



Building a Sustainable Tomorrow: The Power of Collaboration and Innovation for Climate and Energy Solutions

Gold Medal Symposium Summary

Washington, D.C. | November 13, 2024

Background

The transition to a sustainable future is an ongoing journey that demands innovation, collaboration, and strategic investments. As companies aim to protect the planet and strengthen community resilience, it's crucial to explore and implement cutting-edge technologies. The successful large-scale implementation of innovative solutions heavily relies on collaboration.

The 2024 WEC Gold Medal Symposium convened 70 senior executives from WEC member companies, other international corporations, government agencies and think tanks to discuss how we can collectively reshape the climate and energy landscape to drive impactful, long-term change for both people and the environment.

Participants

Moderators

CRH: Eunice Heath

WEC: Margaret O'Gorman

Speakers

Advanced Energy United: Heather O'Neill

Carrier: Hakan Yilmaz

Exelon: Sunny Elebua

Jacobs: Bruna Paranhos

Rocky Mountain Institute: Jacob Corvidae

Woodwell Climate Research Center: Dr. Max Holmes

Key Points

1 Global energy consumption is projected to rise significantly, while at the same time the U.S. and the world experience increasingly severe weather impacts caused by climate change. This extension of energy demand is due to continuous industrialization in emerging economies, increased movement of goods and people, and also by digitization of business processes and service functions that consumers demand. The encouraging news is that scientists anticipate global greenhouse gas emissions (GHG) will peak in the coming years, driven by the transition from fossil fuels to new technologies across all OECD countries and globally. However, with atmospheric CO₂ levels at 424 ppm today (compared to 280 ppm before 1850 and for the previous 10,000 years) the planet is already experiencing irreversible warming. To prevent climate change from reaching catastrophic tipping points, it is critical to scale the use of clean energy at much greater speed. This challenge presents a significant business opportunity recognized by more and more forward-thinking companies.

2 Greenhouse gas emissions can be reduced primarily through two key drivers: legislation and cost.

(a) Legislation has been a key driver in the U.S. for the past four years. Participants cited the importance of the Inflation Reduction Act (IRA) and its incentivization on the production and consumer demand for innovative green technology.

Participants emphasized that businesses value planning stability and that the new administration should avoid undermining regulations that have proven effective and are widely accepted by companies. Additionally, it was noted that in the U.S., state governments hold significant authority and have often demonstrated their ability to ensure continuity.

(b) Cost structures of innovative, clean technology have been highlighted as a critical driver in the green energy transition. Prices are falling rapidly, and technology has made significant improvements over the past seven years. Advanced storage technology has enhanced the resilience of electric appliances, enabling them to withstand short-term power outages. The pace of innovation in battery storage is unprecedented with costs decreasing rapidly. The primary challenge lies in the “hardware” of the system, the standing grid for electricity. To distribute the growing supply of clean energy, the grid must be expanded quickly. While it requires a substantial investment, it comes with comparably less risk, as 90% of all energy-related investments are already directed into the renewables.

3 New technologies for the green transition are emerging, with batteries playing a central role. Battery storage technology is now advancing at unprecedented speed, driving down costs to an extent that not only makes direct appliances such as electric vehicles and green energy for homes even more attractive, but also large-scale investments to stabilize the grid. Other emerging advanced technologies, such as those for electric cooling and heating, are expanding, and innovations in geothermal energy, modular nuclear power, green hydrogen, and carbon dioxide removal (CDR) are experiencing significant progress. The success of these new technologies will depend on legislation and cost structures, which may determine whether they become

important in the energy transition or be replaced by other innovations. Participants emphasized that scale and speed are critical, requiring business and society to pursue all viable paths simultaneously and with urgency. The quicker permittances are granted and innovations are scaled, the more freedom business and society must focus on the most effective options.

4 Ecosystems solutions for the electricity grid are becoming increasingly critical.

To Beyond batteries, other technologies are available to manage green energy in the grid, e.g. by reducing the demand for energy at peak times. Notably, heating and cooling systems developed for the building sector can source energy at specific times in the day when demand and/or prices are comparatively low. Additionally, battery storage systems in buildings source energy at times of abundant supply while they reduce demand (and consumer costs) during peak hours of energy use (electric vehicles charged at private homes are already part of this system). These solutions help reduce peak demand without compromising consumer comfort while also lowering costs in the energy system.

5 Value chain partnerships between technology providers, utilities, industries, data centers, building owners, and the consumer are essential. These collaborations help drive scale for the energy transition as they reduce consumption without sacrificing any comfort. Generally, consumers are not willing to sacrifice comfort for long-term societal goals. To address this, value chain partners leverage their expertise on key consumer priorities and develop solutions tailored for every possible use of the product. Additionally, they adapt their own products to align with the opportunities provided by a value chain partner, thus optimizing product's usability for the consumer – the scale and speed are driven by consumer demand.