

# ACCELERATING AMBITION & ACTION

A PROGRESS REPORT FROM THE OIL AND GAS CLIMATE INITIATIVE  
DECEMBER 2021



ExxonMobil



# CONTENTS

<b>FOREWORD FROM THE CEOs</b>	Page 3
<b>1. OGCI'S STRATEGY</b> Towards net zero operations	Page 5
<b>2. OGCI CLIMATE INVESTMENTS LLP</b> Driving faster decarbonization	Page 8
<b>3. REDUCING METHANE EMISSIONS</b> Detect, measure, eliminate	Page 14
<b>4. CUTTING CARBON INTENSITY</b> Efficiency and electrification	Page 17
<b>5. ENABLING INDUSTRIAL DECARBONIZATION</b> Scaling up carbon capture, use and storage	Page 20
<b>6. SUPPORTING TRANSPORT DECARBONIZATION</b> Accelerating low carbon solutions	Page 24
<b>7. OGCI PERFORMANCE DATA 2020</b>	Page 26

# FOREWORD FROM THE CEOs

## STRATEGY FOR IMPACT

As the CEOs of OGCI member companies, we focused this year on developing an ambitious new **net zero strategy**, which we announced in September 2021. It was an important milestone for OGCI – creating a stronger strategic framework for us to act collectively and achieve greater impact than we could alone. But OGCI is also about encouraging change in our individual companies and the new joint ambitions we are pursuing are a stretch for each of our companies in one aspect or another.

The **world needs to move urgently to a net zero emissions future**, and we, the member companies of OGCI, will help achieve this ambitious goal. As the Covid-19 pandemic took hold last year, we made a commitment not to let it slow us down. We have used this time to clarify our policy positions on key issues and refine our thinking on how we can work together in OGCI to accelerate the energy transition and reduce greenhouse gas emissions from oil and gas.

### OUR STRATEGY IS BUILT ON THREE MAIN PILLARS:

- **Getting to net zero in our own operations.** Our companies share the ambition to achieve net zero emissions from the operations under our control – that is Scope 1 and 2 emissions. We have also agreed to leverage our influence to achieve the same in assets operated by our partners. Revised upstream methane and carbon intensity targets underpin our long-term ambition.
- **Leading the oil and gas industry towards net zero operations.** With this ambition we pledge to work proactively across the industry to encourage others to move towards net zero operations and, most urgently, to near zero methane emissions.
- **Acting to help decarbonize society.** We are aligning our companies around the need for more urgent action to support accelerated decarbonization pathways in the hard-to-abate industrial and transportation sectors.



**Amin Nasser**  
Saudi Aramco



**Michael K. Wirth**  
Chevron Corporation



**Claudio Descalzi**  
Eni S.p.A.



**Bernard Looney**  
bp Plc



**Dai Houliang**  
CNPC



**Anders Opedal**  
Equinor ASA





**OGCI Climate Investments** supports us in our efforts across all three pillars. It now has 23 ventures and projects in its portfolio, helping to drive reductions in carbon emissions across the energy, industrial and commercial transport sectors.

OGCI is now working to turn our strategic ambition into **actions that deliver results**. We are focusing on areas where we can leverage our strengths – detecting and eliminating methane emissions, scaling up deployment of carbon capture, utilization and storage, encouraging the development of low carbon hydrogen and other low carbon fuels, and improving energy efficiency.

This will further help our companies, our industry and hard-to-abate parts of the industrial and transportation sectors to **cut greenhouse gas emissions and advance new low carbon solutions**.

OGCI welcomes the **progress made at COP26**, particularly in two priority areas of action for us. It brought a pledge to reduce methane emissions and it agreed implementation rules for Article 6 of the Paris Agreement. That will accelerate global momentum on carbon capture and storage and nature-based solutions by enabling transparent and credible carbon reporting and trading between nations. Importantly, governments also agreed to revisit and strengthen their nationally determined contributions in 2022, as necessary, helping to ensure their ambitions result in the policies required to enable the energy transition.

Climate change is one of the world's most urgent and important challenges, and we aim to act, innovate, invest in and implement solutions at scale, working in partnership with governments and businesses. **We welcome your continued engagement** with us as we strive to accelerate our ambition and action in support of the Paris climate goals.



**Darren Woods**  
Exxon Mobil Corporation

**ExxonMobil**



**Joaquim Silva e Luna**  
Petroleo Brasileiro SA

**BR**  
**PETROBRAS**



**Ben van Beurden**  
Royal Dutch Shell plc



**Vicki Hollub**  
Occidental



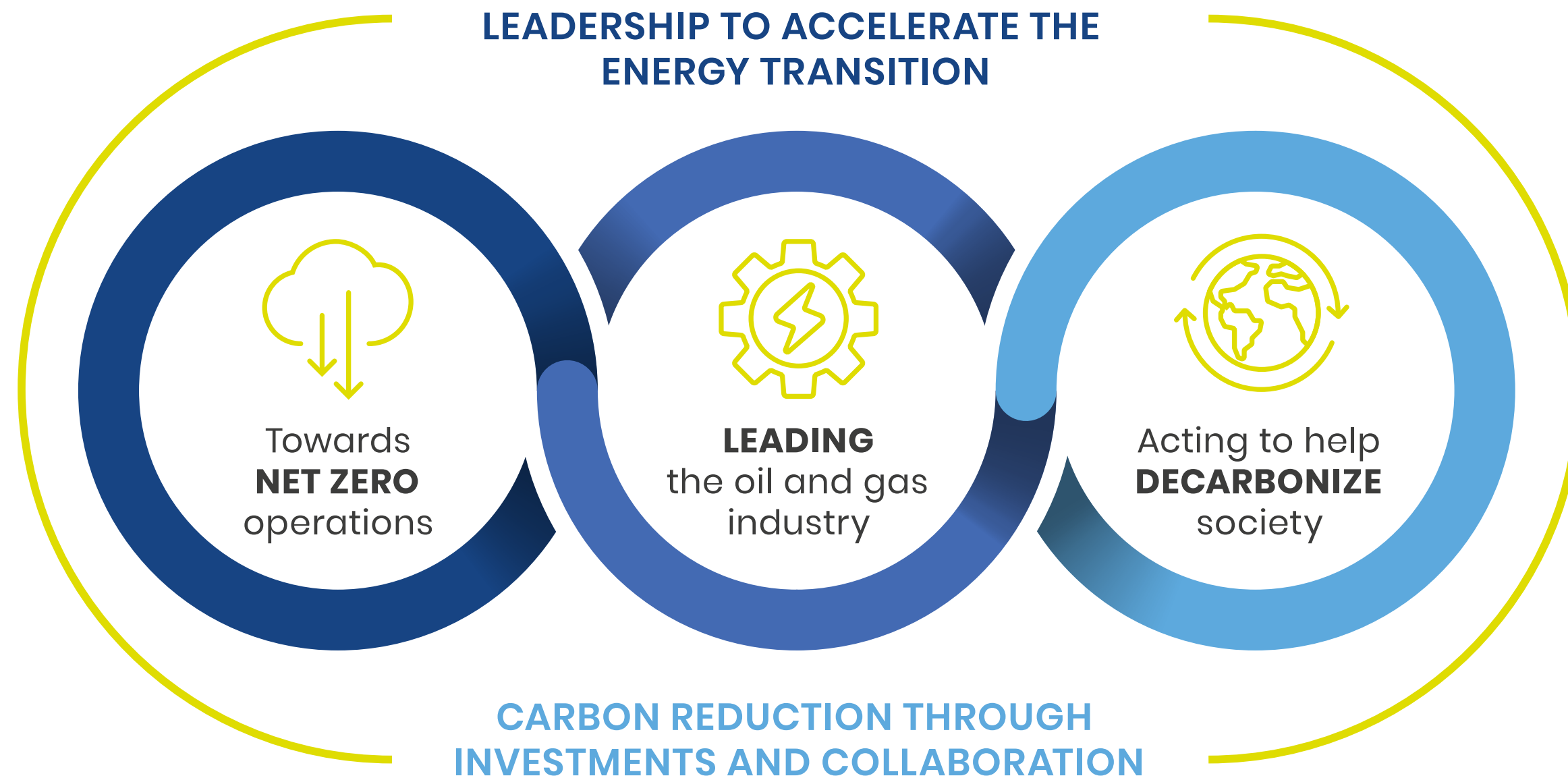
**Josu Jon Imaz**  
Repsol S.A.



**Patrick Pouyanné**  
TotalEnergies SE



# 1. OGCI'S STRATEGY TOWARDS NET ZERO OPERATIONS



## OUR BELIEF

OGCI supports the goals of the Paris Agreement, limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C, and recognizes that there is a real urgency to act.

We support the need for the world to move to a net zero carbon emission future, also called carbon neutrality. This will require international collaboration, an energy transition and a reduction in greenhouse gas emissions from oil and gas.

OGCI and its member companies, by taking individual and collective actions, will help accelerate the energy transition through deep reductions in greenhouse gases.

OGCI Climate Investments supports these efforts to drive substantial reduction in carbon emissions by investing in technologies and projects that lower methane or carbon dioxide emissions, or capture and store carbon dioxide. It seeks to accelerate global implementation of low carbon solutions across the energy, industrial and commercial transport sectors by collaborating with OGCI members, governments and other investors.

The energy transition is one of the world's most important challenges. But there is no one single solution. It will require changes among consumers, governments and businesses. We aim to act, innovate, invest in and implement



solutions at scale, working in partnership and creating new business opportunities.

### TOWARDS NET ZERO OPERATIONS

All OGCI member companies aim to reach net zero emissions from operations under their control<sup>1</sup>, and also leverage their influence to achieve the same in non-operated assets, within the timeframe set by the Paris Agreement, recognizing that we have many, but still not all, the answers needed to get there.

We will continue to stay action-oriented, continue to report transparently, and update our ambitions as we progress towards net zero. Our updated set of ambitions include reducing upstream methane emissions intensity to well below 0.20% by 2025, bringing carbon intensity from our upstream operations down to 17.0 kg CO<sub>2</sub>e per barrel of oil equivalent by 2025 and bringing routine flaring to zero<sup>2</sup> by 2030. These are important near-term steps on this journey. By 2025, this could bring an additional reduction of around 50 million tonnes of CO<sub>2</sub> equivalent per year.

Our success will rely on acceleration of innovative and large-scale solutions such as applications of efficiency measures, sharing of best practices, electrification, hydrogen solutions, carbon capture utilization and storage (CCUS), methane leak detection and elimination, bioenergy as well as responsible investments in natural climate solutions (NCS).<sup>3</sup>

In addition to collaborating and investing together with industry, it is essential for governments to develop enabling policies and regulations to provide certainty for long-term, large-scale profitable investments needed to reduce emissions. We encourage the implementation of explicit mechanisms giving a value to carbon, such as explicit or implicit carbon prices or incentives.

### LEADING THE OIL AND GAS INDUSTRY

As a leadership group, but still only representing around 30% of the world's total oil and gas production, we will work proactively with and encourage the entire oil and gas industry, also the national oil and gas companies, towards net zero operations, including the ambition of near zero methane emissions. Total direct emissions



*“Our shared ambition shows the power of collaboration, bringing together companies from China, the Middle East, Europe, Latin America and the US to speed up decarbonization.”*

**Bob Dudley** – Chair, OGCI Steering Committee

<sup>1</sup> Defined as Scope 1 and 2 emissions

<sup>2</sup> Per the World Bank “Zero Routine Flaring by 2030” initiative

<sup>3</sup> Carbon credits should be used in conjunction with the greenhouse gas emissions mitigation hierarchy. Avoiding, minimizing, and reducing emissions should be prioritized and continue in addition to the use of NCS credits.

from the global oil and gas industry are estimated to be around 4 gigatonnes of CO<sub>2</sub> equivalent per year.<sup>1</sup>

### ACTING TO HELP DECARBONIZE SOCIETY

OGCI members, with their innovation and problem-solving capabilities, stakeholder engagement and technological and execution competencies, are uniquely positioned to support the development and the implementation of new solutions at scale, enabling society to reach net zero and a circular carbon economy faster.

Our member companies are already active in areas such as sustainable mobility and product stewardship, low carbon hydrogen, energy storage, bioenergy and biofuels, synthetic fuels, CCUS, energy efficiency and digitalization, and many other key parts of the future energy system including large investments in renewables, such as solar and wind.

OGCI member companies have a key role in working with their customers, partners, other industries and

policymakers to reduce greenhouse gas emissions and help accelerate the transition to a net zero society.

OGCI Climate Investments, as a specialist investor, commits capital exclusively to drive substantial realized emissions reduction across multiple sectors. Our industry backgrounds, deep technical knowledge, operating experience, expansive networks and collaborations, track record of commercializing complex and nascent technologies enable us to open customer markets, scale and expedite our portfolio companies' deployment, accelerating progress towards a net zero carbon future.



*“We are constantly seeking ways to get to net zero by challenging ourselves on pace, solutions and ambition.”*

**Bjorn Otto Sverdrup** – Chair, OGCI Executive Committee

### LEADERSHIP TO ACCELERATE THE ENERGY TRANSITION

OGCI will continue to be a CEO-led platform for its members to act, share, reflect upon and evolve climate ambitions, and accelerate individual and collective actions towards a net zero emissions future consistent with the Paris Agreement. We believe in pro-competitive collaboration between companies, across value chains and across regions.

OGCI recognizes that companies have different starting points and stakeholders, and in some cases national obligations. These factors may impact the form of their climate strategies.

Oil and gas are an important part of the world's energy supply and demand and OGCI and its members have a role continuing to provide access to energy in an affordable, reliable, and sustainable manner and to collaborate to be key architects of the energy system of the future.

<sup>1</sup> Rystad, IEA, [McKinsey](#)



*“The starting point of our investment process is impact: if the opportunity can’t drive meaningful near-term carbon reductions, then it doesn’t make the grade.”*

**Matthew Harwood** – VP Strategy,  
OGCI Climate Investments



### GREENHOUSE GAS EMISSIONS BY SECTOR

TOTAL ~50GT CO<sub>2</sub>e/year emissions<sup>2</sup>



## 2. OGCI CLIMATE INVESTMENTS LLP DRIVING FASTER DECARBONIZATION

OGCI Climate Investments manages a US\$1B+ fund that seeks to accelerate global implementation of low carbon solutions which will deliver meaningful and measurable carbon reduction. We achieve this by collaborating with our portfolio companies, OGCI members, governments, business partners, end customers and co-investors.

We have taken a sectoral approach to identifying carbon reduction opportunities and capability gaps, in line with the IPCC 2014 report. Since inception in 2017, we have made a total of 23 investments in the energy, industrial, commercial transport and buildings sectors. These investments have collectively enabled a reduction of around 7 million tonnes CO<sub>2</sub>e<sup>1</sup> in 2020 and we expect to add to that more than 10 million tonnes by year-end.



*“It is critically important to help our portfolio companies achieve operational scale and reduce carbon. We actively support their accelerated paths through pilots, deployments and market development activities.”*

**Avi Sahi** – Chief Commercialization Officer, OGCI Climate Investments

In 2021, we welcomed four new investments to our portfolio and provided follow-on investment to eight of our existing companies, testament to our confidence in their potential to drive substantial carbon reduction. In 2021, we also passed a milestone 50th pilot or deployment of our portfolio technologies with one of the OGCI member companies.

### HOW WE DELIVER CARBON REDUCTION

As an experienced specialist investor, committing capital exclusively to drive substantial quantified carbon reduction across multiple sectors, we bring a differentiated perspective and skillset to our portfolio companies. We leverage our experience, technical knowledge and relationships to open customer markets, and scale and expedite our portfolio companies’ deployment to accelerate progress towards a net zero carbon future.

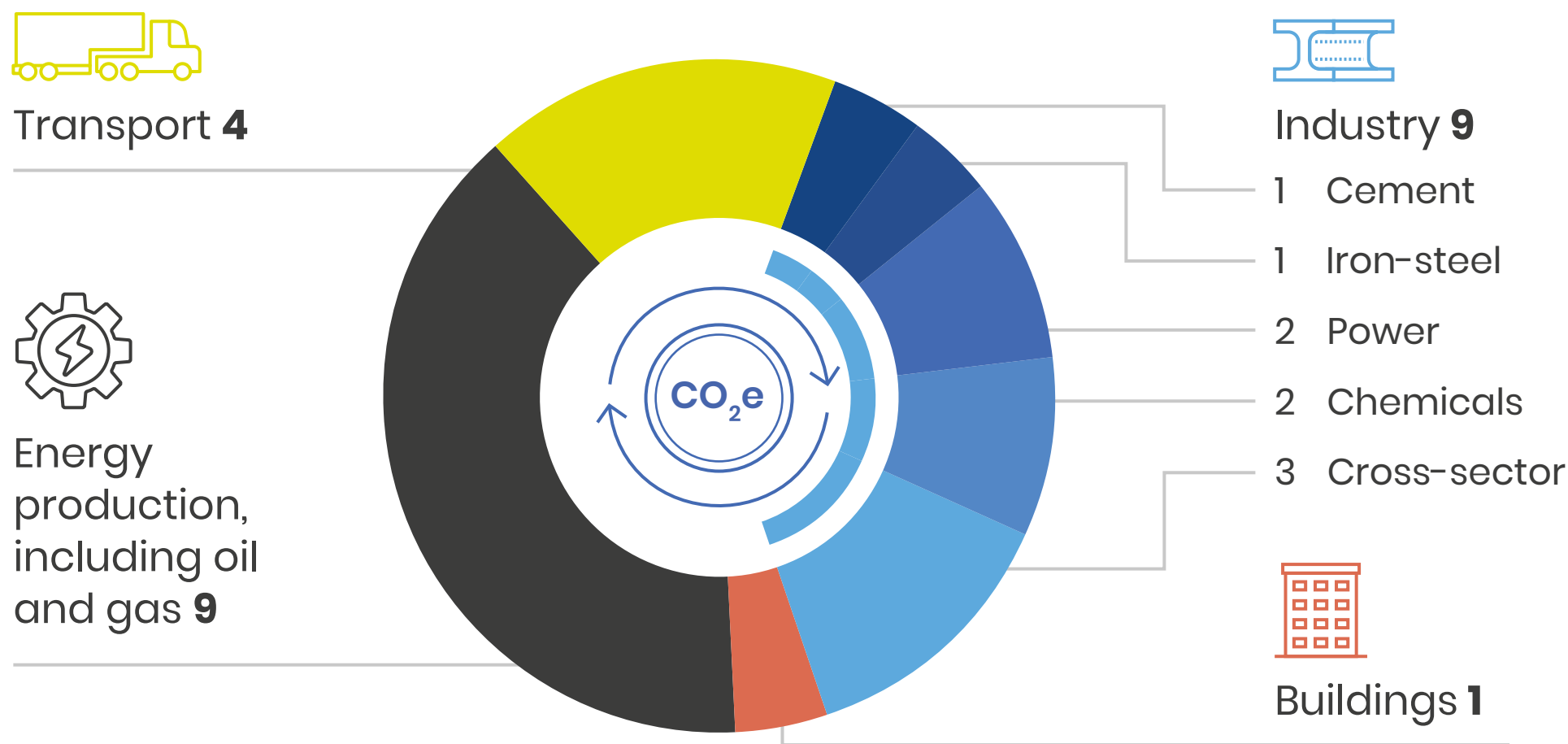
<sup>1</sup> Data is unaudited. For methane, we use the conservative IPCC5 100-year global warming potential “GWP(100)” where 1T CH<sub>4</sub> = 28 T CO<sub>2</sub>e

<sup>2</sup> Source: IPCC 2014 data; electricity and heat use is allocated by sector



# CARBON REDUCTION THROUGH INVESTMENTS AND COLLABORATION

## NUMBER OF INVESTMENTS BY SECTOR AND FOCUS AREA



## WHAT WE DO TO ACCELERATE CARBON REDUCTION

We support OGCI member companies' efforts to drive substantial reduction in carbon emissions as described in this report by focusing on the following actions:

- We invest in technologies and projects which can demonstrate near-term reduction in methane or carbon dioxide emissions, and/or sequestration/utilization of carbon dioxide.
- We collaborate with OGCI members and partners to accelerate commercialization pathways for our portfolio companies, through pilots and global implementation projects.
- We co-invest with global funds and investor groups to drive capital into decarbonization.

## PORTFOLIO PROGRESS IN 2021

- 4 new investments in Andium, Metron, Next Decade and Urbint
- 8 follow-on investments made in Achates, GHGSat, Kairos Aerospace, Qnergy, SeekOps, Solidia Technologies, Starwood Energy Elysian Ventures and Svante

*"OGCI Climate Investments plays a distinct role in decarbonization. With our disciplined approach and unique access within the sector, we strive to be a preferred partner for both our portfolio companies and our investors."*

**Joshua Haacker** – Chief Investment Officer, OGCI Climate Investments



# REDUCING METHANE EMISSIONS

Detect, measure, mitigate



**GHGSat**, a company using satellite-based technology, has discovered almost 200 million tonnes CO<sub>2</sub>e of methane emissions in the first half of 2021, and is engaged with operators and governments to eliminate these emissions. In 2021, GHGSat launched its third high-resolution satellite, with industry-leading methane detection capabilities. GHGSat has also been active with an aircraft variant of its sensor providing ultra-high resolution and low detection threshold measurements that are complementary to the satellites.



**Kairos Aerospace** combines aerial surveys with software analytics to quickly and accurately identify large methane emissions for corrective action by its customers. The company's aircraft have surveyed 369,000 wells and 160,000 miles of pipeline, resulting in the elimination of about 29 billion cubic feet (0.8 billion cubic metres) of methane since inception. The company has started international operations with flights now completed in Canada, Europe and Latin America.



**SeekOps'** Unmanned Aerial Vehicle-deployed sensor technology provides unique capabilities and analytics for offshore and onshore methane measurements, with demonstrable efficiency gains through autonomous multi-site leak localization and quantification. In 2021, in partnership with the Net Zero Technology Centre and UAV provider Flylogix, SeekOps completed a campaign of long-range methane surveys of offshore platforms in the UK sector of the North Sea.



**Qnergy's** Compressed Air Pneumatic systems form the basis of the industry-leading methane abatement programme, mitigating up to 1,000 tonnes of CO<sub>2</sub>e per year per system, by eliminating vented methane emissions. After a successful pilot project, TotalEnergies recently announced an agreement to purchase a hundred or more of these systems in the next year to reduce emissions in its Barnett field in Texas.



The **Clarke Valve** Dilating Disk is API 641 and ISO 15848-1 certified to reduce control valve fugitive emissions by up to 98%, and is up to 80% lighter than traditional globe control valves. Not only does this translate to ease of transport, assembly and installation, it also means a smaller carbon footprint, using up to 67% less steel than legacy globe valves. In 2021, field measurements proved its ability to reduce fugitive methane emissions to 0 ppm.



**Urbint** has built an AI-powered incident prevention platform for utilities and infrastructure operators, designed to predict threats to workers and critical infrastructure. The company reduces GHG emissions by preventing methane loss from third-party damage to gas pipes and proactively identifying corroded and leaky gas pipes for capital replacement. Urbint made over 6 million risk predictions and prevented >70 kT of CO<sub>2</sub>e releases in 2020 by avoiding underground gas leaks.



**Andium's** operating system helps some of the largest oil and gas organizations gain visibility into operations with real-time, remote monitoring of wellsite assets. Its most recent capital raise accelerated the deployment of proprietary Video Solutions product lines for flare monitoring, tank telemetry, and object detection, and helped Andium develop methane detection technology, which was recently deployed with a large player in the Permian.



**Kelvin** is the global leader in Sustainable Operations Software. It combines human knowledge, AI, and automation, to achieve sustainability objectives. Kelvin unites engineering understanding with machine learning to deliver operational excellence. Using AI, robotic process automation, & control theory, Kelvin increases profitability while minimizing environmental impact. Leading oil and gas customers including Halliburton, Aera and Santos, use Kelvin to decrease methane emissions and attain sustainability goals.

Source: portfolio companies' data

# REDUCING CARBON DIOXIDE EMISSIONS

Transport, buildings, industry



**Ontruck** reduces wasted trucking miles by up to 50% by using artificial intelligence to more-efficiently connect shippers and carriers, reducing carbon emissions and operating costs. In 2021, Ontruck expanded its service offering to include next day delivery to enable additional efficiency gains. The company now also provides data to customers on the CO<sub>2</sub> footprint of each pallet shipped – a first for the industry.



## NORSEPOWER

**Norsepower** reduces cost and emissions from shipping fuel consumption by up to 20%, with its rotor sails providing efficient auxiliary wind propulsion technology on tankers, bulk-carriers, ro-ro, and passenger ships. This directly replaces main engine power and supports compliance with the IMO's Energy Efficiency Design Index and Energy Efficiency Existing Ship Index. In 2021, Norsepower closed the company's first repeat orders and installed the first-ever rotor sails with tilting functionality, allowing for vessels to pass under structures like bridges, and enhancing operating flexibility for cargo operations.



**Achates Power** develops and licenses enabling opposed-piston engine technology for ultraclean, ultra-efficient and cost-effective transportation. In 2021, Achates achieved a significant technical milestone by demonstrating the ability for its heavy-duty truck engine to meet the new California Air Resources Board 2027 (CARB 2027) targets. Importantly, the engine only needs conventional, existing underfloor after-treatment systems to meet these stringent standards.



**XL Fleet** has sold more than 4,400 electrified powertrain systems resulting in over 170 million miles driven across more than 230 fleets. In 2021, it announced the acquisition of World Energy Efficiency Services, made a strategic investment in eNow, and gained current CARB Executive Order status for the hybrid Ford Transit product as well as the hybrid system for the Chevy Silverado/GMC Sierra 2500 and 3500 HD line of pickup trucks.



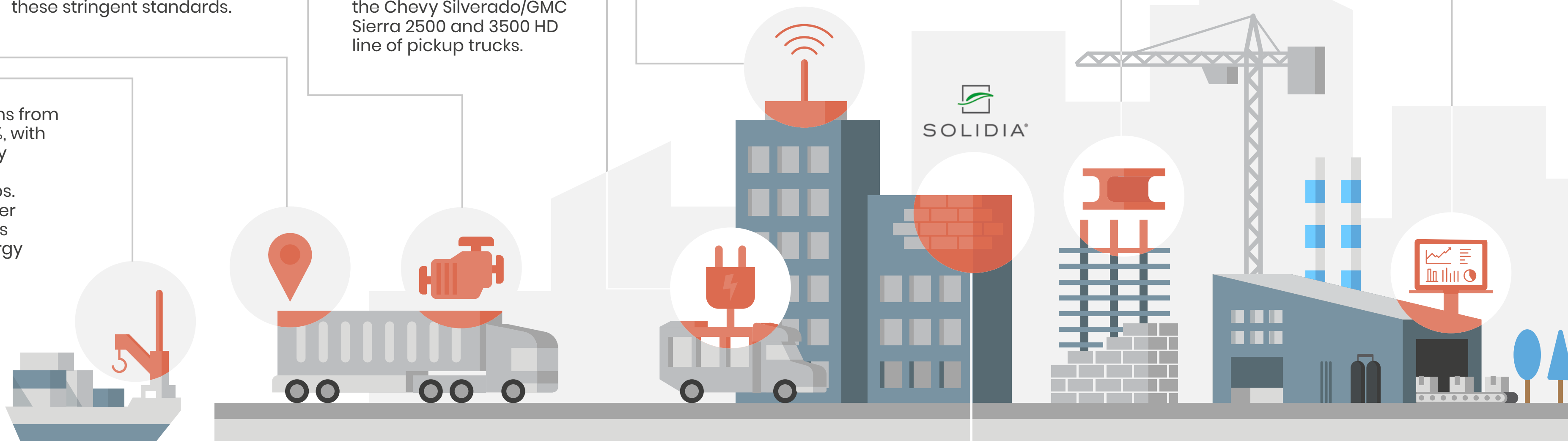
**75F** is a vertically integrated Internet of things building management system using smart sensors and controls to make commercial buildings more comfortable and efficient, with proven energy savings between 30% and 50%. In 2021, 75F announced a collaboration with Daikin Applied Americas to design a new generation of wireless controls for the US market. The company also received funding from Next47, Siemens' venture arm.



**Boston Metal** is working to decarbonize primary steelmaking using its patented molten oxide electrolysis (MOE) process, a platform technology that produces liquid iron with no direct carbon dioxide emissions. The company is scaling up and has been running a semi-industrial cell that will deliver tonnes of green metal at its facility outside Boston, USA.



A new investment for 2021, **METRON** is a French cleantech company specialized in energy efficiency and improvement of industrial performance. It provides a software-as-a-service platform to international industrial groups in order to optimize and accelerate its path to sustainability, energy efficiency and team productivity.



Source: portfolio companies' data

Solidia technology reduces carbon dioxide emissions and energy consumption in cement production and utilizes carbon dioxide to cure concrete (see description next page).



# RECYCLING CARBON DIOXIDE (CCUS)

Capture, utilize, store

## Svante

**Svante**-based projects won US Department of Energy awards for carbon capture, blue hydrogen, cement and natural gas boilers operations, and integration of Svante filters into a direct air capture plant to demonstrate the wide range of applications for this solid sorbent technology. In addition, The Canadian government provided financial support to expand a Svante commercial filter manufacturing facility in Canada.



The **Elk Hills Carbon** natural gas-fuelled, post-combustion carbon capture project completed its initial front-end engineering design (FEED) study for California's first commercial carbon capture and storage project. The project will deliver clean, reliable and affordable baseload energy and emissions reductions of 1.4 million tonnes CO<sub>2</sub> per year.

## Starwood Energy Elysian Ventures Carbon Capture Project

The **Starwood Energy Elysian Ventures** project is a natural gas-fuelled, post-combustion carbon capture project scheduled to complete its FEED study at the end of this calendar year. The project will deliver clean, reliable baseload energy and emissions reductions of 1.7 million tonnes CO<sub>2</sub> per year.



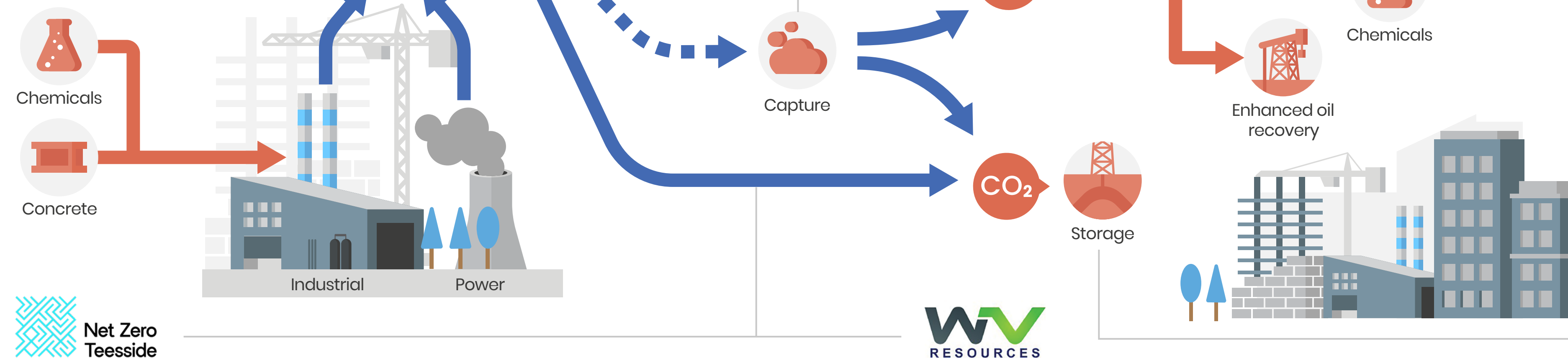
**Solidia's** patented technologies lower CO<sub>2</sub> emissions, consume carbon, save water, and improve the manufacture and performance of building materials. In 2021, Solidia completed a \$78 million fundraise to accelerate commercialization in the \$1.3 trillion global cement and concrete market and potentially reduce concrete's CO<sub>2</sub> footprint by over 1 billion tons and save 3 trillion litres of fresh water each year.



**Econic** uses pioneering catalyst technology to incorporate carbon dioxide as a raw material into polyols, used predominantly in essential everyday products made from polyurethane or using surfactants. In 2021, Econic recruited a new CEO with 30+ years' industry experience to drive commercialization.



The **Next Decade** project will provide low carbon liquefied natural gas (LNG) by incorporating carbon capture and storage into its development of the Rio Grande LNG facility in Brownsville, Texas. At full-scale, the facility is expected to capture greater than 90% of emissions and permanently store more than 5 million metric tonnes of CO<sub>2</sub> per year.



**Net Zero Teesside**, as part of the East Coast Cluster, has been selected by the UK Government to be one of the country's first carbon capture and storage projects, putting it on course for deployment by the mid-2020s. Net Zero Teesside, Climate Investments' first investment, will decarbonize an industrial region in the North East of England by capturing up to 10 million tonnes CO<sub>2</sub> per year and storing it under the North Sea. The project is operated by bp and a consortium of OGCI companies.



**Wabash Valley Resources** is a gasification project that will produce hydrogen and carbon-free power through the capture and storage of over 1.5 million tonnes CO<sub>2</sub>e per year. The project filed its Class VI permit application with the US EPA and completed its initial FEED study. In June 2021, Nikola Motor purchased a 20% stake and secured an option for 20% of the hydrogen output.

## COLLABORATING TO MAXIMIZE IMPACT

The world clearly needs solutions that can achieve global scale with urgency. All of us have a part to play in this journey.

Throughout 2021, investor capital has poured into climate funds. The effectiveness of those investment dollars depends fundamentally on investors' ability to identify opportunities with the greatest potential for climate impact. This requires robust and objective metrics for evaluating the potential carbon reduction impact of different investment opportunities.

Alongside other investment funds, OGCI Climate Investments has collaborated to develop such metrics. Project FRAME, the framework to assess future greenhouse gas emissions reduction, is focused on the assessment of impact from investments and we encourage other investors to join us to co-create this shared set of tools.

## PROJECT FRAME

## NO TIME TO LOSE – POWERING FORWARD

As we emerge from COP26, we see renewed global momentum to drive decarbonization. Countries and companies have signed up to net zero targets, policy makers have aligned behind carbon dioxide and methane reduction goals, while operating companies and financial institutions have pledged their participation.

Climate Investments is well positioned to take advantage of these tailwinds. We have already developed and operationalized impact measurement methodologies. We have used them to set targets and are now delivering on these goals through our investments and commercialization activities. Moving forward, we will scale our activities by investing in assets and growth companies that can accelerate delivery of carbon reduction.

[www.ogci.com/climate-investments](http://www.ogci.com/climate-investments)



*“We cannot bring about meaningful change alone. The climate challenge is larger than any single organization or nation. At OGCI Climate Investments, we look for collaborations ... whether it is in investments or implementation or in the measurement of impact. Achieving meaningful carbon reduction will be the critical test of our success.”*

**Pratima Rangarajan –**  
Chief Executive Officer, OGCI Climate Investments



### 3. REDUCING METHANE EMISSIONS DETECT, MEASURE, ELIMINATE

In 2021, OGCI sharpened its commitment to near zero methane emissions with an updated intensity target, worked on a set of practical actions to help the entire industry detect and eliminate methane emissions, and published a clear collective position in support of methane regulations.

#### THE METHANE CHALLENGE

Methane is far more potent as a greenhouse gas than carbon dioxide, but it stays in the atmosphere for a shorter time. That means preventing, detecting and eliminating methane emissions now can result in an important near-term reduction in the pace of global warming, supporting other efforts to reduce greenhouse gas emissions.

[See OGCI Position Paper on policies to reduce methane emissions.](#)


#### OUR METHANE INTENSITY TARGET

In 2018, member companies set a collective ambition of reaching an average upstream methane intensity of 0.20% by 2025. That action established a benchmark for the industry, recognized by key stakeholders such as the Environmental Defense Fund and the European Commission – and we achieved it five years early, in 2020.

Between 2017 and 2020, OGCI member companies' efforts reduced aggregate absolute upstream methane emissions by 35% and greenhouse gas emissions from upstream flaring by 29%.<sup>1</sup> Over the same time frame, we achieved 33% reductions in both methane intensity and upstream flaring intensity.

We did this by expanding leak detection and repair campaigns and implementing equipment upgrades to reduce venting and flaring. Our results in 2020 have been affected to some extent by falling production levels during the Covid-19 pandemic, but we have now challenged ourselves to do more.



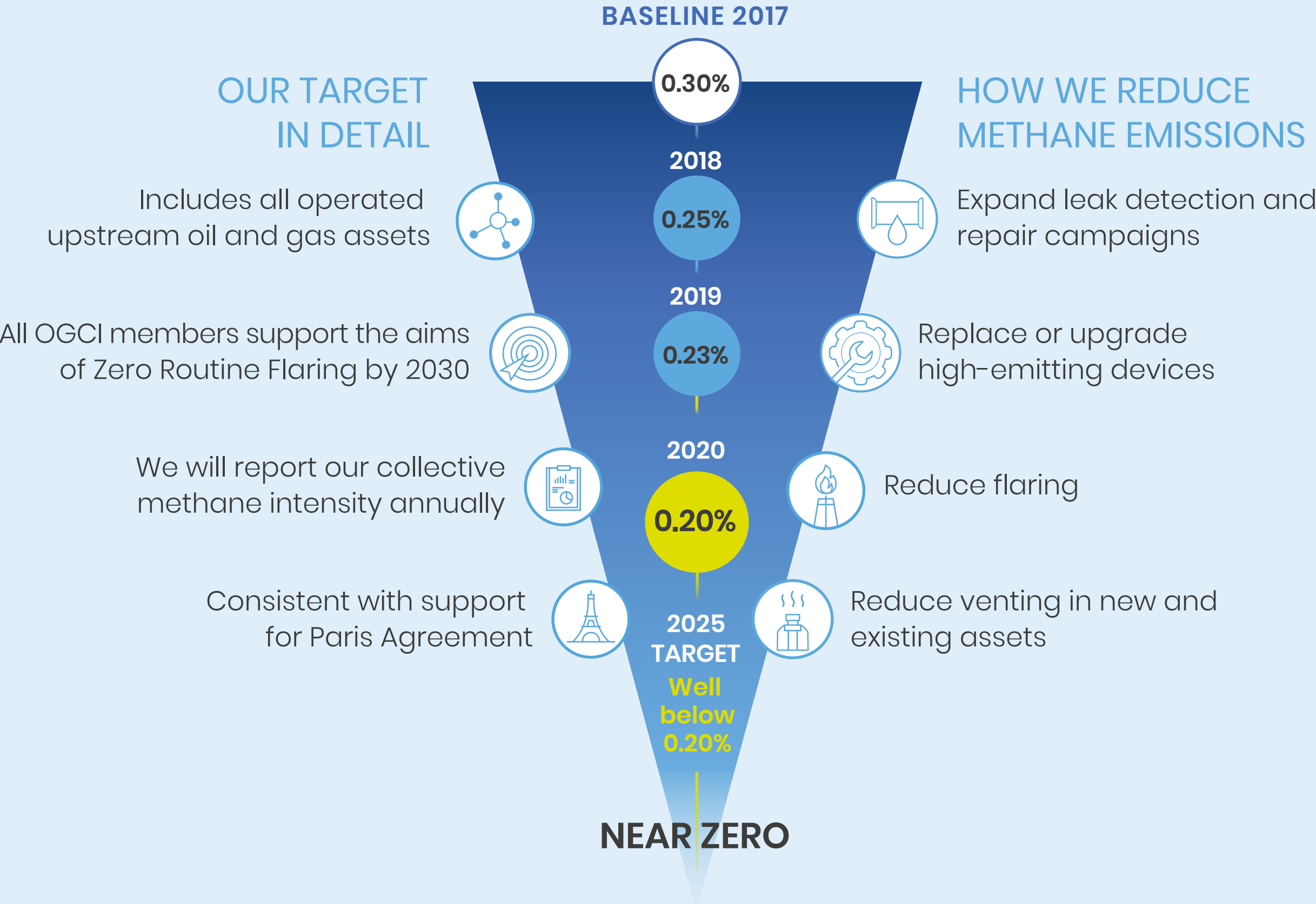
**~30%**   
of global warming to date is a result of methane in the atmosphere.<sup>2</sup>

<sup>1</sup> Learn more about how OGCI collects data and find full aggregate performance data [online](#) and in this report on pages 26–30.

<sup>2</sup> Source: IEA, [Curtailling Methane Emissions from Fossil Fuel Operations](#), October 2021



# UPSTREAM METHANE INTENSITY TARGET



## BY 2025, WE AIM TO ...

- Reduce average methane intensity of aggregate upstream oil and gas operations to well below 0.20%.
- Expand methane measurement at major upstream production sites.
- Explore ways to eliminate routine and minimize non-routine flaring – moving beyond our existing commitment on Zero Routine Flaring by 2030.
- Explore ways to include non-operated assets in our ambitions.

These efforts will keep us on track to achieve near zero methane emissions among OGCI member companies, in accordance with the aims of the Paris Agreement.



*“OGCI is committed to eliminating methane emissions from oil and gas and supports the implementation of well-designed direct and indirect regulations.”*

**Rosanna Fusco** – OGCI Methane Champion; Head of Climate Strategy and Positioning, Eni

## TACKLING METHANE HOTSPOTS

Our member companies and OGCI Climate Investments are pioneers in testing and deploying innovative technologies to detect, measure and reduce methane emissions and flaring. OGCI works with several key organizations to share that knowledge and help the global oil and gas industry adopt the most effective approaches.

## IN 2021 WE HAVE BEEN ...

- Working with GHGSat, a leading satellite company and part of the Climate Investments portfolio, to finance the **monitoring of methane plumes** from the oil and gas industry in Iraq, one of the world's largest emitters of methane.<sup>1</sup> In partnership with the Global Methane Alliance and local stakeholders, we will work to facilitate emissions mitigation. If successful, we plan to extend this initiative to other methane hotspots.
- Co-developing the **Methane Guiding Principles' Flaring Toolkit**, an online, publicly available platform that will provide guidance and options for improving the reporting of

methane emissions from flares, covering both measurement and technology for understanding flare combustion. The platform is scheduled for publication in early 2022.

- Supporting the Payne Institute for Public Policy's development of the **Global Gas Flaring Explorer**, a web platform that maps and tracks flaring in real time with expected publication in 2022. Payne is matching satellite observations of flaring with flaring measurements from OGCI member companies to help improve the accuracy of its methodology.
- Identifying the best combination of **emerging and incumbent technologies to detect methane emissions**, in conjunction with the International Association of Oil & Gas Producers and IPIECA.

For other initiatives focused on detecting and reducing methane emissions, see [Engaging for impact](#).



Methane is

**80x**



more potent than CO<sub>2</sub> over a 20-year time-frame.<sup>2</sup>

<sup>1</sup> International Energy Agency, Methane Tracker 2021

<sup>2</sup> Source: IEA, [Curtailling Methane Emissions from Fossil Fuel Operations](#), October 2021

## 4. CUTTING CARBON INTENSITY EFFICIENCY AND ELECTRIFICATION

In 2021, OGCI made progress in reducing upstream carbon intensity. We revised our target, providing the potential to reduce aggregate greenhouse gas emissions from member company operations by an additional 50 million tonnes per year by 2025.

### THE DECARBONIZATION CHALLENGE

Reducing carbon dioxide emissions is at the heart of the efforts required to achieve net zero, and around three-quarters of these emissions come from energy production and use. There have been signs of a decoupling of emissions from economic growth<sup>1</sup> – a divergence needed for the world to move towards net zero emissions while fostering access to energy, jobs and prosperity. To translate this trend into a durable global transition pathway, faster progress and additional decarbonization options are needed, especially in hard-to-abate sectors.

### OUR CARBON INTENSITY TARGET

We are pleased to report faster-than-expected progress in reaching our initial upstream carbon intensity target. According to 2020 data, on average across OGCI companies, each barrel of oil equivalent emitted 19.5 kilogrammes of carbon dioxide equivalent – 0.5 kilogrammes less than we had targeted for 2025. This equates to a 14% drop in upstream greenhouse gas emissions from 2017.<sup>2</sup>

In 2020 alone, we achieved a 9% reduction in absolute operational upstream emissions. While these results were affected by falling production levels due to a drop in demand during the pandemic, member companies also continued to implement projects to electrify assets, reduce flaring, shift portfolios and reduce methane emissions. We believe this progress can be maintained as demand rebounds and have therefore sharpened our target.

*"Energy efficiency is essential and the most cost-effective way to reduce energy consumption without sacrificing performance. It requires a continuous process of improvement in operating and maintenance procedures, and technology will be a key driver for success."*

**Fernando Ruiz Fernandez** – OGCI Energy Efficiency Champion,  
Director of Sustainability, Repsol



Towards  
**NET ZERO**  
operations



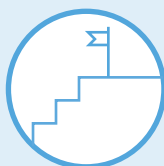


<sup>1</sup> International Energy Agency, *Global CO2 emissions in 2019*, February 2020. More recent data is distorted by the impact of Covid-19 but emissions in 2021 have rebounded with the pick-up in economic activity, suggesting decoupling remains limited.

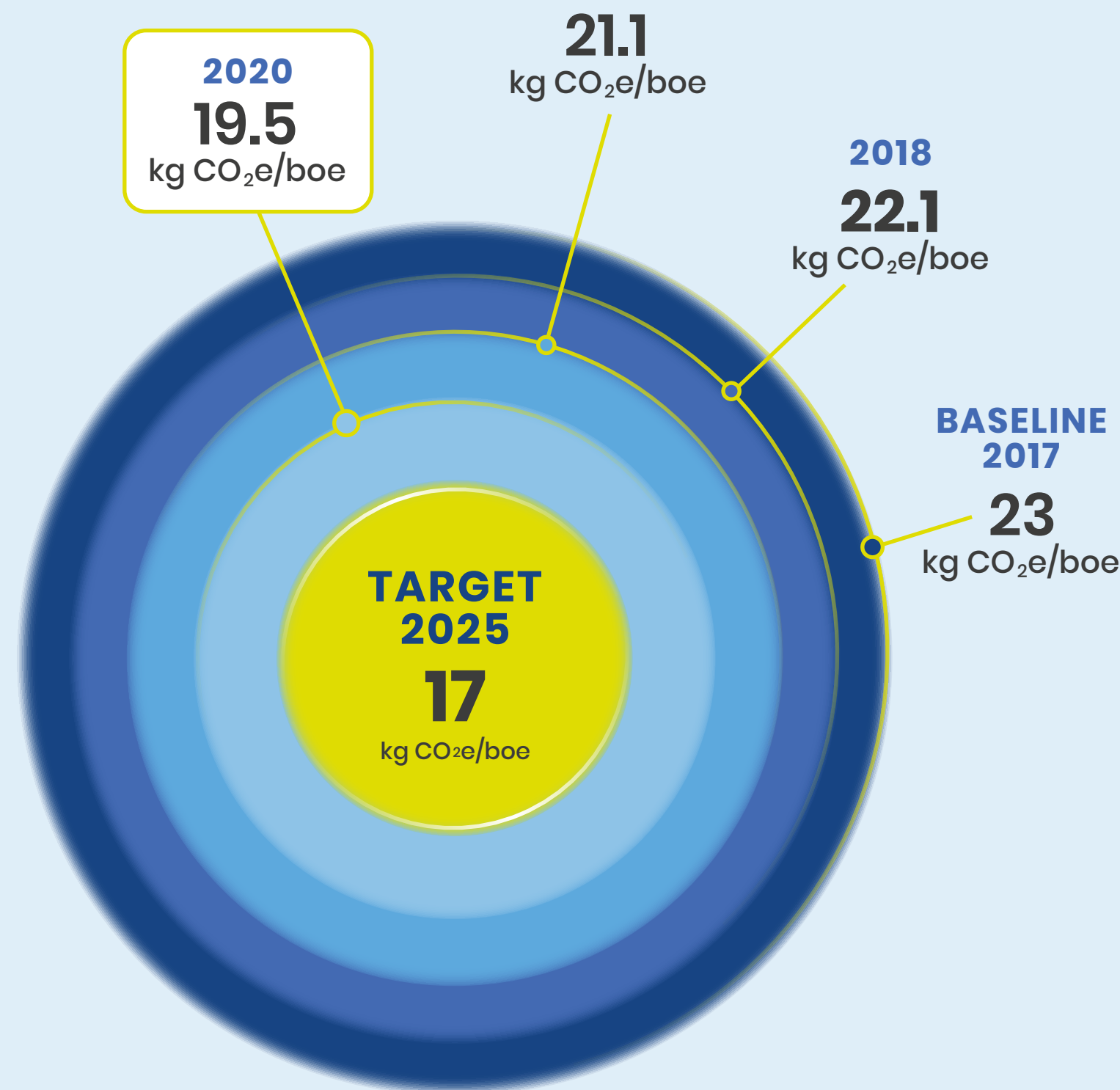
<sup>2</sup> See OGCI Performance Data, page 27








# UPSTREAM CARBON INTENSITY TARGET

## OUR TARGET IN DETAIL

- Includes CO<sub>2</sub> and methane emissions 
- Covers operated upstream oil and gas assets 
- Promotes near-term action 
- Reported and independently reviewed annually 
- Consistent with the aims of the Paris Agreement 



## HOW WE REDUCE CARBON EMISSIONS

-  Improve energy efficiency
-  Co-generate electricity and useful heat
-  Zero routine flaring by 2030
-  Electrify operations with renewables where possible
-  Near zero methane emissions

## BY 2025, WE AIM TO ...

- Reduce the average carbon intensity of our aggregate upstream operated assets to 17 kilogrammes of carbon dioxide equivalent per barrel of oil equivalent, consistent with the reductions needed to help meet the goals of the Paris Agreement. This equates to a drop of around 100 million tonnes of carbon dioxide equivalent per year from 2017 to 2025.
- Establish specific actions to reduce emissions from refineries and LNG.

See the OGC Reporting Framework for the detailed methodology of these targets.

### INSTALLING AN EFFICIENCY MINDSET

Improving efficiency – getting more out of each unit of energy fed into the system – is essential to maintaining reductions in carbon dioxide emissions. OGCI is currently benchmarking the implementation of energy-management systems and developing **guidelines to help OGCI companies to reduce their energy intensity**. We aim to publish these guidelines in 2022, providing recommendations for other oil and gas companies.

One benefit to working within a collective is being able to leverage insights from other companies to advance broader decarbonization. To this end, this year we started convening regular **technical learning sessions** among OGCI member companies to disseminate best practices in boosting energy efficiency. Presentations have focused on equipment and process optimization, electrification, advances in digitalization of operations, and sharing the results of tests and deployment of new technologies.

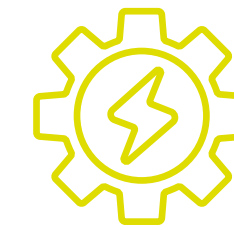
### SPARKING CHANGE VIA ELECTRIFICATION

Energy producers regularly power their own operations using gas they extract and refine in-house. This results in direct carbon dioxide emissions from our industry, so we recognize the importance of low carbon electrification as an opportunity to reduce emissions from energy-intensive processes.

OGCI is drawing up an **electrification roadmap** for upstream and downstream oil and gas production to:

- analyze the various electrification technologies available
- evaluate the merits of different electrification pathways
- identify areas that require more fundamental research
- provide recommendations to industry players

[Read more about how member companies approach energy efficiency and electrification](#)



**LEADING**  
the oil and gas  
industry

**>40%**

of emissions abatement  
needed by 2050 could come  
from energy efficiency.<sup>1</sup>

<sup>1</sup> International Energy Agency, [How energy efficiency will power net zero climate goals](#), 2021

## 5. ENABLING INDUSTRIAL DECARBONIZATION SCALING UP CARBON CAPTURE, UTILIZATION AND STORAGE

OGCI worked in 2021 with a range of governments, industrial emitters, standards setters, and carbon transport and storage experts to facilitate investment in carbon capture, utilization and storage (CCUS) hubs and projects.

### CCUS: ENABLING THE ENERGY TRANSITION

CCUS is a crucial enabler for the energy transition and can help emitting companies – and entire regions – to decarbonize cost-effectively, maintaining and creating jobs. If deployed at scale, CCUS can help decarbonize heavy industry and power, and enable the production of low carbon hydrogen that can be used to decarbonize buildings and transport. CCUS also creates the transport and storage infrastructure that are essential for technologies that take carbon dioxide out of the air.

### SETTING THE STAGE FOR CCUS

Our work is intended to support the development of CCUS, explain its value and accelerate scale up by helping governments, emitters and potential developers to establish CCUS hubs. These efforts can help to decarbonize industrial regions more quickly and cost-effectively, while supporting employment and leveraging skills. We aim to provide easier access to CCUS as a decarbonization method for companies in hard-to-abate sectors – including our own refineries and petrochemicals plants.

The roll-out of CCUS hubs and projects focused on decarbonizing industry at scale is showing the real potential of CCUS. OGCI's KickStarter initiative, launched in 2019, prioritized a number of hubs that have made strong progress in 2021. Northern Lights started construction in Norway; Net Zero Teesside got UK government support to move ahead; emitters in Porthos successfully competed for financial support; ChinaNorthwest has spawned plans for three new hubs in China. With that momentum, OGCI member companies are now involved in the development of more than 20 potential CCUS hubs. While some are still in the early stages, seven plan to start operations by 2025.

*“A massive scale-up is needed if CCUS is to support the aims of the Paris Agreement – and that will require policies to facilitate and incentivize the deployment of CCUS.”*

**Sue-Ern Tan** – OGCI CCUS Champion, Head of Policy and Advocacy, Integrated Gas, Renewable and Energy Solutions, Shell



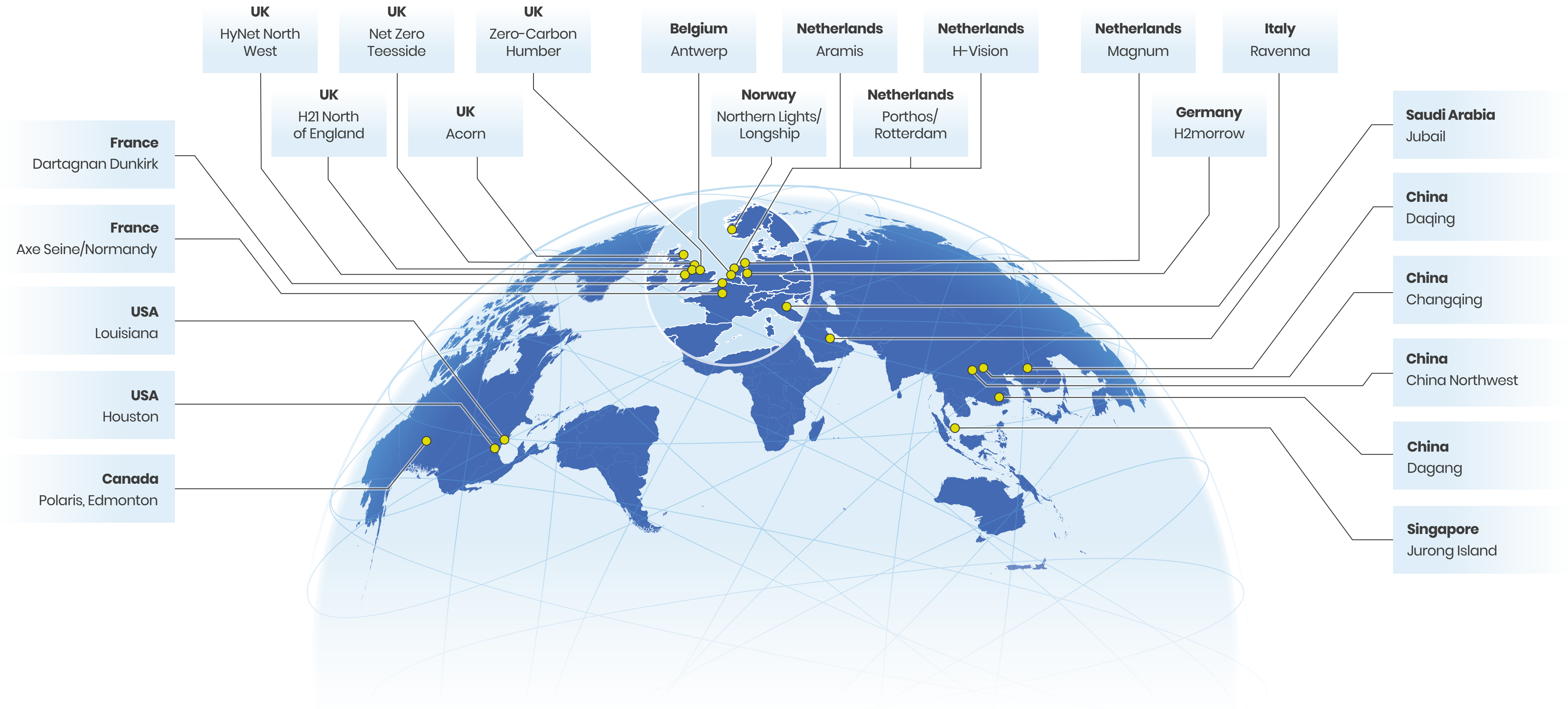
Acting to help  
**DECARBONIZE**  
society





KICKSTARTER: THE NEXT PHASE

Emerging CCUS hubs with OGCI member company involvement



*“CCUS hubs capture and store carbon emissions from existing industrial complexes. That helps to accelerate industrial decarbonization, scale up low carbon hydrogen and create the needed infrastructure for direct air capture.”*

**Julien Perez** – Vice President,  
Strategy & Policy, OGCI



OGCI is working in collaboration with policymakers and business leaders to share learnings and remove barriers that prevent CCUS from playing a larger role in decarbonization strategies and the energy transition.

#### **IN 2021 WE ...**

- Developed a **Global CCUS Hub platform** to support policymakers, potential hub developers, and emitters interested in setting up a hub. The platform, to be launched in early 2022, will provide open access to an interactive Global Hub Search tool, developed in collaboration with BCG, that identifies emission sources, storage options, and potentially viable hubs in 56 countries. The platform also provides quick answers and checklists on dozens of non-technical questions about CCUS and hubs, drawing on interviews with those involved in the most advanced hubs.
- Held workshops in partnership with the **Clean Energy Ministerial and the Asian Development Bank**, convening government officials and corporate executives to discuss CCUS progress

and opportunities in Canada, Europe and Asia. We also engaged with industrial sectors, including aluminium and cement.

- Published two reports on the value and impact of implementing CCUS at scale in [China](#) and [Saudi Arabia](#), based on deep-dive white papers that engage leading academics, policy-makers and industry experts. We are extending this series with a report covering the other Gulf countries, Brazil, India and the Asia-Pacific region.
- Explored how to bring stored carbon dioxide into established **standards and carbon markets**, through cooperation with the CCS+ initiative on carbon credits and monitoring, as well as the International Organization for Standardization's guideline on storage.

[See OGCI Position Paper on CCUS](#)



## OVERCOMING TECHNICAL HURDLES

We are engaging in a wide range of projects to establish the technical framework for CCUS as a global decarbonization tool.

### IN 2021, WE:

- Expanded and updated the [CO2 Storage Resource Catalogue](#). This online interactive tool – backed by an in-depth study – has been developed in conjunction with the Global CCS Institute and Storegga Geotechnologies. It provides a standardized comparison of storage potential in 715 sites across 18 countries. In 2022, we will add 12 more countries to the catalogue.
- Supported the Society of Petroleum Engineers in developing a set of **technical guidelines for carbon storage**. This guide to using the Storage Resource Management System will be published in early 2022.
- Made progress on two overview reports: identifying **opportunities to improve storage technology** and exploring developments in **transporting carbon dioxide by ship**.

## NATURAL CLIMATE SOLUTIONS

Natural climate solutions (NCS) strengthen the capacity of oceans, forests, grasslands, peat, mangroves, soil and other biomes to act as natural sinks for carbon dioxide. The restoration of agricultural soils can, for example, increase their capacity to remove carbon from the atmosphere, while the protection of coastal wetlands can safeguard their carbon stocks. These and similar measures can potentially deliver at least a third of the cost-effective carbon dioxide mitigation needed by 2030 to meet the goals of the Paris Agreement.<sup>1</sup>

OGCI endorses NCS as a component of a holistic strategy to tackle climate change, recognizing that emissions reduction remains the primary lever. OGCI is engaged in several initiatives to better understand, promote and advance NCS:

- **Scaling up the use of high-quality NCS.** OGCI is an active member of the NCS Alliance, a consortium spearheaded by the World Economic Forum and the World Business Council for Sustainable Development.

- **Integrating NCS into oil and gas operations.** In partnership with IPIECA, OGCI is in the process of establishing guidelines on how oil and gas firms can preserve and restore natural carbon sinks as a result of operations and development, especially in coastal and other “blue carbon” contexts.
- **Enhancing monitoring through technology.** NCS will make the greatest impact if underpinned by transparent mechanisms to monitor, report and verify (MRV) how much carbon different sinks can absorb. OGCI is studying the use of artificial intelligence, satellites and other technologies meant to increase accessibility to data and generate more robust MRV tools.

See [OGCI Position Paper on Natural Climate Solutions](#)



*“A just transition requires higher and earlier ambition and affordable energy for those in need. That makes NCS an essential complement to decarbonizing hard to abate sectors.”*

**Viviana Coelho** – OGCI NCS Champion;  
Executive Manager, Climate Change Lead,  
Petrobras

<sup>1</sup> PNAS, October 2017, [Natural Climate Solutions](#)



## 6. SUPPORTING TRANSPORT DECARBONIZATION ACCELERATING LOW CARBON SOLUTIONS

OGCI engaged with multiple partners in the transport value chain in 2021 to translate research findings into action plans.

### FINDING DECARBONIZATION PATHWAYS

The transport sector is responsible for almost a quarter of total energy-related carbon dioxide emissions, with 74% of these emissions coming from road transport, and aviation and marine contributing 11% each.<sup>1</sup>

While electrification using low carbon power is on track to play a key role in reducing emissions from passenger vehicles, other decarbonization pathways are needed for all sub-sectors.


### TACKLING HARD-TO-ABATE SECTORS



OGCI is taking a multifaceted approach within the transport sector – with a focus on hard-to-abate marine and heavy-duty trucking – to accelerate progress on decarbonization. In our work on hydrogen, low carbon fuels and mobile carbon capture, we are developing a robust foundation of learnings and insights that could inform and accelerate action by stakeholders across the spectrum.

OGCI is exploring the following aspects of decarbonization in transport:

- **CCUS in marine transportation.** In cooperation with shipping firm, Stena Bulk, we released a white paper showing that removing carbon dioxide from a tanker ship's exhaust gas is technically feasible while offering guidance towards long-term economic viability. We hope to soon put this ground-breaking finding into action via a pilot project.
- **Biomass in marine transport.** With input from the Oak Ridge National Laboratory, research group Concawe, Stena Bulk and



**74%**   
road transport  
share of energy-related CO<sub>2</sub>  
emissions from transport<sup>2</sup>

**11%**    
each from aviation and marine<sup>2</sup>

<sup>1</sup> International Energy Agency, Global energy-related CO<sub>2</sub> emissions by sector, March 2021

International Energy Agency, Transport sector CO<sub>2</sub> emissions by mode in the Sustainable Development Scenario, 2000–2030, November 2019

<sup>2</sup> Source: IEA, Global energy-related CO<sub>2</sub> emissions by sector, 2021 and Transport sector CO<sub>2</sub> emissions by mode, 2019

climate technology company Licella, we are investigating the economic feasibility of sustainable biomass collection and conversion into fuel useable in existing ship engines. We aim to deliver a white paper with concrete recommendations and guidance.

- **Hydrogen delivery at scale.** New dedicated pipelines or retrofitted pipelines for natural gas could serve as the foundation for a robust low carbon hydrogen distribution network. We are evaluating a potential pilot project to test and assess its use for building a refueling infrastructure for trucks.
- **Fuel and technology mix to meet the International Maritime Organization's ambitions.** A joint study conducted with Concawe explores a number of scenarios that incorporate efficiency-improving technologies and methods, low carbon fuels and carbon capture to identify solution paths to reaching the marine sector's decarbonization goals. The results will be shared with industry stakeholders

to inform and initiate collaboration opportunities in the sector.

- **The potential of low carbon fuels.** The menu of potential future alternative fuels is vast, and different sectors and regions have varying and competing needs. To help guide funding decisions, we are using a life-cycle assessment based approach to model how adoption of low carbon fuels might play out and clarify the cross-sectoral dynamics that may hinder or accelerate their use.
- **The role of ammonia.** Ammonia can be used as either a fuel or as a carrier for hydrogen, and its role in the low carbon economy is under increasing consideration. We recently launched a study that will explore how it can best be deployed.

OGCI member companies are also sharing best practices and knowledge around how to measure and reduce the carbon intensity of energy products delivered to market.

*"OGCI member companies have extensive experience in the hydrogen supply chain. We can contribute skills, technology and know-how to its commercialization and scale-up in transport."*

**Zhou Aiguo** – OGCI Transport Champion; Chief Expert of Quality, Health & Safety & Environment, CNPC Group



*"Low carbon fuels are a promising deployable solution that can help reduce emissions across the transportation sector on a life-cycle basis."*

**Omar Abdulhamid** –  
OGCI Transport Champion; General  
Manager, Environmental Protection,  
Saudi Aramco

# 7. OGCI PERFORMANCE DATA 2020

## PRODUCTION

The aggregate oil and gas production of the 12 OGCI member companies fell by 2% in 2020 to 45.2 Mboe/day, largely driven by reduced oil production due to the impact of the Covid-19 pandemic on demand. Without those companies with major acquisitions in 2019 and 2020, the drop would have been 3%. Oil production fell by 2% to 29.3 Mboe/day, while gas production remained stable at 15.9 Mboe/day, raising the share of gas to just over 35% of aggregate oil and gas production.

OGCI member companies operated 28% of global oil and gas production in 2020.<sup>1</sup>

OGCI INDICATORS	UNIT	2017	2018	2019	2020
OGCI oil production (operated)	Mboe/day	29.8	30.0	30.1	29.3
OGCI gas production (operated)	Mboe/day	15.2	15.5	15.8	15.9
OGCI oil and gas production (operated)	Mboe/day	45.0	45.6	45.9	45.2
Share of natural gas in OGCI operated portfolio	%	33.8	34.1	34.4	35.2
OGCI oil and gas production (equity)	Mboe/day	42.5	42.3	42.5	40.9

OGCI data is collected and reviewed by EY as an independent third party. In 2021, EY issued a limited assurance statement, which is available on [our website](#).

Notes:  
 1. According to IEA data, global oil and gas production in 2020 was 159 Mboe/day. Global oil production in 2020 was 94 Mboe/day, while natural gas production was 65 Mboe/day. OGCI member companies’ share of total oil and gas production is 28% on an operated basis and 26% on an equity basis. OGCI production data is included up until first point of sale, including LNG liquefaction plants if located before the first point of sale.

**Operated production** – Total output produced under a company’s control and responsibility  
**Equity production** – Total output in operations that are owned by a company (calculated by ownership share)  
**Mboe/day** – Million barrels of oil equivalent per day

All reported data is the aggregate for 12 companies unless otherwise stated.  
[Read more about definitions and methodology in the OGCI Reporting Framework.](#)



Upstream carbon intensity fell by 8% in 2020 to 19.5 kg/boe – below the initial 2025 target of 20 kg. While some of that reduction in greenhouse gas emissions is a result of falling production levels due to Covid-19, member companies also report impact from electrification of assets, flaring reduction projects, portfolio changes and methane emission reduction.

While collecting greenhouse gas and production data from member companies, EY ran an exercise this year to verify that the progress in reducing emissions is sustainable as demand rebounds. The result of this work has encouraged OGCI to sharpen its 2025 target to 17 kg CO<sub>2</sub>e/boe by 2025. Compared to the 2017 baseline, upstream carbon intensity has fallen by 14%.

Aggregate absolute Scope 1 greenhouse gas emissions, both upstream and downstream, fell by 7% in 2020 and by 11% from 2017. At 632 MtCO<sub>2</sub>e, they represent 1.1% of global greenhouse gas emissions, using 2019 data from the UNEP’s [Emissions Gap Report 2020](#) (or 1.2% using 2019 OGCI data to discount any distortion due to Covid-19 reductions). Upstream emissions represent just under half of total aggregate Scope 1 emissions.

OGCI INDICATORS	UNIT	2017	2018	2019	2020
Upstream carbon intensity <sup>1</sup>	kgCO <sub>2</sub> e/boe	22.7	22.1	21.2	19.5
Operated greenhouse gas emissions – all sectors (Scope 1) <sup>2</sup>	MtCO <sub>2</sub> e	709	687	682	632
of which: upstream GHG emissions (Scope 1) <sup>3</sup>	MtCO <sub>2</sub> e	362	349	341	311
Upstream greenhouse gas emissions (Scope 2)	MtCO <sub>2</sub> e	41.4	43.5	43.4	39.3

Notes:

1. This is the key performance indicator for OGCI’s upstream carbon intensity target. It includes upstream carbon dioxide and methane emissions, both Scope 1 and 2, on an operated basis. It excludes emissions from gas liquefaction and gas-to-liquids.

2. This figure includes direct (Scope 1) emissions of carbon dioxide, methane and nitrous oxide (for those companies that report it) from all operated activities (upstream as well as downstream, which includes refineries and petrochemicals).

3. Upstream activities comprise all operations from exploration to production and gas processing (up to the first point of sale), including LNG liquefaction plants if located before the first point of sale.

kgCO<sub>2</sub>e/boe – Kilograms of carbon dioxide equivalent per barrels of oil equivalent  
MtCO<sub>2</sub>e – Million tonnes of carbon dioxide equivalent

## 7. OGCI PERFORMANCE DATA 2020

### METHANE EMISSIONS

For 2020, OGCI reported an aggregate methane intensity of 0.20%, meeting the initial 2025 ambition. This progress<sup>1</sup> means that collective methane intensity has fallen by 33% since 2017, with an improvement of 13% in 2020 alone. The fall in methane intensity is matched by a concomitant reduction in absolute upstream methane emissions which are now at 1.3 Mt, down from 2.0 Mt in 2017 – a reduction of 35%. Taken together, absolute upstream and downstream methane emissions fell by 33% over the three years, although reductions in downstream emissions in 2020 were also a result of refinery closures during the Covid-19 pandemic.

Upstream methane emissions reductions in 2020 came from decreases in venting (through equipment upgrades) and flaring. Extensive leak detection and repair campaigns also resulted in a continued reduction in fugitive leaks. Venting and fugitive leaks accounted for over 60% of upstream methane emissions in 2020. The upstream sector accounted for over 92% of OGCI aggregate methane emissions in 2020. Member companies are continuing their efforts to reach near zero emissions, aiming for well below 0.20% by 2025.

OGCI INDICATORS	UNIT	2017	2018	2019	2020
Upstream methane intensity <sup>1</sup>	%	0.30	0.25	0.23	0.20
Operated methane emissions – upstream	MtCH <sub>4</sub>	2.0	1.7	1.6	1.3
Operated methane emissions – all sectors <sup>2</sup>	MtCH <sub>4</sub>	2.1	1.9	1.7	1.4

- Notes:
- 1. This is the key performance indicator for OGCI’s 2025 upstream methane target. It includes total upstream methane emissions from all operated gas and oil assets. Emissions intensity is calculated as a share of marketed gas.
  - 2. This figure includes relevant operated activities (upstream, refineries, petrochemicals, power generation, etc, where these are operated by the company).

MtCH<sub>4</sub> – Million tonnes of methane

<sup>1</sup> Performance data for 2020 reflected varying impacts from changing market conditions and COVID-19.

# 7. OGCI PERFORMANCE DATA 2020

## FLARING

OGCI member companies made progress<sup>1</sup> in reducing flaring in 2020, linked to efforts to end routine flaring by 2030. Upstream flaring intensity fell by 21% in 2020 and by 33% since 2017, reflected in falling emissions from flaring. This progress was primarily linked to significant flare reduction projects. Routine flaring volumes, specifically, dropped by 15% in 2020, despite data including one additional company.

OGCI INDICATORS	UNIT	2017	2018	2019	2020
Upstream flaring intensity <sup>1</sup>	Mm <sup>3</sup> /Mtoe	10.8	9.5	9.2	7.3
Natural gas flared – upstream	Mm <sup>3</sup>	24,221	21,465	20,998	16,473
Routine gas flared – upstream	Mm <sup>3</sup>	–	5,636 (10)	5,020 (10)	4,254 (11)
Flaring greenhouse gas emissions – upstream	MtCO <sub>2</sub> e	62	57	55	44

Note:  
 1. Upstream flaring intensity is calculated on the basis of the volume of gas flared per million tonnes of oil equivalent produced on an operated basis.

Mm<sup>3</sup> – Million cubic metres

<sup>1</sup> Performance data for 2020 reflected varying impacts from changing market conditions and COVID-19.



# 7. OGCI PERFORMANCE DATA 2020

## INVESTMENT AND R&D IN LOW CARBON TECHNOLOGIES

Member companies are still working to aggregate homogenous data on low carbon investment and R&D, so the OGCI aggregate numbers do not include all companies. Those that reported spent a total of US\$7.4 billion on low carbon technologies in 2020, with just over 70% spent on renewable energies. Investment in low carbon energy projects and acquisitions increased by 18% in 2020 – with a 45% increase in acquisition spending. Research and development (R&D) spending dropped sharply overall in 2020 because of the pandemic. Low-carbon R&D spending fell by 20% compared to 2019, but its share of total R&D spend remained relatively stable at 14%, compared with 15% in 2019.

OGCI INDICATORS	UNIT	2017	2018	2019	2020
(number of companies providing data)					
Investment in low carbon technologies <sup>1</sup>	US\$B	4.7 (10)	5.5 (10)	5.6 (10)	6.6 (10)
of which: acquisitions	US\$B	0.3 (5)	1.0 (5)	1.1 (7)	1.6 (7)
R&D expenditures on low carbon technologies <sup>2</sup>	US\$B	0.7 (9)	1.0 (9)	1.0 (9)	0.8 (10)
Low-carbon R&D as a share of total R&D spend	%	19 (9)	15 (9)	15 (9)	14 (10)

Notes:  
 1. Low carbon energy technologies include but are not limited to wind, solar and other renewable energies, carbon-efficient energy management, CCUS, blue and green hydrogen, biofuels, synfuels, energy storage and sustainable mobility.  
 2. R&D spending is additional to investment.



## WHAT IS THE OIL AND GAS CLIMATE INITIATIVE?

The OGCI is a CEO-led initiative that aims to accelerate the industry response to climate change. OGCI member companies explicitly support the Paris Agreement and its aims.

As leaders in the industry, accounting for almost 30% of global operated oil and gas production, we aim to leverage our collective strength and expand the pace and scope of our transitions to a low-carbon future, so helping to achieve net zero emissions as early as possible.

Our members collectively invest over \$7B each year in low carbon solutions. OGCI Climate Investments was set up by members to catalyze low carbon ecosystems. This US\$1B+ fund invests in technologies and projects that accelerate decarbonization in oil and gas, industry and commercial transport.

[ogci.com](https://ogci.com)



### Legal disclaimer

While all OGCI member companies have contributed to the development of this report, the views or positions it contains may not fully reflect the views of a particular OGCI member company. Similarly, this report does not cover all relevant activities of OGCI member companies; nor do all member companies participate in all of the activities described.

### Cautionary statement

This document contains certain forward-looking statements – that is, statements related to future, not past events and circumstances – which may relate to the ambitions, aims, targets, plans and objectives of OGCI and/or its member companies. These use expressions such as “accelerate”, “advance”, “aim”, “ambition”, “commit”, “expect”, “plans”, “strive”, “target” and “will” or similar expressions intended to identify such forward-looking statements. Forward-looking statements involve risk and uncertainty because they relate to events and depend on circumstances that will or may occur in the future and are outside of the control of OGCI and/or its member companies. Actual results or outcomes may differ from those expressed in such statements, depending on a variety of factors. OGCI does not undertake to publicly update or revise these forward-looking statements, even if experience or future changes make it clear that the projected performance, conditions or events expressed or implied therein will not be realized.