



## Mobilizing for Progress in Decarbonization Technologies

To BCG's network around the world,

We're excited to be writing the Weekly Brief together this week after attending the inaugural Breakthrough Energy Summit in Seattle. Just over a year ago, BCG became a founding partner of Breakthrough Energy Catalyst, a groundbreaking program (part of the larger Breakthrough Energy organization founded by Bill Gates) aimed at the development and scaling of critical climate technologies.

Many of the technologies we need to reach net-zero goals are in the early stages or haven't even been invented yet. The summit brought together about 700 representatives of private and public sector organizations, as well as scientists and leaders of NGOs, to focus on how we can speed up this critical work. The group was energized and optimistic about the potential for progress—but well-aware of global headwinds and the daunting challenges to come.

Overall, we continue to feel encouraged about the road ahead. Here's why:

**The Power of Business.** Many CEOs are reinforcing the urgency of climate action. Economic uncertainty and geopolitical conflicts have had an impact on priorities, driving more focus on short-term resilience, cost reduction, high inflation, and ways to secure immediate access to affordable energy (especially in Europe). But the long-term views of business leaders are unchanged; in Europe in particular, geopolitical conflicts have increased the urgency of achieving energy security. CEOs know that addressing their own emissions is critical to many parts of their business, including their fundamental license to operate.

**The Power of Innovation.** At the summit, there were more than 90 CEOs of

startups and mid-stage technology companies with solutions that are poised to scale and that have the potential to significantly reduce the costs of decarbonization. Clean technology represents an unprecedented business opportunity. BCG's [recent study](#), done in collaboration with Breakthrough Energy and Third Way, estimates a cumulative global market of about \$60 trillion between now and 2050 based on just six key emerging technologies: electric vehicles, electrochemical LDES (long-duration energy storage) batteries, direct air capture, clean steel, nuclear SMRs (small modular reactors), and green hydrogen. The broader ecosystem of climate tech will be worth much more.

**The Power of Policy.** Recent government policy, especially in the US, will materially drive advanced decarbonization solutions. The recent US policy trifecta of the [CHIPS Act](#), [Infrastructure Investment and Jobs Act](#), and [Inflation Reduction Act](#) will fundamentally change the economics for several important decarbonization technologies, including renewables, clean hydrogen, and carbon capture. We expect this may prompt other countries to respond with their own incentives, which will help with the global deployment of these technologies.

The activity already taking place is impressive. For example, Breakthrough Energy Catalyst announced its first investment, LanzaJet's Freedom Pines Fuels project, supporting that company's first commercial-scale sustainable aviation fuel (SAF) plant. The project will be the first in the world to produce alcohol-to-jet SAF at commercial scale, which is projected to lower emissions by around 70% compared with fossil jet fuel.

## **Overcoming the Headwinds**

Despite the possibilities, it's important to recognize the larger headwinds. Cost gaps still exist. Government subsidies can help close the green premium gap for a while, but many of the emerging clean energy technologies still need innovation and adoption at scale to achieve cost-parity with the fossil fuel alternatives.

We also need to see a significant expansion of enabling infrastructure: expanding electricity transmission capacity, securing access to raw materials, and reducing red tape, starting with permitting.

Talent is another looming issue. Decarbonization is a great field for an impact-focused employee to make a career. But at the scale required to make the progress we need, it will take hundreds of thousands of new employees across a wide variety of roles, including engineering, construction, procurement, finance, and more.

The challenges are significant, but the tech solutions we need are within reach. With public and private organizations working together, and with the recognition of the enormous advantages available to businesses, we can accelerate innovation and hopefully avoid the worst impacts of climate change.

See below for more on our research on the clean energy market, along with other related content.

Until next time,



Christoph  
Schweizer  
Chief Executive  
Officer



Rich  
Lesser  
Global Chair

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## Further Reading



### How the US Can Win in Six Key Clean Technologies

By building a durable competitive advantage in emerging climate-friendly tech, US players can unlock a huge global market.

[READ MORE →](#)



## Achieving Energy Security in the EU

For Europe to realize this goal, four technologies will require policy support and investment.

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## **BCG at COP27**

BCG is proud to be the exclusive consulting partner for the 2022 UN Climate Change Conference (COP27) in Sharm El-Sheikh, Egypt. We look forward to mobilizing our full network of clients and partners for COP27, and to bringing our broad industry experience, deep analytical capabilities, and delivery expertise to the ongoing drive toward climate sustainability.

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