OIL AND GAS CLIMATE INITIATIVE

Staying the course

PROGRESS REPORT 2025

aramco bp Chevron CNPC eni equinor ExxonMobil OXY PETROBRAS repsol TotalEnergies

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CEO foreword – Staying the course

A decade ago, we had a vision of how leading oil and gas companies could contribute to one of the defining challenges of our age.

This vision has become a reality and now engages an even broader global community beyond OGCI, through the Oil & Gas Decarbonization Charter (OGDC), which we helped launch in 2023.

As OGCI, we are a diverse group of companies that have already demonstrated what's possible when we work together toward shared ambitions. Our leadership in methane emissions reduction is a case in point.

As CEOs, we meet regularly, we engage directly with each other and we invest our time and resources to help reduce emissions and accelerate the solutions needed for the energy transition.

OGCI's ability to build bridges between state-owned and private companies, across Europe, the US, China, the Middle East, and South America is a core strength. Our global reach allows us to connect ideas with action at scale.

And by working with the OGDC, now representing 56 companies, we are expanding that impact, broadening our approach and amplifying our efforts, showing that together, we can help deliver meaningful action.

Reducing greenhouse gas emissions remains the core objective for OGCI. Our companies believe it's important and we aim to deliver results in line with OGCI's ambitions.

OGCI's core mission remains unchanged

- We will sustain our leadership on emissions reductions from upstream operations with a continued focus on reducing methane emissions and flaring.

Petrobras CEO Magda Chambriard at March 2025 meeting. Credit: OGCI

OGCI Chair Bob Dudley, Shell CEO Wael Sawan and Occidental CEO Vicki Hollub at March 2025 meeting. Credit: OGCI

- We will continue to share knowledge and drive better performance measurement to spur continuous improvement.
- And we will intensify our efforts to bring along the broader oil and gas industry – particularly in emerging economies – so that progress extends beyond our own members.

This year we reflected on the success of OGCI's carbon intensity and methane intensity ambitions, which were set with a target date of 2025, and took the time to reassess our priorities for the next five years. This has included a comprehensive strategy review and an expanded CEO session this summer at one of our regular meetings.

The outcome was clear: OGCI's three strategic pillars remain meaningful and will guide our updated priorities to 2030 through an action-oriented approach that remains focused on outcomes.

Our three strategic pillars

- Achieve net zero operations for OGCI members in the timeframe of the Paris Agreement, with a near-term objective to achieve near-zero methane emissions and eliminate routine flaring by 2030.
- Demonstrate leadership and mobilize industry, such as through the OGDC, and other global initiatives.
- Scale up solutions that accelerate and support the decarbonization of society.

A central part of our strategy is the synergy between OGCI and OGDC. Combining OGCI's practical experience and technical expertise with OGDC's global reach, gives us a powerful platform to mobilize industry-wide change.

OGCI'S AGGREGATE PROGRESS IN 2024[1]

- **Upstream operated carbon intensity:** 17.2 kg CO_2e/boe – a 24% decrease since 2017, close to our 17.0 kg CO_2e/boe ambition by 2025.
- **Upstream operated methane intensity:** 0.12% – a 62% decrease since 2017, well below our 0.20% ambition.
- **Routine flaring:** 72% below 2018 levels, demonstrating clear progress to OGCI's ambition to end routine flaring by 2030.[2]
- **Low-carbon investment:** $30 billion in 2024, including projects, acquisitions and R&D, bringing the cumulative total since 2017 to $125 billion.[3]
- **CCUS projects:** Our companies are involved in developing more than 50 projects, with the potential to reduce and/or remove as much as 500 Mt of CO_2 a year,[4] by 2030.
- **Additional progress:** Expanded efforts to reduce transport emissions and advance high-quality, internationally tradeable carbon credits for natural climate solutions projects.

Working together enables us to share best practices, strengthen ambitions and support implementation across diverse regions, helping to amplify the pace and scale of emissions reductions. Our successful satellite methane monitoring campaigns, progress on developing CCUS hubs and work to reduce emissions from transport demonstrate the power of collective action.

Throughout, our priorities will be underpinned by a commitment to transparency, improved reporting and expanded measurement, ensuring continuous improvement in emissions reduction.

What we are doing together represents major emissions reduction opportunities and reinforces the important role of the oil and gas sector in supporting a net-zero emissions future.

We are building on solid foundations. And while we are proud of our progress since the last annual report, we know that even more can be achieved.

Looking ahead

The long-term challenge is that the world needs more energy, but with lower emissions. As the world advances toward net zero, it's critical that we continue to work across sectors to provide solutions that balance addressing climate change and reducing energy poverty.

We are encouraged by what we have achieved and motivated to do more.

OGCI CEOs at March meeting.
Credit: OGCI

1 All figures taken from OGCI Performance Data for 2024, see Chapter 4.
2 As per World Bank Zero Routine Flaring Initiative.
3 Figures are rounded.
4 Based on reported CCUS projects which average 7.5-10 Mt each. See p. 32 for map detailing projects OGCI members companies are involved in developing.

Amin Nasser
CEO Aramco

Murray Auchincloss
CEO bp plc

Michael K. Wirth
CEO Chevron Corporation

Dai Houliang
Chairman CNPC

Claudio Descalzi
CEO Eni S.p.A.

Anders Opedal
CEO Equinor ASA

Darren Woods
CEO Exxon Mobil Corporation

Vicki Hollub
CEO Occidental

Magda Chambriard
CEO Petróleo Brasileiro SA

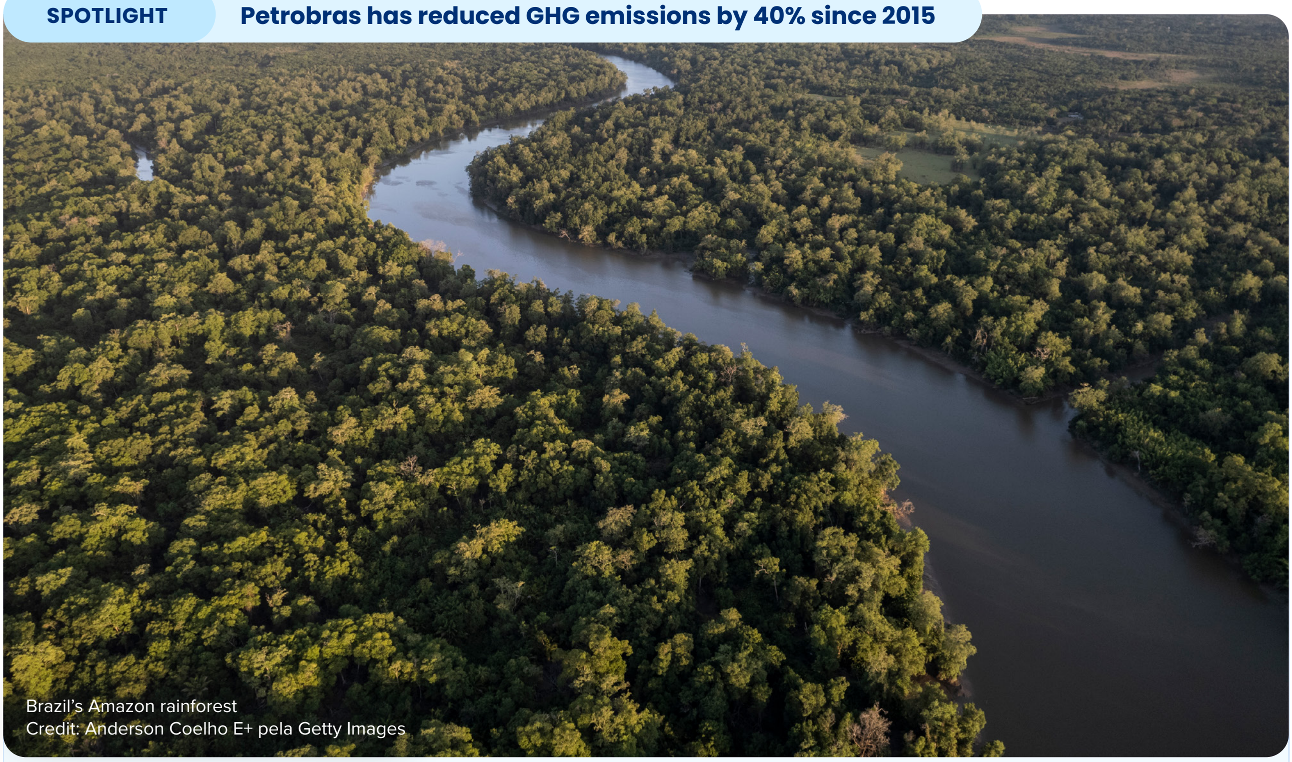
Josu Jon Imaz
CEO Repsol S.A.

Wael Sawan
CEO Shell plc

Patrick Pouyanné
CEO TotalEnergies SE

Petrobras in focus

SPOTLIGHT **Petrobras has reduced GHG emissions by 40% since 2015**



Brazil's Amazon rainforest
Credit: Anderson Coelho E+ pela Getty Images

From Petrobras CEO Magda Chambriard

Since joining the Oil and Gas Climate Initiative (OGCI), Petrobras has expanded its impact in South America, collaborating to reduce methane emissions, scale up carbon capture, utililzation and storage (CCUS), and improve energy efficiency. Petrobras is committed to a just and inclusive energy transition that delivers affordable, reliable, and sustainable energy for all.

In Brazil, Petrobras reduces emissions by using advanced methane detection technologies, installing solar plants at refineries, developing CCUS projects, and producing lower-carbon fuels such as Diesel R (diesel with renewable content) and sustainable aviation fuel.

Since 2015, Petrobras has achieved a 40% reduction in absolute GHG emissions despite increased production, a 69% cut in upstream methane intensity, and a 26% decrease in GHG carbon intensity from oil and gas production, along with a 20% reduction in routine flaring compared to 2023. Additionally, refining GHG intensity has declined by 16% compared to 2015.

In 2023, Petrobras was one of the founding members of the Oil & Gas Decarbonization Charter (OGDC) at COP28. Together, OGCI and OGDC unite 56 companies across more than 100 countries to accelerate industry-wide emissions reductions toward net zero.

This year, Brazil is hosting the UN Climate Conference, COP 30. Petrobras supports the country's decarbonization strategies to meet its nationally determined contribution goals, emphasizing cost-effectiveness and the role of efficient, lower-emission fossil fuel production in sustaining economic growth. Aware of the complexity and scale of the challenge, the Brazilian government emphasizes the need for broad societal effort.

Petrobras partners with the public sector, universities, and other stakeholders to drive innovation, capacity building, and sustainable energy solutions that contribute to Brazil's social, economic, and environmental development.

Looking ahead, Petrobras is dedicating $16.3 billion, representing 15% of our five-year investment plan, to low-carbon projects, reinforcing our commitment to Brazil's energy transition and global climate goals.

Magda Chambriard, CEO, Petrobras

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OGCI 2024 data highlights[1]

OGCI members' total operated oil and gas production

42.2
Mboe/day

25%
of global output[2]

0.5%
of global greenhouse gas emissions[3]

OGCI members' upstream operated carbon intensity, methane intensity, flaring

GHG

-24%
upstream operated carbon intensity vs 2017

-62%
upstream operated methane intensity vs 2017

-72%
upstream routine gas flaring vs 2018

OGCI members' low-carbon investment*

$30 bn
total in 2024

$125 bn
cumulative total since 2017

*Including low-carbon projects, acquisitions and R&D.[4] Figures are rounded.

1 OGCI 2024 Performance Data, Chapter 4. Percentages have been rounded. All reported data is the aggregate for 12 companies, (unless otherwise stated in the tables), and independently verified by EY. One member company has been unable to submit audited performance data in time for the publication of the 2024 Progress Report and 2022 data for that company has been used in place of the 2023 data. The company was unable to provide the full set of data for 2024. The missing data has been estimated using 2022 data as a reference. Data for 2023 and 2024 will be updated as needed in the next annual Progress Report, which is expected to be published in the fourth quarter of 2026.

2 Provisional estimate of global oil and gas production of approximately 166 Mboe/day in 2024, based on IEA indicators for oil production of 97.2 Mboe/day and global natural gas production of 68.3 Mboe/day. OGCI member companies' share of total oil and gas production is 25.4% on an operated basis and 21.5% on an equity basis. Source: IEA Oil Market Report (January 2025), IEA Gas Market Report Q1 2024.

3 OGCI members upstream operated GHG emissions (Scope 1 and 2) in 2024 was 304 Mt CO_2e (see OGCI Performance Data, Chapter 4). Total GHG emissions excluding land-use, land-use change and forestry (LULUCF) was 57.1 Gt CO_2e in 2023, UNEP's latest Emissions Gap Report published in 2024, p.4.

4 Total low-carbon investment includes investment, acquisitions and research and development. Low-carbon energy technologies include but are not limited to wind, solar and other renewable energies, carbon-efficient energy management, carbon capture, utilization and storage, blue and green hydrogen, biofuels, synfuels, energy storage and sustainable mobility.

01

Towards net zero operations

Credit: Adobe Stock

OGCI supports the goals of the Paris Agreement and the need for the world to move to a net-zero carbon emissions future.

Through individual and collective action, OGCI and its members aim to reduce greenhouse gas emissions while investing in the energy systems of tomorrow.

The 12 members of OGCI aim to achieve net-zero greenhouse gas (GHG) emissions from operations under their control[1] and use their influence to achieve the same in non-operated assets in the Paris Agreement timeframe.[2]

This includes an ambition to reduce methane emissions from operated assets to near zero and to eliminate upstream routine flaring by 2030.[3]

OGCI provides a platform that enables its members to share the latest knowledge and best practice about emissions measurement and reduction initiatives among themselves and with the wider industry, and to strive toward common goals and actions.

Through the publication of performance data (Chapter 4), OGCI tracks and reports the progress its members have made toward lowering greenhouse gas emissions from sources such as flaring, methane leaks and venting (Scope 1) and energy used for production (Scope 2).


Credit: Total Energies

EY independently verifies the accuracy of the data submitted by the companies and reviews and assures it in consolidated form.

According to OGCI's aggregated Performance Data for 2024[4]:

- OGCI member companies' aggregate upstream operated methane intensity was 0.12%, down 62% compared with 2017.
- Total operated upstream methane emissions were 0.73 Mt, 63% lower than in 2017.
- OGCI member companies' aggregate upstream operated carbon intensity[5] was 17.2 kilograms of carbon dioxide equivalent per barrel of oil equivalent (kg CO_2e/boe) – a 24% decrease from 2017 and close to achieving OGCI's 2025 ambition of 17.0 kg CO_2e/boe.
- OGCI member companies' aggregate upstream operated GHG emissions (Scope 1 and 2)[6] were 304 Mt of CO_2e in 2024, a 25% decrease since 2017.
- OGCI member companies' aggregate total routine gas flared volumes upstream was 1,568 million cubic metres (Mm^3). This is 72% lower than in 2018 – the first year of published data for this metric.

1 Defined as Scope 1 and Scope 2 emissions. See OGCI strategy www.ogci.com/wp-content/uploads/2023/05/OGCI-Strategy-September-2021-2.pdf
2 OGCI Strategy www.ogci.com/wp-content/uploads/2023/05/OGCI-Strategy-September-2021-2.pdf
3 Per World Bank "Zero Routine Flaring by 2030" initiative. See www.worldbank.org/en/programs/zero-routine-flaring-by-2030/about
4 OGCI Performance Data, Chapter 4.
5 Upstream carbon intensity is calculated on the basis of 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.
6 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).

Reducing upstream methane intensity

OGCI members have an aggregate average upstream methane intensity ambition for operated oil and gas assets of well below 0.20% by 2025.

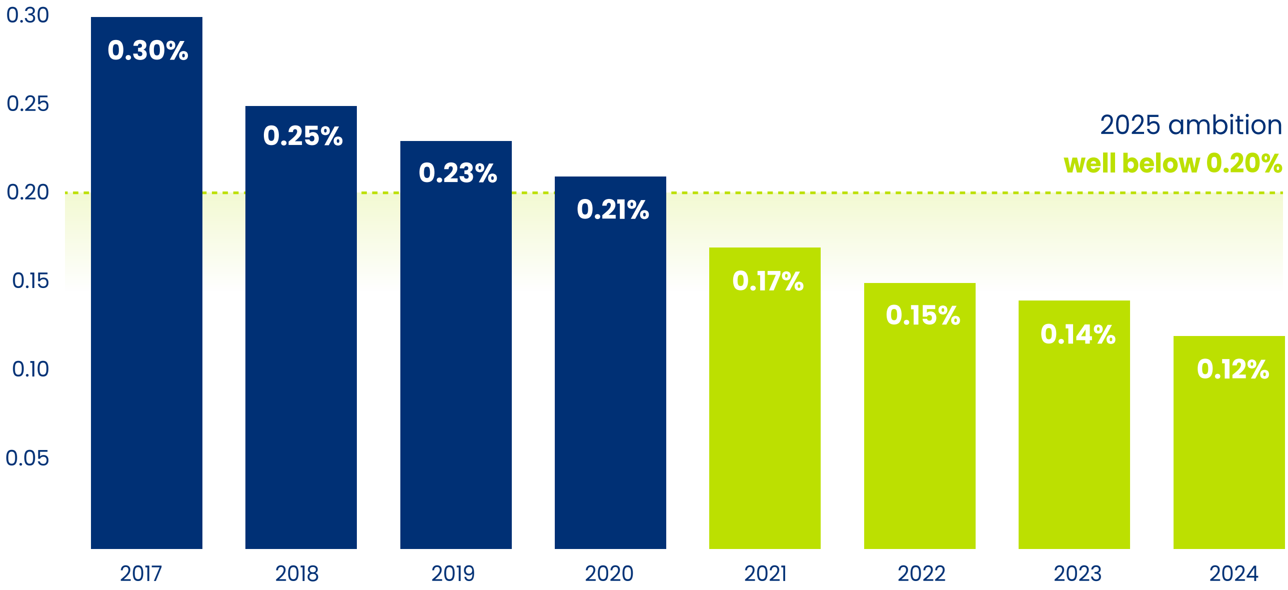
In 2024, OGCI member companies' aggregate operated upstream methane intensity was 0.12%, achieving the ambition of well below 0.20%. The 62% reduction in methane intensity since 2017 corresponds to a 63% decrease in total operated upstream methane emissions over the same period.

OGCI is outperforming the global oil and gas industry in reducing upstream methane intensity and upstream flaring intensity (see charts on page 11).

Because of its success, OGCI's upstream methane intensity ambition now serves as a benchmark for other oil and gas producers to strive for, and is recognized by NGOs, the UN Environment Programme and many governments as best practice.[1]

OGCI's upstream methane intensity ambition is central to the Aiming for Zero Methane Emissions Initiative launched by OGCI in 2022 (see Chapter 2). It is also a core ambition for signatories to the Oil & Gas Decarbonization Charter (OGDC) (see Chapter 2).

Upstream methane intensity is down 62% since 2017



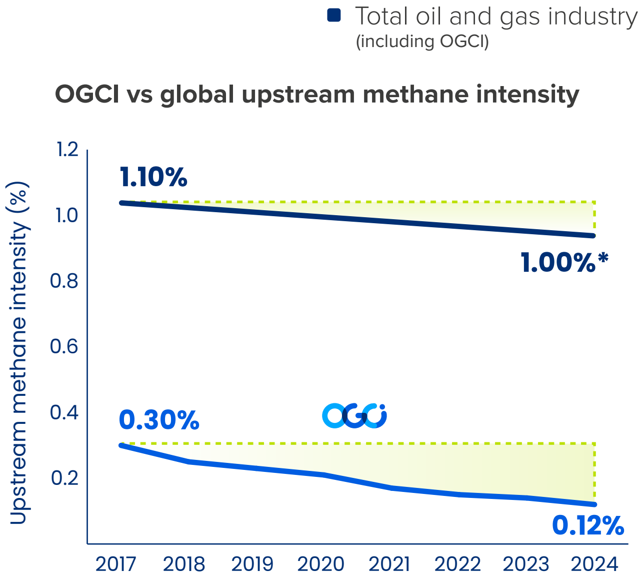
Percentages are rounded. 2023 was 0.144%, 2024 was 0.115%

HOW OUR MEMBERS REDUCE METHANE INTENSITY

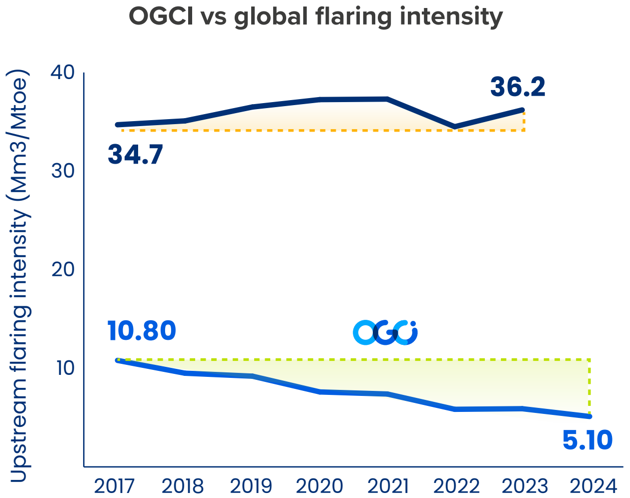
- Reducing routine flaring of associated gas
- Reducing venting in new and existing assets
- Optimizing equipment repair and maintenance programs
- Innovating facility designs to eliminate emissions sources
- Continuous real-time measurement and detection of leaks
- Deploying advanced technologies like satellites, aircraft, drones, sensors, and near-continuous monitoring to detect and measure leaks and emissions
- Converting natural gas driven pneumatic devices and pumps to non-emitting devices driven by electricity or compressed air

1 See Environmental Defense Fund's 2022 White Paper on the Certification of Natural Gas with Low Methane Emissions and the US Inflation Reduction Act, which was signed into law in August 2022 and OGMP2.0 FAQ.

OGCI members' methane and flaring intensity below global industry average



Source: OGCI Performance Data, IEA Global Methane Tracker 2025. OGCI upstream methane intensity includes total upstream methane emissions from all operated gas and oil assets. Emissions intensity is calculated as a share of marketed gas.
*Data points extracted using WebPlotDigitizer.



Source: World Bank GFMR Global Gas Flaring Tracker Report 2024: Payne Institute and Colorado School of Mines, NOAA, EIA, and World Bank
Notes:
1. Global flaring intensity data is converted from m3/bbl, on the basis of Mm3/Mtoe = m3/bbl × 7.33
2. OGCI's 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.

SPOTLIGHT **Chevron's approach to reducing its methane intensity**

From 2016 to 2024, Chevron has reduced its methane intensity by over 50%.

To manage methane intensity, Chevron has a three-pronged approach that includes facility design, operating practices and advancing technology.

In 2024, Chevron completed its largest methane emissions reduction project in Colorado executing more than 250 facility retrofits to reduce methane emissions.

The facilities were converted to operate pneumatic devices with nitrogen, instead of field natural gas, which helps keep methane in the pipe.

This project started as a pilot to trial technology on three facilities and was quickly scaled up.

Credit: Chevron

Chevron shares lessons across the company, and the same technology is being considered for a pilot in the Permian Basin.

Chevron believes an important first step in mitigating emissions is improving methane detection.

Since 2016, Chevron has trialed over 20 methane detection technologies and incorporates solutions into its methane detection campaign

Chevron believes that combining operational data with detection information enhances its understanding of methane emissions and recently published its findings in the SPE Journal.

"Chevron remains focused on lowering the carbon intensity of our operations through energy efficiency, methane management, and flaring reduction. Our Colorado facility retrofits exemplify these efforts. We collaborate with organizations like OGCI to advance understanding and share best practices across the industry."

Mike Wirth, Chairman & CEO, Chevron

Chevron

SPOTLIGHT Shell achieves methane and flaring targets

Shell QGC (Shell-operated), which produces natural gas, has long used advanced technology such as sensors, drones and satellites to detect potential methane leaks from its extensive infrastructure and improve emissions reporting.

This has helped QGC reduce reported methane emissions by 70% compared with 2016.

LNG facility, Curtis Island, Australia
Credit: Shell

Shell aims to maintain methane emissions intensity for global operated oil and gas assets below 0.20% (continued to be met in 2024), and achieve near-zero methane emissions intensity by 2030. As of January 1, 2025, Shell no longer routinely flares from its operated oil and gas assets.

"Shell remains a leader in reducing emissions of methane. By the end of 2024, we had reduced total methane emissions from assets under our operational control by 76% compared with 2016. We have also met our target to eliminate routine flaring from our upstream-operated assets, five years ahead of the World Bank Zero Routine Flaring Initiative deadline, as we continue on our journey to deliver more value with less emissions."

Wael Sawan, CEO, Shell

SPOTLIGHT TotalEnergies deploys continuous methane monitoring

In 2024, TotalEnergies announced a plan to deploy continuous, real-time methane monitoring detection equipment across all its upstream operations – the largest project of its kind in the industry.

The equipment is expected to be installed at every facility TotalEnergies operates, including those under development, by the end of 2025. It includes the use of existing and proven technologies such as Internet of Things sensors, InfraRed cameras, flow meters, pyrometers and Predictive Emissions Monitoring Systems.

This builds on other initiatives, including TotalEnergies' successful deployment of Airborne Ultralight Spectrometer for Environment Applications (AUSEA) technology, starting in 2022.

AUSEA comprises a drone-mounted ultralight CO2 and methane sensor and ensures access to hard-to-reach emissions points while delivering readings with high precision.

The successful deployment of TotalEnergies' AUSEA drone campaign, alongside strategic abatement projects, have helped the company meet its target to reduce its operated methane emissions by more than 50% versus 2020 levels in 2024 – a year earlier than planned.

Credit: TotalEnergies

This puts the company on track to meet its ambition to reduce methane emissions by 80% by 2030 to achieve near zero methane emissions.

"Continuous, real-time detection will enable our operators to act in an even more decisive manner in order to reduce our methane emissions and to repair leaks to achieve our near-zero methane emissions ambition."

Patrick Pouyanné,
Chairman & CEO, TotalEnergies

Measuring methane emissions

OGCI members share an ambition to achieve near zero methane emissions from operated oil and gas assets and zero upstream routine flaring by 2030.[1]

To achieve these aims, OGCI believes that enhanced monitoring and measurement of methane could support further emission reduction opportunities, while improving emissions data quality and transparency.

Measuring methane emissions is critically important to help prioritize mitigation activities. Unlike CO_2 emissions sources, which tend to be concentrated at single points in oil and gas operations, the sources of methane emissions are dispersed.

Methane emissions have typically been assessed and reported using standard emission factors based on aggregating available global data and data from specific basins.

Newer technologies, including satellites, drones and sensors, make it easier to detect and quantify methane emissions. OGCI's member companies are using these technologies to complement existing emissions factor-based inventories and improve the accuracy.

Improving accuracy can include direct measurement of methane emissions at the site level, employing technologies such as drone, aircraft, or continuous mounted monitoring solutions.

This enables operators to visualize and quantify emissions directly from their assets, reducing estimation where possible.

Many of these techniques take a snapshot over a site or area, and develop an emissions rate based on meteorological factors including windspeed, and other parameters such as background methane concentration.

Although there are uncertainties associated with the calculated emission rates, measurement can help companies better understand their emissions, and is continuing to improve.

It is anticipated that the use of general emission factors will diminish as more methane measurements are integrated into emissions inventories.

OGCI's member companies are working, individually and collectively, to integrate more methane measurement. (See TotalEnergies spotlight, p. 12)

Ten OGCI member companies are now part of the UN Environment Programme's Oil and Gas Methane Partnership 2.0 (OGMP 2.0).

OGMP 2.0 is a comprehensive, measurement-based reporting framework for the oil and gas industry aiming to improve the accuracy and transparency of methane emissions reporting to aid methane mitigation actions.

At the collective level, OGCI has supported the broader industry in deploying methane detection technologies.

Through its Satellite Monitoring Campaign (SMC), OGCI has helped demonstrate the use of satellites in detecting methane emissions so they can be located and abated. (See Chapter 2 for more detail on the SMC.)

OGCI is also working to pilot aircraft monitoring, which has similar objectives to the SMC.

OGCI's work will continue as measurement technologies evolve.

"We use the source-level quantification as a basis for our methane emissions reporting. However, as technology has evolved, we're increasingly using site-level measurement to complement our emission inventories. When there are discrepancies between the source-level and the site-level measurements, we investigate and correct the source-level quantification as needed."

Bjørn Ove Jansen, Equinor Project Manager Sustainability and Climate and OGCI Role of Gas member

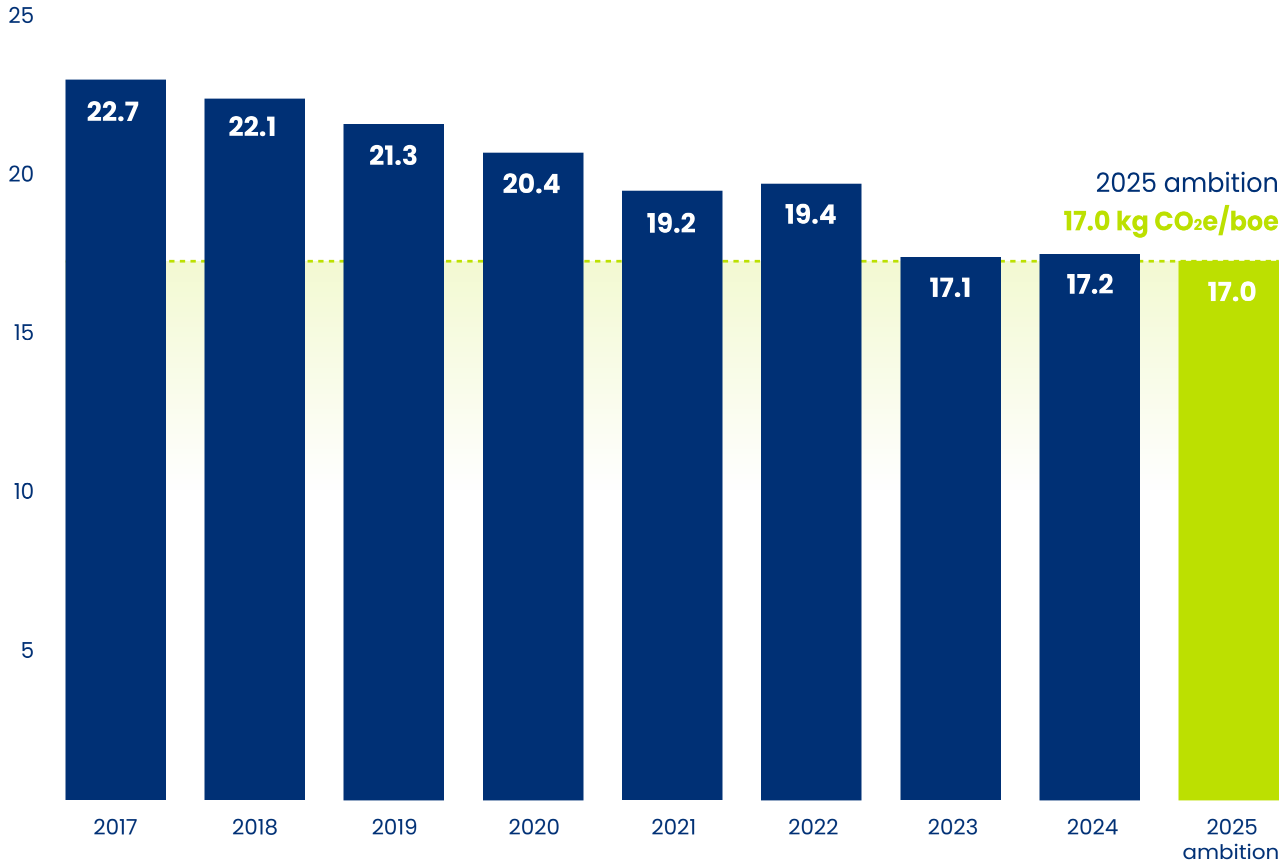
1 Per World Bank "Zero Routine Flaring by 2030" initiative. See www.worldbank.org/en/programs/zero-routine-flaring-by-2030/about

Reducing upstream carbon intensity

OGCI was the first industry-led organization to set an ambition to reduce aggregate upstream carbon intensity from operated oil and gas assets. The ambition is 17.0 kg CO_2e/boe by 2025. In 2024, OGCI member companies' collective upstream carbon intensity was 17.2 kg CO_2e/boe.

This corresponds to a 25% reduction in OGCI's aggregate upstream operated GHG emissions (Scope 1 and 2) in 2024 compared with 2017.

Upstream carbon intensity is down 24% since 2017
(kilograms of CO_2e per boe)



Percentages are rounded. 2023 was 17.07% with six companies reporting, 2024 was 17.17% with 10 companies reporting. This indicator has been calculated with a mixed approach combining market-based and location-based methodologies with market-based priority from 2017 to 2021, and calculated using a market-based only approach from 2022. 2022 and 2023 data restated. See Chapter 4 Performance Data.

HOW OGCI MEMBERS ARE REDUCING CARBON INTENSITY

- Working to eliminate routine flaring by 2030[1]
- Increasing the use of technologies to measure and detect methane leaks to enable targeted mitigation of emissions
- Reducing natural gas combustion emissions by improving energy efficiency through waste heat recovery and process efficiency improvements
- Optimizing and improving equipment repair and maintenance
- Using low-carbon energy to power some operations, including onshore and offshore oil and gas facilities
- Co-generating electricity and using recovered heat

1 Per World Bank "Zero Routine Flaring by 2030" initiative. See www.worldbank.org/en/programs/zero-routine-flaring-by-2030/about

Other measures to reduce Scope 1 and 2 emissions

In 2024 and into 2025, member companies have continued the implementation of initiatives to reduce Scope 1 and 2 emissions at their own operations and help the industry do the same through:

- Continuous improvement of data quantification, methodologies and reporting to track measurable progress
- Work to improve knowledge on emissions abatement options available for the industry
- Identifying potential pathways to reduce emissions in the refining sector by using low-carbon energy to power some equipment
- An in-depth assessment on the economics of refinery electrification, assessing operating expenditures considerations and the influence of power, fuel and carbon pricing
- Evaluation of a range of applications for heat pumps across upstream, midstream and downstream
- Sharing best practices developed individually and collectively by OGCI and its members to accelerate progress across the industry
- Intensified engagement with OGDC signatories to share technical expertise and insights (see Chapter 2).

SPOTLIGHT **Equinor's electrification drive reduces emissions**

Hywind Tampen, offshore in the Norwegian North Sea.
Copyright: Ole Jørgen Bratland / Equinor

A key pillar of Equinor's Energy Transition Plan is the ambition to halve net operated GHG emissions from its operations by 2030, compared with 2015.

Electrification of key oil and gas installations with low-carbon power is an effective and efficient way to reduce emissions.

Oil and gas production on the Norwegian continental shelf accounts for approximately 25% of Norway's total CO_2 emissions. To reduce emissions from its oil and gas production, Equinor is replacing offshore gas turbines with electricity from the mainland where the energy mix is predominantly renewable.

The Troll A platform was electrified in 1996. Johan Sverdrup, which accounts for around one-third of Norway's oil production, has been powered from shore since its startup in 2019. At 0.67 kg CO2 per barrel, it has some of the lowest upstream CO2 emissions of any oil field in the world.

Hywind Tampen, developed by Equinor, is the world's first floating offshore wind farm to power offshore oil and gas installations, has supplied electricity to Gullfaks and Snorre fields since 2023.

Between 2018 and 2024, six other fields and installations have been electrified, and more are planned, cutting emissions and creating low-carbon hubs for tie-in of potential future discoveries nearby.

"Electrifying oil and gas installations is an effective and efficient method for lowering operational CO_2 emissions. Replacing gas turbines offshore - either fully or partially - with electric power from the Norwegian grid enhances energy efficiency and reduces emissions."

Anders Opedal, President & CEO, Equinor

SPOTLIGHT

bp reduces flaring and emissions at Permian Basin facilities

bpx's Grand Slam facility in the Permian Basin, near Orla, Texas.
Copyright: bp

Since acquiring assets in the Permian Basin, bpx – bp's US onshore business – has taken a leadership role in advancing technology to reduce emissions and unlock long-term value.

At the center of this effort is bp's redesign of acquired well site facilities into "hydra" sites, a next-generation infrastructure model that flows production to centralized facilities.

Hydra sites are engineered by bpx to eliminate storage tanks, flares, and onsite compression at new well sites. This enables industry-leading emissions performance.

For legacy well sites, bpx upgraded key equipment, replacing gas-driven pneumatics with air systems to eliminate intermittent methane emissions and expanded vapor recovery to capture more gas that would otherwise be lost.

This integrated and efficient design has delivered measurable impact. Flaring has been reduced by 99%, and bpx eliminated routine flaring. The company has set a strict standard: no new bpx well is brought online unless it's connected to a gas pipeline from startup.

Through ongoing innovation in site design, equipment, and operating standards, bpx is building a scalable model for low-carbon growth in the Permian Basin, delivering operational excellence while significantly reducing its environmental footprint.

"In the Permian, our bpx team has achieved its accelerated goal of zero routine flaring by 2025 and significantly reduced emissions through next-gen Hydra sites—an innovation that's reshaping how we design and operate. It's a powerful step towards our aim to reach net zero operations by 2050 or sooner."

Murray Auchincloss, CEO, bp

bp

SPOTLIGHT

Aramco uses cogeneration to reduce CO_2 intensity

Credit: Aramco

Aramco is using cogeneration at many of its operating sites to help lower its upstream carbon intensity by making its operations more energy efficient.

Cogeneration plants typically utilize waste heat from gas turbines to generate steam, meeting both the heat and power requirements of the facility. This process reduces emissions - in Aramco's case over 7 Mt of CO_2 per year have been saved by Aramco's cogeneration program.

Aramco is working to improve the energy efficiency of its upstream and downstream assets – an ambition that could mitigate 7 million tonnes of CO_2e by 2035.

Support provided by Aramco for cogeneration has to date generated 5.3 gigawatts (GW) of power, 4.3 GW of which was used to power operations, with the remainder funneled into Saudi Arabia's national grid. And there are more to come.

In 2024, Aramco and TotalEnergies' joint venture Saudi Aramco Total Refining and Petrochemical Company reached a deal with Abu Dhabi National Energy Company PJSC and Japanese power company JERA to develop a state-of-the-art cogeneration plant for the Amiral petrochemical complex due to be built in Jubail in Saudi Arabia's Eastern Province.

The plant, due to start operating in 2027, will generate up to 475 megawatts of power and approximately 452 tonnes per hour of steam using advanced cogeneration gas-fired technology.

Along with ongoing and planned reductions to flaring and methane emissions, growth in carbon capture, utilization and storage, renewable energy capacity and natural climate solutions, increasing operational efficiency will help Aramco as it continues on its ambition to achieve net zero Scope 1 and Scope 2 GHG emissions across all wholly owned operated assets by 2050.

Aramco's upstream carbon intensity is one of the lowest among its peers. In 2024 it was 9.7 kilograms of CO_2 equivalent per barrel of oil equivalent.[1]

"As a founding member of OGCI, Aramco values the sharing of best practices and working alongside peers across the industry to help develop solutions to support emissions reduction. Our innovative lower-emissions solutions, such as cogeneration, reinforce both efficiency gains and our ambition to achieve net-zero Scope 1 and 2 GHG emissions across our wholly-owned operated assets by 2050."

Amin Nasser, President & CEO, Aramco

1 This compares to an average of 22.2 kg CO_2e/boe from other international oil companies, based on public disclosures in 2023. www.aramco.com/-/media/publications/corporate-reports/reports-and-presentations/2024/fy/saudi-aramco-fy-2024-webcast-presentation-english.pdf p.11

02

Leading the Industry

Credit: BP

OCGI's second strategic ambition is to work proactively with and encourage the entire oil and gas industry – from publicly traded multinationals to national oil and gas companies (NOCs) – to strive for net-zero operations in the timeframe of the Paris Agreement and to eliminate upstream routine flaring and aim for near zero methane emissions by 2030.

According to the International Energy Agency's World Energy Outlook, the global oil and gas industry's Scope 1 and 2 emissions totaled 5.1 Gt of CO_2 equivalent in 2022.[1] This represents around 10% of the global total,[2] demonstrating the potential contribution the oil and gas industry can make towards the emissions reduction effort on the path to net zero.

In 2024, OGCI members produced approximately 25% of the world's total oil and gas on an operated basis.[3]

OGCI members' aggregate upstream operated Scope 1 and 2 GHG emissions totalled 304 Mt CO_2e, representing 0.5% of global GHG emissions, using latest 2023 data from UNEP's Emissions Gap Report published in 2024.[4]

With more than 10 years' of experience reducing emissions, OGCI is committed to encouraging the entire industry to work toward net-zero operations. The organization and its 12 member companies work closely with peers in the sector – in particular through the Oil & Gas Decarbonization Charter (OGDC).

OGCI works with companies to foster innovation, promote the scaling of key technologies and disseminate expertise and best practice.

In 2024 and 2025, OGCI's efforts focused on two core areas:

- **Reducing methane emissions:** Working with the broader industry to reduce methane emissions and intensity including through OGCI's flagship Satellite Monitoring Campaign and other related initiatives.
- **Collaborating with OGDC:** Providing technical expertise and insights to the OGDC's 56 signatories to help accelerate and scale emissions reductions across a broader network of companies. OGCI is OGDC's Secretariat, facilitating increased collaboration. See OGDC Baselining Report[5] for more information.

Credit: Adobe Stock

1 IEA World Energy Outlook 2023, Emisions from Oil and Gas Operations in Net Zero Transitions.
2 https://edgar.jrc.ec.europa.eu/report_2024#emissions_table. Global total GHG emissions in 2023 52.96 Gt of CO_2e.
3 Based on provisional estimate of global oil and gas production of approximately 166 Mboe/day in 2024, based on IEA indicators for oil production of 97.2 Mboe/ day and global natural gas production of 68.3 Mboe/day. OGCI member companies' share of total oil and gas production is 25.4% on an operated basis and 21.5% on an equity basis. Source: IEA Oil Market Report (January 2025), IEA Gas Market Report Q1 2024. According to OGCI Performance Data, OGCI member companies' total operated oil and gas production was 42.2 Mboe/day in 2024.
4 Total GHG emissions excluding LULUCF was 57 Gt CO_2e in 2023, UNEP's latest Emissions Gap Report published in 2024, p. 4. OGCI's aggregate upstream operated GHG emissions (Scope 1 and 2) was 304 Mt CO_2e in 2024, OGCI Performance Data. See Chapter 4.
5 www.ogdc.org/2024-a-baseline-for-action/

Working with the sector to reduce methane emissions

According to the IEA, the oil and gas sector accounts for around 23% of all methane emissions attributable to human activities.[1]

Common sources of methane emissions from oil and gas operations include flaring, venting, fugitives, gathering pipeline emissions and pneumatic devices.

Although it remains in the atmosphere for less time than other greenhouse gases, methane is more than 28 times as potent as CO_2 at trapping heat in the atmosphere on a 100-year time horizon.[2]

This is why reducing methane emissions from oil and gas operations represents an important near-term opportunity to contribute to progress toward the Paris Agreement goals.[3]

OGCI member companies aim to achieve near-zero methane emissions at their upstream operations by 2030. Their success in reducing upstream methane emissions has demonstrated that meaningful and cost-effective opportunities exist to support rapid reductions in methane emissions in the oil and gas industry.

The reach of OGCI's upstream operated methane emissions ambition (defined as methane intensity of below 0.20%) continues to grow. OGCI's methane intensity ambition is now widely used across industry and in legislation as a benchmark of best practice.

It also underpins OGDC's near-zero upstream methane emissions ambition.[4]

OGCI is working on multiple fronts, including through the OGDC, to help the industry identify short- and long-term measures that will help deliver a sector-wide reduction in methane emissions.

In 2024 and 2025, these efforts have included:

- An expansion of OGCI's flagship Satellite Monitoring Campaign to include more countries and operators – doubling the number of assets and countries involved. (p. 21)
- The creation of OGCI's Methane Library, a publicly available resource providing information on the technologies, tools and strategies that can help oil and gas companies to reduce methane emissions and flaring. (p. 22)
- Work on an SMC Playbook containing practical guidance for oil and gas operators responding to satellite detections.
- The launch, together with Ipieca, IOGP and the Energy Institute, of an update to the previous joint recommended practices guide to help oil and gas operators choose and deploy methane detection and quantification technologies. (p. 23)
- Promoting the goals of the Aiming for Zero Emissions Initiative, a campaign launched by OGCI that calls for an all-in approach that treats methane emissions as seriously as the oil and gas industry already treats safety: aiming for zero and striving to do what is needed to get there. (p. 24)
- The text of the Aiming for Zero Methane Emissions initiative has been adopted in the OGDC charter.[5]

SOME COMMON SOURCES OF METHANE EMISSIONS

1 www.iea.org/reports/global-methane-tracker-2025/key-findings
2 IPCC, using GWP of AR 5. Global-Warming-Potential-Values (August 2024).pdf
3 www.iea.org/reports/global-methane-tracker-2025/key-findings
4 OGCI defines near zero upstream methane emissions as well below 0.20% methane intensity. See OGDC Charter, section II.2 www.ogdc.org/oil-gas-decarbonization-charter/
5 www.ogdc.org/oil-gas-decarbonization-charter/

Monitoring methane emissions from space

Methane gas is invisible. So an important step toward mitigating methane emissions is detecting and measuring them.

OGCI's Satellite Monitoring Campaign (SMC), conducted in partnership with satellite providers and to date with GHGSat,[1] has helped raise awareness about the benefits of using satellites as part of a strategy to reduce methane emissions, while helping oil and gas companies detect and monitor their methane emissions through peer-to-peer engagement.

GHGSat satellites in orbit.
Credit: GHGSat

The satellites are used to detect and monitor large methane emissions events. Unlike other public satellite monitoring, OGCI's SMC uses high-resolution imagery and is looking at specific facilities so is more likely to detect a large event than other satellites which pass over a very large area.

Also unique to OGCI's SMC is the confidential engagement on a peer-to-peer level with local operators to help them reduce the methane emissions detected.

OGCI's campaign uses the data to help local operators indentify emissions sources, and OGCI member companies share knowledge on potential solutions to support the operators' work to abate the emissions.

OGCI engages regularly with the World Bank's Global Flaring and Methane Reduction Partnership (GFMR) on how to best use technologies such as satellite monitoring and detection to support countries and companies to abate their methane emissions.

OGCI supported the launch of the GFMR and some of its member companies are among its anchor funders.

OGCI SATELLITE MONITORING CAMPAIGN IN ACTION

2021
Pilot

A successful nine-month pilot in Iraq during which GHGSat collected high-resolution satellite data on methane plumes from

six oil fields

OGCI and Carbon Limits, an expert consultancy company, engaged confidentially with local operators to identify emissions sources and shared knowledge on potential abatement solutions. The pilot helped local operators address methane plumes of an estimated equivalent of around 1 Mt of CO_2e.[2]

2022–2023
Phase 2

Expansion of the campaign to Kazakhstan, Algeria and Egypt. This campaign helped operators eliminate plumes that were emitting methane at a combined average rate of

3,200 kilograms per hour

This helped local operators address an estimated equivalent of around 1 Mt of CO_2e.[2]

2024–2025
Phase 3

The campaign was expanded to cover more than

30 assets

across more countries, including in Central Asia and North Africa.

This will help encourage further industry-wide reductions in methane emissions while building operators' technical knowledge so they can capitalize on the growing availability of satellite data.

1 A Climate Investment portfolio company
2 If these plumes were from continuously emitting sources and were not abated, they could amount to an estimated equivalent of around 1 Mt of CO_2e over the course of one year. Using IPCC AR6 global warming potential for methane over 100-year time horizon.

OGCI shares expertise with industry

OGCI'S METHANE LIBRARY

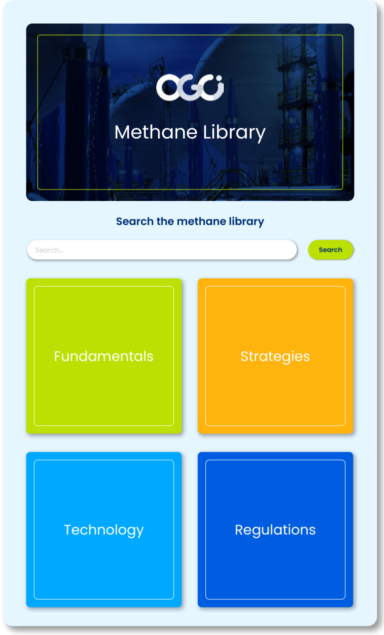
In 2025, OGCI launched its digital library to help companies find the strategies, tools and technologies they need to reduce their methane emissions.

The methane library includes around 300 resources covering the full range of topics related to cutting methane emissions and flaring.

This includes up-to-date information on methods of detection, tools to quantify and assess emissions, guidelines and best practices that have already proven successful in the past, and regulatory frameworks.

The resources are drawn from external sources. These include global organizations such as the International Energy Agency, UNEP's Oil & Gas Methane Partnership 2.0 and the World Bank, along with government agencies in multiple countries. Searchers can also tap into academic papers and think tank reports, along with some OGCI publications.

Learn more at:
methanelibrary.ogci.com



"As an Environmental Policy Manager at Oxy, I've seen how much progress we've made in cutting methane emissions. But for companies just starting the process, finding the right information can be challenging. That's why I value the OGCI methane library—it brings everything together and makes it easier for others to learn from what's already working."

Angela Zivkovich, Occidental Environmental Policy Manager and OGCI Role of Gas member

OGCI SUPPORTS MIST METHANE INVENTORY TOOL

As part of OGCI's strategy to help local operators and national oil companies identify and prioritize methane emissions mitigation opportunities, OGCI supports Carbon Limits' development and wider deployment of its Mist tool that enables firms to develop a better understanding of their methane emissions inventory and management.

OGCI's support includes funding and pilot deployment and training on the Mist tool for national oil companies including in the Middle East and North Africa, West and East Africa, Central Asia and elsewhere.

The Mist tool is free software that combines latest research with data provided by the company to start developing an emissions inventory.

The tool can support companies at any stage of their efforts to reduce methane emissions. This includes companies providing estimates based on emissions factors to those that are based on measurements and engineering calculations.

The data is provided at equipment or source level and aggregated at facility and company level.

Importantly, the tool relies on best available international standards to quantify emissions and is aligned with the UN's Oil & Gas Methane Partnership level 3 and level 4 reporting.

The tool also assesses abatement potential and associated costs at facilities to enable targeted reductions. The scenario analysis module developed with OGCI's support also allows companies to prioritize actions, determine emissions reduction targets and assess financing needs.

Mist allows companies to:

- Better understand methane emission sources at each facility
- Build source-level methane inventories
- Perform a single site reconciliation
- Use advanced quantification methods
- Prepare emissions reports for OGMP 2.0
- Estimate abatement potential and costs
- Identify and prioritize mitigation efforts
- Determine targets and financing needs

Mist

Updated methane detection guidelines

To ensure that oil and gas operators working to better detect and measure emissions stay abreast of the latest innovations, OGCI teamed up with Ipieca, IOGP and the Energy Institute to update its guide to best practices on how to choose and use methane detection and quantification technologies.

The 2025 edition of the guide has been updated with information on six new technologies, along with new information on 14 others.

To help oil and gas companies choose methane detection methods tailored to their needs and circumstances, the guide includes an online technology filtering tool, detailed data sheets covering 56 technologies and decision trees to help operators deploy solutions.

See guidelines here

ipieca International Association of Oil & Gas Producers energy institute

SPOTLIGHT **TotalEnergies shares AUSEA methane detection across industry**

To help accelerate the oil and gas industry's action to reduce methane emissions to near zero by 2030, TotalEnergies is sharing its cutting-edge drone-based methane emissions detection and measurement system AUSEA (Airborne Ultralight Spectrometer for Environmental Applications) with companies on three continents.

To date, TotalEnergies has signed cooperation agreements with the Nigerian National Petroleum Company, India's Oil and Natural Gas Corporation, Oil India Ltd, Petrobras in Brazil, SOCAR in Azerbaijan and Sonangol in Angola that allow them to use AUSEA to better understand and abate methane emissions at their operations.

The AUSEA gas analyzer, developed by TotalEnergies and its research and development partners,[1] consists of a dual sensor that can pinpoint the presence and the source of both methane and CO_2 emissions.

The sensor features a diode laser spectrometer and can detect and quantify methane emissions with a high level of accuracy of more than 1 kilogram per hour.

AUSEA's ability to detect both CO_2 and methane emissions at onshore and offshore facilities of all types and to reach even the most difficult-to-access areas have made it one of the industry's most accurate methods for finding and tracking methane emissions.

TotalEnergies AUSEA drone demonstration in France.
Credit: TotalEnergies

"Cutting methane emissions from operations is a priority as technologies are available. The first step is to measure emissions, asset by asset. By making our AUSEA technology available to our partners, TotalEnergies is taking a concrete step to encourage the whole industry, including national companies, to aim for zero methane emissions."

Patrick Pouyanné,
Chairman & CEO, TotalEnergies

TotalEnergies

1 Reims Champagne Ardennes University, GSMA and CNRS

The Aiming for Zero Methane Emissions Initiative

OGCI continues to promote the ambitions of the Aiming for Zero Methane Emissions initiative it launched in 2022.

The initiative states that the oil and gas industry can and should lead the effort to strive for near zero methane emissions by 2030.

The initiative is underpinned by OGCI's ambition of well below 0.20% upstream methane intensity.


Methane gas treatment plant, production and distribution.
Credit: iStock

In 2024, Angolan state oil and gas company Sonangol and Australian energy company Santos joined around 100 other signatories and supporters already signed up to the ambition.

Aiming for near-zero upstream methane emissions by 2030 is also a core ambition for OGDC's 56 signatories.[1]

Signatories to Aiming for Zero include private and state-run energy companies. Supporters include service firms, technology providers, non-governmental organizations, and consultancies. Signatories pledge to:

- **Aim:** To strive to reach near zero methane emissions from operated oil and gas assets by 2030, and to encourage partners to achieve similar results.
- **Minimize:** To put in place all reasonable means to avoid methane venting and flaring and to repair detected leaks, while preserving the safety integrity of operations.
- **Report:** To report annually and transparently on their methane emissions.
- **Monitor & measure:** To supplement estimates with more monitoring and measurement technologies as they evolve, and to introduce new solutions to avoid methane emissions.
- **Advocate:** To support the implementation of sound regulations to tackle methane emissions.

AIMING FOR ZERO
Methane Emissions Initiative

1 See OGDC Charter, section II.2 www.ogdc.org/oil-gas-decarbonization-charter/

OGDC: Building on strong foundations

Credit: OGDC

The OGDC was launched at COP28 in 2023. The CEOs of three signatory companies, Dr. Sultan Ahmed Al Jaber of Adnoc, Amin Nasser of Aramco and Patrick Pouyanné of TotalEnergies were appointed the organization's champions for three years.

The OGDC's ambitions are closely aligned with OGCI's key ambitions. These include reducing upstream methane emissions to near zero and eliminating upstream routine flaring by 2030 on a path to net zero operations by 2050.[1]

OGCI acts as the secretariat for OGDC and supports OGDC with technical expertise, knowledge and insights. Eleven of OGCI's members are signatories to OGDC, strengthening the joint effort to decarbonize the oil and gas industry.

Including 11 members of OGCI, OGDC now comprises 56 signatories and represents around 45% of global oil production.[2]

OGDC
THE OIL & GAS DECARBONIZATION CHARTER

In 2024 and 2025, OGCI and its members have fostered cooperation and knowledge sharing with signatories.

This has included OGCI member companies, who are also signatories to OGDC, hosting webinars on topics such as methane emissions reductions, creating training materials on energy efficiency and peer-to-peer engagement on a country level. (See "Sharing knowledge" pg 26.)

OGCI members including Aramco, Eni, Equinor, ExxonMobil, Repsol, Shell and TotalEnergies, are also providing tailored support to OGDC signatories – from short consultations to mentorship programs and multi-week collaborations.

In 2025, the OGDC is applying the OGCI's Reporting Framework as the basis for its reporting, providing comparable, robust data through transparent, accountable reporting.

This includes using existing definitions, methodologies and key performance indicators. OGDC will launch their second annual report in November this year at COP30 in Brazil. See OGDC's report on their first year's progress here.

"OGCI is proud of the role it has played supporting the implementation of the Charter's aims to accelerate decarbonization globally and increase transparency in reporting. OGCI and its members are actively engaged in sharing knowledge, experience and best practices accumulated over a decade of work reducing emissions at their own oil and gas operations."

Bjørn Otto Sverdrup, OGCI Executive Committee Chairman and Head of OGDC Secretariat

1 See OGDC Charter, www.ogdc.org/oil-gas-decarbonization-charter/
2 At the time of this report's publication.

Sharing knowledge

OGCI MEMBER-LED WEBINARS FOR OGDC SIGNATORIES

bp, SOCAR
Using AI to accelerate decarbonization

ipieca
Best practices in GHG emissions reporting

TotalEnergies
Methane emissions detection, quantification and mitigation

ExxonMobil, McKinsey&Company
Using a marginal abatement cost curve to support GHG reductions

Shell
Challenges and opportunities reducing Scope 1 and 2 emissions, continuous monitoring of methane emissions

aramco
Energy efficiency: Process heat integration and internal best practices

repsol
Methane emissions reporting

equinor
Reducing methane emissions and flaring

OXY
Methane platform overview


Credit: iStock

BUILDING CAPACITY

- OGCI's **Role of Gas** workstream is providing satellite data to several OGDC signatories as part of OGCI's satellite monitoring campaign. OGCI member companies also provide technical support and capacity building to operators to support methane reduction following emissions detections.
- OGCI's **Energy Efficiency** workstream is working with OGDC to develop a set of training modules on energy efficiency.
- OGCI's **Reporting Taskforce** supports OGDC on the reporting framework so they can use existing definitions and key performance indicators to accelerate consistent and credible reporting and transparency.
- OGCI's **Carbon Capture, Utilization and Storage** workstream provided technical guidance and support to an OGDC signatory seeking country-specific information and invited the signatory to a private roundtable on CCUS.

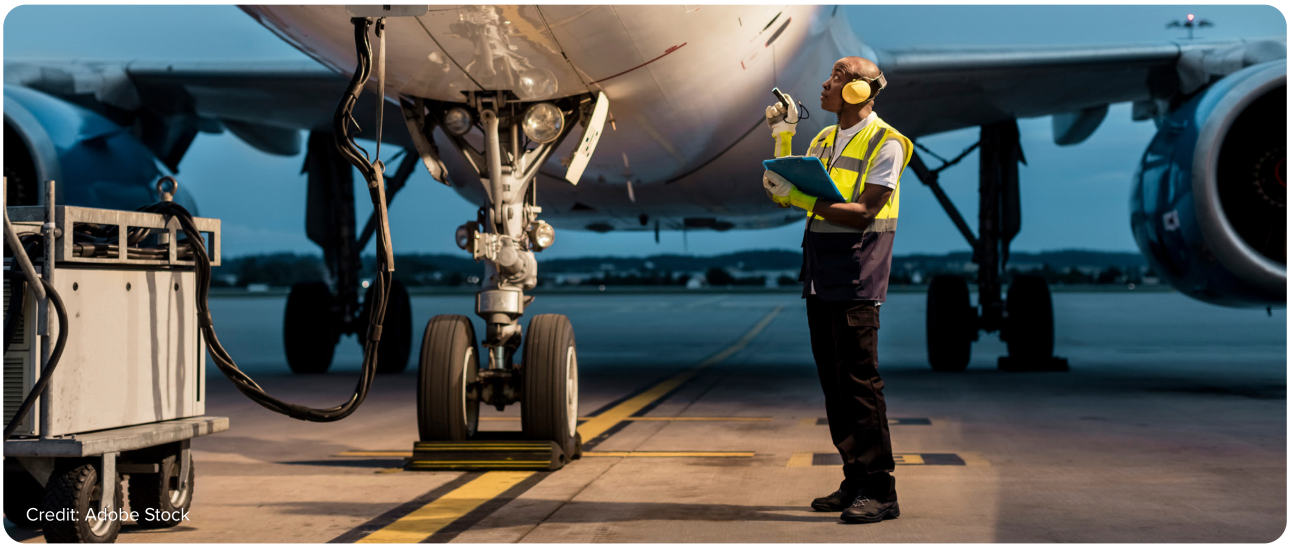
OIL AND GAS CLIMATE INITIATIVE

03

Helping to decarbonize society

Credit: Northern Lights

The third pillar of OGCI's strategy focuses on acting to help society reduce greenhouse gas emissions. OGCI's members are working to achieve this by collaborating with customers, partners, other industries and policymakers to reduce greenhouse gas emissions and help accelerate the transition to a net zero society.



Credit: Adobe Stock

Collaboration and innovation will be key to developing and deploying the range of low-carbon technologies and solutions that will be needed to achieve a net zero emissions future.

Solutions include electrification, energy efficiency and digitalization, energy storage, renewable energy, bioenergy and biofuels, low-carbon fuels (including hydrogen), carbon capture, utilization and storage (CCUS), engineered carbon removals such as direct air capture (DAC), and nature-based solutions.

In 2024, OGCI member companies invested $30 billion in researching, developing, scaling and acquiring some of these and other transformative technologies and solutions to help reduce emissions.[1]

Around a quarter of the investment in low-carbon solutions went into renewables and around 10% went into CCUS.[2]

Since 2017, OGCI member companies have invested a cumulative total of $125 billion across all low-carbon technologies, including acquisitions and research and development.[3]

In 2024 and 2025, OGCI focused on three key areas set out in more detail in this chapter. These include:

- **CCUS:** Leading and publishing original research that explores new ways to facilitate a broader uptake of CCUS, and developing tools to help the industry scale up efforts. (p. 29-37)
- **Decarbonizing transport:** Enabling the development of alternative fuels and other solutions to reduce greenhouse gas emissions associated with hard-to-abate transport sectors such as shipping and aviation. (p. 38-41)
- **Natural climate solutions:** An OGCI-IETA partnership in the Brazilian state of Pará to help accelerate the adoption of high-quality carbon credits from natural climate solutions projects. (p. 42-46)

1 OGCI Performance Data. See Chapter 4. $30 billion includes investment in low-carbon projects, acquisitions and R&D.
2 OGCI Performance Data. Renewables and CCUS investment amounts not published.
3 OGCI Performance Data. See Chapter 4.

CCUS

Role of CCUS and OGCI

There is growing recognition among policymakers, international environmental bodies and industry that carbon dioxide capture and removal technologies such as carbon capture, utilization and storage (CCUS) and direct air capture (DAC) will play an important role helping to reduce emissions to achieve net-zero ambitions cost effectively.[1]

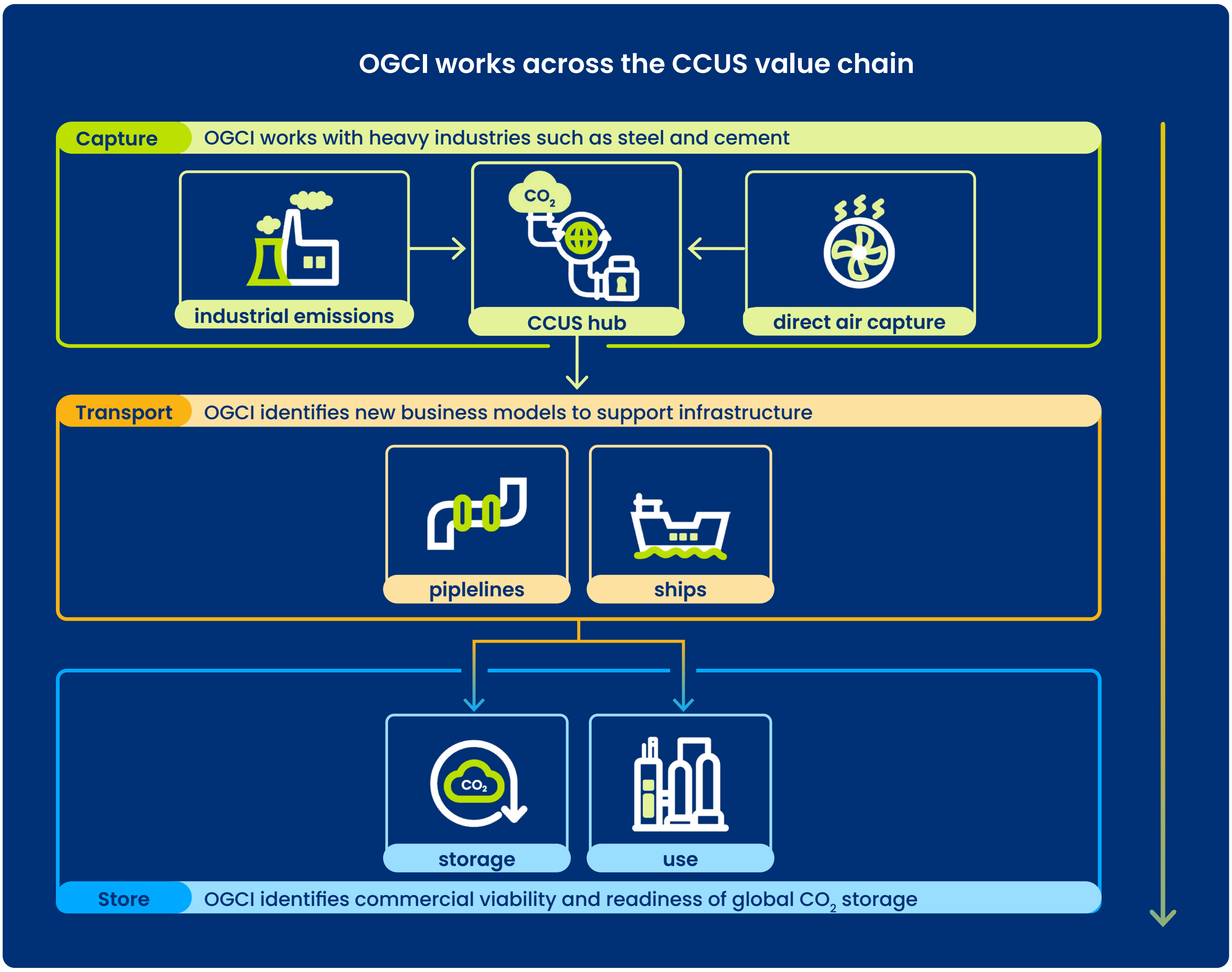
These technologies can be used to reduce emissions of hard-to-abate industries such as steel, chemicals and cement as well as facilitating the production of low-carbon fuels and products.

CCUS infrastructure also supports the deployment of carbon dioxide removal technologies such as bioenergy with CCS (BECCS) and DAC that can help address existing and historic greenhouse gas emissions to achieve net zero.

Supportive government policies including in the EU, Canada, Norway, US, UK, Brazil, Australia and China, shared learnings and best practice from early projects and more detailed assessments of global storage potential are helping to encourage the development of CCUS and DAC. According to the Global CCS Institute there are currently 50 commercial CCS projects in operation globally, with 44 under construction, and over 500 more in development.[2]

OGCI works across the CCUS value chain to enable and accelerate the scale up of CCUS hubs. This includes working with industrial emitters from hard-to-abate sectors, such as steel and cement, identifying new business models to help develop critical CO_2 transportation infrastructure, such as pipelines and shipping, and providing assessments of CO_2 storage potential to enable projects to move forward.

1 IPCC Sixth Assessment Report
2 GCCSI Global Status Report 2024. www.globalccsinstitute.com/wp-content/uploads/2024/11/Global-Status-Report-6-November.pdf



How OGCI supports CCUS scale up

OGCI'S GLOBAL HUB SEARCH TOOL

THE CCUS HUB

- Matches clusters of CO_2 sources from industries with possible storage locations and defines possible and optimal hub areas
- Estimates the potential abatement cost per tonne for each hub
- Helps investors and policy makers to understand the potential for CCUS hubs in their regions

OGCI CCUS VALUE TOOL

CCUS VALUE TOOL

- Allows users to estimate potential CCUS impact on UK economic growth using a jobs and economic development model
- Delivers localized results
- Aligns with the UK's JEDI model
- Also assesses the impact of energy storage solutions and abatement technologies

CO_2 STORAGE RESOURCE CATALOGUE* UPDATE

14,060 Gt
Aggregate global non-project based resources

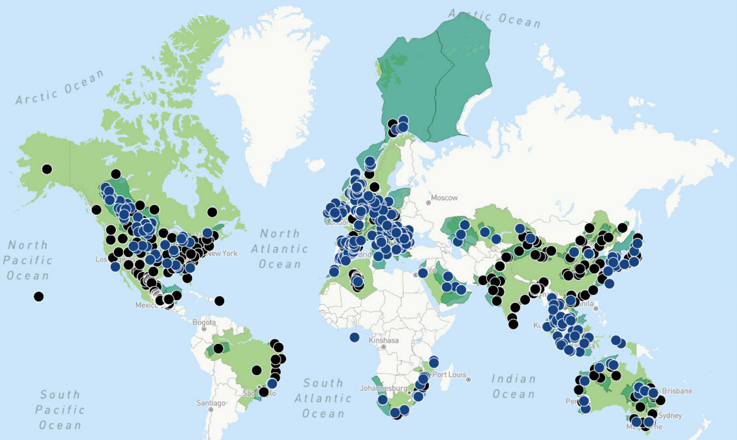
Over **123 Gt**
of project-based resources identified

54 countries assesed

Only **US, Australia, Canada, Norway** resources classified as capacity.

CO_2 storage catalogue evaluates global potential storage

Country • Basin • Formation specified • Sites



*The CO_2 Storage Resource Catalogue assesses storage resource sites against the SPE Storage Resources Management System. These figures reflect the end of Cycle 4. An update to the catalogue is currently in progress.

CCUS HUB PLAYBOOK

- A step-by-step guide for regulators, emitters and existing and potential hub operators.
- Draws on knowledge and expertise of stakeholders in some of the world's most advanced hubs.
- Includes a section for technical experts, which outlines lessons learned from leading projects
- And provides insights on how to assess and mitigate potential risks that could slow hub development.

OGCI's tools, reports and advocacy help scale up hubs

OGCI's work to enable and accelerate the scale up of CCUS spans the entire value chain, from capture, hub development, transport to storage and utilization of the captured CO_2. This includes:

- **Developing a global hub search tool** to identify potentially viable CCUS hubs, by evaluating storage options, concentration of emitters, transport options and costs.[1]
- **Working with governments and industry around the world** to produce in-depth reports assessing potential CCUS hubs and related economic and social benefits.[2]
- **CO_2 storage tools: A CO_2 Storage Resource Catalogue** (updated annually) that assesses commercial availability around the world, providing assurance to companies, regulators and others wanting to invest in CCUS projects[3] and a **CO_2 Storage Permit Tracker,**[4] to track and review storage permits by type and status across multiple regions.
- **Pathways to utilize captured CO_2** in other products and industrial processes to enable further emissions reductions.[5]
- **Tools** to assess economic benefits of CCUS projects.[6]

Upcoming OGCI work includes:

- A major update, based on BCG research, of OGCI's CCUS Hub Search tool that includes the addition of new countries, improved methodologies and updated cost assumptions and optimizations.
- Publication of a study, led by CarbStrat, to help drive further understanding of the availability of geological storage for captured CO_2.

OGCI members are scaling up CCUS hubs

OGCI member companies are involved in the development of over 50 potential CCUS hubs globally (see map p. 32), in addition to developing CCUS projects to reduce GHG emissions from their own operations.

A CCUS hub transports and stores carbon dioxide from several different emitters using common infrastructure. It reduces costs and risks for individual companies and governments, and opens up CCUS as an emissions reduction tool at scale.

Projects that OGCI member companies are involved in that have either became operational in 2024 or are expected to in 2025 include: Northern Lights in Norway, Ravenna in Italy, and STRATOS and LaBarge in the US.

The oil and gas industry is well placed to develop and scale up CCUS hubs.

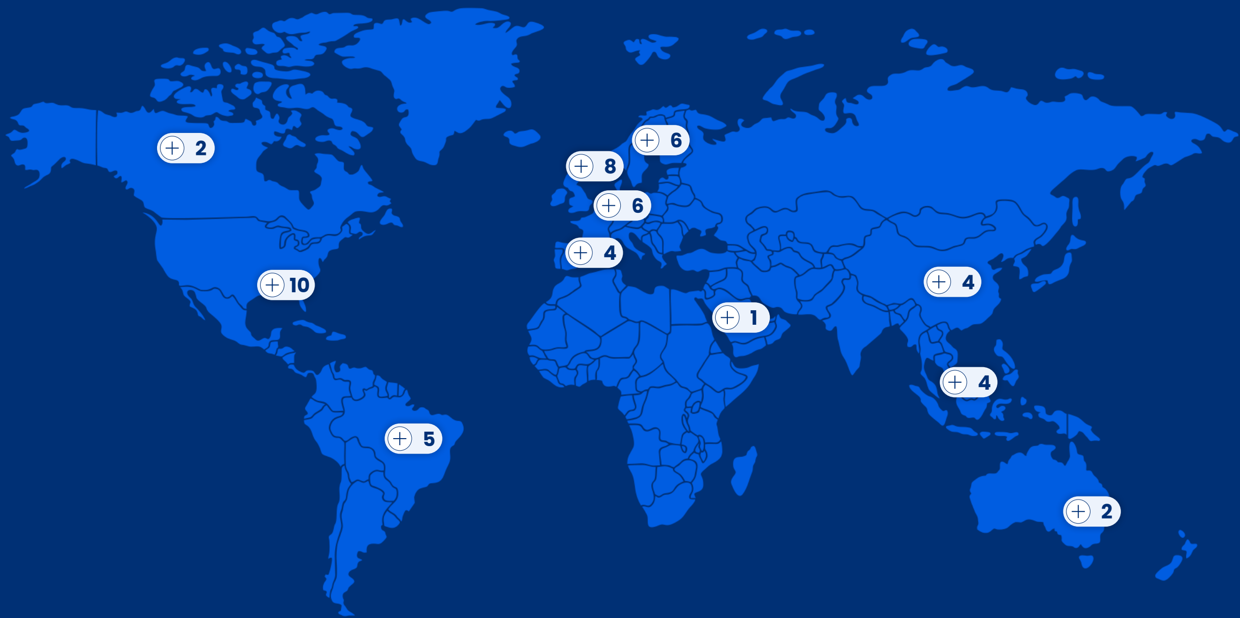
OGCI's member companies are already using their proven expertise in carbon capture, CO_2 injection, engineering, shipping, and large project execution to develop CCUS.

In addition, OGCI's member companies have also assembled extensive pipeline networks[7] to transport CO_2 from emission sites to storage reservoirs, invested in companies pioneering new carbon capture technologies[8] and are exploring the ways to adapt mobile carbon capture for deployment on large ships.[9]

1 See CCUS Hub search tool
2 See Making the case for CCUS hubs in Brazil, CCUS deployment for the GCC, CCUS in China, CCUS in Saudi Arabia, Potential CCS hubs in Northern Egypt
3 See CO_2 storage resource catalogue cycle 4 report
4 See CO_2 Storage License Tracker. Link to follow in a week or so
5 See Carbon capture and utilization as a decarbonization lever
6 See CCUS Value Tool
7 Carbon capture and storage | ExxonMobil
8 Chevron invests in carbon capture and removal technology company, ION Clean Energy — Chevron
9 Carbon capture, utilization, and storage | Aramco

OGCI MEMBERS ARE DEVELOPING 50+ CCUS AND DAC HUBS

View all | Operational | In construction | Proposed



Australia
Angel
Gorgon
Belgium
Antwerp@C

Brazil
Petrobras Bahia Hub
Petrobras Espirito Santo Hub
Petrobras Rio de Janeiro Hub
Petrobras Sao Paulo Hub
Rio de Janeiro

Canada
Atlas/Polaris Hub

China
Junggar Basin
Changqing
Jiangsu
Daya Bay

Denmark
Bifrost
CO_2 Storage Kaluindborg
France
ECO_2 Normandy
Dunkirk
CO_2 Highway Europe

Germany
H2morrow

Indonesia
Sakakemang CCS
Tangguh EGR / CCUS
Asri CCUS hub

Italy
Ravenna CCS

Netherlands
Aramis
Shell Offshore Carbon Storage NL
Nuon Magnum
Porthos / Pernis CO2 Capture
L-10

Norway
Northern Lights
Luna
Smeaheia
CO_2 Highway Europe

Malaysia
Asia-Pacific hub
Saudi Arabia
Jubail

UK
Acorn T&S
Bacton Thames Net Zero
Liverpool Bay T&S
East Coast Cluster
South Wales Industrial Cluster
Southern North Sea
The Solent Cluster

USA
South Texas DAC Hub
Houston CCS Alliance
Bluebonnet Sequestration Hub
Bayou Bend CCS
Hackberry Carbon Sequestration
El Camino Storage
Magnolia Sequestration Hub
Stratos
Pelican Sequestration Hub
Gulf Coast Hub

See our interactive map for more detail

SPOTLIGHT Eni's Ravenna CCS project paves the way for CCS in Southern Europe

In September 2024, Eni and joint venture partner Snam started up Phase 1 of the Ravenna carbon capture and storage project, the first of its kind in Italy with a capture capacity of 0.25 Mt per year.

Carbon captured at Eni's Casalborsetti natural gas treatment plant is now being injected and permanently stored in the depleted Porto Corsini Mare Ovest gas field in the Adriatic Sea. The initiative is already cutting the Casalborsetti plant's CO_2 emissions by up to 96% during peaks. The actual volumes correspond to those captured due to the system's efficiency, where the power supply is ensured by the recovery of self-produced thermal energy and electricity from renewable sources.

Eni's Ravenna CCS project capturing CO_2 from the Casalborsetti gas plant in Italy. Credit: Eni

Phase 2 of the project, due to start by 2030, will allow annual storage of up to 4 Mt of CO_2. A significant portion of this is expected to be used by hard-to-abate industries such as cement, steel, fertilizer and chemicals in the Ravenna industrial zone as well as power plants.

Given high market demand and potential annual CO_2 injection capacity of up to 16 Mt per year after 2030, Ravenna is on track to become a strategic CCUS hub for the decarbonization of heavy industries across Southern Europe.

"CCUS is a mature and safe technological process, and is one of the key levers for the energy transition, being an efficient and effective tool to support hard-to-abate industries in reducing their emissions. Ravenna CCS was launched in 2024 and has achieved an outstanding level of carbon capture efficiency, even with the most challenging industrial operating conditions, and it is a key project in Eni's commitment to reduce emissions of large industrial clusters."

Claudio Descalzi, CEO, Eni

eni

SPOTLIGHT Aramco's Jubail CCUS hub plays a key role in GHG reduction strategy

Aramco's CCUS hub in Jubail, in the Kingdom's eastern province will take CO_2 from natural gas processing and other industrial sources, with around 6 Mt of CO_2 per year coming from Aramco's gas plants and 3 Mt of CO_2 per year from other non-Aramco industrial sources.

The captured CO_2 will be transported for storage below ground in a saline aquifer.

The hub supports Aramco's ambition to achieve net zero Scope 1 and Scope 2 GHG emissions across its wholly owned operated assets by 2050.

Two engineers working at a Saudi Aramco Facility. Credit: Aramco

The Jubail CCUS hub plays a key role in Aramco's GHG reduction roadmap articulated around five key levers: improving energy efficiency across upstream and downstream facilities, reducing methane emissions and flaring, advancing carbon capture, expanding renewable energy production capacity, and implementing nature-based solutions as well as purchasing carbon offset credits.

"Aramco's CCUS hub in Jubail is indicative of our company-wide efforts to deliver innovative lower-carbon solutions designed to lower emissions today, and into the future. Aramco is proud to support OGCI's valuable role as a leading platform for sharing best practices, and for supporting the OGCI members' ambitions to reduce emissions and deploy lower-carbon technologies."

Musaab Al-Mulla, Vice President of Market Analysis & Sustainability, Aramco and OGCI ExCom member

aramco

SPOTLIGHT

Occidental's DAC facility to start up this year

STRATOS, Occidental's first direct air capture (DAC) facility is planned to start commercial operations this year. The Texas facility is designed to remove up to 0.5 Mt tonnes of atmospheric CO_2 per year.

The facility represents the culmination of a multi-year journey to deploy innovation and leverage Occidental's 50-year history managing CO_2 to provide a solution to address emissions and meet demand for low-carbon fuels.

STRATOS is expected to start capturing CO_2 by the end of 2025, with the full capacity planned to be online as soon as mid-2026.

This phased approach allows Occidental to implement advances to optimize the DAC process. These advances will help improve efficiency, reliability and reduce capital expenditures – critical factors in bringing first-of-a-kind technologies to market.

By developing DAC technology, Occidental is creating a pathway to produce low-carbon fuels through enhanced oil recovery (EOR) and provide carbon dioxide removal credits (CDRs) generated from sequestration.

Microsoft, Amazon, Airbus and other large companies have entered into agreements to purchase CDR credits from STRATOS where the captured CO_2 is stored in saline reservoirs as a durable solution to address their emissions.

Occidental's ability to use CO_2 captured from DAC for EOR can create a carbon neutral barrel of oil, in which the volume of CO_2 injected to produce that barrel of oil is equal to the emissions it creates over its lifecycle from production to refining to use.

This provides an opportunity to power hard-to-decarbonize sectors like aviation, maritime and heavy transportation with carbon neutral fuels.

Occidental is also working on the South Texas DAC Hub located on the US Gulf Coast. The hub has acreage with the potential to store up to 3 billion tonnes of CO_2.

The first DAC facility at the hub is designed to capture 0.5 Mt of CO_2 per year and is currently in front-end engineering and design. The hub can also accept point source CO_2 volumes due to its proximity to industrial facilities.

Credit: Occidental

"We believe that carbon capture and DAC, in particular, will be instrumental in shaping the future energy landscape. First, captured CO_2 can be used for enhanced oil recovery in conventional and shale reservoirs. Second, CO_2 removed from the atmosphere via DAC can be used today to address emissions related to products or services."

Vicky Hollub, President & CEO, Occidental

OXY

SPOTLIGHT

ExxonMobil eyes expansion at LaBarge CCS facility

ExxonMobil's estimated $400 million expansion of its carbon capture facility in LaBarge, Wyoming has the potential to come onstream this year [2025, pending regulatory approvals], increasing the plant's capture capacity by 1.2 Mt of CO_2 per year.

The facility, which currently has capacity of 6-7 Mt per year, has captured more CO_2 than any other carbon capture operation globally.

The expansion at LaBarge is part of the company's 2030 emissions reduction plans and supports ExxonMobil's ambition to achieve net zero GHG emissions (Scopes 1 and 2) for its operated assets by 2050.

By capturing an additional 1.2 Mt of CO_2 each year, ExxonMobil can reduce GHG emissions from its upstream operated emissions by 3%.


Credit: ExxonMobil

To date, operations under ExxonMobil's control have captured approximately 150 Mt of carbon[1] – more than a third of all anthropogenic carbon ever captured.[2]

ExxonMobil's current capture capacity is 9 Mt per year.

With the integration of Denbury, ExxonMobil now owns and operates a 1,500-mile network of CO_2 pipelines: the most extensive in the US.

This, coupled with an array of locations across the Gulf Coast that allow for secure and permanent storage hundreds of metres underground, means it can help heavy industries such as chemicals, refining, cement and steel production reduce their emissions.

"Carbon capture projects like LaBarge are essential to meeting society's emission-reduction goals. These technologies offer one of the most practical, scalable pathways available today, and ExxonMobil has more than 40 years of experience in carbon capture with the ability to deliver results at global scale."

Darren Woods, Chairman & CEO, ExxonMobil

1 Global CCS Institute 2022 Cumulative CO_2 Capture Facilities Analysis conducted for ExxonMobil
2 GCCSI Historical Carbon Capture Volumes 2023

SPOTLIGHT

CNPC sees Junggar CCUS hub capacity at 3 Mt per year by 2030

CNPC is developing a CCUS hub in the Junggar basin in northwest China, an area with a high concentration of large emitters.

Also at the Junggar hub, CNPC has started construction of a coal-fired power plant carbon capture project, and pipelines and systems for geological storage and enhanced recovery technology applications.

In the second phase, CNPC expects to capture 1 Mt of CO_2 per year from its own refineries and coal-fired power plants and 2 Mt of CO_2 per year until 2030 from nearby coal power stations, steel mills, cement plants, and hydrogen production facilities.

CNPC aims to expand the hub's capacity to 10 Mt of CO_2 per year by 2040.

CNPC plans to further develop and expand its CCUS hubs in other parts of China by 2030. These include the Daqing and Dagang hubs in the northeast, the Changqing hub in northern China, and the Hainan hub in the south.


Credit: CNPC

"CCUS hubs like Junggar, along with others we are developing in China, will be pivotal in helping the country achieve its goal of carbon neutrality before 2060. The technology can significantly reduce emissions across a number of hard-to-abate sectors, including power generation, cement, steel, chemicals and refining."

Dai Houliang, CEO, CNPC

SPOTLIGHT

Northern Lights JV successfully stores first CO_2

Northern Lights facilities.
Photo by Torstein Lund Eik, Equinor

Northern Lights, the world's first cross-border carbon transport and storage facility, is now receiving and injecting CO_2. The first volumes were transported through the 100-kilometre pipeline and injected into the Aurora reservoir below the seabed of the Norwegian North Sea earlier this summer.

Northern Lights is developing an open and flexible infrastructure to transport CO_2 by ship from capture sites across Europe to a receiving terminal in western Norway for intermediate storage, before being transported by pipeline for safe and permanent storage in a reservoir 2,600 metres under the seabed.

With a storage capacity of 1.5 Mt of CO_2 per year, this first phase of Northern Lights is establishing a commercial CCS market and supporting the decarbonization of European industry.

Joint venture partners Equinor, Shell and TotalEnergies completed the CO_2 receiving and storage facilities for Phase 1 of the Northern Lights Project in 2024. The first phase of the project is fully booked including by cement company Heidelberg Materials, fertilizer company Yara and waste-to-energy plant Hafslund Celsio.

In March 2025, the partners gave the green light to the second phase of the Northern Lights project.

The Phase 2 expansion, due to become operational by the second half of 2028, will more than triple capacity to at least 5 Mt per year. Phase 2 of the project will include nine additional onshore storage tanks, larger pumps, a new jetty and new electrical substation and two new injection wells.

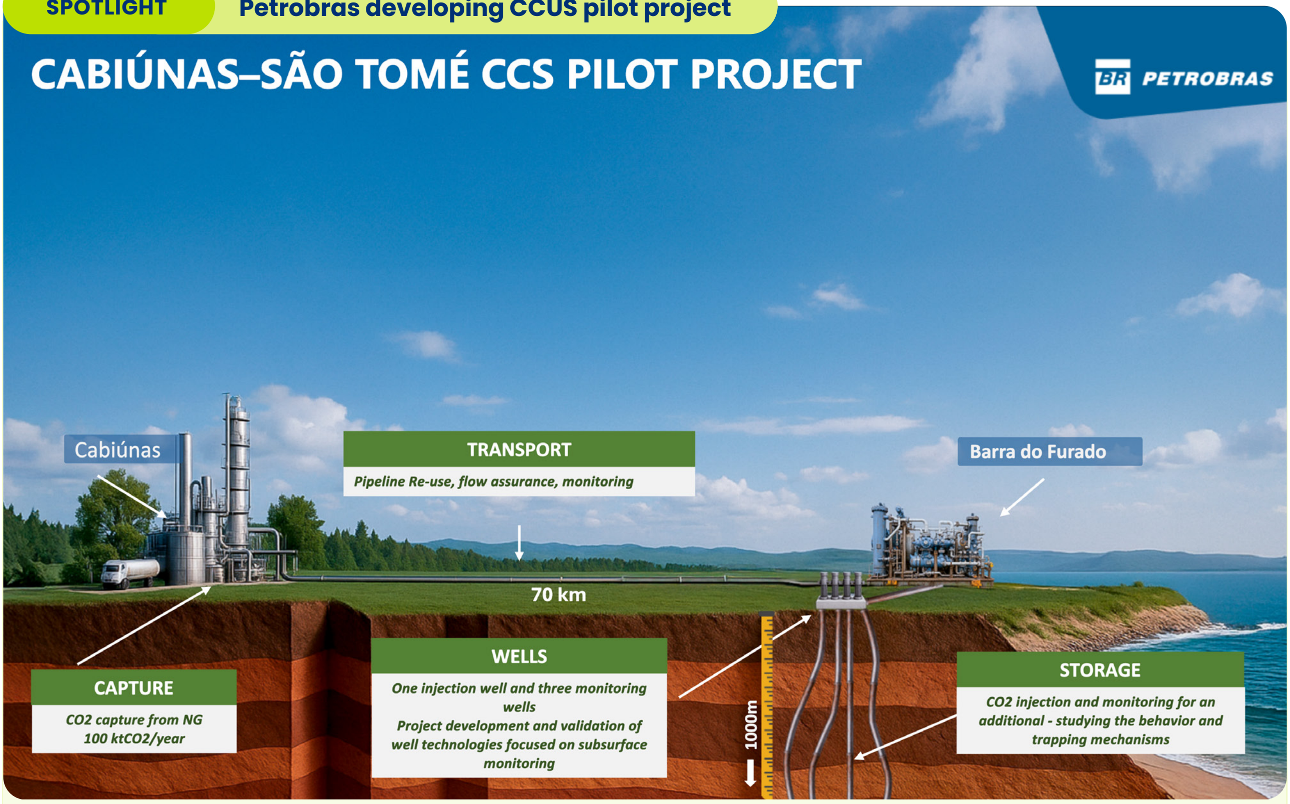
The investment decision to expand capacity followed a commercial agreement with the Swedish energy provider, Stockholm Exergi, for cross-border transport and storage of up to 0.9 Mt of biogenic CO_2 per year.

Support from the Norwegian government has been an important contributing factor to successfully completing Phase 1. Phase 2 was made possible by investments from the Northern Lights joint venture owners as well as a grant from the Connecting Europe Facility for Energy funding scheme.

Northern Lights team.
Photo by Screen Story

equinor TotalEnergies Northern Lights

SPOTLIGHT **Petrobras developing CCUS pilot project**



Petrobras is developing a pilot project designed to generate technical insights that will inform the potential implementation of Brazil's first commercial CCUS. This initiative is part of the company's broader strategy to support industrial decarbonization and advance carbon management solutions.

The demonstration pilot, with final investment decision already approved, will capture up to 100,000 tonnes of CO_2 per year from the Petrobras-owned Cabiúnas natural gas processing facility. The CO_2 will be injected into an onshore saline acquifer where it will be monitored long term.

The pilot is designed to test injection, pressure management, monitoring, and plume migration in an onshore hypersaline aquifer that has similar characteristics to the potential offshore storage site for the hub.

Petrobras plans to develop a commercial hub for a range of industrial emitters in Rio de Janeiro state, home to several large industrial clusters.

Petrobras is exploring options to re-use existing pipelines and build new ones out to an offshore saline aquifer with a potential storage resource capacity of 20 Mt of CO_2 per year.

Petrobras has years of experience in natural gas processing CCUS, re-injecting large amounts of carbon dioxide back into pre-salt fields as it develops oil and gas resources.

Alongside the pilot project, Petrobras is assessing the technical and economic viability of potential CCUS hubs in several Brazilian states, in alignment with its Strategic Plan 2025–2029. The company is advancing feasibility studies that may lead to the development of its first full-scale CCUS project.

Petrobras's 2025–2029 strategic plan includes $5.7 billion in investments in low-carbon energy initiatives, including carbon capture activities. Part of these resources are earmarked for projects and research and development investments specifically related to the pilot plant.

"There's significant potential to develop CCUS hubs in Brazil. The opportunity is more than just reducing emissions from heavy industry, CCUS hubs also create economic value and jobs and help to grow carbon markets as we transition to a net-zero emissions future,"

Ana Paula Santana Musse, Petrobras CCUS senior advisor and OGCI CCUS workstream member

PETROBRAS

Transport

Reducing emissions from transport

Transformative change in the transport sector is essential for the world to meet its climate goals, the IPCC said in its latest assessment report.[1] The sector accounts for around a quarter of total energy-related CO_2 emissions[2] and demand is set to continue growing in the coming years.

Around 23% of these emissions come from aviation and shipping sectors[3] which are harder to abate than light-duty road transport.

To help advance this transformation, OGCI members are dedicating capital and expertise to developing reliable alternative low-carbon fuels, particularly for hard-to-abate forms of transportation, such as aviation, shipping and heavy-duty trucking.

Reducing GHG emissions from transport is a key focus area for OGCI, which aims to further the work of its members by forging collaborations, spearheading initiatives and providing expert research into potential pathways for the sector.

OGCI recognizes that no single solution will work across all transport sectors – rather a range of solutions is required.

OGCI research helps chart a course to a low-carbon transport system

OGCI has partnered with industry experts to produce research reports that shed light on the latest thinking on ways to reduce GHG emissions from this important industry.

These studies have furthered understanding of the alternative fuels, safety measures and infrastructure necessary to reduce emissions in hard-to-abate transport sectors, as well as potential demand and the impact on sustainability of deploying these emerging technologies and solutions at scale.

OGCI is currently working to identify the barriers to the deployment, expansion and successful commercialization of a range of low-carbon fuels and aims to foster collaborative thinking across industries and value chains that will be critical to success.

OGCI-LED REPORTS IN 2024 AND 2025 INCLUDED:

- *The use of onboard carbon capture in marine shipping: Project Remarccable: A case study for onboard carbon capture on the MR tanker Stena Impero*[4]
- *Net zero 2050: Energy demand dynamics across the transportation sector*[5]
- *Biomass for marine 2025*[6]
- *The road ahead for hydrogen-powered mobility*[7]

Shipping

In June 2024, OGCI and the Global Centre for Maritime Decarbonisation (GCMD) signed a two-year partnership agreement to jointly explore ways to reduce emissions from shipping. Areas of focus include energy efficiency, future fuels that are lower in carbon intensity (e.g. ammonia, methanol and biofuel blends) and onboard carbon capture for ships.

OGCI brings expertise in land-based emissions reduction projects and has been working to foster the development of low-carbon fuels.

GCMD is supporting the reduction of emissions from shipping through pilots and trials that delve into areas such as enabling ammonia as a marine fuel, assuring

1 IPCC 6th Assessment Report, Chapter 10: Transport
2 IEA Transport - Energy System - IEA and Global Carbon Budget report globalcarbonbudget.org/fossil-fuel-co2-emissions-increase-again-in-2024/
3 IPCC 6th Assessment Report, Chapter 10: Transport
4 www.ogci.com/project-remarccable/
5 www.ogci.com/net-zero-2050-energy-demand-dynamics-across-the-transportation-sector/
6 www.ogci.com/biomass-for-marine-2025/
7 www.ogci.com/the-road-ahead-for-hydrogen-powered-mobility
4 www.ogci.com/project-remarccable/
5 www.ogci.com/net-zero-2050-energy-demand-dynamics-across-the-transportation-sector/
6 www.ogci.com/biomass-for-marine-2025/
7 www.ogci.com/the-road-ahead-for-hydrogen-powered-mobility

the quality, quantity and emissions abatement of renewable or synthetic fuels, onboard carbon capture and the adoption of energy-efficient technologies.

The partnership builds on Project Remarccable, an OGCI-GCMD collaboration aimed at demonstrating end-to-end onboard carbon capture at scale.

Aviation

OGCI is working with the Coordinating Research Council's (CRC) Sustainable Mobility Committee to analyze the potential sources of captured CO_2 which could be used to make e-fuels. The study aims to help identify technological gaps and suggest opportunities for OGCI and the CRC to support e-fuel development.

This will help provide information for decisions on the broader deployment of these fuels in key markets such as the EU, whose ReFuel EU Aviation program mandates that aviation fuel suppliers gradually increase the proportion of sustainable aviation fuels blended into the conventional aviation fuel available at EU airports.[8]

Trucking

Hydrogen has been proposed as a replacement fuel in the heavy-duty trucking sector and can be used in both fuel cells and internal combustion engines.

OGCI's report: *The road ahead for hydrogen-powered mobility*, published in March 2025, examines how scaling hydrogen adoption through infrastructure expansion, regulatory updates and industry collaboration would further reduce emissions in the sector.

Although some emerging hubs will focus on local production, a number will require substantial volumes of imported hydrogen. OGCI is working to identify ways to meet growing hydrogen demand from a number of sectors, including transportation.

While hydrogen is a promising solution for hard-to-electrify sectors such as heavy-duty transport, its success depends on significant investment in distribution networks, alongside clear policies and safety frameworks.

SPOTLIGHT **Aramco pursuing lower-carbon aviation fuel certification**

Aramco recognizes that an energy transition plan has to consider the needs of all of society, especially developing and emerging economies. Lower carbon aviation fuel (LCAF) supports transition plans at an acceptable cost, facilitating energy security and affordability in the aviation industry that is integral to the global economy, and to connecting societies and families.

Aramco is advancing its goal to become a certified producer of LCAF. It has already achieved ISO certification for lower-carbon intensity at four facilities in Saudi Arabia. As the aviation industry increases sustainable aviation fuel (SAF) production, LCAF serves as a complementary, fossil-based solution that utilizes existing infrastructure to help the aviation industry meet its carbon neutrality goals.

Global trends indicate a gradual increase in SAF production. Aramco's LCAF provides a cost-effective, sustainable solution to help the aviation industry, a hard-to-abate sector, reduce carbon emissions and advance toward its net-zero goals. LCAF is a drop-in fuel that reduces overall emissions and requires no modifications to existing fueling infrastructure. Aramco's refineries produce CORSIA-compliant fuel, and the company is working with independent third-parties for audits and certifications to ensure products meet ISO standards for lower-carbon emissions.

The demand for air travel is expected to double by 2040, growing at an annual average rate of 3.4%. LCAF stands out as a viable solution because it is positioned to satisfy this growing demand and simultaneously achieve reductions in carbon emissions within the aviation sector.

For instance, converting five billion liters of LCAF at 80g CO_2/MJ could provide the equivalent GHG emissions reduction of about 1 billion liters of SAF at 45g CO_2/MJ.

aramco

8 ReFuelEU Aviation - European Commission

SPOTLIGHT

Repsol invests in advanced biofuels

Credit: Repsol

In early 2025, Repsol approved an investment of more than €800 million in the Ecoplanta project – a pioneering facility to turn waste into advanced biofuels, such as renewable methanol, that will help decarbonize transport.

Ecoplanta, located in Tarragona, Spain, will use cutting-edge gasification technology to process up to 400,000 tonnes of waste per year into 240,000 tonnes of renewable fuels and circular products. The plant is expected to begin operations in 2029.

According to IRENA and the Methanol Institute, global methanol demand is expected to quintuple by 2050, driven by the use of renewable methanol in shipping, road transport and aviation.

The renewable methanol produced at Ecoplanta can be used for road transport, as a material to produce renewable gasoline and diesel, for shipping as well as for the production of sustainable aviation fuel.

In its first 10 years of operation, Ecoplanta will help avoid 3.4 Mt of CO_2e, and Repsol is looking to replicate the model in other regions as part of its plans to increase renewable fuels production.

Repsol is targeting annual production in 2027 of 1.5-1.7 Mt of renewable fuels, including renewable hydrogen and biomethane, and up to 2.7 Mt per year in 2030.

The company is already producing renewable fuels at its industrial complex in Cartagena, Spain, which has a capacity of 250,000 tonnes per year.

The plant can produce renewable diesel and sustainable aviation fuels which can be used in any transport, including cars, trucks, buses, ships or airplanes and with existing refueling infrastructure.

The production of 100% renewable fuels at the plant in Cartagena will avoid the emissions of 0.9 Mt of CO_2 per year.

"The Ecoplanta is one of our flagship projects and a pioneer in Europe for the coming years. By converting municipal solid waste into renewable fuels and circular products, it offers a tangible solution to reduce GHG emissions in transport while maximizing waste valorization. This project is a clear example of how industrial companies can contribute through strategic investments to continue generating employment, creating economic value, developing technology, and building a better future for society."

Josu Jon Imaz, CEO, Repsol

repsol

SPOTLIGHT Shell's bio-LNG plant in Germany supplies trucks

In April 2024, Shell opened its bio-LNG plant at the Energy and Chemicals Park Rheinland, part of its ambition to decarbonize heavy-duty trucks.

Biomethane is obtained from agricultural waste (manure or organic residues). At the new plant in Rhineland, the gas is liquefied and delivered to Shell's LNG truck stations, where customers refuel.

The plant is the largest facility of its kind in Germany. It has the capacity to produce up to 100,000 tonnes of low-carbon bio-LNG every year. This is enough to fuel 5,000 LNG-powered trucks – a major boost for the energy transition in commercial transportation.

Shell believes bio-LNG, along with other low-carbon fuels, is crucial to decarbonizing harder-to-abate sectors such as aviation, shipping and commercial road transport.

Shell is one of the largest producers, traders and marketers of biomethane in Europe. This includes the acquisition of Nature Energy in 2023, which added to an already established European biomethane portfolio.

Employee observing the hydro cracker unit (HCU) at Shell Energy and Chemicals Park Rhineland, Wesseling, Germany. Credit: Shell

According to the IEA, the world's biogas and biomethane resources could meet up to 20% of global gas demand while reducing greenhouse gas emissions.[1]

Initiatives such as REPowerEU, the EU's plan to increase local energy sourcing by accelerating the energy transition, and the associated Biomethane Action Plan aim to spur a ten-fold rise in biomethane production to 35 billion cubic meters by 2030.

1 IEA: Outlook for Biogas and Biomethane – Analysis - IEA

SPOTLIGHT bp's Cherry Point refinery turns waste into renewable diesel

bp's Cherry Point refinery in Washington State is turning what were once considered waste products into a low-carbon fuel that is helping to decarbonize road transportation.

Cherry Point refinery produces renewable diesel using co-processing. This is when biomass-based feedstocks, such as beef tallow, cooking oil and byproducts from the ethanol industry, are refined alongside conventional crude oil to create a blended fuel.

Co-processing facility for bio-diesel at bp's Cherry Point refinery. Credit: bp

As it is chemically identical to diesel derived solely from fossil fuels, truck drivers can use co-processed fuel without any changes to their engines.

Over its lifecycle, the carbon intensity of co-processed renewable diesel is up to 30%[1] lower than that of conventional diesel.

Biofuels such as renewable diesel have the potential to be one of the most cost-effective decarbonization options for the transportation sector, particularly in hard-to-abate areas such as long-haul trucking.

Cherry Point is currently able to co-process more than 7,000 barrels of renewable diesel fuel daily, or 2.6 million barrels each year.

1 Based on California Air Resources Board life cycle analysis (LCA) of renewable diesel produced via co-processing animal fat at bp's Cherry Point refinery versus conventional US diesel.

Natural climate solutions

Natural climate solutions (NCS) are initiatives designed to bolster the health of oceans, forests, grasslands, coastal vegetation, wetlands, peat and soil, strengthening their ability to act as natural sinks for carbon dioxide.[1]

According to a 2017 paper from the proceedings of the Natural Academy of Science on natural climate solutions, NCS have the potential to deliver by 2030 a third of the cost-effective CO_2 mitigation needed to achieve the Paris Agreement targets by 2050.[2] They may also deliver many other local co-benefits,[3] such as economic growth and diversification and the protection of biodiversity and water resources.

Natural climate solutions can complement other GHG reduction initiatives. However, these programs do not remove the need to avoid and reduce GHG emissions.

According to the IPCC, the inclusion of natural climate solutions in net-zero pathways will lead to a faster and less costly transition for society.

OGCI member companies have invested in nature-based solutions projects. These include:

- Planting mangroves and protecting terrestrial, coastal and marine ecosystems in Saudi Arabia,[4] and Senegal[5]
- Supporting biodiversity restoration projects in the UK, Trinidad and Tobago, Georgia, Azerbaijan and Turkey[6]
- Working with landholders in Australia to increase carbon sequestration in vegetation and soil[7]
- Promoting REDD+ initiatives across Africa[8]

In addition, OGCI supports national strategies, policies and initiatives that aim to scale up the use of high-quality natural climate solutions as complementary GHG emissions reduction levers. OGCI actively supports high-quality natural climate solutions through programs addressing regulation and policy, as well as technology.

1 Natural climate solutions (NCS) | OGCI
2 Natural Climate Solutions, PNAS, October 2017 www.pnas.org/content/114/44/11645
3 OGCI position paper on Natural Climate Solutions, OGCI-position-paper-NCS2.pdf
4 Harnessing the power of nature-based solutions | Aramco
5 www.shell.com/what-we-do/nature-based-solutions.html
6 www.bp.com/en/global/corporate/sustainability/caring-for-our-planet.html.html.html
7 www.shell.com/what-we-do/nature-based-solutions.html
8 https://www.eni.com/en-IT/sustainability/decarbonization/carbon-offset-solutions.html

SPOTLIGHT

Aramco works to protect and restore mangrove forests

Aramco eco park.
Credit: Aramco

For decades, Aramco has been at the forefront of mangrove restoration and conservation efforts in Saudi Arabia, pioneering the large-scale plantation of millions of mangroves across the Red Sea and Arabian Gulf coastlines.

These ecosystems are vitally important for capturing and storing carbon, while supporting marine biodiversity and strengthening coastal ecosystems.

At the end of 2024, Aramco had planted over 43 million mangroves in Saudi Arabia, with a goal of reaching 300 million by 2035.

This large-scale program contributes directly to carbon removal and aligns with the Kingdom's broader targets under the Saudi Green Initiative.

Aramco is accelerating the scaling of its mangrove restoration initiatives through pioneering research and the deployment of cutting-edge technology and digital tools. These efforts are designed to enhance restoration outcomes. Mangrove restoration represents one part of Aramco's broader biodiversity efforts.

Since 2012, Aramco has been protecting biodiversity on its land and sea holdings, establishing a network of Biodiversity Protection Areas (BPAs).

At the end of 2024, these totaled 28 BPAs, covering over 1,900 km^2, and encompassing numerous ecosystems, from seagrass meadows and coral reefs, to montane grasslands and dramatic desert landscapes.

Collectively, these BPAs host an array of flora and fauna, with over 800 species recorded, including numerous IUCN Red List species, such as striped hyena, steppe eagle, and the critically endangered hawksbill turtle.

As well as supporting a plethora of species, these BPAs provide a wide range of 'ecosystem services' (the benefits human societies and economies derive from nature), including coastal protection, erosion control, and air quality maintenance.

Many of the benefits accrue from the protection of native vegetation, such as shrublands and seagrass. This also has carbon sequestration benefits, with seagrass and old-growth mangrove stands in particular contributing to blue carbon stocks.

Augmenting these initiatives, Aramco is developing and applying innovative technology solutions to enhance biodiversity protection, including satellite tracking of marine species and mapping and monitoring tools for management of its BPAs. These efforts align with the company's aspiration to achieving a net positive impact on biodiversity and ecosystem services across its operations.

aramco

SPOTLIGHT

Petrobras launches forest restoration initiative to help catalyze further projects

Petrobras CEO Magda Chambriard, BNDES President Aloizio Mercadante, BNDES Socioenvironmental Director Tereza Campello at MOU signing for the ProFloresta+ program. Credit: Marcelo Gonzalez

In 2025, Petrobras and Brazil's National Bank for Economic and Social Development (BNDES) launched ProFloresta+, a large-scale forest restoration and carbon credit initiative in the Amazon.

The program aims to restore up to 50,000 hectares of degraded land, capturing an estimated 15 million tonnes of CO_2 equivalent, while delivering biodiversity and community benefits.

ProFloresta+ combines Petrobras's demand for high-integrity carbon credits with BNDES's capacity to finance restoration projects.

By committing to long-term purchase agreements for high-integrity carbon credits, Petrobras provides the market certainty needed to attract serious project developers.

Petrobras also brings technical expertise in large-scale project management, transparency practices, and the capacity to integrate carbon credits into broader corporate decarbonization plans.

The first phase will restore around 15,000 hectares, generating about 5 million carbon credits through a public tender. Petrobras has committed to long-term purchase agreements, ensuring financial stability for project developers. BNDES complements this with dedicated credit lines to lower upfront barriers.

The initiative is expected to create around 4,500 local jobs, prioritize native species, and require adherence to social and environmental safeguards. Public consultations on the first tender and contract design aim to enhance transparency and ensure alignment with international best practices.

The project's ambition and structured design position it as one of the largest corporate-backed restoration efforts in Brazil.

The goal is for ProFloresta+ to provide a model that can be replicated to scale restoration-based carbon markets in Brazil by linking corporate offtake with public finance.

"This initiative is critically important for Petrobras and Brazil. It will allow us to meet our climate commitments with high-quality, high-integrity carbon credits while fostering the development of NCS in Brazil."

Maria Izabel Ramos, Petrobras Nature Based Solutions Manager, and OGCI Natural Climate Solutions workstream lead.

BNDES

OGCI-IETA Alma project in Brazil

A core pillar of OGCI's NCS strategy aims to support capacity-building efforts in natural climate solutions to help accelerate the issuance of high-quality carbon credits.

A key enabler to scale high-integrity carbon credits is nesting. It ensures integration of private projects into jurisdictional approaches, notably through the harmonization of accounting guidelines for GHG emissions reductions from avoided deforestation.

Currently, various jurisdictions in Brazil and project developers use different methods to calculate avoided deforestation. This can lead to double counting and undermine the integrity and credibility of the credits generated.

Given the importance of NCS in Brazil, and the reach of OGCI member companies, OGCI in 2023 partnered with IETA, a non-profit business group, to promote alignment and harmonization between private projects and jurisdictional REDD+ programs.

IETA

ALMA Brasil
ACCELERATING LAND-USE MITIGATION IN THE AMAZON

REDD+ refers to reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.

The IETA-OGCI project, known as ALMA Brasil (Accelerating Land-use Mitigation in the Amazon), conducted technical analysis and dialogue to support the Northern Brazil state of Pará (the state with the highest deforestation rate in the Brazilian Amazon) to develop an effective nesting framework that enhances the credibility and integrity of the voluntary carbon market in their jurisdiction.

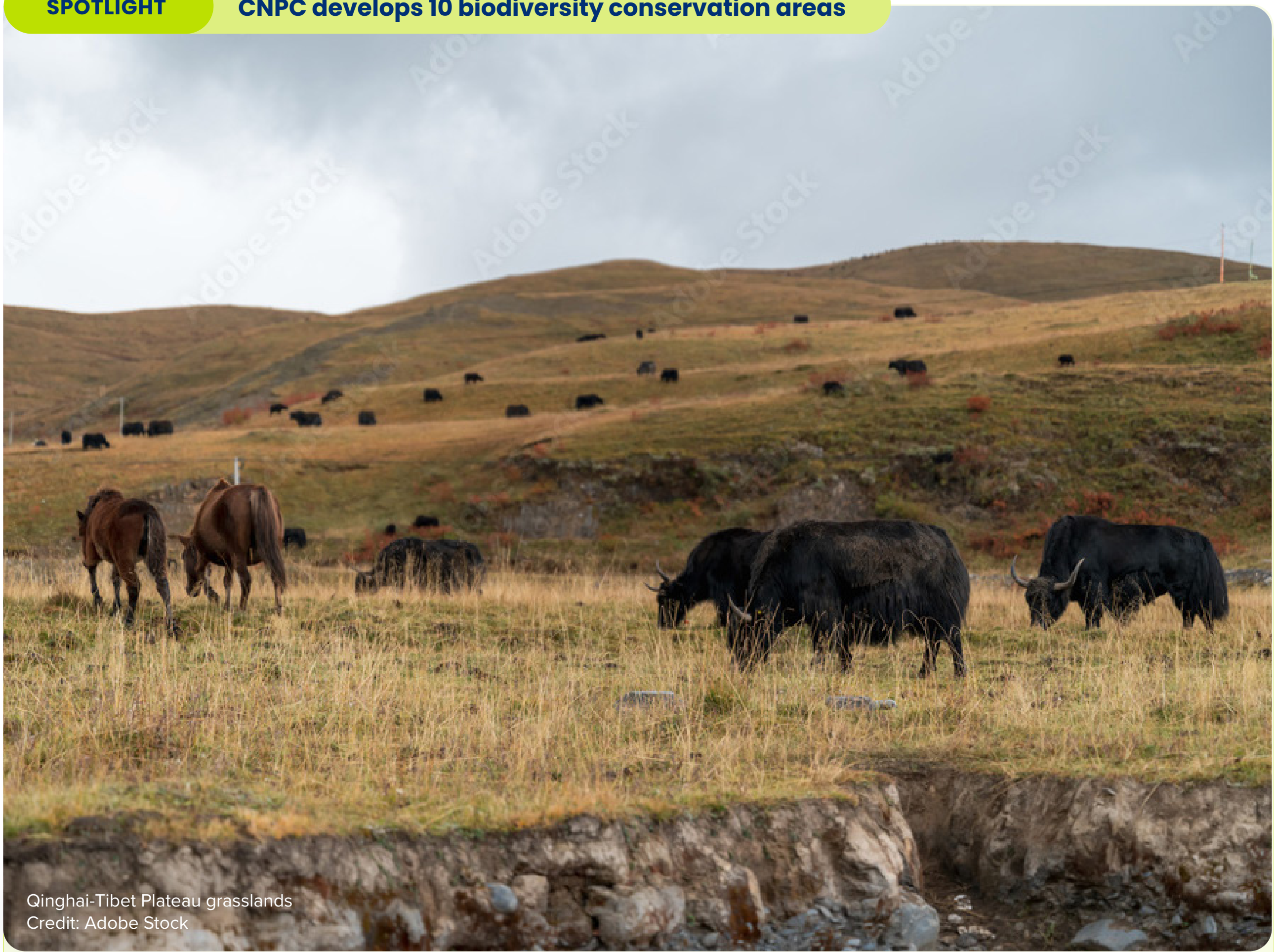

Credit: Adobe Stock

ALMA – A PHASED APPROACH:

- **Phase 1** (October 2023 – July 2024) conducted a study to identify the main regulators, policy and infrastructure barriers limiting the generation of high-integrity carbon credits in the Amazon.
  - Based on the report's findings and discussions around potential focus areas, the partners decided to concentrate on project nesting within jurisdictional comprehensive assessment, and the gap analysis report identified nine key barriers.
- **Phase 2** (July 2024 – August 2024) focused on developing an implementation plan to establish a process to design and test a nesting roadmap to align private projects with jurisdictional REDD+ programs.
  - The state of Pará was selected for its potential to scale high-integrity NCS projects in Brazil.
- **Phase 3** (September 2024 – April 2025) was a collaborative effort with the team from Pará State Secretariat for Environment and Sustainability, which is developing the state's jurisdictional REDD+ system along with technical partners: the Amazon Environmental Research Institute and The Nature Conservancy.
- **Phase 4** (April 2025 – October 2025) Capacity building and engagement activities to develop a nesting road map, refine initial recommendations and address outstanding critical issues by involving market participants. This aims to harmonize methodologies between the jurisdictional program and the private project approaches.

SPOTLIGHT

CNPC develops 10 biodiversity conservation areas



Qinghai-Tibet Plateau grasslands
Credit: Adobe Stock

CNPC has established 10 biodiversity conservation areas across its operational regions, reflecting its commitment to sustainable development and ecological protection.

The biodiversity conservation areas form part of CNPC's Intended National Determined Contributions (INDC) under the Paris Agreement.

The 10 areas are located in diverse ecosystems such as wetlands, forests, grasslands, and desert margins and serve as key zones for protecting endangered species, restoring habitats, and balancing industrial development with environmental stewardship.

Each conservation area is designed around local ecological priorities. For example, the Daqing Wetland Reserve focuses on waterbird protection, while the Tarim Basin area safeguards rare desert flora and fauna. In Qinghai, CNPC supports high-altitude grassland restoration, ensuring the preservation of native species such as the Tibetan antelope.

CNPC integrates scientific research, community participation, and continuous monitoring into its management approach. Partnerships with universities and local environmental agencies enable data-driven strategies, such as habitat mapping, biodiversity surveys, and ecological impact assessments.

The company also implements offset programs and ecological compensation to mitigate industrial impacts, aligning with international standards like the Convention on Biological Diversity.

Through these initiatives, CNPC's ten biodiversity areas not only conserve critical ecosystems but also demonstrate how energy companies can integrate biodiversity protection into corporate environmental responsibility frameworks aligned with INDC goals.

CNPC

04

OGCI Performance Data

Credit: Adobe Stock

OGCI has been collecting third-party reviewed aggregated emissions data from our member companies and publishing the data in our annual Progress Report since 2017.

Our aggregated Performance Data includes oil and gas production (operated and equity), greenhouse gas emissions (operated and equity), operated upstream carbon intensity, methane emissions and intensity, flaring, and investment, including acquisitions and R&D, in low-carbon technologies. Published data and percentages are rounded. Dollars in this report are USD.

- See Reporting Framework for definitions and methodology.[1]
- See table notes for reporting scope and boundary.
- Data is reported by 12 companies, unless otherwise stated in parentheses in the tables.
- The data is independently verified and assured by EY.[2]

KEY TAKEAWAYS

Eight years of data show that OGCI member companies are making progress reducing greenhouse emissions from oil and gas operations under their control and increasing investments in the low-carbon technologies and solutions that will be needed for a net zero emissions future.

Carbon intensity ambition within reach

In 2024, OGCI's member companies were close to achieving the group's collective ambition to reduce aggregate upstream operated carbon intensity to 17.0 kg CO_2e/boe by 2025. OGCI members' upstream carbon intensity was 17.2 kg CO_2e/boe in 2024, representing a 24% decrease compared with 2017.

Methane emissions continue to fall

In 2024, OGCI members' aggregate operated upstream methane intensity and total operated methane emissions were 62% and 63% lower respectively than in 2017, in line with the group's ambition to reach near zero methane emissions by 2030.

Routine flaring down 72%

In 2024, OGCI members' total routine gas flared upstream was down 72% since 2018, (the first year data was published) in line with the group's ambition to end upstream routine flaring by 2030.[3]

Low-carbon investment steady

In 2024, OGCI member companies invested \$30 billion in low-carbon projects, acquisitions and R&D. This takes OGCI member companies' cumulative low-carbon investment to \$125 billion since 2017.

Abbreviations

Mboe/day	Million barrels of oil equivalent per day
kgCO_2e/boe	Kilograms of carbon dioxide equivalent per barrel of oil equivalent
MtCO_2e	Million tonnes of carbon dioxide equivalent
MtCH_4	Million tonnes of methane
Mm^3	Million cubic metres

1 OGCI Reporting Framework 2025.
2 One member company has been unable to submit audited performance data in time for the publication of the 2024 Progress Report and 2022 data for that company has been used in place of the 2023 data. Where the company was unable to provide the full data set for 2024, the missing data has been estimated using 2022 data as a reference. This applies to the following KPIs: total operated GHG emissions Scope 1 upstream, total operated GHG emissions Scope 2 upstream, operated methane emissions upstream, natural gas flared upstream, routine gas flared upstream, flaring GHG emissions upstream and upstream flaring intensity. Data for 2023 and 2024 will be updated as needed in the next annual Progress Report, which is expected to be published in the fourth quarter of 2026.
3 Per World Bank Zero Routine Flaring by 2030 initiative. www.worldbank.org/en/programs/zero-routine-flaring-by-2030.

Production

42.2 Mboe/day

Total operated oil and gas production in 2024

25%

of global oil and gas production in 2024

34%

Share of natural gas in operated portfolio in 2024

In 2024, aggregate operated oil and gas production from OGCI's 12 member companies was 3% higher year-on-year at 42.2 Mboe/day. OGCI member companies produced 25% of global oil and gas from operated assets in 2024.[1]

The increase in operated oil and gas production was driven by four companies, thanks in part to acquisitions at two companies, a change in operational control at a third company and new wells and startups at a fourth company.

This helped offset a decrease in operated production at four companies, driven by divestments, maintenance stops and a natural decline in production at one company.

Operated oil production increased 2% compared with the previous year, while operated gas production was 3% higher.

Operated gas production was higher, primarily due to acquisitions at three companies and a significant increase in output at one company.

1 Provisional estimate of global oil and gas production of approximately 166 Mboe/day in 2024, based on IEA indicators for oil production of 97.2 Mboe/day and global natural gas production of 68.5 Mboe/day. OGCI member companies' share of total oil and gas production is 25.4% on an operated basis and 21.5% on an equity basis. Source: IEA Oil Market Report (January 2025), IEA Gas Market Report Q1 2025.

										% change (rounded)	
OGCI indicators	**Units**	**2017**	**2018**	**2019**	**2020**	**2021[i]**	**2022[i]**	**2023[i]**	**2024**	**2023-2024**	**2017-2024**
Total OGCI oil and gas production (operated)	Mboe/day	45.0	45.6	45.8	43.5	43.5	42.2	41.3	42.2	3%	-6%
Total OGCI oil production (operated)	Mboe/day	29.8	29.9	29.7	28.4	27.9	27.8	27.3	27.8	2%	-7%
Total OGCI gas production (operated)	Mboe/day	15.2	15.7	16.1	15.1	15.6	14.4	14.0	14.4	3%	-5%
Share of natural gas in operated portfolio	%	34%	34%	35%	35%	36%	34%	34%	34%	1%	1%
Total oil and gas production (equity)	Mboed/day	42.5	42.4	42.9	41.6	41.1	41.7	41.0	35.7 (11)	-13%	-16%

i 2022 and 2023 data restated.

GHG emissions (operated)

GHG

17.2 kgCO_2e/boe
Upstream carbon intensity in 2024

-24%
Upstream carbon intensity
2024 vs 2017

304 Mt CO_2e
Upstream operated Scope 1 and 2 GHG emissions in 2024

In 2024, OGCI's member companies were close to achieving the group's ambition to reduce upstream operated carbon intensity to 17.0 kg CO_2e/boe by 2025.

In 2024, OGCI members' aggregate upstream operated carbon intensity was 17.2 kg CO_2e/boe, a 1% increase compared to the previous year and 24% lower than in 2017.

In 2024, OGCI members' aggregate upstream operated Scope 1 and 2 GHG emissions were 304 Mt CO_2e. This represents 0.5% of global GHG, using latest 2023 data from UNEP'S Emissions Gap Report published in 2024.[1]

In 2024, OCGI members' aggregate upstream operated Scope 1 and 2 GHG emissions were 25% lower than in 2017 due to methane emissions reductions, energy efficiency investments, projects to reduce carbon emissions in exploration and production, and divestments.

Upstream operated Scope 1 GHG emissions were 260 Mt in 2024. The 1% decrease year-on-year was driven mostly by GHG reduction measures such as pneumatic device conversions, energy efficiency investments and carbon footprint reduction projects at four companies.

OGCI members' aggregate upstream operated Scope 2 GHG emissions were 44.5 Mt, up 17% over the year. This was mainly due to more companies reporting this year than last.

In 2024, OGCI members' total operated Scope 1 GHG emissions from all sectors (including upstream and downstream) was 543 Mt CO_2e, a 3% decrease year-on-year.

OGCI members' total operated Scope 1 GHG emissions from all sectors (including upstream and downstream) was 23% lower than in 2017.

Downstream, which accounts for around half of OGCI member companies' aggregate Scope 1 GHG emissions, has shown slower progress than upstream, reflecting the complexity and longer timelines of emissions reduction efforts in refineries.

1 Total GHG emissions excluding LULUCF was 57 Gt CO_2e in 2023, UNEP's latest Emissions Gap Report published in 2024, p. XII

OGCI indicators	Units	2017	2018	2019	2020	2021[i]	2022[i]	2023[i]	2024	% change (rounded) 2023-2024	% change (rounded) 2017-2024
Upstream operated carbon intensity[ii]	$kgCO_2e$/boe	22.7	22.1	21.3	20.4	19.2	19.4 (5)	17.1 (7)	17.2 (10)	1%	-24%
Total operated GHG emissions - all sectors (Scope 1)[iii]	$MtCO_2e$	709	687	684	633	621	575	558	543	-3%	-23%
Upstream operated GHG emissions (Scope 1)[iv]	$MtCO_2e$	362	349	343	311	298	268	261	260	-1%	-28%
Upstream operated GHG emissions (Scope 2)[v]	$MtCO_2e$	41.4	43.5	43.7	39.4	38.2	37.9 (10)	38.2 (10)	44.5	17%	7%

i 2022 and 2023 data restated.

ii This is the key performance indicator for OGCI's upstream carbon intensity ambition. 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. This indicator has been calculated with a mixed approach combining market-based and location-based methodologies with market-based priority from 2017 to 2021, and calculated using a market-based only approach from 2022.

iii Numbers are rounded. 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). The methane emissions were converted to CO_2 equivalent using different global warming potentials (GWP) depending on the company. Most of the companies applied a GWP of 30 (IPCC AR5) in 2024. Using the IPCC AR6 GWP of 29.8, the operated greenhouse gas emissions were 561 $MtCO_2e$ in 2023 and 544 $MtCO_2e$ in 2024.

iv 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.

v Scope 2 emissions were not calculated in a homogenous way across companies from 2017-2021 as some used a location-based methodology and others used market-based. From 2022, Scope 2 emissions are disclosed using the location-based methodology.

GHG emissions (equity)

429 Mt CO_2e
Scope 1 equity GHG emissions in 2024

46 Mt CO_2e
Scope 2 equity GHG emissions in 2024

0.45 Mt CH_4
Total equity methane emissions in 2024

Methane is reported by 9 companies in 2024 vs 10 in 2023.

This is the third year OGCI publishes equity emissions, in line with OGCI's ambition of greater transparency in emissions reporting.

Equity reporting includes emissions from assets owned, even where they are operated by partners.

In 2024, total GHG emissions on an equity basis for Scope 1 and Scope 2 were 429 Mt CO_2e and 46 Mt CO_2e respectively. This was due to 10 companies reporting in 2024 compared with 11 in 2023.

In 2024, total Scope 1 equity GHG emissions decreased by 25% year-on-year due to the fact that one company did not report any data in 2024. Scope 2 equity GHG emissions were down 47% for the same reason.

Total methane emissions on an equity basis were 0.45 Mt of methane in 2024, a 51% decrease compared with the previous year as 9 companies reported in 2024 compared with 10 in 2023.

OGCI indicators	Units	2017	2018	2019	2020	2021[i]	2022[i]	2023[i]	2024	% change (rounded) 2023-2024	2021-2024
Total equity GHG emissions (Scope 1)	$MtCO_2e$	N/A	N/A	N/A	N/A	562	596 (11)	575 (11)	429 (10)	-25%	-24%
Total equity GHG emissions (Scope 2)	$MtCO_2e$	N/A	N/A	N/A	N/A	69	83 (11)	86 (11)	46 (10)	-47%	-34%
Total equity methane emissions	$MtCH_4$	N/A	N/A	N/A	N/A	1.13	0.95 (9)	0.92 (10)	0.45 (9)	-51%	-60%
Equity methane emissions - upstream	$MtCH_4$	N/A	N/A	N/A	N/A	1.09	0.91 (11)	0.85 (11)	0.39 (9)	-54%	-64%

i 2022 and 2023 data restated.

Methane emissions (operated)

CH_4

0.12%
Upstream methane intensity in 2024

-62%
Upstream methane intensity
2024 vs 2017

-63%
Total operated upstream methane emissions
2024 vs 2017

OGCI members reported an aggregate upstream operated methane intensity of 0.12% in 2024, as the group's methane intensity continued to trend lower due to measures taken by the companies.

OGCI members' aggregate upstream operated methane intensity is 62% lower compared with 2017.

OGCI members had already achieved their collective methane intensity ambition of well below 0.20% in 2021 – four years early.

In 2024, upstream operated methane emissions were 0.73 Mt of methane. This represents a 16% decrease compared with 2023 and a 63% decrease compared with 2017.

The year-on-year reduction is mainly a result of the continuation of methane reduction projects that include conversion of pneumatic devices, and flaring reduction projects.

The upstream sector accounted for around 93% of OGCI member companies' total methane emissions in 2024. Venting and fugitive emissions accounted for about 25% of total aggregated upstream methane emissions.

OGCI member companies are working to reach near zero methane emissions from their operated assets by 2030. They are sharing what they are learning about detection, measurement and abatement across the industry.

										% change (rounded)	
OGCI indicators	**Units**	**2017**	**2018**	**2019**	**2020**	**2021[i]**	**2022[i]**	**2023[i]**	**2024**	**2023-2024**	**2017-2024**
Upstream operated methane intensity[ii]	%	0.30	0.25	0.23	0.21	0.17	0.15	0.14	0.12	-20%	-62%
Total operated methane emissions - all sectors[iii]	$MtCH_4$	2.10	1.90	1.70	1.40	1.25	1.01	0.95	0.78	-17%	-63%
Total operated methane emissions - upstream	$MtCH_4$	1.95	1.70	1.60	1.30	1.16	0.95	0.87	0.73	-16%	-63%

i 2022 and 2023 data restated.
ii This is the key performance indicator for OGCI's 2025 upstream methane ambition of well below 0.20%. It includes total upstream methane emissions from all operated gas and oil assets. Emissions intensity is calculated as a share of marketed gas.
iii This figure includes relevant operated activities (upstream, refineries, petrochemicals, power generation, etc).

Flaring (operated)

-53%
Upstream flaring intensity
2024 vs 2017

-72%
Total routine flared gas upstream
2024 vs 2018

-55%
GHG emissions from upstream flaring
2024 vs 2017

OGCI member companies continued to reduce flaring volumes and related greenhouse gas emissions from flaring in 2024, in line with their ambition to end upstream routine flaring by 2030.[1]

In 2024, OGCI members' aggregate upstream flaring intensity was 9% lower year-on-year due to a 7% decrease in volumes of natural gas flared upstream and a 17% decrease in routine gas flared volumes in the same period.

The year-on-year decrease in volumes of natural gas flared upstream was driven by divestments, a reduction in upstream routine flaring, better performance of assets and fewer outages for two companies and extensive maintenance at fields and plants at one company.

Routine gas flared volumes are down 72% since 2018 due to improved production practices, such as flaring reductions for targeted assets, flare gas recovery systems, additional gas compression and capture projects.

In 2024, GHG emissions from upstream flaring were 3% lower than in 2023 and 55% lower than in 2017.

In 2024, upstream flaring intensity was 53% lower than in 2017.

OGCI indicators	Units	2017	2018	2019	2020	2021[i]	2022[i]	2023[i]	2024	% change (rounded) 2023-2024	2017-2024
Upstream flaring intensity[ii]	Mm^3/Mtoe	10.8	9.5	9.2	7.6	7.4	5.6	5.6	5.1	-9%	-53%
Total natural gas flared - upstream	Mm^3	24,221	21,465	20,998	16,490	15,998	11,749	11,531	10,748	-7%	-56%
Total routine gas flared - upstream	Mm^3	N/A	5,636 (10)	4,871 (10)	4,250 (11)	4,165	2,187 (11)	1,892 (11)	1,568 (11)	-17%	-72%*
Flaring GHG emissions - upstream	$MtCO_2e$	62	57	55	44	42	30	28	28	-3%	-55%

i 2022 and 2023 data restated.
ii 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.
* Percentage reduction is from 2018, the first year data was published for this metric, and 2024.

1 Per World Bank Zero Routine Flaring by 2030 initiative. www.worldbank.org/en/programs/zero-routine-flaring-by-2030

Investment and R&D in low-carbon technologies

$30 billion
Total low-carbon investment in 2024
includes low-carbon projects, acquisitions and R&D

$125 billion
Cumulative low-carbon investment
since 2017

+19%
R&D spend
2024 vs 2023

In 2024, OGCI member companies' aggregate low-carbon investment, including acquisitions, and research and development (R&D) totaled $30 billion.

This figure reflects a 13% increase year-on-year in investment in low-carbon projects and a 19% increase in low-carbon R&D as spending on acquisitions fell.

Investment in CCUS continued to grow with some companies concentrating on the technology as part of their strategies to reduce emissions.

R&D spending on low-carbon technologies increased 19% in 2024 versus the previous year to $2.3 billion and comprised 39% of total R&D spend.

Since 2017, OGCI member companies' cumulative investment in low-carbon technologies and projects, including investment, R&D and acquisitions, amounted to $125 billion.

OGCI indicators	Units	2017	2018	2019	2020	2021[i]	2022[i]	2023[i]	2024	% change (rounded) 2023-2024	% change (rounded) 2017-2024
Total invested in low-carbon projects	$ billion	4.0	5.0	4.0	5.2	5.6	9.7 (11)	21.5 (11)	24.3	13%	508%
Total invested in low-carbon acquisitions	$ billion	0.3 (5)	0.9 (5)	1.1 (9)	1.6 (9)	7.7 (9)	13.2 (10)	7.1 (9)	3.5 (7)	-51%	1232%
R&D expenditures on low-carbon technologies[iii]	$ billion	0.7 (9)	1.0 (9)	1.0 (9)	0.8 (11)	1.3 (11)	1.6 (11)	2.0 (11)	2.3 (11)	19%	234%
Low-carbon R&D as a share of total R&D investment	%	19% (9)	15% (9)	15% (9)	12% (11)	17% (11)	30% (11)	35% (11)	39% (11)	9%	104%

i 2022 and 2023 data restated.
ii 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.
iii R&D spending is additional to investment.

OGCI and EY data consolidation and review process

Since 2016, OGCI has been working with EY & Associés (EY), as an independent third party, to collect and check data consistency, and guarantee the confidentiality of member companies' data.

We developed together with EY an innovative process, applicable to both listed and state-owned national oil companies, to aggregate information about the level of third-party assurance that member companies apply individually into OGCI data reporting.

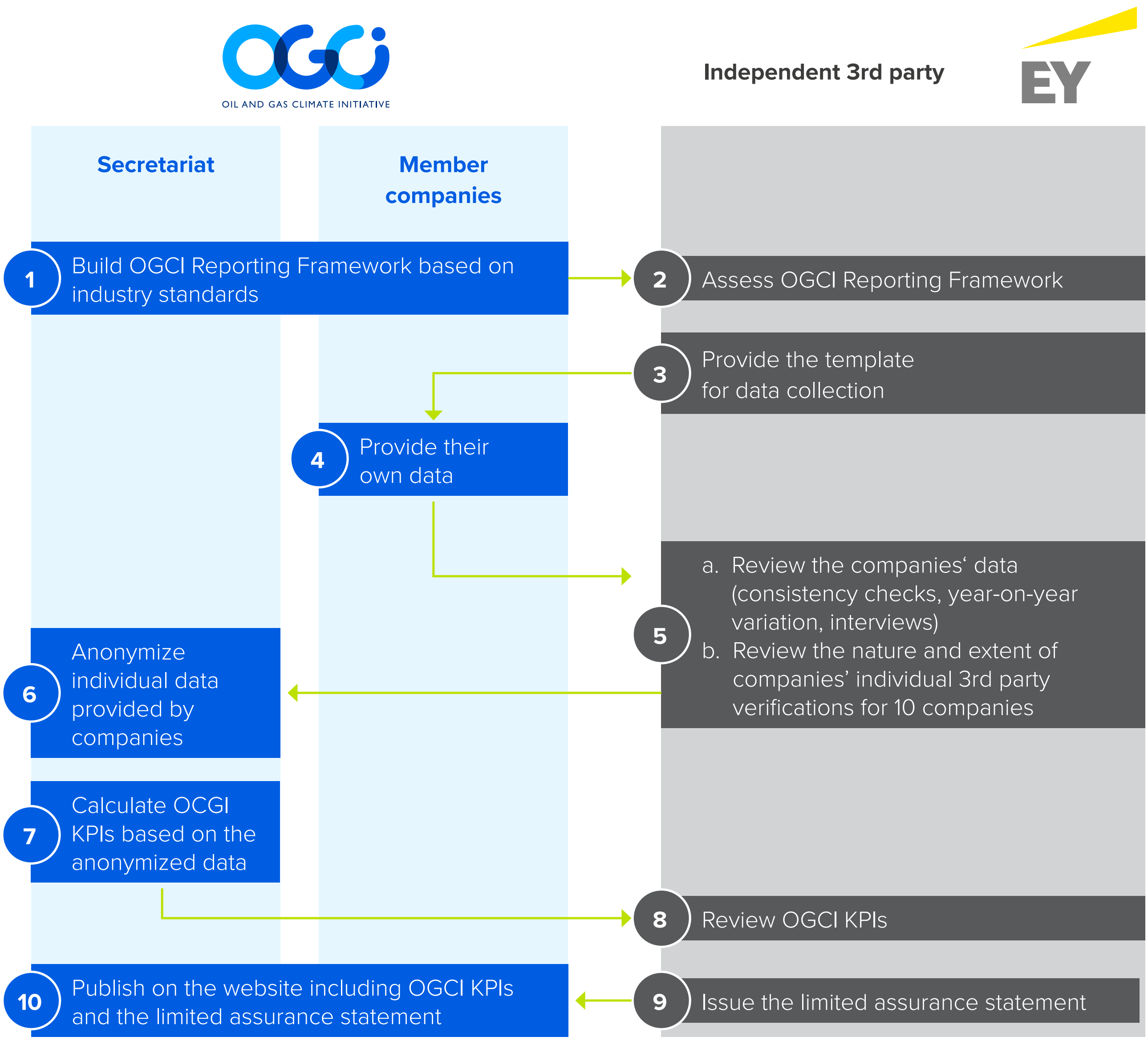
Most OGCI member companies already ensure that data reported to OGCI are independently verified.

This additional step confirms that OGCI data, as well as information about third-party data assurance, are consolidated, reviewed and challenged in order to increase the reliability of the aggregate data we publish.

Since 2020, we have worked with EY to develop and implement a verification process for a selection of our aggregate data.

EY's statement this year covers nine of OGCI's 12 members.

Our process for data consolidation and review



Independent verifier's report on a selection of indicators for the calendar year ended December 31, 2024

We have been engaged by OGCI Climate Investments LLP, on behalf of OGCI, to perform a 'limited assurance engagement,' as defined by International Standards on Assurance Engagements, hereafter referred to as the engagement, to report on a selection of OGCI indicators (the "OGCI Indicators") detailed in Appendix 1 contained in OGCI's performance data for the year ended December 31, 2024.

Basis for Qualified Conclusion

We had access to the nature and extent of third-party verifications conducted at company level on member-company data for only 11 companies[1] out of the 12 OGCI's member companies (representing more than 75% of the "Operated greenhouse gas emissions – all sectors (Scope 1)" and see Appendix 1 for other OGCI Indicators). Furthermore, the remaining company was also not able to provide the full set of data for 2024. The missing data has been estimated using 2022 data as a reference.

Qualified Conclusion

Based on our work, described in the "Nature and scope of the work" section of this report, except for the possible effects of the matters described in the Basis for Qualified Conclusion section, nothing has come to our attention that causes us to believe that the OGCI Indicators are not presented, in all material respects, in accordance with version 3.8 of the OGCI Reporting Framework dated March 2025.

Emphasis of matter

We draw attention to Notes 7.2, 7.3, 9.6 and Appendix C of the OGCI Reporting Framework and to the OGCI Progress report which describe that:

- For the reporting of GHG emissions, companies can use the same methodology approach used for their public reporting of GHG emissions in other relevant documentation (e.g. Annual Report, Sustainability Report, etc.).
- Company and/or regulatory recording and reporting requirements for methane vary between and within OGCI companies and operating jurisdictions.

Our conclusion is not qualified in respect of this matter.

Understanding how OGCI has prepared the OGCI Indicators

The absence of a commonly used, generally accepted reporting framework or a significant body of established practice on which to draw, evaluate and measure sustainability information allows for different, but acceptable, measurement techniques that can affect comparability between entities and over time. Consequently, the OGCI Indicators need to be read and understood together with version 3.8 of the OGCI Reporting Framework dated March 2025, which OGCI has used to prepare the OGCI Indicators.

Responsibility of OGCI

As part of this voluntary approach, it is the responsibility of OGCI to:

- disclose version 3.8 of the OGCI Reporting Framework dated March 2025, available on OGCI's website;
- consolidate the anonymized member companies' data and ensure their consistency;
- publish the consolidated OGCI Indicators on OGCI's website.

Responsibility of OGCI's member companies

As part of this voluntary approach, it is the responsibility of OGCI's member companies to report to OGCI their data according to version 3.8 of the OGCI Reporting Framework dated March 2025, to arrange external verification in accordance with OGCI's and EY's criteria, and to provide EY with a summary of the nature and details of the verification performed on their data at member-company level, together with associated findings.

Independence and quality management

We have maintained our independence and confirm that we have met the requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, and have the required competencies and experience to conduct this assurance engagement.

EY also applies International Standard on Quality Management 1, *Quality Management for Firms that Perform Audits or Reviews of Financial Statements, or*

1 The coverage percentage for "Operated greenhouse gas emissions – all sectors (Scope 1)", along with other OGCI indicators listed in Appendix 1, is presented based on a scope of 10 companies, in order to preserve confidentiality.

Other Assurance or Related Services Engagements, which requires that we design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Responsibility of the independent verifier

Our responsibility is to express a conclusion on the presentation of the OGCI Indicators based on the evidence we have obtained.

We conducted our engagement in accordance with International Standard on Assurance Engagements 3000 Revised, Assurance Engagements Other Than Audits or Reviews of Historical Financial Information (”ISAE 3000 (Revised)”) and with professional standards applicable in France. Those standards require that we plan and perform our engagement to express a conclusion on whether we are aware of any material modifications that need to be made to the OGCI Indicators in order for them to be in accordance with version 3.8 of the OGCI Reporting Framework dated March 2025, and to issue a report. The nature, timing and extent of the procedures selected depend on our judgment, including an assessment of the risk of material misstatement, whether due to fraud or error.

We believe that the evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusions.

It is not our responsibility to give an opinion on the entire annual report or on the compliance of the OGCI Indicators with applicable legal provisions.

Nature and scope of the work

Procedures performed in a limited assurance engagement vary in nature and timing and are less in extent than for a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Our procedures were designed to obtain a limited level of assurance on which to base our conclusion and do not provide all the evidence that would be required to provide a reasonable level of assurance.

We conducted the work described below:

- We assessed the suitability of version 3.8 of the OGCI Reporting Framework dated March 2025 in terms of its relevance, comprehensiveness, reliability, neutrality and understandability by taking into consideration the best practices of the oil and gas industry.
- We conducted the following work related to the consistency and the arithmetical accuracy of member companies’ data reported by 12 OGCI’s member companies with the OGCI Reporting Framework dated March 2025:
  - assessment of the appropriate application of version 3.8 of the OGCI Reporting Framework dated March 2025 to the member-company data;
  - analysis and investigation of member-company data value change in 2024 compared to 2023;
  - calculation of consistency ratios and investigation to identify potential outliers among member-company data.
- We conducted a reconciliation between member-company data and publicly available information.
- We assessed the nature and extent of third-party verification conducted at company level on member-company data against the following topics (hereafter the “Criteria”) through the collection of supporting evidence and interviews with the external third parties of member companies, based on the following:
  - level of assurance;
  - work program;
  - assurance standard;
  - audit findings;
  - Scope 1 operated emissions coverage reached with site-level verifications;
  - physical site visits;
  - remote site visits;
  - total man days allocated to the verification;
  - third-party team members’ competencies.
- We conducted interviews with 12 OGCI’s member companies.
- We reviewed the consolidation performed by OGCI on the anonymized member-company data.

We consider that the work we have performed by exercising our professional judgment allows us to express a limited assurance conclusion; an assurance of a higher level would have required more extensive verification work.

Paris-La Défense, [Date]

EY & Associés
Partner, Sustainable Development
Christophe Schmeitzky

Percentage of OGCI Indicators considered as reviewed by an external third party and for which the third-party verification work has been shared with EY

OGCI Indicators	OGCI Indicators value in the 2024 annual report	Percentage of 2024 OGCI Indicators considered reviewed[I] by an external third-party	Percentage of 2024 OGCI Indicators for which the third-party verification work has been shared with EY
Operated greenhouse gas emissions – all sectors (Scope 1)[II]	543 $MtCO_2e$	100%	75%
Operated greenhouse gas emissions – upstream (Scope 1)[II]	260 $MtCO_2e$	100%	81%
Operated greenhouse gas emissions – upstream (Scope 2 Market-based)[III]	13 $MtCO_2e$ (10)	100%	100%
Operated methane emissions[IV] – all sectors	0.8 $MtCO_2e$		
• verified as part of operated greenhouse gas emissions – Scope 1		100%	58%
• verified as a standalone indicator		31%	31%
Operated methane emissions – upstream[IV]	0.7 $MtCO_2e$		
• verified as part of total operated GHG emissions – Scope 1		100%	58%
• verified as a standalone indicator		31%	31%
Natural gas flared – upstream[II]	10,748 $MMSm^3$	100%	92%
Flaring greenhouse gas emissions – upstream[II]	28 $MtCO_2e$	100%	93%

Notes:

I. An indicator is considered as "reviewed" if it was published in a publicly available document and if it was covered by an opinion or conclusion statement provided by an external third party or was reported to a governmental authority and available to public. None of the opinion/conclusion statements consulted contained any qualification. Only limited and reasonable assurance levels of opinion have been considered.

II. All indicators are operated. "Operated greenhouse gas emissions – upstream (Scope 1)", "Operated greenhouse gas emissions – upstream (Scope 2 Market-based)", "Natural gas flared – upstream" and "Flaring greenhouse gas emissions – upstream" indicators are considered reviewed if the "Greenhouse gas emissions - all sectors" are reviewed, as they are part of the overall greenhouse gas emissions review.

III. Upstream scope 2 emissions are reported exclusively using the market-based approach. As a result, the aggregated data includes only 10 out of 12 companies, since the remaining two report solely using the location-based method.

IV. "Operated methane emissions" indicator is considered reviewed if "Operated methane emissions – upstream" are reviewed, as methane emissions mainly occur in upstream activities. "Operated methane emissions" and "Operated methane emissions – upstream" are not automatically considered as reviewed if only the "Greenhouse gas emissions - all sectors" are reviewed (as methane emissions generally represent a minor fraction of total greenhouse gas emissions).

05

Climate Investment

Credit: iStock

Climate Investment
Founded by OGCI

Climate Investment - We are a unique climate investor focused on oil & gas and energy-intensive industries

Climate Investment (CI) was founded by the Oil and Gas Climate Initiative (OGCI) companies and operationalized in 2017. Our mission is to **invest in the technologies which underpin the next generation of global infrastructure,** and we believe these technologies will be **climate-based.**

We are in the early stages of a Climate Transition which requires global investment of between 100T[1] and 200T[2] by 2050 to deliver a sustainable pathway for human society. This will reshape our energy markets and modes of production, construction, and transportation.

CI invests in companies that are enabling and benefitting from this transition, focusing on the underserved sectors or "white spaces" that have not yet received the attention or capital they deserve.

This focus is on heavy greenhouse house gas (GHG) emitting sectors: Energy systems, Industry, Transport, and Buildings. Collectively, these sectors continue to drive >65% of global GHG emissions but attract less than 25% of global innovation capital.[3]

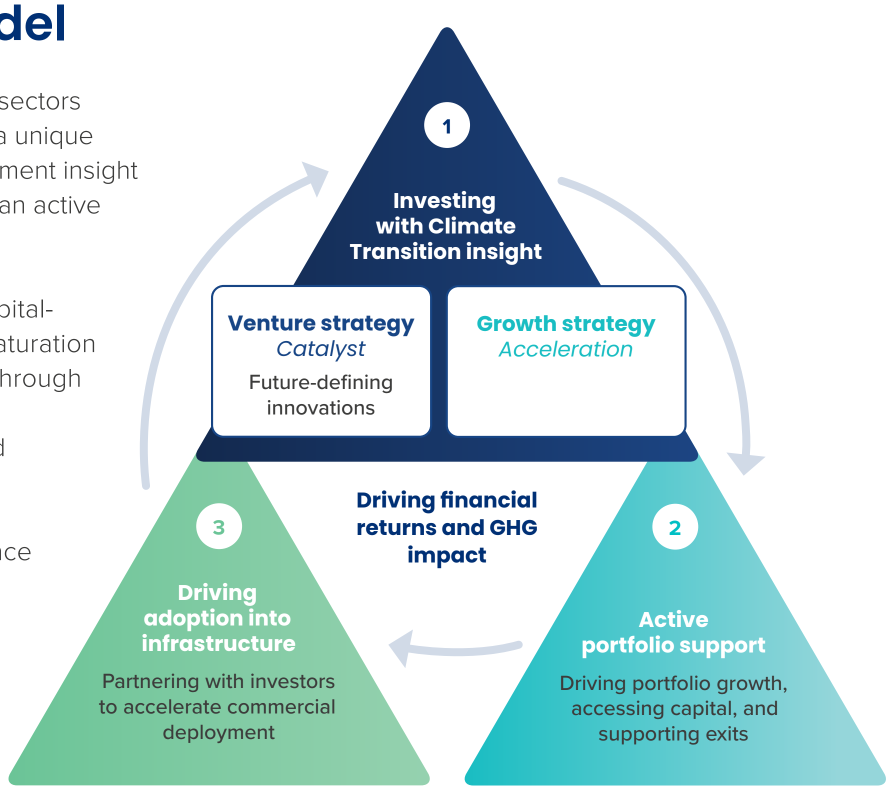
CI's team is converting this market opportunity into results, backed by a combined 500 years of experience. Our experts bring deep insight into industrial sectors vital to decarbonization, a strong track record in venture and growth capital, entrepreneurial leadership from company founders, and operational experience guiding organizations through major climate-driven transformations.

In 2024, CI made six new investments and ten follow-on investments, and CI portfolio companies generated 38.3Mt of GHG impact.

CI's business model

Delivering innovation into our focus sectors via an investment platform requires a unique business model which blends investment insight and portfolio company support with an active program of commercialization.

Innovation cycles can be long in capital-intensive sectors. To support the maturation of future-defining technology right through to industry adoption, CI operates complementary Venture Capital and Growth Equity strategies. There are strong synergies between these strategies, with later-stage experience enhancing our understanding what it takes to successfully deploy technology at scale.



1 BNY Mellon: An investor's guide to net zero by 2050 - $100T
2 A&O Shearman: Delivering Net Zero by 2050 - $200T
3 UNEP: Emissions Gap Report 2024

New investments in 2024

Since the beginning of 2024 we have made three new venture investments, supported ten follow-ons, and launched our growth equity strategy with three initial investments.

During 2024, CI supported follow-on financing rounds for Insight M, Andium, Metron, Gradient, 75F, OnTruck, Norsepower, Urbint, Aeroseal, and SensorUp.

At the very end of 2024, we made the first investment out of our growth equity strategy into ocean data company XOCEAN. In the first quarter of 2025 we made two further investments into aerial inspection company Zeitview and oil and gas emissions control expert JessCo Solutions.

VENTURE CAPITAL STRATEGY

Cyclic Materials is transforming the recycling of rare earth elements for technologies like electric motors, electric vehicles, and wind turbines, reducing mining's environmental impact and promoting a sustainable circular economy.

LuxWall enhances building energy efficiency with vacuum-insulated window panes.

44.01 enables sub-surface conversion of CO_2 (from point source or air capture) into rock for permanent removal, offering a safe and scalable sequestration method that accelerates natural mineralization.

GROWTH EQUITY STRATEGY

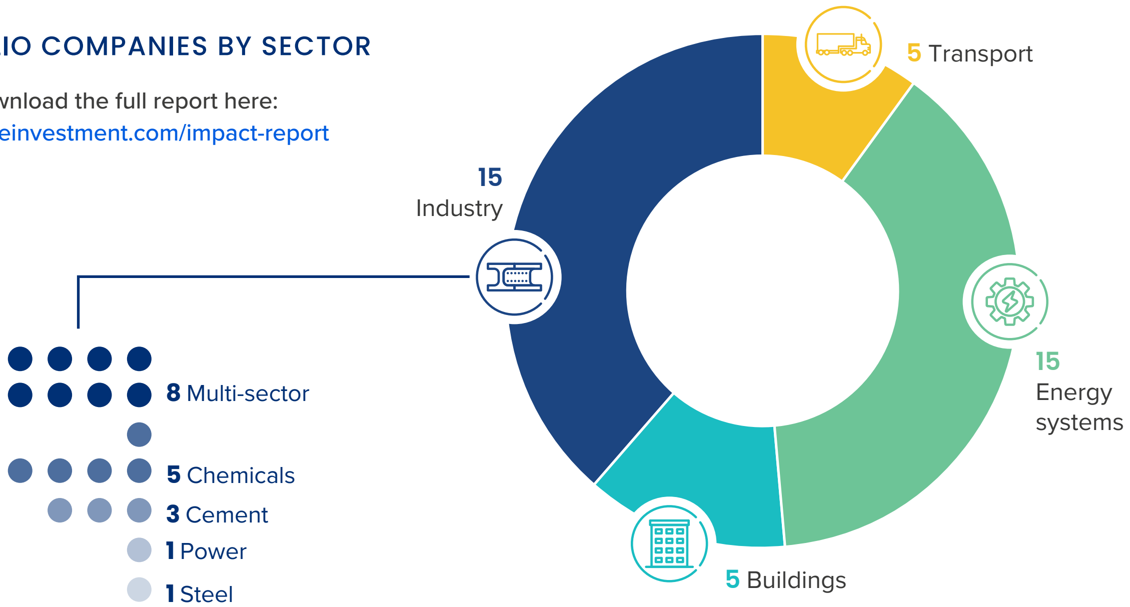
XOCEAN uses fully autonomous, electric Uncrewed Surface Vessels (USVs) to provide seabed mapping, asset integrity and civil hydrography surveying for leading companies and government agencies.

Zeitview provides automated AI inspection software and services for renewable energy and infrastructure owners.

JessCo Solutions specializes in emission control equipment and services for the oil and gas industry, focusing on vapor recovery units, flares, and combustors.

PORTFOLIO COMPANIES BY SECTOR

View or download the full report here:
www.climateinvestment.com/impact-report



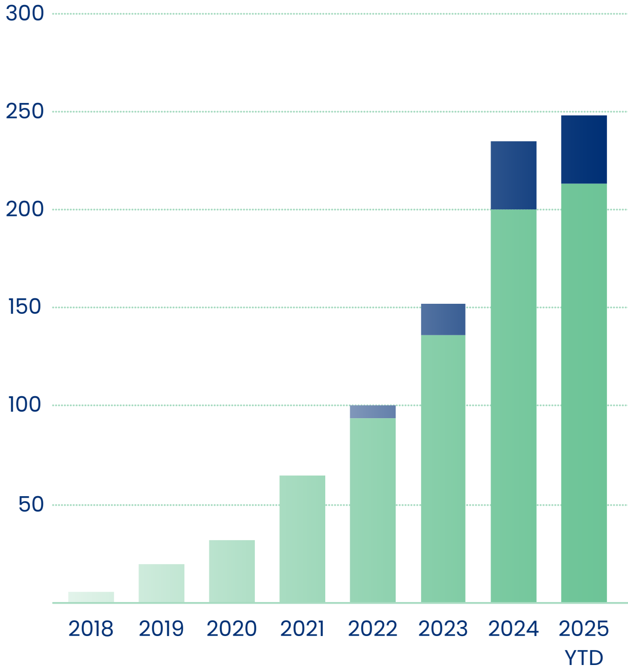
Supporting our portfolio through collaboration with OGCI member companies

Supporting our portfolio companies is a priority for CI. We are hands-on and patient investors, working alongside founders to support the growth of their innovations, improve access to capital and – when ready – to support positioning for exit. CI's commercialization professionals support the adoption of portfolio companies (PC) solutions and a key part of this model is deployment within the businesses of OGCI member companies. Our eight-year relationship with OGCI continues to facilitate the introduction of new technologies through pilot programs to validate technologies and the deployment of proven new technologies following introductions made by CI.

>200
OGCI deploymens up to the end of 2024

60%
year-on-year growth in annual deployments

Cumulative deployments of CI PCs with OGCI member companies



SPOTLIGHT **Norsepower: "Commercialization with our investors"**

Norsepower lowers cost and emissions for Equinor, Total, and Shell in the Northern Lights CCUS project.

Norsepower develops innovative rotor sails for commercial shipping to improve efficiency, reduce costs and emissions. Northern Lights is Norway's flagship Carbon Capture Storage project, developed by Equinor, TotalEnergies, and Shell in conjunction with the Norwegian government. Deployment of Norsepower Rotor SailsTM on the Northern Lights CO_2 carriers, Northern Pioneer and Northern Pathfinder, is a standout example of deployment of a CI portfolio company technology by OGCI member companies. These vessels are tasked with transporting captured and liquefied CO_2 from European emitters to the Northern Lights receiving terminal in Øygarden, Norway. Each ship is equipped with a 28m × 4m Norsepower Rotor SailTM. The rotor sails will reduce the fuel consumption and CO_2 emissions from the vessel by approximately 4%. The saving will help the vessel meet international emissions reduction targets, including the carbon intensity indicator, and save on rising fuel costs, while also future proofing it against future carbon pricing.


Credit: Norsepower

CI's commercialization team has been instrumental in scaling climate solutions by actively connecting portfolio technologies with major industry players and supporting pilots and commercial deployments. This deployment exemplifies how CI's commercialization team not only identifies high-impact technologies but also actively facilitates their adoption in real-world, high-emitting sectors.

NORSEPOWER

Starting our relationship with the OGDC companies

CI has signed an MoU to become an OGDC Partner. As an OGDC Partner, CI has agreed to provide OGDC signatories insights within the scope of the OGDC that can help the signatories on their decarbonization path. This may include technology inights in peer-learning webinars and regional roundtables, and case studies of best practices for technology adoption.

SPOTLIGHT ICA-Finance

CI case study on collaboration on methane abatement.

In 2023, ICA-Finance partnered with Uzbekneftegaz, Uzbekistan's national oil and gas company, and Vemacarbon to launch an Advanced Leak Detection and Repair initiative aimed at reducing methane emissions in the country's oil and gas sector. The project was successfully commissioned in 2024 following rigorous assessments to ensure environmental integrity and emission-reduction additionality.

Today, the initiative is generating tradable Upstream Emission Reduction (UER) credits under the German Fuel Quality Directive, which helps position Uzbekistan as a leader in climate-change mitigation practices in Central Asia. With an expected annual impact exceeding 300,000 tonnes of CO_2-equivalent emissions reduced, the project not only contributes meaningfully to global climate goals, but also supports local capacity building and knowledge transfer.

CI played a pivotal role in enabling this outcome by facilitating third-party financing, which was essential to unlocking the project's potential and ensuring the generation of UER credits.

Credit: ICA-Finance

ICA•FINANCE
Immediate Climate Action

CI portfolio results

Portfolio revenue growth

Our portfolio companies collectively grew revenue by 29%[1] between 2023 and 2024, a strong result considering that some of the companies are still at early stages of technology development. Within this data we saw some very strong performers with three companies doubling their revenue year-on-year. These results were enhanced by strong partnerships with OGCI member companies.

Portfolio Impact Performance

In 2024, CI portfolio companies generated 38.3Mt of GHG impact - this was a small increase in total GHG impact against 2023. The underlying drivers of this trend are:

- 13% reduction in impact from methane detection companies
- 140% increase in impact from methane abatement companies
- 17% increase in impact from CO_2 abatement companies

Methane detection continues to be our largest source of GHG impact in 2024, generating 92% of 2024 realized impact. However, tracking and verifying leak fixes has in some cases become harder, resulting in a slight drop in measured impact from methane leak detection in 2024.

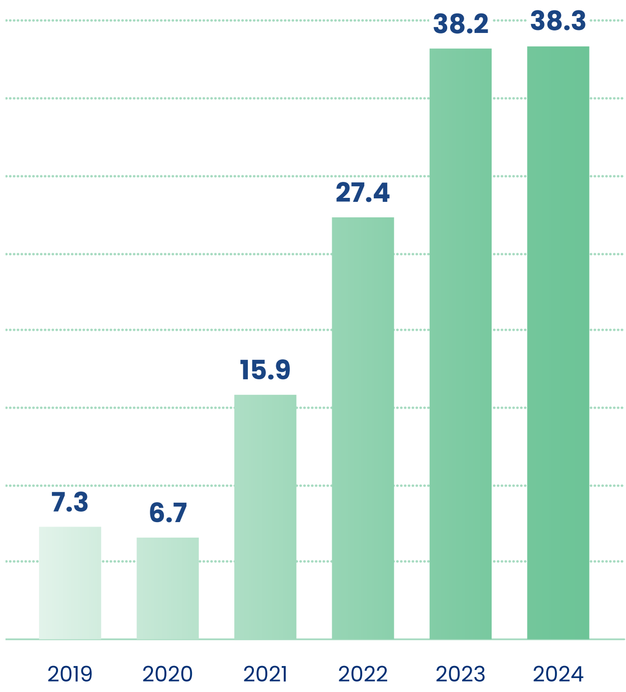
1 Calculated as the year-on-year growth of the sum of our portfolio companies' revenues, 100% share.

We are very encouraged to see strong growth in impact in methane mitigation as ICA-Finance, Qnergy, and Clarke Valve all step up their activities. Growth in this area was also supported by Trace Carbon Solutions, which acquired a clean gas transportation system in the US Delaware Basin from LM Energy, delivering significant environmental improvements over the alternative infrastructure.

The CO_2 abatement portfolio has also continued to accelerate with the growth of the underlying portfolio companies in our energy efficiency category.

Since inception, our portfolio companies have generated over 133Mt of GHG impact – greater than the annual emissions of Chile[1]. We publish our GHG impact methodology annually and it is against this methodology that EY has provided limited assurance on our annual realized impact results to ISAE 3000 standards. EY's statement is included in CI's annual Impact report.

CI Portfolio Realized GHG Impact ($MtCO_2e$)



Building for the future

As we look ahead, CI is committed to empowering our portfolio companies to develop their technologies, scale their operations, achieve commercial success, and deliver measurable GHG reductions. We will continue to provide follow on capital and tailored support, leveraging our expertise in market development, operational efficiency, and strategic partnerships to help portfolio companies overcome barriers to growth.

A key focus for the year will be the expansion of the newly launched Growth Equity strategy. Our first three investments have focused on driving efficiency into energy and infrastructure businesses; often using massive data collection capabilities supported by AI to drive step changes in operational efficiency.

We expect AI and the data center revolution to be an important part of our growth strategy going forward, but our pipeline is rich with opportunities in industrial, transportation and built-environment sectors. Our goal is to accelerate the deployment of these technologies across global markets to help the companies achieve financial and impact success.

We strongly believe that climate investing is not an individual activity. As an experienced climate investor, we believe it is important to share our learnings and best practices to help grow the overall size and impact of the climate investment ecosystem.

Download CI's full 2024 Impact Report to explore approach and insights in investing for climate impact.

1 EDGAR - The Emissions Database for Global Atmospheric Research

OIL AND GAS CLIMATE INITIATIVE

About OGCI

The Oil and Gas Climate Initiative is a CEO-led initiative comprised of 12 of the world's leading oil and gas companies, producing around 25% of global oil and gas on an operated basis.

OGCI aims to lead the oil and gas industry's response to climate change and accelerate action towards a net zero emissions future consistent with the timeframe of the Paris Agreement.

In 2016, OGCI launched Climate Investments to manage a $1 billion fund to develop and accelerate the commercial deployment of low emissions technologies.

In 2023, OGCI helped establish the Oil & Gas Decarbonization Charter (OGDC), which was launched at COP28 in Dubai. OGDC is a coalition of more than 50 companies with activities across more than 100 countries working to decarbonize the oil and gas sector at scale.

OGCI's members are Aramco, bp, Chevron, CNPC, Eni, Equinor, ExxonMobil, Occidental, Petrobras, Repsol, Shell and TotalEnergies.

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.

All discussions and work within OGCI are conducted in accordance with anti-trust competition law principles. OGCI has implemented measures to ensure that all activities are compliant with competition laws, and all involved are trained and vigilant at all times to ensure such compliance. All monitoring and sharing of potentially competitively sensitive data is done in accordance with established guidelines to ensure data is aggregated, anonymized and collated and stored in a confidential way by a third party.

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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.