



**04 COP 26.
Journey to
Net Zero**

**08 Hydrogen
fuel of the
future**

**10 Carbon
capture
& storage**

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INEOS

THERE is no doubt that we are in unprecedented times. Nothing is more pressing today than climate change. The world is at a crossroads. It has to decide how it wants to live in the future.

Never has it been more important for people to understand how fundamental the chemical industry is to modern life and to tackling the global issues we all face.

It touches almost everything in our lives – our phones, our clothes, homes, transport and healthcare. One cannot exist without the other.

Despite that, we know change is coming and we are reshaping our business.

We understand the challenges facing the world, now and in the future, and are clear about our role in addressing those challenges.

An energy transition is underway, calling for a joined-up, holistic approach in how to move away from fossil fuels towards alternative energy sources such as solar, wind and hydrogen.

Chemistry is our business, and our chemical products and processes will play an essential part in this transition.

Climate change and the circular economy are the cornerstone of our strategy and we remain focused on an innovative approach to recycling and renewables.

Following the Paris Climate Agreement of 2015, most nation states have set the goal to achieve a net zero emission economy by 2050, and are adopting regulations and legislation to support this.

This edition of INCH looks at some of the plans and actions INEOS businesses have put in place to ensure that they make the transition to a net zero economy by no later than 2050, whilst remaining profitable, and staying ahead of evolving regulations and legislation.



Green transport

INEOS is working with Wrightbus, the world's first hydrogen-powered double decker bus, to showcase hydrogen as fuel of the future.

The StreetDeck Hydroliner from Wrightbus is equipped with a hydrogen fuel cell powertrain and its battery pack can store up to 48KWh that allows the bus to travel up to 280 miles, emitting water rather than carbon dioxide as it goes. It was designed to meet the demands of both bus drivers and passengers. The bus has been developed as part of the JIVE project funded by the European Union (Joint Initiative for Hydrogen Vehicles Across Europe).



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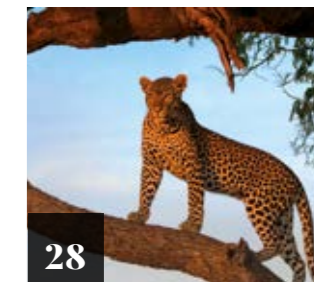
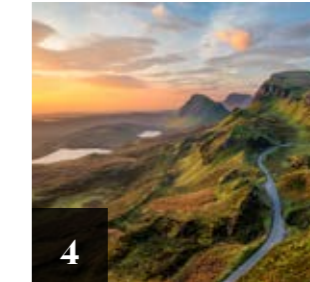
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04 Net zero 2050

06 Our journey to net zero

08 Hydrogen fuel of the future

10 Carbon capture & storage

14 yCEN

18 Roadmaps to a better future

20 Platinum and gold awards for sustainability

21 Recycling world first

22 Keeping cool in a crisis

24 Polystyrene unpacked

26 Call of the wild

30 The Daily Mile's team appeal

Net zero 2050

As world leaders gather in Scotland for November's crucial COP26 climate change summit, Sir Jim Ratcliffe reinforces INEOS' own commitment to achieving net zero emissions by 2050.

'Following the Paris Climate Agreement of 2015, most nation states have set the goal to achieve a net zero emission economy by 2050, and are adopting regulations and legislation to support this.

In response, INEOS businesses have put in place roadmaps to lead the transition to a net zero economy in our industry by no later than 2050, whilst remaining profitable, and staying ahead of evolving regulations and legislation.

Based on these roadmaps, we are setting ambitious, but achievable, targets for 2030, which are in line with our 2050 commitment. We expect to publish these shortly.

Actions and improvements are already in hand.

We will reduce emissions for each kg of product by 10% by no later than 2025, and we are investing over 3 billion euros over the next five years to reduce our footprint further.

As part of this effort, we are also investing in new products and technologies to drive the industry to a circular economy, in which materials are re-used to the maximum extent, and no products, once used, enter the natural environment.

The products we make are essential for a myriad of applications on which society relies.

That is why governments worldwide regard the industry as a critical industry, as we have seen during the recent pandemic.

The range of applications includes the following:

- health and medical devices
- clean water
- food conservation and preservation
- renewable energy technologies
- lighter energy saving materials for transport and mobility
- affordable clothing and apparel
- construction & transmission of water and gases
- electrical insulation
- household and electrical goods.

Our products are essential because, based on performance, affordability, and environmental footprint, they are the best available materials for the applications concerned.

In some cases, especially in the medical sphere, they are the only available materials.

INEOS is part of the solution to the challenges the world faces, and we look forward to achieving a net zero economy whilst continuing to deliver products which are essential to society.'

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What is net zero?

Net zero refers to the balance between the amount of greenhouse gas produced and the amount removed from the atmosphere. We reach net zero when the amount we add is no more than the amount taken away.

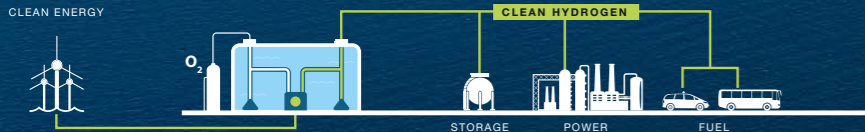




20MW ELECTROLYSER:

INEOS business INOVYN, plans to build a 20MW electrolyser to produce clean hydrogen through the electrolysis of water, powered by zero-carbon electricity. This project will lead to a minimum reduction of an estimated 22,000 tonnes of CO₂ per year by reducing the carbon footprint of INEOS's operations in Norway and serving as a hub to provide hydrogen to the Norwegian transport sector.

CLEAN ENERGY



Our journey to net zero

THE journey to net zero by 2050 will not be an easy one for INEOS. It is an efficient manufacturing company, but the manufacture of vital raw materials for clothing, medicines, electronics, cars, planes and buildings is energy-intensive. Its products are also used to build wind turbines, solar panels and other renewable technologies. And all that comes at a cost to the environment.

"Our industrial processes require a certain amount of energy and give off CO₂," said INEOS chairman Sir Jim Ratcliffe. "That's the reality. You cannot have one without the other."

The company recently published its first-ever group sustainability report, pulling together data from all its businesses across the world.

"It was a mammoth task," said Communications Director Tom Crotty. "But we needed to see where we are globally, so that we can clearly see what needs to be done."

And changes to cut carbon emissions, produce more sustainable products, and find alternatives to fossil fuels are already afoot.

It has started replacing gas and oil, where it can, with renewable materials to make its products.

It is working in partnership with pioneering recycling companies to reuse plastic waste.

It is reinvesting its profits in state-of-the-art manufacturing plants to improve their efficiency, which will cut carbon emissions.

It has started sourcing energy from wind, which will reduce its carbon footprint by more than one million tonnes of CO₂.

It is exploring ways to capture and permanently store carbon emissions underground in decommissioned oil wells, saving millions of tonnes more.

It is investigating the possibility of mixing captured waste carbon dioxide with sustainably-generated hydrogen to produce methanol, a chemical widely used in everything from clothing to fuel.

And it is pushing for an economy fuelled by green hydrogen, which produces zero emissions.

"INEOS is aiming to contribute by not only decarbonising energy for its existing operations, but also by providing hydrogen that will help other businesses and sectors do the same," said Geir Tuft, CEO of INEOS business, INOVYN.

Chris Stark, CEO of The Committee on

Climate Change, which advises the British government on what it needs to do to achieve its climate change goals, believes INEOS has an important role to play in helping to create a hydrogen-powered, low carbon economy.

In a recent interview with INCH magazine, he said: "INEOS will be with us on this journey. It just needs to make sure it explains its role in the climate change debate so the public understands too."

'INEOS will be with us on this journey. It just needs to make sure it explains its role in the climate change debate so the public understands too'

— Chris Stark, CEO of The Committee on Climate Change

INEOS knows what needs to be done and it's in it for the long haul

NET ZERO 2050

ENERGY TRANSITION

As the world looks for cleaner, alternative forms of energy, INEOS is investing millions in a range of projects aimed at drastically cutting CO₂ emissions. Green hydrogen will be a key focus, so too will be carbon capture and storage. And both opportunities will lead to new jobs.

NET ZERO 2050

ROADMAPS

Ensuring its plants are run as efficiently and safely possible is INEOS' highest priority. It underpins its licence to operate. To achieve net zero by 2050, each site has now devised a roadmap, looking at six, key areas where changes could be made to reduce emissions.

NET ZERO 2050

CIRCULAR ECONOMY

INEOS is focused on creating a circular economy to prevent billions of tonnes of plastic ending up in landfill. Throughout the INEOS group, businesses are developing several technologies in parallel, each suited to the different plastic which is collected, and it has already launched over 25 different products containing recycled plastic.

NET ZERO 2050

SAFE SUSTAINABLE PRODUCTS

From polymers to medicines to mobile phones, chemicals manufactured by INEOS enhance almost every aspect of modern life. Working with our customers, we produce safe and sustainable products that also help society to meet net zero by 2050.

Net zero 2050

HYDROGEN

FUEL OF THE FUTURE

NET ZERO 2050 ENERGY TRANSITION

INEOS backs a hydrogen-powered economy

HYDROGEN is being championed as the fuel of the future. And the call for change is no longer just coming from industry which has been using it in vast quantities for more than 40 years. Governments are warming to it too, and realising that a net zero economy by 2050 will be impossible without it.

Hydrogen produces zero emissions when burned as a fuel, it can be more efficient than fossil fuels and is the most abundant element in the universe. It even powers the sun.

As a company, INEOS is in a unique position to fuel a hydrogen-powered economy.

Its business, INOVYN, has been producing hydrogen as a co-product for more than 100 years.

INEOS, though, is prepared to significantly invest in developing green hydrogen across Europe.

Switching to hydrogen would also help to tackle the biggest root cause of climate change: air pollution.

INEOS recently launched a new hydrogen-focused business which has just one aim: to cut CO₂ emissions.

That business will be focussing on ramping up production of clean hydrogen across Europe, not only for its own sites, but critically for other industries seeking affordable, low-carbon energy.

In Norway, it is building a water electrolyser to help support the country's drive to save more greenhouse gases than it generates by 2040.

Zero-carbon electricity will be used to produce clean hydrogen through the electrolysis of water at its chemical manufacturing site in Rafnes.

The investment will not only lead to a reduction in its own CO₂ emissions, but it will also produce enough additional clean hydrogen each day to fuel up to 400 buses or 1,600 taxis.

And in Belgium, INEOS and ENGIE have carried out industrial-scale tests at INEOS Phenol site in Doel to see whether hydrogen can be used to replace high proportions of natural gas.

"We believe in hydrogen as a key link to a carbon-neutral economy, and will be counting on the expertise and support of INEOS, which we see as a key partner in the energy transition,"

said Cedric Osterrieth, CEO ENGIE Generation Europe.

The two companies are also heavily involved in an ambitious project to use captured waste carbon dioxide with sustainably-generated hydrogen to produce methanol, a chemical widely used in everything from clothing to fuel.

Methanol is currently produced using fossil-based raw materials and, in the process, gives off CO₂.

If the new process works well, each tonne of methanol produced would reduce CO₂ emissions by at least one tonne, per tonne of methanol. But those are just two of many projects.

INEOS chairman Sir Jim Ratcliffe wants INEOS to be at the forefront of change. "Hydrogen really is the fuel of the future," he said.

"We believe in hydrogen as a key link to a carbon-neutral economy, and will be counting on the expertise and support of INEOS, which we see as a key partner in the energy transition"

– Cedric Osterrieth,
CEO ENGIE Generation Europe

Carbon capture & storage

INEOS is heavily involved in four carbon, capture and storage projects to capture and permanently store millions of tonnes of carbon dioxide from industry.

These projects have the potential to make a significant contribution to our understanding and growth of carbon storage technology, whilst supporting Europe's wider CO₂ emission reduction targets for 2030 and beyond.

FOSSIL fuels have fuelled human progress over the past 260 years. But the world is demanding change. Around the world industry is under pressure to break its dependence on oil and gas and find renewable alternatives. And INEOS is responding to the challenge.

INEOS is already making inroads – in exploiting low carbon technologies, cutting emissions and improving the energy efficiency of its plants.

But it is also heavily involved in carbon capture and storage projects in Europe and the US.

At Grangemouth in Scotland, INEOS and Petroineos are an integral part of the Scottish Cluster, partnering with the Acorn Project to capture and store up to one million tonnes of CO₂ by 2027.

The site is also working to develop Scotland's first carbon capture and storage system, linking Scotland's industrial heartland to the Acorn CO₂ transport and storage system in North East Scotland.

In Antwerp, Belgium, INEOS is part of the Antwerp@C consortium to investigate the technical and economic feasibility of building CO₂ infrastructure to support future carbon capture utilisation and storage.

The project has the potential to reduce CO₂ emissions by nine million tonnes between now and 2030.

In Houston, Texas, INEOS is one of 11 companies supporting the large-scale deployment of carbon capture and storage technology that could lead to capturing and permanently storing up to 50 million tonnes of CO₂ per year by 2030 and about 100 million tonnes by 2040.

GREENSAND CARBON CAPTURE

Consortium members have recently agreed to back the Greensand, carbon storage pilot project, led by INEOS, in support of Denmark's ambitious 70% CO₂ reduction targets by 2030.



The potential for the Greensand project to store up to 8 million tonnes of CO₂ per annum will contribute significantly to Denmark's 2030 overall emissions reduction target



And in Denmark, INEOS Greensand is the first project of its kind in Europe to use enormous gas reservoirs under the North Sea for the permanent storage of carbon.

The Danish project has the potential to store up to eight million tonnes of CO₂ every year in the INEOS-operated Siri and Nini areas as they cease production.

As INCH went to press, the Greensand consortium was poised to file a grant application with the Energy Technology Development and Demonstration Program in Denmark.

If the application is successful, the consortium hopes to start work by the end of this year, with the offshore injection pilot taking place in late 2022.

"Greensand has brought together a strong consortium of 29 companies," said Mads Weng Gade, Head of country, Denmark and Commercial Director INEOS Energy. "They are key players from Denmark and around the world."

The project will permanently store up to 90% of CO₂ from power plants, steel foundries, and cement plants.

It will be captured onshore and transported to an offshore platform by ship.

From there, using the existing oil platform, the CO₂ will be injected in liquid form into the reservoirs more than a mile below the seabed where it will naturally fill the empty oil and gas wells.

Brian Gilvary joined INEOS earlier this year as executive chairman of its new business INEOS Energy and is a man with a wealth of experience in the energy industry.

He believes energy-intensive industries must find a way to deal with the CO₂

emissions associated with climate change if they are to decarbonise their operations and ensure the survival of industries that the world cannot live without, such as power and heating.

"That's the big challenge for industry and also the planet," he said. "Because even when the world was completely shut down during the pandemic, it was still consuming over 80 million barrels of oil a day, and oil was still the primary energy source."

The Greensand project, he said, would significantly contribute to INEOS' understanding and growth of carbon storage technology – and help future ventures.

INEOS Chairman Sir Jim Ratcliffe wants INEOS to be at the forefront of the industry and believes Brian will provide the experience and leadership to achieve that aim.

"We are delighted that someone of Brian's calibre has agreed to join us at a time of significant transformation in the energy industry," he said.

Within months of Brian's appointment, he had worked with the team at INEOS Energy to reposition its assets.

That led to the transformational acquisition of all Hess' oil-producing assets in Denmark, and the sale of an INEOS-owned oil and gas business in Norway to open up fresh opportunities to further reinvest in the energy transition.

"Even by INEOS' standards, those deals materialised in a fairly short window," he said.

INEOS Energy now owns all Denmark's Syd Arne oil field and plans to

boost production over the next 20 years. It doesn't worry INEOS that Denmark intends to ban oil and gas exploration and production by 2050.

"We know there is no more exploration after 2050 but that's not what we are looking at," said Brian, BP's former financial officer. "What it does do is set a timetable for us to run these assets through to the life of the fields. Our production will be well finished by 2050."

What the deal with Hess also does is strengthen INEOS' position – and its ability to enter the next phase of the Greensand project.

Brian, who was recently awarded a lifetime achievement award by the Energy Council for his outstanding contribution to the industry, retired from BP last year.

But then INEOS came knocking..

"INEOS is an extraordinary, pioneering company and it's too exciting an industry not to be part of," he said.

He believes INEOS will play a crucial role in the energy transition – due to its assets, its technology and the drive and determination of its people to get things done.

"The oil and gas industry will be a big part of the solution to the issue of climate change," he said. "And INEOS will play an important role in this energy transition, be it providing energy through oil and gas over the next few decades, or in the future, through alternative energy solutions such as hydrogen and carbon capture."

He added: "It is a truly leading, technology company that will be able to compete across the spectrum of the energy transition."



\$150 million deal will reshape INEOS' energy business

INEOS Energy's decision to buy all Hess' oil-producing assets in Denmark will transform INEOS' fortunes in the North Sea. Executive Chairman Brian Gilvary said the \$150 million deal, agreed earlier this year, would:

- STRENGTHEN INEOS' portfolio
- IMPROVE its balance of oil and gas assets, which had been heavily weighed down by gas.
- PROVIDE opportunities for growth and UNLOCK operational and cost synergies.

"We had been in a position in Denmark where we either had to transform or get out," he said. "This deal represents a major step in reshaping our energy business."

It also means INEOS now owns all

Denmark's Syd Arne oil field and Hess' 4.8% stake in the INEOS-operated Solsort field.

The facilities will operate alongside the Greensand project, which passed its first milestone in November when DNV GL agreed that the underground gas reservoir could safely contain compressed CO₂.

More recently, 29 consortium members agreed to back Greensand's carbon storage pilot project, in support of Denmark's ambitious 70% CO₂ reduction targets by 2030.

"We are taking this step by step," said Mads Weng Gade, Head of Country, Denmark and Commercial Director INEOS Energy.

"We now have the consortium in place, and if we are successful in receiving ongoing support from the Danish Government and advisory board, Greensand will be able to take another important step forward in supporting the Danish Climate Strategy."

The potential to store up to 8 million tonnes of CO₂ per annum will contribute significantly to Denmark's 2030 overall emissions reduction target.

"We hope to demonstrate that you can grow an oil business provided you have a viable carbon capture business alongside it"

– Brian Gilvary, Executive Chairman of INEOS Energy

Ex-BP chief joins INEOS

INEOS is no stranger to Brian Gilvary. At BP, he was often involved in striking deals with INEOS.

Only last year, he led the negotiation with INEOS for the sale of BP's global aromatics and acetyls business for \$5 billion – and had enormous respect for INEOS' approach to securing a deal that worked for both companies.

"INEOS is commercially very savvy and I have seen the rigour that goes into a deal," he said. "But it also listens and understands the point of view of the other side. That said, I much prefer being on the same side of the negotiating table."

What's also impressed Brian since he became Executive Chairman of INEOS Energy is INEOS' obsessive focus on safety and its humility.

"INEOS is understated in many ways," he said. "The house style is one of delivery and then talking about successes and learning from things that have not gone so well."

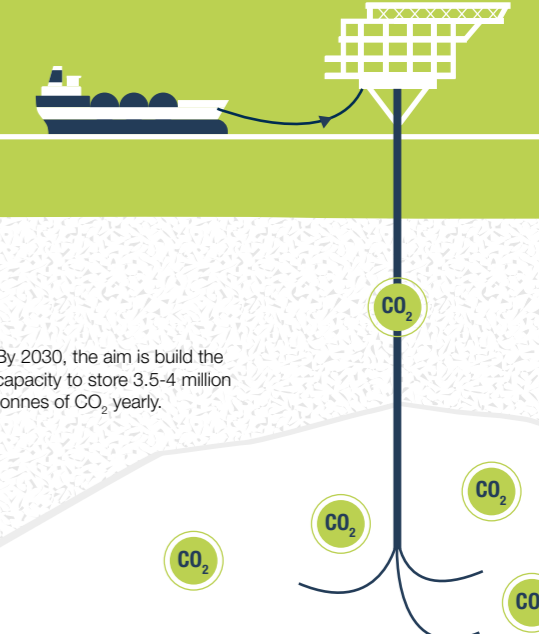
Brian spent 34 years at BP and helped to steer the company through some of its toughest times, including the 2010 explosion of a BP drilling rig in the Gulf of Mexico which led to the worst environmental disaster in US history.



Carbon capture technology can capture up to 90% of CO₂ from high intensity emitters.

CO₂ will be captured onshore and then transported to the off shore platform by ship.

CO₂ will be injected in liquid form into the geological reservoirs more than 1500 metres below the sea bed. The CO₂ will naturally fill the empty oil and gas reservoir and will be permanently stored below the sea bed of the North Sea.



CARBON CAPTURE PROJECT

Phase one of the Greensand project is already complete. The project may be capable of storing up to eight million tonnes of CO₂ every year in the INEOS-operated Siri and Nini areas, after those fields have ceased production

WWW.PROJECTGREENSAND.COM

By 2030, the aim is build the capacity to store 3.5-4 million tonnes of CO₂ yearly.

NET ZERO 2050 ROADMAPS

INEOS' brightest young minds are given a real voice to help shape the future of the company

Nothing today is more pressing than climate change. For years INEOS' Climate and Energy Network has driven sustainability higher and higher up the INEOS agenda. But the company recognises that it needs to take on the perspective of its younger managers. To ensure it has a bright future, INEOS has formed a group of young people who passionately believe that INEOS has an important role to play in tackling climate change. Meet yCEN.

FORMER First Lady Eleanor Roosevelt argued that the future belonged to those who believed in the beauty of their dreams. Former US president Barack Obama believed it belonged to young people with an education and the imagination to create. INEOS believes it belongs to all three.

It is now giving its young people a real voice within the company to look to the future. A real chance for them to make a difference to how the business continues to operate beyond 2025.

Its yCEN group, who are all under 35, is led

Continues overleaf >

Matthias Schnellmann
INEOS yCEN Team Leader
Business Development Manager
Hydrogen, INOVYN

I do feel empowered to make a difference. INEOS is a company that is built on challenge and it gives its people the scope and accountability to deliver.



Elfie Mechaussie
INEOS Group Energy Manager,
Europe

We are all part of the same generation so we have had the same exposure to the growing concerns that the world is facing. I really feel that my voice is heard.



Brendan Craggs
Mechanical Engineer,
INEOS UK

We are all passing on learnings to each other and we can put these into practice in our daily work. Working on sustainability projects is exciting and you feel empowered.



Paige Hoyt
Olefins Commercial Analyst,
INEOS USA

A lot of what we are talking about hasn't been done before. I feel this is going to be the future of working at INEOS and maybe the industry overall.



Ryan Stevens
Process Engineer, INEOS FPS,
UK

We have so many engineers, scientists and commercial people across the globe in many different businesses and you can learn so much just from speaking to people.



Megan Welch
Product Development Scientist,
INEOS O&P USA

'At INEOS, innovative thinking is not only welcomed, but encouraged. yCEN is a great initiative for the future of the company. As young professionals, we will be the ones to see out the success of the long-term sustainability plans currently being put in place.'



NET ZERO 2050 **ROADMAPS**

by Matthias Schnellmann, a 29-year-old with a PhD in chemical engineering.

Their brief is to come up with answers to some of the biggest challenges facing mankind.

And they are excited at the prospect. "There is no one-size-fits-all solution and certain trade-offs will need to be made," said Pieter-Jan Snoeck, energy and performance coordinator at INEOS Olefins & Polymers Europe, who is also part of yCEN.

"The best way to start is by reflecting, challenging each other's ideas and coming up with tangible solutions. The time to act is now, because INEOS has the right people to make this journey a success."

Greet Van Eetvelde, INEOS' global head of energy and innovation, described the formation of a young Climate and Energy Network group as an 'incredibly important development'.

"There is no short-term solution to the grand challenges ahead," she said. "We may be experienced, but it will be the young ones who take INEOS forward so we need to listen to them. INEOS' future starts now because we older ones will not be around when the full impact hits."

Matthias sees a very bright future for INEOS and, more importantly, one that he can now influence from inside the company.

"I am incredibly excited to be working with a group of motivated colleagues to address the grand challenges that we face," he said.

That doesn't mean the road ahead is going to be easy, he says. It isn't.

"I am humbled by the challenge, both the scale of it and the speed at which we need to address and overcome it," he said.

"But at the same time I am optimistic since there are examples of past challenges that humans succeeded in overcoming. The development of COVID-19 vaccines is a prime example."

He is confident in INEOS, the company he joined in September 2019 after finishing his post-doctorate at the University of Cambridge in the UK.

"The chemical industry will be a key pillar of our transition to a climate neutral future and it's already playing a vital part, by manufacturing the essential products for renewable technologies and zero emission vehicles," he said.

"It is fundamental to our modern life. People often don't realise that there is a huge link between the chemical industry and almost

everything they touch, be it their iPhone, their clothes, the credit cards in their wallet or the toothpaste on their toothbrush."

In other words, modern life would be primitive, lacking almost everything we take for granted.

INEOS, which employs 26,000 people around the world, makes products that matter. Its plastic packaging protects and preserves food and drink.

Its PVC helps blood to be stored for longer. Its solvents are used to make insulin and antibiotics.

Its chlorine purifies 98% of the UK's drinking water.

Its acrylonitrile is the essential raw material for carbon fibre, which makes cars and aircraft lighter, stronger and more fuel-efficient.

"INEOS is consciously aware of the need to change," said Matthias. "And it is not afraid of it."

Over the past 10 years it has been working behind the scenes on successfully reducing its impact through its Climate and Energy Network (CEN), which feeds and fans debate across the group's sites.

At the recent, three-day annual meeting, about 130 people from across the company – chairmen, CEOs, managers and climate and energy experts alike – tuned in every day to learn what their colleagues were doing to cut carbon emissions, switch to recycled and bio-based raw materials, reuse waste materials, reduce their dependence on fossil fuels and improve energy efficiency.

For those three days, the company focused on key issues such as climate and energy, the circular economy, where nothing is wasted, along with the production of safe, sustainable products that society needs.

"This isn't just a talking shop," said Greet. "We are taking a business-led approach to identifying opportunities for INEOS in this transition economy."

The annual gathering also saw the launch of the new initiative, yCEN, which will be driven by the young people whose very future depends on the decisions that are made today.

Its group leader Matthias has already got a growing and a very passionate young army behind him.

"Transitioning to a net-zero economy is essential, and we need to accelerate our action," he said. "However, our journey must be feasible technically, financially and socially."

"We can't change the laws of physics

and there are limits to how fast we can deploy renewable energy. Companies will need to invest in new technologies, which they can only do if they remain profitable."

The EU wants to remove at least the same amount of greenhouse gases from the atmosphere as it emits by 2050.

Matthias said it would be exciting to be at the forefront of INEOS' part in that transition.

"I think opportunities will naturally arise where we can make substantive contributions, particularly in an organisation such as INEOS, whose success is built on challenge, seeking new opportunities and giving its people the scope and accountability to deliver," he said.



Roadmaps to a better future

Routes may differ, but the destination is the same for all INEOS' businesses: Net Zero 2050

ROADMAPS are now being drawn up at every INEOS site. How the various businesses plan their route to net-zero may be different, but the end goal will be the same: to drastically cut CO₂ emissions by 2030 and 2050. "Our aim is to draw up realistic roadmaps and set achievable targets based on input from each business," said Greet Van Eetvelde, INEOS' global head of energy and innovation.

The roadmaps, which will lead to business investment plans, will help each business to identify areas for improvement and will be regularly updated.

Most of INEOS' sites, although energy-intensive, are already highly efficient.

Focusing on that alone will not bring the company – or the environment – any real big gains.

But switching fuels, using recycled or renewable raw materials or investing in carbon capture and storage could do.

"Having a solid, science-based method to draw reduction pathways and ultimately set emission targets that are achievable is how INEOS does business," said Hür Bütün, environmental data manager at INEOS who has been working on the carbon footprints of each site and the roadmaps.

"It leads our transition into a climate and resource neutral economy."

INEOS' plants in the Port of Antwerp were the first to adopt a roadmap.

Their goal is to stay ahead of EU climate targets as part of the transition to a net-zero economy.

"It is a dynamic document," said Greet.

The Antwerp roadmap – pulled together with help from Matthias Schnellmann – involve sourcing green power, capturing CO₂ for use, optimising processes, switching to outsourced, cleaner heat and investing in electrification.

Other INEOS businesses are also making progress – and devising their own roadmaps to best suit their business' set-up.

"We know that a one-size-fits-all approach will not work," said Greet. "But we have pockets of excellence so we can share best practice."

INEOS O&P has already started to reduce its dependence on gas and oil by using waste plastic to

make a new range of plastics that have been hailed as ground-breaking.

And some of its energy-intensive sites in Belgium are now being powered by renewable electricity instead of fossil fuels – a move that will cut INEOS' emissions by 1.9 million tonnes of CO₂ every year.

INEOS Phenol in Antwerp believes it has the potential to halve its emissions by 2030 compared to 2019, by sourcing clean power, using more hydrogen and steam, and finding a customer for residue it normally burns.

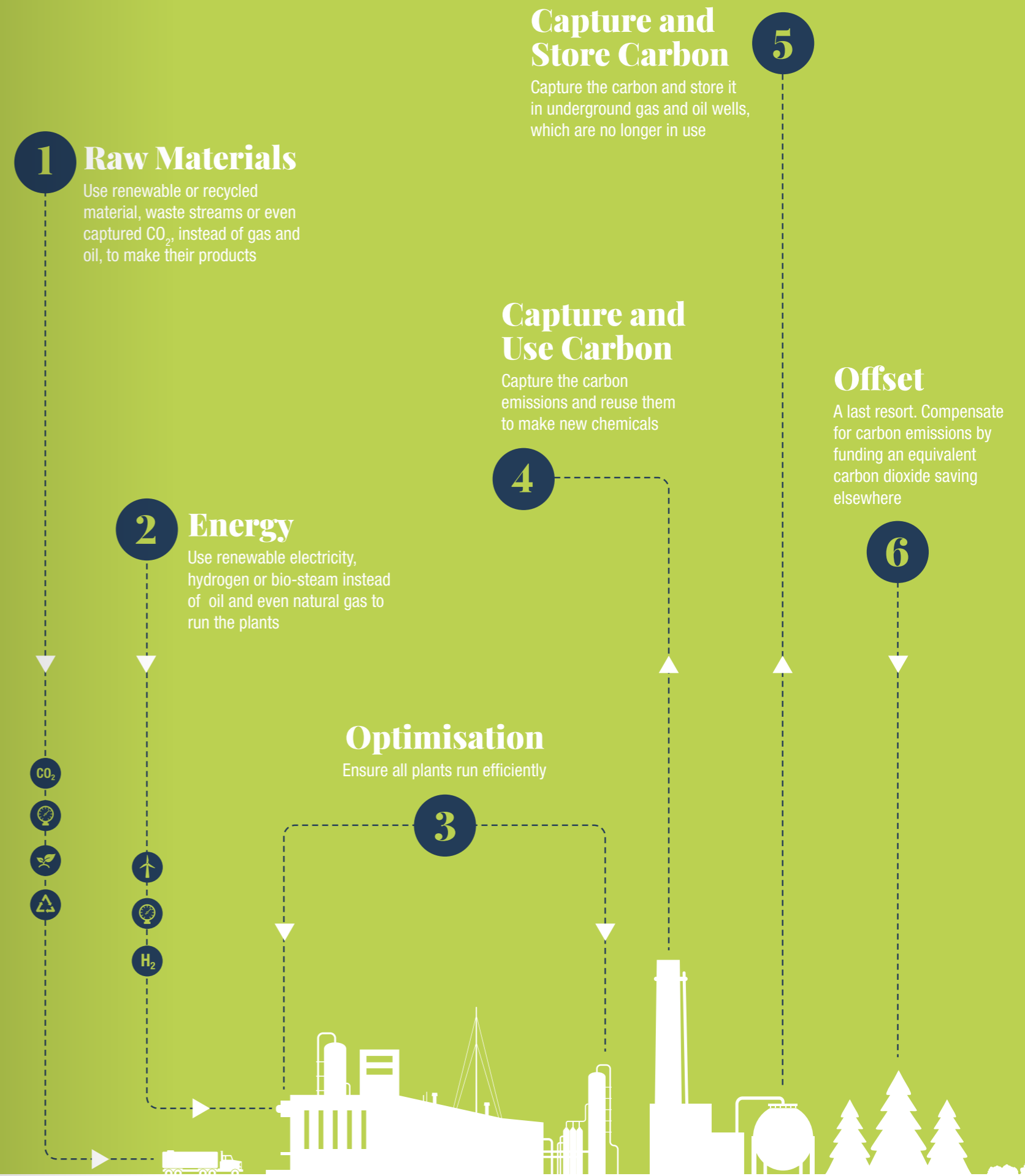
Each business is using the INEOS science base to calculate their current emissions and set out their future reductions.

Ultimately, though, the company will be working with the Science Based Targets initiative (SBTi) to validate the emission reduction in line with climate science.

"These targets provide companies with a clearly defined path to reduce emissions in line with the Paris Agreement goals," said a spokesman for Science Based Targets.

"We know that a one-size-fits-all approach will not work. But we have pockets of excellence so we can share best practice"

– Greet Van Eetvelde, INEOS' Global Head of Energy and Innovation



NET ZERO 2050 **SAFE SUSTAINABLE PRODUCTS**

Platinum and gold awards for sustainability

SUSTAINABILITY is a way of life at INEOS because it drives innovation. Doing good is also good for business. For over the years, it has become increasingly important to INEOS' employees, communities, customers and investors.

"It's our licence to operate," said sustainability officer Marie Casier. "And it is what our suppliers and customers quite rightly want to see."

INEOS Europe's rating has improved immeasurably since 2016 when it first asked EcoVadis to judge its commitment to building a more sustainable and environmentally-sound business.

Those improvements have led to gold and platinum awards in recent sustainability assessments by the independent organisation, which specialises in assessing the performance of companies globally.

INEOS Styrolution achieved a platinum award, placing it in the top 1% of the best-rated chemical businesses in the world while INOVYN and INEOS Europe AG achieved gold ratings, placing them in the top 4% of the 65,000 companies rated.

"We were especially recognised for our environmental performance, reflecting our commitment to carbon emission reduction targets and to recycling and the circular economy," said Marie.

This year INEOS has been collecting data from all businesses to make a group submission to EcoVadis.

It is hoped that the decision to introduce a group-wide Supplier Code of Conduct will be warmly received.

For the code sets out INEOS' position, in that it only wants to do business with suppliers – both upstream and downstream – who share a similar ethos on sustainability.

David Thompson, CEO of Trading and Shipping, led the procurement directors' group who produced the code.

"We work with thousands of suppliers

and we expect that they already adhere to most of the rules in the code," he said. "But what we hope to do is encourage them to also adhere to our safety standards and our expectations on protecting the environment."

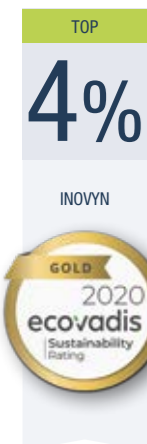
"It is way of also assuring all of our stakeholders that our suppliers are equally aligned with our own objectives."

The code is available in 24 languages, including Arabic, Russian and Mandarin, to ensure it is understood at INEOS' sites around the world.

Jacob Dossett, feedstock procurement manager for INEOS Nitriles, helped to draft the code.

"It summarises what we expect of everyone in our supply chain and we aim to reserve the right to terminate business with anyone who is unable to align with our expectations," he said.

Last year EcoVadis placed INEOS' European sites in the top 4% of the best-rated chemical businesses in the world.



NET ZERO 2050 **CIRCULAR ECONOMY**

Recycling world first

INEOS is to work with French dairy group Lactel to produce the world's first UHT milk bottles from recycled plastic. Initially 140,000 milk bottles will be made at Lactel's Montauban production plant in France, using plastic waste that has been turned back into high-density polyethylene using advanced recycling technology.

The collaboration is viewed by both companies as a major milestone on the road to creating a circular economy for the packaging industry.

Recycled plastics have, in the past, not been allowed to come into contact with food or liquid because second-hand plastics risk contamination, which can be dangerous for human health. This collaboration could help to change that.

"Using advanced recycling, we will be able to supply virgin quality polymer from recycled plastic that is ideal for even the most demanding food contact applications like milk," said Xavi Cros, CEO INEOS Olefins & Polymers Europe/South. "It's another big step in the right direction."

Lactel, which was founded in 1967, is the first dairy brand, in collaboration with INEOS, to explore a solution for UHT milk bottles.

"We are extremely excited to bring this new environmental innovation to our iconic milk bottles," said General Manager Anne Charles-Pinault.

INEOS will use advanced recycling technology to convert the plastic waste into raw materials for its European crackers.

Those raw materials will replace gas and oil. But the end result will be the same – high-density polyethylene of the highest quality that can be used by Lactel to make its UHT milk bottles.

Lactel's plant has already received the blessing of the globally-respected Roundtable on Sustainable Biomaterials.

It has certified that the bottles produced in this way will be compliant with food safety regulations and fully recyclable.

"This trial production of 140,000 milk bottles, based on HDPE from advanced recycling technology, is a world first and a major step forward for Lactel towards a circular economy"

– Anne Charles-Pinault, Lactel France General Manager





KEEPING COOL IN A COVID CRISIS

INEOS COMPOSITES' FIRE-RESISTANT RESINS ARE BEING USED TO MAKE FIBERGLASS REINFORCED SHELLS AND PANELS FOR THE SHIPPING CONTAINERS, WHICH ARE NOW KEEPING THE COVID-19 VACCINES COOL DURING THEIR JOURNEY TO SOME OF THE REMOTEST PLACES ON EARTH

C-Safe Global has a fleet of tailor-made, thermal shipping containers



Father-son duo invent hi-tech cooler

Keith Meyer and his son Chris, who witnessed needless suffering while working as missionaries in some of the poorest places on earth, inspired C-Safe Global.

Derakane® epoxy vinyl ester resin

INEOS Composites provides Composite Advantage with Derakane® epoxy vinyl ester resins which it, in turn, uses to make the fiberglass reinforced shells and panels for C-Safe Global shipping containers.

-70°C

C-Safe Global, which is working hand-in-hand with BioNTech's facility in Germany to ship the Pfizer-BioNTech vaccine around the world, says its containers can store medicines at -70°C for at least 10 days.

ABOUT 40 years ago, a father and son were working as missionaries in some of the poorest places on earth. They were assisting clinics where people were desperately in need of medical supplies.

But when those life-saving vaccines and medicines finally arrived, very often the journey had taken its toll, rendering them almost useless. Inadequate storage was also proving a headache.

As a result of being unable to keep those medicines cool, Keith Meyer and his son Chris witnessed needless deaths and suffering.

When they returned to Ohio in the US in 1979, they were determined to find a solution to keeping medicines cool during transit.

Keith quit his job at the YMCA and started VacuPanel with his son Chris. Together they developed a vacuum insulation panel to keep vaccines cold.

During the anthrax threats of the late 1990s, the US armed forces turned to their system to deliver anthrax vaccine to military personnel.

From there, they inspired C-Safe Global, the leader in cold chain supply logistics, and the company which is now transporting COVID-19 vaccines to the remotest parts of the world thanks to its fleet of tailor-made, thermal shipping containers.

C-Safe Global, which is working hand-in-hand with BioNTech's facility in Germany to ship the Pfizer-BioNTech vaccine around the world, says its containers can store medicines at -70°C for at least 10 days.

Those containers are now being flown around the world – even delivering vaccines from Germany to China.

"Maintaining the proper temperature for any vaccine is critical to ensuring its effectiveness," said Scott Reeve, President of Composite Advantage, which he founded in 2005 and is now part of the Creative Composites Group.

One of its first products were the lightweight fiberglass container shells that provide the structure for these containers transported by aircraft. C-Safe assembles the containers using the shells.

"When complete, it is similar to opening the doors to a nice refrigerator with an internal gel coat," said Scott. "The active cooling system ensures that products are not damaged

when there are flight delays due to weather or mechanical issues."

INEOS Composites provides Scott's company with Derakane® epoxy vinyl ester resins which it, in turn, uses to make the fiberglass reinforced shells and panels for C-Safe Global shipping containers.

"In order to pass Federal Aviation Administration requirements, we use a fire resistant resin," said Scott.

It's a relationship that has been nurtured for years by both Composite Advantage and INEOS Composites since the first containers were manufactured in 2006.

"Many of our customers are often smaller firms who lack resources for research and development, so INEOS extended its marketing and R&D support to Composite Advantage when they were starting out," said Thom Johnson, Business Manager at INEOS Composites.

"In return, Composite Advantage centred their product development around INEOS' resins. The result has been a long and fruitful relationship as both companies have grown in this market segment."

"Maintaining the proper temperature for any vaccine is critical to ensuring its effectiveness"

– Scott Reeve, President of Composite Advantage, which has been working alongside INEOS since 2006





The technology

The polystyrene waste is shredded and then fed into a thermal cracker where it is turned back into an oil, which is good as the original.



Polystyrene unpacked

Pioneering technology discovered to fully recycle material once deemed a plastic problem



UK-based Recycling Technologies Ltd are the brains behind the pioneering technology that will allow polystyrene to be used, and reused, over and over again without losing any of its quality.

FIVE years ago, environmentalists were calling for polystyrene to be banned. Greenpeace described it as a 'problem plastic' because it was 'very difficult' to recycle. But that was then; this is now.

Next year a pilot plant will be built in the UK to test whether polystyrene can be successfully recycled on a commercial scale.

If the trials with Trinseo and Recycling Technologies are a success, INEOS Styrolution will invest in a commercial, polystyrene recycling plant in France – and Trinseo will build one in Belgium.

UK-based Recycling Technologies Ltd are the brains behind the pioneering technology that will allow polystyrene to be used, and reused, over and over again without losing any of its quality.

"This business was born out of a global environmental crisis," said CEO and founder Adrian Griffiths. "We share a common sense of urgency and a burning passion for our planet."

Since it was formed in 2011, it has been developing the technology to recycle mixed plastic waste.

"Our core technology was initially targeted at polyolefins, but we started to adapt it to polystyrene for INEOS in 2018," he said.

For two years INEOS Styrolution has funded Recycling Technologies Ltd's research to find a solution to turn polystyrene back into a virgin oil. And it is research that has paid off.

Producing recycled polystyrene from polystyrene, instead of gas, will also lead to a significant reduction in greenhouse gas emissions.

"INEOS Styrolution and Trinseo are the two biggest polystyrene producers in Europe with whom we share the vision to make polystyrene a circular material," said Adrian.

Polystyrene has served society for almost 100 years and was one of the first polymers

to be used commercially.

Today it is used to package fresh food because it helps to reduce the amount of food being wasted.

But it is most widely used to package and protect white goods during transit.

Initially Recycling Technologies will be focusing on single-use polystyrene packaging, which makes up almost half of polystyrene uses.

But it will also be collecting and recycling dairy packaging, such as yogurt pots, food trays and vacuum-formed plastic cups.

"Historically polystyrene has been difficult to recycle for two reasons," said Adrian. "If it is only mechanically recycled, it cannot be

"Our core technology was initially targeted at polyolefins, but we started to adapt it to polystyrene for INEOS"

– Adrian Griffiths, CEO Recycling Technologies Ltd

used to package food again and secondly, polystyrene is not collected in the household recycling waste stream which makes it difficult to find."

But the three companies, which will be working together, are determined to make it work.

"We are convinced that a combination of technology, innovation and determination can make a true difference to today's world," said Adrian.

"We believe plastic is a great material and an integral part of the solution to reducing our carbon footprint."

Net zero 2050

Final thoughts

Sustainability is fundamental to how INEOS does business. It drives innovation so we can meet the challenges associated with society's ever-changing needs. Our approach to sustainability encompasses six key areas: safety, climate, circular economy, people, communities and the natural environment, and governance. Our sustainability strategy is to develop and make products needed to address the challenges posed by climate change, public health, resource scarcity, urbanisation and waste, in a way which drives us all towards a net zero emission economy by 2050.



For further insights download our 2020 Sustainability Report

WWW.INEOS.COM/SUSTAINABILITY



C A L L O F T H E W I L D

CHANGING THE FACE OF TOURISM TO SAVE
WILDLIFE THREATENED BY POACHERS

Full story overleaf >



USANGU is a vast, unspoilt, uninterrupted wilderness in southern Tanzania. It's home to elephants, buffalo, lions, leopards, wild dogs and tiger fish. The only way into this part of the Ruaha National Park used to be on foot.

As such it made it difficult to protect the animals from poachers. But the logistical challenges were just part of the problem. "When these parks don't contribute good revenues compared to the more famous national parks, they can be seen as problem areas to the government," said Brandon Kemp, Country Director Tanzania for Asilia Africa. But one's man problem became another man's opportunity – and Asilia, one of the country's leading safari companies, is now working on a new initiative with further backing from INEOS Chairman Sir Jim Ratcliffe. "The more tourism we can get in there, the more secure it will be," said Brandon. What they want to offer, though, is a safari with a difference, where the guests are involved in the research and conservation. In June, a small expedition camp will be set up next to the research team. There will be just four tents for guests, one car, one boat, one canoe and one walking guide. "We have just put our first road in there, but we are going to keep it very simple," said Brandon. "It will be like going back in time to how safaris used to be." The team are grateful to Dr Eblate Ernest Mjinga, now director-general of The Tanzania Wildlife Research Institute, who has helped to change mindsets. "For the first few years, the government didn't allow us to even talk about tourism and research in the same

sentence," said Brandon. "Now we can." Jim, who has been on countless safaris over the past 20 years, has been working with Asilia since 2015.

He believes developing tourism in southern Tanzania will open the eyes of the world to a place of immense beauty and importance – and help to create local jobs and prosperity.

"When a local community benefits from high-quality employment from tourism, poaching flips to protection to preserve those jobs," he said.

With Jim's help, Asilia went on to open a camp and a private lodge in Ruaha National Park and its first camp in the heart of the Selous Game Reserve, now Nyerere National Park.

Back then, only a handful of travellers had ever set foot in the reserve, which is larger than Switzerland, or in the Ruaha National Park, which is the size of New Jersey in America.

The conservation initiative is focused on Usangu, where the Great Ruaha River starts its 450km journey.

"It is a fascinating project," said Brandon. "Usangu is an area that is sensitive and needs as much help as it can get."

The team has been given access to all 6,000 square kms so it can carry out its full, bio-diversity audit and better understand all the animals that live there.

"We are measuring everything from insects to the big five," he said. "Who knows, we might even find a new species of frog."

The work on the ground has already started, but the team is considering buying a small plane this year so it can patrol the area more easily.

The team is also working with the Tanzania National Parks Authority to combat wildlife crime.

If anyone would like to know more about our work, please email brandon@asiliaafrica.com



Guests are actually donors and, by visiting the region, are not only participating in something unique, but also contributing to the research, security and peripheral community of the Usangu Wetland

'This will be like going back in time to how safaris used to be'

– Brandon Kemp, Country Director Tanzania for Asilia Africa



INEOS Chairman Sir Jim Ratcliffe has been helping with the research



Asilia hires and empowers local staff to work alongside community and conservation programmes. Hamza is just one of them. He has now been working for Asilia for more than nine years. 'Becoming a guide has been my biggest achievement,' he says



Asilia

Asilia Africa offers an authentic East African safari experience that leaves a positive impact on Africa's crucial wilderness areas.

RUAHA NATIONAL PARK

In the dry season, visitors can expect to see golden savannah studded with baobabs and misty hills stretching along the horizon. With the annual rains, the grasslands become a lush green and the baobabs bloom.

Waterbuck, impala and gazelle come to the river to drink and predators are never far behind. You may spot lion or leopard prowling watchfully along the banks, or cheetah lying in wait on the plains, while skulking jackal and hyena are on the lookout for an opportunity to catch their next meal.

WWW.ASILIAAFRICA.COM

Thinking big

The Daily Mile's small core team appeal for global partners to help roll out tried-and-tested initiative



AS statistics go, The Daily Mile has racked up a fair few. More than three million children from 85 countries are now taking part in The Daily Mile and it recently signed up its 13,114th school. But there's one equally impressive statistic that often goes unnoticed.

For there are just eight people in the core team who are overseeing the global rollout of The Daily Mile initiative – Jessica Ard, Bill Russell, Anna Limbach, Tilly McAuliffe, Caitlin McConnell, Hannah Oakes, Thomas Manfredini and Fiona Paterson.

"They do an incredible job and they are really making a difference, by talking to schools, posting online and working with our extensive partners," said John Mayock, director of The Daily Mile project.

"But we are always on the lookout for partners on the ground who can help us to spread the message of the benefits of The Daily Mile, given its simplicity to implement."

It's a call to action from INEOS employees because COVID-19 – far from derailing the programme – has actually helped to increase awareness of the need to stay healthy, both mentally and physically, during lockdown.

"People have been looking for what they can do during lockdown to increase their health and wellbeing and The Daily Mile, because it is such a simple initiative, has been something they can do at home," said John.

The UK/US-based team have set themselves some strategic, long-term goals.

And partnerships with key supporters will be key.

In England, it is Sport England. In Scotland, the government. In France, Le Coq Sportif. And in Spain, it's a high-profile national cancer association.

"The Daily Mile will thrive under any condition because it is a simple and tried-and-tested initiative," said John. "The key is about getting the right people and organisations in place to influence schools and community leaders."

Over the coming year, the focus will be on spreading the message about The Daily Mile more widely in America.

"We have got 52 states to go at," said John.

The team have recently signed agreements with The National Dairy Council and Seattle Marathon to implement The Daily Mile across their networks.

"These are very exciting opportunities for us to test the partnership model," he said.

The former Olympic athlete, who competed in the Commonwealth Games, also recently contacted ambassadors of all countries in the Commonwealth to gain support for adopting The Daily Mile.

"The response was overwhelming," he said.

The Daily Mile Core Team



Anna Limbach



Bill Russell



Tilly McAuliffe



Jessica Ard



Thomas Manfredini



Fiona Paterson



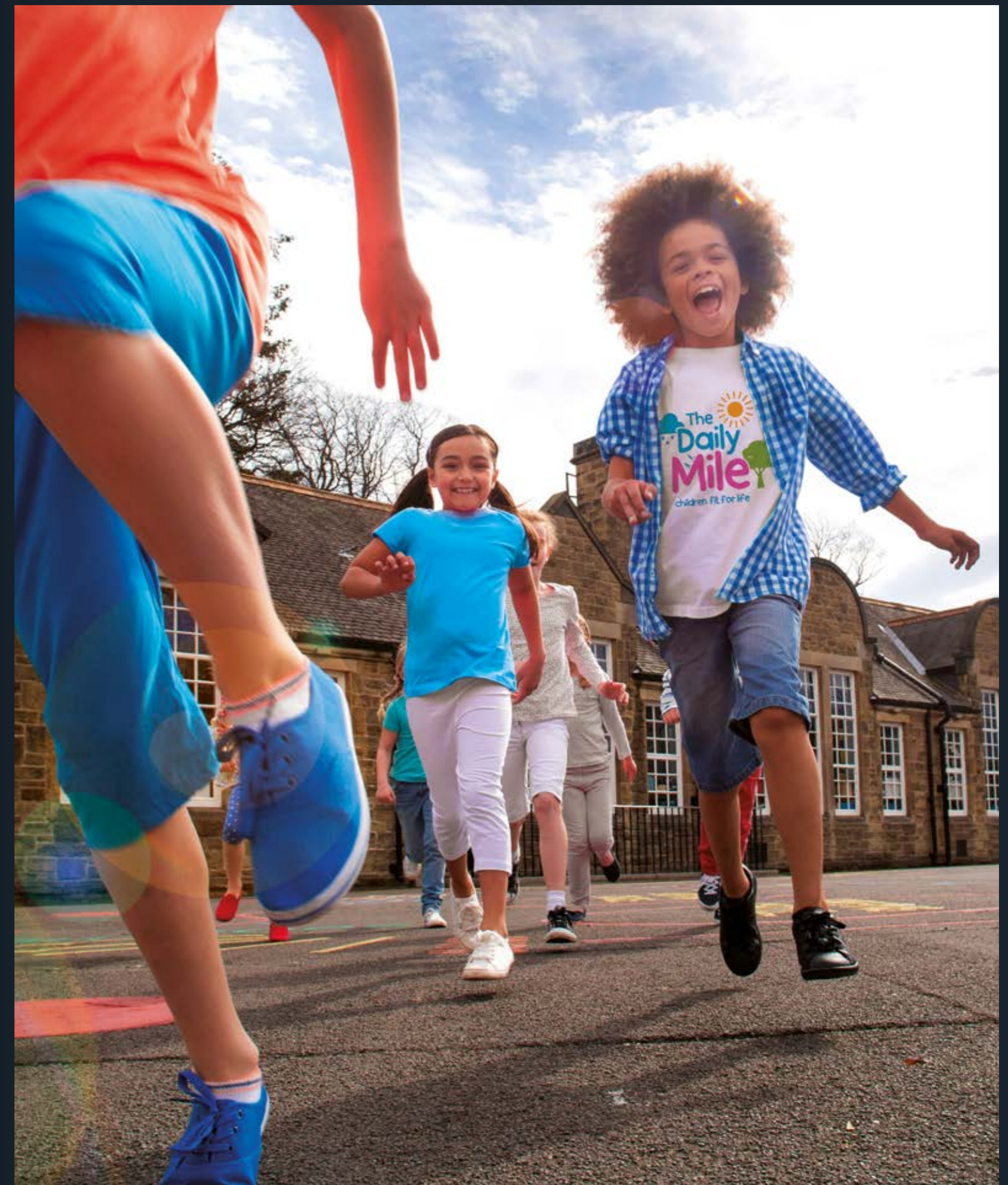
Caitlin McConnell



Hannah Oakes

'We are always on the lookout for partners on the ground who can help us to spread the message of the benefits of The Daily Mile, given its simplicity to implement.'

– John Mayock,
The Daily Mile Director



Contact The Daily Mile at the foundation's global website
WWW.THEDAILYMILE.ORG

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