Data governance in Poland’s coal mining sector
Harnessing open data to monitor delivery of climate policy targets

Jan Balcerowski
Junior Analyst / Instrat Foundation
jan.balcerowski@instrat.pl

17th session of the UNECE Group of Experts on Coal Mine Methane and Just Transition

March 21st, 2022 - Geneva
AGENDA

- About us
- New EU Methane Legislation
- Poland’s coal mining data landscape
  - Sources
  - Data flow
- A need for transparency
- Stylized facts - data
Instrat Foundation
About us

- Warsaw-based think tank
- Interdisciplinary approach to energy transition
- Empowering civil society and public sector with open energy data
- EU and Poland’s energy & climate policy
- Energy modeling – power market forecast
- Just transition – technical assistance
- Open energy data

Windfall profits of Polish coal power utilities - space for URE and ACER

Investigation
Margin of an average Polish hard coal power plant (CDG) reached 340 PLN/MWh. Last time it exceeded 50 PLN/MWh, in 2018, President of Energy Regulatory Office (URE) has launched an investigation to check for potential market manipulation (REMART Art.

The missing element
Energy security considerations

Source: Instrat own calculations based on market prices from energy market, carbon and emission prices. Description: an average load coal power plant with nominal capacity at 84 MW. Detailed assumptions described in
Coal mining database

Map of coal deposits in Poland

Source: energy.instrat.pl/coal_mining_map
Methane Action Now
The roadmap ahead of us

❖ Proposed EU Legislation
Aims to:
❖ Set up monitoring and mitigation plan for closed and abandoned mines
❖ Empower EC to regulate venting from coking coal mines.
❖ Set up robust reporting mechanism based on open data

❖ Global Methane Pledge
❖ 100 countries, representing 70% of global economy pledge to cut methane emissions by at least 30% from 2020 levels
## Paywalls, user unfriendly formats

### Industrial Development Agency (ARP Katowice)
- Public Statistics and Market Monitoring
  - socio-economic data
  - market data
  - state aid
  - technical & geological data
  - environmental data

### National Centre for Emissions Management (KOBIZE)
- National Emissions Database
  - environmental data: GHG emissions (CO2, CH4)

### Company reporting
- Annual reports
  - socio-economic data
  - market data
  - environmental data

### National Geological Institute (PIG-PIB)
- Annual reports
  - MIDAS database
  - environmental data: methane emissions, water
  - geological: extraction, reserves, location

### State Mining Authority (WUG)
- Annual reports
  - socio-economic data: safety & working conditions
  - technical & geological data: emethanation efficiency

### Ministry of Climate and Environment (MKiS)
- List of mining permits
  - legal data

## Sources

<table>
<thead>
<tr>
<th>Agency/Institution</th>
<th>Data Coverage</th>
<th>DEGREE OF OPENNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Development Agency (ARP Katowice)</td>
<td>Public Statistics and Market Monitoring</td>
<td>Paywalls, user unfriendly formats</td>
</tr>
<tr>
<td>National Centre for Emissions Management (KOBIZE)</td>
<td>National Emissions Database</td>
<td></td>
</tr>
<tr>
<td>Company reporting</td>
<td>Annual reports</td>
<td>Extensive coverage</td>
</tr>
<tr>
<td>National Geological Institute (PIG-PIB)</td>
<td>Annual reports MIDAS database</td>
<td>Robust data sets</td>
</tr>
<tr>
<td>State Mining Authority (WUG)</td>
<td>Annual reports Website data</td>
<td>Insufficient and mixed ESG reporting</td>
</tr>
<tr>
<td>Ministry of Climate and Environment (MKiS)</td>
<td>List of mining permits</td>
<td>Long time series</td>
</tr>
</tbody>
</table>

### Data Standards

- Open data standards
- Paywalls, user unfriendly formats

### Challenges in accessibility

- Extensive coverage
- Challenges in accessibility

### Data Levels

- National / company level: Annual, quarterly, monthly
- Mine / unit level: Annual
- Company / mine level: Annual / quarterly
- Deposit level: Annual / quarterly
- Deposit level: Annual / quarterly

### Data Types

- socio-economic data
- market data
- state aid
- technical & geological data
- environmental data
- GHG emissions (CO2, CH4)
- methane emissions, water
- geological: extraction, reserves, location
- safety & working conditions
- technical & geological data: emethanation efficiency
- legal data
- safety & working conditions
- technical & geological data: emethanation efficiency
- mining permits
- small scale of data

### User unfriendly formats

- Simple access
- user unfriendly formats
- high data licensing standards
How does the data flow?

Why do we need transparency about methane?

- Mining companies
- Government agencies - data brokers
- Public domain - data users
- Industry analysts
- Researchers in academia
- Civil society and social partners
- Decision makers

Government agencies
- aggregated data
- individual unit-level data

Ministry of Climate and Environment

International inventories

Government of State Assets

Europe

E-PRTR

UNFCCC
Key takeaways

• **Multiple actors** within the public sector with similar goals

• **Poor quality of ESG metrics**
  - socio-economic data
  - environmental data
  - state aid
  - technical indicators
  - on the unit-level (companies, mines)

• **Room for improvement** in terms of:
  - data accessibility → user-friendly formats (PDFs)
  - licensing and copyrights → lifting paywalls
  - scope of reporting → methane emissions and mitigation technologies

• **EU Methane Legislation**
  - differentiaties between types of coal and methane emissions
  - will force companies to upgrade reporting standards
Disparities in extraction

All companies report their extraction differently depending on the target audience
Ambiguities in current reporting
Lack of clarity compromises the ambitious emission goals

Type of methane emissions (2019)

- CMM: 43%
- VAM: 22%
- MIX: 35%

2019: 439 ktonnes

Type of coal extraction (2019)

- Thermal: 47%
- MIX: 48%
- Coking: 5%

2019: 59.3 m tons

Sources: energy.instrat.pl based on KOBIZE and company reports.
**A need for transparency**

Why do we need transparency about methane?

- Monitoring company actions aimed at decreasing methane emissions
- Monitoring and reporting **needs to be incentivized**
- **Rethinking our data governance** with commitment to transparency
- **Impact assessment**: reliable energy and climate modeling is crucial for ambitious policies

Ambitious goals ahead of us  
→  
Let’s agree on the baseline data
APPENDIX
Relative emissions from operating coal mines (2020)

The most methane emitting per ktonne of coal is TAURON’s ZG Brzeszcze
Methane emissions from operating coal mines (2020)

Given COP26 methane pledge compliance, Poland should reduce its methane emissions to the 2010 level - 282 kt by 2030.
Methane emissions from JSW mines (2010-2020)

KWK Pniówek | KWK Knurów-Szczygłowice | KWK Borynia-Zofiówka | KWK Budryk

2010: 99 kt methane emissions
- KWK Pniówek: 30
- KWK Knurów-Szczygłowice: 32
- KWK Borynia-Zofiówka: 41
- KWK Budryk: 50

2011: 104 kt methane emissions
- KWK Pniówek: 32
- KWK Knurów-Szczygłowice: 26
- KWK Borynia-Zofiówka: 18
- KWK Budryk: 50

2012: 169 kt methane emissions
- KWK Pniówek: 59
- KWK Knurów-Szczygłowice: 39
- KWK Borynia-Zofiówka: 29
- KWK Budryk: 60

2013: 162 kt methane emissions
- KWK Pniówek: 32
- KWK Knurów-Szczygłowice: 26
- KWK Borynia-Zofiówka: 18
- KWK Budryk: 60

2014: 160 kt methane emissions
- KWK Pniówek: 32
- KWK Knurów-Szczygłowice: 26
- KWK Borynia-Zofiówka: 18
- KWK Budryk: 60

2015: 194 kt methane emissions
- KWK Pniówek: 49
- KWK Knurów-Szczygłowice: 29
- KWK Borynia-Zofiówka: 11
- KWK Budryk: 64

2016: 232 kt methane emissions
- KWK Pniówek: 55
- KWK Knurów-Szczygłowice: 35
- KWK Borynia-Zofiówka: 11
- KWK Budryk: 61

2017: 231 kt methane emissions
- KWK Pniówek: 47
- KWK Knurów-Szczygłowice: 35
- KWK Borynia-Zofiówka: 11
- KWK Budryk: 60

2018: 231 kt methane emissions
- KWK Pniówek: 47
- KWK Knurów-Szczygłowice: 35
- KWK Borynia-Zofiówka: 11
- KWK Budryk: 60

2019: 211 kt methane emissions
- KWK Pniówek: 34
- KWK Knurów-Szczygłowice: 14
- KWK Borynia-Zofiówka: 5
- KWK Budryk: 56

2020: 192 kt methane emissions
- KWK Pniówek: 28
- KWK Knurów-Szczygłowice: 14
- KWK Borynia-Zofiówka: 5
- KWK Budryk: 53

Source: energy.instrat.pl/coal_mining_map
KOBIZE data; Slide includes amendment to the legend compared to the originally presented version.
Methane emissions from PGG mines (2010-2020)

Source: energy.instrat.pl/coal_mining_map
KOBIZE data; Slides include amendment to the legend compared to the originally presented version.
Methane emissions from operating mines (2020)

- Share of emissions by companies

- Absolute emissions in ktonnes per year per NUTS-4 unit

**Methane emissions in Upper Silesia (2020)**

Source: GUS

- Absolute emissions in ktonnes per year

Source: KOBIZE

- Graph pictures active mines only

**2020: 400 ktonnes**

- TAURON Wydobycie: 47%
- PG Silesia: 7%
- Polska Grupa Górnicza (PGG): 41%
- Jastrzębska Spółka Węglowa (JSW): 5%