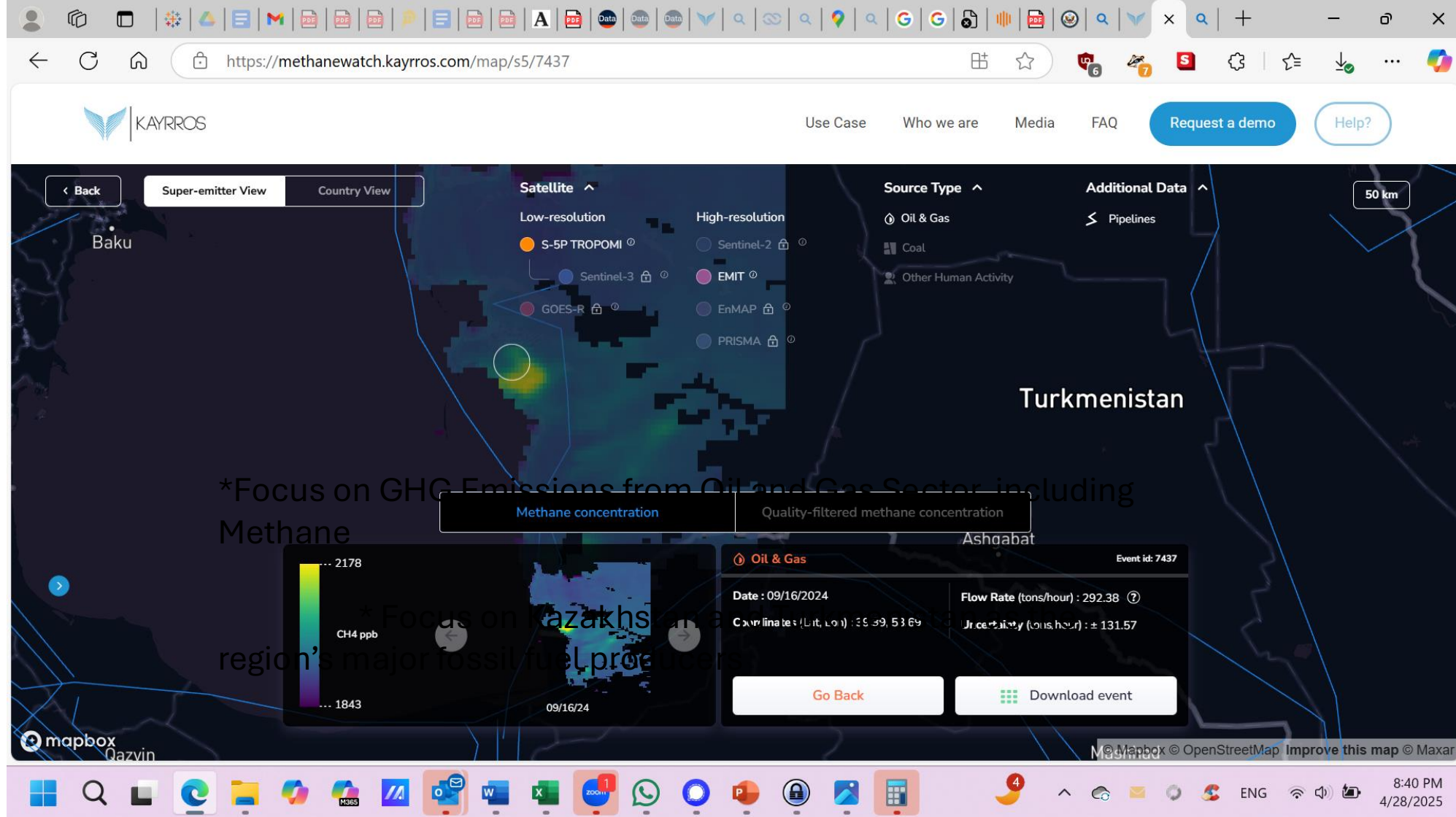
The background image shows an oil pumpjack in a flat, arid landscape. The pumpjack is white with a blue and yellow arm. In the distance, there is a small white building and a larger building with a red roof. The ground is dry and sandy, with some puddles in the foreground. The sky is overcast.

***Extractive Industries and Sustainability
in Central Asia: Looking to the Future***

**Kate Watters
Executive Director, Crude Accountability**

April 29, 2025



Focus on GHG Emissions from Kazakhstan and Turkmenistan Oil and Gas Sector, including Methane



Energy Sector as a Contributor to GHG Emissions

1. *Commitments to Relevant Climate Negotiations, including Global Methane Pledge*

Both Kazakhstan and Turkmenistan Have Joined the Global Methane Pledge

Kazakhstan has pledged to reduce GHG emissions and specifically announced it would strive to complete regulations to reduce non-emergency methane venting and promote leak detection and repair in the oil and gas sector by the 2024 UN Climate Change Conference (COP 30).

Turkmenistan also signed the pledge, to reduce methane emissions by 30% from 2020 to 2030.

2. *Bilateral Negotiations and Work to Improve Emissions*

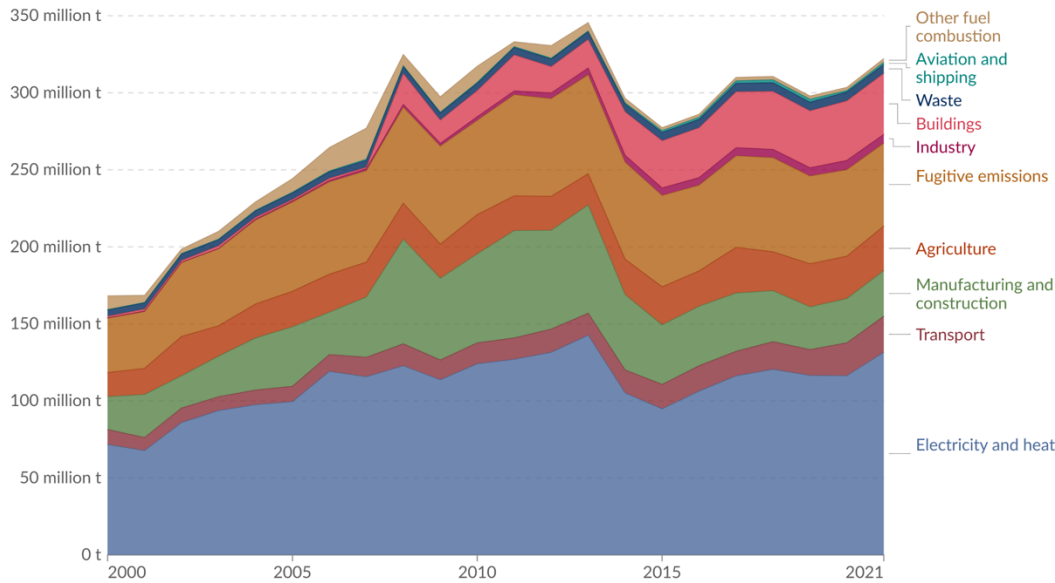
Both countries have been working with the US, among others, to reduce methane and other GHG emissions. It is unclear what the extent of the impact will be on these efforts with the US' massive withdrawal of foreign assistance, but it is clear there will be one.

GHG Emissions by Sector

Greenhouse gas emissions by sector, Kazakhstan, 2000 to 2021

Our World in Data

Greenhouse gas emissions¹ are measured in tonnes of carbon dioxide-equivalents² over a 100-year timescale. Land-use change emissions are not included.



Data source: Climate Watch (2024)

OurWorldinData.org/co2-and-greenhouse-gas-emissions | CC BY

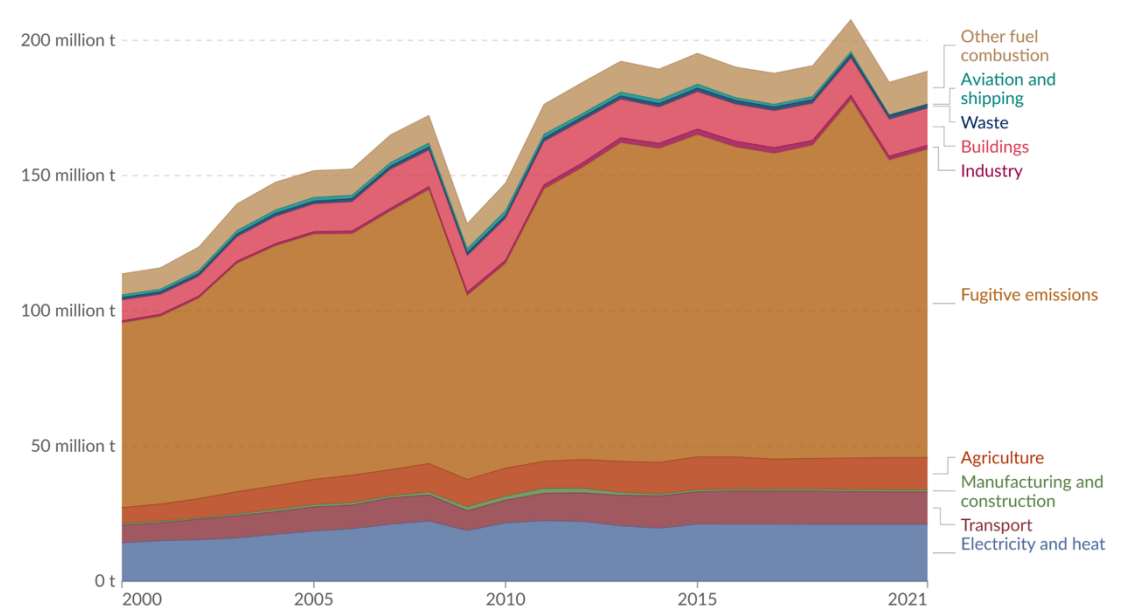
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Greenhouse gas emissions by sector, Turkmenistan, 2000 to 2021

Our World in Data

Greenhouse gas emissions¹ are measured in tonnes of carbon dioxide-equivalents² over a 100-year timescale. Land-use change emissions are not included.



Data source: Climate Watch (2024)

OurWorldinData.org/co2-and-greenhouse-gas-emissions | CC BY

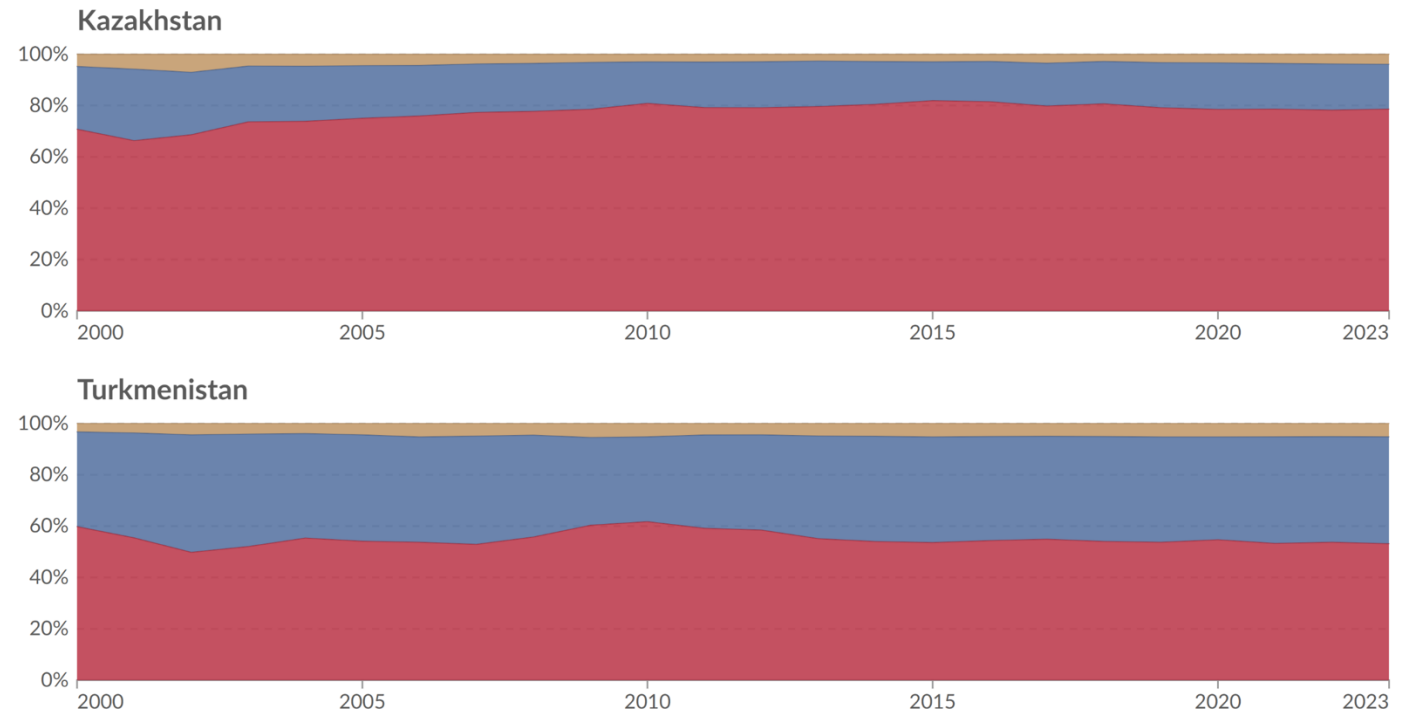
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Greenhouse gas emissions by gas, 2000 to 2023

Greenhouse gas emissions¹ from all sources, including agriculture and land-use change. They are measured in tonnes of carbon dioxide-equivalents² over a 100-year timescale.

■ Carbon dioxide (CO₂) ■ Methane (CH₄) ■ Nitrous oxide (N₂O)



Data source: Jones et al. (2024)

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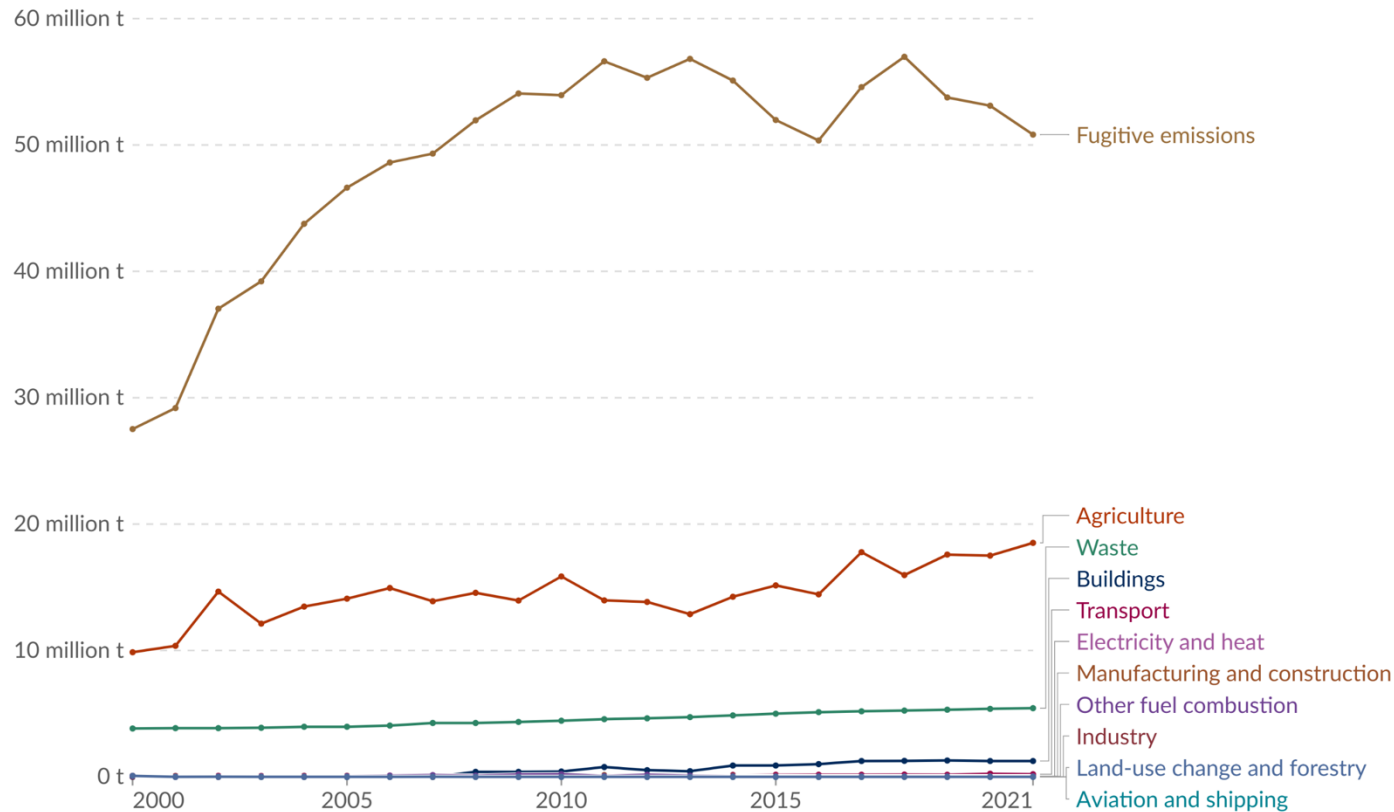
Climate and GHG emissions Kazakhstan and Turkmenistan

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Methane emissions by sector, Kazakhstan

Methane (CH₄) emissions are measured in tonnes of carbon dioxide-equivalents¹.



Data source: Climate Watch (2024)

OurWorldinData.org/co2-and-greenhouse-gas-emissions | CC BY

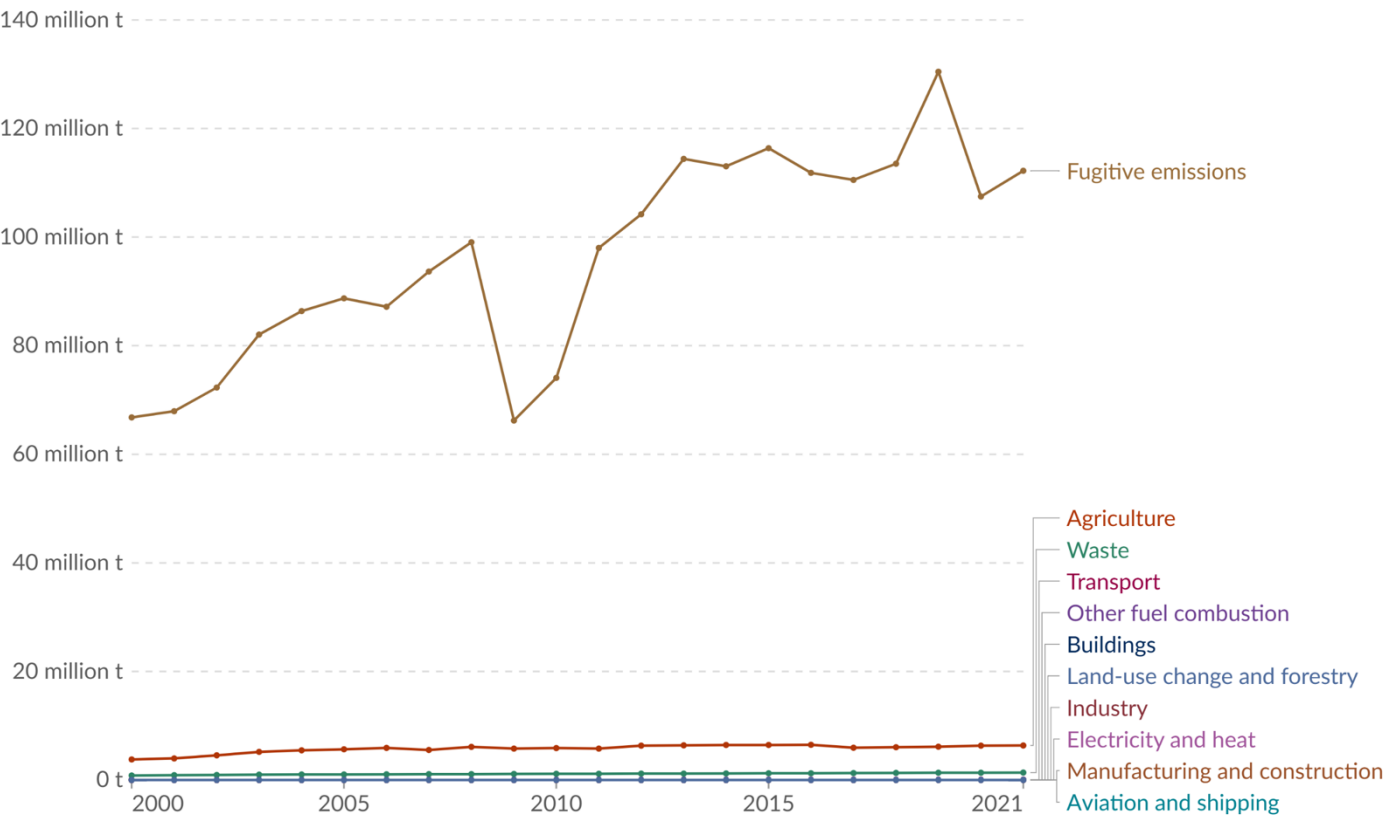
Methane Emissions by Sector, Kazakhstan

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Methane emissions by sector, Turkmenistan

Methane (CH₄) emissions are measured in tonnes of carbon dioxide-equivalents¹.

Methane Emissions by Sector Turkmenistan



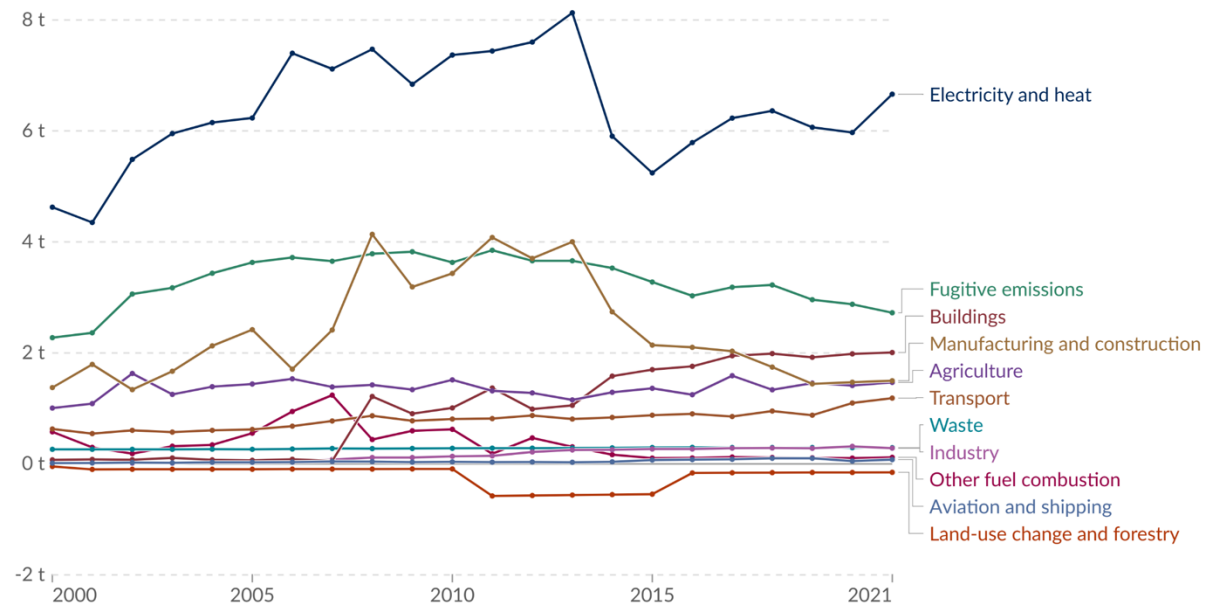
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Per capita greenhouse gas emissions by sector, Kazakhstan, 2000 to 2021

Per capita greenhouse gas emissions¹ are measured in tonnes of carbon dioxide-equivalents² per person per year.



Data source: Climate Watch (2024); Population based on various sources (2024)

Note: Land-use change emissions can be negative.

OurWorldinData.org/co2-and-greenhouse-gas-emissions | CC BY

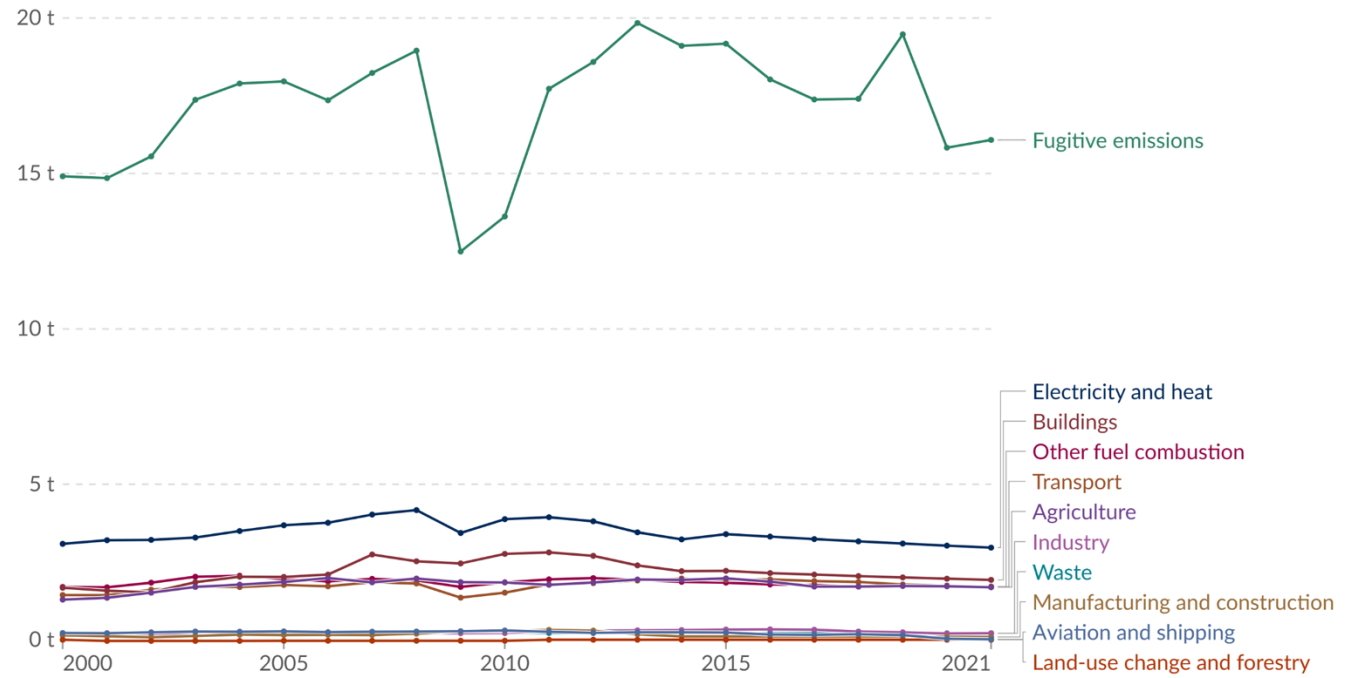
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Per Capita Greenhouse Gas Emissions, Kazakhstan

Per capita greenhouse gas emissions by sector, Turkmenistan, 2000 to 2021

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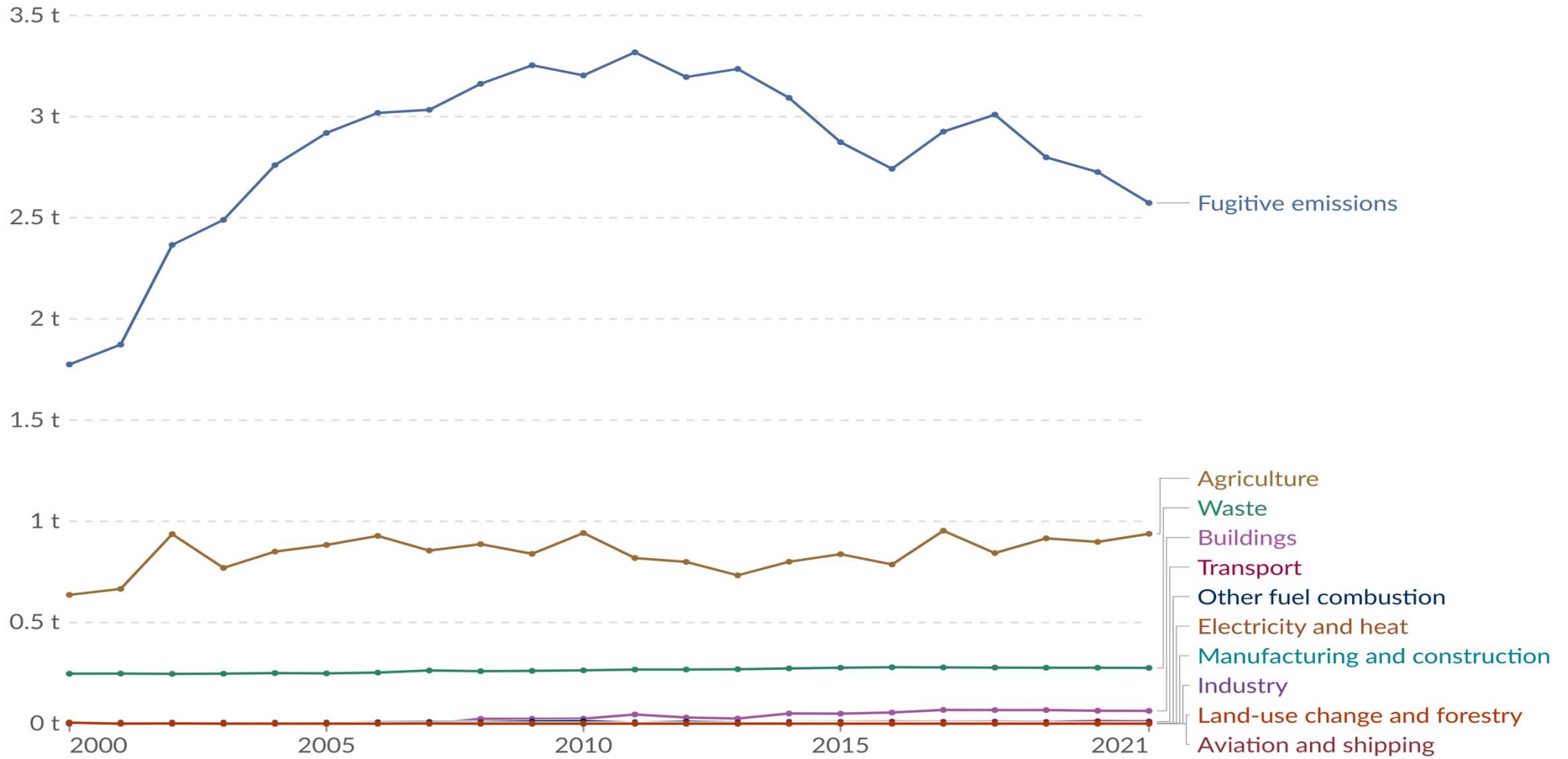
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Per Capita Greenhouse Gas Emissions, Turkmenistan

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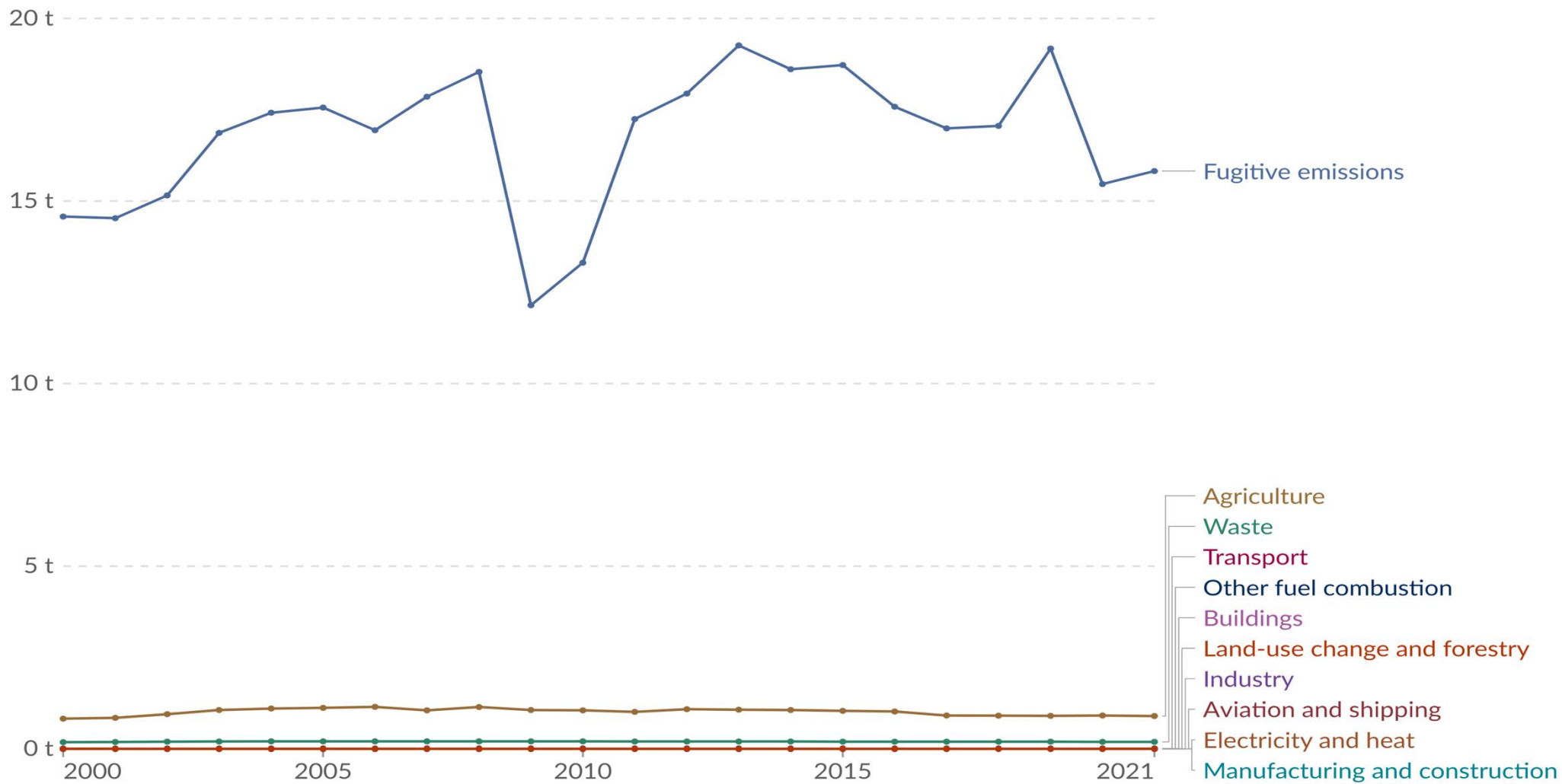
Per capita methane emissions by sector, Kazakhstan, 2000 to 2021



Data source: Climate Watch (2024); Population based on various sources (2024)

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Per capita methane emissions by sector, Turkmenistan, 2000 to 2021



Data source: Climate Watch (2024); Population based on various sources (2024)

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Crude Accountability is monitoring GHG emissions at 4 fossil fuel sites in Kazakhstan and Turkmenistan.

Sites include:

Tengiz and Kokzhide in Kazakhstan



Crude Accountability and Omanos Analytics Analyze Flaring Hot Spots in Kazakhstan, 2024

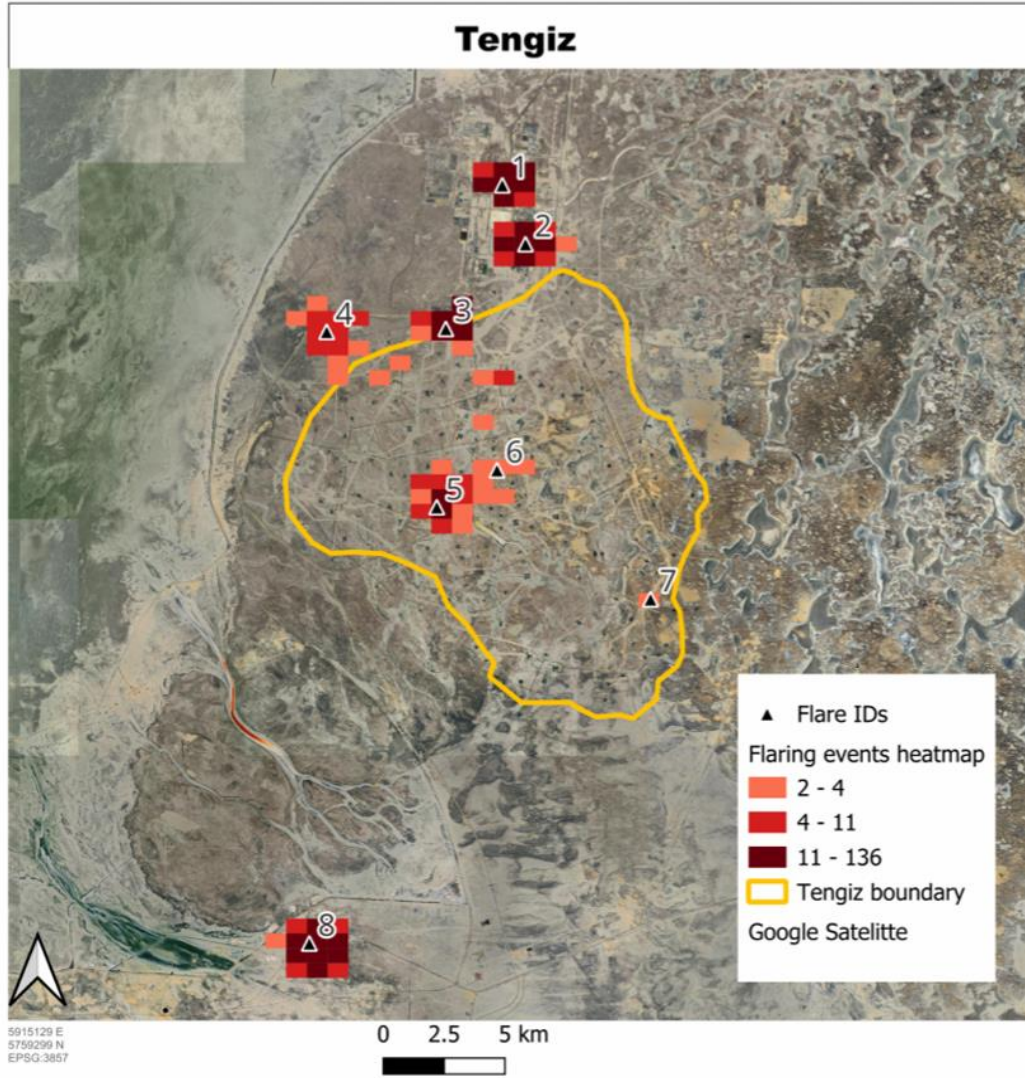


Figure 9: Gas flare events detected in VIIRS Nightfire plotted as a heatmap to show gas flare hotspots within the Tengiz oil and gas field.

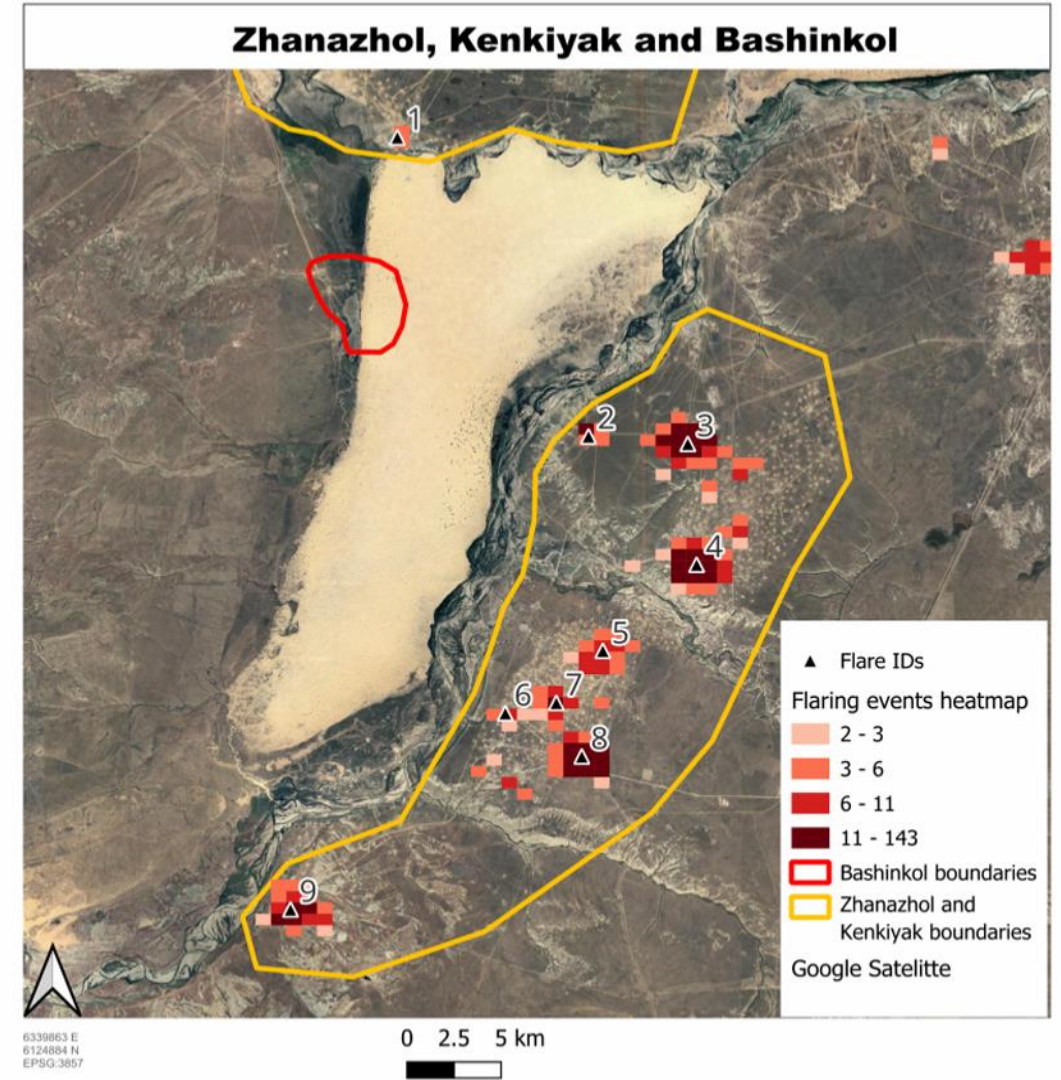


Figure 3: Gas flare events detected in VIIRS Nightfire plotted as a heatmap to show gas flare hotspots within the Kokzhide oil and gas fields, Kenkiyak, Zhanazhol, and Bashinkol.

Crude Accountability and Omanos Analytics Analyze Flaring Hotspots in Turkmenistan, 2024

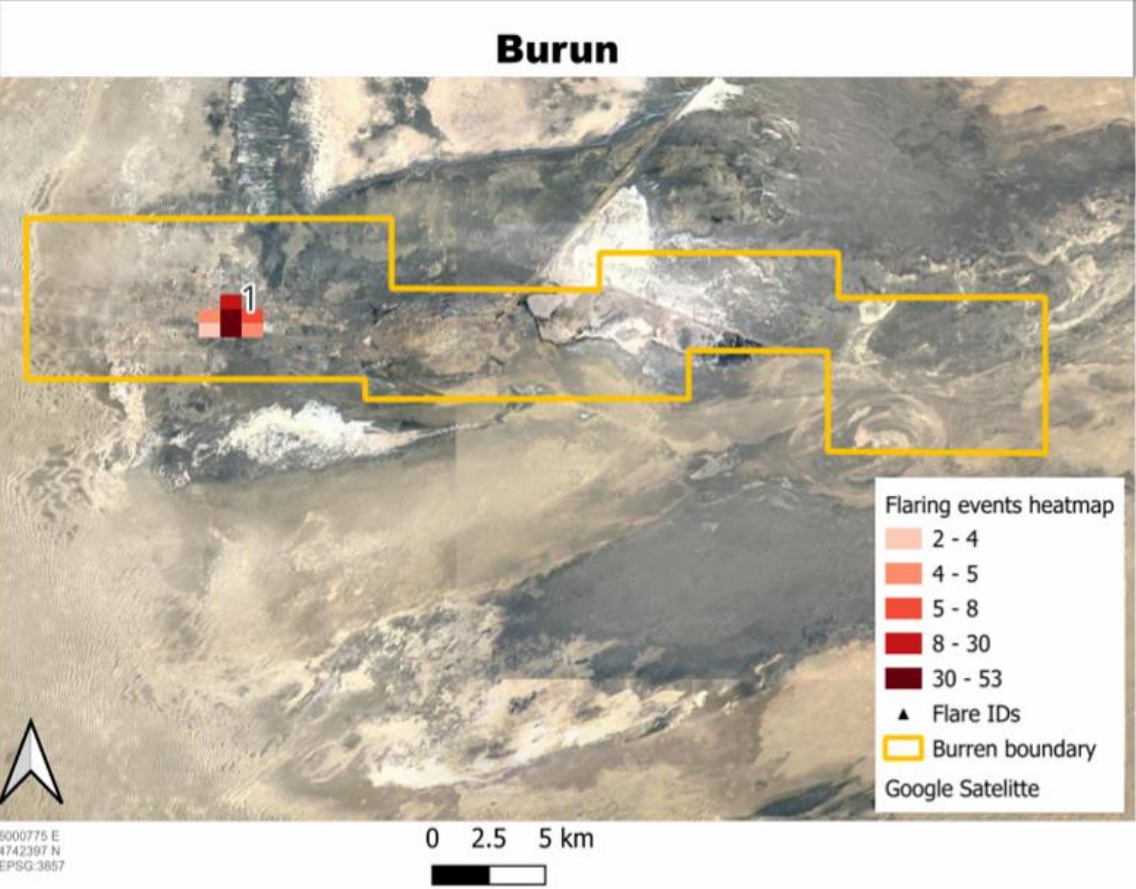


Figure 1: Gas flare events detected in VIIRS Nightfire plotted as a heatmap to show gas flare hotspots within the Burun oil and gas field.

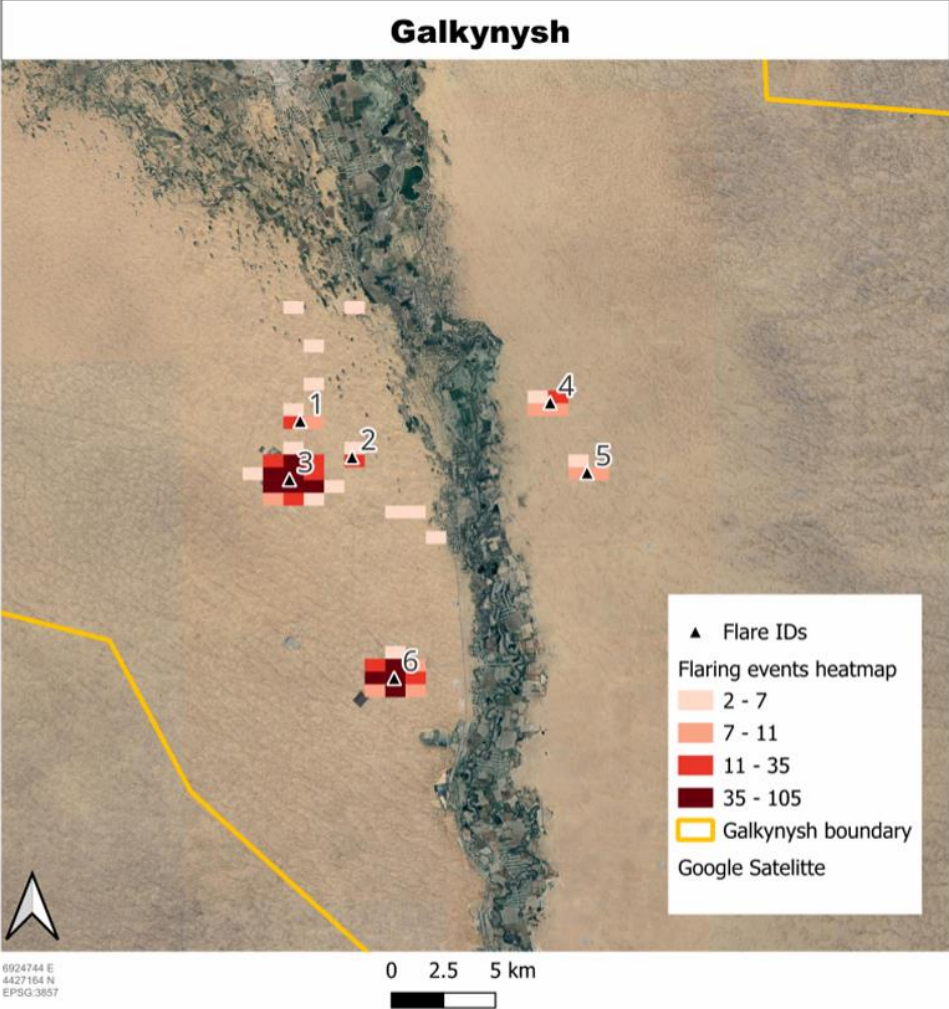


Figure 14: Gas flare events detected in VIIRS Nightfire plotted as a heatmap to show gas flare hotspots within the Galkynysh oil and gas field.

Future Prospects

- Climate Action Tracker labels Kazakhstan as “insufficient” in its efforts to meet climate goals. (The US also receives a rating of “insufficient.”)
- Climate Action Tracker has no data for Turkmenistan
- 54% of domestic energy consumption in Kazakhstan is from oil followed by coal and then natural gas (2022 figures from IEA)
- Renewables account for 11.8% of electricity generation (2022 figure from IEA)
- 89% of domestic energy consumption in Turkmenistan is from natural gas, followed by oil (2022 figures from IEA)
- Virtually no renewables in Turkmenistan as of 2022 (IEA)

Future Prospects

- With expansion of major oil and gas fields throughout the region and major international oil and gas companies pivoting away from promises to engage more in renewables, it looks as though for the short- to mid-term fossil fuels will continue to develop in Kazakhstan and Turkmenistan.
- The question is whether renewables and green energy can develop alongside the more traditional sources before more irreparable damage is done.

CRUDE ACCOUNTABILITY

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