

# Methane Mondays

Second meeting, Friday, 6 December 2021, 15:00-16:30 Geneva time.

## *Summary of the meeting*

- The third session of the Methane Mondays series was titled: “**Information about methane emissions. What can we do with the knowledge that we have?**”
- The event started with a **presentation titled: Coal Mine Methane. Data Survey: Sources, Availability, Reliability**, which contained the following information:
  - Coal accounts for approx. 12% of global methane emissions. That number, however, is questionable, as some claim that it is higher, and some that it is lower.
  - Measurements are key to the evaluation of workplace safety, methane recovery projects, and mitigation and reduction efforts.
    - A lack of data creates potential for uncertainty and underreporting.
    - Uncertainty hampers accurate estimates of emissions, project feasibility, and well targeted mitigation efforts.
  - The data is collected by:
    - Companies: Mine owners and operators, and CMM project developers.
    - Governments: National inventories of emissions (e.g. submissions to the UNFCCC, EU GHG Inventory, etc.).
    - Third parties: Remote sensing industry data, International agencies and bodies (e.g. Global Methane Initiative, IEA), academic studies, civil society organizations (e.g. GEM, Ember).
  - Who collect what?
    - Companies: Mine-specific activity level measurements (e.g. gas composition; methane vented, and methane drained (in percent); specific emissions (m<sup>3</sup> CH<sub>4</sub>/t); historical emissions (a time series); gas resource assessments).
    - Governments: National emissions estimates (generally a mixture of self-reported company data and estimates using “outside the fence line” IPCC Tier 1 and Tier 2 guidelines).
    - Remote sensing industry: a “bird’s eye view” of emissions detected at site level via drones and satellites (e.g., TROPOMI, GHGSat, MethaneSAT, GoSat and others).
    - Academic research: scientific studies using various emissions models, generally for global or national level inventories.
    - Global agencies: Mixture of site level data and national inventories (e.g. GMI, IEA).
    - Civil society organizations: Public data collection and emissions modeling (e.g. GEM’s Global Coal Mine Tracker).
  - How reliable is CMM data?
    - Systematic measurement of emissions is preferable to estimates.
    - All emissions estimates have degrees of uncertainty.
    - Challenges:
      - Site-level measurements have the lowest level of uncertainty, but data can be costly to collate and maintain and is limited by calibration and operator experience.
      - National inventories mix-and-match Tier 1 and Tier 2 IPCC methodologies, creating discrepancies in international reporting.
      - Remote sensing often lacks time series data and site-level information and risks allocating to the wrong source.

- Government, academic, civil society, and industry work is limited by public data accessibility and lack of raw data.
  - Academic research using “top down” and “bottom up” emissions inventories has exposed discrepancies and uncertainties of each methodology.
- Coal Mine Methane Tracking
  - Global Energy Monitor (GEM) is working to help resolve emissions discrepancies and meet data challenges.
  - GEM uses the Global Coal Mine Tracker to document mine-level data, including methane emissions.
  - When emissions information is unavailable, GEM uses production, coal type, methane content at operating depth, and location information to estimate those emissions.
  - GEM encourages transparency and public reporting.
  - GEM’s data is available under CC BY-NC-SA 4.0.
- Then the audience listened to a **presentation titled: Methane emissions tracking: Evidence from Poland**, which contained the following information:
  - The current main initiatives addressing methane are:
    - EU Incoming Legislation:
      - Sets up monitoring and mitigation plan for closed and abandoned mines;
      - Prohibits venting and flaring from drainage stations by 2024;
      - Prohibits venting from thermal coal mines, that cross a threshold by 2027:
      - Empowers commission to regulate venting from coking coal mines.
    - Global Methane Pledge (COP26)
      - 100 countries, representing 70% of global economy pledge to cut methane emissions by at least 30% from 2020 levels.
  - Poland’s coal mining data landscape – project’s overview.
    - Instrat:
      - Provides an open access to crucial data - key socio-economic, environmental and technical indicators on the unit-level (companies, mines);
      - Is a data vendor - collect and visualise data from numerous sources, with low or no visibility so far (paywalls in public statistics);
      - Provides public sector and CSOs with proper knowledge on the coal mining sector, which is necessary for planning its just transition.
    - In its work Instrat encounters a number of challenges:
      - Differences in reporting systems & standards;
      - Paywalls – public statistics with non-sensitive data worth thousands EUR annually;
      - Inexistent ESG reporting - low emphasis on environmental & climate impact, employment aspects, state aid monitoring;
      - CMM and VAM emissions not clearly distinguished in E-PRTR database.
  - Methane emissions from operating coal mines - Key Insights from E-PRTR.
    - In 2020 Poland produced 53 Mt of hard coal.
    - Employment in coal mining in Poland amounts to 86,5 thousand people.
      - 90% of them work in hard coal extraction.
    - JSW accounts for the largest share of methane emissions in Poland.

- According to KOBiZE (The National Centre for Emissions Management) data CMM constituted majority of all methane emitted in 2019.
    - Closed mines accounted for only 6% of all methane emissions in 2020
    - The data from most mines does not disaggregate emissions from extraction of coking coal and thermal coal.
  - Data is unreflective of the reality.
    - There is a need to improve reporting and ensure comparability across reporting standards.

(For a detailed information on methane emissions from specific coal mines in Poland and on a data flow in the country please see the presentation available at the [webpage of the 3rd session](#))
  - Conclusions:
    - There is an inconsistent data between reporting standards and findings from academic research based on company data;
    - Abandoned coal mines remain undocumented;
    - The ESG reporting does not exist - low emphasis on environmental & climate impact, employment aspects, and state aid monitoring;
    - CMM and VAM emissions are not clearly distinguished in E-PRTR database;
    - Poland needs to improve its reporting standards;
    - Monitoring on unit (company) level data is needed to make the industry limit its environmental impact;
    - There is a need for ambition about methane action;
      - COP26, Methane Pledge, and 30% target.
- The above-described part was followed by a **discussion moderated by the Chair of the Group of Experts on CMM, Mr. Raymond Pilcher**. The following statements were made during the debate:
  - Discussion of monitoring of methane should not be focused only on coal.
    - Emissions from coal are only a small part of methane emissions.
    - It also has to be remembered that methane emissions are not only man-made, but natural as well.
    - We need to put methane emissions from coal in a perspective.
      - It is important especially in case of the pledges made by the governments to reduce methane emissions.
        - Setting targets and benchmarks requires precise data, which is not the case nowadays.
        - There is a lot of uncertainty regarding the levels against which the reductions are to be measured.
        - Getting truly consistent data requires a lot of time and effort.
        - Digitalization of the world allows to speed up the process.
          - However, the desire to have data as quickly as possible creates a race to publish data, even if it is not reliable.
  - The fundamental problem is who pays for the collection of data.
    - At some point someone has to earn an income for doing a monitoring work.
    - If methane is treated as an energy resource to be exploited then there is a justification for bodies, perhaps with public money, to go out there and measure and report how much methane is being emitted.
      - It would work e.g. in the case of abandoned mines where they could be an opportunity to use that energy in a commercial way.

- In such case the database would have two functions: it would be useful from the environmental perspective to know where the problems lie, but also useful from the commercial basis to identify where opportunities for new projects might exist.
  - The danger of seeing methane purely as an environmental problem is that the costs ending falling on the public bodies which were given responsibilities for MRV.
    - It becomes a burden on the governments involved, which are not well resourced to do that, and therefore introduce additional taxes, etc.
  - The balance between what governments can offer and what the industry could do itself is necessary.
  - Money put by NGOs should also not be ignored either.
    - Oftentimes NGOs, such as e.g. EDF are bigger than the government departments in even large countries.
    - Green NGOs are therefore a massive resource.
  - So, there are three players: NGOs, the Governments, and the industry. The goal is to encourage them to act in a way which moves the things forward in a positive direction.
- Oftentimes large amounts of methane are released together with coal extraction.
  - The resulting emissions are being dealt with by ventilation and drainage systems.
    - In ventilation shafts there are typically automatic methane measurement systems that present real time methane concentrations in the air flow.
    - In methane drainage stations there are also measuring systems checking the quantity and the quality of the gas.
    - All parameters measured in the methane drainage stations are recorded and archived.
  - There is therefore the exact information about methane emissions from such equipped mines.
  - Coal mines in Poland report on their emissions to 4 different bodies:
    - Once a month to the Energy Market Agency (about the airflows and gasification of mines);
    - Once a quarter to the Industry Development Agency (about CMM, methane drainage, and its economic use);
    - Once a year to:
      - European Pollution Release and Transfer Register;
      - KOBiZE (The National Centre for Emissions Management), which among other things, manages and registers the Polish part of EU ETS.
    - Mines in Poland have very high reporting standards (at a Tier 4 level).
      - As a result, it is easy to control them, and therefore they are subject to ever growing methane mitigation pressure.
- According to the proposed EU regulation on methane, which leaked recently, coal mines will face penalties for emitting methane.
  - At the same time non-EU companies will be encouraged by certain incentives, and not by a threat of penalties, to reduce their methane emissions.
  - The question is therefore: whether we want to produce steel using coking coal mined in the EU by companies that conduct the detail

- methane emissions measurements and cooperate with several European and global organizations, or we prefer to import coking coal from foreign companies that are not subject to any reporting standards.
- There is a problem with financing methane reduction projects in the coal mines.
    - There are: knowledge, opportunities for improvement, and identified solutions. What is needed are incentives, help, and support.
  - The current Polish system does not foresee the ETS-based price for methane emissions recalculated by the CO<sub>2</sub> equivalent.
    - According to the Polish regulation the fee for emitting 1 ton of methane is in the range of only several eurocents. As a result, the whole industry pays less than 500,000 PLN of those fees annually, which translate to slightly above 100,000 EUR.
    - If the price was at the level of the EU ETS price for CO<sub>2</sub> multiplied by the emission factor reflecting grater methane's global warming potential, the incentives for the emitters to reduce their emissions would be much bigger.
  - Coal companies and energy companies are overburdened with reporting.
    - The current system does not bring consistency in reporting.
    - Less burdens with better reporting would be beneficial to both, the users of the system and the reporters.
      - The users that need the data available online, including technology providers, if properly informed about the emissions, their sources and characteristics, could offer various options how to manage mine methane.
  - Reliability of satellite tracking.
    - How to anchor them?
    - If the satellite data is collected to supplement what is needed on the ground, then the reliability is high.
    - When the remote data is untethered from the information on the ground it can lead to confusion, as there is no way to resolve the potential discrepancies or to rectify them without having access to numbers on the ground.
  - When countries are relying on self-reported company data then Tier 3 measurements are making their way to national reports.
    - US and Australia are examples of that.
    - Some site-level raw data and methodologies are not always transparent.
      - There is a case in Australia at the moment, where remote sensing data is saying that some of the mines are emitting far more than what they are saying they are.
        - Some of the companies are not coming forward and putting their information on the table so the problem cannot be resolved.
  - In the context of data collection and covering the costs of it the three players, namely: NGOs, the Governments, and the industry were mentioned. However, one important actor was omitted, i.e. consumers.
    - Anything that increases the costs of what the extractive industries are doing, such as e.g. reporting, does flow down to consumers.
  - The most important data is on CMM and AMM mitigation.
    - Satellite information is nowadays probably not good enough without sufficient ground-based validation.
      - It cannot measure precisely enough the sensitive changes in emissions.

- Ground truth is an essential component of any conclusions that can be reached relative to any satellite or remotely sensed data.
      - The question is who will do that.
    - We need bottom up measurements of CMM mitigation.
  - The only point for measuring the emissions is on the understanding that we are going to reduce them either by mitigation measures or by ceasing coalmining.
    - We have the technics to capture more gas, to use more gas, and to destroy more gas, but we do not do it.
    - Idea of collecting data is to inform mitigation policy.
      - But the limit of the mitigation is going to be determined by the social cost.
        - Question is what social costs countries are prepared to accept in meeting their mitigation targets.
  - Commercial type projects have not produced significant emissions reductions.
    - The financial incentives are not great enough.
    - The voluntary markets and carbon markets have not produced enough change.
    - The only way to get some real action is to penalize methane emissions with e.g. very high tax.
      - The money from that can finance monitoring activities.
- From the very beginning of the EU ETS Member States were allowed, if they so wished, to include methane in the scope of the EU ETS at their national level.
  - That would, however, destroy certain industries and the governments were and are aware of that.
    - They are faced with a question of whether a prosperous society with an industrial base is wanted or not.
      - In the latter case, it is necessary to find out how to move away from that.
  - Even with EU ETS we see that there is a need for carbon boarder adjustment mechanism, i.e. carbon tax at the borders of the EU that is a protectionist measure to save parts of the EU industry, the steel industry being the biggest of them.
- The size of the NGOs brings some interesting prospects for the future.
  - Industry will not vote for any taxes to be imposed on it, it is for policymakers to do so.
  - With the growing importance of the green NGOs, it might be that they will start taking those decisions on behalf of the governments in some way.
    - They are already very influential in terms of policy.
      - E.g. the draft regulation on methane that came out of the European Commission, could have been written by a green NGO, as it reflects all that the green NGOs were asking for.
        - If that regulation goes ahead the coal mining will have to stop in the EU in its entirety by 2027.
          - The social consequences of that would be massive.
          - It would also push the steel prices significantly up in Europe, and would make the latter much less competitive, as

other countries are not likely to adopt any similar measures.

- With recent years raise of satellite imagery and satellite data and more and more reports on data from coal mines, some of it is questionable.
  - In many cases the results do not provide methodology of how they were attributed.
  - It would be beneficial for the industry to report data that can be measured on the ground, providing also methodology used for obtaining those measures, as that could counter the unreliable data that is out there right now.
- It is also important for the governments to consider burden on reporters.
  - In certain cases, the data that is collected for safety purposes could be used for reporting GHG emissions purposes.
  - Maybe it is also possible to obtain the necessary data by putting a burden on only some sub-sectors of the sector, so that not necessarily every coal mine has to report.
  - If the government is collecting the data, it should also do it best to make that data useful for any financial purposes (e.g. identifying opportunities for emission reduction projects).
- A new UNECE-GMI document on MRV of emissions from coal mines will be published in a month or so.