals. Our research indicates some leverage in recovery packages to do this, including: increasing the share of renewables and green hydrogen, especially within the mobility sector; electrifying some usages, such as EV development; refurbishing buildings to support

energy efficiency measures; enabling the smart grid at scale to support industry transformation as well as commodities and networks convergence; and encouraging incremental behavior change among consumers, including a reduction in travel. The report highlights this set of structural changes, as well as other options, to help the world course correct on the climate change agenda.

The share of renewables is growing—and reliability becomes a concern

A dip in consumption, coupled with ideal weather conditions, during the lockdown period, notably in Europe, led to an unexpected jump in the renewable share in the electric mix. During this period in Europe, intermittent green energy sources, such as wind and solar, exceeded 40 percent of the total mix in various countries—levels that weren't expected until 2025 at the earliest.

These higher than usual shares have enabled the United Kingdom to pause coal power plants for more than two months. In India, similar circumstances allowed them to reduce the share of coal-based electric production by 15 percent (from 75 to 60 percent). Meanwhile, in the United States, renewable sources became the second biggest electricity producer after gas power plants. However, the growing use of intermittent power sources have prompted questions about grid stability and security of supply as near blackouts situations occured in the U.K. and Germany during April and May 2020 as intermittent renewables share peaked.

While energy transition is a priority, more needs to be done to improve predictability, reliability, grid stability and finally security of supply. Our research identifies several ways to do so, including: improving viability of renewables through non-carbon emitting storage options, most notably lithium-ion (Li-ion) batteries in the short term and hydrogen moving forward; leveraging artificial intelligence and automation to enable greater accuracy and precision with respect to demand forecasting and demand-side management; and deploying the smart grid at scale to improve the management of a distributed energy mix. Many regulation evolutions should be considered to bring accurate incentive and economic signals, unleashing related investments across these areas.

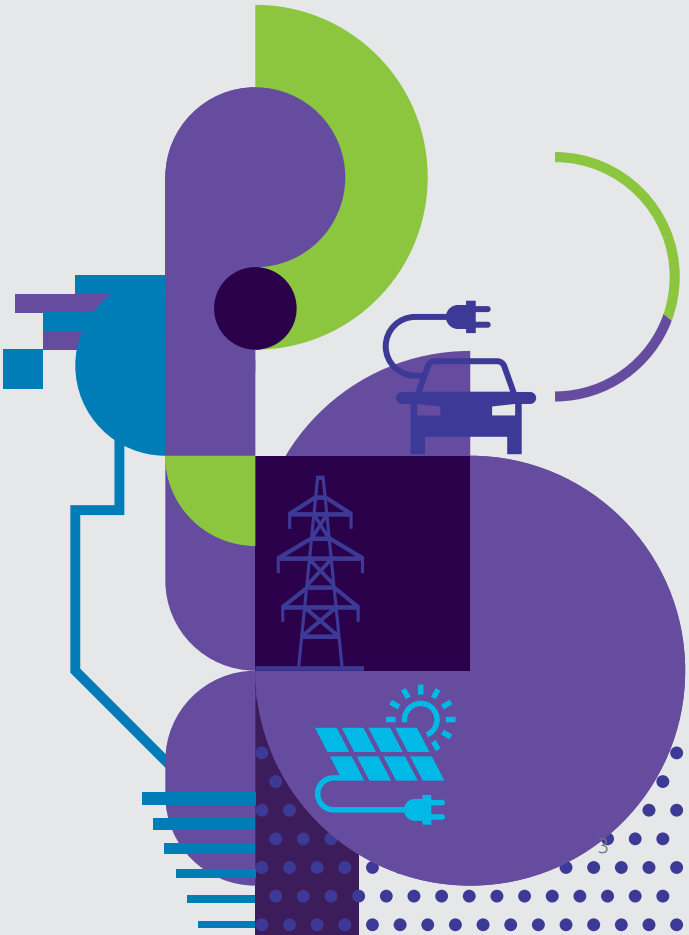
To review the full findings from the 22nd Edition World Energy Markets Observatory, download a copy of the report today.

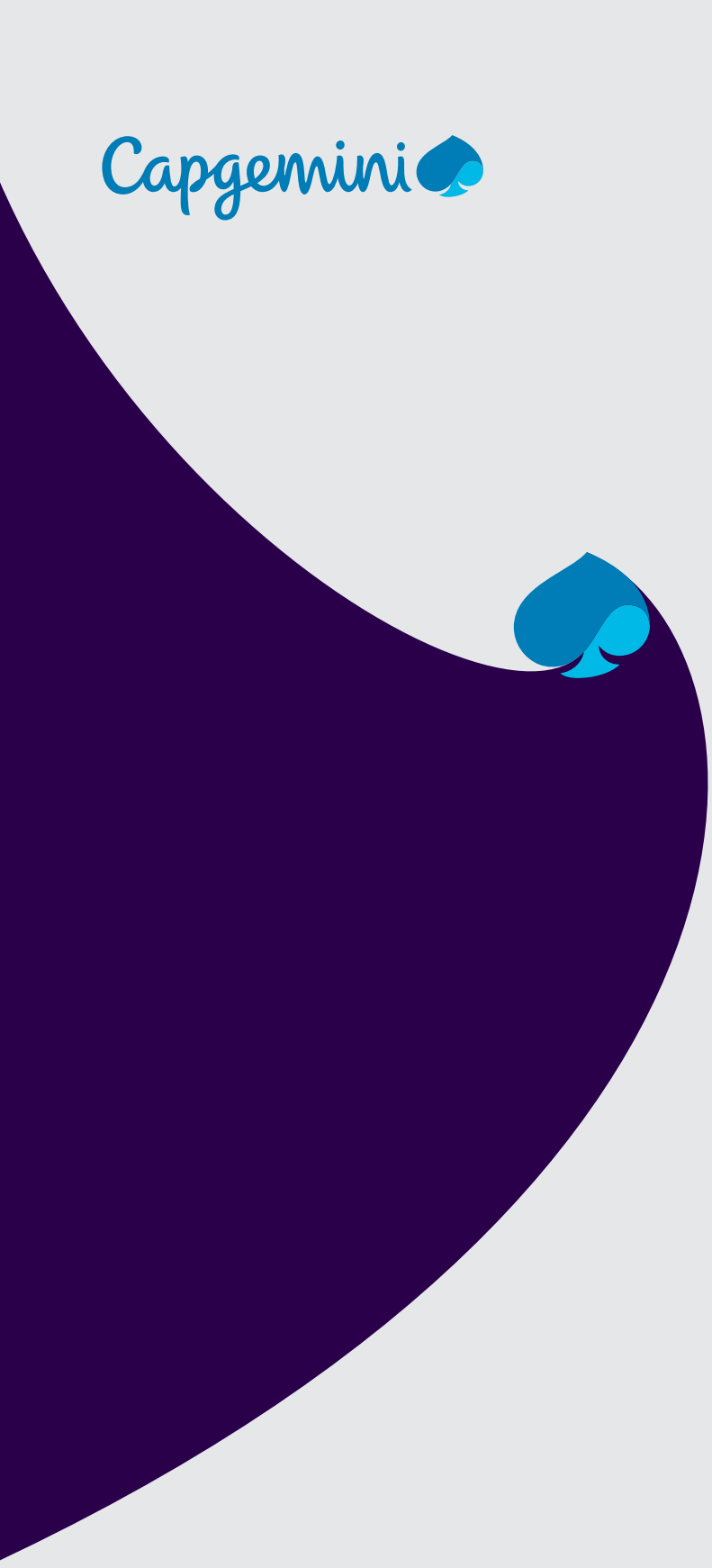
Download Now

As one consequence of the COVID crisis, a dip in commodities and wholesale prices are spurring urgent OPEX/CAPEX reductions

As noted, the global health crisis deeply impacted the energy market, prompting a revenue decrease (energy consumption volumes), as well as a dive in the price of energy commodities, the most notable example being crude oil, the price of which fell as much as 80 percent at its lowest. With recovery timelines unclear, there may be strong long-term impacts on global oil demand until at least 2022, calling for oil and gas operators to accelerate diversification.

Significant revenues and margins decrease for energy and utilities will require new OPEX and CAPEX programs and may create a new wave of unrecoverable clients' debts. Players have been relaunching their financial plans, resuming current performance programs to enhance operational profitability while depreciating some assets. At the same time, some utilities have posted good reserves in the first half of 2020, demonstrating resilience in the period, while expecting more financial impact when the edging commodities contracts, signed before the pandemic, will be over for the season. We will continue to monitor the markets and players strategic reaction in our research programs in the months and years to come, guided by the question: Will the investment in energy transition grow as expected to mitigate climate change?





About Capgemini

Capgemini is a global leader in consulting, digital transformation, technology, and engineering services. The Group is at the forefront of innovation to address the entire breadth of clients' opportunities in the evolving world of cloud, digital and platforms. Building on its strong 50-year heritage and deep industry-specific expertise, Capgemini enables organizations to realize their business ambitions through an array of services from strategy to operations. A responsible and multicultural company of 265,000 people in nearly 50 countries, Capgemini's purpose is to unleash human energy through technology for an inclusive and sustainable future. With Altran, the Group reported 2019 combined global revenues of €17 billion.

Learn more about us at

www.capgemini.com