

Together

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THE PATH TO NET-ZERO

What role can Equinor play in the energy transition?





SAFE AND SECURE AT WORK - ALWAYS

Safety is and has always been Equinor's number one priority. With the introduction of a new organisation and safety management team, the company takes a big step towards the 'zero injuries' goal.

Ever since the first oil flowed through the wells in the North Sea, safety has been the number one priority for Equinor. Although the number of incidents and accidents has stabilised at a lower level in recent years, the number is still too high. As of June 2021, all of the company's safety work is gathered in one unit - Safety, Security & Sustainability (SSU) - to strengthen the work towards zero accidents and incidents.

The organisational structure may be new, but the overall goal is still the same - to secure that everyone in the company operates as safely as possible. Simultaneously the work to safeguard climate, the environment, and human rights is being strengthened.

"We simply cannot reach our goals if we do not take care of our people, facilities, and the environment, across our global portfolio," says Jannicke Nilsson, executive vice president of SSU.

Working towards zero incidents

With a background in operations, Jannicke Nilsson enjoys being out in the field.

"Sitting around at Forus won't get us there," she says. When the executive vice president is interviewed, she has just been to the Tjeldbergodden processing plant in Nordmøre. At the end of 2020, a fire broke out in the methanol factory, a serious incident that could have ended up as a major accident.

Although the factory's fire-damaged equipment was cleared out a long time ago, Nilsson says that on her tour she could still see traces of objects that were thrown around with great force during the incident.

"That reinforced what we already knew: We could have lost colleagues in this event. Luckily, we did not," Nilsson says. She emphasises that taking lessons from past incidents, both large and small, will be central in the coming effort to reduce incidents and accidents. Nilsson explains that going forward, Equinor will work to have an even more learning-based, open and proactive safety culture, based on experiences from both incidents and weak signals.





SERIOUS: The fire at Hammerfest LNG was a very serious incident. Now, the focus is to learn from what happened, in order to avoid similar incidents in the future. Photo: Bjarne Halvorsen / NTB.

We simply cannot reach our goals if we do not take care of our people.

Jannicke Nilsson
Executive vice president in SSU

Learn from mistakes

Taking precautions to avoid incidents is essential. But what do you do once an accident happens? Safety work is challenging, and when something unforeseen occurs, there are two things that are especially important – to make sure you learn enough from the incident so that something similar never happens again, and to get back into operation. Therefore, learning is an important component of SSU's work.

When there was a fire in the air intake of one of the turbines in the gas facility at Hammerfest LNG in September 2020, the process of learning started immediately.

"We must regain the trust of the local community through dialogue with key stakeholders, transparency, and of course by not having more incidents," says Esben Blix Wisborg. He is the project manager for "Cold Return", assigned to get Hammerfest LNG back online. The fire lasted for several hours, but no one was physically injured, neither by the fire, nor by the extinguishing work. The project's task is enormous: 23,000 unique equipment parts and components must be checked for damage from fire and salt-water, documented, and, when necessary, repaired. Around 184 kilometres of cables must be replaced. Turbines with the same type of air intake as the one where the fire started, must be

modified. Operations at the facility are not expected to be able to resume before March 2022.

Two investigation reports have been conducted after the accident – one internal and one by the Petroleum Safety Authority Norway. "As with all major incidents, you have a chain of smaller things that trigger a major event. And it is clear that there are many minor things that should have been avoided," says Blix Wisborg.

Together the two reports form a roadmap towards reopening, outlining several measures that must be implemented.

"We must strive to have better safety results over time and across business areas. We see many similar challenges in different areas and countries, and we can still learn a lot from each other," she says. Leaders have an important role in this work. They are the ones who will guide and support the teams, ensuring that everyone is able to carry out their work in a safe manner.

"Taking such a comprehensive approach to safety is both meaningful and challenging," says Nilsson.

Building a culture

When Jannicke Nilsson speaks about building and strengthening a safety culture across the company, she is fully aware that this is not something that can be decided in the boardroom. Culture is something that is created among people and is shaped by how we work together. A good example of how employees collectively are creating a proactive safety culture is found at Gullfaks. Through collaboration, the delegation of responsibility and good communication, employees and suppliers work every day to develop a solid safety culture in the field. "Safety is not about statistics, and it is not about KPIs – it is about taking care of our people," says Christina Schieldrop, vice president for operations at Gullfaks.

According to Schieldrop, "The one wearing the shoe knows where it pinches." As a senior manager, she has therefore made it clear that absolutely everyone who works at Gullfaks has the mandate and full support if they must stop activities to manage risk and work safely. Safety trumps everything.

A practical example of this took place in May 2021. COVID-19 was discovered among the employees in the logistics unit at Gullfaks A (GFA), and the night shift had to be quarantined and sent ashore. It soon became clear to GFA that it would be challenging to maintain all planned activities with reduced capacity for logistics. Based on the team's risk assessment, the necessary adjustments of the level of activity were decided locally at GFA in collaboration with the safety delegates, who play a key role in the safety work.

"It is so easy to just push things a little too far. That's why I'm incredibly happy when our people know that they have the mandate to make the right choices to work safely and then proceed to do exactly that," says Schieldrop.

"In order to support the people who will drive the energy transition it is important that we build a good safety culture based on a sound work environment and critical thinking at all levels," she continues.



CLEAR GOAL: "Everyone must return home safely, every single day," says Jannicke Nilsson. Photo: Ole Jørgen Bratland.



RETURNING: Esben Blix Wisborg is project manager for "Cold Return", assigned to get Hammerfest LNG back online. Photo: Ole Jørgen Bratland.



"We will gain knowledge and strengthen technical and operational barriers based on the findings from the two investigation reports, ensuring that similar incidents do not happen again," says Blix Wisborg.

Pulling in the same direction

To ensure an open safety culture, collaboration is an important focus area for SSU. Collaboration between different business areas in the company as well as with the industry, authorities, and suppliers. A collaborative mindset when it comes to safety is clearly starting to influence the way work processes are organised in the sharp end of the company.

Safety work on the Norwegian continental shelf has traditionally been difficult to coordinate across installations and companies. Many offshore workers are suppliers for multiple companies and facilities with different procedures and routines.

"Imagine how challenging it is to work according to one safety standard here and another safety standard there. We do not inspire our suppliers to perform at their best, nor do we obtain good

HSE results," says Christina Schieldrop, vice president for operations at Gullfaks. Equinor has now introduced a common system for work permits as well as "life-saving rules," which are good examples of industry standards implemented across geographies and companies.

The company has also been involved in developing the "Always safe" informational annual wheel together with Aker BP and Vår Energi, as well as an agreement to coordinate safety work and precautions together with suppliers Kværner, Aibel and WorleyParsons. Schieldrop believes that common industry standards help increase the quality of the safety work and therefore wants these to be further developed.

"It would be the best way of ensuring a safe and secure workday for everyone, no matter where they work," says Schieldrop.

Think holistically

Following the reorganisation over the last year, security and sustainability have been organised in the same unit as safety. There are good reasons for this. To explain how the areas are all connected,



PEOPLE: "Safety is not about statistics, and it is not about KPIs – it is about taking care of our people," says Christina Schieldrop, vice president for operations at Gullfaks. Photo: Einar Aslaksen.

Nilsson gives an example. In 2019 the Bahamas was turned upside down by Hurricane Dorian, the worst natural disaster in the archipelago's history. 74 people lost their lives, and the storm led to major damages to infrastructure, people and the local environment. The South Riding Point oil terminal was also hit. The storm caused damage to the terminal itself, the employees were exposed to great stress, and oil was spread over a large area of land – which in turn affected the local environment.

Briefly summarised: One single event affects many aspects of the business at once. Therefore, all types of safety work must be closely aligned. By coordinating all the resources involved in safety work, knowledge is also gathered in one place. And in this way, the full overview is secured while simultaneously reducing the chance of undesired incidents.

"If we are all working in our little silos, we can lose sight of the big picture. This can lead to us making

the wrong choice, which again can affect both people, the environment and companies," says Nilsson. The executive vice president strongly believes that the coordination of safety, security, and sustainability will yield good results in the years to come – and protect the climate, employees, and facilities in the best way possible. All safety work in Equinor builds on the "I am safety" roadmap.

Nilsson is convinced that collaboration is key now that Equinor is taking the next step in its safety journey – not only with other operators and suppliers, but also with supervisory authorities and union representatives.

"At times, there will be different views on what the best measures to achieve our common goals are, but we will all share a common goal of strengthening the safety structure", Nilsson says. "Everyone must return home safely, every single day," she concludes.

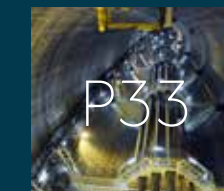
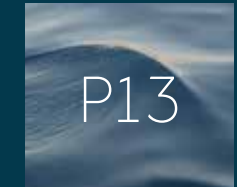


HIT HARD: In 2019 the Bahamas was turned upside down by Hurricane Dorian, the worst natural disaster in the archipelago's history. 74 people lost their lives, and the storm led to major damages to infrastructure, people, and the local environment. Photo: Zak Bennett / AFP.

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Editors
Creative director
Art directors
Photos
Journalists

Kristin Norli and Anniken Haugen Jebsen
Henrik Øinæs Håberstad
Jeppe Gjesti and Sheyda Aalgaard
Einar Aslaksen and Ole Jørgen Bratland
Eirik Traavik, Ingrid Skogholt, Eva Beate Strømsted and Equinor's communication department

*Front cover: The team at Gullfaks A gathered on the platform deck. Photo: Einar Aslaksen
Back cover: Equinor employees engaged in conversation at the Sture terminal. Photo: Einar Aslaksen*

EXPECTATIONS: "It is more important than ever that companies like Equinor take a leading role in the energy transition that the planet requires. It is urgent, and it is expected of us," says Anders Opedal.
Photo: Ole Jørgen Bratland.



A leading company in the energy transition?

Anders Opedal has set out an ambitious course for the company, but is it possible to supply the world with the energy it demands while reducing emissions towards net-zero?

It is a cloudy day in mid-July. The Norwegian Petroleum Museum in Stavanger is full of tourists seeking shelter from the bad weather, while being introduced to the history of the industrial adventure that has made Norway one of the world's best countries to live in. CEO Anders Opedal has also made his way to the museum. Not to look back on history, but to talk about Equinor's future and the role the company wants to play in the energy transition. In a conference room above the museum's reception area, Opedal talks about his goals and ambitions for Equinor under his leadership, and how the company will plot a sustainable and profitable course for the years leading up to 2050.

"In my opinion you need to position a company to meet the needs of society and customers. We are an energy company, but how does a large energy company adapt during the energy transition? That's the big question," says Opedal.

This summer, climate change has created headlines perhaps more than ever before. Heatwave in Canada, floods in Germany and Belgium, dramatic wildfires in

Turkey, Greece, and Italy. In late summer, the UN Climate Panel released a new report. The conclusion is unequivocal: The consequences of climate change are becoming increasingly serious, and there is a need for urgent action.

"It is more important than ever that companies like Equinor take a leading role in the energy transition that the planet requires. It is urgent, and it is expected of us. We can't solve the global challenges alone, but as a company, we have an important role to play. And with the course we are plotting, I believe that together we can really make a difference," says Opedal.

Parts and totality

On 15 June 2021, Opedal presented his plan for how Equinor aims to be a leading company in the energy transition, accelerating its transition from a focused oil and gas company to a broad energy company. The strategy provides a plan for growth in three areas. The company will create significant value for society and investors from an optimised oil and gas portfolio in Norway and selected international markets. Growth in offshore wind and other renewable energy will form the

basis for a new profitable business in the future, and major efforts will be undertaken with partners and authorities to develop new markets for low-carbon solutions such as hydrogen and carbon capture and storage.

"With the strategy, we have shown that we will have many profitable projects in the coming years, both on the Norwegian continental shelf and internationally," says Opedal. "At the same time, we have shown that we have the financial muscle to tackle the huge investments required to build a new industry for a low-carbon future," he says.

The updated strategy received a somewhat mixed reception. The stock market sent the share price down, climate and environmental interest groups wanted even faster change, while critics feared that the company was now redirecting its capital away from profitable oil and gas projects towards less profitable investments in renewable energy. The criticism did not

surprise Opedal, who is confident that the strategy will stand up well. Why?

"The totality of it. The strategy has been developed by the new corporate executive committee in close collaboration with the board and is based on a thorough process in business areas and staffs," says Opedal. In total, several hundred employees have been involved. Opedal traces the totality of the completed strategy back to this broad collaboration across the organisation.

"The strategy points out how we can be a profitable company for many years to come, while also investing in the future through renewable energy and low-carbon solutions. We are positioning ourselves for future growth and profitable operations, even when the demand for oil and gas declines," says Opedal. At the end of July, Opedal presented the company's mid-year results, showing figures Equinor has not seen since 2014. In comparison, back then, the price

of North Sea oil was around 115 dollars per barrel. The improved results do reflect high commodity prices. But they are also the result of hard work in an organisation which, thanks to systematic improvement work over several years, succeeds in delivering safe and sound operations.

Safety as an enabler

"Safety is our number one priority, as always. This is the foundation that will enable us to implement the strategy and continue our organisational development efforts and, not least, competence development," says Opedal.

This summer, he also presented the safety statistics for the second quarter. The figures show a stable trend in serious incidents, but a negative development in the number of recordable injuries. The 2020 safety year was dramatic. Serious incidents at Tjeldbergodden and Hammerfest LNG emphasised the importance of continued efforts to ensure that all employees are safe while at work.



TOGETHER: The corporate executive committee group got together in person for the first time late in the Norwegian summer of 2021. Back row from left: Arne Sigve Nylund, Siv Helen Rygh Torstensen, Jannicke Nilsson, Jannik Lindbæk, Pål Eitrheim, Irene Rummelhoff, Al Cook. Front row from left: Kjetil Hove, Carri Lockhart, Ulrica Fearn, Ana Fonseca Nordang, Anders Opedal. Photo: Arne Reidar Mortensen.



DOWN BELOW: Anders Opedal maintained tradition and signed the board at the bottom of Troll A's platform shaft on his first trip offshore as CEO. Photo: Jon Ingemundsen / Stavanger Aftenblad.

It is more important than ever, that companies like Equinor take a leading role in the energy transition that the planet requires.

Anders Opedal

"We will not reach any of our goals if we fail to work safely. That is our number one priority. And getting better at safety will also make it easier for us to take the necessary steps towards becoming a successful company in the future," says Opedal. One of the drivers of this year's reorganisation was to focus and gather the safety work in the company. In June, safety, security, and sustainability were merged into a single new unit – SSU. For Opedal, safety is the cornerstone of Equinor's future.

"Workplace safety and compliance with all regulatory requirements are fundamental to Equinor's operations. The serious incidents frequency (SIF) is at an all-time low, and that is very good. But this is no time to rest on our laurels. We must continue to work hard to get the SIF numbers even lower," he says.

"However, it is serious that the number of injuries is developing in the wrong direction. No one should be injured while working for us. We must continue to focus

on major accidents but also work hard to reverse the trend for injuries," says Opedal.

Steering towards net-zero
Reaching net-zero emissions by 2050 is one of the beacons of the new strategy. In short, this means that by 2050 Equinor will remove a quantity of greenhouse gases equivalent to the total emissions from production, transportation, and consumption of the company's products. This ambition affects everything the company is and will be in the years to come, from how to develop the right skills and build the company portfolio to how to produce energy.

"To remain a relevant company in the future, we have to meet society's expectations," says Opedal. It involves steering Equinor towards net-zero, but also the willingness to take part in what he describes as the world's largest and most important collective task – to ensure that the world becomes climate-neutral. "It is the right direction for the company, it is the right strategy,

and striving for climate-neutrality will give us business opportunities going forward. With that ambition, we can become a more resilient company in the future," says Opedal.

The climate research is clear. The planet is getting warmer due to man-made climate change. To achieve the goals of the Paris Agreement, nations, companies, and individuals must contribute. The ambition of net-zero emissions by 2050 is Equinor's answer to this challenge. This ambition was set because the company wants to be a driving force in society and because this is crucial for future profitability and growth. For Opedal, the goal is to be a leading company in the energy transition.

"We do not aim to be the largest company in gigawatts or volume, but we can always be at the forefront of development and what society needs in terms of energy. This is what being a leader in the energy transition is all about," says the CEO.



INSPIRATION: Anders Opedal found the conversations with young union representatives from Aker BP and Equinor during Arendalsuka to be inspirational. Photo: Erik Haaland.

Opedal, an engineer by training, is clearly enthusiastic when he describes the future.

"What is and has always been unique with Equinor is the legacy of Statoil, Saga, and Hydro; the very ability to turn technology and engineering into industry and jobs," says Opedal.

Too much renewable?

By 2030, 50% of the company's total investments will go to renewable energy and low-carbon projects. Sceptics have warned against using money from profitable oil and gas production to finance renewable energy and low-carbon solutions. Opedal rejects claims that this strategy will yield lower returns.

"Oil and gas and renewables have two different risk profiles. Consequently, the cost and return on capital are also different. At the same time, it is important to note that the renewables portfolio has an average of 19 years of fixed prices," says Opedal. He emphasises that this predictability helps reduce the risk on the revenue side. Oil and gas prices, on the other hand, are known to fluctuate.

"When you have 60 dollars per barrel, you have a high return on oil and gas, but it is only last year that we had prices in the twenties, and the return was not

very high," says Opedal. The investment in new business areas is also a result of a certainty that it will become increasingly difficult to find and develop new fields in the future. And at the same time, the demand for oil and gas will gradually decrease.

"To ensure a future cash flow, we must start positioning ourselves in other areas now. Starting this process in 2030 will be too late," says Opedal.

Too little renewable?

While some believe Equinor invests too much in renewables, others have argued that the company is not redirecting its investments away from oil and gas quickly enough, as it is still aiming for growth towards 2030. How can you steer towards climate neutrality while increasing the pace of production in fossil fuels? Why is it right to look for more oil and gas when the International Energy Agency (IEA) believes we have found all the oil and gas that the world will need?

"Our expansion in oil and gas over the next few years reflects the quality of our project portfolio, as well as new fields starting up. We produce with as low emissions as possible and will electrify ever larger parts of our production," says Opedal. In the

future, it will be difficult to discover new fields that justify completely new stand-alone field developments. In an optimised portfolio, the focus will be on exploration and the best possible utilisation of resources close to existing fields, installations, and infrastructure.

"We have invested significantly in a comprehensive infrastructure both on the Norwegian continental shelf and internationally. Going forward, we will explore near existing platforms and discoveries we have already made. We will thus utilise our resources optimally and ensure that we can put new discoveries on stream as quickly as possible. By doing so, we reduce the payback period and the risk for our fields," says Opedal. He points out that climate neutrality will not only be achieved by reducing oil and gas production but also through increased investments in renewable energy and low-carbon solutions.

Simply cutting back on oil and gas has never been an option for the company. "Achieving carbon neutrality by shrinking the company is not the strategy. We have a growth strategy. In relation to becoming climate neutral by 2050, there is no contradiction in increasing oil and gas production in the short term," says Opedal.

Shrinking the company is not the strategy. We have a growth strategy.

Anders Opedal

"The more oil and gas we produce now, and the higher the price we get, the greater our ability to carry out our investments in renewable and low-carbon solutions. This will equip us for the future," he says.

Important adaptability

For the energy transition to succeed, a good and predictable regulatory regime needs to be put in place by the authorities. Sound acreage award processes will make the offshore wind power adventure possible.

With good solutions for the taxation of carbon, the full potential of carbon capture and storage, in addition to hydrogen, can also be reached. There are also internal pieces that have to fall into place. "In the future, it will be important that we are able to develop our competence, that we are able to move capital to the right projects, and that we are able to move people and build competence in the projects we focus on," says Opedal. One of the biggest and

most debated changes during the reorganisation has been the development of competence centres. The idea is to enable the company to turn itself around, fast, similar to smaller companies.

"Reorganisation and change can be challenging, but in the longer term, this will be instrumental in enabling us to work better together, develop our competence and competitiveness, and secure our own jobs in the process. The new organisation strengthens our ability to adapt to change and seize new opportunities," says Opedal. He believes the pace of development will only increase in the years to come. The COP26 climate conference in November 2021 will probably lead to tighter climate regulations in many countries, leading to major changes for the industry. Opedal looks up and smiles briefly: "Positioning the company for all the forthcoming changes, making decisions one step ahead, rather than falling behind and having to make really painful and

big changes at some point in the future – that's my job," says Opedal. He emphasises that Equinor has an important role to play in the energy transition.

"The world needs energy, it needs lower emissions, and it needs new technology and new solutions. Together with partners, authorities, and, not least, all the talented people in the company, I am confident that we will make this happen," says Opedal. "I look forward to every single day at work."

FACTS

A strategy for a faster transition

Transitioning faster

- Global leader in low emissions from the production of oil and gas
- Developing offshore wind parks at scale and markets for floating offshore wind
- Developing new markets for low-carbon solutions like hydrogen and CCS

50% of gross investments in renewable energy and low-carbon solutions by 2030.

Profitable growth

- Solid cash flow from oil and gas with low emissions over the next decade
- Significant value creation in offshore wind
- This will finance the transition, create jobs and value for shareholders and society

30 USD per barrel is the break-even needed to achieve a positive cash flow from oil and gas until 2026.

Concrete measures to reduce emissions

- 2030: Reduce net carbon intensity by 20%
- 2035: Reduce net carbon intensity by 40%
- Equinor's emissions peaked in 2015

40% reduction in net carbon intensity by 2035.

Source: Equinor's updated strategy for 2021



The path to NET-ZERO

As our planet's tolerance limits are being challenged, growing concerns throughout the world about the consequences of climate change help drive climate efforts in the right direction. Although some of these changes will take time, a lot is already happening.

"Since the 80s, we have had scientific knowledge proving that our climate is changing as a result of man-made emissions. Still, too little has changed over the last decades," says Hilde Røed, senior vice president for climate & sustainability at Equinor. This is finally about to shift, as we have seen a considerable increase in the pace of change in recent years. Global warming results in climate change, causing serious conditions, such as rising sea levels from melting ice, and contributing to more frequent extreme weather events such as heat waves, flooding, droughts, and wildfires. Studies also show that climate change ranks consistently high on the list of people's biggest fears.

Clear indications

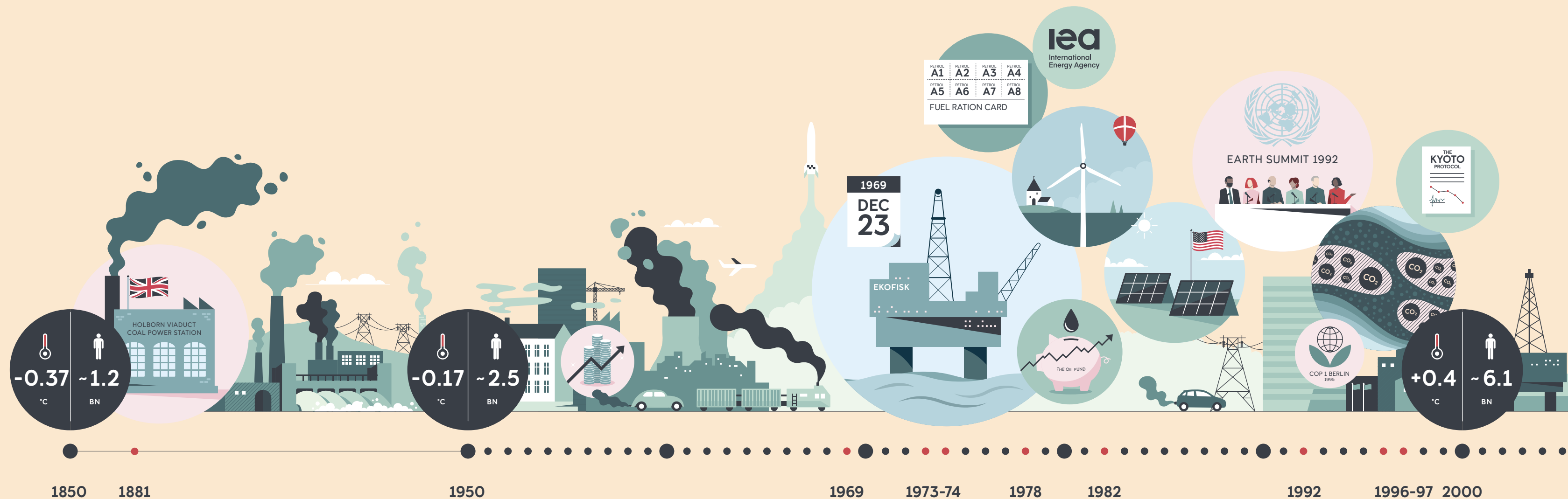
"More people are opening their eyes to the effects of climate change. This has increased the understanding of the severity of the situation and the fact that action is needed," says Røed.

An increase in the average global temperature of only one and a half degrees will affect the whole global ecosystem and thus also human life as we know it.

"One of the consequences of the increased average global temperature is rising sea levels due to melting ice from polar regions and glaciers. In some areas of the world, we are seeing an even higher increase in temperatures and major negative consequences locally.

An example is the destruction of coral reefs or the melting of permafrost that leads to high emissions of greenhouse gasses as this releases methane stored in the frozen ground," Røed explains.

"The gravity of the situation is highlighted in the latest report from the UN Climate Panel (IPCC). We will experience more extreme weather, and there is no doubt that human activities are to blame. The report still leaves some hope. If we manage to reduce emissions, the worst consequences can still be avoided," Røed adds.



In recent years, the focus on and the effort to mitigate global warming has accelerated. More and more countries and companies are claiming they want to become net-zero by 2050. There is also a higher sense of commitment following the UN Climate Panel report and the Paris Agreement, which clearly set out how global warming must be limited.

Dependent on global initiatives

"The Paris Agreement, signed in December 2015, has been an important milestone. Through this international agreement, the countries of the world are committed to reducing their emissions. In the wake of the agreement, we see that several countries have raised their emissions-cutting ambitions, and the price of emissions is rising. There are several examples of legislation being adopted to regulate emission cuts," Røed says. As neither the atmosphere nor emissions adhere to international borders, the problems cannot be

solved by a single country or continent alone. Therefore, climate policy must be discussed at a global level. This is challenging. When Joe Biden took over the presidency, the United States once again committed to the Paris Agreement, and China has claimed that it will achieve the goal of net-zero emissions by 2060. These are positive developments.

"We must act urgently if we are to succeed in reaching the goal of net-zero emissions. Globally, we must tackle many tasks simultaneously: invest in renewables, develop technology that can capture and store CO₂, and reduce emissions as well as preventing deforestation and plant new forests," says the head of climate & sustainability.

Various possibilities towards 2050
Eirik Wærness, Equinor's chief economist, explains that the interplay between politics, economics, and technology will

be crucial for how the global energy field develops over the next 30 years. "We can imagine different scenarios based on how we weigh this development along those dimensions, and thereby highlight the different opportunities and challenges we must navigate," Wærness says.

In Equinor's Energy Perspectives report, only one of the scenarios results in the world reaching its climate and sustainability goals by 2050. This scenario is called Rebalance and will require significant technological advances, immediate and sustained global cooperation, and increased support for renewable forms of energy and low-carbon solutions.

Increased energy efficiency
Better energy efficiency is key to achieving an effective transition. However, the challenge is that we must reduce global energy consumption, yet the Earth's

We must act urgently if we are to succeed in reaching the goal of net-zero emissions.

Hilde Røed
Senior vice president for climate & sustainability at Equinor

population is growing and becoming more affluent. Today, just 15% of the world's population sits on two-thirds of the world's income and uses more than one third of all energy. To reduce poverty – which will require better access to and increased consumption of energy – industrialised countries must consider cutting their consumption even more.

"The transition will affect all parts of society, including your daily life and mine," says Wærness. He elaborates: "Let's say the world manages to achieve the most ambitious targets. This scenario will require specific behavioural changes such as keeping the indoor temperature at or below 20°C during the winter, and at or above 24°C during the summer."

The major focus areas
Energy Perspectives shows that the most significant future growth opportunity is renewable

electricity production, particularly solar and wind power. Even during the pandemic, solar and wind energy continued to expand. This is mainly due to climate policy, support schemes and incentives, as well as increased climate goals. Technology costs are still decreasing globally and creating new markets, also within offshore and floating wind power.

"In our Rebalance scenario, which is aligned with the goals of the Paris Agreement, we are focusing on the importance of increased investments. The most important investment objects are renewable energy and electrification of energy consumption, along with carbon capture and storage and potentially hydrogen as an energy carrier. Here, energy companies such as ours have great opportunities," says Wærness. He emphasises that the global energy transition is the greatest challenge of our time. "Historically, the growth in energy consumption has always been

linear to economic growth. Now energy demand must be separated from economic growth. Energy consumption must decrease, and economic development must increase by replacing fossil energy sources with renewables. This can happen, but it will not happen on its own," says Wærness.

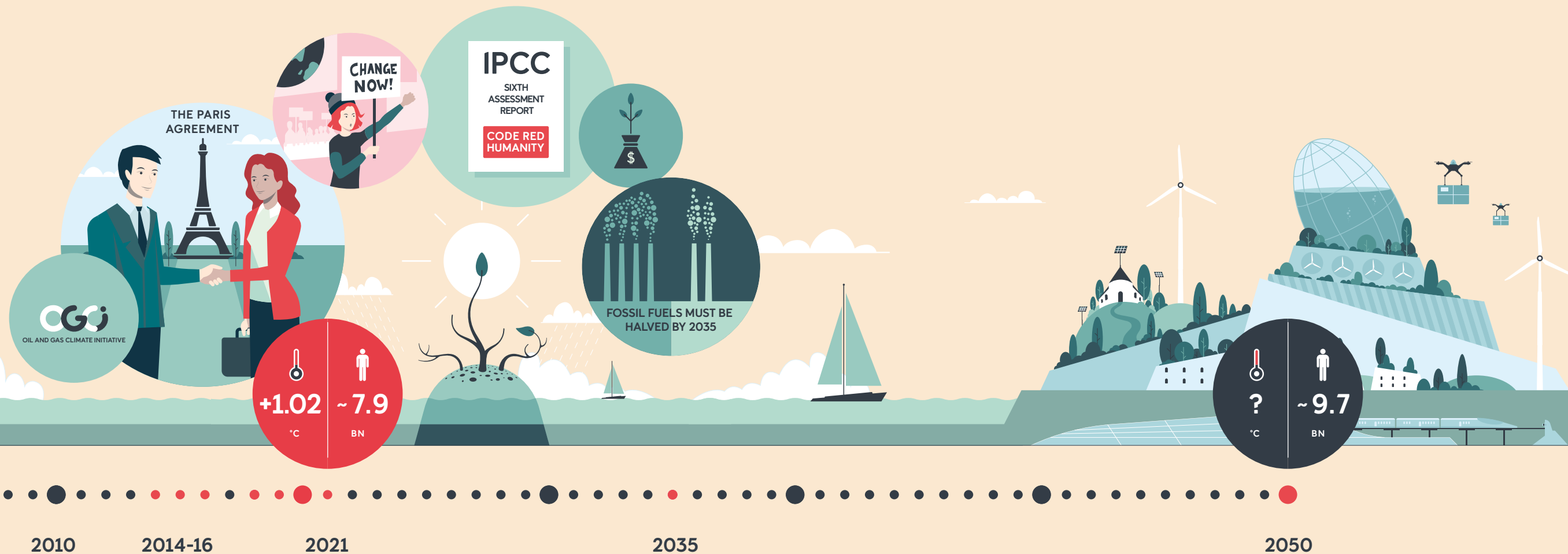
The energy transition presents significant new opportunities for Equinor.

Eirik Wærness
Chief economist at Equinor



The illustration shows the central role of energy in our society and how society's relationship to energy has changed over time. Fossil energy has laid the foundation for growth and prosperity for the world since 1850. As we move towards 2050, the challenge will be to find new and sustainable energy sources and solutions that permit both a growing population and more countries to overcome poverty. The circles show global average temperature and world population.

Source population data: UN. Source temperatures: NASA



From transition to opportunity

"The energy transition presents significant new opportunities for us. We will increase the value of our oil and gas portfolio, we will seize new opportunities in renewables, and we will develop solutions that ensure that we can reach net-zero by 2050," says Philippe F. Mathieu, senior vice president for strategy at Equinor.

According to Mathieu, the new strategy that was presented in June 2021 can be summarised in three key figures: 30 – 40 – 50.

"30" refers to the break-even price

"This means that we expect good value creation from oil and gas even if the price of oil goes down to USD 30 per barrel. Oil and gas will be essential to value creation in the coming decade, but also to financing Equinor's long-term transition to green energy. Our focus is on value creation from a robust and competitive portfolio," says Mathieu. The company's goal is to invest in the oil and gas that provide the most value, a strong cash flow, and the lowest possible CO₂ emissions.

"40" refers to emission cuts

"Our goal is to reduce our net carbon intensity by 40% by 2035," Mathieu says. The lower the carbon intensity a company has, the lower the emissions are for a given amount of energy delivered.

"We will achieve this goal by reducing emissions from the oil and gas production, increasing our renewable capacity, and developing low-carbon solutions.



Combined with the natural decline in oil and gas production, this will contribute to a reduction in carbon intensity that will lead us towards net-zero by 2050," explains the head of strategy.

"50" refers to investments

By 2030, Equinor expects that 50% of the company's annual investments will go to renewable projects and low-carbon solutions.

"Renewables will form the foundation of the company's long-term growth. Our offshore capabilities and experience from our position as an early operator in offshore wind, represent a competitive advantage," Mathieu says. He adds that the same applies to carbon capture and storage, which will be crucial in further developing the company's operations.

"We will build on our history as an industrial engine. Though there is certainly much uncertainty looking ahead, we need to build on what we believe in and what we know. At the same time, we must be flexible and adjust both speed and direction, depending on how the environment and markets change. It is about 'check' and 'act' for the strategy. The strategy is our plan A," he says.

Why we are changing

Climate change is the greatest challenge of our time. The world's energy systems are in rapid transition to meet the challenge. The journey towards net-zero creates new industry opportunities, and Equinor is ready to seize these opportunities. As Equinor transforms, we must strike the right balance between generating cash flow to enable the transition, supporting our core, growing business in new energy areas, and continuing as an attractive investment for our shareholders.

- As energy systems transform, we will create value in new ways
- Net-zero creates new industry opportunities
- Market dynamics set margins under pressure
- Technology excellence and innovation define winners



High value growth in renewables

- Investing USD 23 billion by 2026
- Installing 12-16 GW by 2030

How we will get there – together

Open, courageous, collaborative, caring – these are our values. They form the core of who we want to be, how we relate to each other, and how we run our business. How we deliver is as important as what we deliver.

Due to our competence, technology and innovation history, and not least our ability to deliver projects and develop industry, Equinor is in a unique position to take a leading role in the energy transition.

Strong partnerships with our suppliers and peers in the industry, research institutions, regulators, and governments have been vital for our development in the past and will be at the core of shaping a profitable business for the future.

We will build on our history as an industrial engine.

Philippe F. Mathieu
Senior vice president
for strategy at Equinor



New market opportunities in low carbon solutions

- 15-30 million tonnes CO₂ transport and storage capacity by 2035
- Decarbonising 3-5 industrial clusters with clean hydrogen by 2035

Optimised oil and gas portfolio

- More than USD 45 billion in free cash flow from oil and gas until 2026
- 6 kg/boe average CO₂ emissions by 2030 from all production

Source: Equinor's updated strategy for 2021. For details and assumptions related to the strategy ambitions, please refer to the Capital markets day presentation 2021, on equinor.com.



How the green transition unfolds – around the world

Climate change is the defining challenge of our time, affecting all parts of the world. The road to net-zero is demanding, but for an increasing number of companies, contributing to finding solutions to the challenge is in itself a business opportunity.



Political ambitions, regulatory demands, investors, and not least consumers are driving the change.

The responses from one of the world's largest surveys in the field, the Sustainability Perception Index 2020, are clear: Two-thirds of the 12,000+ respondents say that a company's approach to sustainability is important to them. More than half of the respondents also say they are willing to pay more for sustainable products than goods perceived as unsustainable. In other words: working towards achieving the climate goals is not only good for the planet, it is also important to secure success and growth in the future.

Across industries and national borders, companies are now working along many axes to achieve climate goals. They are all doing their part to move the world in a greener and more sustainable direction.

On the following pages, you will meet some of the companies that have come a long way in this transition: Volvo – saying that their safety focus is now shifting towards solving the climate crisis, IKEA – making a commitment to making their business model circular, KLM – encouraging its customers to fly less, and an investment company in Aberdeen helping its employees reduce climate emissions when working from home.



HUMBER

Wants to be the world's first carbon-neutral industrial cluster

For the world to achieve net-zero CO₂ emissions by 2050, it is crucial to include all sectors: energy, transport, service, and industry.

North of London, just a few hours train ride away, the Humber region is working on this challenge. Humber is located in the old coal-mining region in Northern England and is one of Europe's largest industrial areas. More than 12 million tonnes of CO₂ are emitted from this area every year, but Humber now wants to become the world's first carbon-neutral industrial cluster – by 2040.

The Humber initiative is part of a broader commitment in the United Kingdom to accelerate the country's climate work. With one of the world's most ambitious climate goals, the British say that by 2035 they will have cut greenhouse gas emissions by 78% compared to 1990 levels. The goal has been adopted as part of the legislation in the country and is now being followed by several small and large measures that will change British society step by step.

The net-zero initiative in Humber is one example of such a step, and the region's plan to achieve its goal includes the use of hydrogen and carbon capture and storage (CCS), as well as smart collaboration on infrastructure. The scope shows what broad collaboration can achieve: More than 70 participants, from local authorities and businesses to companies in the industrial and energy sector, research and academia, are involved. These include British Steel, the National Grid, Associated British Ports, and Equinor.

Moving forward, the hope is that the industrial sector will see the same development as other parts of the UK, where the British have successfully phased out most of the coal from their power production and have increased electrification through the development of renewable energy sources. Whilst the master plan to reduce general energy demand and implement energy efficiency measures in all parts of society continues to move forward, it is clear that change must now also happen in the industrial sector.

AIBEL

Oil service company
with 50% “green jobs”

Name: Mads Andersen
Position: CEO of Aibel

Q: What opportunities do you see in the energy transition?

A: Great opportunities: our extensive oil and gas experience provides valuable expertise applicable to the energy transition. We have great ambitions for floating offshore wind and will be ready as the market matures. In addition, we are also seeking out opportunities in hydrogen, carbon capture and storage, and aquaculture.

Q: How many jobs do you have in the renewable industry currently?

A: Almost 50% of our projects are in renewables. We have contracts for four transformer platforms for offshore wind and several plans under development. We are also heavily involved in the electrification of the Norwegian continental shelf, which will contribute to a significant reduction in CO₂ emissions.

Q: What are the benefits of the new business strategy?

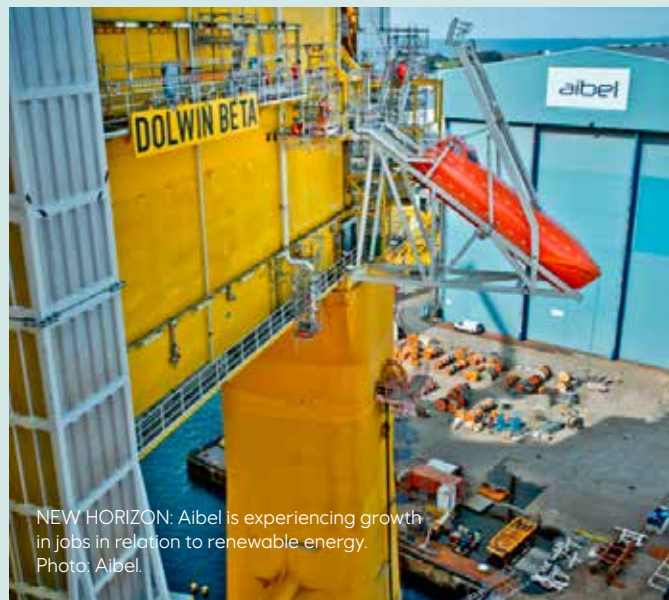
A: It shows that we are investing and that we are evolving. I think the employees need to see that Aibel has more legs to stand on in the future.

Q: What are the challenges?

A: We must succeed with further developing our expertise in new markets and attract clever minds who want to work with oil, gas, and renewables.

Q: Will oil and gas continue to be important for the company in the future?

A: Absolutely! We have large deliveries for Equinor and other customers that we are very proud of, including new platforms as well as maintenance and modification contracts. The world is going to need oil and gas from Norway for many years to come. As long as there is an oil industry, Aibel will be there to take on key assignments.



NEW HORIZON: Aibel is experiencing growth in jobs in relation to renewable energy.
Photo: Aibel.



INNOVATIVE: Traditional ferries can make good use of the new marine fuel cell system.
Photo: Corvus Energy.

CORVUS

Collaborating on a new marine
hydrogen fuel cell system

In February 2021, the Norwegian battery manufacturer Corvus Energy started a collaboration with the Japanese car manufacturer Toyota on the large-scale production of hydrogen fuel cell systems for marine vessels. Toyota will supply the fuel cells, while research, development, and production will take place at Corvus in Bergen. “We couldn’t say no when Toyota proposed a collaboration,” says Geir Bjørkeli, CEO of Corvus Energy – a company where Equinor Ventures has been one of the owners since 2015.

Good match

“Batteries and fuel cells are a good match for zero-emission energy systems on ships. They go hand in hand,” says Bjørkeli. While Toyota has 30 years of experience in developing and producing fuel cell cars, Corvus has sold batteries for maritime use since 2009. Equinor has also implemented battery technology on several vessels to help reduce emissions on the Norwegian continental shelf. “We bring out the best in each other when we bring different knowledge to the table,” he says.

New technology

For a long time, hydrogen fuel cells were expensive to produce. However, the cost is now declining, and interest in hydrogen-powered marine vessels is increasing. By 2050, the global shipping industry must cut its emissions by 50%. The first systems from the collaboration project will be installed in 2024. “The plan then is to continue to increase production capacity and really develop the market,” says Bjørkeli.

MILJØGARTNERIET & TINE

One of the most environmentally friendly
tomato nurseries in the world



SMART: CO₂ and waste heat from the dairy next door find their way into the production at Miljøgartneriet.
Photo: Miljøgartneriet.

“Miljøgartneriet” – which translates to “The sustainable nursery” – at Kviamarka just outside Stavanger, is the size of 12 football pitches. Approximately 1,500 tonnes of tomatoes are produced here annually.

Greenhouses in Norway require a lot of energy for heating. Compared to a traditional greenhouse of the same size, Miljøgartneriet has an energy consumption that is 20% lower. “This is because Miljøgartneriet does not use a central heating system. We get great help from the company next door,” says CEO Kåre Wiig.

A win-win cooperation

Close to Miljøgartneriet is one of the dairy company TINE’s facilities. It is

To keep energy consumption down, Miljøgartneriet uses waste heat from dairy production. The nursery also receives CO₂ from TINE. “Creating a profitable environmental collaboration has been the goal since we started production in 2010. It is a win-win project,” says Wiig. The result is lower emissions and excellent vegetables. “CO₂ is part of photosynthesis and makes the tomatoes taste delicious”, he says.

Profitable business

In addition to the waste heat, Miljøgartneriet has also adapted the latest in greenhouse technology. The facilities are equipped with heat curtains, insulating glass, and an advanced climate computer that controls light, heating, irrigation, and supply of CO₂. These innovative solutions have resulted in many awards and sound economic growth for Miljøgartneriet. It is

currently one of the largest greenhouses in the Nordic region. “This shows that sustainable solutions for energy and the environment can be key contributors to achieving good profitability,” Kåre Wiig says.

TINE is optimising

Over at TINE they see the circular collaboration project as important. “We have to use our resources more optimally than before. It is more sustainable and environment-friendly, as well as profitable. This project is an example of how we can achieve this,” says Bjørn Malm, head of sustainability at TINE.



FOOTPRINT: Oda's service "Your carbon footprint" enables their customers to see the climate effects from the groceries they buy. Photo: ODA.

ODA

"Climate receipts" reveal the carbon footprint of your shopping basket

About 23% of the world's greenhouse gas emissions come from food production. If you add processing and transport, this industry accounts for 30% of global emissions. However, there is no standard for labeling or reporting the climate footprint from the production of food. The Norwegian company Oda, an online grocery store, wanted to do something about this. Together with researchers from Centre for International Climate and Environmental Research (CICERO), they launched the service "Your carbon footprint" in November 2020.

"Oda's 'climate receipt' is Norway's first attempt to show the real climate effect from each individual's food consumption," says Louise Fuchs, sustainability director at Oda.

High demand for information

According to Oda, as many as 67% of the customers want to see the climate footprint of the food they buy. A percentage just short of that say they appreciate the service.

"Our customers want their shopping baskets green," says Fuchs.

Transparency around emissions is a global trend outside the food industry as well. Since April, Klarna – a Swedish provider of payment solutions – has made it possible for 90 million users to see the emissions associated with their shopping.

The goal with these numbers is for customers to have equal insight into their emissions and spending, enabling them to make more climate-friendly choices.

Global ambitions

Oda aims to become a completely carbon-neutral company by 2030. By 2025, Oda will have 100% emission-free transport. Their ambition is to become the world's most efficient and sustainable grocery store – starting in Norway, Finland, and Germany. "Fortunately, we have committed customers on our side, and we are all positively looking towards to the future", Fuchs says.



NATURA & CO

Beauty giant reinforces climate goals by stepping up for the Amazon

Natura &Co from Brazil is the world's fourth largest pure-play beauty company, with brands like Natura, Aesop, The Body Shop and Avon all gathered under the same roof. Their product lines are developed and marketed with a clear vision: to satisfy the self-care needs of a modern consumer without compromising the needs of nature itself.

"Our motivation is not to be better than others or to have all the answers, but instead, to engage with a broad range of stakeholders and, together, find solutions that allow faster and wider positive impact for all," says Roberto Marques, Natura &Co CEO and executive chairman.

Net-zero by 2030

All Natura &Co brands have had their own carbon commitments from the outset. Natura, Natura &Co's founding company, started its Carbon Neutral Program back in 2007 and now has more than 14 years of experience in measuring, reducing, and offsetting its greenhouse gas emissions. Aesop is carbon-neutral in its home markets of New Zealand and Australia, and Avon is net-zero scope 2 emissions with 100% of energy coming from renewable sources. By working systematically with every part of the value chain, the whole group, with its four brands, has now pledged to become carbon net-zero by 2030, across scopes 1, 2, and 3. In other words, from the extraction



LOCAL: Brazilian company Natura &Co takes responsibility for preserving rain forest in the Amazon. Photo: Natura &Co.

of raw materials through to the delivery of the final product to their customers. Packaging materials of fossil origin are being replaced with both recycled packaging and renewable materials like sugar cane-based green polyethylene.

Also, more than 90% of the ingredients in Natura's products are raw materials of vegetable origin, sourced in most cases from the company's network of local agricultural communities across Latin America. But why stop there, when consumers all over the world are starting to realise that one of the most important measures to mitigate global warming is to take care of our forests?

Combating deforestation

Natura's own home country, Brazil, is also home to the largest part of the world's largest rain forest and a massive natural carbon sink: The Amazon.

Worldwide, these types of forests are under increased pressure from deforestation, and the rapid destruction is responsible for 10-15% of global climate emissions, according to the UN. Therefore, the Natura &Co group has increased its goal to preserve rainforest from an area of 4 million acres to 7.4 million acres. One way of doing this is through initiatives like Natura's Circular Carbon programme, in which the company compensates local communities not only for sourcing biodiverse ingredients but also for reforestation efforts.

"We want to end all legal and illegal deforestation in the entire area," says Silvia Lagnado, Natura &Co's sustainable growth officer.

MICROSOFT

Beyond net-zero: How Microsoft will become carbon negative



CARBON NEGATIVE: The same year that Microsoft turns 75, the company's historical CO₂ footprint will be gone. Photo: Getty Images.

Microsoft became carbon-neutral back in 2012. Now, their goal is to be a carbon-negative, water positive, zero waste company by 2030.

"In 2050, the same year that Microsoft turns 75, the company's historical CO₂ footprint will be gone," says Michael Engström, digital advisor at Microsoft Norway. Among the measures are transitioning data centres, transport solutions, and campus buildings to renewable energy, spending water as efficiently as possible and specific changes to reduce waste. According to Engström, the company has a range of ongoing initiatives.

Biodiversity

"We want to create the Planetary Computer, which is Microsoft's tool for the preservation of biodiversity. Building on data from across the planet, it provides better monitoring, modeling, and management of the world's ecosystems. Another focus area are tools that will help customers and partners reduce their carbon footprints, specifically targeting the use of water and waste management," Engström explains. He adds: "Last, but not least, we will continue to invest in our most important resource – our employees."

IT powers decarbonisation

The company has started a USD 1 billion climate innovation fund that has already invested USD 150 million. The fund aims to accelerate the global development of carbon reduction, capture, and storage technologies (CCS). "CCS has great potential to reduce carbon emissions. Microsoft's intent is to work with the industrial sector to create a new business opportunity around CCS. We will explore how a software platform based on 'open-source' principles could help foster the technology and business innovation needed to make CCS a reality at scale," says Engström.

The company's IT solutions can also contribute to a faster transition in other sectors. Solutions that improve economies of scale will be central. "First and foremost, the cloud is important in this regard, as it provides a shared platform with easily accessible solutions and data for companies across industries. As well as an effect on prices, this also affects the time to market, and the quality of the solutions. Data and analytics will drive this development forward, being at the core of optimizing our energy production and utilisation," Engström concludes.

VOLVO

Climate change – the biggest safety test



Name: Stuart Templar
Position: Director of global sustainability at Volvo Cars

Q: What is the ultimate safety test today?

A: The greatest challenge that our planet faces is global warming. As a mobility provider, we recognise that we are part of the problem and need to be part of the solution. So, for us, climate change is our ultimate safety test.

Q: How is the car industry taking action?

A: Accelerating the global transition to zero emissions within mobility is key to the world reaching net-zero emissions by 2050. The industry is responding with substantial investments in fleet electrification. Volvo is planning to be a fully electric car company by 2030 and intends to set the pace of our industry's transition. We hope that more manufacturers will join us in setting an end date to phase out

the production of internal combustion engine (ICE) vehicles, particularly ahead of COP26.

Q: Is electrification enough?

A: No! Emissions need to be addressed across the whole value chain. We aim to reduce our lifecycle carbon emissions per vehicle by 40% by 2025 (2018 base year). We can only do this with the full support of others, particularly our suppliers. The global transition to clean energy is vital for us and other companies to reach their climate goals. So, action from energy sector players, like Equinor, to decarbonise their business is very welcome.

Q: How will Volvo recharge its own business with sustainability?

A: Sustainability is as important as safety to us, with climate action having the highest priority.

We aim to be a climate-neutral company across our value chain by 2040, and in the interim period reduce our lifecycle carbon emissions by 40% per vehicle by 2025. This includes addressing emissions in our operations. We are making good progress towards reaching our goal to have climate-neutral manufacturing by 2025 – our global plants are currently powered by around 56% climate-neutral energy, including over 90% climate-neutral electricity. Finally, we are embracing the circular economy with the aim of being a circular business by 2040. From 2025, through adopting circular economic principles and practices, like remanufacturing parts and increased recycled content, we intend to reduce carbon emissions by 2.5 million tonnes per year and

generate annual savings of SEK 1 billion. Moving from a linear to a circular business model will be a challenge, but we are up for it!

Q: What are the greatest challenges ahead?

A: Electrifying at sufficient speed, not least to meet rapidly tightening regulatory requirements, particularly around CO₂ tailpipe emissions. And ensuring that the supportive conditions are in place, including extensive charging infrastructure. In addition, addressing emissions across the value chain and sourcing materials responsibly. Those companies that do not will struggle to attract investment and will face an uncertain future. In short, becoming a more sustainable company makes good business sense!

KLM

Small steps, huge impact in aviation sustainability



Name: Gijs van Popta
Position: General manager North Europe for Air France-KLM

Q: Sustainable travel and flying: how do you reconcile the two?

A: Too much of anything is never good. At the same time, we want to stress that traveling is not inherently wrong – it is the emissions that we need to counter. Air France-KLM invests one billion euros every year in new, lighter, and more fuel-efficient aircrafts. The next step is to run this 'new' fleet on Sustainable Aviation Fuel (SAF).

Q: KLM ranks among the most sustainable airlines in the world. How is KLM playing a pivotal role in the energy transition?

A: We are developing a SAF factory

in the Netherlands, which makes KLM the first airline in the world to invest in SAF on a big scale. Besides SAF and a new fleet, a lot is being done in electrical ground handling equipment, catering, and waste management.

Q: In your 'Fly Responsibly' campaign, you stress the importance of cooperation. How can we work together to make the necessary changes?

A: To fly responsibly is a shared responsibility. We all must contribute in order to succeed. Companies can choose to join our SAF programme to reduce or compensate for CO₂ emissions

from corporate travel. Customers can also climate offset via our CO₂ZERO programme, choose vegetarian onboard and pack as light as possible. We do also ask everybody to explore other options like the train for shorter distances.

Q: How can the industry move quicker towards sustainability?

A: We need to continue to accelerate the demand and supply cycle of SAF. Today SAF is 3 to 4 times more expensive than fossil fuels. This price gap needs to be reduced significantly.



NEW NORMAL: Emissions from working from home must also be reduced. Photo: Getty Images.

STANDARD LIFE ABERDEEN

Emissions from the home office: A new challenge

The Scottish-based investment company Standard Life Aberdeen has set an ambitious goal: To reduce greenhouse gas emissions from operations by 50% by 2025, compared to the 2018 baseline.

Cutting back on unnecessary business travel is an important part of the plan and something the company has already seen significant effects from during the pandemic. At the same time, Standard Life Aberdeen last year went from having less than 1% employees working from home to over 95%. This means that the company's largest carbon footprint from day-to-day operations now comes from working from home.

The investment company, has partnered up with eco-tech company Pawprint to do something about these emissions. Pawprint will help employees measure, monitor, and reduce their emissions daily. In practice, this is done through an app where everyone enters their data, gets insight into which activities have the largest carbon footprint, and is challenged to cut down on these.

"Commitments to becoming a more sustainable company must be something more than just words," says Standard Life Aberdeen CEO Stephen Bird.

The company is set to reach net-zero emissions by 2050. Halving emissions from operations by 2025 is an important step along the way and something all 6,000 employees are now actively encouraged to contribute to.

IKEA

IKEA's plan for a truly circular business model

Since 1943, IKEA's strategy has been to create a better way of life by selling "democratically-designed" furniture. The formula has been a huge success, but being based on a linear business model, it is not sustainable for the future. This is why IKEA is now developing a circular business model, built on sustainable alternatives and products that people can return to the production cycle.

"In our opinion, this transition is not a choice but a prerequisite to operate as a business in the future. That's why we don't consider the transition to be demanding, rather a development that is both necessary and desirable," says Siri Norhagen, sustainability manager at IKEA Norway.

One goal – many initiatives
Globally, the Swedish furniture giant is working to become 100% circular and climate positive by 2030. Each country has its own plan and initiatives to achieve these common goals.

"In Norway, for example, we focus on the 'IKEA buy-back programme', a joint national system for recycling, 'IKEA leasing', and making free spare parts available to order online," says Norhagen.

The changes are getting attention. International rankings have repeatedly celebrated IKEA as a leader within sustainability. To ensure that the entire value chain contributes positively to society, the company will invest 4 million euros in renewable energy.

"This is proof that we are committed and that we have the will to invest what is needed to achieve these goals. I believe that collaboration is the key to success in the future," says Norhagen.



CIRCULAR: IKEA sees the circular economy as a great opportunity. Photo: IKEA Norge.

GREAT EXPECTATIONS

What is the most important area Equinor must address to succeed with the energy transition? What expectations do climate experts have for the company?

Tore Furevik is a climate researcher, energy expert and the director of the Nansen Centre – a research centre at the forefront of climate change knowledge and modelling.

According to Furevik, the energy transition is on the right track. He emphasises that we still need a more aggressive climate policy and that companies such as Equinor must take the lead. "After the UN Climate Panel (IPCC) released the 'one-and-a-half degrees report' in 2018, the world has come to fully realise the consequences of global warming. There is nothing magical about 1.5 or 2 degrees, but the higher the temperature – the worse are the consequences. This was further emphasised by the new comprehensive assessment report released in August 2021 by the climate panel. The goals of cutting greenhouse gas emissions in half by 2030, and achieving climate neutrality by 2050 or 2060, will require a complete restructuring of the energy sector – which currently accounts for three-quarters of the world's greenhouse gas emissions," he says.

A need for more aggressive policies

Despite the technological developments, the financial sector realising the necessity of the energy transition and the commitment from the general public for a greener and more sustainable future, in Furevik's opinion, things are not happening fast enough.

"Changing the mindset of key players, getting an effective policy adopted and implemented, developing renewable energy sources, replacing billions of cars and heavy goods vehicles, building railways, and changing industrial processes take time. The costs are substantial – financially, and in terms of materials and emissions," he says, adding that a quicker pace of change will require even more aggressive policies. "We need higher carbon taxes – as well as carbon tariffs that can prevent the relocation abroad of the 'worst industries'. Simply put, a policy that makes it cheap and simple to live in an environment-friendly way and expensive and more challenging to live in an environment-hostile way. This must affect people's wallets, their use of time, and companies' revenues," he says.

The industry must take the lead

Furevik firmly believes that the industry, and particularly companies such as Equinor, have a special responsibility to take the lead since they represent large emissions, have significant financial muscles, and have



RECOMMENDATION: Climate researcher, energy expert and director of the Nansen Centre, Tore Furevik, believes that the industry, and particularly companies like Equinor, must take responsibility for driving the energy transition. Photo: Einar Aslaksen.



CLEAR: "What we need, simply put, is a policy that makes it cheap and simple to live in an environment-friendly way, and expensive and more challenging to live in an environment-hostile way," says Tore Furevik, seen here on the rooftop of the Nansen Centre in Bergen. Local mountain top Ulriken in the background. Photo: Einar Aslaksen.



INSTRUMENT: More extreme weather events are one of the consequences of global warming. This weather station is located at the Norwegian Meteorological Institute in Bergen, also home to the Nansen Centre. Photo: Einar Aslaksen.

expertise and networks that can be of major significance for the energy transition.

"In my opinion, Equinor does a lot of things right. There is a huge difference between their current ambitions for the development of renewable energy compared to those stated just a few years ago. At the same time, there is no denying that the company has a reputation problem, both in Norway and internationally. Oil and gas are still being explored for near the ice edge. Any discoveries there will be far from other infrastructure, and development would involve high financial and environmental costs," says the climate scientist. He also notes that not long ago, Equinor was invested in oil sands in Canada and shale gas in the United States.

"One of the most important things Equinor can do in the future is to collaborate with others, including Norwegian research communities, who can contribute to the changes needed in the energy sector. This will be important in order to build the jobs of the future. If we manage to cooperate, there is no reason to fear for lack of work when the oil age comes to an end. The jobs may not be as profitable as in the oil sector, but not to worry. We do not need to keep adding to the world's biggest investment fund," Furevik says.

Less oil, more offshore wind

Furevik also believes that Equinor should shut down its exploration activity far away from existing infrastructure and invest even more in renewables.

"The recent IEA report on net-zero emissions by 2050 made it clear that there is no room for expanding new fossil supply in our one-and-a-half-degree pathway. This message was repeated by the Secretary-General of the United Nations, António Guterres, during the presentation of the new report from the climate panel. So why look for new oil and gas fields? Why can't Equinor instead – once and for all – publicly say no to new exploration activity in the northern Barents Sea, Lofoten, Vesterålen, and Senja – and far away from existing infrastructure?"

This would have a far higher impact than all the advertising campaigns in the world and would probably also save the company and the Norwegian people major expenses in the years to come. In addition, it would set a clear direction for the company – all new investments will be renewable from now," he says.

What Furevik believes the company should focus on in the future is offshore wind power. "Both bottom-fixed offshore wind farms and, increasingly so, floating offshore wind farms, are excellent examples of how offshore

technology developed in oil and gas can be employed in the energy transition. The potential for further development in Norwegian waters, in Europe, the USA, and Asia is enormous. This work must be warmly applauded and backed," he concludes.

One of the most important things Equinor can do in the future is to collaborate with others.

Tore Furevik
Director of the Nansen Centre

Tim Gould is chief energy economist at the International Energy Agency (IEA) and analyses the implications and opportunities facing the energy sector in the energy transition.



FOLLOW THE MONEY: Tim Gould, chief energy economist at the IEA, says the clearest indicator of how a company is thinking about the future is where they put their money. Photo: Robert Stone, IEA.

"You sometimes hear the line that 'we have all the tools that we need, the only thing we're lacking is political will'. That's partially true, but I don't think it captures the essence of the transition or the complexity of the energy systems. The energy sector is full of long-lived infrastructures – it is not something that can be turned around overnight," Gould says.

To make the transition go faster, anything we add to the energy system must be as clean and efficient as possible, he explains.

"Renewables and electric vehicles are setting new records each year, which is great news, but the world is still missing out on opportunities to install the technologies of the future and the networks that will support them."

Innovating new technology

There are some countries that continue to build new coal plants. There are many more that are failing to tighten efficiency standards for new appliances and buildings, Gould explains.

"Saying that, we need to remember that there are sectors where clean choices are still tough, where we don't yet have all the technologies necessary – for long-distance

trucking, shipping, aviation, some heavy industrial sectors. So even as we run as fast as we can with the mature clean technologies, we have to innovate to bring down the cost of the technologies that we know we'll need but aren't yet readily available."

Central role

According to Gould, energy companies are central to the energy transformation. "They are the ones that invest, innovate and employ. The most important way that they can make a difference is by showing that they are supporting change – not just in their words but also in their actions. Of course, there are risks if they move faster than societies and policymakers. But there are also huge commercial opportunities for companies that become the technology leaders in a low-emissions energy sector."

"Any company that is well-positioned for transitions will have a credible and ambitious commitment to reduce emissions from its operations and products, as well as transparency on the risks that climate change might pose to their businesses. But perhaps the clearest indication of how companies are thinking about the future comes when they invest. Where companies are putting their money, that's the real litmus test," he says.

FACTS

An average of 17 kilogrammes of CO₂ is emitted in the production of each barrel of oil world-wide. On the Norwegian continental shelf this average is 9 kilogrammes, whereas at Johan Sverdrup, the average is a record-low of 0.67 kilogrammes. The field is powered from shore, mainly by clean Norwegian hydro power.





Oil and gas, what now?

Public debate about the future of the oil and gas industry in Norway is loud at times. Several voices demand a full stop to all exploration activity. The world needs fast decarbonisation. Equinor's response is to transition into a broad energy company, maintaining its focus on oil and gas, while targeting net-zero emissions in 2050.

Ever since the 1970s, the petroleum industry has been the most important and profitable industry in Norway. Moving forward, it is the collective industrial force and unique competence of this sector that forms the foundation for a successful energy transition.

The responsible management of the remaining oil and gas resources is essential, both to ensure continued supply to the world of oil and gas with a low CO₂ footprint and to secure the transition of the Norwegian continental shelf to a net-zero future. This will enable Equinor to invest in the transition, developing new business areas within renewable energy and low-carbon solutions. In turn, this sets the stage for new activity for the supply industry of the future.

Fram, the "oil field of the future"
Equinor says the company will focus on optimising its oil and gas portfolio. But what does this really mean? Look to the Fram oil and gas field, about 150 kilometres out to sea, northwest of the coastal city of Bergen, Western Norway. Just five small subsea installations reveal that this is an active oil field. From Fram, the oil is pumped up

and sent through a network of subsea pipelines to Troll C – a floating production platform 20 kilometres further south. "Before, the size of the Fram field would have meant building a traditional platform with major investments and significant CO₂ emissions," says project director Lasse Stoltenberg. That is not the case today.

Highly efficient

"The proximity to Troll C and the development of new subsea solutions enable us to further develop and operate the Fram field in a more efficient and environmentally sound way than we would otherwise have done. By utilising the existing platforms' spare capacity, only new subsea templates and transport solutions must be developed," he says. This is how optimisation works in practice: To explore for oil and gas and develop projects nearby existing infrastructure. This paves the way for new fields to be put on stream fast, at low costs, and with shorter payback time. Additionally, when the infrastructure also facilitates lower emissions from production due to electrification, it heightens the comparative advantage in a decade where

global demand for oil and gas will continue to stay high.

Over time, this can also strengthen Norway's long-term competitiveness in the international oil and gas market. As the world works its way towards net-zero emissions, it is expected that the market will increasingly demand the cheapest barrels with the lowest CO₂ footprint.



GOOD MODEL: Lasse Stoltenberg, project director for the Fram field, is convinced that exploration near existing infrastructure is a model that promotes efficiency – in terms of both profitability and reduced carbon emissions. Photo: Christian Djupvik Brandt-Hansen.

Emission reduction is quite simply essential to our licence to operate as an energy company in the future.

Trond Stokka Meling
Project director for Bacalhau

Decarbonising through electrification

Emissions from the oil and gas sector today account for almost a quarter of Norway's total CO₂ emissions. The consumption of gas for power supply on a single platform equals nearly as much CO₂ as the emissions from a small town. Replacing this gas with electric power – either from land or nearby floating wind turbines – is an important measure to cut these emissions.

Equinor has extensive experience in this area from Troll – one of Norway's biggest and most productive oil and gas fields. Back in 1995, Troll A was the first oil platform in Norway to be powered from shore. Now, Troll C will be fully electrified, while Troll B will be partially electrified.

"Electrification of platforms enables cutting CO₂ emissions from the actual production. By replacing the gas turbines with electrical power, the so-called scope 1 emissions from the new discoveries in the Fram area will be reduced to almost zero kg CO₂ per barrel," says Stoltenberg. The company is currently working on measures to reduce its emissions in Norway by 40% by 2030. This means a reduction of 5 million tonnes of CO₂, which corresponds to 10% of Norway's total emissions.

New finds with profitable profiles

"Several discoveries linked to the Fram field have been made over the last year. We have been aware of the potential here for 20 years, but only now – with the

opportunity to easily tie in to the infrastructure at Troll – further exploration has become feasible," says Tom Dreyer, head of exploration for the northern North Sea. In short, it is now possible to develop the resources in a far more profitable way than before. "We see excellent potential for finding viable deposits near existing fields. This ensures effective resource management and the foundation for profitable barrels with low emissions, which are both essential factors in the optimisation of the Norwegian continental shelf," Dreyer says.

In addition to electrification and the development of existing fields on the Norwegian continental shelf, the company is improving and developing its international portfolio. It involves sharpening the portfolio to include fewer regions and countries, focusing on offshore activities where the company has its core competence. One of the most important focus areas is Brazil.

Bacalhau – The last giant?

185 km off the coast of São Paulo in Brazil, the decision was recently made to invest in Bacalhau Phase 1. This is the company's biggest-ever field development outside Norway. The Bacalhau field contains between four and five billion barrels of oil, comparable in size with the Norwegian giants Statfjord and Johan Sverdrup. Bacalhau Phase 1 has an estimated recoverable volume of 1 billion barrels of oil. The Bacalhau field is located at a depth of 2,000 metres in the



GOOD COLLABORATION: Project director for Bacalhau, Trond Stokka Meling, praises the collaboration within the project and thinks the development of Bacalhau has benefited from complementary knowledge and technological expertise from various disciplines. Photo: Aline Massuca.

FACTS

Optimised oil and gas portfolio

- Concentrate and optimise the portfolio around the Norwegian continental shelf and selected international areas
- Build on experience, scale and competitive advantage to take a leading position
- Exploration activities near infrastructure and a selective approach to new areas
- Create a solid cash flow to develop the portfolio and finance the transition
- Technology and competence transfer to low-carbon solutions and renewable energy
- Carbon-neutral global production by 2030

Source: Equinor's updated strategy for 2021

FACTS

Emissions from Fram

Scope 1 refers to direct emissions from production. Equinor's target level is 8 kg of CO₂ emissions per barrel, while the international average is 17 kg of CO₂ per barrel. Aiming for zero emissions, the Fram field is emitting record-low quantities of CO₂.

Emissions on Bacalhau

The estimated CO₂ emissions for Bacalhau are now below 9 kg of CO₂ per barrel, close to the average in Norway, and far below the international average of 17 kg of CO₂ per barrel.

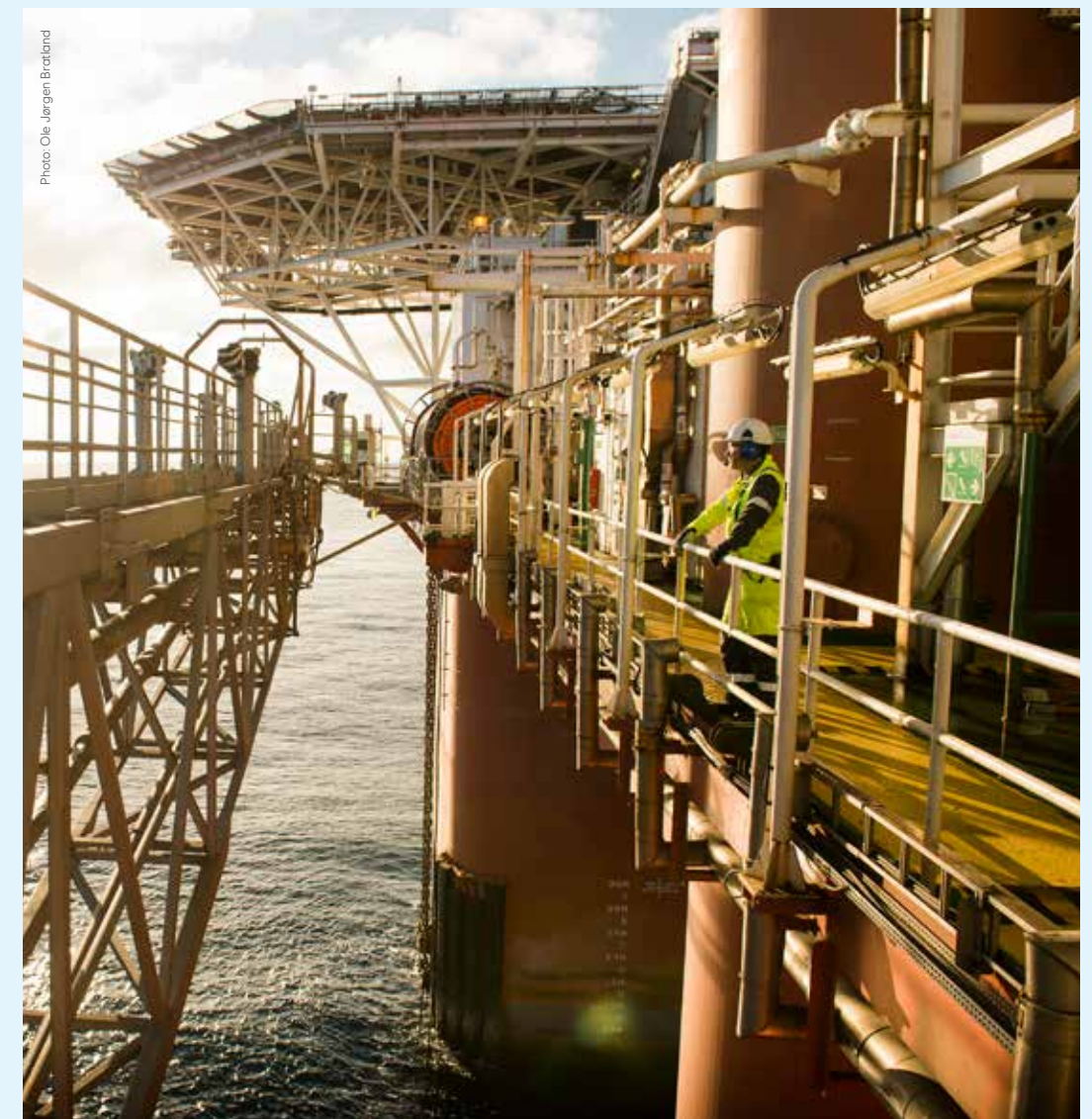


Photo: Ole Jørgen Bratland

"pre-salt" basin, the most prolific oil province in Brazil. Equinor is the first international company to operate a field development in this province.

"The Phase 1 development concept will include a production vessel and a subsea production system consisting of 19 wells in total. Due to very high reservoir pressure (900 bars), high-performing, high-tech solutions are required to ensure a safe development and operating phase," says Lars Jetlund Hansen, head of the subsurface work in the Bacalhau area.

All the gas produced will be reinjected from day one to enhance recovery. This means that Phase 1 does not depend on a gas export

solution and has enabled faster development of the field. However, reinjection is an energy-intensive process that increases CO₂ emissions from production.

"With Equinor at the helm, a new type of combined power technology has therefore been invested in to reduce emissions," says Jetlund Hansen. "This technology makes it possible to reuse large amounts of heat from the platforms gas turbines' exhaust. In turn, it helps to reduce CO₂ emissions significantly," he explains.

Global cooperation

Production in Bacalhau is due to start in 2024. It is currently a global joint venture between Equinor, ExxonMobil, Petrogal and PPSA – the regulatory agency in

Brazil that represents the country's national interests. Unlike Norway, Brazil does not currently have regulations in place for the taxation of CO₂ emissions.

"The fact that our partners, despite this, joined in with large CO₂-reducing investments was absolutely crucial. We could not have done this alone," says Trond Stokka Meling, project director for Bacalhau.

"The expectation that we are moving towards a more sustainable economy will make CO₂ reduction profitable in the long term," he explains, and summarises: "Emission reduction is quite simply essential to our licence to operate as an energy company in the future."



Photo: Aline Massuca

IMPORTANT PORTFOLIO: Country manager for Equinor in Brazil, Veronica Rezende Coelho, is involved in the company's project work in Brazil – which remains an important and long-term priority area for the company.
Photo: Aline Massuca.

Every job counts in Brazil

According to Veronica Rezende Coelho, country manager for Equinor in Brazil, around 3,000 people will be employed directly or indirectly as a result of the Bacalhau development.

"There is a saying that every dollar counts, in Brazil every job counts. It is therefore great to have such a project, which enables substantial value creation for our company and the country's inhabitants at the same time. It is at the core of our purpose – creating value for shareholders and the society," she says.

As an important stakeholder in Brazil since 2001, the company is currently also developing renewable energy solutions in the country. One example is the Apodi solar farm, located in the north-east of Brazil.

"You know, the atmosphere does not adhere to international borders. The fact that we are working with an increasing number of companies in Brazil and are developing the Brazilian energy portfolio in an environment-friendly and responsible way will contribute to a more sustainable future," concludes Coelho.

There is a saying that every dollar counts, in Brazil every job counts.

Veronica Rezende Coelho
Country manager for Equinor in Brazil



Photo: Einar Asbjørn



TOGETHER: Cooperation between offshore and onshore is essential in order to succeed. From left: Tine Jensen Fjælberg, graduate at EPN, Gro Stakkestad, maintenance lead at Gullfaks, and Ole Johan Sverdrup, process operator Gullfaks A are closely cooperating to reduce emissions at Gullfaks. Photo: Einar Aslaksen.

TRANSFORMING THE GIANT

The noise and heat in module M22 on Gullfaks A are intense. Two of the four gas turbines – the size of jet engines – are generating power at full speed to keep operations on Gullfaks A and B running. The power needed to maintain safe and secure operations on one of the Norwegian continental shelf's oldest fields contributes to more than 800,000 tonnes of carbon emissions per year.

This makes Gullfaks, a field located in the centre of the Tampen area 140 kilometres west of Bergen, one of Norway's largest emitters. Reducing the field's emissions is not just essential to the successful achievement of Norway's and Equinor's climate goals, but is also an important part of the efforts to optimise the Norwegian continental shelf for the future.

As Gullfaks was the first field developed and operated by Statoil, it was essential to show that the company could live up to the task. Since 1986, the giant has generated over NOK 1 trillion in government revenues. It has secured jobs for Equinor and supported a growing supplier industry. Gullfaks has also delivered significant quantities of natural gas crucial to the EU's efforts to reduce the union's greenhouse gas emissions by more than 25% between 1990 and 2020. However, Gullfaks faces one major challenge:

"We are one of the largest emissions points – both on the NCS, and in Norway as a whole. Fields such as Gullfaks and Snorre must become climate neutral. This is the future. This is how we ensure that we can produce energy with the lowest possible emissions over the next 20 years," says Cathrine Alnæs Pedersen, platform manager on Gullfaks A.

This task is by no means easy, but strong cooperation between offshore and onshore, and the business areas EPN, REN and MMP, will lead the way for significant emissions cuts. The slope of the emissions curve is already declining. Three measures are highlighted: Energy optimisation,

Hywind Tampen and a feasibility study for hydrogen at Tampen.

Small steps – real improvements

"We have daily meetings where we assess how we can operate our facilities in the most efficient way possible, while minimising emissions," says Tine Jensen Fjælberg, a recently hired graduate in EPN and a member of the Gullfaks Energy and Production Optimisation Team (EPOG). Jensen Fjælberg works at Sandsli in Bergen, but this week she is at Gullfaks to meet with partners and colleagues offshore. Both the on- and offshore members of the team meet every day to assess various issues such as flaring, 'oil in water numbers', and energy consumption.

Since 2008, Equinor has implemented approximately 440 different measures and initiatives to reduce emissions from the Norwegian continental shelf. Initiatives taken daily at Gullfaks are a vital part of this work. Jensen Fjælberg attends daily meetings with the team in the Central Control Room (CCR). Today, the CCR technicians Vivian Kolås and Anita-Helen Heltveit are closely monitoring all processes, from the well pressure to the production and transport of oil and gas from the field.

We are one of the largest emissions points – both on the NCS and in Norway as a whole. Fields such as Gullfaks and Snorre must become climate neutral. This is the future.

Cathrine Alnæs Pedersen
Platform manager on Gullfaks A



Photo: Einar Aslaksen

Through the detailed monitoring of the entire plant, they can operate and optimise the generation of and the demand for power.

"We coordinate power-intensive equipment and demand across the entire field. We will occasionally shut down processes to use less energy. This means that we can avoid having to fire up an extra turbine, which helps keep our CO₂ emissions as low as possible," says Helena Belien, operations and maintenance manager on Gullfaks A. She emphasises the importance of close cooperation with the organisation onshore, where they have an overview of the whole operation, to ensure that decisions made at Gullfaks do not create challenges for anyone else.

"We must consider the full picture – cutting CO₂ emissions and economic factors," says Belien. However, there is no doubt that cutting CO₂ emissions at scale will also be financially beneficial. "CO₂ taxes will eventually be so high that if we don't manage to reduce our emissions, our production won't be profitable," she adds.

For 2021 and 2022, the goal is to cut emissions from Gullfaks by close to 65,000 tonnes of CO₂. A reduction of almost 10% is substantial. However, it is not until the end of 2022 that reduction in emissions for the Tampen area will truly accelerate.

A floating wind farm breaking world records

Currently, the foundations are in production for 11 wind turbines which are to be transported to the Tampen area in early 2022. Together, they will form the world's largest floating offshore wind farm with masts extending 110 metres above sea level and 90 metres below.

The floating giants will be anchored to the seabed and connected to the Snorre and Gullfaks fields through power cables. Hywind Tampen has a capacity of 88 MW and is estimated to cover approximately 35% of the annual demand for electrical power on the five platforms Snorre A and B, and Gullfaks A, B and C – and substantially more during especially windy periods.

Glenn Danielsen is responsible for the field's power supply and monitors the operation of the gas power turbines. In the control room, built in the 1980s, he oversees a combination of wall-mounted screens and modern equipment for data monitoring. He looks forward to the day when the data from the offshore wind farms can be combined with the existing gas turbine data.

"With sufficient data from the wind turbines, we will be able to adjust the energy usage of the field even better. When Hywind

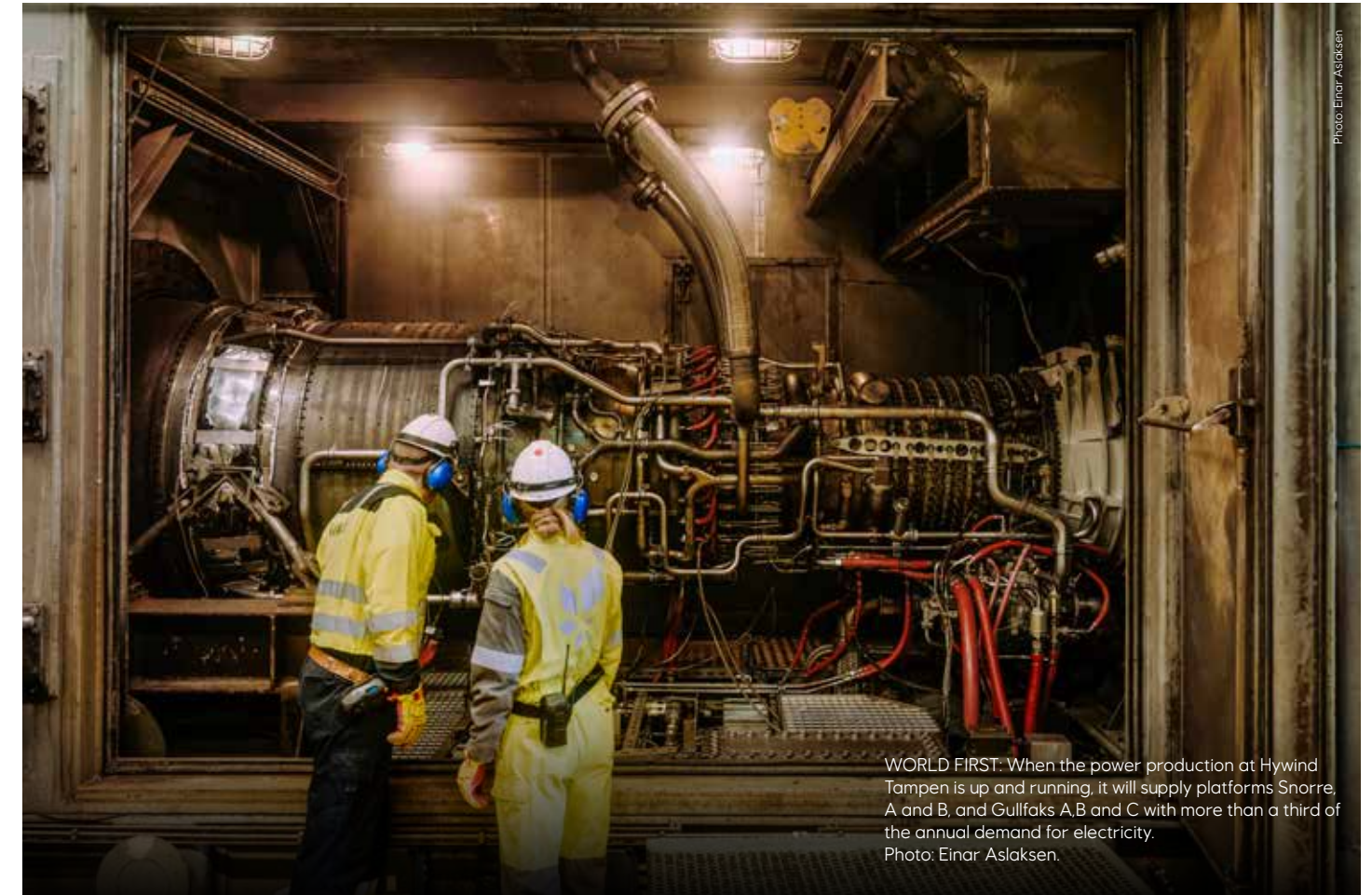


Photo: Einar Aslaksen

WORLD FIRST: When the power production at Hywind Tampen is up and running, it will supply platforms Snorre, A and B, and Gullfaks A,B and C with more than a third of the annual demand for electricity. Photo: Einar Aslaksen.

Tampen operates at full capacity, we should be able to halve our consumption of gas power. We will also be notified well in advance to start the second turbine to power operations, if the wind power is not sufficient," says Glenn Danielsen. He describes the connection to Hywind Tampen as 'a power cable and a large fuse box'. However, being the first field connected to a floating wind farm is so much more significant than that.

"It is the development of new technology that can help lay the foundation for a new industry in Norway. We feel like the company is investing in us, and it is particularly fun to be working on a pioneering platform," adds Glenn Danielsen – referring to both the offshore wind project and another project currently in its initial stages.

A clean future for an old workhorse?

Gullfaks is not just the first field that will be connected to a floating offshore wind farm. EPN and MMP are also currently launching a joint research project

to explore whether the production from Gullfaks can achieve near-zero emissions in the future, by running the field's turbines on hydrogen instead of natural gas.

"This will be a way for us to document that we are able to use hydrogen in a process currently dependent on gas. It can mark an important step towards creating a future for energy in which oil and gas, renewable energy, hydrogen and carbon capture and storage all work together in a system," says Cathrine Alnæs Pedersen.

A study now kicked off together with the Snorre and Statfjord fields is exploring the possibilities of converting the current gas turbines to run on hydrogen. This requires the adaptation of infrastructure, but also, most importantly, that safety is maintained when using a new type of fuel gas.

"If we succeed, Gullfaks will go from worst in class to world class in terms of emissions. Not bad for a soon to be middle-aged workhorse", Alnæs says.

If we succeed, Gullfaks will go from worst in class to world class in terms of emissions.

Cathrine Alnæs Pedersen
Platform manager on Gullfaks A

TRANSITION: With electrification and, in the future, possibly hydrogen, Gullfaks will go from worst in class to best in class in terms of emissions, according to platform manager Cathrine Alnæs Pedersen. Photo: Einar Aslaksen.

An engine of growth offshore

Equinor aims to be a leading global player in offshore wind. Over the next decade the company's renewables development will equal all offshore wind power rolled out globally until now. The goal is to create a profitable business by accessing new markets early. This will also be the case in the Baltic Sea, where Poland now speeds up the country's energy transition.

Offshore wind power is a fairly new industry worldwide, but Equinor already has ten years of experience from the development and operation of offshore wind farms in the United Kingdom. In recent years the company has worked systematically to ensure access to acreage, including in the United States.

Poland will now be the third major market where the company is building offshore wind farms at scale. The breakthrough in Poland came in May 2021, when the Polish government awarded contracts for the projects Bałtyk II and Bałtyk III in the Baltic Sea. The progress made in Poland is an important milestone for Equinor and its Polish partner Polenergia. Together they are now set to develop the 240-square-kilometre ocean area, installing bottom-fixed wind turbines off the coastal city of Leba.

Phasing out coal

The story of offshore wind power in Poland is about a country that is gradually taking steps towards a more sustainable future. It is also a story about companies discovering opportunities before the authorities did so themselves.

Poland's main energy source is coal, and as a result, the country is struggling with high emissions of CO₂. Now, the government will no longer build any new coal plants aside from those already under construction. This marks the beginning of a comprehensive energy transition for the Polish nation.

"Coal power is no longer profitable for Poland. The future and the jobs lie in renewable energy," says country manager Michal Jerzy Kolodziejczyk of Equinor Poland.



NORWEGIAN-POLISH COOPERATION: Country manager Michal Jerzy Kolodziejczyk at Equinor Poland says the company and Norway have a good reputation in Poland. Photo: Marek Wiśniewski

Coal power is no longer profitable for Poland. The future and the jobs lie in renewable energy.

Michal Jerzy Kolodziejczyk
Country manager Equinor Poland



Change of pace
When production begins in 2026, Bałtyk II and III will be among the largest offshore wind power projects in Europe. With a combined capacity of 1.44 GW, these facilities can provide energy for two million Polish homes. "Poland has a great potential for offshore wind, and this fits well with our goal of developing 12-16 GW of renewable energy capacity by 2030," says Kolodziejczyk. The prospect of rapid and considerable expansion in Poland marks a change of pace for the company's commitment to renewable energy. In 2010, Equinor started looking for opportunities to build offshore

wind farms in the Baltic Sea but Polish authorities showed little interest until 2018. The company then became one of the first international developers to enter the Polish offshore wind market and bought half of the two licences that were owned 100% by Polenergia at the time. Three years later came the energy contracts, which secured the partnership a guaranteed minimum price on electricity from Bałtyk II and III for 25 years.

Winning formula
The story from the Baltic Sea is an excellent example of what Equinor believes to be the winning formula for offshore wind:

moving early to secure access to areas not yet developed, at a good price.

"In Poland, we worked with the authorities and other stakeholders to mature the market and were ready to move when the regulatory elements were in place," Kolodziejczyk explains. The international offshore wind market is crowded with highly competitive and it is getting tougher by the minute. The price to enter areas that have already been developed is high. When projects are matured together with partners and authorities, the risk for the company becomes lower, and shares in the offshore



LONG PROCESS: Christian Schülke, responsible for regulatory matters at Equinor Poland, has been working to establish the Bałtyk II and III projects in the Baltic Sea for the past five years. Photo: Piotr Dziubak

wind farms can be sold at a higher price. Equinor has followed this strategy for the Dogger Bank off the UK coast, Arkona off Germany, and in Empire and Beacon off the US east coast. In addition to the investment in Poland, large offshore wind projects are currently being built in the US, the UK, Norway, and Scotland, while South Korea and Japan are identified as emerging markets.

Aiming for renewables
It is clear that Poland has high ambitions for the development of offshore wind. The country's national renewable energy strategy aims to develop 11 GW by 2040, but the long term potential is even greater.

"This makes Poland one of the most interesting growth markets in Europe," says Christian Schülke, responsible for regulatory matters at Equinor Poland.

Since signing the agreements, developments have happened fast: In May 2021, the purchase of an area in the port town of Leba in Poland was completed. Here, an operating and maintenance base will be established for the projects in the Baltic Sea. This

means that increased industrial activity and new jobs can be expected locally, due to Bałtyk II and III.

Floating and bottom-fixed wind farms
The number of offshore wind farms with bottom-fixed turbines is already increasing rapidly around the world. However, a significant proportion of the world's ocean areas are so deep that only floating installations are possible. Therefore, many now consider floating offshore wind as the next wave of renewable energy.

"Floating offshore wind is in the early development phase. The allocation of areas and development of several large-scale projects will mobilise both operators and the supply industry. The industry will then be able to up-scale, industrialise and achieve cost reductions – equivalent to the development we already see for bottom-fixed installations," says Halvor Hoen Hersleth, project leader for offshore wind at Equinor.

Back in 2017, the company built the first ever floating windfarm, Hywind Scotland. In Norway, the Hywind Tampen project, which will

FACTS

Create profitable growth in renewable energy

- Accelerate efforts to build a solid industrial position
- 12-16 GW installed capacity by 2030 – five years faster than previously announced
- Ensure early access to immature high-potential markets
- Leverage our experience in technology, innovation and projects
- Create profitable growth
- Build new competence and capacity to support the transition
- Use the renewables portfolio to reduce emissions from our oil and gas production

Source: Equinor's updated strategy for 2021



GROWTH: Halvor Hoen Hersleth, project leader for offshore wind at Equinor, says there has been vast growth within offshore wind in the last ten years, and that the company's ability to navigate the increasing competition will be crucial. Photo: Einar Aslaksen.

be the world's biggest floating wind farm – is now underway. Since its inception, Hywind Scotland has had the highest capacity among the UK's offshore wind farms. This means that the wind turbines have had the greatest performance annually since start-up, due to good wind conditions and high reliability. "This shows that floating offshore wind farms can compete, and in some markets beat, bottom-fixed offshore wind farms," says Hoen Hersleth.

Huge offshore wind developments are needed
According to the International Energy Agency (IEA), offshore wind has great potential in transitioning the world's energy systems.

One of the players driving up demand is the EU. The EU Commission is committed to reaching climate neutrality in Europe by 2050, as part of the union's Green Deal. To get there, between 270 and 450 GW of

offshore wind must be developed in the European countries over the next 30 years. With a global total of only 30 GW from offshore wind power today, the task at hand for authorities, operators, and suppliers alike, is demanding.

For Equinor, these quantities represent an opportunity for value creation. "We have ten years of experience in offshore wind farms, both bottom-fixed and floating. If you combine our 50 years of project experience from oil and gas with our solid and rapidly expanding offshore wind portfolio, we are in a strong position compared to others," says Hoen Hersleth.

"Along the way, we must show the authorities, our owners, and other stakeholders that we can deliver on our existing projects and obligations, as well as creating value and becoming a leading company in the energy transition," he concludes.

FACTS

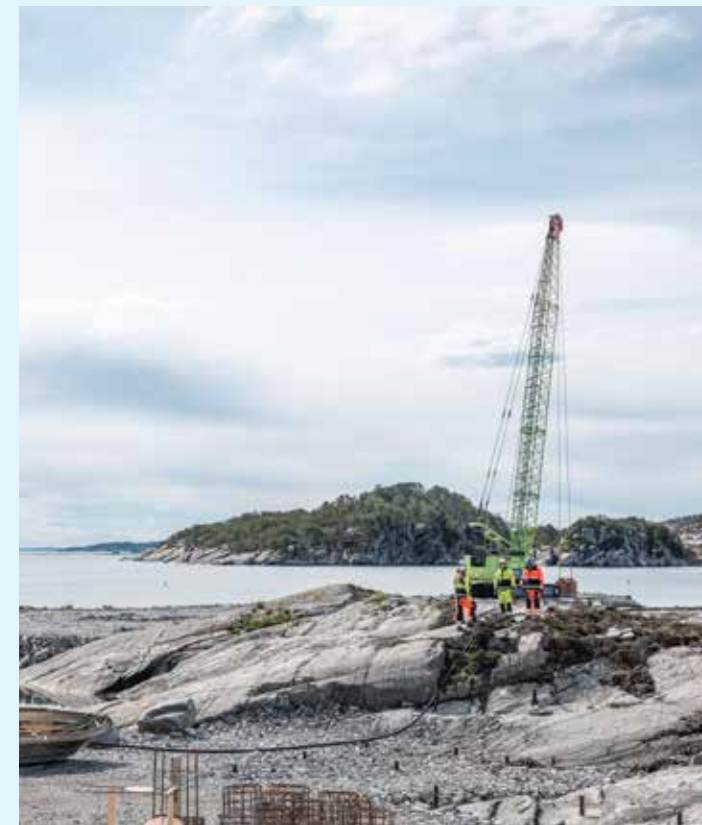
Floating and bottom-fixed wind power installations

- Bottom-fixed offshore wind turbines have bases that stand on the seabed
- At sea depths greater than 60 metres, floating bases are used, anchored to the seabed. Equinor has developed and built cylindrical bases in steel and concrete bases
- The turbines at Hywind Scotland have a floating steel foundation that protrudes 80 metres down into the sea. A turbine's total length from the top of the blade to the bottom of the steel foundation is 253 metres
- 80% of the areas with good wind conditions in the world require floating technology
- Particularly good wind conditions could give a higher capacity factor compared to bottom-fixed offshore wind. The capacity factor of a power plant is the ratio between achieved power production and the power production the power plant would achieve with full performance throughout the year

Source: Halvor Hoen Hersleth, Equinor

DEVELOPING A NEW INDUSTRY

The world cannot run on electricity alone. Heavy industries, transports, and logistics demand solutions like carbon capture and storage and hydrogen, to reduce emissions. Equinor is at the forefront with such projects, but markets are not yet developed.



UNDER WAY: Site preparations started in Øygarden in early 2021. Photo: Ole Jørgen Bratland.

The energy transition and climate neutrality are important for authorities, societies, investors, and energy companies alike. In the coming years, increased demand for efficient low-carbon solutions – like carbon capture and storage (CCS) – is to be expected. These are technologies and solutions designed to limit or remove CO₂ from industrial processes before the gas has damaging effects on the climate.

For Equinor, embarking into the low carbon territory is an opportunity to develop an industry fit for the future. The company is already well underway with projects such as Northern Lights in Norway, Zero Carbon Humber in the UK, and H2morrow in Germany.

A futuristic project

Northern Lights Joint Venture is a company owned by Equinor, Shell and TotalEnergies. It is the transport and storage component of the 'Langskip' project, where the companies have joined forces with the Norwegian government to develop a full value chain for

CO₂ capture, transport, and storage. The long-term goal for Northern Lights is to become a commercial provider of services to transport and store CO₂ on a large scale.

Site preparations started in January 2021 at Øygarden outside Bergen, where a receiving terminal for CO₂ is currently under construction. From 2024, industrial companies across Norway and Europe will be able to ship their CO₂ here. The greenhouse gas will then be pumped through a pipe leading offshore and injected and stored permanently in a reservoir, about 2,600 metres below the seabed in the North Sea. Phase one of the project will be completed mid-2024 with a capacity of up to 1.5 million tonnes of CO₂ per year.

The fact that construction has started marks a significant milestone for Equinor. With its 50 years of experience from offshore operations, and 25 years of experience from storing CO₂ in reservoirs deep below the

FACTS

New market opportunities in low-carbon solutions

- Develop new large-scale markets for CCS and hydrogen in Europe
- Work with partners, suppliers and customers to create new energy systems
- Upscale green industry using CCS and hydrogen to solve the most challenging parts of the energy transition
- Secure a 25% share of the European CCS market by 2035
- Contribute to 3-5 industrial clusters having hydrogen and low-carbon solutions by 2035

Source: Equinor's updated strategy for 2021



FUN TIMES: Ragni Rørtveit, business developer at Northern Lights, says it is fun to participate in the development of a new market. Photo: Einar Aslaksen.

OPTIMIST: CEO of Carbonor, Helene Mørne, says that she is a great technology optimist. "I think Norway is at the spearhead of the energy transition." Photo: Einar Aslaksen.



and confirms that the market is taking shape," says Ragni Rørtveit, business developer at Northern Lights.

Collaboration across the board

Initial investments in the Northern Lights development by Equinor and partners will total NOK 6.9 billion. However, the project would never have seen the light of day without broad collaboration. In 2020, the Norwegian government decided to finance approximately 80% of the total costs of investment and operation in Northern Lights Phase 1. It also offered financial support for the development of carbon capture solutions at Norcem and Fortum. This decision was what green-lighted the on-site development in Øygarden.

"When developing a new market, it is crucial that everyone, both the authorities and the industry, dare to explore new opportunities – even if they lie further down the road and are expensive and a little scary," says Rørtveit.

Inger-Elise Eknør, originally from Shell and now safety and sustainability site lead for Northern Lights, clearly states that collaboration across industries has been very important.

"I think it is as simple as this: to reach the climate goals we must work together and complement each other. Being able to work in a team where everyone has their special skills is very educational," she says.

Cutting industry emissions

Stakeholders in energy-intensive industries such as steel production, processing industries (cement production, chemicals, oil refining etc.) are predicted to be the first to seek out low-carbon services. Facilities and infrastructure in these sectors are currently structured around the use of fossil energy, and many companies will struggle to get rid of their CO₂ emissions without solutions such as CCS.

The CEO of Carbonor, Helene Mørne, has first-hand knowledge of these challenges. Carbonor is one of many companies that are in dialogue with Northern Lights. The company produces reduction material for the processing industry worldwide and sees many opportunities in CCS. To make sure its climate footprint is as little as possible, Mørne wanted to move the factory to Øygarden from Police in Poland.

When developing a new market, it is crucial that everyone, both the authorities and the industry, dare to explore new opportunities.

Ragni Rørtveit
Business developer at Northern Lights

FACTS

This is how CCS works

- CCS is an abbreviation of the term carbon capture and storage
- In short, CCS is about capturing CO₂ and storing it safely so that it does not reach the atmosphere. This reduces greenhouse gas emissions and slows down global warming
- The technology works by capturing CO₂ at the point of emission and storing it in 'pockets' below the ocean floor. These deposits are formed by nature itself and are the same type of geological structures that have kept oil and gas trapped for millions of years

seabed, the company has an important competitive advantage developing the world's first CO₂.

Growing demand towards 2050

Both the UN Climate Panel (IPCC) and the International Energy Agency (IEA) state that carbon capture and storage is necessary for the world to be able to achieve the goals of the Paris Agreement. The Øygarden facility will be the world's first commercial maritime transport and permanent storage of CO₂. Still, this is only a minor part of a bigger picture. There are currently more than 20 carbon capture and storage projects up and running worldwide. The vast majority are onshore, located in North America.

Assuming commercial agreements with customers who want to store their CO₂, it will be possible to increase capacity at Øygarden as early as 2025/2026, up to 5 million tonnes of CO₂ per year.

However, if the world is to reach net-zero emissions by 2050, the global CCS efforts must increase significantly. Various roadmaps estimate an increasing need for CCS – with some reports indicating the need to capture and store between 7 and 8 billion tonnes of CO₂ annually in 2050.

That's why getting the work started is important. Northern Lights is significant because it is the first large-scale project in the world that can receive CO₂ from all kinds of customers. "We are now taking the next step, building on our own unique expertise from offshore CO₂ injection at Sleipner and Snøhvit," says Torbjørg Klara Fossum, who heads the Global CCS Solutions department at Equinor.

The company already has valuable knowledge from areas such as subsurface, reservoir technology, well drilling and CO₂ management.

"In Europe in particular, we will have a competitive advantage with the North Sea as our closest neighbour. We have unique expertise and have access to many data that we can use to develop more storage sites", says Fossum.

Demand for storage sites

The reception facility in Øygarden will be remotely operated from the nearby Sture terminal. Starting out, 800,000 tonnes of CO₂ will be transported from Norcem's cement factory in Brevik and Fortum Oslo Varme's waste-to-energy plant in Oslo (provided financing) every year.

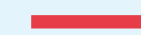
Northern Lights has already signed letters of intent with several European industrial companies looking to dispose of their CO₂, while a dozen other companies have expressed initial interest. "This shows the importance of projects and companies like this



TRANSPORT AND STORAGE. This is what the facility in Øygarden will look like when the development is completed. Illustration: Northern Lights JV



HANDS-ON: Torbjørg Klara Fossum, who heads the Global CCS Solutions department at Equinor, has been working hands-on the company's carbon capture and storage initiatives for the past seven years. Photo: Einar Aslaksen.



Northern Lights is just the start, and we see that there is a need to mature many more storage sites.

Torbjørg Klara Fossum
Head of Global CCS Solutions

"The location allows us to send our CO₂ in pipes from the factory and straight into Northern Lights. We can also achieve our circular ambitions. Other companies in the area can make use of our leftover energy," Mørne explains. Globally, industrial activities account for 23% of the annual CO₂ emissions. Without low-carbon solutions it will be challenging to achieve the goals in the Paris Agreement.

The future of CCS
The measures necessary to reach the climate goals will require money as well as comprehensive behavioural change across the board. For carbon capture and storage to be implemented on a large enough scale, government support will be crucial for a period.

At the same time, a rising market price on CO₂ and CO₂ taxation will contribute to the continued development of a market for CCS. The EU's ETS price, that is, the price of CO₂ emissions, currently sits at approximately EUR 50 per tonnes. According to Bloomberg, these prices are likely

to more than double ten years from now. During the same period, the cost of using CCS technology will decrease as the technology improves and economies of scale are achieved.

"Northern Lights is just a start, and we see that there is a need to mature many more storage sites. The North Sea and the Norwegian continental shelf constitute a large and important advantage for us – with the capacity to store large amounts of CO₂," says Fossum.

The future storage potential in the North Sea is estimated at 200 gigatonnes. To put this in perspective: A storage site of that size would easily store the EU's current annual CO₂ emissions for 50 years, or more.

"We believe that this can be a new industry, not just for Equinor but also for Norway."

The offshore wind farm Dudgeon is located 30 kilometres off the east coast of England, more specifically in Cromer, North Norfolk. The wind farm, with its 67 turbines, opened at the end of 2017, providing electricity to about 400,000 UK homes.



Q&A

Our people around the world



Lionel Ribeiro

Project manager at the Emerging Technology and Innovation department in the United States

Q: What role should Equinor play in the energy transition?

A: We cannot be the top of the class in everything. This is not a threat, but an opportunity to embrace collaboration. We are a powerful voice and agent of change in the energy business, so together with others we can lead and influence the way the world demands and consumes energy. We should: (1) continuously reduce emissions from production, (2) be a leader in the carbon storage and sequestration space, and (3) invest in, mature, and empower a diversified portfolio of companies that can curb the oil demand and impact the way we consume, distribute and store energy.

Q: What role can you play?

A: My previous role was clear: cut emissions in our US operations – and we did just that by cutting flaring by 65% in one asset and by achieving a carbon footprint below 1kg/boe in another asset. In my new role, my task is to identify emerging technologies and find relevant use cases to strengthen our businesses. I find inspiration in many of my colleagues across the globe and by remembering that asking the right questions sometimes may be harder than getting to the answers.



Faiza Amrani

Asset manager of In Salah gas onshore fields in Algeria

Q: What role can you play in the energy transition?

A: As an asset manager on one of our international assets, I can do my part by supporting the company's strategy for the energy transition in the field. When we look to explore new opportunities within and around the existing In Salah Asset licence, we see opportunity in both developing solar, taking energy efficiency measures, and lowering CO₂-emissions.

Q: How can collaboration help us reach net-zero?

A: I see the potential to bring influence, increase engagement and cooperate more with our partners and governments where we operate. The world needs to recover very quickly from the pandemic, we already missed two years. It is time to wake up and accelerate the energy transition to help address climate change and achieve global net-zero.



Dr. Peter J. McFadzean

Carbon capture and storage lead in the United Kingdom

Q: What are the greatest challenges and opportunities that lie ahead for our industry?

A: The industry must embrace the climate science consensus and goals of the Paris Agreement and use our competence to provide profitable and clean energy for all, providing value for shareholders and playing a global net-zero role.

Q: What role should Equinor play in the energy transition?

A: Offshore wind, solar, hydrogen, carbon capture and storage are only a few of the things we are working on. We must continue this progressive trend and be a role model. These projects rely on solid relations and collaboration with others. Working together is an essential prerequisite to success.

Q: Who has inspired you to contribute to the energy transition?

A: Scotland has set an aggressive net-zero 2045 target – and will be hosting COP26 this year! I am Scottish, and thus undoubtedly biased, but Scotland is right now adapting oil and gas competence and supply chains to grow the renewable energy sector, turning legacy oil-rush towns like Aberdeen into optimistic, low-carbon hubs of the future.



Mari Skarstein

Mechanical engineer at Mongstad

Q: What role should Equinor play in the energy transition?

A: We should use our experience to develop technologies and solutions for green energy production offshore and CO₂ storage under the seabed. That will make it easier for more companies in the industry to invest in these types of projects.

Q: What are the greatest opportunities that lie ahead for our industry?

A: CO₂ capture and storage – more projects like Northern Lights.

Q: Who has inspired you to contribute to the energy transition?

A: David Attenborough's nature programmes remind me of why I think it is essential to take care of the nature. There is little that humans have created, that can match evolution.

Meet more of our people on page 65



INN OVA TION

Bringing past
and future together

Equinor's 50-year history is the story of how Norway found oil and turned it into a source of employment, growth, and welfare for generations. It is also a story of how none of this could have been achieved without innovation and technology.

During these 50 years, we have seen numerous people who have dared to think big and work persistently to solve seemingly impossible technological challenges. People who have brought existing knowledge and experience into new areas, created value, and developed new industries. People who have worked together, come up with new ways of thinking based on expert knowledge, and who have trusted in their ability to put innovative solutions into effect.

Just imagine: where would the company and Norway be today if pioneers in the North Sea had not succeeded in crossing the "uncrossable" Norwegian trench with pipelines, thereby ensuring gas supplies to the continent and the United Kingdom? And what would the future look like if no one

had thought it could be possible to store CO₂ below the seabed?

The world faces a major transition, which gives Equinor new opportunities to be a pioneer. It provides a chance to look beyond the immediate challenges and highlight new innovative solutions, and to bring out the best there is in cutting-edge expertise and explore new business opportunities. This is how the company will continue to shape the future of energy.

Equinor has ambitions to be a global leading player in offshore wind, and in the forefront in the European carbon capture, transport, and storage industry. And, not least, to succeed in producing oil and gas with the lowest emissions in the world.

How can technology and innovation be used to achieve this?

See how innovation brings the past and the future together.





FLOATING OFFSHORE WIND

The idea of making wind turbines float first came to light when two engineers at Hydro, now Equinor, were out sailing and were inspired by the buoys they passed.

Although it is relatively “easy” to get wind turbines to float, making them withstand the forces of nature from wind, waves, and ocean currents year after year is a highly demanding task.

Sensors and algorithms can control the rotor blades to reduce the load. These types of

improvements in the technology have made it possible to increase the life of the blades from a mere 20 weeks to a full 20 years.

Equinor aims to become a global leader in the field of offshore wind. The company’s cutting-edge expertise in floating installations offshore – accumulated over 50 years – together with applied advanced computer technology puts the company in a strong position to achieve that goal.



FACTORIES OF THE SEABED

The seabed factories found on the Norwegian continental shelf can be the size of a football field. They stand unmanned on the ocean floor and require little maintenance. They also provide better safety for employees and more efficient processes as all functions are located close to the well. The compressors on the Åsgard and Gullfaks fields are two world-class examples of this. It is almost a shame that some of the most outstanding technological achievements of the industry are ‘hidden’ on the seabed and invisible to most people.



MULTIPHASE TRANSPORT

Behind a somewhat dull name hides nothing less than what the daily Aftenposten in 2012 called “the most important invention since 1980”. In short, multiphase transport is the technology that makes it possible to transport oil and gas in the same pipe, all the way from the seabed to a platform or an installation onshore. SINTEF and the Institute for Energy Technology developed the technology on behalf of Equinor in the 80s, but it is just as relevant today.

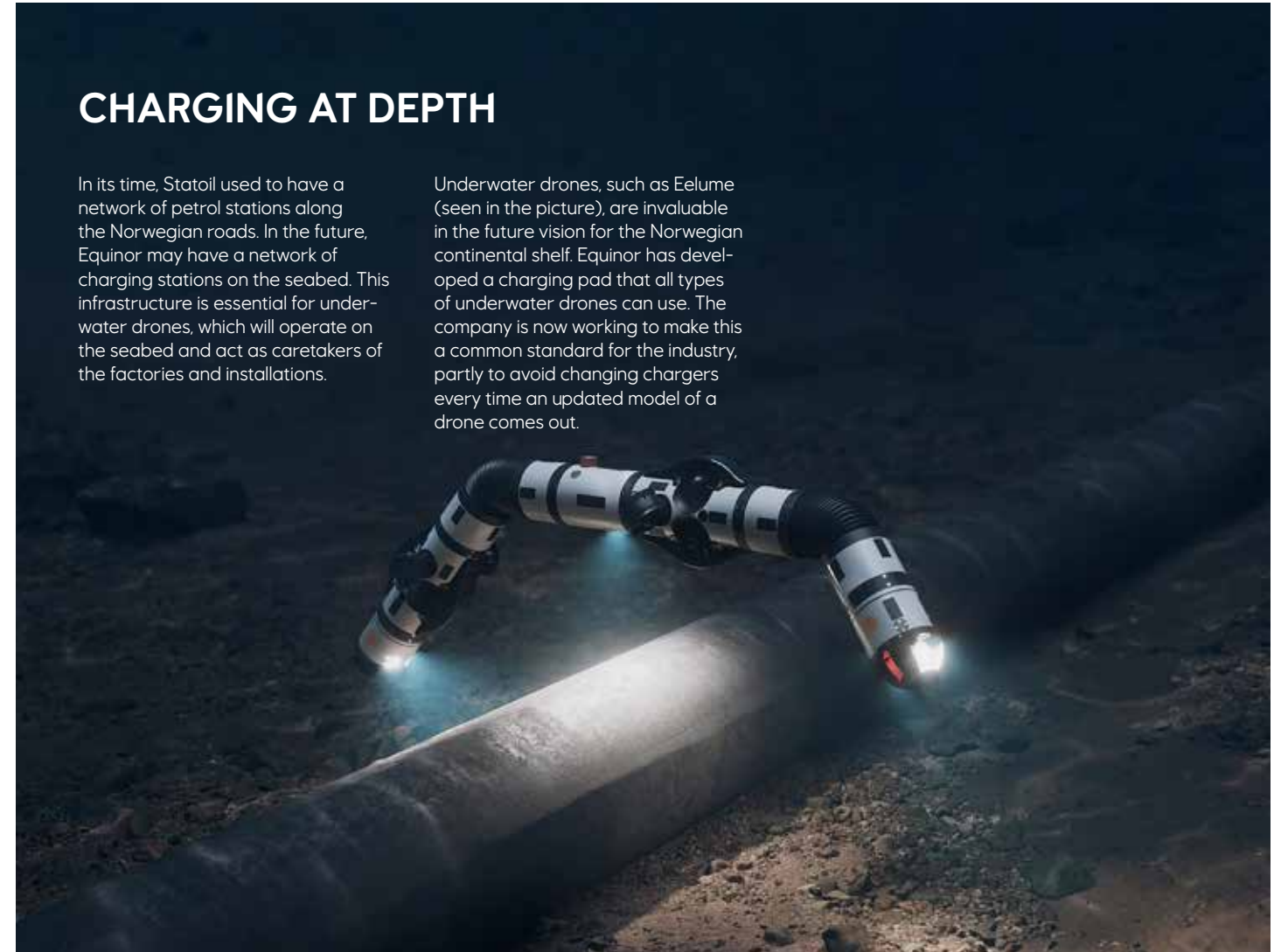
Without such pipes, a new platform would have to be built at every single oil well, something that would be extremely expensive. A calculation tool was developed at the same time,

making it possible to accurately calculate production rates, pressure, and fluid content in the entire pipe system. Both the pipe system and the calculation tool have contributed to the company’s status as a global leader in underwater solutions and subsea. It has also been crucial for Norway’s ability to develop the continental shelf. If full-scale platform and infrastructure costs had to be covered at each location, many of the fields would probably not have seen the light of day.

CHARGING AT DEPTH

In its time, Statoil used to have a network of petrol stations along the Norwegian roads. In the future, Equinor may have a network of charging stations on the seabed. This infrastructure is essential for underwater drones, which will operate on the seabed and act as caretakers of the factories and installations.

Underwater drones, such as Eelume (seen in the picture), are invaluable in the future vision for the Norwegian continental shelf. Equinor has developed a charging pad that all types of underwater drones can use. The company is now working to make this a common standard for the industry, partly to avoid changing chargers every time an updated model of a drone comes out.



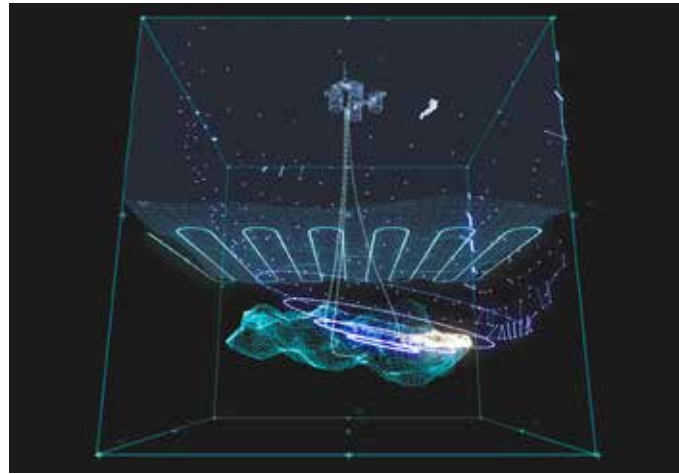
UNMANNED PLATFORMS

By using their knowledge of underwater compressors that require little maintenance, Equinor has developed whole platforms that can be operated unmanned.

The wellhead platform Oseberg Vestflanken has already been established as the first entirely unmanned platform of its kind, providing valuable experience to the process of developing an entirely unmanned production platform.

This innovation contributes to increased safety for employees, increased value, and makes way for the platforms of the future both in Norway and internationally.





EXPLORATION WITH 4D SEISMIC TECHNOLOGY

New technology has immense importance within the field of exploration. The latest example is the Blasto discovery from March 2021, near the Fram field in the North Sea. The innovative use of 4D seismic technology enabled the experts to discover that the project was far more promising than they previously thought, and the prospect went from being shelved to becoming an

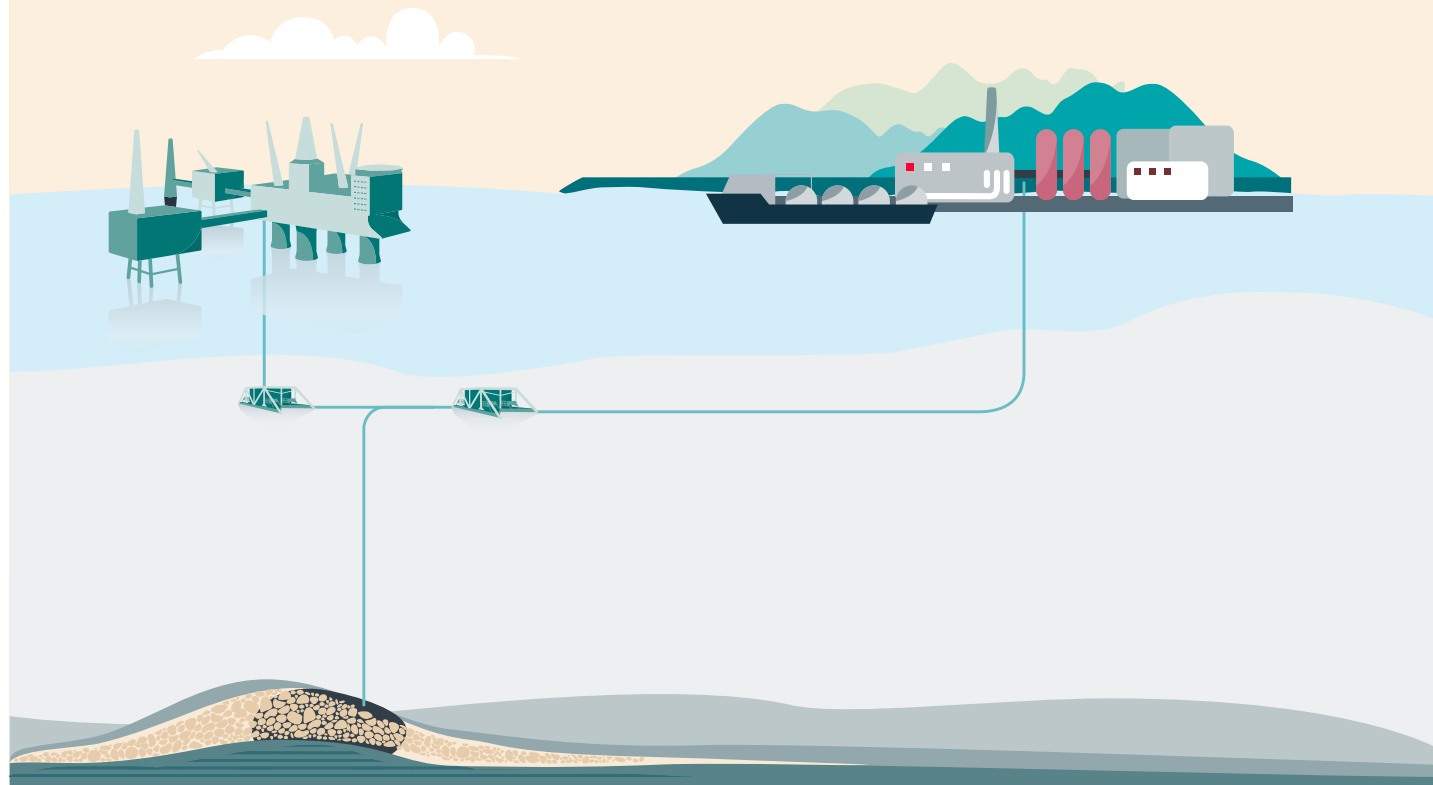
important target. The exploration well drilled in March confirmed these new expectations. Previously, 4D seismic technology was used to locate remaining reserves in active fields, but it is now clear that the technology can be used several kilometres away. The technology could become critical to exploration near existing fields in the years to come.

CARBON CAPTURE AND STORAGE

CCS, or carbon capture and storage, is one of the most prominent themes when the energy transition is being discussed. However, Equinor has been conducting CCS for 25 years at Sleipner and Snøhvit. The company is now developing the technology further with its partners on the Northern Lights project.

In many ways, CCS exemplifies the very definition of innovation: taking two things that already exist and putting them together in new ways to create

new value. For example, in Northern Lights the goal is to create a market for commercial storage of CO₂. Combining existing knowledge about CO₂ capture with geological knowledge about the NCS will thus create new value for the industry and other stakeholders from across the world who need to dispose of their CO₂. Also, when CCS is combined with hydrogen production from natural gas, this opens up for an exciting new business opportunity.



AUTOMATED DRILLING

Automated drilling increases safety and reduces costs significantly, and several rigs have already adopted the technology.

When parts of the process are automated, this makes it easier to make use of other tools that ensure that the drilling takes place without any surprises, and that the wells are located optimally in the reservoirs, for instance, by implementing machine learning technology and new interpretations of subsurface data.



HORIZONTAL WELLS

When oil came through the almost 10,000-metre long well at Gulltøpp in 2008, it was the crowning moment in one of the most complicated drilling operations in the company's history.

Drilling horizontal wells involves, as the name implies, drilling sideways. In practice, this means first drilling down to the reservoir and then horizontally, usually several thousand metres below the ocean floor.

This is a very advanced process, partly because the longer the drill pipe, the more difficult it is to precisely manage the forces transferred to the drill bit down in the deep, thousands of metres below. Horizontal wells have contributed to Equinor's ability to explore larger parts of the reservoirs than the company could before, and it has been crucial technology to increased value creation.





Stig Læg Reid

Chief employee representative and head of NITO

Q: What are the greatest challenges that lie ahead for our industry?

A: The petroleum industry in Norway relies on support from the society around us. Creating an understanding of our crucial role in transitioning to a greener energy system will be a major challenge. It is challenging to get subtle messages across in competition with political populism.

Q: What role can you play?

A: As a union representative, the most important thing I can do is to provide information about our activities in the energy transition. And show that we are part of the solution far more than we are part of the problem.

Q: How can collaboration help us reach net-zero?

A: In our company, we are completely dependent on good collaboration to make this happen. We need to stop thinking of "those working in oil" and "us in renewables" (or vice versa). We are mutually dependent on each other to make this happen. We need to speak with one voice and work together to create an understanding of our role and positivity around the company.



Ha Thu Pham

Consultant in Strategy & Change

Q: What role should Equinor play in the energy transition?

A: Norway is one of the countries that are "most ready" for the energy transition, and as the biggest player in Norway, we are responsible for leading this transition. In other countries where we operate, we should also be agents for change in pioneering and providing more sustainable energy solutions. Besides what we can do, how we do it is equally important. Being an international company with a proud Norwegian heritage, we bring Norwegian values such as open, ethical, equal, and inclusive with us when doing business. These values will make us not only a leading company in the energy transition, but also a company achieving that in the right way.

Q: What role can you play in the energy transition?

A: As an employee, I need to learn more about renewables, low-carbon solutions, and other technologies that are important in our transition. Working in PQ, I see my contribution in enabling Equinor to have the right people, organisation, and competence needed for the future.



Marius Heide

Reservoir engineer in Harstad

Q: Who has inspired you to contribute to the energy transition?

A: First, children and young people: young people like climate-strikers and young politicians who want rapid change. They are not stuck in established truths to the same extent as some adults, and many have realised that it is their future at stake. I have children myself, and I want to be able to tell them, hand on my heart, that I have done everything I can. Everyone can make a difference.

Q: What role can you play?

A: I try to show the way, even though I am not entirely sure where the way is going. I accept that much will change in the future and that there are a lot of uncertainties ahead. At work, I want to contribute to increased awareness and expertise in greenhouse gas emissions from our activities and what we want to transition to. Since 2019, I have been working on developing and rolling out a new emissions and energy calculator on the Energy Efficient Reservoir Drainage project and thus also contributing directly through my job.



Bjørn Asle Teige

Chief employee representative and leader of YS/Safe

Q: What are the greatest challenges that lie ahead for our industry?

A: The significant mismatch between the energy that is needed in an increasing global population and the climate challenges that we must deal with.

Q: What role should Equinor play in the energy transition?

A: It makes sense that we are becoming a broader energy company. Maybe we can become even more expansive, for example, through new positions in the petrochemical industry. It can secure our value chain and ensure that oil and gas are used more for products and not combustion.

Q: Who has inspired you to contribute to the energy transition?

A: At a seminar addressing the problem of climate change, there was a good explanation of how global warming affects the Earth. It may seem tempting for it to be a few degrees warmer in Western Norway, but increasing the temperature on Earth is neither responsible nor sustainable.



Kjersti Nordøy

Communication leader for Sture and Kollsnes

Q: What role should Equinor play in the energy transition?

A: The main role! We are the ones with the muscle, the experience, and the expertise. If we choose to sit still in the boat, we will end up at the stern – and that's not us, is it?

Q: How can collaboration help us reach net-zero?

A: Without collaboration, it won't happen. We must exchange knowledge, ideas and plans, and have open communication that enables discussion and reflection. It will be up to each individual to join in and make sure that those around us do too. Every time you take another step forward, make sure you bring someone else along with you.

Q: What role can you play?

A: I will use my involvement to motivate those around me. If everyone does that, it will lead to something good because involvement is infectious.



Madeline Vey

Senior director in Political and Public Affairs in the United States

Q: What are the greatest challenges and opportunities that lie ahead for our industry?

A: We need to secure our licence to operate – both in social, political, and actual terms. Our industry is constantly evolving, and there will always be critics that believe we should be making different business choices. We bring five decades of knowledge of how to do big, complex, and innovative projects in tough conditions. So, we have the opportunity to show that we can do hard things and do them safely. My focus is to protect our ability to develop and invest so that we can seize that opportunity.

Q: What role should Equinor play in the energy transition, and what role can you play yourself?

A: We are a thought leader that is also demonstrating solutions through our investment in renewables and emerging technology that will optimise our low carbon portfolio. My role in this is to explain our vision to federal government stakeholders and help them craft policies that help businesses succeed while also reaching the goals that society expects regarding net-zero.

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SMOOTHER WORKDAY:
Digital fieldworker saves time
and makes it easier to work safely.
Photo: Einar Aslaksen.

Embracing digital technologies to enable the energy transition

“If we want to take a leading role in the energy transition, we also need to be at the forefront in adopting new technology.”

The words belong to Torbjørn Folgerø, senior vice president for enterprise digital at Equinor. From his office in Bergen, he explains how digitalisation and information technology is key to the company's transition. The creation of Technology, Digital and Innovation (TDI) as a new business area, speaks to its importance for the company's success.

High value

Several technologies may become important for Equinor in the future. Folgerø mentions artificial intelligence, 3D printing, and augmented reality as examples. However, the importance of having an adaptable organisation, willing to learn, far outweighs the significance of each standalone technology, according to Folgerø.

“As an organisation, we have proven our ability to scale and adopt new technologies quickly and we have demonstrated our collective enthusiasm for possibilities presented,” says Folgerø.

“This is what will enable us to grasp the technological opportunities of the future,” he says. The ambitions are long-term, but the adaption of new digital technologies is already well underway. And it has good results to show for. In the last two years alone, approximately USD 1 billion in economic gains have been unlocked by digitalisation. Three initiatives that have contributed to this, are the concept digital fieldworker, applied machine learning, and data sharing with academia and other collaborating partners.

The information revolution

Digital fieldworker is a concept consisting of technological aids, software, and new ways of working. It was developed to give offshore workers a smoother and safer workday. Digital solutions and the simplification of information streams result in fast improvement of both safety and efficiency. In the field, having all information instantly accessible, when and where you need it, makes a big difference.



THE ART OF POSSIBILITY: Machine learning is advanced, but the overall goal is relatively simple – to structure large datasets in smart ways so that new insights can be used to make the best possible decisions. Looking ahead, Florian Schuchert, head of TDI offshore wind solutions, sees great potential for machine learning at Equinor. Photo: Einar Aslaksen.

project is the development of a tool for planning maintenance on platforms, intended to avoid safety-related incidents offshore. It all started with a large data set.

Learning from previous mistakes
Through documentation and analysis, the company has built up an extensive database of all incidents on the Norwegian continental shelf. The crucial question was: how can the info in this database be used to ensure safety when working offshore?

The solution was to structure all the incident reports using "Natural Language Processing", a digital tool that understands the connection between words, similar to the technology used in Google's search engine. Today, offshore workers can check the database before embarking on a task. If you enter "compressor maintenance" the system searches for the three most relevant examples of incidents on similar equipment in the past. In this way,

workers can take on a task with a complete overview of what has previously gone wrong, thus avoiding the same mistakes. "We are proud of this solution. Using the latest technology to ensure quality is the key to success," says Schuchert.

Digital sharing economy
Not all advances in digitalisation can be made by one company alone. By sharing data with researchers and academia, the reward can be new knowledge that benefits all.

One example is found within carbon capture and storage (CCS), a technology essential to achieving the climate goals. Northern Lights is a partnership between Equinor, TotalEnergies, and Shell in CCS. In October 2020, the companies announced that they would share data with everyone from engineers to students and researchers. "It is a very rich data source, ranging from large-scale numbers



GREAT DEMAND: As the rumour about digital fieldworker has spread throughout the organisation, Tore Gunnar Curran and Einar Aikio regularly receive enquiries from eager employees who want to use the technology as soon as possible. Photo: Einar Aslaksen.

"Digital fieldworker is part of Equinor's strategy to be prepared for the future," say Tore Gunnar Curran and Einar Aikio, two of the implementation managers at EPN. They are part of the team that supports offshore workers and their managers in adopting this new way of working. The old processes were much more laborious and time-consuming. "Previously, we worked with analogue tools. We used pen and paper," Curran tells. Without tools tying different parts of a task together, processes became lengthy and fragmented: one process for notes, another for control checks, and a third for documentation.

Today, equipped with specially adapted iPads or iPhones, headsets with the latest technology in noise reduction, and programmes for information-sharing in real-time, people working in the field have all the information they need in one place.

Increased capacity and safety
The results materialise in both increased capacity and efficiency. Maintenance workers have more time without interruptions, and off-

shore workers can carry out several repairs themselves – supported by suppliers or experts by video. "This increases both machine life and uptime, while simultaneously safeguarding jobs," says Curran. Another significant benefit is improved safety. Digital fieldworker secures everyone's access to the digital HSE tools and aids. "With digital fieldworker, you get more time to finish the job. And by taking away stress, you also ensure proper safety," Aikio points out.

Machine learning
In another area of the digitalisation field, the focus is on machine learning. "There is a common denominator for all the machine learning projects. It is about extracting advanced insights from our data and making these accessible in the right way during decision-making processes. That's the trick," says Florian Schuchert.

Formerly the head of the machine learning division at Equinor, he is now the head of TDI offshore wind solutions. By structuring large data sets, analysts can use computer power to extract insight and analysis that give great benefits. One such successful



GREAT AMBITIONS: SVP for enterprise digital, Torbjørn Folgerø, sees digitalisation as a prerequisite for Equinor to take a leading role in the energy transition. Photo: Einar Aslaksen.



Digital fieldworker is part of Equinor's strategy to be prepared for the future.

Tore Gunnar Curran and Einar Aikio
Implementation managers at EPN

In the reservoir model studied by Martin Fernø and his colleagues, CO₂ is pumped into a reservoir filled with water, displacing the water as CO₂ is stored in the geological layers. Photo: Einar Aslaksen.



EXPERIMENT: Here, experiments with storing CO₂ in sandstone are conducted. The displacement of water by CO₂ is studied in a microscope, to better understand the mechanisms in small pores. Later, the process is physically scaled up and studied on a meter-sized scale.
Photo: Einar Aslaksen.

When such an extensive research community is working on this, you can move the research boundaries and gain new knowledge.

Martin Fernø
Professor at the Department of Physics and Technology at the University of Bergen (UiB)



RESERVOIR MODEL: The model makes it possible to study floating patterns of CO₂ and water, which is used, together with mathematical models, to improve understanding and usage of simulation tools.
Photo: Einar Aslaksen.

to data on the minuscule level – commonly referred to as ‘core data’. So, it is safe to say we were quite excited when we got access,” says Professor Martin Fernø of the Department of Physics and Technology at the University of Bergen (UiB). Hope is that the release of the data will contribute to faster development of solutions in the CCS field.

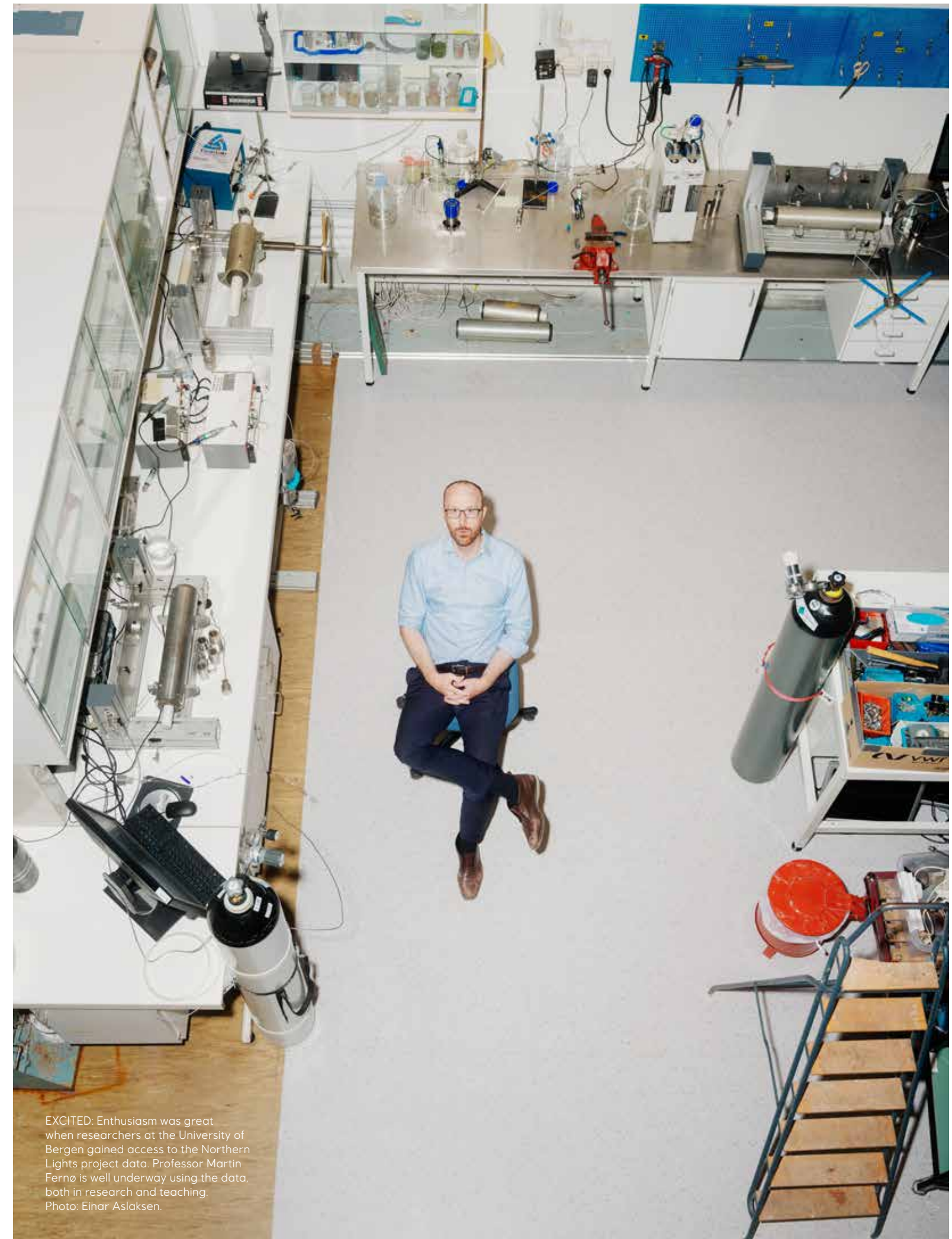
New research
Professor Fernø at UiB hopes to be able to use data from Northern Lights to develop reservoir models for storing CO₂. For example, he wants to research the interaction between fluid flow and geology to be able to better predict the movements in the reservoir when pumping in CO₂. Professor Fernø says that data from Northern Lights has also been used in master’s degree projects, in lectures, and in the development of digital models.

“The research is important for Northern Lights and Equinor, but it is also important for UiB. With the location in Øygarden right in our backyard, the project is highly relevant for the region,” says Fernø.

International interest
The data release from Northern Lights is creating a great deal of interest among researchers globally. Fernø points out that a previous similar release of data from CO₂ storage on the Sleipner field also received international attention.

“When such an extensive research community is working on this, you can move the research boundaries and gain new knowledge,” says Fernø. “The fact that they now have data from an ongoing offshore CCS project is unique. The standard tools many people work with today are based on data from oil and gas production,” he explains.

“Many things are similar, but there are specific things about CO₂ storage that must be incorporated into the tools. For that, you need research. Having an international focus on this will help considerably,” says Fernø.



EXCITED: Enthusiasm was great when researchers at the University of Bergen gained access to the Northern Lights project data. Professor Martin Fernø is well underway using the data, both in research and teaching.
Photo: Einar Aslaksen.



Frode Kversøy

Operations manager on Gullfaks C

Q: What are the greatest challenges and opportunities that lie ahead for our industry?

A: As a company and industry, we must find the balance between operating profitably and meeting demands for lower emissions and higher taxes. We have infrastructures and equipments built in the 80s, and we have to spend a lot of time and money to be able to adapt. We must also assure the population that oil and gas are things that we still need in Norway, and that we as a company are working hard to operate safely and securely, focusing on innovation and the environment.

Q: Who has inspired you to contribute to the energy transition?

A: Christina Schieldrop, vice president for exploration and production at Gullfaks, has inspired me to embark on the transition that lies ahead for the company. She has brought together an interdisciplinary group of people from different backgrounds and with different knowledge, which has given me an understanding of the company's challenges going forward. She inspires me to work to find new and good solutions that will make us part of the future of the company.



Leonardo Gerbis

Offshore installation manager on Peregrino in Brazil

Q: What are the greatest opportunities that lie ahead for our industry?

A: Change brings opportunities. The faster we embrace the need for change, the quicker we will learn and be ready to optimise opportunity. I would like to mention Brazilian wind and solar capabilities as two clear targets for both learning opportunity and revenue opportunity.

Q: How can collaboration help us reach net-zero?

A: Having a collaborative environment combined with diversity of people is the most powerful tool we have. We will need creativity, thinking outside the box, disruptive thinking – something you facilitate when you mix a group of individuals with unique backgrounds, upbringings and mindsets.

Q: What role should Equinor play in the energy transition?

A: There is a lot to learn and understand, new technologies will be needed to optimise the cost and revenue balance, and for this we have one big differential, which is courage to take the lead with many unknown factors ahead of us.



Victor Lattari Junior

High-voltage project manager on the São Pedro and Paulo Project

Q: What are the greatest challenges that lie ahead for our industry?

In solar, we are facing three big challenges: Increased costs post-pandemic, because paused projects are suddenly all competing for commodities, materials and goods, causing historical high prices, limited access to skilled workers since solar plants are mostly located in remote areas, and finally the whole industry being highly dependent on Chinese suppliers as part of the value chain, and there's increased risk here due to economic sanctions.

Q: What role should Equinor play in the energy transition?

As a technology-driven company, Equinor should influence the renewables market by enhancing new technologies which might enable low cost and high-performance systems, further improving the attractiveness of renewables projects for the next years to come.

Q: How can collaboration help us reach net-zero?

The main collaboration aspect for this business is the partnership with suppliers and contractors, as it is crucial to further develop such companies for this fresh and recent market.



Ida Winsnes Lund

Geologist/subsurface asset lead at the Tanzania project and Tekna representative in EPI's works council

Q: What role should Equinor play in the energy transition?

A: We must go ahead and pave the way. We have both capital and a technological environment that enable us to bridge the gap from oil and gas to renewables.

Q: What role can you play?

A: I can help think of solutions that will reduce emissions from oil and gas production. It is important not to get stuck in old ways of thinking about how things should be solved; we must also think outside the box.

Q: How can collaboration help us reach net-zero?

A: It won't happen without it. We need to think more broadly across disciplines. We may be good at working together in our own environment. Still, we must work much more broadly and zoom out to see the totality and understand the whole picture.



Victor Ogwuda

Manager, Safety, Security and Sustainability (SSU) in Nigeria

Q: What are the biggest opportunities that lie ahead for our industry?

A: The most significant opportunities lie in two of the three priorities set by our CEO, Anders Opedal – accelerate growth in renewables and develop low carbon solutions. This, of course, does not negate the need to continue to invest responsibly in oil and gas assets, considering how part of the cash flow generated from them will help us double down in renewable and low-carbon solution investments.

Q: How can collaboration help us reach net-zero?

A: Partnering with governments, investors, activists, think tanks, civil society, other oil and gas companies, among others, is vital if we are to collaborate and co-create innovative solutions that will set us firmly on the path to reaching net-zero. I believe Equinor can play, and is already playing, a leading role in the energy transition.



Ulrica Fearn

Chief financial officer

Q: What are the greatest challenges and opportunities that lie ahead for our industry?

A: To do our best, while at the same time changing for the future. We must use our unique abilities and experiences in a way that gives us a competitive advantage, and we must create value in both the short and long term.

Q: What role can you play?

A: I can help our company to perform at its best by, for example, meeting the challenges of the future in an innovative way. We need to be consistent and clear across the company in the way we lead to create as much value as possible.

Q: How can collaboration help us reach net-zero?

A: To take a leading role in the energy transition, we need to find efficient ways to collaborate, share knowledge and develop. This applies across many areas of Equinor, including supplier collaboration, technology, digitalisation and the allocation of expertise and capital.

Meet more of our people on page 77



FACTS

The Apodi solar plant, located in Northeast Brazil, started up in 2018. The plant is a joint venture with Scatec and Equinor's first venture into solar energy. Around 200,000 households in Brazil are powered by the electricity produced from Apodi.





Roar Laug

Portfolio manager for subsea equipment and treasurer in Lederne

Q: What are the greatest challenges and opportunities that lie ahead for our industry?

A: I think the risk of major accidents is our biggest challenge. With reorganisation, cost-cutting, and transition, we are in a critical phase. At the same time, we must persevere as a company. We must continue in the direction we have now set ourselves. We must keep a steady course through the change while maintaining motivation and well-being among employees. Good communication and visible managers who value and see the individual employee are essential for creating motivation.

Q: What role can you play?

A: I believe it is vital that I act loyally in accordance with the company's plans, and that disagreements are addressed internally and not externally in the media. We can all be good ambassadors and talk about the energy industry's role in the energy transition.



Kjetil Gjerstad

Head of Industri Energi at Mongstad

Q: What role should Equinor play in the energy transition?

A: It is good to invest in renewables, but it is more important that the company has developed a method for CO₂ storage and is part of the competence centre at Mongstad for CO₂ capture. Here, there is world-class expertise.

Q: What role can you play?

A: The role of the "nag". I nag about the willingness to adapt everywhere: at Equinor, in my own union, and among politicians. At the same time, it is important to listen so that the nagging can be adjusted to benefit the company, its employees, the country, and the environment.

Q: Who has inspired you to contribute to the energy transition?

A: The Norwegian Confederation of Trade Unions' secretary Are Tomasgard, who talks about the environment, climate, welfare, jobs, industry, solidarity, new technology, and circular economy. You know that what he says comes from listening, knowledge and a fantastic ability to look ahead.



Signe Truyen Ryssdal

Engineer on the Krafla project

Q: What are the greatest challenges that lie ahead for our industry?

A: Worldwide, I think we will see a massive demand for energy in the future. Countries like Norway have become accustomed to high living standards with a lot of travel, goods delivered to the door from all over the world, and constant access to electricity. At the same time, living standards are rising in developing countries, which will increase the energy demand. Being able to supply the market with enough energy in an environment-friendly way will be a challenge.

Q: What role can you play?

A: As a recent graduate, I may have a different perspective from those who have worked in the company for a long time. I believe I can challenge the projects to find energy-efficient solutions, and I want to monitor the technology development in the company. We must learn from those who have been here for a long time and have much more expertise than we have, but we must also challenge the solutions that have been used "for years" and ask questions.



Olav-Bernt Haga

Vice president and project director for Hywind Tampen

Q: What are the greatest challenges that lie ahead for our industry?

A: The same challenge as the rest of the global community: how will we achieve the 1.5-degrees target? Our industry is regarded by many as yesterday's hero and today's scapegoat. We need to adapt to the new energy reality and change quickly enough. It takes tough priorities and courage to choose the right sustainable projects. As individuals, we must evolve and learn new subjects while also bringing valuable experience from oil and gas.

Q: How can collaboration help us reach net-zero?

A: Without collaboration, we won't get anywhere. That's the big challenge and the big opportunity. We need supranational agreements where all countries take responsibility. But someone has to take the lead. As a developer and operator of complex industrial facilities, we have a unique opportunity to take a leading role across national borders.



Helle Østergaard Kristiansen

CEO of Danske Commodities

Q: What are the greatest challenges and opportunities that lie ahead for our industry?

A: Succeeding with the energy transition presents significant challenges as well as opportunities. There are many uncertainties, but what remains certain is that the world will always need energy. To reach net-zero, we will need more renewables. That will mean more variable energy generation and there is a need for technologies that we don't have today to ensure security of supply and effective storage of energy. At the same time, the influx of renewables is a great fit with DC's agile business model which is built on short-term energy forecasting and trading.

Q: How can collaboration help us reach net-zero?

A: Equinor and DC have great complementary strengths. For DC, being part of a leading energy developer means we get access to a large portfolio of assets and the opportunity to make a difference on a much bigger scale. Equinor has the assets and we know how to risk manage, balance and offtake the

production from the assets, which we are now doing together on several renewables assets like offshore wind farms in the UK. But we can also work together on conventional assets, like the Johan Sverdrup platform, which DC supplies with power to support the electrification of the oil production on the Norwegian Continental Shelf.

Q: What role can you play in the energy transition?

A: As CEO of Danske Commodities, it is my responsibility to set the strategic direction of the company. One of the main pillars of our strategy is to support Equinor's transition to becoming a broad energy company and make renewable energy an economically viable business. Doing our part in the energy transition is a great motivator for DC – and for me personally.

GLOSSARY

ACREAGE AWARD

means that one or more actors gain access to a delimited area, either onshore or offshore, for commercial and industrial development. To achieve the climate targets, massive development of renewable energy will be necessary – which requires access to significant areas. As of today, the areas are minimal compared to demand which has created keen competition for licenses and permits, also called concessions. These are allocated by the authorities of different countries. For development to take place more quickly, political decisions must be made to increase the supply of acreage.

AREA ALLOCATION

means that one or more actors gain access to a delimited area, either onshore or offshore for commercial and industrial development. To achieve the climate targets, massive development of renewable energy will be necessary – which requires access to significant areas. As of today, the areas are minimal compared to demand which has created keen competition for licenses and permits, also called concessions. These are allocated by the authorities of different countries, and for development to take place more quickly, political decisions must be made to increase the supply of areas.

BIODIVERSITY

also referred to as biological diversity, is the sum of the diversity in nature, i.e., the differences within species, between species, and between ecosystems. Different species are threatened by climate change and human activity while at the same time the destruction of ecosystems can exacerbate climate change. When developing renewable energy – an important step to accelerate the energy transition – energy policies should safeguard the nature, the environment, and biodiversity.

CAPACITY

is a term used to describe the size of an energy or electricity-producing or consuming facility. One gigawatt (GW) equals 1 billion watts. It is the unit used to describe the capacity of, for example, a power plant or an offshore wind farm. 1 TW is 1000 GW. The world's total renewable electricity capacity is currently approximately 2.7 TW, i.e., 2,700 GW.

CARBON BUDGET

is a calculation made by climate scientists of how much CO₂ (adjusted for emissions of other gases that contribute to warming) the world can emit to stay within certain levels of global warming. The budgets are used to design scenarios that show how and at what pace emissions must be cut in order to achieve the climate targets.

CCS

stands for carbon capture and storage. This technology is about capturing CO₂ and storing it so that it is not released into the atmosphere.

CIRCULAR ECONOMY

describes business models or principles for economic activity designed to minimize emissions, waste, and the use of raw materials and energy. It seeks to maximise the lifespan of materials and products and to make use of all resources, including waste and waste heat, by integrating mechanisms for recycling and reuse at all stages of the production cycle.

COP

stands for Conference of the Parties and is the annual UN Climate Conference. All the countries that are part of the international climate taskforce participate, and this is where decisions on agreements and measures are being made.

CO₂ – CARBON DIOXIDE

is the most impactful greenhouse gas. It affects the atmosphere's ability to retain heat, and the more CO₂ that accumulates in the atmosphere, the more the earth's temperature rises and disturbs the climate.

CO₂ PRICE

is a way to stimulate emission reductions by putting a cost on CO₂ emissions. A CO₂ price exists primarily in the form of a fixed tax to the state or as a cost of an emission permit. For companies, the tax can be for every tonne of CO₂ emitted, or for every litre of petrol or diesel purchased by private individuals. Emission permits (quotas) are issued by the authorities, which set limits on the amount of emissions permitted each year. The permits/quotas can be bought and sold on the open market. For oil and gas production in Norway, companies must pay both a CO₂ tax and purchase permits (quotas) in the European emissions trading system.

DECARBONISATION

is a term used to refer to various measures that reduce the need for and use of carbon-based energy in society, which in turn leads to lower emissions of carbon dioxide (CO₂) into the atmosphere. We frequently talk about decarbonisation for different sectors or systems, such as the electricity sector, the transport sector, or an economic system.

ENERGY EFFICIENCY

means making the best possible use of energy resources, so that we spend less energy on solving a task.

ENERGY PORTFOLIO

is the total sum of all energy projects of a company.

THE ENERGY TRANSITION

is about the transition to a low-carbon society, which, among other things, means shifting from a fossil-based to a renewable/low-carbon global energy system. The transition involves much more efficient use of energy, technologies to prevent the release of CO₂ into the atmosphere, such as carbon capture and storage, and a large increase in the electrification of energy end-use (e.g., transport).

ESG

stands for Environment, Social and Corporate Governance, and deals with a company's ability to safeguard environmental and social conditions – as well as corporate governance.

GLOBAL WARMING

is a description of how the average temperature of the earth has increased since the mid-1800s. The warming (currently at about one degree Celsius) is due in part to emissions from the use of fossil fuels, processes that emit CO₂ and other greenhouse gases. As the concentration of these gases increases in the atmosphere, so does the absorption of heat radiation, which in turn results in a higher global average temperature – what we call the greenhouse effect.

HYDROGEN

is an energy carrier and an input factor in industrial processes and is produced from fossil fuels or by the electrolysis of water. Hopes are that hydrogen, which during combustion or when used in fuel cells only emits water vapour, in the long run can become a significant energy carrier globally. This would also enable the storage of surplus production from offshore wind or solar energy.

IEA – THE INTERNATIONAL ENERGY AGENCY

is a collaboration consisting of Norway and 29 other OECD countries. The IEA works to promote a secure supply of energy and more sustainable use of energy. Through the preparation of analyses and reports, the IEA is also an essential contributor to the global discussion about energy and environmental challenges.

METHANE

is another central greenhouse gas. Like CO₂, it contributes to the greenhouse effect if released into the atmosphere. Methane, or CH₄, is extracted from gas fields in large quantities, also on the Norwegian continental shelf. It is mainly utilised in the production of electricity and heat, and as a raw material in industrial processes. Methane emissions derive from decay processes of organic material, agriculture, and livestock, and from industrial infrastructure related to the energy sector.

NATURAL CARBON SINKS

is a term describing all the ways natural ecosystems absorb and store CO₂. Seas, forests, plants, and wetlands are examples of such carbon sinks. Disruptions in or destruction of these ecosystems leads to nature absorbing less CO₂, negatively affecting the climate. Therefore, a critical climate measure is to preserve or restore natural carbon sinks.

NET CARBON INTENSITY

is greenhouse gas emissions and negative emissions divided by the amount of energy produced.

NET-ZERO EMISSIONS/ CLIMATE NEUTRALITY

means balancing the amount of greenhouse gas emissions released into and removed from the atmosphere.

THE PARIS AGREEMENT

is a legally binding international treaty from 2015, to which 196 countries have committed. The main goal of the Paris Agreement is to limit global warming to well below 2 degrees Celsius compared to pre-industrial levels.

SCOPE 1, 2 AND 3

Scope 1 greenhouse gas emissions are direct emissions from a company's own activities. Scope 2 greenhouse gas emissions are indirect emissions related to electricity and heat purchased and used by a company. Scope 3 includes all other types of indirect emissions. For companies producing oil and gas, consumption of the product is by far the largest contribution to Scope 3 greenhouse gas emissions. On average, around 85% of emissions from fossil fuel products come from consumption.

THE UNITED NATIONS INTER-GOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)

is a scientific body composed of climate scientists from around the world. The panel monitors and provides the best available scientific knowledge about climate and climate change, regularly preparing reports that summarise this knowledge. The IPCC reports constitute the most important scientific basis for political decisions in the international climate change cooperation, but also form the basis for many individual countries' climate policies.

THE UN SUSTAINABLE DEVELOPMENT GOALS

outline several global ambitions strongly connected to energy. The goals may be considered as an international work plan to eradicate poverty, ensure clean energy for all, stop climate change, and reduce inequalities, among others.

VALUE CHAIN

refers to the entire process of value creation of a product or service. The word "chain" refers to the range of input factors and actors involved from raw material until a product is delivered to the customer.



equinor

Turning natural resources
into energy for people
and progress for society.

Our purpose inspires and guides us in our ambition
to take a leading role in the energy transition.



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To get there.
Together