

Briefing · 11 November 2022

Analysis of US methane & fossil fuel announcements at COP27

Key points:

- The proposed 87% reduction in methane emissions from oil and gas by 2030 in the US Methane Reduction Action Plan is more ambitious than the IEA and the average of IPCC scenarios to limit warming to 1.5°C
- However, US methane emissions from the oil and gas sector are more than double those in the US government's own official figures, and are still rising, according to Climate TRACE.
- The Joint Declaration from Energy Importers and Exporters on Reducing Greenhouse Gas Emissions from Fossil Fuels aims “to minimise flaring, methane, and CO₂ emissions across the fossil energy value chain to the fullest extent practicable.”
- Limiting warming to 1.5°C requires a rapid reduction in fossil fuel use as well as in methane and supply chain emissions.
- However, the US accounts for 41% of the world's LNG capacity that is currently under development (either proposed or in construction). US gas production is forecast to increase by 9% between 2021–2030, but to align with the IEA Net Zero Emissions scenario, gas production would need to reduce by 25% over this period.

Importance of methane reduction

- Methane is the second largest driver of climate change after CO₂, contributing around a quarter of the 1.1°C of warming the world has experienced since pre-industrial times.^{1,2}
- Methane remains in the atmosphere for a much shorter time than CO₂, but is 82.5 times more powerful over a 20 year period, and 28 times over 100 years.^{3,4}
- Global methane emissions are growing at historic rates and are currently at an all-time high. A surge in the last 20 years has led to the highest concentration of atmospheric methane since NOAA began measuring it in 1984, and last year saw the largest year-on-year increase on record.⁵
- Cutting human-caused methane emissions is one of the most cost-effective ways to rapidly reduce the rate of warming and limit temperature rise to 1.5°C.⁶

¹ https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf

² <https://iopscience.iop.org/article/10.1088/1748-9326/ab9ed2>

³ https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter07.pdf Table 7.15

⁴ <https://essd.copernicus.org/articles/12/1561/2020/>

⁵ https://gml.noaa.gov/ccgg/trends_ch4/

⁶ https://wedocs.unep.org/bitstream/handle/20.500.11822/35917/GMA_ES.pdf

Ambitious domestic oil and gas methane reduction

- The White House announcement today committed to strengthening proposed domestic methane standards in the oil and gas sector “that will reduce harmful emissions and energy waste from covered sources by 87% below 2005 levels in 2030.”⁷
- According to the EPA, US methane emissions from the energy sector dropped by 13% from 2005–2020, but today’s announcement would still represent an ambition to reduce emissions by 85% from 2020 levels.⁸
- This would significantly exceed the average methane emission reductions in IPCC 1.5°C pathways (34% by 2030),⁹ and the IEA’s Net Zero Emissions scenario (75% by 2030).¹⁰

US oil and gas methane emissions more than double official figures

- Officially-reported methane emissions in the US are significantly underestimated
- According to the latest official US data, total reported methane emissions from the oil and gas sector in 2020 were 212 million tonnes of CO2 equivalent.¹¹
- Our analysis of data released this week from Climate TRACE – which is sourced independently and primarily based on direct observations of activity – suggests oil and gas production actually emitted 17.4 million tonnes of methane, or 519 million tonnes of CO2 equivalent, more than double the official figure.¹²
- Similarly, US EPA data show US methane emissions from oil and gas fell by 2% between 2015–2020, whereas Climate TRACE data suggest they actually rose by 34% over the same period.¹³
- If the 87% reduction is achieved on actual emissions, as measured by Climate TRACE, this would have a significant impact. However, if measurement and reporting remain weak and inaccurate, claimed reductions may have little relationship with real-world methane emissions.

US expansion of gas production and LNG exports threatens global climate targets

- The US also launched a Joint Declaration from Energy Importers and Exporters on Reducing Greenhouse Gas Emissions from Fossil Fuels to “minimise flaring, methane, and CO2 emissions across the fossil energy value chain to the fullest extent practicable.”¹⁴

⁷ <https://www.whitehouse.gov/briefing-room/statements-releases/2022/11/11/fact-sheet-president-biden-announces-new-initiatives-at-cop27-to-strengthen-u-s-leadership-in-tackling-climate-change/>

⁸ <https://cfpub.epa.gov/ghgdata/inventoryexplorer/#energy/entiresector/allgas/gas/all>

⁹ https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_SPM.pdf C.1.2

¹⁰ <https://www.iea.org/fuels-and-technologies/methane-abatement>

¹¹ <https://cfpub.epa.gov/ghgdata/inventoryexplorer/#energy/naturalgasandpetroleumsystems/allgas/gas/all>

¹² <https://climatetrace.org/downloads> conversion from CH4 to CO2e using GWP100 of 29.8, from IPCC AR6 WG1 Table 7.15

¹³ <https://cfpub.epa.gov/ghgdata/inventoryexplorer/#energy/naturalgasandpetroleumsystems/allgas/gas/all>

¹⁴ <https://www.whitehouse.gov/briefing-room/statements-releases/2022/11/11/fact-sheet-president-biden-announces-new-initiatives-at-cop27-to-strengthen-u-s-leadership-in-tackling-climate-change/>

- Cutting methane and supply chain emissions alone is not sufficient to achieve the Paris Agreement goals. Feasible IPCC scenarios that limit warming to 1.5°C require rapid and immediate reductions in the use of oil and natural gas.¹⁵
- The US is currently on course to massively expand both gas production and LNG exports, both of which are incompatible with limiting warming to 1.5°C.
- The US accounts for 41% of the world's LNG capacity that is currently under development (either proposed or in construction), at 319.1 million tonnes a year.¹⁶
- This week, Climate Action Tracker (CAT) found that LNG expansion plans will seriously compromise meeting the 1.5°C limit:¹⁷
 - It found that LNG capacity, both under construction and planned, could, by 2030, increase emissions by over 1.9 GtCO₂e a year above emission levels consistent with the IEA's Net Zero scenario.
 - Existing capacity (as of 2021) already exceeds that laid out in the IEA Net Zero scenario for 2030.
 - Between 2020 and 2050, cumulative emissions from LNG could be over 40 GtCO₂ higher, equal to around 10% of the remaining carbon budget.
 - In 2030, oversupply could reach 500Mt LNG, almost five times the EU's imports of fossil fuel gas from Russia in 2021, and over double Russia's total exports.
- The US EIA forecasts that US gas production will increase by 9% between 2021-2030, but to align with the IEA Net Zero scenario, gas production would need to fall by 25% over this period.^{18,19}

¹⁵ <https://www.iisd.org/system/files/2022-06/ipcc-pathways-paris-aligned-policies.pdf>

¹⁶ <https://globalenergymonitor.org/projects/global-gas-infrastructure-tracker/>

¹⁷ <https://climateactiontracker.org/publications/massive-gas-expansion-risks-overtaking-positive-climate-policies/>

¹⁸ <https://www.eia.gov/outlooks/aeo/data/browser/#/?id=13-AEO2022®ion=0-0&cases=ref2022&start=2020&end=2050&f=A&linechart=&ctype=linechart&chartindexed=0&sourcekey=0>

¹⁹ <https://iea.blob.core.windows.net/assets/830fe099-5530-48f2-a7c1-11f35d510983/WorldEnergyOutlook2022.pdf> Figure 8.5 - North American gas supply change in the NZE scenario