

Lessons learned from building Poland's Coal Mining Database - energy.instrat.pl

Kraków | 27/09/2021

UNECE Workshop:
Methane in the Context of the Transition
of the Coal Sector

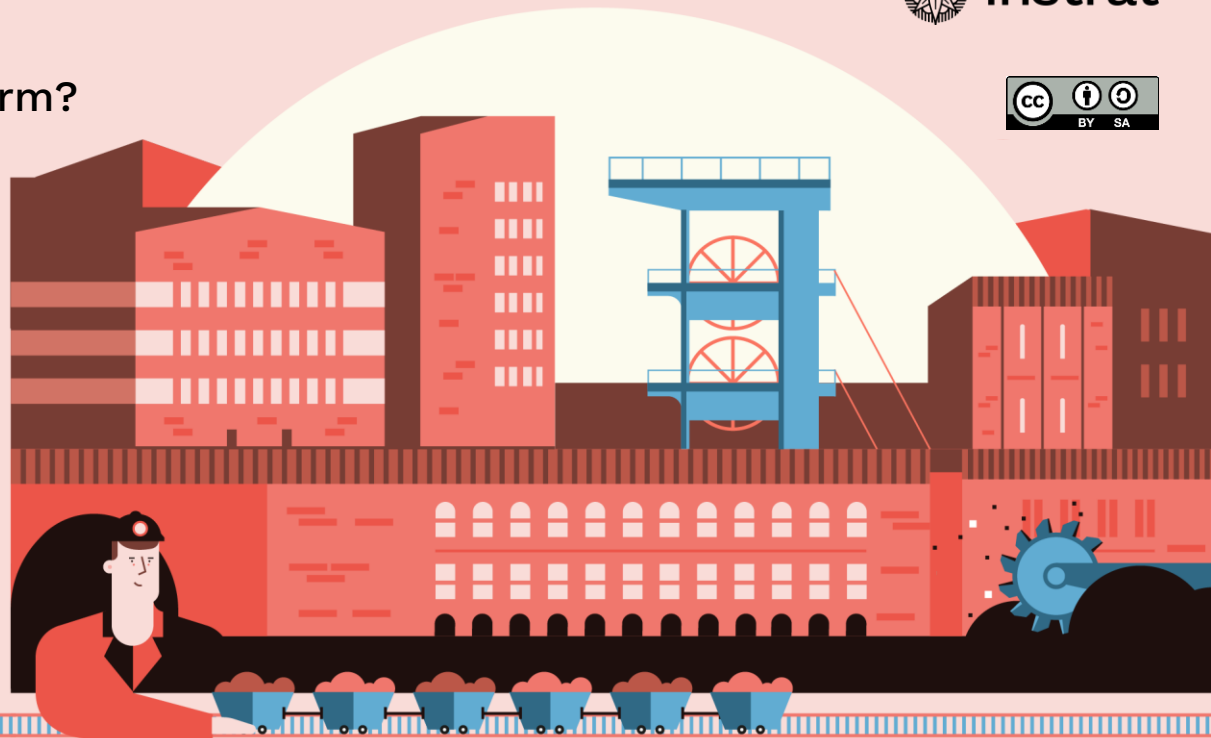
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President of the Board
Instrat Foundation



AGENDA

- ⚡ How did we approach the project?
- ⚡ What did we find out?
- ⚡ How can you use our platform?



Project overview

Motivation & goal

Provide decision makers & stakeholders with **open access high quality data** on statistics on the Polish coal mining sector

Tackle data monopolies & **increase participation** in the planning of just transition

Prepare for a **coal phase-out** and assure sufficient funding

Challenges

Poor **data quality**: discrepancies & data gaps

Lack of transparency and standardization of reporting to different authorities

Data behind **paywalls** - legal barriers

Neglected data spheres: environment & climate, socioeconomic data

Plans

Longer time series (up to '90s)

More interactive data visualisations (Flourish)

Geographical expansion

Financials & state aid reporting

Environmental data: water aspects of coal mining operations, methane emissions

Data sources



National Geological Institute
PIG-PIB

Annual report: extraction,
reserves
MIDAS: basic geographical data,
technical parameters, water

deposit level

Others:

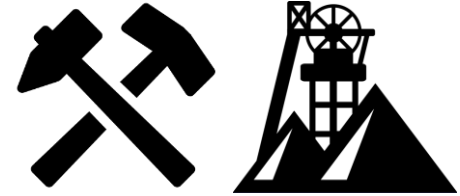
Public Aid Data Sharing System (UOKIK - Office of Competition and Consumer Protection);
Mining Concessions Database (Ministry of Climate); Press Releases



KOBIZE - Polish GHG Emission
Accounting Authority

National database / E-PRTR:
ETS sector emissions - CO₂,
methane etc.

company & unit level



Company financial reports
PGG, JSW, Tauron, PGE GiEK,
ZEPAK etc.

Annual reports: financials,
extraction, employment, public
sector contributions, announced
retirement dates

company & unit level

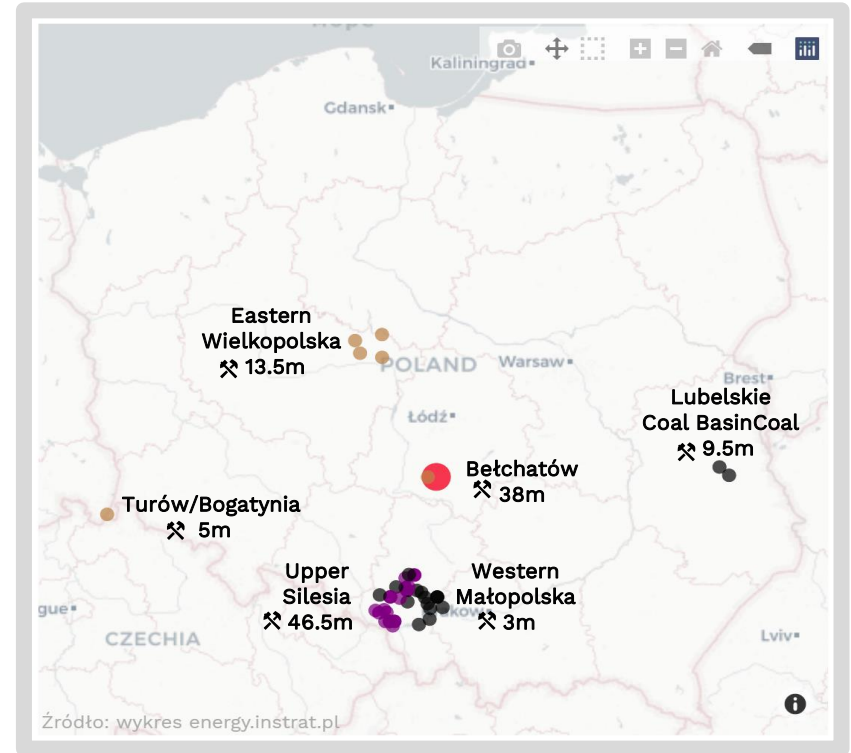
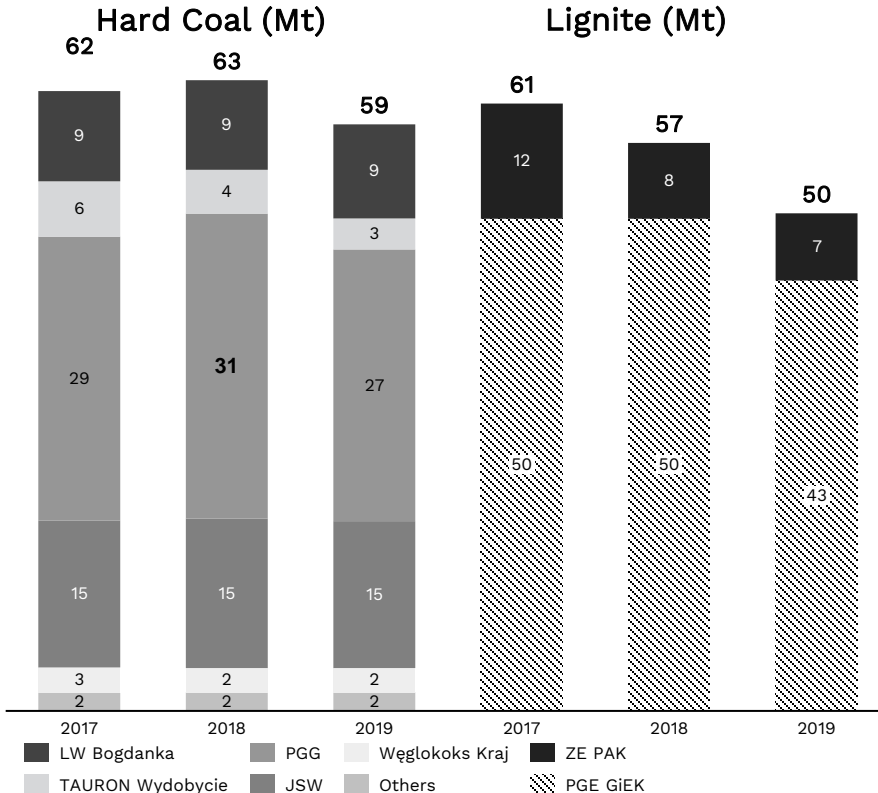
Open (energy) data philosophy

Background

- ambitious climate policy targets require broad mobilisation of different stakeholders from outside of core energy sector
- ↓
- increasing need for granular and **user-friendly data** to monitor progress in delivering of the targets
- ↓
- wide critics of blackbox modelling tools favouring large-scale energy sources ⇒ OpenMod Initiative
- ↓
- social inclusion and participatory approach
- ↓
- **simplify complexity**: collect, compile and synchronize various data sources
- **use open licenses** for data and code (CC-BY-NC)



Extraction



Source: energy.instrat.pl/coal_mining_map
 Methodology note: blog.energy.instrat.pl/en/mining-en
 Company data as of 2019


Employment (2019)


Key Insights

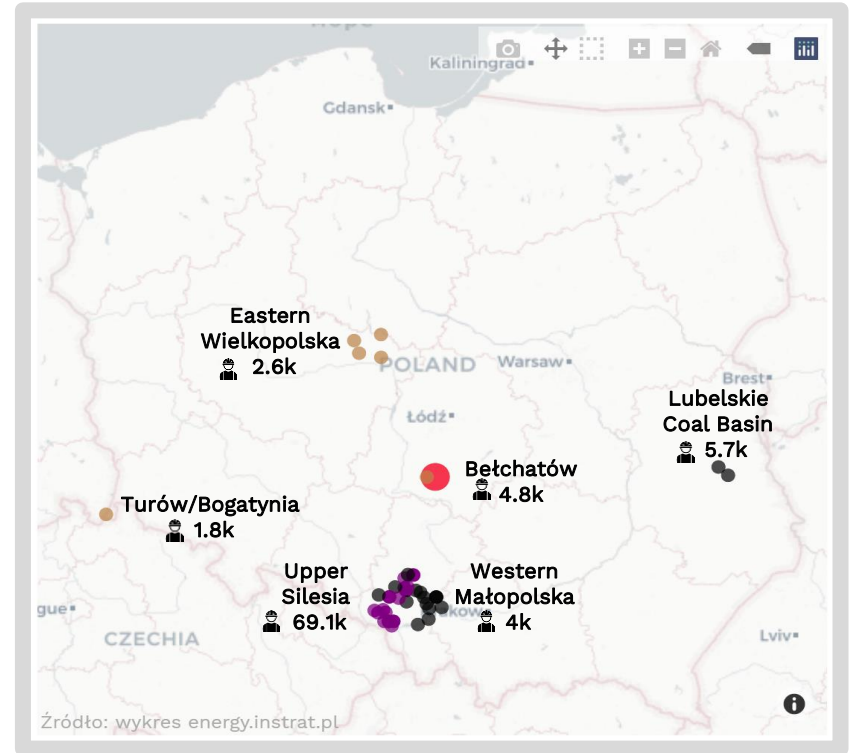
 **86.5k** people employed in all coal mines incl.:

 **89%** at hard coal mining sites

 **11%** at lignite mining sites

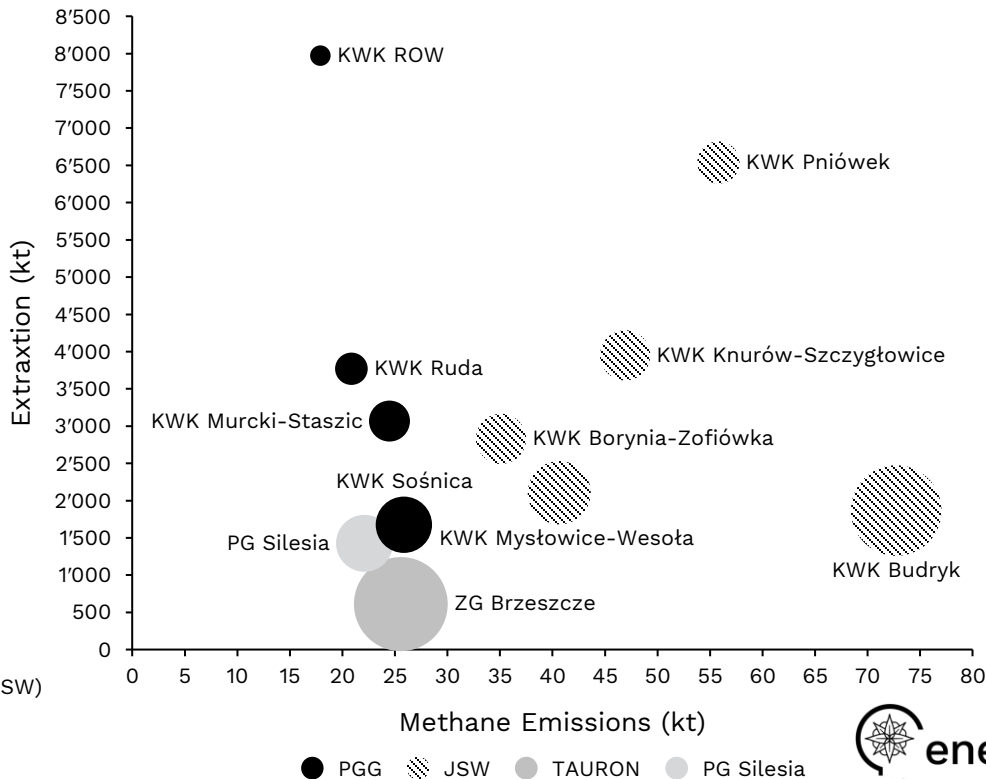
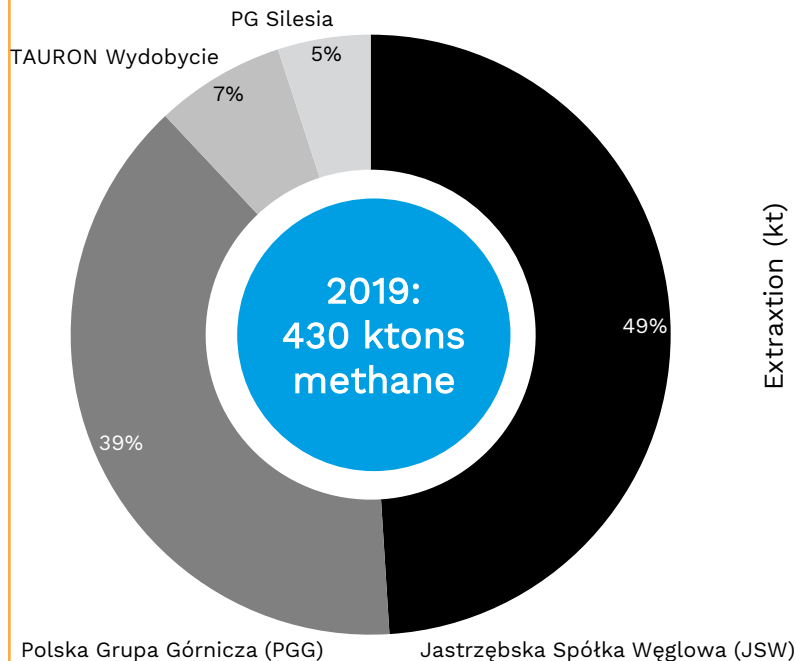
 **38.3k** employees at sites of the largest employer in the sector - Polish Mining Group (PGG)

 **ca. 1/5** miners work outside of the Upper Silesia



Source: energy.instrat.pl/coal_mining_map
 Methodology note: blog.energy.instrat.pl/en/mining-en
 Company data as of 2019

Methane emissions from operating coal mines (2019)



Source: energy.instrat.pl/coal_mining_map
 Methodology note: blog.energy.instrat.pl/en/mining-en
 PIG and KOBIZE data as of 2019

Key Insights

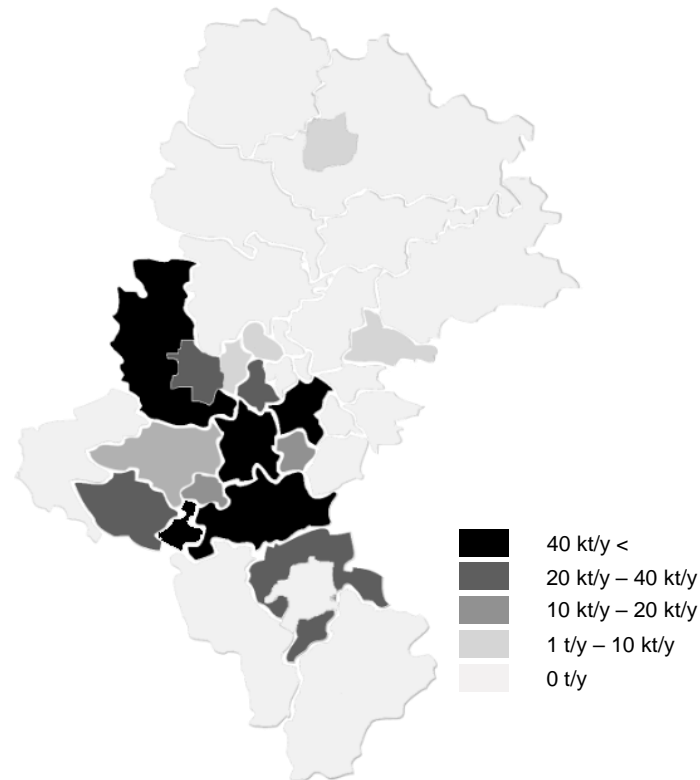
- ✂ JSW responsible for almost half of the Poland's methane emissions from active coal mines
- ✂ ZG Brzeszcze (TAURON Wydobycie) is the most methane-intensive site per 1 ton of coal produced
- ✂ Numerous closed mines (SRK) emitting methane under SRK

Next Steps

- ✂ Longer time series - as early as '90s
- ✂ Deposits under research and decommissioned mines
- ✂ Granular approach to environmental data

#miningdata #datamining

Methane emissions in Upper Silesia (2020)



Source: GUS (Statistics Poland)
Absolute emissions in tonnes per year

How to use our dataset?

⇒ energy.instrat.pl/coal_mining_map

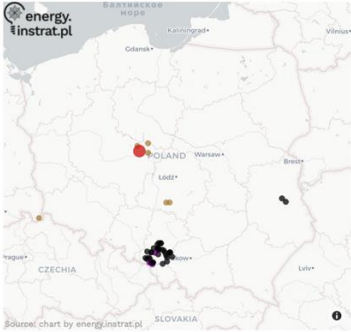
Home Power Generation Forecasts Power plants Flows Prices Coal RES Documentation Polski

Coal > Coal mining map

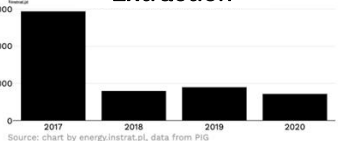
Choose coal type:
Coking coal

Choose company:
JSW

Choose coal mine:
KWK Jastrzębie-Bzie

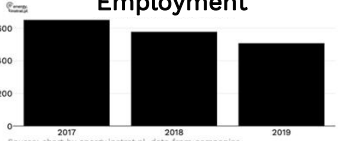


Extraction



Source: chart by energy.instrat.pl, data from PIG

Employment



Source: chart by energy.instrat.pl, data from companies

Deposit	Coal type	Mine Name	Organisation unit	Company	Voivodeship	Extraction in 2020 by PIG [Mtp, tonnes]	Reserves in 2019 [Mtp, tonnes]	Deposit area [ha]	Announced
Adamów	Lignite	KWB Adamów	Odkrywka Adamów	ZE PAK	wielkopolskie	715	4810	847.41	2021

[Methodological note](#)

Export



⇒ [Methodology note](#)



How to use our dataset?

⇒ energy.instrat.pl/coal_mining_map



	E	F	G	H	I	J	K	Q	R	S	T	U	V	AC	AD
1	Powiat	Gmina	Przedsiębiorstwo	Typ węgla	Nazwa kopalni	Jednostka organiz.	Złoże	Wydobycie (tys. ton) 2015 wg PIG	Wydobycie (tys. ton) 2016 wg PIG	Wydobycie (tys. ton) 2017 wg PIG	Wydobycie (tys. ton) 2018 wg PIG	Wydobycie (tys. ton) 2019 wg PIG	Wydobycie (tys. ton) 2020 wg PIG	Zatrudnienie (liczba zatrudnionych) 2017	Zatrudnienie (liczba zatrudnionych) 2018
2	District	Community	Operator	Coal type	Mine Name	Unit	Deposit	Extraction (th. tonnes) by PIG	Extraction (th. tonnes) by PIG	Extraction (th. tonnes) by PIG	Extraction (th. tonnes) by PIG	Extraction (th. tonnes) by PIG	Extraction (th. tonnes) by PIG	Employment (number of employees) 2017	Employment (number of employees) 2018
13	chrzanowski, oświęc	Libiąż, Chelmek, Oś	TAURON	Wydobycie	WK-E	ZG Janina	Janina	1 921	1 797	1 985	1 322	1 275	1 916	2 294	2 335
14	oświęcimski - woj. m	Brzeszcze, Oświęcim	TAURON	Wydobycie	WK-E	ZG Brzeszcze	Brzeszcze	534	922	955	1 010	612	1 075	1 461	1 533
15	M. Mysłówice, M. Ja	Mysłowice, Jaworzno	TAURON	Wydobycie	WK-E	ZG Sobieski	Brzezinka			1		27	66		
16	M. Jaworzno - woj. ś	Jaworzno - woj. śląs	TAURON	Wydobycie	WK-E	ZG Sobieski	Byczyna I	1 128	942	1 210	1 574	215	571	2 591	2 596
17	M. Jaworzno - woj. ś	Jaworzno - woj. śląs	TAURON	Wydobycie	WK-E	ZG Sobieski	Jaworzno	1 057	1 274	713	507	1 054	361		
18	M. Katowice	Katowice	PGG	WK-E	KWK Wujek	Wujek	Wujek	925	1 057					2 417	1 454
19	M. Katowice, M. Mys	Katowice, Mysłowice	PGG	WK-E	KWK Murcki-Staszic	Ruch Staszic	Staszic	2 557	3 508	2 720	2 937	3 066	1 896		
20	M. Katowice, M. Mys	Katowice, Mysłowice	PGG	WK-E	KWK Murcki-Staszic	Ruch Murcki	Murcki	419	33	2		2	29	3 552	4 324
21	M. Mysłówice, M. Ka	Katowice, Mysłowice	PGG	WK-E&K	KWK Mysłowice-Wesoła	Wesoła	Wesoła	2 253	2 066	1 860	1 713	2 106	2 000	3 908	3 537
22	M. Ruda Śląska, mik	Ruda Śląska, Mikoł	PGG	WK-E&K	KWK Ruda	Ruch Bielszowice	Zabrze-Bielszowice	1 890	1 624	1 968	1 713	1 393	1 217		
23	M. Ruda Śląska	Ruda Śląska	PGG	WK-E&K	KWK Ruda	Ruch Halemba	Halemba I	1 851	995	459	1 386	1 039	843		
24	M. Ruda Śląska	Ruda Śląska	PGG	WK-E&K	KWK Ruda	Ruch Halemba	Halemba II	211	557	636	633	616	555	6 529	6 638
25	mikołowski, M. Ruda	Mikołów, Ruda Śląs	PGG	WK-E&K	KWK Ruda	Ruch Halemba	Śmiłowice							14	
26	M. Ruda Śląska	Ruda Śląska	PGG	WK-E&K	KWK Ruda	Ruch Halemba	Śmiłowice								

Meet the team



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Project Supervisor



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Junior Analyst

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