

The next methane surge

New global oil and gas developments could rival Europe's current methane emissions

Despite mounting global climate commitments, including a consensus at COP28 to transition away from fossil fuels, the world's oil and gas producers are developing 63 new oil and gas fields before 2030, according to the latest data from Global Energy Monitor. While public attention and policy is often focused on mitigating CO₂ emissions from burning fossil fuels, reducing methane pollution from *producing* oil and gas is arguably just as urgent. Methane is an extremely potent though short-lived greenhouse gas — how it is managed today could either buy crucial time for or irreversibly undermine long-term climate goals.

Together, the 63 fields in development could emit 2,300 kilotonnes (kt) of methane annually from their production activities before 2030, enough to rival all of Europe's current fossil fuel [production emissions](#). While the European Union's new [methane regulations](#) will require all oil and gas importers to abide by new intensity standards, there is [no room left](#) in the global carbon budget to swap improvements in methane abatement for increases in oil and gas production. Additionally, these fields are coming online at a time when global demand for oil and gas is [expected to peak](#). Therefore, this new wave of production threatens to unnecessarily entrench emissions and undercut progress on climate mitigation.

GEM's latest findings build on its [April 2024 analysis](#), the first to estimate potential methane emissions from proposed oil and gas projects using publicly available information. Without equipment-level inventories for in-development projects, which are typically non-existent or proprietary, GEM's methodology offers the most reliable proxies for assessing the scale of the methane threat posed by new oil and gas assets.

Key points

- Sixty-three oil and gas fields in development slated to reach their production design capacity before 2030 could emit 2,300 kt of methane annually. This is equivalent to all methane emissions from current fossil fuel production in Europe.
- Several potentially high-emitting fields, including Marjan Expansion, Bahr Es Salam, Yellowtail, and Uaru, are slated to reach their production design capacity before they will be subject to the monitoring, repair, and verification standards outlined in the European Union regulations.
- There is no room in the global carbon budget for “trading” enhanced methane mitigation for increased oil and gas production — [both are necessary](#) in order to slow climate change.
- Despite [falling global demand](#) for fossil fuels, the oil and gas industry continues to pursue new fields year on year. Roughly 13% of potential emissions come from projects newly in development.
- There are major gaps in data transparency: None of the top three operators with fields in development (Saudi Aramco, Gazprom, and ExxonMobil) have submitted data yet to the [United Nations Oil and Gas Methane Program 2.0](#) (OGMP 2.0), while two of these (Saudi Aramco and Gazprom) have no public intention to do so.

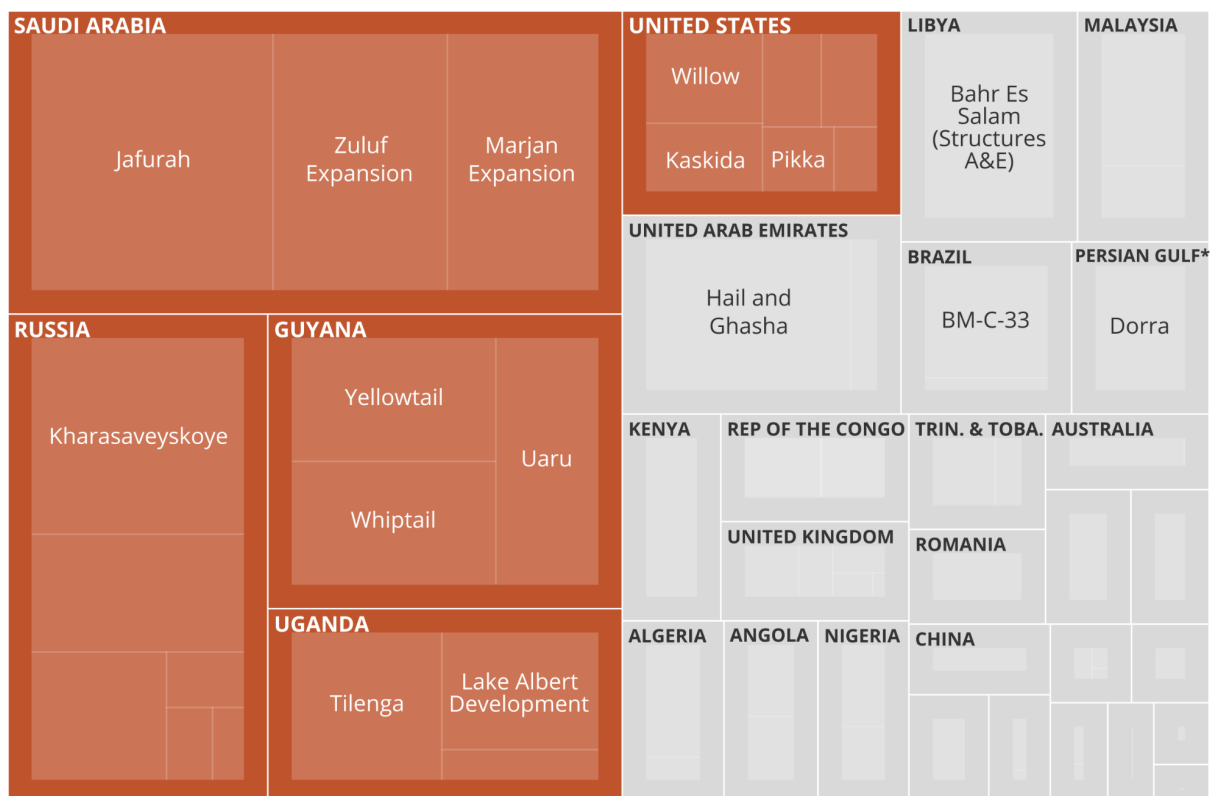
Potential methane emissions are concentrated in a handful of fields

Just ten oil and gas fields, located in Guyana, Libya, Russia, Saudi Arabia, United Arab Emirates, and Uganda, account for over half (1,196 kt) of all potential methane emissions identified in this analysis. ExxonMobil's Whiptail field, a Guayanese project discovered in 2021, reached its final investment decision in 2024. Whiptail, along with the Uaru and Yellowtail fields, make up the Stabroek block which is Exxon's largest buildout outside the Permian basin and has [transformed Guyana](#) into a major producer. Additionally, the Kharasaveyskoye field, located in Russia's arctic Yamal peninsula, is now projected to reach its production design capacity in 2026. This project is also associated with a pipeline in development, the [Power of Siberia 2](#), which is expected to transport gas originally destined for the EU market prior to the invasion of Ukraine. Similarly, the Tilenga field, which has [attracted controversy](#) due to its potential biodiversity impacts, is now reported to reach its production design capacity in 2026 as well.

Several of these major fields, including the Marjan Expansion, Bahr Es Salam, Yellowtail, and Uaru are located in countries that export oil and gas to the European Union. However, they are slated to reach their production design capacities before 2027, the year that exporting fields must meet the same monitoring, reporting, and repair standards as EU fields. The potent and fast-acting methane emissions from these fields will contribute to climate change for several years without significant international oversight during a critical period before the regulations come fully online.

Fields in just five countries account for more than half of potential methane analyzed

While 31 countries have fields in development, 58% of potential methane emissions come from Saudi Arabia, Guyana, Russia, Uganda, and the United States. Projects scaled by estimated methane emission potential.



Source: Global Methane Emitters Tracker 2025

* Dorra is in transnational waters in the Persian Gulf



In the meantime, there is still considerable progress to be made with respect to methane monitoring and management. Accurate measurement-based, asset-scale data remain elusive — the United Nations' Oil and Gas Methane Program 2.0 (OGMP 2.0), which seeks to become the gold-standard for monitoring, reporting, and verification, published data covering 28% of global oil and gas production but only accounted for [1.8% of total upstream methane emissions](#), even after marked improvements in

participating companies' activities over the past two years of the program. While new satellite methodologies enable operators to quickly find and make repairs, satellites cannot capture imagery everywhere at once, and some regions are [far more challenging](#) to monitor than others. Additionally, of the methane plumes reported to operators and governments by the UN's Methane Alert and Response System, [fewer than 2%](#) of notifications garnered a response the UN classified as "substantive" toward addressing the emissions.

Top operators of new methane sources withhold crucial data

Many of the new fields in development are operated by companies that have historically refused to publicly share information regarding their emissions in line with international standards. None of the top three operators with fields in development have submitted data to the OGMP 2.0, and two of these (Saudi Aramco and Gazprom) have no stated public intention to do so.

Emissions from the potential fields that operators have submitted to the OGMP 2.0 generally exceed reported company-wide emissions. This discrepancy could be due to a number of factors, including underreporting of assets to the OGMP 2.0 and companies not yet reaching the OGMP 2.0's highest levels of monitoring and reporting. For comparison, the emissions factors used in this analysis skew conservative: 0.82 kg per barrel of oil equivalent (BOE) in comparison to the Oil Climate Index plus Gas (OCI+) average across the dataset of 0.96 kg/BOE.

Additionally, OGMP 2.0 members are only required to set either intensity or absolute methane emissions reductions targets. Even companies meeting ambitious

intensity-based targets could still increase their net methane emissions through new extraction operations like the ones highlighted in this report. In summary, international efforts to monitor, report, and verify methane emissions leave room for operators to emit troubling amounts of methane into the atmosphere.

New fields could undermine international commitments to the Global Methane Pledge

The majority of the top twenty countries in terms of potential emissions, with the exception of Russia, Uganda, Iran, and Algeria, are signatories of the Global Methane Pledge (GMP), a voluntary commitment to slash methane emissions by 30% by 2030. As in the [previous year](#), the potential emissions from signatory countries are meaningful in comparison to these countries' current methane emissions: Saudi Arabia (15% of countrywide emissions which were 2,863 kt in 2024), Guyana (150% of countrywide emissions, which were 165 kt in 2024) according to the [International Energy Agency's \(IEA\) Methane Tracker](#). To meet their GMP commitments, these countries must greatly enhance their abatement protocols and reduce emissions from other sectors.

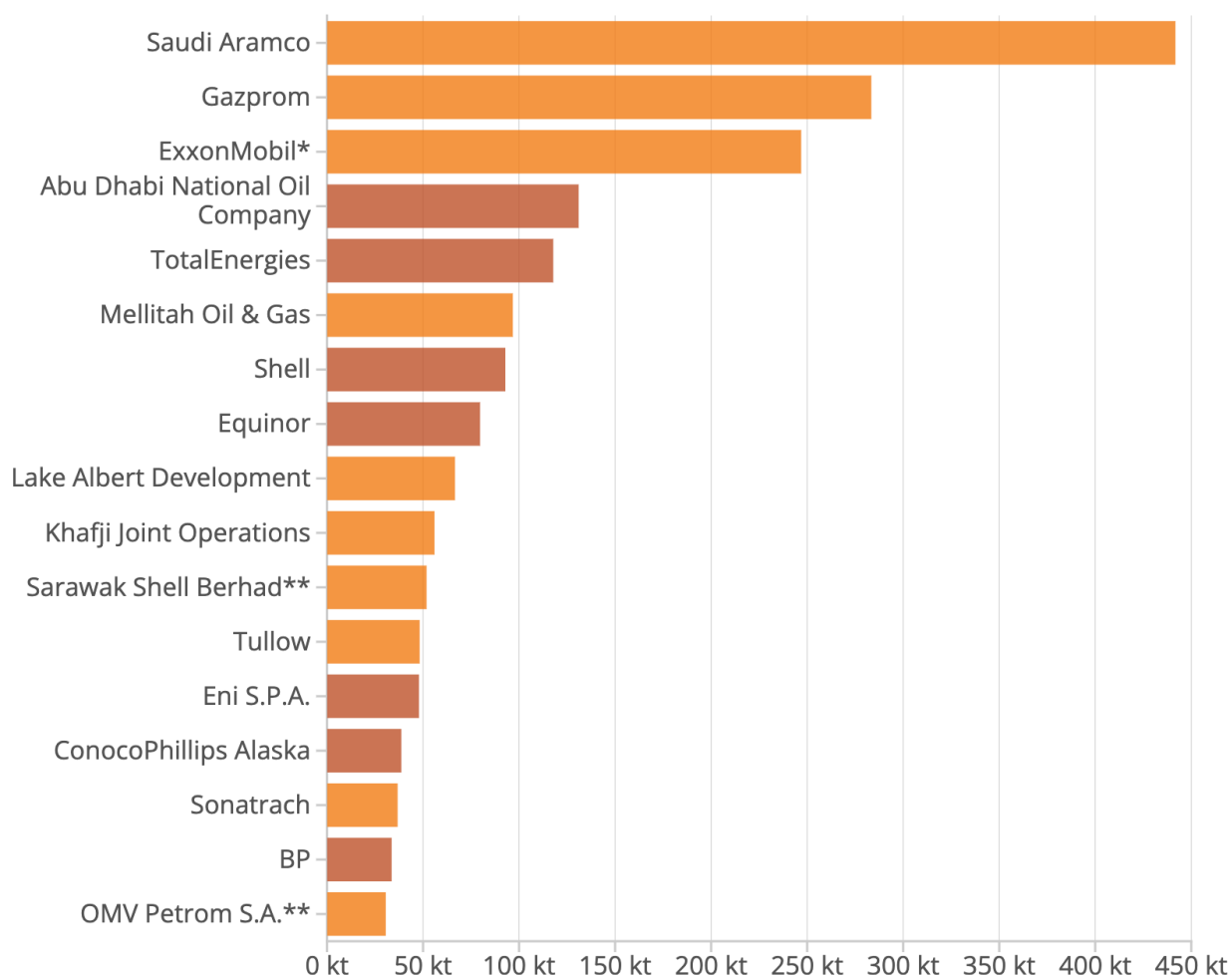
While the increase in potential methane emissions from United States fields (0.38%) is small in comparison to the country's overall methane emissions (35,297 kt in 2024), it is large in absolute terms, greater than any other GMP signatory besides Saudi Arabia and Guyana. The United States is seeking to expand liquid natural gas (LNG) exports to the EU [amidst declining Russian imports](#). However, policy changes under the Trump administration could [complicate U.S. exporters' compliance](#) with EU methane regulations. Such changes include [cutting the budgets](#) of federal agencies involved in disseminating [technical assistance](#) for methane mitigation worldwide, signaling support for [eliminating key incentives](#) for oil and gas methane management, and using

[“methane” as a keyword](#) for screening grant programs for elimination. In summary, regulatory and political uncertainty around U.S. oil and gas development raise the stakes for mitigation and phaseout efforts globally.

Top three operators of fields in development did not report data to a UN watchdog agency

The Oil and Gas Methane Program 2.0 is the UN's flagship monitoring, verification, and reporting program for the oil and gas industry, but it allows companies to opt out

Total potential emissions ■ reporting ■ non-reporting

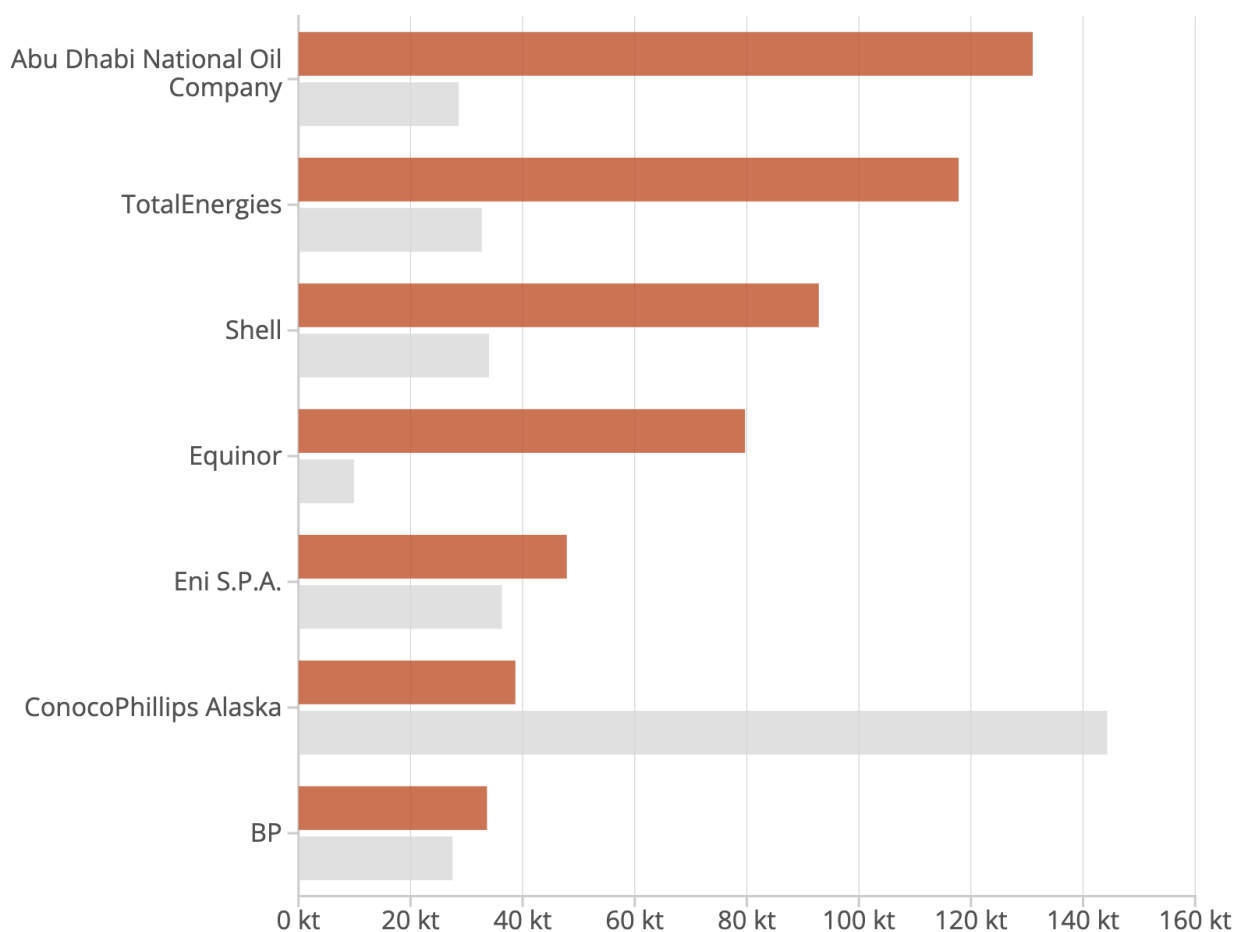


Starred operators joined the OGMP 2.0 after the latest report from the IMEO; double-starred operators are joint ventures between two OGMP 2.0 companies



For the top reporting operators, potential methane emissions from fields in development dwarf company-wide methane emissions

■ Potential emissions from fields in development
■ 2023 Company-wide methane emissions, as reported to OGMP 2.0



Source: Global Methane Emitters Tracker, Global Oil and Gas Extraction Tracker

ConocoPhillips Alaska "Companywide" bar represents data for all ConocoPhillips. Reasons for the disparity could include underreporting of assets to the Oil and Gas Methane Program 2.0 and/or companies applying coarse estimation methods.



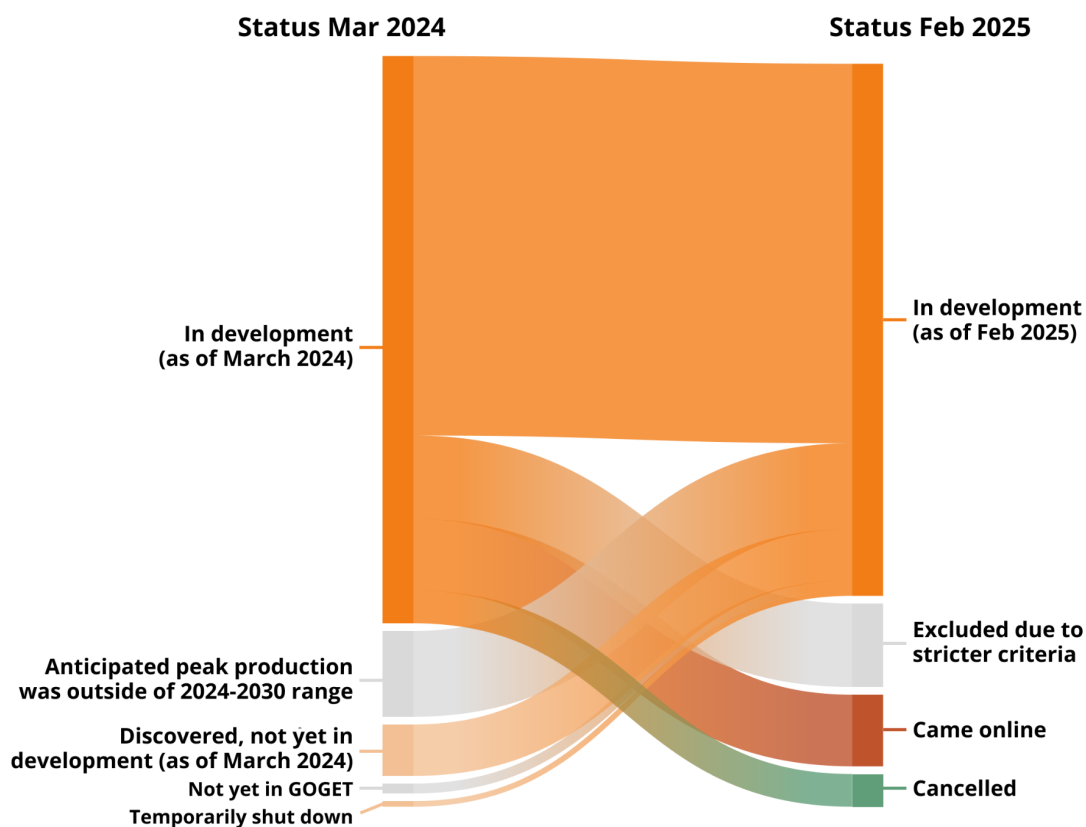
Oil and gas companies continue to invest in new methane-emitting infrastructure each year

GEM's 2025 [Global Oil and Gas Extraction Tracker update](#) confirms a troubling trend: Oil and gas companies are continuing to make investments in methane-emitting infrastructure. Despite global commitments to reduce methane, 13% of potential emissions identified in this year's analysis come from *new* fields in development, demonstrating that the industry continues to pursue new projects year after year.

Between March 2024 and February 2025, 304 kt of potential methane emissions were associated with projects that changed status from "in development" to "operating." Only 139 kt of potential emissions were associated with projects that were cancelled in the same intervening year. Approximately 283 kt of the emissions analyzed in this briefing were either new to GEM's Global Oil and Gas Extraction Tracker or were previously shut-in or only discovered as of 2024 and are now in development. Additionally, 354 kt were excluded from this year's updated analysis due to stricter inclusion criteria.

Global oil and gas operators continue to develop potential sources of methane emissions, with few project cancellations

Potential methane emissions from oil and gas fields in development, 2024-2025.



Source: Global Methane Emitters Tracker, Global Oil and Gas Extraction Tracker, Global Energy Monitor



Conclusion

New oil and gas extraction is both [unnecessary](#) for meeting global demand and endangers progress on slowing global climate change. Improvements made through mitigation — increasingly necessary under EU regulations and imperiled by the Trump administration — are undermined by new oil and gas extraction.

The year 2030 — used as a boundary condition for fields' inclusion in this brief — is an important yardstick for multiple global initiatives to manage methane emissions. Global Methane Pledge signatories have committed to reducing methane emissions by 30% by the end of the decade. Meeting the GMP is estimated to [reduce warming by 0.2°C](#) by 2050 and prevent 255,000 premature deaths. Additionally, the new EU methane regulations, which affect importers and involve enhanced leak detection and repair (LDAR) protocols, measurement-based reporting, bans on routine flaring and venting, and eventually compliance with a methane emission intensity standard, come into full effect in 2030.

New oil and gas fields in development are raising the stakes for mitigation efforts worldwide. These fields are coming online amidst a patchy monitoring and data transparency landscape, and most are reaching their peak production capacity during an uncertain time for global environmental commitments and before the EU methane regulations come into full effect. Even though monitoring technologies are improving and companies are making enhanced management commitments, the continued development of these fields unnecessarily risks global climate change mitigation efforts.

About the Global Methane Emitters Tracker

The Global Methane Emitters Tracker (GMET) provides estimates of fossil fuel emissions at oil, gas, and coal extraction sites; natural gas transmission pipelines; proposed projects and reserves; and attribution of remotely-sensed methane plumes.

As of the September 2024 data update, the tracker includes methane emissions estimates for coal extraction and gas pipelines and attributions of remotely-sensed methane plume observations worldwide. GMET also associates assets from GEM's Oil & Gas Extraction Tracker to the methane emissions estimates developed by Climate TRACE.

About Global Energy Monitor

Global Energy Monitor (GEM) develops and shares information in support of the worldwide movement for clean energy. By studying the evolving international energy landscape, creating databases, reports, and interactive tools that enhance understanding, GEM seeks to build an open guide to the world's energy system.

GEM data serves as a vital international reference point that is being used by agencies including: Intergovernmental Panel on Climate Change (IPCC), International Energy Agency (IEA), United Nations Environment Programme (UNEP), U.S. Treasury Department, and the World Bank. Furthermore, industry data providers such as Bloomberg Terminals and the Economist, and academic institutions like University of Oxford and Harvard University draw on this data.

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Methodology

The February 2025 version of GEM's [Global Oil and Gas Extraction Tracker](#) (GOGET) identifies fields currently in development, including data on field status and when fields are expected to reach peak production. Importantly, GOGET includes data on nine other fields in development which are expected to begin or reach peak production between 2025 and 2030. These were not included in this analysis because they do not report their production design capacity: Either the fields do not publicly report any production data at all or they provide a reserve figure which is incompatible with an annual emissions estimate. Per GOGET, the definition of an “in development” field is as follows:

“A company is planning to develop the project, as evidenced by one or more of the following criteria being reached: the company has applied for approval for commercial production (if needed in the jurisdiction), the project has reached the Final Investment Decision (FID), a final environmental impact statement has been published, and/or the drilling of development (not appraisal) wells and/or adding takeaway capacity (infrastructure such as pipelines, storage tanks, etc.) to enable commercial production has begun.” Fields where researchers could not find information on one of these categories were reverted to the “discovery” category. For details on which fields were reverted to the “discovery” category, [see the data supplement](#).

To estimate emissions, the production design capacity figures were multiplied against proxy emissions factors (“proxies”) identified in the latest publicly available version of OCI+ (as of June 4th, 2025). Specifically, we selected the OCI+ emissions factor for upstream methane intensity, in order to directly represent emissions from production, rather than from processing or transport. Proxy emissions factors were chosen for two reasons: 1) Broadly, OCI+ does not contain data on fields in development; 2) As detailed in the methodology for the [Global Methane Emitters Tracker](#), fields in the OCI+ database do not always share a definition with GOGET, though alignment is high for conventional fields, less so for unconventional fields in the U.S. and Canada; 3) Running the models underlying OCI+ requires inputs which are not generally publicly available for fields in development. Proxies were selected on a few bases. First, if the GOGET asset was an expansion of an existing asset in the OCI+ database (e.g. the GOGET unit “Zuluf Expansion” and the OCI+ unit “Zuluf”), the emissions factor for the existing OCI+ asset was used. Name matches were confirmed to be within ~5 km geographic proximity. If a GOGET asset did not match an OCI+ asset by name, it was matched manually by a combination of location, onshore/offshore, resource type (e.g. oil, gas, or condensate), and operator. Where multiple OCI+ assets were similar quality matches, the field with the lowest upstream methane intensity was chosen to ensure a conservative approach. The list of proxy emissions factors used can be found [in the data supplement](#). Note that some proxies changed emissions factors or were removed from the current (June 4th, 2025) publicly available version of OCI+ and the iteration public at the time of the previous Mixed Message briefing. For fields which were only included in the previous iteration, the OCI+ proxies were kept the same. Otherwise, all fields were updated to current emissions factors.

The fields produce a mix of oil, gas, and condensate. Volumes for natural gas were converted to barrels of oil equivalent (BOE) using the Statistical Review of World Energy

conversion factors. Barrels of condensate (or “oil and condensate”) were treated as BOE without further conversion. A note that for some fields with missing operator data, the parent company was used instead - refer the [Global Oil and Gas Extraction Tracker](#) data for complete ownership information.

There are two main limitations with respect to GEM’s approach. The first is that methane leaks are stochastic. Production doesn’t necessarily scale with methane emissions: Low-producing wells can emit disproportionate amounts of methane. The equipment- and component-level statistical models underlying OCI+ can match top-down estimates at the field scale. However, many of the key inputs used for running OCI+ (well counts, methane mole fraction, gas-to-oil ratio, and others) are often proprietary, particularly outside of the United States. It is reasonable to assume that many of the OCI+ fields GEM has chosen as proxies differ from the GOGET assets in development in these key dimensions. The second main limitation is that GEM chose the latest available emissions factors in OCI+ based on past operational practices — typically from 2022. As discussed above, due to OGMP 2.0 members’ improvements in monitoring, it is very possible that emissions factors across the oil and gas industry as a whole will improve over time.

More information on GEM’s methane related data and analyses can be found on the Global Methane Emitters Tracker (GMET) [landing page](#). GMET provides estimates of fossil fuel emissions at oil and gas and coal extraction sites, natural gas transmission pipelines, proposed projects and reserves, and attribution of remotely-sensed methane plumes. Data underlying this report can be [downloaded separately](#).

Unit name	Tons	Operator	Country	Anticipated year
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	methane	(consolidated)		field reaches production design capacity
Jafurah	188073.11	Saudi Aramco	Saudi Arabia	2030
Zuluf Expansion	136251.54	Saudi Aramco	Saudi Arabia	2027
Kharasaveyskoye	133649.90	Gazprom	Russia	2026
Marjan Expansion	117431.23	Saudi Aramco	Saudi Arabia	2025
Hail and Ghasha	116368.08	Abu Dhabi National Oil Company	United Arab Emirates	2030
Bahr Es Salam (Structures A&E)	96747.25	Mellitah Oil & Gas	Libya	2026
Yellowtail	82294.50	ExxonMobil	Guyana	2025
Whiptail	82294.50	ExxonMobil	Guyana	2027
Uaru	82294.50	ExxonMobil	Guyana	2026
Kamennomysskoye- Sea	80651.94	Gazprom	Russia	2027
Tilenga	80062.84	TotalEnergies	Uganda	2026
Lake Albert Development	66635.31	Lake Albert Development	Uganda	2025
BM-C-33	62793.14	Equinor	Brazil	2028
Dorra	55946.11	Khafji Joint Operations*	Kuwait-Saudi Arabia-Iran	2029
Yuzhno-Kirinskoye	55319.55	Gazprom	Russia	2027
Rosmari-Marjoram	51844.00	Sarawak Shell Berhad	Malaysia	2026
South Lokichar	48233.67	Tullow	Kenya	2026

Phase 1				
Willow	38703.75	ConocoPhillips Alaska	United States	2029
Ahnet	36774.52	Sonatrach	Algeria	2026
Neptun Deep	30591.60	OMV Petrom S.A.	Romania	2027

*A partnership between Saudi Aramco Gulf Operations Company (AGOC) and Kuwait Gulf Oil Company (KGO), a subsidiary of Kuwait Petroleum Corporation

Operator	Tons methane	# fields	Reported data to 2024 OGMP 2.0 report?	2023 Company-wide methane emissions, as reported to OGMP 2.0 (metric tons)	OGMP 2.0 Target type
Saudi Aramco	441755.88	3	No		
Gazprom	283406.62	4	No		
ExxonMobil	246883.49	3	Joined after 2024 report		
Abu Dhabi National Oil Company	131020.20	2	Yes	28,600	Intensity - 0.15% as a percentage of sales gas by 2025
TotalEnergies	117800.38	4	Yes	32,700	Absolute reduction - 50% from operated assets by 2025 from 2020
Mellitah Oil & Gas	96747.25	1	No		

Shell	92843.88	5	Yes	34,000	Intensity - 0.20% by 2025 as a percentage of marketed gas
Equinor	79686.50	2	Yes	9,900	Intensity - 0.02% - maximum amount of annual emissions as a percentage of marketed gas
Lake Albert Development	66635.31	1	JV (mixed membership)		
Khafji Joint Operations	55946.11	1	No, and neither parent		
Sarawak Shell Berhad	51844.00	1	JV, both members		
Tullow	48233.67	1	JV (mixed membership)		
Eni S.P.A.	47876.80	2	Yes	36,300	Intensity - 0.2% maximum amount of annual emissions by 2025 as a percentage of marketed gas
ConocoPhillips Alaska	38703.75	1	Yes	144,300 (all ConocoPhillips)	Intensity - 2.7 kg CO ₂ e methane per BOE
Sonatrach	36774.52	1	No		

					0.2% intensity - methane emissions based on measurement in line with the bp methane measurement hierarchy as a percentage of marketed gas
BP	33645.55	3	Yes	27,500	
OMV Petrom S.A.	30591.60	1	JV, both members		
Woodside Petroleum Ltd.	27174.38	1	Joined after 2024 report		
Midland Oil Company	24828.41	1	No		