

The Business of NET ZERO

Net Zero is a destination with many pathways leading to it—which one will your business take?



by MYTHILI SAMPATHKUMAR

The Earth is already about 1.1°C warmer than it was at the turn of the 20th century and carbon emissions continue to rise, particularly from western nations, China, and India. In 2015, after decades of negotiations facilitated by the United Nations, nearly 200 countries signed the Paris Agreement, which sought to lay out a plan to limit the average global increase in temperature to 1.5°C.

In Partnership With IETA A IS FOR AMBITION

What does net zero mean?

Every time the Intergovernmental Panel on Climate Change (IPCC) comes out with a report, the news is grim: more needs to be done to contain global warming, and faster. The cross-border group was established to provide policy- and decision-makers with the latest scientific information on man-made climate change and it has repeatedly advised countries and businesses to take action to reduce greenhouse gas emissions. According to the world body: "The global temperature will stabilize when carbon dioxide emissions reach net zero. For 1.5°C (2.7°F), this means achieving net zero carbon dioxide emissions globally in the early 2050s."

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What does net zero mean?

In theory, achieving net zero carbon emissions is a fairly simple concept—it is the balance between carbon emissions produced by transportation, manufacturing, agriculture, etc., and the amount of emissions removed from the world's atmosphere. "Net zero means cutting greenhouse gas emissions to as close to zero as possible, with any remaining emissions re-absorbed from the atmosphere, by oceans and forests for instance," says the United Nations Net Zero Coalition.

By the numbers, this means global carbon emissions need to decrease by 45% within the next eight years in order for the world to reach net zero by the 2050s.

Absolute zero emissions, rather than calculating net emissions, is an unrealistic goal. There are a number of possible issues with the combination and scale of technologies we need to use to reduce carbon emissions, including whether they are cost-effective, produce emissions themselves, or simply do not exist yet. The pace at which countries and businesses can decarbonize, and the world's growing population and the resultant demands on a variety of industries, are also factors which make achieving net, rather than absolute, zero a more attainable goal.



Some level of emissions is unavoidable, such as from industries like aviation, manufacturing, and agriculture, but calculating net zero emissions allows the world to continue to innovate technologies and transform industries in a logical process.

Working with nature and using it to help itself

How do we get to net zero though? Removing carbon emissions from the atmosphere is an obvious first step, but how do we do that in a way that does not disrupt the environment and cause collateral damage?

Nature-based solutions have the advantage of working with nature to conserve biodiversity as well as restore ecosystems. Lisa Walker, CEO of Ecosphere+, a B corp helping businesses integrate nature-based solutions, says moving money into these types of projects on the road to net zero "is the most immediate and tangible solution available to businesses looking to take action and without the role played by nature, the climate goalposts move even further away."

While moving funding quickly and into projects with verifiable results is crucial,



so is "long-term and scalable carbon storage whilst also addressing deforestation and ecosystem restoration," according to Ariel Perez, managing partner at Vertree, a company concentrating on projects combating deforestation. Taking into account the nature of a particular ecosystem, so to speak, will be one of the more important tools used to get the world closer to net zero.

However, nature-based solutions are not a panacea for the problem of emissions reduction, capture, and storage. The world has a diverse set of environments, players, and economies and will need just as diverse a set of solutions to address reduction goals.

A 2022 report by McKinsey for the Coalition for Negative Emissions stated, "It's increasingly clear that realizing a pathway to 1.5°C of warming will also involve removing carbon dioxide from the atmosphere." Earlier iterations of carbon capture and storage posed issues with storing emissions underground, but the "negative emissions technology," as Will Gardiner, CEO of Drax, a power generation company, describes it, has evolved to become more sustainable and permanent.

The solution growing in popularity is bioenergy with carbon capture and storage (BECCS), what the IPCC calls a "savior technology." Gardiner is not so quick to canonize it, recognizing the need for a number of solutions and technologies



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to achieve net zero, but does note that BECCS offers a unique "dual benefit."

BECCS is the only such technology currently available that both removes and permanently stores carbon emissions in sustainable biomass—any renewable organic material from plants and animals—and also has the capability of generating power on a 24/7 basis. The latter sets it apart from other renewable energy sources dependent on the number of daylight hours or wind conditions.

As Gardiner explains, BECCS can help remove emissions while also meeting growing renewable electricity demands as other industries like transportation, heating, and construction work towards decarbonization. It is because of its dual power that Gardiner notes BECCS has the unique capability to offset emissions from industries like aviation and agriculture, in which moving away from high carbon emissions is more complicated and takes more time.

Since the removal and storage of emissions through BECCS is "high integrity and permanent," Gardiner says, the carbon credits provided by companies like Drax can also help other companies as they try to achieve net zero. He explains it is part of the reason BECCS presents a trillion dollar market opportunity.

BECCS works well in places like the United States and the United Kingdom, which have dense wooded areas and sustainable forest areas, but it will take more than just nature-based solutions and negative emissions technologies to push us towards net zero. These are just tools, but the world needs people, businesses, and countries to work together with these tools as well.

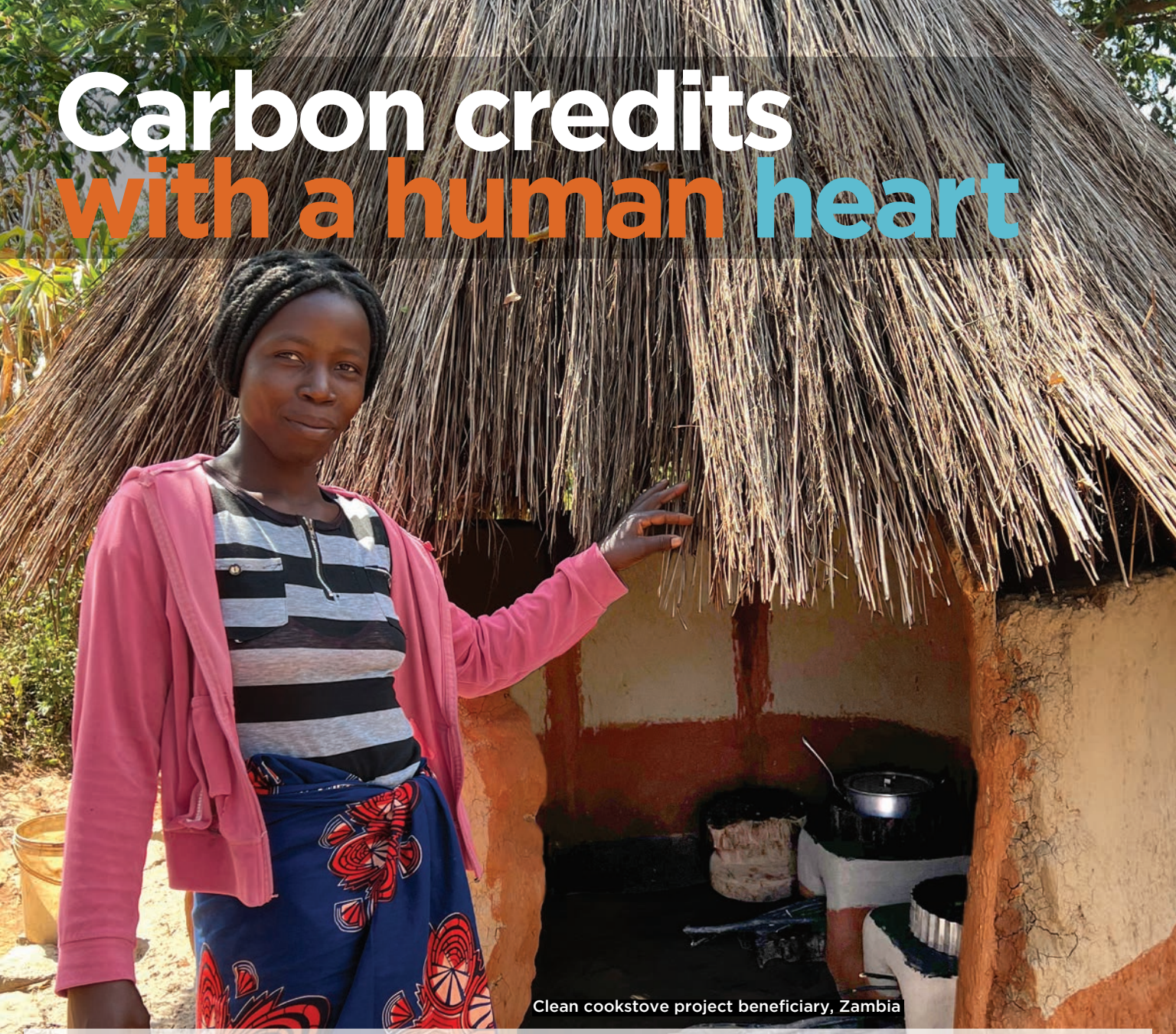
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CQuestCapital

"Our primary goal is sustainable transformation on the path to net zero," says **C-Quest Capital** CEO Dr. Ken Newcombe. **C-Quest** develops carbon finance projects around the world with a focus on helping the poorest communities, which are disproportionately affected by climate change, particularly in sub-Saharan Africa. Globally, nearly 3 billion people are using inefficient cooking fuels like firewood and coal, part of why **C-Quest** concentrates on clean cookstove projects. But, the company also balances avoidance of carbon emissions with removal by promoting several projects in agroforestry and regenerative agriculture for smallholder farms, as well as efficient lighting efforts. Using community and, specifically, women's development and empowerment as a cornerstone, Newcombe envisions **C-Quest** being "the supplier of sustainable energy and land management systems" as it partners with investors to generate high-quality carbon credits, help companies on the pathway to net zero, and build a world that can operate "beyond carbon."

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>
> ***—Dr. Ken Newcombe***
> *CEO, C-Quest Capital*

Carbon credits with a human heart



Clean cookstove project beneficiary, Zambia

When you acquire carbon credits from C-Quest Capital, yes, you're helping to combat climate change, but you're also making an immediate improvement to the lives of millions of people in developing countries globally.

We are a leading carbon project developer whose purpose is to transform the lives of rural families whose health, well-being, and economic welfare are most at risk from climate change. We do this by providing clean energy technologies and sustainable land-use solutions that generate verified carbon credits.

Our Transformation Carbon projects have already reduced CO_2e emissions by 11.6 million tonnes and improved the lives of over 20 million people. By 2030, with your help, they will have reduced CO_2e emissions by 1 billion tonnes and improved the lives of 100 million people.

Environmental Finance
Voluntary Carbon Market Rankings 2022
Winner
Best project developer – energy efficiency

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Embracing the challenge together, across sectors

If this sounds like a daunting task, it is. The pathway to achieving net zero carbon emissions will involve fundamentally changing the nature of the global economy in a significant way while capturing emissions, incorporating more reliance on biofuels and renewable energy sources, and shifting the behavior of governments, businesses, and individuals.

To put it another way: "Accomplishing this ambition depends on continuing progress on commercially viable technology; government policy; successful negotiations for carbon capture and storage (CCS) and nature-based projects; availability of cost-effective, verifiable offsets in the global market; and granting of necessary permits by governing authorities," per Jeff Gustavson, President of Chevron New Energies.

Revolutionizing the energy sector, which accounts for about 75% of all carbon dioxide emissions according to the World Resources Institute, is perhaps the largest part of the puzzle of how the world can save itself from what the IPCC has called the "catastrophic" effects of climate change.

However, that is only one piece of a larger puzzle, according to Dirk Forrister, President and CEO of the International Emissions Trading Association (IETA). "Net zero will not be achieved in silos. Net zero emissions, not net zero partnerships," Forrister says.



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At the political level, the United States, China, and the European Union—the world's largest polluters—have all set net zero targets. These three account for more than three-quarters of the world's carbon emissions, but the UN points out it is still not enough to contain global warming because of policy challenges and the speed at which the transition to a cleaner, greener economy needs to occur.

Per the UN Framework Convention on Climate Change (UNFCCC)'s synthesis report from the organization's last conference, held in Glasgow, Scotland, in 2021, the current national climate strategies of all 193 Parties that have signed the Paris Agreement would still lead to an almost 14% increase in carbon emissions within the next decade, as compared to the last.

As Forrister explains, net zero "is also about markets and collaboration across industries and borders...cooperation is a must in order to make really ambitious targets [for carbon emissions reduction] feasible." To wit, thousands of local and city governments, businesses, educational centers, and financial institutions have stepped up to fill the gap left by national governments and pledged targets to achieve net zero carbon emissions based on climate science.

A flexible mindset is also important when it comes to partnering on this pathway to net zero. The energy sector cannot overhaul itself, by itself, as the global economy continues to be over-reliant on fossil fuels. Ken Newcombe, CEO of social impact project developer C-Quest Capital, understands the pathway to net zero can sometimes make for, if not strange, at least unexpected bedfellows. C-Quest has a number of projects in its portfolio as it sets out to become the

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drax

Drax is on track to deliver 12 million tons of carbon removals from bioenergy with carbon capture and storage (BECCS) projects in the UK and North America by 2030. With 90% of countries committed to achieving net zero, nature-based solutions are an obvious choice to get the world to net zero, as **Drax Group** CEO Will Gardiner says. However, he points out it will take a variety of solutions, bioenergy with carbon capture and storage being one of them. "The beauty of BECCS as a solution is that you start with sustainable biomass and it generates power on a 24/7 basis, unlike other renewable energy sources—it has multiple benefits in one project." This technology is also permanent, making it a cost-effective solution as well. **Drax** is also focused on the economic impact of deploying BECCS in the U.S. Only 0.1 Gt is being delivered today, but according to McKinsey's report for the Coalition for Negative Emissions there must be at least 1 Gt of emissions removed using BECCS by 2025 in order to contain global warming within 1.5° C. This presents a trillion-dollar market opportunity with **Drax** leading the way.

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>
> *—Will Gardiner*
> *CEO, Drax Group*

Capture the opportunity

drax

Decarbonize your business with permanent, high-integrity carbon dioxide removals



To tackle climate change and reach net zero, the world needs to remove carbon dioxide that's already in the atmosphere.

Bioenergy with carbon capture and storage (BECCS) is the most scalable and affordable carbon removal technology available. BECCS by Drax will permanently remove millions of tons of carbon dioxide from the atmosphere while generating 24/7 renewable power.

Go further, faster by purchasing high-integrity carbon dioxide removals that support your transition to net zero, and beyond to net negative.

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Discover more at drax.com/USBECCS



"supplier of sustainable energy and land management systems" in the developing world, particularly in Africa—including a few partnering with Shell and BP.

"I am prepared to become partners with any company that is serious," says Newcombe, adding that companies like Shell and BP are often the most familiar with what others would deem the riskiest markets in the world and also have the capital needed to push those markets towards a more sustainable future.

Net zero is good business

While there are companies which are pledging emissions targets in order to save the planet, the motivation is not purely environmental—it also makes financial sense. Carbon trading can be an increasingly lucrative opportunity for businesses and climate finance is a crucial part of driving the world further along the pathway to net zero.

For many businesses, this is and will be on a voluntary basis as customer and investor pressure to address climate change and reduce emissions increases.

This shift in the financial world comes as "the penny started to drop on the systemic risk of climate change," says Forrister. Gene Hoffman, COO and President of Chia Network, a sustainable blockchain company, says addressing climate risk is "an existential issue and should be a core consideration and an elemental building block for the financial system's evolution."

> "You don't want to be invested in companies facing skyrocketing mitigation costs."

While businesses in sectors like energy or manufacturing may see the need to comply with government regulations regarding carbon emissions, the financial sector will necessarily need to adapt. Emissions trading markets develop around policies, as do the players.

Banks and fund managers in particular are facing increased scrutiny and pressure to disclose investments in fossil fuel–related projects from customers. One example is large pension funds in the United States pushing for the divestment of billions of dollars from fossil fuel companies.

It is in the best interest of these financial institutions to tackle the issue now on a voluntary basis, according to Forrister. "You don't want to be invested in companies facing skyrocketing mitigation costs" as they try to comply with changing

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CARBONEXT

NATURE & FUTURE

Carbonext, based in Brazil, aims to help companies along the pathway to net zero with a focus on combating deforestation efforts. CEO Janaina Dallan says the company's mission "is about so much more than avoiding carbon emissions." While protecting the Amazon rainforest can ensure a more stable climate for the whole world, Dallan and **Carbonext** are also working to improve the lives of the 30 million people living within the Amazon. These poor communities lack access to basic necessities, jobs, and any means of economic development. "A combination of every tool and ability we have" will lead to success on the way to net zero, Dallan notes about integrating social development into **Carbonext's** emissions reduction projects. The company also offers clients, particularly those with land, the chance to "be a protagonist" in the fight against climate change through its carbon credit creation program, developing projects that can pay clients for their carbon credits.

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>
> *—Janaina Dallan*
> *CEO, Carbonext*



THE FUTURE HAS ARRIVED A THOUSAND YEARS AGO.

Trees of the Amazon rainforest are an ancient technology, responsible for storing millions of tons of carbon. Their preservation is essential to fight climate change and ensure the future of our planet.
For this reason, Carbonext has approximately 2 million hectares under protection along with its partners, and became the Brazilian company that most produced carbon credits, through the preservation of the Amazon rainforest in 2022.

There are already more than 2.45 million high quality credits produced in REDD+ projects. This prevents the release of millions of tons of greenhouse gases into the atmosphere and brings several benefits such as: the conservation of thousands of wildlife species, improvements for communities, the teaching of non-extractive economic activities, vaccination campaigns and much more.

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CARBONEXT

NATURE & FUTURE

emissions reduction requirements.

However, as William Pazos, Co-Founder and Managing Director of AirCarbon Exchange (ACX), points out, "transparency, accountability and traceability underpin the Voluntary Carbon Market." Singapore-based ACX brings the infrastructure of a commodities market to the carbon market as a way of makingemissions trading more familiar to traders comfortable with the protections and clarity of a commodities market.

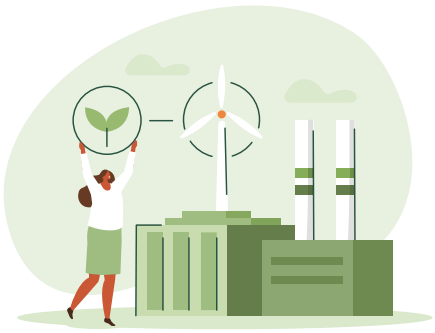
"A secure and auditable environment" is also what Hoffman and ACX are working towards for cryptocurrency. Having a regulatory framework similar to those of traditional markets and "quality benchmarking for carbon credits" in place by organizations like the World Bank and International Finance Corporation (IFC) is what will make financing projects along the road to net zero easier, Hoffman explains.

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Solar, wind, and geothermal energies as well as BECCS need more investment at a faster rate to reach science-based targets by 2030—not just for further development of baseline technology, but also for implementation, maintenance, storage, and scalability. Governments are already funding portions of these projects, but the financial sector's role in helping companies access the carbon market easily could help more businesses pursue net-zero ambitions.

A future "beyond carbon" is about uplifting the world's poorest

While climate finance is an important part of the package of solutions which need to be deployed in order to get to net zero carbon emissions, there also has to be an eye on the world "beyond carbon," as Newcombe puts it. Climate



finance is focused on creating and selling carbon credits; "It is a means to an end," the C-Quest CEO points out.

"We want to be on the other side of that," he says.

What lies beyond climate finance is a cleaner, greener, more sustainable global economy for all, which needs to include the billions of people living at the "bottom of the pyramid." As CEO of Carbonext Janaina Dallan explains, the pathway to net zero "is about so much more than avoiding emissions."

As long as energy sources like coal and firewood used in traditional cookstoves continue to be inexpensive, methane-intense and land-stripping agricultural practices remain in place because of a lack of alternatives, and selling land for deforestation is the only option for survival, net zero will remain an elusive—or at least an even more difficult—goal to

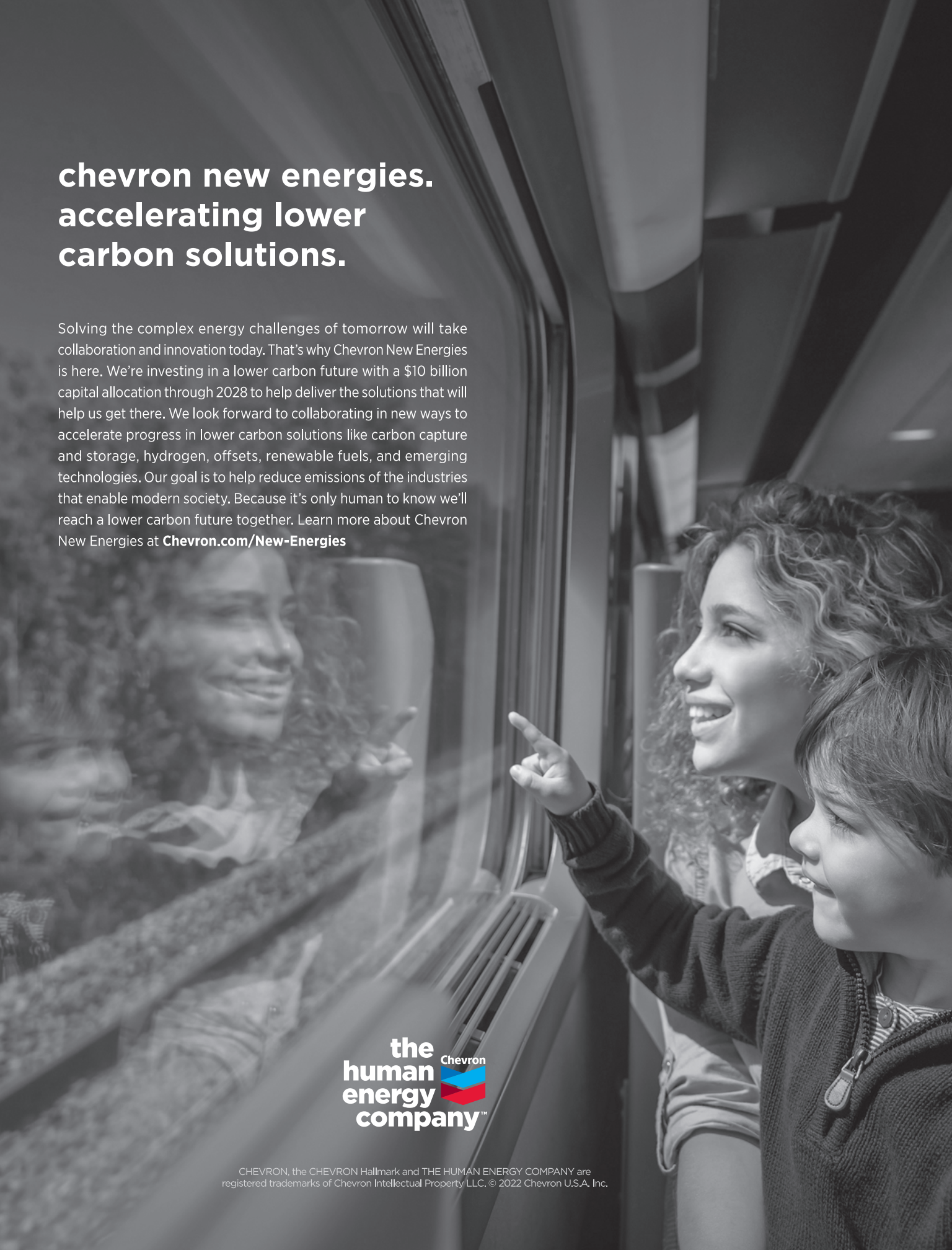
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the human energy company™ Chevron

"Reducing carbon emissions today requires partnership and collaboration, because no one company, industry or nation—acting alone—can meet the world's energy and climate goals," says **Chevron** CEO Mike Wirth. The company has committed to nearly 100 development projects focusing on both lowering the carbon intensity of its operations and growing lower-carbon businesses. "We expect our lower carbon capital to more than triple versus prior guidance to over $10 billion between now and 2028 to progress our energy transition goals," Wirth notes. With the company's history of entrepreneurial mindset and quick decision-making, **Chevron New Energies** can be in a position to "build the lower carbon energy system of tomorrow" through carbon capture, says President of New Energies Jeff Gustavson. **Chevron** expects to put more than $2 billion over the next six years towards carbon abatement projects in order to push the company along the pathway to net zero.

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—Mike Wirth
CEO, Chevron



chevron new energies. accelerating lower carbon solutions.

Solving the complex energy challenges of tomorrow will take collaboration and innovation today. That's why Chevron New Energies is here. We're investing in a lower carbon future with a $10 billion capital allocation through 2028 to help deliver the solutions that will help us get there. We look forward to collaborating in new ways to accelerate progress in lower carbon solutions like carbon capture and storage, hydrogen, offsets, renewable fuels, and emerging technologies. Our goal is to help reduce emissions of the industries that enable modern society. Because it's only human to know we'll reach a lower carbon future together. Learn more about Chevron New Energies at **Chevron.com/New-Energies**

the human energy company™ Chevron

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"We cannot afford to wait"



> **'Their development is an important part of fighting deforestation,' because when communities have no access to an income, selling land to companies to cut down the trees is the easiest and quickest solution."**

achieve for the world, should these people be left out of the process.

Aid and development flows to the Global South, but detractors of current development policies of western countries have often cited projects as either impractical, too centered on only one aspect of development instead of being intersectional, or too near-sighted to create a system of economic growth and opportunity rather than just a small bandage on a bleeding wound.

But companies like C-Quest and Brazil-based Carbonext are looking to change that by integrating both carbon finance and community development into their missions.

For Newcombe it is about "mutual prosperity, not just subsistence." He explains that renewable energy does not need climate finance because it is "purely commercial." There are obvious returns on those investments that make them profitable without the need for the carbon adder. Instead, he says, it is developing sustainable ecosystems and economies in regions like sub-Saharan Africa which require both financing and a more holistic approach to achieving net zero.



"Women are change agents," Newcombe says, which is why the company has chosen to concentrate projects on cleaner cookstoves. Presenting alternatives to cooking with coal or firewood not only reduces emissions, but improves the lives of women who can then develop other skills to bring in more income, educate their children, and shore up entire communities. This, in turn, creates an ecosystem ripe for new investment.

Dallan's company creates carbon credits through projects centered not just on deforestation of the Amazon rainforest but also on the nearly 30 million people who live within it.

"They tell me what is good for them," Dallan says about how Carbonext's projects aim to bring people access to education, healthcare, and basic necessities. "Their development is an important part of fighting deforestation," because when communities have no access to an income, selling land to companies to cut down the trees is the easiest and quickest solution.

Like Newcombe, Dallan sees current solutions to achieve net zero as lacking if they are not also people-focused. Technologies like BECCS are not a great option for countries like Brazil because of the country's ecology and because it is both capital intensive and can take several years to build up the biomass storage to really see a difference in carbon emissions levels. "We cannot afford to wait," she notes.

For more information on the role of carbon markets moving to net zero, get in touch with IETA today!

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Ecosphere+ has pioneered best practices in carbon offsetting since 2016 and brought integrity and innovation to some of the largest solutions in the carbon market, transacting over 40 million carbon credits to date. We empower our clients with exclusive access to high-impact carbon offset projects, verified against leading international standards, that enable businesses to support outcomes beyond climate mitigation, such as for nature and people.

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Chia is a secure, sustainable, and compliant blockchain network that the World Bank trusts to efficiently and transparently connect carbon registries. **Chia** also partners with IFC, Aspiration, and Cultivo to bring quality benchmarking to carbon credits and efficiency to the carbon markets financing important nature-based projects.

Join **Chia** to help improve environmental outcomes while democratizing financial system access. Contact **info@chia.net** to learn more about how blockchain can support your ESG goals—no blockchain experience required.

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Vertree

"Nature is the most cost-effective and scalable solution to achieve our climate targets today."

"Protecting and investing in nature delivers the maximum environmental impact per dollar and at the same time provides significant co-benefits including ecosystem restoration, increased biodiversity, the protection of endangered species, and preservation of human life and livelihoods. At **Vertree** we support the diverse set of solutions that will be required to address climate change, and companies looking to make serious progress towards net zero today will be hard pressed to find a better solution of long-term and scalable carbon storage whilst also addressing deforestation and ecosystem restoration."

—Ariel Perez
Managing Partner at Vertree

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AirCarbon Exchange (ACX) is the global digital exchange powering the future of environmental credit markets, accelerating sustainability and value creation today.

The borderless **AirCarbon Exchange** provides access to the broadest array of environmental credits, including carbon, plastics, and unique bundles of mixed assets. From purchase to holding to retirement of assets, **ACX** dramatically simplifies the end-to-end lifecycle of credit ownership through a highly efficient and advanced platform where every step is digitized and secure.

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