

Electric Power & Natural Gas Practice

Net zero: Next moves for CEOs

How leaders can invest in a sustainable future *and* navigate near-term energy pressures successfully.



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Net zero doesn't have to mean zero sum. In this episode of *The McKinsey Podcast*, McKinsey partner Anna Moore and senior partner Humayun Tai talk to global editorial director Lucia Rahilly about the “devilish duality” leaders have faced since the outbreak of the war in Ukraine—and about how to follow through on longer-term decarbonization commitments while managing short-term energy disruptions successfully.¹

After, hear how investors can use their capital and influence to help reverse the impact of climate change, from Columbia professor Bruce Usher. He spoke with us about his book, *Investing in the Era of Climate Change* (Columbia University Press, October 2022), as part of our *Author Talks* series.²

The McKinsey Podcast is cohosted by Roberta Fusaro and Lucia Rahilly.

This transcript has been edited for clarity and length.

The serpentine path to net zero

Lucia Rahilly: A little more than a year ago, leaders around the globe gathered at COP26 and made clear commitments to reach net-zero emissions goals. How disruptive do you expect the war in Ukraine to be, in terms of those commitments and, by extension, our collective progress toward net zero?

Humayun Tai: The long-term direction doesn't change: the commitment is to net zero.

The Ukraine crisis does bring into question this “duality” we talk about: on the one hand, we're pushing toward net zero; on the other, we ask how the system can function in terms of affordability, energy security and supply, and system resiliency, when fully pushed into renewables and other kinds of alternative energy.

Another issue would be around the macro shocks— inflation, short-term supply chain constraints—that many companies and governments are experiencing.

We're being asked, “Can you actually still progress on net zero while trying to address those issues?”

There's definitely a disruption right now. We knew this path moving to net zero would never be linear, that we would have setbacks and step forwards— technology, innovation, regulation, and the like.

Anna Moore: We have to ask ourselves, can we continue to allocate capital in a way that still makes that long-term trajectory Humayun was describing a reality? We need to be sure we're continuing to allocate capital toward decarbonization investments. The economics of green-hydrogen projects have come forward as a result of comparative investments and conventional fuels looking more expensive now. That doesn't mean that you necessarily have capital inflows shifting. These are long-term projects, so we need to be sure that we're actually allocating capital accordingly.

This also highlights a broader point around trade-offs along the path to net zero. We have trade-offs between different sustainability goals—for instance, decarbonization versus water consumption. We have trade-offs, of course, with respect to job creation and job preservation. We have this near-term trade-off in the context of the Ukraine crisis. But I think it highlights a broader set of trade-offs and decisions we need to make at the company and society level about, “What does ‘good’ look like?”

Humayun Tai: The 2020s is a critical decade. Because those investments, to Anna's point, are going to last a long time; the outcome will lead to decarbonization over the next 20 to 30 years. The longer these investments get delayed—and we do see live investments getting delayed—the harder it will be to hit the 2050 net-zero number. So when we think about long term versus short term, this is quite material. What happens now is not just about the short run; it sets the path to a long-term target for 2050.

¹ Bob Sternfels, Anna Moore, Daniel Pachtod, and Humayun Tai, “A devilish duality: How CEOs can square resilience with net-zero promises,” McKinsey, November 1, 2022.

² “Author Talks: An investor's guide to the net-zero transition,” McKinsey, November 23, 2022.

Balancing change with practicalities

Lucia Rahilly: Let's take up this issue of short-versus long-term trade-offs. As you said, we've talked about affordability as an example of the tension between short-term shocks and longer-term imperatives, when gas prices spiked as an effect of the war. How do you view the economic calculus for leaders? Does net zero really have to be "zero sum"?

Anna Moore: In the long term, of course not. We've published research about the \$9 trillion to \$12 trillion a year we believe will be created by the 2030s in new green value pools.³ That covers everything from carbon management to sustainable materials to new energy and new-energy infrastructure, et cetera. We believe that for companies, the window of opportunity on many of these areas is time bound.

I'll take sustainable materials as one example: we see a 50 percent to 60 percent supply–demand gap for low-carbon steel by 2025. That gap will close to about 35 percent by the 2030s and, by the end of the 2030s, close entirely because we'll have more capacity online. So steel producers who want to scoop up that additional margin and capture that green value pool will be those who bring investments online now.

We would say, as we advise clients typically, to invest during a downturn. That's particularly acute right now, especially because so many investments are being delayed. That doesn't mean that you don't also need to keep the lights on in the core business

while we go through this transition. We explore in our article what this means, practically, for CEOs. I would highlight, recognizing that there's not going to be one successful technology pathway, for instance, that we will need to invest in maintaining and preserving the core business while also investing in the new. The article puts particular emphasis on the CEO's role in balancing those investments.

Lucia Rahilly: The transition to net zero, as you're saying, requires massive up-front investment in a variety of areas. Where can CEOs look to find that capital?

Anna Moore: Part of this is investors changing their investment criteria and capital allocations toward more sustainable technologies. The most famous example, of course, is Mark Carney and GFANZ [Glasgow Financial Alliance for Net Zero], and the \$130 trillion of assets under management that are committed to a net-zero pathway: fantastic. And in the first half of 2022, we saw \$120 billion in net new money going to sustainable funds.

So we indeed have capital that's flowing toward the green transition, as well as to new green investments. In the spirit of introducing and acknowledging some of the nuance, we also continue to have capital flows toward conventional technologies and energies.

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– Anna Moore

³ "Playing offense to create value in the net-zero transition," *McKinsey Quarterly*, April 13, 2022.

But we will continue to have capital flows toward conventional technologies as well, and it becomes a question of how we manage that balance over time.

Lucia Rahilly: Anna, can you share a client example of a green transition?

Anna Moore: I work with a client in cement and building materials. Cement is a notoriously high emitter of global greenhouse-gas emissions.

In the cement world, there's a real trade-off between new materials, alternatives to cement, versus decarbonizing existing production. And so, as a management team, this client has needed to think through, one, "What does this mean for our M&A strategy?" And two, "What does it mean for the scale of decarbonization investments that we make in our existing facilities? If it costs us hundreds of millions for every asset to decarbonize, how do we do that? Over what phasing?"

And three, "How do we think about cannibalizing ourselves or not? If there are real alternatives and substitute materials, do we do that to ourselves now? Do we wait for others to bring this to the market?" And, "Do we grow some of that internally through our own R&D? Or do we buy in or partner with existing, exciting start-ups that are coming from the wider ecosystem? That also means a shift in how we think about our workforce and in the types of skills and partnerships that we need."

This is an illustration of how one business is thinking about this, but it also gives you a sense of the range of areas where these kinds of trade-offs show up in the decisions the management team needs to make.

Humayun Tai: The step-up on both the public and private side will be important. There's a whole public-sector theme here as well, particularly when we talk about Global North and Global South. From a Global South perspective, policy and governments are stepping in to really push decarbonization investments, as well as, of course, the conventional investments that are needed. On the private side, there are certainly dedicated funds toward

decarbonization that are increasing. There has been a lot of debate and controversy recently around ESG [environmental, social, and governance] funds, and this is quite different regionally. When you talk about North America, the nuance is different than when you talk about Europe or Japan, for example.

Another source is private-sector funds. That incumbent source of capital, using those balance sheets, is going to be another large piece of the capital infusion that's going to come into new-growth businesses or decarbonization businesses. So this is traditional businesses reinvesting in new businesses.

And, of course, there's the VC [venture capital] private equity infrastructure of fund financing and sovereign-wealth capital that is really now focused on green investing, decarbonization investment—that's another slug of capital that will come in. So at the end of the day, there will be blends of public-private funding—again, very nuanced by region.

How to play offense

Lucia Rahilly: What does what we're calling "playing offense" look like in this context?

Anna Moore: One signifier is making long-term investments while preserving the short term. Another is capturing a green premium and being laser focused on where there truly is market share gain, or green premium to be had, from new, sustainable value pools.

We see a premium for steel. We don't see such a premium, for instance, for green copper, simply because the existing market is already quite tight. Companies need to be quite granular in assessing, "Where do I truly have premium or market share gain as a consequence?" And then steer their strategy around that.

I would call out, for instance, carbon management as a fundamentally new sector in the economy that we estimate will be \$100 billion to \$200 billion a year. You also see tooling and machinery

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companies shifting from serving oil and gas to serving renewables. It’s tweaking the existing asset base to match where the direction of travel is around sustainability.

The final marker of playing offense successfully is building the partnership muscle. There’s so much uncertainty that the best way to manage it is to share it with your supply chain partners. Take automotive OEMs. They’ve been increasingly working with steel producers, aluminum producers, and plastics manufacturers to design decarbonized cars and share a little of the risk: signing long-term supply agreements, redesigning together what they want the automobile to look like, what it’s going to be made out of, how they’re going to price it, what they think consumer willingness to pay looks like, and how they share that value across their value chain. So it’s about getting quite specific with your supply chain partners to share the risk and the benefit.

Humayun Tai: Think about some of the traditional oil and gas companies seeing long-term decline in the need for oil in various forms. They are now turning to a real balance sheet commitment to a clean-fuels build-out and assessing different businesses in the clean-fuels broader spectrum. We see utilities that have now committed completely to going from building fossil to renewables. And in many cases, it’s a bit of a blend, particularly in regard to the Global South.

Other examples are technology companies on the chip side and advanced-electronics companies committing more capital and resources to building out services and technologies for energy transition. Smart investors are building that before the full demand gets there, taking that kind of risk and going on the offense.

Risk versus reward

Lucia Rahilly: Humayun, how should CEOs think about risk and reward when they’re allocating investments to this green transition?

Humayun Tai: There are a couple of different elements to consider. The first is purely financial: “If I decarbonize and shut down my coal power plant, and now I’m building a renewables power plant, what’s the economics of that, given the marginal cost?” So that’s clear.

Second, what are the policies that then shape stranded-asset risk? In many different jurisdictions, there are subsidies or funds—for example, government funding that companies can access to ameliorate the challenge of the stranded asset. In many cases that ecosystem pushes policy to at least negotiate what that stranded-cost transition is.

Third is when you lean forward and say, “It may not make financial sense right now in the short run. But when we do our calculations, and we look at the uptick in the market demand for green steel, for

example—customers willing to pay a premium in ten to 15 years—it actually makes sense.”

That’s not a cost-of-capital issue, necessarily; that’s a revenue line issue is the way I would think about modeling the cash flows of that investment. That then requires foresight, intuition, and some risk taking to say, “How will markets shape up, how will customer demand shape up, how will policy shape up to actually create that level of offtake, to create the policy conditions in which we or others that rely on our products will have to build muscle and understanding to actually buy a zero-carbon, or close-to-zero-carbon, product?”

Anna Moore: As companies think through risk–reward trade-offs, there’s clearly a question around timing, scale, and return on green investments, but also questions around, more fundamentally, “How does the business model need to shift?” And “How do my skills to support that need to adjust?” And “Where could I have stranded-sustainable-asset risk in addition to carbon-asset risk?”

Let’s take an example from telecoms: previously, many cell phone manufacturers effectively built their business around replacing your phone every year or two. If you think forward to 2050, where we’re consuming fundamentally less, that business model needs to change. “How I get value” needs to fundamentally shift.

If you consider the built environment, of course we need to decarbonize cement and concrete, and we also need to despecify buildings. That also means getting engineers and regulators to be comfortable with using less cement and concrete. And that means changing professional liability, it means reskilling.

The second area of uncertainty is around competition between different decarbonization investments or pathways. Humayun mentioned the stranded-asset risk for many existing carbon assets. I think we’re also going to have stranded-sustainable-asset risk. You can think through areas where there’s competition between different

decarbonization pathways: for example, cross-laminated timber versus green cement and concrete. We will presumably have a mixture of both, but to what extent? You’re going to have competition between those different materials and potentially stranded-asset risk.

In Europe there’s a huge debate around using biomass, and surely, at least in the near to medium term, we’re going to use biomass as an energy source. But ultimately, we will evolve beyond that, and so you also end up with stranded-transitional-technology risk.

The stakes of stagnancy

Lucia Rahilly: When you’re talking to CEOs, does the notion of declining consumption and declining demand resonate? How do CEOs respond to that potentiality?

Humayun Tai: There’s no longer any doubt that fossil-based energy will decline. That is now table stakes conversation. The question is when. Is this a 30-year transition? Is it a 50-year transition? We’re back to timing.

Anna Moore: Those who don’t grapple with the way we need to reduce consumption risk are finding that they haven’t made the progress they need to. We’re starting to see more acute changes in the climate and in the livability of our world. Such changes will lead to much sharper and more challenging policy shifts. Then they will end up with a disorderly transition.

Companies can get ahead of that by thinking through, “What does a sustainable 2050 business model look like, and what would it look like in order to fundamentally reimagine my business?”

Humayun Tai: We know the Global South is going to bear more of the cost of this transition. So adaptation is important, and it becomes an opportunity in some ways.

The other thing is biodiversity—water and some of the nature-based capital aspects. How do we get ready for impacts on biodiversity and water? What opportunities are there for companies to play an increasingly important role there, as the carbon budget may fall short?

Lucia Rahilly: Great discussion. Anna and Humayun, thank you so much for joining us today.

Humayun Tai: Thank you, this was fun.

Anna Moore: It was a pleasure.

Roberta Fusaro: Now, let's hear from Columbia professor Bruce Usher, author of the book *Investing in the Era of Climate Change*, about how investors should leverage their capital and influence to reverse the impact of climate change.

Bruce Usher: The most valuable companies globally are tech companies. Now let's forward 30 years, because that's what matters to investors. What will impact business and investors more than anything in the next three decades? My answer is climate change.

We've got three decades to completely rebuild this entire global economy that we just spent the last 300 years creating. That's going to require extraordinary amounts of investment capital. Estimates are \$100 trillion to \$150 trillion dollars. Investing that capital is going to create, for investors, new risks and new opportunities.

The actions that investors take over the next few decades are going to change the planet. They're going to remake that global economy and reduce emissions to meet those science-based targets. How they go about doing that, how quickly that capital is invested and how effectively it's invested is going to make all the difference in terms of allowing us to avoid catastrophic climate change. The reality is that the capital exists, but mobilizing and investing that capital is a pretty significant challenge. In the

context of many of the other great challenges that society faces, we actually have at hand the ability to solve this one.

In the past with electric vehicles, there was nothing we could put on the highway, so golf carts were about as far as you could go. Today that situation has completely changed. We have technologies and business models that already exist to reduce more than half of global emissions, and those products are commercial, and they are scalable today.

We also already have technologies to reduce the other half of the emissions we need to get down to zero. Those technologies exist, but they didn't a couple decades ago. They're not yet commercial, but they're under development and many of them are already being financed by venture capitalists and other early-stage investors.

So, for investors, understanding how different sectors of the economy are going to change, and which companies are going to be successful as those changes manifest themselves, is challenging. I would recommend that investors follow five different tactics.

The first recommendation: take the long view. Bill Gates famously said a number of years ago, we tend to overestimate the changes that are going to occur in the next two years, and we underestimate the changes that are going to occur in the next ten.

The second recommendation I have is, beware of greenwashing. A lot of companies are making promises that they cannot meet or do not intend to meet. The third recommendation is a phrase I learned years ago when I worked as a trader in finance: "The trend is your friend."

The fourth recommendation is to avoid businesses that anticipate a change in human behavior. Human behavior is very set in its ways. Beyond Meat does not try to say to people, you shouldn't eat meat. It's saying, we've got a product for you that tastes an awful lot like meat. And the last piece of advice,

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which is similar to the first one, is that it's better to act early than late.

What I found in researching for the book was that the connections between these sectors are really important. Renewable energy, electric vehicles, energy storage, green hydrogen, and carbon removal: these are very separate industries. But,

in fact, they're very closely connected. And more important, as we see growth in one sector, it has serious ramifications for these other sectors. In fact, they turbocharge growth in the other sectors for both technology reasons and having to do with capital and how these sectors work together.

And that's really important because, ultimately, we have to move all of this in the same direction.

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