Unlocking Hidden CO_2: AI Approaches to Identifying Industrial Biogenic Emissions Outside Europe and North America

Mapping industrial biogenic CO_2 point sources is critical for expanding carbon capture, utilization, and storage (CCUS) beyond fossil-based emitters. Europe and North America provide facility-level biogenic CO2 emissions data, often through pollutant release and transfer registers (PRTRs) and, if required, combined with Emission Trading Scheme (ETS) data. However, comparable datasets are scarce elsewhere, constraining global assessments and setting an important barrier for developing local utilization or CDR projects.

This presentation explores the use of artificial intelligence (AI) to help source biogenic CO_2 data in regions lacking structured reporting, with a focus on countries and regions outside of Europe and North America.

Several approaches will be considered, including considerations for breaking down biogenic CO2 potential across segments and regions, searching and extracting data from possible niche industry databases, applying proxy estimates approaches (for example creating simple models for emissions based on production capacities or fossil CO2 output), etc.

The intent of the presentation is to show that:

- when applied carefully, AI-driven integration of various data sources can provide a helpful pathway to expand global biogenic CO_2 mapping.
- many regions of the world open up for capture projects based on local biogenic CO2 availability.
- AI does not solve everything - there are remaining challenges of transparency, verification, and comparability across regions.