

SUSTAINABLE HEROES

Green Leaders
in Focus



Insect Effect

Clément Ray, CEO and
Co-Founder, Innovafeed

Clement Ray, CEO and co-founder of biotech company Innovafeed, is on a bold mission to reinvent the world's food system.

The Green Pivot

Patrick Pouyanné, CEO,
TotalEnergies

Trash to Treasure Solutions

Meghan Sharp, Global Head,
Decarbonization Partners

Ice is Essential for Life

Lewis Pugh, UN Patron of the Oceans
& Endurance Swimmer

Modern Farming

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Kathy Valiasek is Chief Financial Officer at commercial greenhouse grower Local Bounti.

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SUSTAINABLE HEROES



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Meghan Sharp, Global Head, Decarbonization Partners
Meghan Sharp is Global Head of Decarbonization Partners which invests in companies with high potential decarbonization solutions and technologies.

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Motivation

Dear Reader,

“When something is important enough, you do it even if the odds are not in your favor.”

That’s Elon Musk’s take on motivation and that kind of mindset characterises the five Sustainable Heroes in our 8th edition.

Musk’s quote also encapsulates the scale of the climate challenge we all face. Scientists have warned that we are in danger of shifting the odds against us without urgent action on lowering carbon emissions.

UN climate science body, the IPCC, released the third installment of a four-part climate assessment in April, on mitigation. It warned that the world is on track to reach 3C of warming, double the target set out in the 2015 Paris Agreement. Greenhouse gas pollution must peak “at the latest before 2025” to keep targets alive, according to the report’s scientists. They noted that keeping to the 1.5°C warming limit means carbon removal technologies like carbon capture and storage and direct air capture, will be unavoidable.

But there are also reasons to be optimistic. The fall in solar and wind costs by 85% and 55% respectively between 2010 and 2019, make them cheaper than fossil-fuel-powered electricity generation in many places after the recent global spikes in energy prices.

Finally, the tragedy of Russia’s invasion of Ukraine, has concentrated the minds of Europe’s policymakers to accelerate the green energy transition and keep the odds in our favor to defeat climate warming.

While all of this edition’s heroes are very different, they have one thing in common: The motivation to take on difficult challenges knowing what it takes to avert a climate disaster.

Clément Ray, CEO and co-founder of biotech company Innovafeed, is on a bold mission to reinvent the world’s food system. The startup, which produces insect protein as a sustainable alternative to higher emission protein sources, is focused

on building a zero waste agri-food chain.

Patrick Pouyanné is CEO of TotalEnergies, the French energy giant. Patrick is pivoting the multinational company away from oil towards renewables. He is a big believer in the untapped potential of offshore wind.

Meghan Sharp, Global head of Decarbonization Partners, a joint-venture between BlackRock and Temasek, is helping to scale and commercialize the low-carbon companies of tomorrow. Meghan’s team has a fund pool of over \$1 billion. She is especially interested in the circular economy and ‘trash to treasure’ solutions.

Lewis Pugh is an endurance swimmer, environmental campaigner and UN patron of the Oceans. He is the first person to complete long distance swims in every ocean of the world. He has pioneered swims in the North Pole, across a glacial lake on Mount Everest, and under the Antarctic ice sheet. His most recent challenge in September 2021 took him to the rapidly melting Ilulissat Glacier in Greenland.

Kathy Valiasek is CFO of controlled environment agriculture company Local Bounti. The firm is pioneering modern methods of farming that reduce food waste and food miles while using less of the planet’s precious resources. Kathy takes inspiration from labor leader and activist Dolores Huerta, who championed farm workers’ rights in the 1950s.

At Nomura Greentech, we are empowering technology and driving change for a better world.

We hope that our sustainable heroes can inspire the next generation of entrepreneurs and change-makers to help us reach net zero before 2050.

Together, it can be done!

Jeff McDermott








Jeff McDermott

Global Co-Head of Investment Banking at Nomura and Founder of Nomura Greentech

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Insect Effect

Clément Ray, CEO and co-founder of biotech company Innovafeed, is on a bold mission to reinvent the world's food system. The startup, which produces insect protein as a sustainable alternative to higher emission protein sources, is focused on building a circular and zero waste agri-food chain.

Q | Tell us about your early career and why you set up Innovafeed?

After graduating from Columbia University and Ecole Centrale Paris, I started working in strategy consulting, at McKinsey & Co, mostly on economic development and agricultural growth strategies. In 2016, together with Aude Guo and Bastien Oggeri, we founded Innovafeed with the goal of improving the health and food sources for people and animals. In building a circular and zero waste agri-food chain replicating insects' natural role, we are delivering on that goal, and reinventing our food system with a focus on quality, sustainability and resilience, for everyone.

Q | What's your mission and how do you fit into the sustainability universe?

Innovafeed is a leading biotech insect producer for animal and plant nutrition. We breed *Hermetia Illucens*, black soldier flies, for use in aquaculture, animal and plant nutrition and pet food.

Innovafeed's mission is to feed tomorrow's world with sustainable and natural solutions. To reach that goal we developed a scalable vertical farming model, both circular and zero waste. Circularity is at the heart of our proprietary industrial symbiosis model. By co-locating our plants with existing industrial players, we cut CO2 emissions and save residual energy. Our activity is zero waste as every part of the insect is used: we produce protein and oil from the *Hermetia Illucens*, while utilizing the insect waste for fertilizers. We operate the world's largest insect protein production facility in Nesle, France. This adaptable model will be replicated at our facility in Decatur, Illinois and the capacity will be four times as big as Nesle.

Q | How does the industrial symbiosis method work?

As mentioned, we co-locate our production farms with existing industries. As part of a circular economy system, our sites run on agricultural by-products from agribusinesses and waste energy from power plants. Using this industrial symbiosis method, we have reduced our environmental impact by 80%. And in turn, by offering our neighbors short-loop valorization routes – feeding our *Hermetia Illucens* with byproducts - we have helped to reduce their environmental impact while strengthening the local ecosystem and creating employment.

Q | How big is the challenge you are trying to solve?

We need to feed a growing population, expected to reach 10 billion people by 2050, in a way that respects the environment and alleviates pressure on natural resources. Alternative ingredients such as insects are a qualitative and sustainable solution that guarantees food security. For instance, 1 hectare of *Hermetia Illucens* larvae produces more protein than 100 hectares of soybeans.

Protecting biodiversity is also at the heart of our mission. According to the United Nations Food and Agriculture Organization, 34% of the world's fish stock was overexploited in 2020. By restoring insects to their place in nature, we can contribute to safeguarding the marine ecosystem. Each ton of insect protein, allows us to preserve three tons of foraged fish.



“Each ton of insect protein
allows us to preserve
three tons of foraged fish”





Q | How is climate change affecting the way food is grown and produced?

Today, food systems are responsible for a third of human-generated emissions according to the Food and Agricultural Organization of the United Nations. At Innovafeed, we have a high environmental performance. In our Nesle plant we are collocated with the starch manufacturer Tereos, from whom we directly receive wet agricultural by-products through a pipeline connecting the two sites. This avoids transporting them but also drying them, an essential step for truck transportation.

We run our factory with green energy from clean power provider Kogeban. It's waste energy, which would otherwise be dissipated into the atmosphere. This waste energy represents 60% of our needs, the remaining 40% is made up of renewables.

Q | The EU approved insect protein for humans last year. Do you have plans to expand into this area?

The EU does indeed have extremely favorable regulations for insect protein. It authorized the use of insect protein in aquaculture in 2017, for monogastrics (poultry and swine) in 2019 and for humans last year. Momentum is gaining rapidly in the USA as well, where we will establish our next production site.

Our insect, *Hermetia illucens*, has a unique value proposition for human consumption. Its protein quality is similar to that of animals and its environmental impact is lower than plant-based protein. Starting with the US market in 2022, we will offer new ingredients extracted from *Hermetia illucens* as alternatives to animal and plant-based protein. This will enhance the nutritional benefits and environmental footprint of health-based consumer foodstuffs like sports and medical nutrition products, snacks and meat substitutes.

Q | Do you see barriers to persuade humans to buy insect protein and how can you break them down?

One of our big marketing challenges is to make people more aware of the amazing potential and nutritional value of insect-based proteins for humans. To that end, we are currently developing prototypes and working on the appropriate packaging.

Q | What advice do you have for entrepreneurs in the sustainability space?

When looking to create a sustainable business, it is essential to think in terms of an ecosystem to maximize the impact of this new activity on the environment. This is how we designed and implemented the industrial symbiosis system at the heart of our model. Based on a co-location with existing industrial players, who provide us with energy and byproducts to feed the *Hermetia illucens* larvae, it allows us to benefit from a 100% circular production method and to reduce our CO2 emissions by 80% compared to our main competitors.

Q | What has surprised you most about the Innovafeed journey so far and what are you most excited about for the future?

I am still amazed today at how incredibly resourceful our team has been from day one. We built the company with people from different backgrounds and industries. At the time, we were facing new issues each day and were always able to count on the team's creativity, determination and strength to overcome those obstacles and find innovative and groundbreaking solutions. If I learned one thing, it's that with the right group of passionate people, we can accomplish just about anything.

In terms of the future, I'm excited about our new production site launch in the US, which represents our commitment to reinventing our food system with a focus on quality, sustainability and resilience, for everyone.

Q | Who is your sustainable hero and why?

I do not have one sustainable hero but 300! The 300 employees of Innovafeed, of whom I am extremely proud. Three hundred pragmatic dreamers who commit themselves daily with passion and energy to develop, invent and implement a sustainable nutritional alternative to feed tomorrow's world.

“I’m excited about our new production site launch in the US, which represents our commitment to reinventing our food system with a focus on quality, sustainability and resilience, for everyone”



The Green Pivot

Patrick Pouyanné is CEO of TotalEnergies, the French energy giant. Patrick is pivoting the company away from oil towards renewables. He is a big believer in the untapped potential of offshore wind.



Q | TotalEnergies has been ahead among oil majors in pivoting its business towards renewables – how did you realign the strategy?

Over the past decade we have been investing in renewables. Since the Paris agreement in 2015, we have built an asset base including solar and offshore wind, and in 2020 we decided to accelerate.

In May 2020, we published our Net-Zero ambition for 2050, and we reflected this ambition with emission targets for 2030. This ambition was accompanied by a strategy to turn the firm into a broad energy company and offer our customers various products to help them reach carbon neutrality.

In May 2021, we rebranded to TotalEnergies so we are no longer an oil major. Now it's oil, gas, renewables and electricity.

TotalEnergies is positioning itself in the growing energy markets. Demand for oil will begin to decline by the end of this decade, mainly due to the rise in electric mobility. Natural gas will be a transition fuel and we will see an expansion in green electricity from renewables.

Q | What are the key milestones over the coming years to meet your targets?

We are planning to allocate 50% of capex to maintain our existing assets, and will allocate the remaining 50% to growth. Half of the growth shall be sustained by electricity and renewables, the other half by gas and LNG.

In order to reach our emissions targets and accompany our customers in their energy transition, our energy mix will drastically change. In the decade to come, we will decrease oil production by 30%. Natural gas will be the transition fuel, so we intend to consolidate our position as the world's top 3 LNG player. For renewables and electricity we already have a 10 GW installed capacity, and we are targeting 35 GW by 2025 and then 100 GW by 2030, which will position TotalEnergies among the top 5 producers of renewable energy. By 2030, the energy mix delivered to our consumers will be oil 30%, natural gas 50% and renewables 20%.

Q | Are the synergies between your legacy and new businesses a trend that's set to continue?

Yes, recent announcements of projects in Iraq and Libya perfectly illustrate our new model as a broad energy company: we can support oil producing countries in their energy transition by combining the production of oil, gas and solar to meet domestic demand for electricity. In Southern Iraq, we are constructing a new network to capture flared gas, and a 1 gigawatt solar plant to supply electricity to the grid.

These projects demonstrate how we can leverage our historical relationship in oil producing countries to create multi-energies.

The synergies are not only in projects but also energy markets, which currently demonstrate a clear interconnection. More of the energy mix is comprising electricity – it's 20% of global demand today and will rise to 40%.



“Demand for oil will
begin to decline by the
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But electricity from renewables means intermittency – we face issues with energy prices because of a drought in China and Brazil or a lack of wind in the UK and Germany.

As electricity is a secondary energy, you have to produce it, if not from renewables, then nuclear or gas. This is where TotalEnergies can bring value as we operate in all of these markets and they are interconnected. We can lower prices for customers and maximise value for stakeholders in these more complex systems.

Q | Why do you anticipate such a high share in natural gas, a fossil fuel?

Renewables are intermittent. In the end you want reliable or permanent power and that comes from a combination of nuclear, gas, coal and oil. You could make batteries but it's expensive and takes time to develop in order to supplement renewable power. Setting aside nuclear, as not all countries agree on it, gas is better as emissions are less than half compared to coal or oil.

In China, the shift is starting from coal to gas but we can't ask countries to phase it out if they don't have a reliable energy supply. So, gas has a role to play as a transition fuel and at COP26 many leaders reaffirmed that. To successfully transition to green energy we need to first produce more gas. Reliability of the energy system is fundamental for customers and governments.

Q | Do you view the UN's COP26 climate summit as a success?

The Glasgow conference had mixed results. National pledges mean we are now on the road to 2.4C rather than 2.7C so a little progress but not yet within scope of the Paris agreement. Still, I am optimistic, the glass is half full.

COP26 also highlighted the importance of energy transition but the speed of transition must take into account the agenda of economic development in particular for emerging markets. The India Prime Minister and the President of Nigeria were clear that climate change is a priority but they also have a very important task of getting their people out of poverty.

That's one of the big debates that didn't offer as much as expected, rich countries bringing the money necessary to decarbonise. Climate change is a global issue so even if we make huge progress in developed countries it will make little difference if we can't move together and help countries like India or South Africa develop their energy.

There was also a missing element – COP26 focused on supply, but there was no real debate about how to change behaviors and influence demand. On the one hand, people are pushing to invest less in fossil fuels but it's the reality of the planet's energy, and demand continues to grow. So, without regulation to curb demand, we face what's already happening,

an energy price crisis where the price adapts and that's not good for anybody as it might slow down the pace of the energy transition.

Thinking we can solve climate change by simply putting pressure on fossil fuel supply is a mistake. It involves building a new decarbonised system of green energies, which is a gigantic task. We must build it over the next decade. But at the same time what's wrong is to think we can begin to invest less in the existing system. The energy system of today is 80% fossil fuels and it allows us to provide energy to emerging economies to grow as part of a Just Transition.

Q | What are the future green energies you are most excited about?

We are looking at floating offshore wind. So far, we have developed fixed bottom offshore wind but floating is a new frontier. There are technical obstacles to surmount but we have engineers and suppliers with expertise in this area.

There's a lot of talk about hydrogen. In reality, demand is still small today consisting mainly of refineries and fertilisers. To make it part of the energy mix, we need to create demand to scale it up and lower the cost.

E-fuels or liquid fuels to power planes and ships are essential as a question of storage. E-fuels combine hydrogen and CO2 by transforming CO2 as feedstock not as waste. It's costly today but we must innovate to make it more viable.

Wind and solar power have demonstrated over the past decade that scaling up the technologies has a huge impact on lowering the cost.

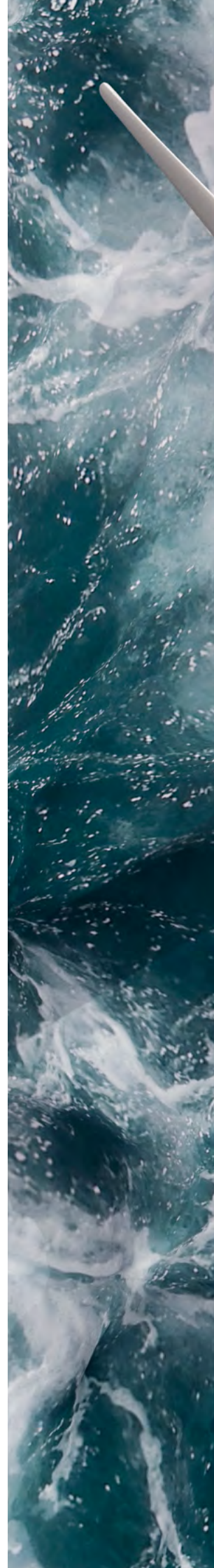
Q | How important are mitigation techniques like Carbon Capture and Direct Air Capture?

More than 50% of our R&D budget is dedicated to low carbon solutions: solar, wind, energy storage and hybrid systems, e-fuels, biogas, Carbon Capture and Storage (CCUS) and methane detection. R&D on digital and AI also contributes to accelerate the decarbonization of our activities.

We are investing in CCUS, in particular in the North Sea. We are also working on Direct Air Capture (DAC) but progress needs to be made before it's commercially viable. It can capture intense CO2 but it's costly when the intensity is low.

We know that NGOs don't like these technologies but we won't achieve carbon neutrality by 2050 without mitigation techniques. All climate scenarios continue to envision oil and gas demand by 2050, so you need to neutralise these emissions.

Sustainable nature based solutions like reforestation are also an important mitigation tool. Glasgow committed to stop deforestation by 2030. Natural carbon sinks are the most efficient in economic





“More than 50% of our R&D budget is dedicated to low carbon solutions”

terms at \$10 per ton. These are the low hanging fruit.

Q | What's the profitability profile of renewable energy versus hydrocarbon?

For renewables, we put in place a business model with an objective of a 10% return on equity based on appetite from the financing world and being able to leverage low rates.

For all of our projects, we decided to take the construction risk but we sell a 50% stake and obtain very good valuations due to a lack of green assets and strong investor demand. With this business model, we exceed 10% returns while sharing the risks instead of keeping it on our balance sheet.

I'm convinced that the era of power purchase agreements for renewables will not last forever and turn into commodity markets where returns must be acceptable to find companies ready to invest.

Historically, oil and gas returns were 15% but with the high volatility we have observed in recent years, returns have been closer to 10% anyway.

Q | What role do banks play in the energy transition through loans, bonds or equity raising?

They play an important role and we are partnering with banks. The capacity of financial institutions to direct investments to green energies is crucial to building this new decarbonized energy system.

The rise of solar and wind has been possible due to low-cost money. A renewables plant is more capital intensive than oil and gas. So putting in place efficient leverage through bank financing is a way to accelerate green energies.

Q | Who is your Sustainable Hero and why?

My sustainable heroes are all TotalEnergies employees who are fully committed to transform a 98 year old oil & gas company into a multi-energy company, in order to supply more energy with fewer greenhouse gas emissions.

This interview took place in December as part of Nomura's ESGNOW! conference.

Trash to Treasure Solutions

Meghan Sharp is Global Head of Decarbonization Partners, a newly-formed joint-venture between BlackRock and Singapore state-fund Temasek to invest in green companies. Meghan's team is helping scale and commercialize the low-carbon startups of tomorrow. She is especially interested in the circular economy and 'trash to treasure' solutions.

Q | What first sparked your interest in sustainability? Tell us about your career journey?

Before I became a venture capitalist I was a biologist. Biologists have a tendency to think about climate, the environment and sustainability but I was a cellular molecular biologist and geneticist. That was the focus of my PhD and my post-doctoral work was in the plant biology and global ecology department at the Carnegie Institute at Stanford.

The Carnegie institute was asking the questions we are addressing now, 20 years ago. For example, they used green concrete. It cracked 6 months after we put it in but that was my environment, it was thrilling and exciting. Leaders from across the world gave seminars.

Out of that post doctorate, I got into venture capitalism as my background was relevant to developments in biofuel at the time. Everyone was looking at dedicated feedstock versus waste and conversion technologies. Chris Somerville, who was director of the Carnegie Institute, called me and said there's an interesting role for you at BP. They have an alternative energy practice and are looking for a venture capitalist with a biological background familiar with the university system in the San Francisco Bay Area. I interviewed and landed the job, thought I'd stay for 2 years but ended up staying for a decade. And the rest is history.

Q | Is there an overriding principle that helps you think about the sustainability journey?

I like to use the camping analogy. People who spend a lot of time hiking say you should leave the trail better than you found it. If everyone made that one effort, the impact would be extraordinary. I feel like I have a huge responsibility to leave the planet better than I found it. But we know it's more critical than that, we have kids experiencing life on the planet and need to be conscious about what their future will look like.

Q | What does your role as Global Head of Decarbonization Partners involve?

We are building the plane as it's taking off and flying it. We are 9 weeks in and firing on all cylinders.

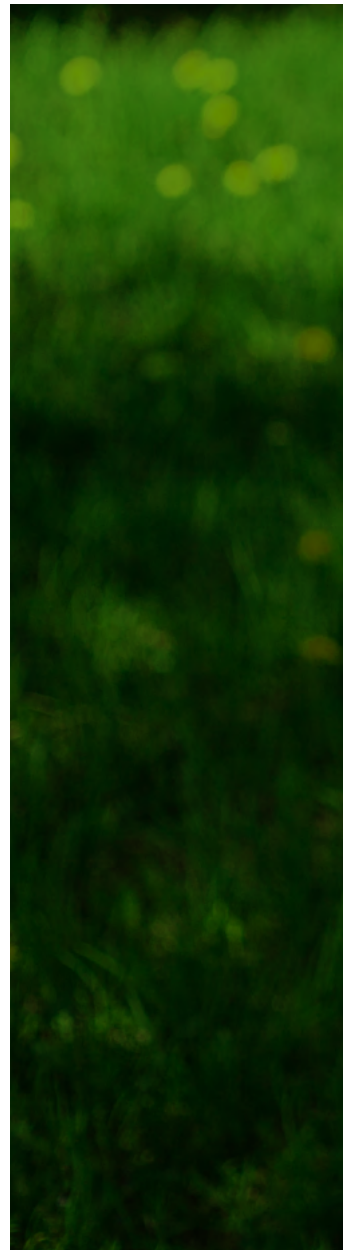
Decarbonization Partners is a joint venture between BlackRock and Temasek. They each provided \$300 million in seed capital for our first two funds. We are busy hiring and executing that seed capital. We are also raising \$1 billion in external financing and expect the overall fund pool to land at around \$1.3-1.5 billion.

We have a founding team that's extraordinarily passionate about our mission at Decarbonization Partners to reduce and eliminate carbon emissions. They left great positions at BlackRock and Temasek to deliver on that mission so the team is equally important.

Our pipeline has 160 companies and we have closed two deals so far. The first is in the green materials space (plant based leather) while the second is in electronic vehicle batteries. The technology increases the efficiency of batteries to bring cost curves down and allows vehicles to go further, which drives customer adoption.

Our third and fourth investments are in hydrogen and software versus hardware in carbon markets.

They all sound very different but they actually have a lot in common. Our capital is growth capital and we want to help companies scale so that they can have the decarbonization impact we need and want them to have. There's a lot of activity in R&D but we identified a need for more scale-up capital.



A person with long brown hair, wearing a teal shirt with thin white and red vertical stripes, is shown from the side. They are carrying a large, light-colored canvas tote bag with the words "NO MORE PLASTIC" printed in bold, black, sans-serif capital letters. In their left hand, they hold a translucent green reusable water bottle with a black cap. The background is a bright, sunny outdoor setting with green grass and yellow wildflowers in the foreground, and a blurred building in the background.

**NO
MORE
PLASTIC**

“We are focused on investing post-pilot to help these startups build their first commercial facilities and provide real production volumes”

We are focused on investing post-pilot to help these startups build their first commercial facilities to provide real volumes and gain their first customers even if revenues are small to begin with. In essence, we are taking scale-up risk.

Q | What strengths do each JV partner bring and does 1+1 =3?

BlackRock and Temasek saw exactly that opportunity. They have a long partnership of working together so saw the chance to double down and create that synergistic effect.

Temasek has invested in early and late stage funds and they have some activity in early venture growth. We are doing mainly series C +D rounds and some B which translates into about \$50-100mn per company.

Larry Fink's CEO letters show a strong commitment to sustainability through private and public markets including an \$18 billion infrastructure platform and \$9 billion dedicated to renewable power.

How does 1+1= 3? It needs to = 10 to solve this problem. If Decarbonization Partners comes in at the parent level, BlackRock can offer project finance to help with plants. It can help startups with public markets, IPO rounds and debt capital. It can support companies through the entire capital stack. It's really powerful when we talk about these alternative sources of capital and targeted financial instruments to get where we need to go. BlackRock brings that through a single partner.

What Temasek brings to the table and what resonates with companies is the connections in Asia. We see 20% of our pipeline coming directly from Asia and Temasek is supporting that but the bigger piece of the Asia story is that almost every company we invest in, if they grow and are successful beyond the first few plants, they are looking to Asia for future growth.

Understanding the regulatory environment and financing mechanisms, these things are not trivial so having a partner like Temasek in the region is incredibly powerful. It's exactly why I'm here – I decided it was a career opportunity of a lifetime to have 2 extraordinary institutions bringing very different but complimentary things to the table.

Q | What are the most important factors you consider when making a green investment?

We want to see opportunities that have been technology de-risked and proven beyond the R&D stage.

Firstly, are these companies ready to scale? Each investment needs to have a 20% plus internal rate of return (IRR) for investors, as well as a decarbonization effect, and both are equally important. These are dual-purpose funds.

Secondly, is the technology largely proven,

are they ready to scale? Thirdly, customer traction and those first revenues.

Our first two deals were mid-30s IRR in a conservative model. As part of our due diligence, we want to see companies bringing down cost curves so that they are competitive with more carbon intensive counterparts where that's an appropriate comparison to make.

We see opportunities for significant returns to investors and for these types of technologies, they will have to be commercially successful to have a decarbonization impact. They will hit those IRRs if they are scaling.

Q | What themes and sectors are you are concentrating on?

Our four main themes are 1. Electrification of everything in a 2050 future - Mobility, industry and buildings; 2. Clean and reliable energy generation and storage; 3. Green materials; and 4. The circular economy.

At a granular level, the sectors are bio and low carbon products, carbon management, carbon capture, storage and utilization, renewable power and digital transformation. Without digital, the hardware piece will not work.

Q | Asia is an important region for the green energy transition. Is it a big focus area for you?

I expect us to have direct investments in Asia. We will end up with a team of four in Singapore and we have three right now.

It is an area of importance. The pipeline is 20% Asia-Pacific right now so a fair amount of direct investment but the bigger impact from an Asia perspective and leveraging our Temasek relationship is helping all of our companies have the impact and IRR. They will be global in nature and part of that expansion is in Asia.

Q | What are the future green energies you are most excited about?

Aspirationally, I get excited about trash to treasure solutions. For example, I love to see municipal waste being turned into something valuable like sustainable aviation fuel.

We are looking at recycling tires. It sounds boring but it's really important. Tires are building up in landfill, it's a horrible environmental hazard. Circular economy solutions get me excited, it's a form of upcycling.

More broadly, steel and concrete are big ticket items when you look at where our carbon emissions come from. We don't currently have one in our portfolio but it's early days.

Q | Would you invest in direct air capture?

It's hugely expensive and hard to see any kind of cost curve where it isn't prohibitively

expensive versus capturing carbon at source. We will have to see how it play out.

We need to create as many opportunities as we can to capture CO2 from the source and at some point we need to start executing direct air capture technology to bridge the gap.

To reach net zero carbon we will have to deploy some of these technologies.

Q | How is the Russia-Ukraine war reshaping your investment strategies?

It is accelerating our need for diversification which means decarbonization. At the start of the pandemic, oil prices fell through the floor and a CEO of one of the big energy companies an even firmer commitment to net zero carbon amid a lack of demand but with the Russia Ukraine war, oil prices are through the roof yet the answer is still the same. To me, that just means the time is now. We have to diversify our energy supply.

From a geopolitical perspective, it is accelerating interest in everything we were already doing. There will be more capital flowing in, speeding up demand for these products.

Q | What are the biggest challenges in reaching net zero?

We can invest and develop these great technologies and create demand but what if everything else isn't in place to help them. Do we have the infrastructure to support moving hydrogen around, the logistics in the supply chain and all the component parts?

It's acknowledging that all these things are connected. When I look to 2050, I see fleets of EVs in parking lots attached to big battery packs attached to buildings and at any point in time we have digital infrastructure and AI managing all that energy supply and demand. When does it go to the fleet, when to buildings? We will have renewable power on roofs of building. Everything will have to be connected to make it work. Being as efficient and optimized as possible, is essential if we are to have any hope of reaching net zero.

Q | Who is your sustainable hero and why?

What Bill Gates has done is remarkable. Every person I know has read his book on solutions to the climate problem. But we have always had sustainable leaders trying to reach the masses. What's different now is what the common man is doing by choosing alternatives that don't harm the environment. It is the disruptive shareholder demanding change, it's the people on my own team who are dedicated to the cause. So for that reason I'm going with the common person on the street that has enabled us to be where we are. Decarbonization is a global problem and requires all of us coming together to implement a solution.

“We want to see opportunities that have been technology de-risked and proven beyond the R&D stage”



Ice is Essential for Life

Lewis Pugh is an endurance swimmer, environmental campaigner and UN patron of the Oceans. He is the first person to complete long distance swims in every ocean of the world. He has pioneered swims in the North Pole, across a glacial lake on Mount Everest, and under the Antarctic ice sheet. His most recent challenge in September 2021 took him to the rapidly melting Ilulissat Glacier in Greenland.

Q | What first inspired you to take up the sustainability cause?

I have been visiting the Arctic since the early 2000s when I left my career as a shipping lawyer. Enormous change is taking place there. My first big swim was in 2007 across the North Pole. At the time, world leaders said everything was fine in the Arctic.

In 2010, I undertook a swim across a glacial lake on Mount Everest and by that stage, the ice was already decreasing. It's there one day and suddenly it's gone.

I grew up in South Africa. As a university student, I saw enormous change during Apartheid, which had a big impact on me. Fellow students were arrested, lecturers spent periods in prison and there was a realisation that on the defining issues of our generation, you don't keep quiet. It was clear to me that climate change was going to be the defining issue of our generation.

Some people think there must be a Damascus experience but it wasn't like that. It was a gradual awakening - seeing various things around the world, putting the puzzle together. There was a famous Steve Jobs speech at Stanford when he said you join the dots going backwards. My parents took me to lots of nature reserves as a child and we lived close to Addo Elephant National Park. I remember the sheer joy of these parks as a young boy. The seeds were planted there for me, that nature is essential to life on earth.

I'm 52 and in my lifetime we have lost nearly 70% of the world's wildlife. It's a dreadful indictment on us humans. We all have a responsibility to turn the ship around. We are not the only species on this planet.

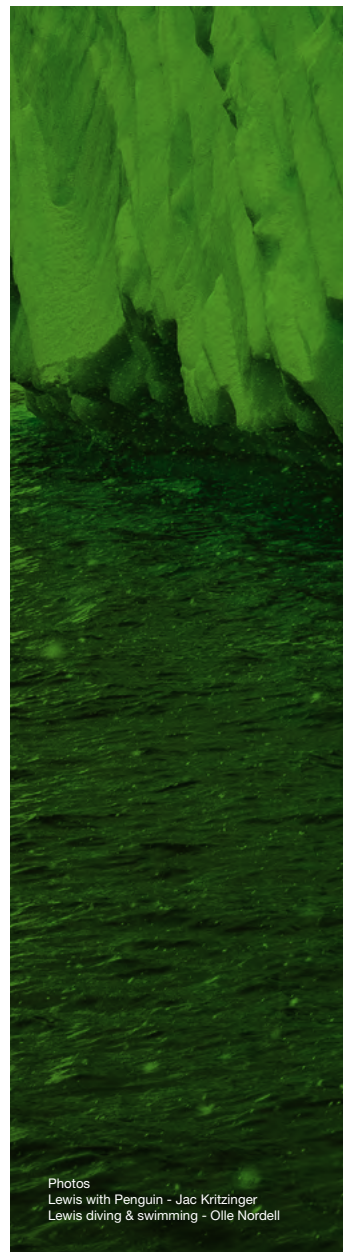
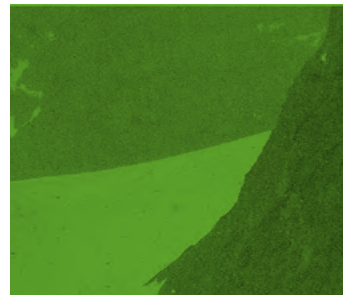
Q | In your capacity as UN patron of the oceans, you are aiming to protect 30% of oceans by 2030. How much progress is being made?

We now have 117 signatory countries. We are way past the halfway mark so it's very exciting. That said, some big countries like China, Russia, Argentina and Brazil haven't signed up while others with major coastlines like South Africa haven't committed either. There are often competing interests like mining or the fishing industry acting as a barrier. Governments may issue fishing licenses to foreign fleets creating a reluctance from Treasury to protect these areas.

Less than 2% of oceans worldwide are fully protected. In the UK, less than 7 square kilometers is fully protected and recently the government talked about opening up more drilling in the North Sea.

Q | You have been described as a human polar bear for swimming in sub-zero temperatures. What would that bear be most concerned about?

It's clear that our oceans are under threat and three factors have come together to create a perfect storm: overfishing, pollution and the climate crisis. My first big swim was Robben Island to Cape Town in 1987 and on the beach were thousands of African penguins. Penguins are an indicator species. You can count them and they'll tell you what's going on in our oceans. Penguins are expected to be functionally extinct on the West coast of South Africa



Photos
Lewis with Penguin - Jac Kritzing
Lewis diving & swimming - Olle Nordell



"I'm 52 and in my lifetime
we have lost nearly 70%
of the world's wildlife"



in the next 15-20 years due to overfishing, pollution (an oil slick can wipe out a colony) and the climate crisis as prey disappears so they need to migrate for food.

These three elements are everywhere. We have to reduce pressure on wildlife by banning fishing and oil tankers in certain areas. It's essential for replenishing life in oceans.

I have been swimming in the Arctic for 18 years and each year I see the sea ice melt and get thinner. For polar bears, ice is life. We can protect 100% of the world's oceans but unless we tackle the climate crisis, the Arctic and places in the Himalayas will melt and that will impact all the animals that live there. It raises the issue of justice between humans and the animal kingdom. I can't imagine a world without polar bears – that would be incredibly sad.

Q | Why do you swim in speedos and how do you bear it?

In September, I returned from Greenland where I did a 12 day swim in water so cold that when I opened the curtains on our boat, I could see icebergs going past. The cold burns your skin, it's very painful. I swim in speedos to encourage world leaders to be courageous. The science shows that we only have a few years to get it right. For many people in the world, the climate crisis is happening now.

Q | UN climate science body, the IPCC, recently said that the Arctic will be ice-free in the summer months by 2050. What are the implications if that comes to pass?

That may be too conservative. To the north of Norway is an island called Spitzbergen that's 1000 kilometres from the North Pole. In the summer of 2005 I did a swim there and the water was 3C. I returned 12 years later and the water was 10C.

Ice is essential for life on earth as it cools our planet. The Albedo affect means ice reflects sunlight and when it's gone, the sea, which is very dark, will absorb more light, speeding up the climate crisis.

Q | Has Russia's invasion of Ukraine helped to accelerate green energy?

I hope the world realises that we need to get off oil and gas as quickly as possible. Countries need energy security and renewable energy is the way to do that.

Q | How do you respond to those who say that we can't just turn off the taps as renewables need time to scale up?

I've heard these arguments that we need a slow transition for many years. When organisations are suggesting a long transition, they are not understanding the gravity of the situation.

Last year in Greenland across the face of the Ilulissat glacier, which is moving at a speed of 40 metres per day in summer, we saw a mass calving – the process by which ice breaks off a glacier. Within a few hours icebergs were floating 100 kilometres out to sea. When people talk about a slow transition, you realise they haven't seen the speed at which change is taking place.

Every leader is prepared to make promises for 2050 and some are making them for 2060 and beyond. Targets need to be much shorter and more ambitious if we are to keep up with the speed of change.

Q | What can the finance sector do to make a bigger impact?

I would urge every sector in finance to wake up each morning and ask what they can do now to tackle the climate crisis. They can invest in renewables and divest from what endangers the environment. We need more financing for blue and green projects.

Q | What can ordinary people do to tackle climate change?

Every single purchase we make each day is a decision about our future: the clothes we wear, the food we eat, how we get to work and how we invest our savings. I'm urging people to take responsibility for these decisions and look for the most environmentally friendly options.

Q | Who is your sustainable hero and why?

There's a young barrister in India called Afroz Shah who lives in a small apartment overlooking Versova beach in Mumbai where plastic pollution was up to his shoulders. He was frustrated with the municipal council's approach to tackling the problem so he went to clean the beach.

Over the first weekend, two people helped out, then four and eight and after 6 months the plastic pollution had drastically reduced, but it was still up to his shins. He brought in lorries and encouraged people across Mumbai to take part.

They have been doing that now for 6 years. Afroz Shah is there every weekend, while during the week he's doing his day job at the Mumbai high court.

World leaders have come to the beach to see how one person is single-handedly leading a movement. Recently, turtles have reappeared at the beach, highlighting what an inspired community can achieve.

I'd also mention Archbishop Desmond Tutu. He recently passed away but he was always so acutely aware of the defining issues of our generation. For him it was apartheid, HIV, and women's rights. In his later years, it was the human rights issue of the environment.



“I would urge every sector in finance to wake up each morning and ask what they can do now to tackle the climate crisis”

Modern Farming

Kathy Valiasek is CFO at Local Bounti, a controlled environment agriculture (CEA) company. The firm is pioneering modern methods of farming that reduce food waste and food miles while using less of the planet's precious resources. Kathy takes inspiration from labor leader and activist Dolores Huerta, who championed farm workers' rights in the 1950s.

Q | What first sparked your interest in sustainability?

I remember as a kid, my Dad made us recycle all of our bottles and cans. And of course back then, (fifty years ago!) there was no method by which the trash folks picked up recycling. So every week, I'd ride with one of my older siblings to deposit the bottles at a recycling facility half an hour away.

A vested interest in sustainability is something that is important for all of us. For me, it became apparent that the current state of agriculture needed to change in a major way to feed the world and protect our planet. This was a major reason why I was so compelled to join the Local Bounti team. Sustainability is at the core of everything we do. We started with an end in mind: a strong focus on our communities, our employees, and the environment.

Over the course of my 25 year career, I have consulted for many different companies on large scale M&A and also helped companies wishing to go public. Prior to Local Bounti, I was CFO at Amyris, a sustainable synthetic biology company. It's at the heart of who I am as an executive that the first thing I look for and care about is that the firm I'm joining and leading from a financial perspective, is making a difference to the health of the planet and the population.

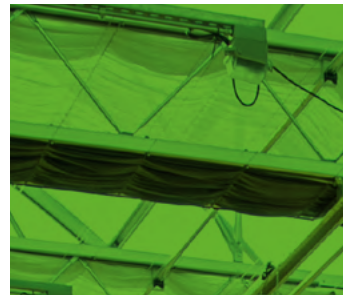
Q | How are you advancing change in your role as CFO of Local Bounti?

My role at Local Bounti is to ensure that every area of the company has the financial resources it needs to deliver on our vision — to nourish humankind and protect our planet. That means ensuring our facilities can grow the freshest, safest, and most delicious produce possible. It also means ensuring alignment between our financial and ESG metrics. I see our ESG reporting standards as very similar and directly aligned with our financial reporting. Our team treats ESG commitments as supportive of our financials. Examples include everything from minimizing impact on the environment in our supply chain and equipment selections, to providing the same HR benefits to all employees regardless of position, to providing a 'living wage' to the folks in the facilities and implementing best practices in corporate governance. It is our duty to ensure full transparency in the reporting of our sustainability efforts.

Q | What's the addressable market for CEA and what's the growth potential?

First, it's really important to understand the imminent dilemma we are facing. Scientists have broadly warned that in just 27 years, due to shortages of water, land and energy, and increased demand from population and economic growth, there will be a global food shortage. By 2050, the world will need approximately 70% more food to feed the global population, which is expected to near 10 billion people. There simply will not be enough arable land and water for traditional agriculture to meet these needs.

At Local Bounti, we developed Stack & Flow Technology® – an innovative new hybrid method of indoor farming that combines the best of vertical and greenhouse farming – to grow healthy food sustainably and affordably. Through this process, Local Bounti can grow produce in an environmentally friendly manner that increases harvest efficiency and reduces the cost and carbon footprint of the production and distribution process. The technology is over 30





“By 2050, the world will need approximately 70% more food to feed the global population, which is expected to near 10 billion people”

times more productive per acre than traditional agriculture. As our technology develops further, I have no doubt that Local Bounti will play a major role in bridging this gap and ensuring food security for our planet. We believe that with a strong focus on unit economics, and a profitable and sustainable business model, CEA has the opportunity to displace traditional agriculture. We are targeting the \$30 billion U.S. produce market for vegetables and leafy greens.

Q | What are the biggest challenges you face in reducing food miles?

Ultimately, I believe this is connected to the massive waste problem that the current state of agriculture is facing. As it stands, up to 40% of produce doesn't even make it out of the fields due to poor quality. These piles of unused produce are a massive contributor to greenhouse gas emissions. On top of this, the product that does make it out, is long-hauled across the country. 10-30% of product spoils at the grocery store before sale, and when it does hit consumers shopping carts, there are only a few days of shelf life left — this is why we see so much spoilage in our refrigerators. Food waste in the U.S. alone is estimated at 30 to 40 percent of the food supply, the equivalent of more than \$160 billion annually.

So, the problem is really two-fold, and we are focused on solving both. First, by providing a superior product that is fresh and lasts for weeks, not days. Second, by locating our facilities regionally, and closer to the consumer, ensuring that we dramatically reduce fuel consumption and product degradation.

Q | How do you mitigate the potentially high energy costs associated with CEA methods?

This goes back to the core of the Local Bounti story. Our co-founders Craig Hurlbert and Travis Joyner originally set out to make an investment in the CEA space, but they couldn't find a suitable business to invest in. They quickly realised that vertical farming, while high-yielding, also required extremely high capex and opex. Alternatively, greenhouse farming showed promise with lower costs, but was also much lower-yield.

Founded on the thesis of high yield and low cost, our stack and flow technology was born. It uses a combination of vertical farming and greenhouses. Due to our maniacal focus on solving for strong unit economics, we were able to unlock a growing system that maximized yield while mitigating costs, especially around energy usage. Our model is disrupting the indoor farming sector and the more efficient it gets over time, the more cost efficient and sustainable our process becomes.

The energy cost of a CEA environment is higher than traditional agriculture but because the vertical aspect is such a low percentage of our overall farm and our food miles are so much lower, it's not significantly different.

We also use primarily low carbon electricity and strive to be leaders in minimizing our usage of water, electricity, natural gas, fertilizer and other commodities. Our focus on sustainability at our facilities helps to ensure we consistently produce high quality food that maximizes nutritional value and taste.

Q | Do you have plans to scale up your facilities globally?

Our recent acquisition of Pete's, a California-based indoor farming company, has solidified our position as a leader in the CEA sector with the largest national footprint. Totalling 10,000 retail grocery stores coast-to-coast, our retail partners now include America's largest grocers, including AmazonFresh, Albertsons, Kroger, Target, Walmart, and Whole Foods.

Looking forward, we are poised to broaden distribution and grow rapidly. We are actively reviewing expansion opportunities and assessing a pipeline of future facility locations.

To get to the heart of the question, the sky's the limit. Whether that means expanding into new categories beyond leafy greens, or taking our technology global, all options are on the table. It's

a very exciting time for us. My background is working for global companies, and one of the reasons I joined Local Bounti was to help create a strong global business. We want to be local in more places, and I want to help bring high quality, sustainable produce to more markets. I see us having a substantial impact on how food is brought to families' tables around the world.

Q | What has been your experience of going public and would you advise other innovative growth companies to do the same?

We are listed on the New York Stock Exchange under ticker LOCL. Going public offered Local Bounti an efficient way to raise significant capital and fund our accelerated growth plans. We strategically built a strong management team within the firm that has deep experience in the public markets and extensive relationships, which greatly helped us in the process.

If you have the right talent and experience within the company I think that going public offers a lot of great benefits.

In a rapidly emerging CEA space with a large market to capture, we knew that becoming a public company would help separate us from the clutter and position us as one of the real leaders. Other benefits include the ability to offer liquid equity compensation to employees and the greater visibility that comes with being a publicly traded company. On the flipside, you have more obligations such as SEC filings. In the current market, a lot of private money is chasing CEA opportunities but overall, we think it's good to be public.

Q | Who is your sustainable hero and why?

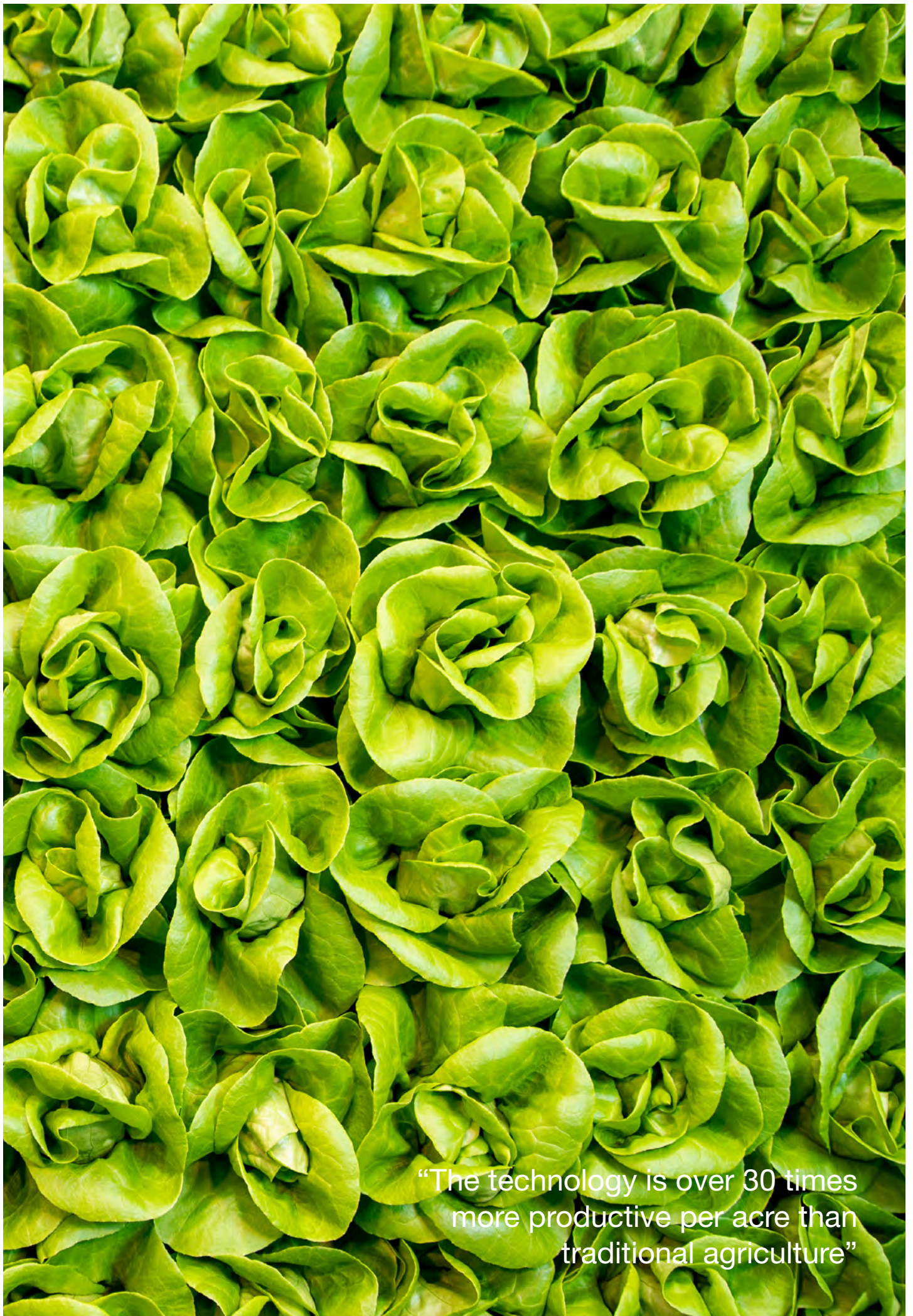
First, my Dad for the reason I mentioned earlier.

The other prominent person for me is Dolores Huerta as she epitomises what it means to be a hero. Since the 1950's, Dolores was a pioneer in advocating for fair treatment and pay of farm workers. It's sad to think about how marginalized many of our farm workers have been. They are paid extremely low wages, do back-breaking work in harsh temperatures and have a complete lack of base level benefits. Dolores really paved the way for a new generation of farming, putting an emphasis on the workers' well-being.

The first day I met with Craig and Travis, they said we have a flipped org chart. The most important people are our front-line workers. We strive to be as dedicated as Dolores, which is a big part of why we have established a culture that's hyper focused on the needs of our front-line employees who truly make what we do possible. That means a living wage.

So, while we have big goals and an accelerated business plan to execute on, we always have to remember what is most important — our people. Dolores is a great example of fighting for what matters and I'm proud to be part of a company that is helping ensure we make this industry better than we found it.





“The technology is over 30 times
more productive per acre than
traditional agriculture”

The Future Heroes

This magazine intends to showcase our sustainable heroes and heroines by celebrating their achievements and providing key insights into how they are shaping our future.

We look forward to partnering with you!



Jeff McDermott



Derek Bentley



Anoop Chaudhry



Laurent Dallet



PJ Deschenes



Andrew Horn



Michael Horwitz



Olav Junttila



Kan Kelshikar



Takaki Kobayashi



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Diego Mahecha



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Daisuke Miyazaki



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Damien Sauer



Alex Stein



Franco Trovo



David Verbitsky



Duncan Williams



Niul Wood



Alex Wotton



Enrico Zini



Ice is Essential for Life
Lewis Pugh, UN Patron of the Oceans & Endurance Swimmer

Lewis Pugh is an endurance swimmer, environmental campaigner and UN patron of the Oceans. He is the first person to complete a circumnavigation of the world's oceans.

The Green Pivot
Patrick Pouyanné, CEO, TotalEnergies

Trash to Treasure Solutions
Meghan Sharp, Global Head, Decarbonization Partners

Insect Effect
Clément Ray, CEO and Co-Founder, Innovalife

Modern Farming
Kathy Vallasek, CFO, Local Bounti



Green Leaders
in Focus



The Green Pivot

Patrick Pouyanné, CEO,
TotalEnergies

Patrick Pouyanné is CEO of TotalEnergies, the French energy giant. Patrick is planting the company away from oil towards renewables. He is a key believer in the untapped potential of offshore wind.

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SUSTAINABLE HEROES

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in Focus

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Kathy Valiasek, CFO,
Local Bounti

Kathy Valiasek is Chief Financial Officer at
innovative precision agriculture (CFO) Local
Bounti.

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Trash to Treasure Solutions

Meghan Sharp, Global Head,
Decarbonization Partners

Meghan Sharp is Global Head of Decarbonization
Partners which invests in companies with high
potential decarbonization solutions and technologies.

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