

# EU backing down from real action on coal mine methane

In the EU, coal emits more methane than oil and gas combined, even though the industry's emissions are avoidable. Proven technologies could halve methane emissions, but pressure from Poland could weaken potential emission cuts in the EU Methane Regulation by six times.

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## About

This report analyses the impact of coal mine methane (CMM) emissions and the potential for emission abatement in the EU in context of the Global Methane Pledge and the upcoming EU Methane Regulation.

# EU Methane Regulation risks giving coal mines a free pass

Coal mines are the low-hanging fruit of methane abatement, but the EU Methane Regulation risks setting a global precedent by letting them off the hook.

This year, the EU methane regulation is expected to be agreed during trilogue negotiations, but the current proposals set forward by the Polish government risk undermining the emissions reductions from coal mines, and ultimately undermining the EU's global position as a champion for ambitious methane reductions.

## 01 Coal mines are a major source of EU's methane emissions

Coal mines emit more methane in the EU than the oil and gas sectors combined, with the same impact as the annual CO<sub>2</sub> emissions from 43 million cars. Concerningly, these values are likely an underestimate, with the IEA calculating that EU CMM emissions are 24% higher than officially reported. Methane is a fast-acting greenhouse gas and traps 82.5 times more heat than carbon dioxide over 20 years, accelerating short-term global heating. It is therefore crucial to secure a rapid reduction of 75% by 2030.

## 02 Poland could lead the EU's methane reductions

Poland could reduce the EU's methane emissions from the fossil fuel

industry by 15%, and it would cost less than [one euro per kilogram](#) of methane. By using readily available technologies, the IEA estimates that Poland alone could abate up to 414 thousand tonnes of methane per year from its 2022 emissions of 716 thousand tonnes. The [IEA estimates](#) that Poland's coal mines can abate 21% of emissions with a total annual profit of €31 million.

## 03 EU Methane Regulation on coal mines lacks ambition

The Methane Regulation originally proposed an emissions reduction from coal mines of 70% until 2040. However, the text currently agreed on by both the EU Parliament and Council has [already weakened](#) these potential reductions to 34%. Coal operators will be only required to implement the “easiest” solutions to achieve the proposed methane thresholds, such as improving drainage efficiency and reducing losses.

## 04 Poland pressures the EU to weaken the Regulation sixfold

Poland continues to pressure the EU to weaken potential emission cuts even further, despite the fact that the current text does not result in the early closure of coal mines. Ember's analysis finds that Poland's most recent position would result in almost no improvements to the current operations of active mines until 2031, and minor improvements thereafter. At best, cumulative emissions of Poland's active mines would be reduced by 12% by 2040 compared to business as usual.

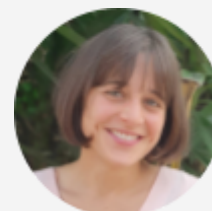
The European Union was one of the leaders of the Global Methane Pledge, but it now risks agreeing a methane regulation that would be unaligned with the IEA's Net Zero roadmap, which requires a 75% cut in energy sector methane by 2030. As one of the architects of the Paris Agreement, the EU needs to ensure that its domestic methane regulations are, at the very least, compatible with a 1.5 degree trajectory.

Coal mines continue to be allowed to emit massive amounts of methane to the air even though there are proven solutions to prevent it. The emissions are easily avoidable, and it comes at a fraction of the cost of coal industry profits. The European Union was one of the leaders of the Global Methane Pledge, it can't now set a global precedent in letting coal mines off the hook.

Poland is losing out on a huge opportunity. Weakening the EU's Methane regulations is a missed opportunity for Poland to cost-effectively achieve some of the fastest gains in the effort to combat global warming, and place the EU's coal sector as a world leader in innovative methane measurement and mitigation.

**Dr. Sabina Assan**

Coal Mine Analyst, Ember



Ember's analysis truthfully recognizes that Poland continues to hamper the EU efforts to implement the methane emission cuts. The current position of our government translates into a 12% reduction from thermal coal mines by 2040. That is simply not good - we can and have to do more.

The methane intensity thresholds are a good instrument incentivising closure of the most polluting assets and investments where needed, but the climate benefits arising from the implementation need to be noticeable. Having a weak policy intervention with too mild and late targets risks Poland hijacking the EU-wide ambition.

Over the last decades, the social and environmental costs of methane emissions have not been reflected in either Poland's environmental fee system or the EU ETS emissions pricing mechanism. We recommend raising the environmental fee in line with the polluter pays principle, which currently stands at just 0.09 euro per ton of methane and its annual updates are barely noticeable.

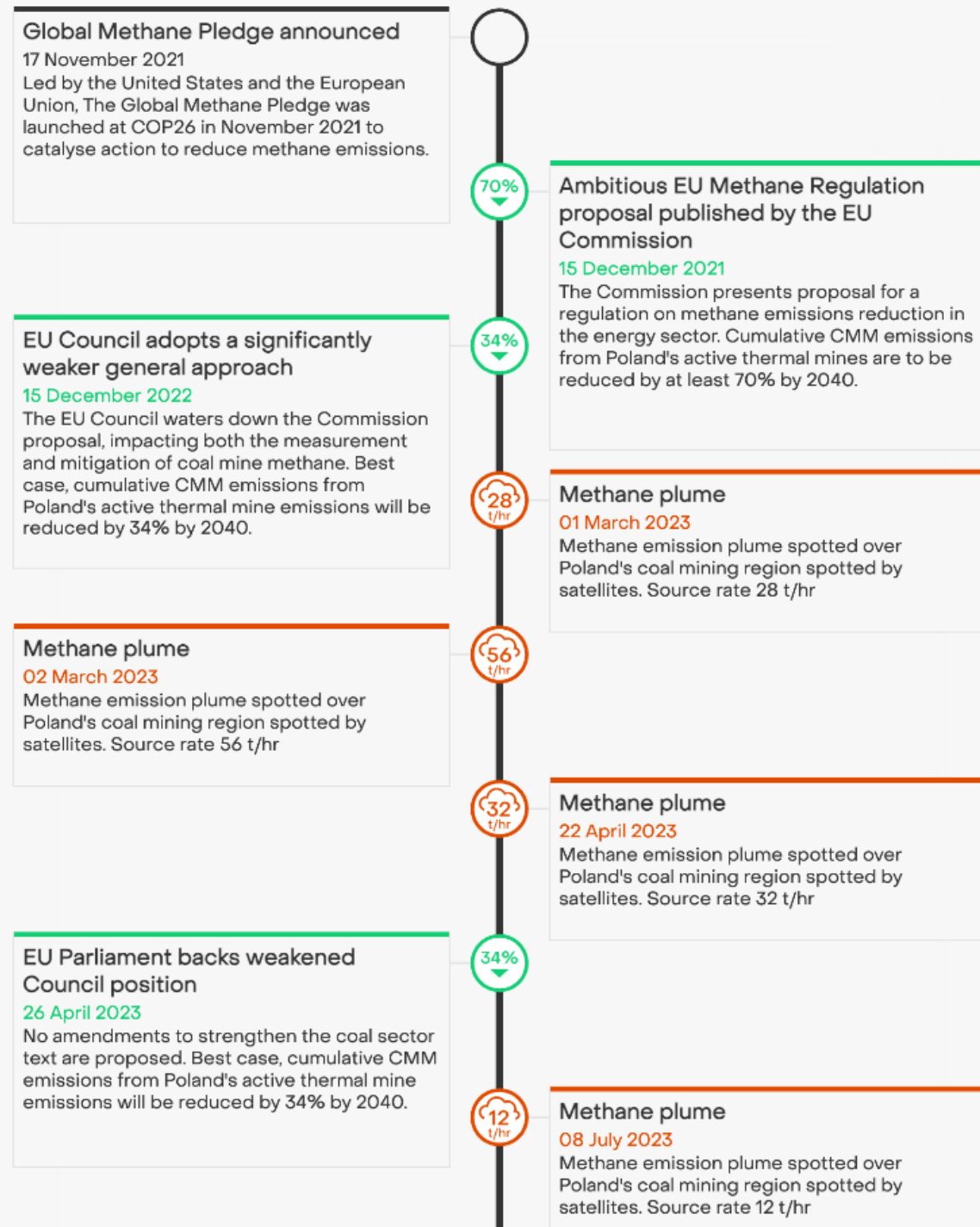
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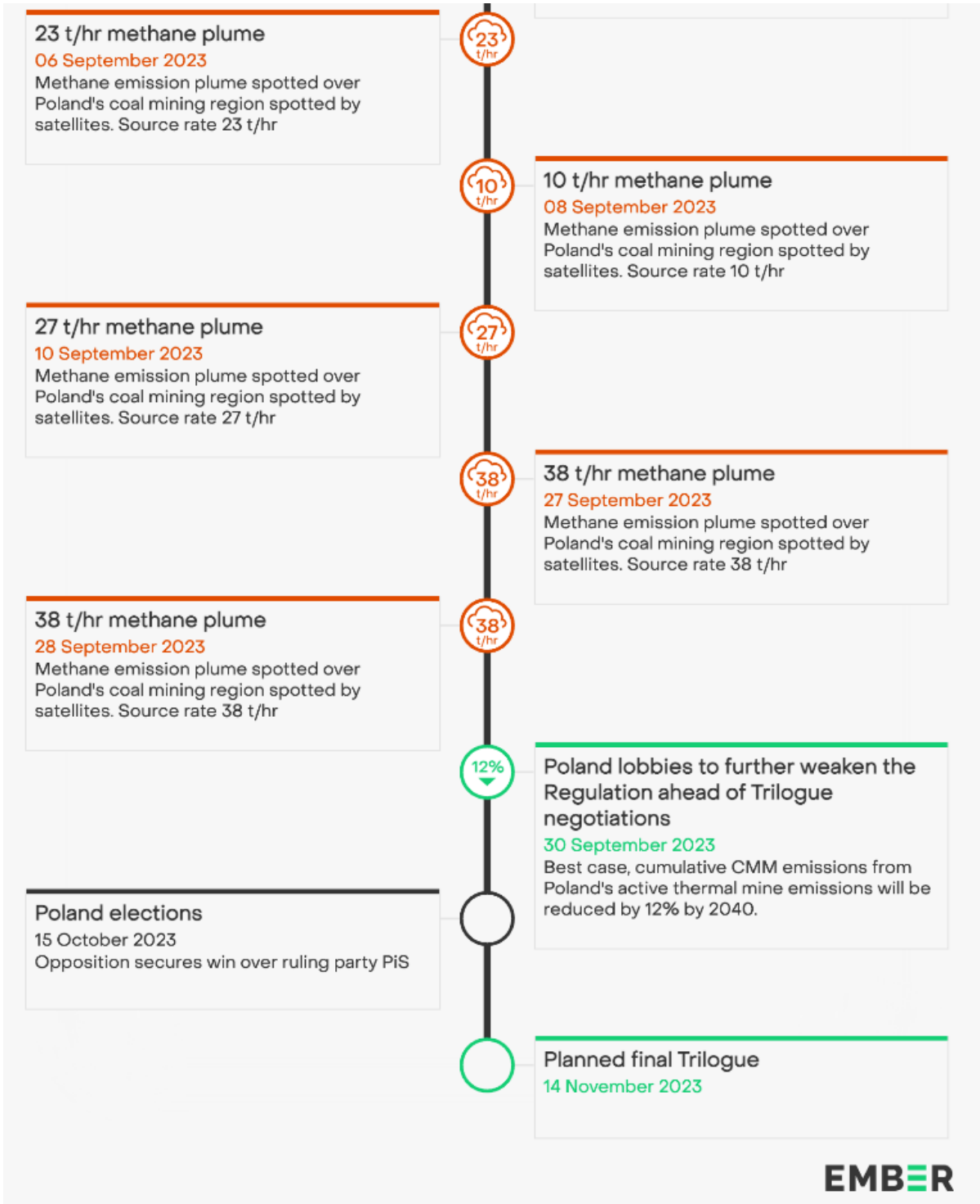
CEO of Instrat

## Polish coal industry continues to vent methane whilst lobbying to weaken the EU Methane Regulation

Timeline of key negotiations of the Methane Regulation, and methane emission plumes detected by satellites over Poland's hard coal mining basin.

■ Other   ■ Methane Regulation   ■ Emission





## Analysis

# EU risks sixfold weakening of methane reductions from coal mines

As the EU looks towards achieving the Global Methane Pledge, the proposed EU Methane Regulation holds the potential to drive large and fast reductions across the energy sector's largest methane emitters; Poland's deep and gassy underground coal mines.

## Global momentum on tackling methane

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The European Union was one of the leaders of the [Global Methane Pledge](#), which, in 2021, brought together 150 countries promising to reduce methane emissions by at least 30 percent from 2020 levels by 2030.

Methane is a more powerful greenhouse gas than CO<sub>2</sub>, due to its much higher ability to trap heat. If the reduction goal proposed by the Global Methane Pledge is reached, it could eliminate over 0.2°C warming by 2050. The International Energy Agency (IEA), however, makes it clear that an even more ambitious [75% reduction of fossil fuel methane by 2030](#) is required for the world to remain on a pathway aligned with 1.5C.

Since the pledge, the world has seen growing momentum from countries across the globe to act on their methane emissions. Canada's [Faster and Further](#) methane strategy focuses on improving methane monitoring and mitigation of its fossil fuel and waste sources. The United States initiated a [Methane Action Plan](#) to double down on methane emissions, whilst using the opportunity to create high quality jobs and increase industry competitiveness. In



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2022, Colombia became the [first South American country](#) to regulate its oil and gas methane emissions.

Meanwhile the world's largest coal mine methane emitter, China, started regulating methane from its [coal mining sector in 2008](#). It has been the only country to issue a national emission standard and set ambitious targets for coal mine methane drainage and utilisation. Additionally, China's upcoming policy, the 'National Methane Emissions Reduction Plan', is expected to propose significant improvements to methane monitoring and mitigation.

In 2021 the [European Commission proposed a regulation](#) on energy sector methane emissions, covering coal, oil and gas. The regulation proposes stricter rules on the monitoring of emissions as well as significantly restricting its release, making it one of the most ambitious methane reduction regulations to date. This report is based on the negotiations and amendments to the proposed Regulation.

The energy sector was responsible for [17% of the EU's methane emissions in 2021](#). Considering the challenges in reducing methane across the agricultural sector, energy methane is one of the bloc's biggest opportunities to achieve rapid methane emission reductions this decade.

## Coal driving the EU's energy sector methane emissions

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The European Union's coal mines reportedly [emitted](#) 908 thousand tonnes of methane in 2021, much more than the bloc's oil and gas emissions combined (634 kt). Given methane's strong short term global warming potential, this is equivalent to 75 million tonnes of CO<sub>2</sub>, or the same as the annual CO<sub>2</sub> emissions of 43 million cars, which is around a sixth of EU cars.

Poland reported 562 thousand tonnes of methane emissions from coal in 2021, representing 62% of the EU's reported CMM emissions. Using methane's short term climate impact, this is

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equivalent to 46 million tonnes of CO<sub>2</sub>, which is **more than the annual CO<sub>2</sub> emissions from all of Poland's cars.**

Concerningly, these emissions are likely an underestimate. [According to the IEA](#), the EU released an additional 158 thousand tonnes of coal mine methane than it reported in 2021, meaning the region's coal mine methane emissions could be up to 24% higher than officially reported. This would be the equivalent to an additional 7 million cars.

A large part of these missing methane emissions are attributed to Poland, which continues to mine some of the world's gassiest coal. Methane emissions from a number of these mines are large enough to be regularly seen from space.

Analysis of [satellite data](#) identified seven major methane emission events from the country's coal mines in 2021. The methane plumes were found to emit between [10 to 41 tonnes of methane per hour](#), which, at the upper range, is more than the hourly methane emissions of all of [Poland's dairy cows](#). Throughout 2023, the [Netherlands Institute of Space Research \(SRON\)](#) has detected another nine methane emission events over Poland's hard coal mining region.

## Coal mines: easy-to-tackle emissions

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Targeted reductions of fossil fuel methane emissions are the "low hanging fruit" in tackling climate change due to the many available [mitigation technologies](#).

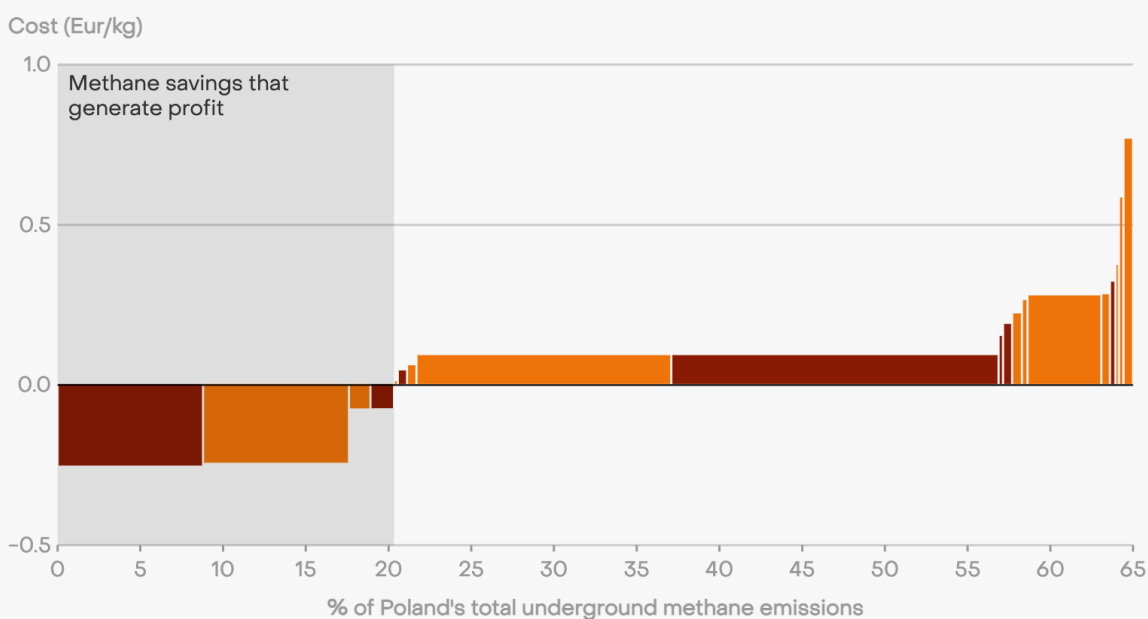
The IEA estimates that Poland alone could abate up to 414 thousand tonnes of methane per year, representing 50% of the EU's active coal mine methane emissions. This would be equivalent to a 15% reduction of the EU's fossil fuel methane emissions, and it would cost less than one euro per kilogram of methane, [according to IEA cost estimates](#).

An estimated 21% of Poland's underground methane emissions (128 thousand tonnes) can be abated with a total annual profit of €31 million.

## 21% of Poland's methane from underground mines could be mitigated profitably, and a further 44% at low cost

A block of the coal mine methane abatement curve represents an abatement method\* (width = % of total emissions, height = cost/savings in euro per kg)

Met Thermal



Source: IEA Methane Tracker  
 \*An abatement method for a specific emission source.

Action on coal mine methane can benefit more than just the climate. Capturing and using this methane is one of the means to increase energy security and decrease energy costs.

Improving the monitoring, reporting and verification (MRV) of methane and implementing and maintaining a diverse range of mitigation technologies increases the safety of miners, as well as creating high quality jobs in coal mining regions during and after mining ends.

Tackling its methane emissions head on would place Poland as a leader in coal mine methane mitigation, promoting innovation and manufacturing of critical new technologies. It would also ensure the future competitiveness of [Poland's coking coal](#) as global steelmaking looks to reduce its climate impact.

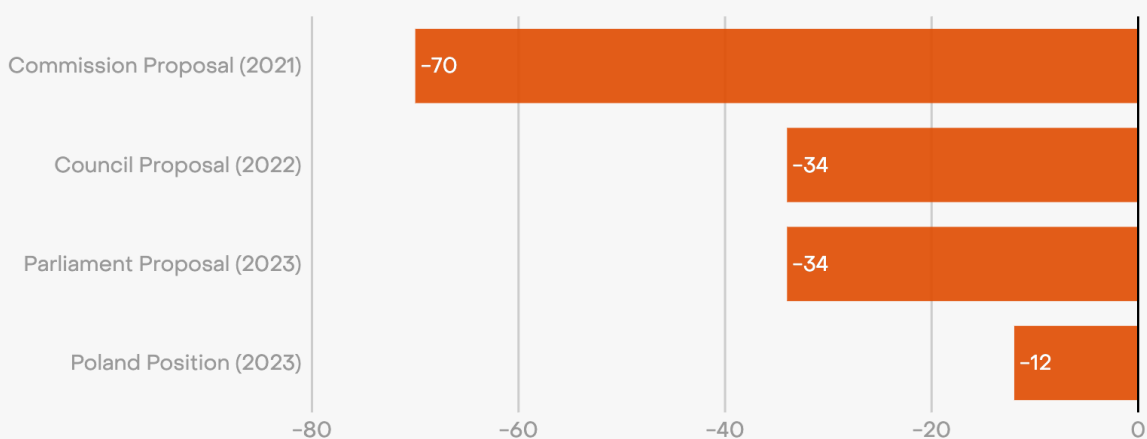
More information on methane emissions within the steel industry can be found in Ember's previous report [Why the steel industry needs to tackle coal mine methane](#).

## Pressure from Poland risks weakening potential emission cuts by six times

Despite Poland's vital role in the EU reaching its climate targets, the emissions reduction measures proposed in the EU's Methane Regulation have been opposed by [Polish MEPs, MPs](#) and the [coal mining industry](#).

### EU risks sixfold weakening of methane reductions from coal mines

Proposed cumulative reductions to thermal coal mine methane emissions by 2040 (%)



Source: Ember analysis

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The original proposal by the EU Commission posed strong requirements on methane emissions from active thermal coal mines; it looked to cut their cumulative methane emissions by 70% by 2040, compared to business as usual scenarios.

In December 2022, the EU Council [adopted its general approach](#) which, after lobbying from Poland, greatly watered down the Commission proposal on coal mine methane mitigation. [After further lobbying](#), in April 2023, the [EU Parliament](#) adopted the same weakened position.

The text currently agreed on by both parties is significantly less ambitious, it reduces the cumulative methane emissions by 34% by 2040. The proposal does not result in the early closure of coal mines. Mine operators will need to improve their methane drainage and flaring efficiencies, which is the most cost-effective methane reduction at coal mines.

### Upcoming Negotiations

As the EU Methane Regulation moves into the final trilogue negotiations, Poland continues to lobby to weaken the regulation even further. The country's demands include reducing monitoring requirements, removing coking coal from the scope of the regulation, and further increasing methane emission thresholds from active coal mines.

Our analysis finds that Poland's most recent position would result in almost no improvements to the current operations of active thermal mines until 2031, and minor improvements thereafter. [Our previous analysis](#) found that coking coal mines release approximately half of the emissions from active underground mines in the EU. **The Regulation cannot reach its emissions reduction goal if coking coal mines are excluded.**

To provide a baseline, we calculated the impact of weakening the methane threshold for thermal mines to 8 tonnes of methane per kilotonne of coal, moving to 5 tonnes of methane per kilotonne of coal in 2031. Our analysis finds that at best, cumulative emissions of Poland's active thermal mines would be reduced by 12% by 2040 compared to business as usual.

This latest proposal from Poland represents a sixfold weakening of the emissions reduction cuts in defence of Polish coal mines, and significantly limits the potential of the EU methane regulations to combat short term global heating, both domestically and around the world.

Such an EU methane regulation would be unaligned with the IEA's Net Zero roadmap, which requires a 75% cut in energy sector methane by 2030 in order to limit global warming to 1.5 degrees. As one of the architects of the Paris Agreement, the EU needs to ensure that its domestic methane regulations are, at the very least, compatible with a 1.5 degree trajectory.

## Conclusion

# The EU must regulate coal to cut methane emissions

Coal mines are the low-hanging fruit of methane abatement, but the EU Methane Regulation risks setting a global precedent by letting them off the hook.

The EU risks falling at the first hurdle to tackle its methane emissions if it gives in to the industry demands. This sends a dangerous message to the rest of the world that the coal industry can be allowed a veto on efforts to reduce methane emissions even though the sector has some of the cheapest, and fastest available solutions to tackle climate change.

The steps which the coal industry is being asked to take are reasonable, affordable and an opportunity for Poland to protect its coal mine workers and communities into the future.

Additional incentives for methane emissions reductions could also be made available. [Instrat recommends](#) raising the environmental fee according to the polluter pays principle, which currently stands at just 0.09 euro per ton of methane and is only marginally updated each year. Instrat also recommends that electricity and heat generation from methane capture be supported by a cogeneration premium, based on the existing and already well functioning scheme of [tariff-based premia](#).

In the upcoming trilogue negotiations, the EU has the opportunity to make serious headway towards achieving climate targets, whilst Poland could make the single largest contribution to methane reductions in the EU. Reducing methane emissions provide the most impactful way to limit near-term climate change, and targeting easily avoidable emissions from the fossil fuel industry, which in the EU's case is driven by coal, is one of the fastest solutions.

## Supporting Materials

# Methodology

### **Analysis on potential emission cuts**

Ember's previous analysis looked in detail at Business As Usual and various emission reduction scenarios. More detail and methodology can be found in the report [Major Loopholes for Coal Mines in the EU Methane Regulation](#).

Ember estimated the emissions reductions associated with Poland's (Member State) position in the Trilogue negotiations using the same method as above and assuming a venting threshold of 8 t CH<sub>4</sub>/ Kt coal moving to 5 t CH<sub>4</sub>/Kt coal in 2031, applied per operator.

### **Global Warming Potential**

Global Warming Potential (GWP) is a measure to express the effects of GHGs in CO<sub>2</sub> equivalent terms. Given that CH<sub>4</sub> absorbs much more energy when in the atmosphere, but has a shorter lifetime than CO<sub>2</sub>, the IPCC considers its impact over 20 years (GWP = 82.5) and over 100 years (GWP = 29.8). One of the shortcomings of this metric is that it assumes a constant value of methane's effects over time, when in reality it varies significantly.

Historically, the 100-year value has been used by Governments and in major international agreements on the basis that global warming is a long term challenge.

At Ember, we propose to use the 20-year GWP. Climate change is an emergency, and the next 20 years are critical with regards to climate action. Methane's short atmospheric lifetime means emissions reductions can reduce global heating in the near term.

### **Comparisons**

Methane emissions from EU dairy cattle were taken as 131.42 kg CH<sub>4</sub>/head/yr, from the European Environment Agency [2020 data](#). The number of dairy cattle within EU countries in 2022 was taken from [Statistica](#).

Carbon dioxide emissions per car in the EU was calculated using [UNFCCC reported CO<sub>2</sub> emissions](#) for "Cars" using the last reported inventory year (2021). The number of cars in Europe was taken from the [ACEA 'Vehicles in use in Europe' report](#), as "passenger cars" in 2021.



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# Acknowledgements

## Contributors

The report greatly benefited from discussions with Conal Campell, insights and collaboration with [Instrat](#) and analysis by Jan Balcerowski.

## Cover photo

Polish miners working underground in Szczygłowice coal mine in Knurów town, Upper Silesia.

Credit: [Bartek Wrzesniowski](#) / Alamy Stock Photo

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