What happened in Geneva — and what it means for the methane market.

The 21st session of the UNECE Group of Experts on Coal Mine Methane and Just Transition met at the Palais des Nations in Geneva on 27–28 April. The Methane Brief was there. This is our report.

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NEW VAM PROJECTS IN CHINA IN 2025	TOTAL INSTALLATIONS OUTSIDE CHINA	VAM ABATEMENT COST PER TONNE CO_2E (20-YR)	METHANE POTENCY VS CO_2 (20-YR)	DELEGATES AT GENEVA UNECE

The Palais des Nations, Geneva — home of the 21st session of the UNECE Group of Experts on Coal Mine Methane and Just Transition, 27–28 April 2026.

THE NUMBER

20

New VAM mitigation projects deployed in China in the past year alone.

Less than ten installations have been commissioned outside China after two decades of trying.

WHAT THE MARKET IS MISSING

China is not waiting.

While Geneva's formal sessions debated the language of best practice guidance — whether to 'advise' or 'urge,' whether to reference COP30 or soften the text for member states reluctant to commit — China was presenting a different reality entirely.

At the Palais des Nations, Mr Liu Wenge, Vice President of China Coal Information Institute at the Ministry of Emergency, laid out what coal mine methane abatement looks like when a government decides it is a national priority rather than a voluntary aspiration.

From left: Chiara Giamberardini, Secretary, Group of Experts on Coal Mine Methane and Just Transition – Mr Liu Wenge, Vice President of China Coal Information Institute at the Ministry of Emergency – Mr Yousong Hou, Xi'an Shaangu Power Ltd, China.

The numbers are extraordinary. Twenty new VAM mitigation projects in a single year, with more already underway. A 350MW compressed air energy storage plant — the largest in the world — currently under construction on a former coal mine site. Smart mines using AI and robotics that have taken single operations from 5 million to 40 million tonnes of annual production while simultaneously reducing emissions. CCUS systems with annual treatment capacity of up to 3 million tonnes. Coal mine sites repurposed as energy hubs, hydrogen storage facilities, and heritage parks.

And crucially: no policy rollback. China's commitment to peak carbon emissions by 2030 and carbon neutrality by 2060, confirmed in Geneva, is backed by progressively stricter regulations and mandatory implementation frameworks down to the provincial level.

When asked directly whether the new projects were using new or established technology, the answer was unambiguous: the overwhelming majority are using RTO — Regenerative Thermal Oxidation — the same proven technology that has existed commercially since 2007. The barrier was never the technology. It was the decision to deploy it.

China's policy trajectory reinforces the scale of what is underway. Since 2006, successive regulations have progressively tightened requirements for methane utilisation from coal mines. By 2024, standards now require that over 80 percent of methane must be utilised rather than emitted — a binding obligation, not a target. Emission taxes are linked directly to best practice guidelines, penalising both excess emission density and non-compliance. It is, in short, the kind of regulatory certainty that the rest of the world's carbon markets have failed to provide for VAM mitigation.

There is a symmetry here that the room did not miss. Richard Mattus, who first presented RTO technology to China in 2003, sat in that session and watched the country demonstrate the full realisation of what he had helped initiate two decades earlier.

> *"You can see your achievements in China."*
>
> **— Liu Wenge to Richard Mattus, across the table in Geneva**

WHO'S MOVING

The United States — CNX

The most striking single data point from the Geneva sessions came not from China but from the United States. Brent Bobsein, Vice President of Sustainable Development at CNX, presented a case study that reframes what coal mine methane abatement can look like at scale — and what the US is sitting on.

CNX operates a methane capture project spanning one active mine and seven abandoned mines, abating 5.2 million metric tonnes of CO_2 equivalent per year. To put that in context: it is the equivalent of a new forest the size of Albania — 6.2 million acres of trees, captured from a handful of mine shafts in Virginia.

From left: C. Talkington, Kaj Embrén (K. Embren) and Brent Bobsein (B. Bobsein) at the UNECE session panel, Geneva, April 2026. Raymond Pilcher (Chair) visible on screen.

The national opportunity is larger still. Bobsein told the session that the US coal mine methane potential is 50 to 90 million metric tonnes of CO_2 equivalent per year. Realising that potential would be equivalent to reforesting an area the size of the United Kingdom.

The barriers Bobsein identified are not technical. They are regulatory and market design failures. Carbon offset protocols that exclude pipeline injection from credit eligibility have pushed projects toward flaring rather than beneficial use. The infrastructure exists. The resource exists. What is missing is a market structure that prices the opportunity correctly.

> **The Methane Brief will be publishing a full interview with Brent Bobsein in our next issue.**

Poland — Experimental Validation Complete

Dr Jacek Skiba briefly presented the EU Research project ProVAM, executed by the Central Mining Institute at the Barbara experimental mine. Testing has been completed of a VAM RTO unit across the full range of operating conditions encountered in Polish underground mines: methane concentrations from 0.1 to 0.7 percent, high humidity up to 90 percent, variable air flows, and coal dust loads.

The results confirm technical feasibility at concentrations as low as 0.1 percent — the absolute minimum for RTO oxidation — with some remaining questions around dust management. Full results will be shared at an upcoming workshop with Polish mining stakeholders and regulators.

THE ECONOMICS

What Richard Mattus told the room.

The UNECE session in progress, Geneva 27 April 2026. Richard Mattus presenting VAM mitigation guidance, with the VAM-RTO technology slide visible on screen.

Richard Mattus, lead author of the 2025 UNECE Best Practice Guidance on VAM Mitigation, presented the economic case for abatement in terms that the session's policy and finance delegates needed to hear stated plainly. Installing a VAM mitigation plant is capital-intensive. The lifetime cost per tonne of CO_2 abated is not.

> *"The methane vented from a single coal mine ventilation shaft can have the same effect on global warming as the CO_2 emissions from two million fossil-fuelled cars."*
>
> **— Richard Mattus, UNECE Geneva, April 2026**

With a GWP — Global Warming Potential — based on a 100-year atmospheric comparison, VAM mitigation costs approximately $20 per tonne of CO_2 equivalent. On the scientifically more appropriate 20-year basis, which better reflects methane's actual atmospheric lifetime of around 12 years, the actual cost falls to approximately **$7 per tonne**.

By comparison: carbon capture and storage costs around $200 per tonne. Direct air capture runs between $600 and $1,000. A carbon price signal of around $20 per tonne — sustained for four to five years — is sufficient to trigger investment. The single most effective intervention available to policymakers is not new technology development. It is a reliable carbon price signal.

THE MOMENT THAT DEFINED THE SESSION

On the second day, a delegation from a UNECE member state proposed amending the group's conclusions to state that RTO technology for VAM needs further improvement to meet industrial safety requirements in the coal sector as well as to achieve economic viability.

Raymond Pilcher — Chair of the Group of Experts on Coal Mine Methane and Just Transition, chairing the session — was direct in his response:

> *"I'm sorry, with all due respect to my colleague, I really cannot agree with that sentence. We demonstrated with operations for over ten years that there is really no need to continue doing work related to safety in the coal sector."*
>
> **— Raymond Pilcher, Chair, UNECE Group of Experts on CMMJT**

He then added something on reducing VAM emissions that captured the mood of the entire two days:

> *"We've been advising this for twenty years. Now we're at the point of urging. The next one will be demanding."*
>
> **— Raymond Pilcher**

The suggested amendment was not adopted as proposed. This exchange matters beyond its immediate procedural context. The technical consensus on VAM mitigation within the Group of Experts has hardened to the point where softening language will be resisted from the chair. The guidance is not a work in progress. It is a completed body of knowledge waiting to be applied.

THE POLICY FRAME

UK COP30 Statement

The broader policy context for Geneva was set by the UK-led statement on drastically reducing methane emissions in the global fossil fuel sector, launched at COP30. Supported by eleven countries and four international organisations, the statement positions methane as both a climate lever and a credibility test for the road to COP31.

The CCAC confirmed at Geneva that half of the measures needed to close the Global Methane Pledge target gap must come from the fossil fuel sector, with coal mine methane "continuously under-measured and underrepresented in national methane plans and NDCs." Asia-Pacific adds the geographic urgency: the region accounts for 80 percent of global coal demand. Without action in that part of the world, no global methane target is achievable.

THE DATA GAP

Ember launched its new open-access global coal mine methane data tool at Geneva, integrating national data for all countries, independent estimates, coal production figures, methane policy status, and accountability metrics. The tool is publicly available.

IMEO presented advances in satellite monitoring, noting that empirical measurements consistently reveal discrepancies with inventory-based national estimates — a polite way of saying that official reporting understates actual emissions. The reconciliation of satellite data, aerial surveys, in-mine sensors, and national inventories is ongoing — and critical, because credible carbon markets require credible measurement.

WHAT GENEVA CONFIRMED

The knowledge is not the constraint. The technology is not the constraint. The economics are compelling, the guidance is world-class, and the measurement tools are advancing.

What Geneva confirmed — in the gap between China's twenty projects last year and less than ten total outside China — is that the constraint is market formation. Carbon price signals that are credible and sustained. Credit structures that acknowledge VAM mitigation as approved climate action, eligible for various forms of carbon credits. Financing models that remove the capex barrier for mines. Communication that reaches the investors, operators, and regulators who are not yet in these rooms.

> *That is the gap the Methane Brief exists to close.*

NEXT ISSUE

A full interview with Brent Bobsein, VP Sustainable Development at CNX — on abandoned mine abatement, the US market opportunity, and what the carbon credit market needs to do differently.

The Methane Brief is published by the Clean Exit Campaign.
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