

Capgemini's World Energy Markets Observatory annual report 2023: People power critical to shift the energy transition dial

- *Transitioning to in-country renewable energy sources is key to safeguard energy supply against geopolitical uncertainties*
- *Renewable electricity capacity additions are driving the shift in electricity supply. However, the current growth is far below what is needed and must triple to meet 2050 targets. Adaptation measures are needed to adjust to the current and future effects of climate change.*
- *Informing, educating and enthusing people about the benefits of energy transition is critical to success. Failing to do so could become the Achilles' heel for progress*

Paris, November 28, 2023 – [Capgemini](#) has published the 25th edition of its annual [World Energy Markets Observatory](#) (WEMO), created in partnership with [Vaasa ETT](#) and [Enerdata](#). The report takes stock of the current state of the energy transition, revealing that, despite progress being made, greenhouse gas (GHG) emissions are continuing to increase, and climate change consequences are happening far quicker than expected. The report also provides insights on what the key focus areas would need to be, moving forward, to ensure a successful energy transition, including a change in public perception as well as sustained and realistic regulations.

Key observations from the report include:

- **Global renewable capacity needs to triple.** While \$1.3 trillion of energy transition investments in 2022 was a record (significantly outpacing spending on fossil fuels), it needs to accelerate to \$5 trillion per annum to align with a net zero emissions pathway. In 2022, renewables capacity additions set a record with an annual addition of 340GW and 2023 should be another record year. However, this growth is far below what is needed to achieve net zero carbon in 2050 as global renewable capacity should grow by 2400 GW over the 2022-2027 period (i.e. an annual average growth of 480GW). Solar Photovoltaic (PV) broke a record for annual capacity additions in 2022 and looks set for another record year in 2023. Wind addition decreased by 19% globally with offshore wind development encountering difficulties in Europe and the US.
- **Electricity consumption will have to quadruple by 2050** to hit decarbonization objectives, with over 75% of it supplied by wind and solar. Renewable electricity capacity additions are driving the shift in electricity supply. However, the current growth is far below what is needed and must triple to meet 2050 targets. Linked to this growing electrification is the need to expand electrical grids. These need to grow from 75M kms to 200M kms, and become smarter with more stationary storage, sensors, and intelligent exploitation of large masses of data.
- **Nuclear renaissance triggered by climate change and sovereignty issues.** Reaching decarbonization goals will not happen without nuclear and so it is imperative there is a focus on extending its capacity. Nuclear capacity will have to triple by 2050 to achieve net zero carbon. This means reaching 870GW capacity by 2050, from 390GW today. Achieving this will require not only the development of large reactors and SMRs (Small Modular Reactors) but also a commitment to extending safely the life of current reactors.



Key recommendations from the report to drive forward energy transition:

According to Colette Lewiner, Energy and Utilities Senior Advisor at Capgemini: *"Despite progress, the world is not on the right climate trajectory. Even though investments in renewable energy in 2022 reached an unprecedented high, an acceleration of clean technologies will be critical, not only to enabling a shift away from fossil fuels but also to ensuring energy security of supply. What is needed to make sure the five big green energy technologies – wind, solar, nuclear, batteries and hydrogen - can meet their 2050 targets is by no means a small effort. The main obstacles are linked to financing and to the difficulty of adapting our economy quickly. Each investment decision should be taken regarding its impact on sustainability and energy sovereignty as well as affordability for citizens."*

Future proofing against supply impacts caused by political unrest and ensuring energy sovereignty

The ever-evolving geopolitical disruption reinforces the need for a transition to in-country renewable energy sources and for governments to introduce policies that support this. One example where this is already happening is in the US with the signing of the Inflation Reduction Act (IRA), a program that proposes almost \$370 billion in federal incentives to shift the U.S. grid to 80% clean electricity and cut climate pollution by 40% by 2030 but has already achieved much more in its first year.

Accelerating the pace of moving to renewables makes countries more energy independent and helps to mitigate one of the major risks to energy supply. The energy transition proves not only to be of environmental benefit to governments but also helps them to safeguard their supply against threats that geopolitical unrest can cause.

A change in public perception is needed to drive governments towards reform

Key to pushing forward with the energy transition will be shifting the perception that the lifestyle choices needed for net-zero are inaccessible to the majority, due to financial reasons, or the rationale that the impact of one person isn't going to make a difference. For individuals that are able, having them strive towards implementing energy efficiency lifestyle changes is going to be crucial moving forwards. For example, the 'EcoMode' campaign that took place in the UK demonstrated the power of consumer-led conservation efforts. Through their participation, households achieved a remarkable 12% reduction in energy consumption, highlighting the significant impact of individual actions on energy efficiency and sustainability.

James Forrest, Global Energy Transition & Utilities Industry Leader at Capgemini says: *"Accelerating the energy transition is non-negotiable if we are to meet global climate goals and at the heart of ensuring this transition is successful, is each and every citizen. The challenge we face is educating the public and shifting the perception that making energy efficient choices is unattainable for all. There is no question that governments and businesses have a large role to play, especially around ensuring affordability for consumers, however, without the public on board, moving the needle is going to be a lot harder."*

Energy assets adaptations necessary to combat the impacts of global warming and exceptional weather events

Global warming and weather events can have significant impact on energy generation and transportation assets. Thermal power plants - including nuclear reactors – need to be adapted to help the plants cope with extreme heat waves as was experienced across Europe in 2023. The same is true for electricity grids and ensuring they are made more robust in the face of extreme weather – be it heatwaves or snow – as both can cause a decrease in electricity transportation capacity, physical damages and deprive consumers from electricity which is a vital good.



The World Energy Markets Observatory (WEMO) is Capgemini's annual thought leadership and research report created in partnership with Vaasa ETT and Enerdata, that tracks the development and transformation of electricity and gas markets in Europe, North America, Australia, Southeast Asia, India, and China. Now in its 25th edition, the report has been prepared by a global team of over 100 experts, it includes 40 articles, all backed with rigorous analysis. The report begins with a global outlook, then covers the role of the customer, how energy flows through the system, money flows, data and digital, the climate implications, and regional considerations.

For more information and to get access to the report, click [here](#)

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