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World Energy Markets Observatory

Making carbon neutrality a reality

Six energy industry recommendations for creating a more sustainable and resilient world from this year's World Energy Markets Observatory

Energy and its uses account for 73 percent of greenhouse gas emissions (GHG). While COVID-19 has proven that a widescale, rapid reduction in emissions is possible, our research indicates that these methods are neither sustainable nor fully effective when it comes to meeting the 1.5-2° scenario needed to achieve Paris accord objectives. In fact, experts suggest that in order to meet these long-term targets, the world would need to institute lockdown measures similar to those adopted this past spring every year for the next decade—an unthinkable strategy.

This year's 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, identifies six key recommendations for energy organizations to help the world achieve long-term climate change objectives. Here we explore these recommendations and how the energy industry can make carbon neutrality a reality.

1. Master GHG emissions through comprehensive, meaningful carbon pricing.

Experts agree that establishing a carbon price is the most efficient and effective way for nations to reduce global warming emissions. To that end, our research suggests that regions consider the following tactics:

- Impose carbon taxes
- Strengthen carbon-related regulatory measures to reach a higher carbon price
- Apply carbon tax to imported products in order to avoid overall emissions growth by offshoring product manufacturing
- Better control methane emissions, a potent GHG

2. Incentivize the construction of carbon free generation plants.

Global economic growth necessitates affordable, reliable and abundant energy. The levelized cost of renewables continues to fall, as driven by the decreasing price of equipment, improvements in efficiency and other factors. In many regions, solar and wind generation will come close to outcompeting operational coal and nuclear plants within the next few years.

At the same time, renewables are unlikely to account for 100 percent of regions' energy needs, due to distribution limitations and variability. Nuclear energy will be instrumental to addressing the sector's dual priorities of lowering CO2 emissions and maintaining system reliability. This is especially true as EVs become more ubiquitous, which will in turn increase demand and potentially strain the system.

3. Incentivize the electrification of uses, particularly as it relates to transportation and mobility.

Electrification of the transportation industry, including public transportation systems, is critical to achieving long-term climate goals. This industry represents one of the few major economic sectors in which emissions have increased in recent years, now accounting for an outsized portion of global GHG emissions. While EV adoption is rising among consumers, the industry must take steps to accelerate the creation of a public charging infrastructure, as well as ensure that an increase in EVs will not overload the grid.

4. Accelerate grid modernization through at-scale deployment of the smart grid, demand flexibility applications and new grid tariff calculations.

The growing use of renewable energy sources also raises important and urgent questions about grid stability. This issue came to bear for many countries during the COVID-19 lockdown period when decreased consumption, increased use of renewables in the energy mix and a shift in weather patterns (i.e., less sunny and windy days) increased the threat of outages.

Our research confirms that more needs to be done to improve predictability, reliability and security of supply. Addressing the core challenges on the transformation roadmap, including renewable-related intermittency, progressive electrification and decentralization, requires a combination of digital and sector technologies, as well as regulation evolutions.

At-scale deployment of AI/ML, robotics, Internet of Things (IoT) and communications technologies will be instrumental in lowering costs for clean energy sources, improving system reliability and ensuring adequate supply. At the same time, digital and sector technologies are bringing solutions related to demand response, local generation and renewable advancement.

5. Develop and scale green hydrogen capabilities.

Green Hydrogen has emerged as a new alternative to reducing carbon emissions, though significant advances must be made in order for it to become a cost-efficient source of energy. At present, Europe, China and Australia are all vying to become the world leader in hydrogen production and have committed significant resources across the public and private sectors to accelerate the use of this promising energy source.

At the same time, not all hydrogen is created equal. Often described as a "zero-emission fuel" and "green energy carrier," the environmental impact of hydrogen differs dramatically depending upon the method by which it was produced. Countries and regions must ensure that they pursue a green hydrogen strategy that will lower emissions as opposed to simply providing a low-cost source of energy. Our analysis suggest that the growth of the green hydrogen market will lead to increased competitiveness, which will ultimately drive down costs and increase production efficiencies.

6. Ensure stimulus plans prioritize advancement of the green agenda.

Many countries and regions have announced financial aid packages in response to COVID-19. However, more needs to be done to ensure that all recovery efforts incorporate sustainability requirements today and in the future and that funds are allocated for specific projects.

Energy organizations must be vocal about the role the energy industry can play as an economic stimulator and creator of high-skill jobs within recovery scenarios. It will be critical for energy organizations to work with government agencies to formulate an effective and compelling plan that marries the sustainability agenda with the pandemic response.

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

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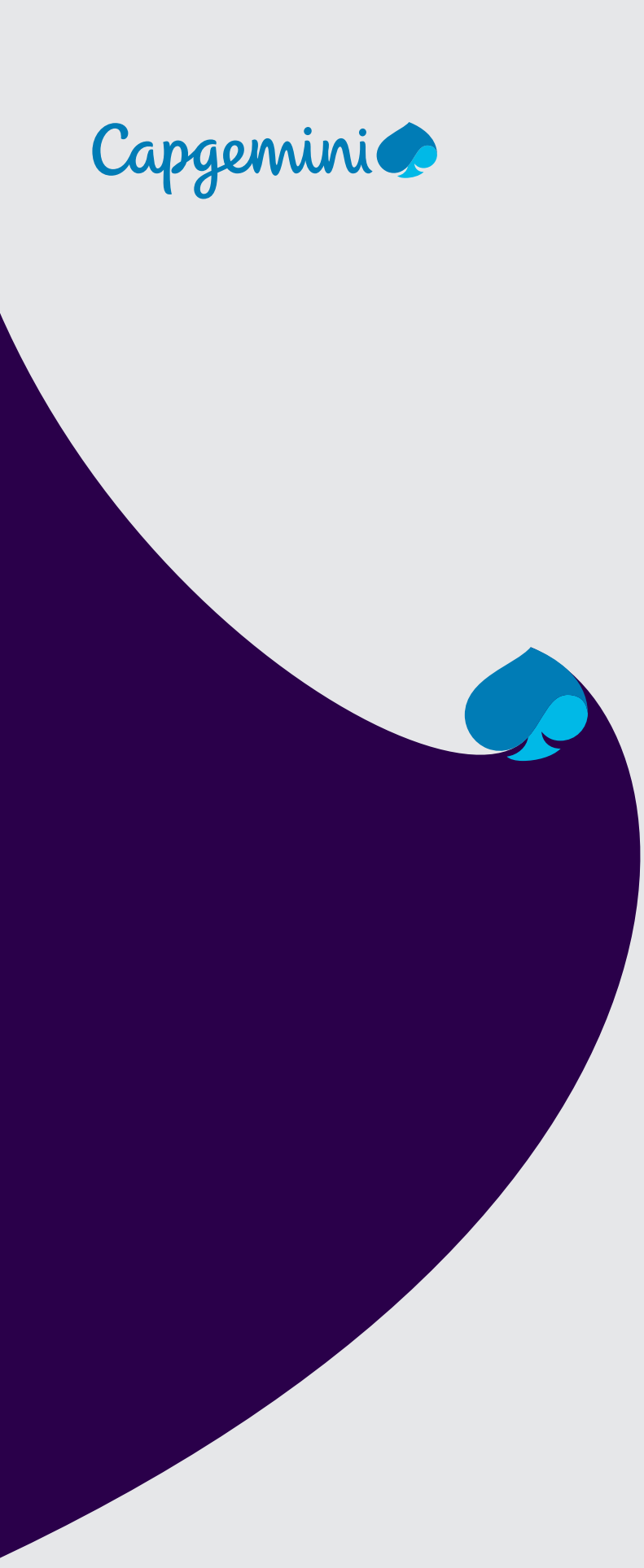

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