

# CLIMATE TRACE ERS Spotlight

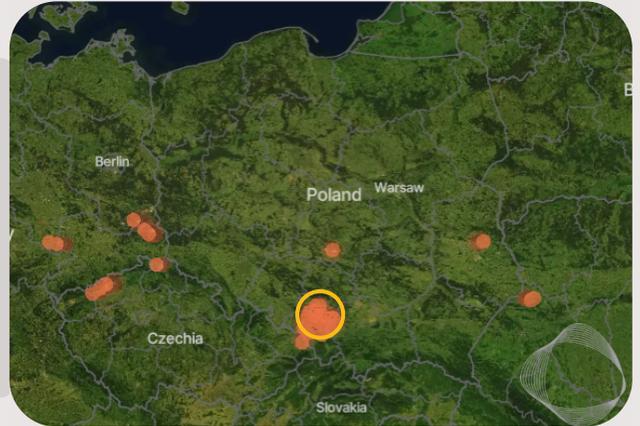
## Methane Capture and Use in Coal Mines

**Pniówek Coal Mine**, Pniówek, POL  
*3,000,000 tonnes of coal annually*

**Fossil Fuel Operations**

### Annual Emissions Reduction Potential

- Total Project Impact: 110,000 tCO<sub>2</sub>e
- ERS Global Potential: 833 MtCO<sub>2</sub>e



### How On-site Recovery Reduces Emissions

**Existing Practice:** Coal mining releases large volumes of methane during excavation and ventilation as trapped gas is liberated from coal seams. To protect worker safety, most underground mines vent methane-rich air to the atmosphere through ventilation shafts. Methane has a global warming potential more than 80 times that of carbon dioxide (CO<sub>2</sub>) over a 20-year period, making these fugitive emissions one of the most climate-intensive aspects of coal mining.

**A Potential Solution:** Coal mine methane capture and utilization systems actively drain methane from coal seams before or during mining and route the gas for productive use, such as on-site power generation or heat production. By capturing and combusting methane for energy, mines convert a highly potent greenhouse gas into CO<sub>2</sub>. While CO<sub>2</sub> is another greenhouse gas that should be addressed, the impact of this solution can greatly reduce overall mine-level emissions while improving operational efficiency and safety.

### Polish Coal Mine Captures and Uses Coal Mine Methane

Since 2000, KWK Pniówek, an underground coal mine in southern Poland, uses methane drainage and utilization systems to capture methane released during mining and utilities it as an energy source instead of venting it into the atmosphere. A United States Environmental Project Agency's pre-feasibility assessment estimates that methane capture and utilization at Pniówek reduces emissions by over 110,000 tonnes of CO<sub>2</sub>e per year by converting high-GWP methane into carbon dioxide. The project is recognized by the United Nations Economic Commission for Europe as a best practice, demonstrating the technical and operational feasibility of sustained methane mitigation at coal mines.



*Credit: Google, ©2026 CNES / Airbus, Maxar Technologies*

### Impact of this project (tonnes CO<sub>2</sub>e/year)

Reduced at this location	110,000
Reduced outside this location*	No change
<b>Total reduced</b>	<b>110,000</b>

*\*No additional details*

**This solution captures coal mine methane and utilizes it for on-site power or heat generation, converting high-GWP methane into lower-GWP CO<sub>2</sub> and displacing purchased fuels or grid electricity.**

**Note:** Annual emissions reduction potential at this project is estimated based on U.S. EPA's Coalbed Methane Outreach Program (CMOP) pre-feasibility analysis. This spotlight was prepared in February 2026 using publicly available information. To learn more about Emissions Reduction Solutions (ERS) in the coal mining sector, please [visit our website](#), [read our white paper](#), or [contact the Climate TRACE partnerships team](#).