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What Capital Could Build

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The finance argument: how engineered coal mine methane abatement could become an investable category. By Juneia Mallas

Earlier this spring, when I interviewed Brent Bobsein, the Vice President of Sustainable Development at CNX Resources, an Appalachian gas company that has built a commercial business out of capturing methane from US coal mines, one of the most fascinating moments came at the very end. He had explained, by then, how his company captures roughly nine million tonnes of carbon-dioxide-equivalent of waste methane every year, why three operators do this work at commercial scale out of 524 producing US coal mines, and what the integrated commercial model around it looks like. Then he asked a different kind of question. What would it take, he said, for other operators to do this? The technology was there. The economics worked for some.

A key missing component was the financial architecture that would let institutional capital underwrite the deployment at scale. Insurance products. Hedging against change-in-law risk on federal tax credits. Reinsurance-style instruments. Someone, he said, could step up — and at a recent UN conference in Geneva, an insurance

representative had spoken up directly, saying his industry wanted to engage with the methane category. The closing minutes of his interview were the most generative part. They opened the question the carbon market has not answered.

This article is about that question.

I. What is already true

What CNX does is not in dispute. The capture is real, the volumes are large, and the company has spent the last four years building a commercial model around it. The methane has to come out of working coal mines — at certain concentrations underground it kills miners — and almost everywhere else in the world it goes straight into the atmosphere.

Across the US coal industry, by CNX's own account, seventy percent of mine methane is still vented; thirty percent is captured by any means. CNX is one of the three operators doing the capture work at commercial scale, with regenerative thermal oxidisers running on the Buchanan vent shafts in southwestern Virginia and a network of capture infrastructure across its operating region.

What makes the work possible is also not in dispute. The abatement satisfies the additionality test cleanly — what Richard Mattus, one of the leading authorities on coal mine methane in the field, has called a textbook case. The counterfactual is observable, not estimated — every mine without a capture project is venting right now, visible by satellite, by the operator's own ventilation engineering.

The financial driver is causally necessary: regenerative thermal oxidisers cost ten to twenty million dollars to install, generate no operational benefit to a coal company's core business of producing coal, and would not be deployed by any operator without a carbon revenue or its equivalent. And the abatement is measured at the moment it happens, at the meter, against industrial buyers' receipts and federal mine-safety monitoring. The cost is in a band most engineered climate interventions never come close to — between seven and twenty dollars per tonne of CO₂-equivalent, depending on the time horizon. On the GWP-20 basis methane abatement actually deserves to be measured against, it is among the cheapest tonnes in the climate ledger.

So the question is why the rest of the industry is not doing what CNX has done.



Unece Geneva Conference April 2026

II. Why the financing has not followed

Part of the answer is that the voluntary carbon market itself is in trouble. Forest credits, long a mainstay of the market, are losing investor confidence. The reasons are structural. A forest credit asks the buyer to bet on conditions decades hence — that the trees will grow, survive fire and pest and political change, and stay protected long enough for the sequestration to be realised.

Where insurance is in place to underwrite this risk, it protects the investor if the project fails. It cannot protect the planet. If a forest burns and the investor is made whole, the carbon was paid for, the credit failed to deliver, and the atmosphere is footing the difference. The category has a risk-allocation problem the financial architecture around it has been making visible rather than solving.

Inside this credibility correction, engineered methane abatement should be exactly the category the market reaches for. It is what the senior environmental establishment is saying. “From a verification, reporting and measurement kind of point of view,” Jonathon Porritt told the Brief in a roundtable conversation this week, “this is about as close as you can get to a gold standard.” Porritt, a foundational figure in the environmental movement for forty years, was specific. Coal mine methane abatement could not be played fast and loose with the way forest credits have been. The volumes are physical. The measurement happens at the moment of capture. The integrity argument that has wounded other parts of the voluntary market does not cause the same problem here.

And yet the financing has not followed. The reason is not that the abatement is less credible than landfill gas or manure digesters, both of which the carbon market routinely supports. It is that the word coal triggers a cultural response in the environmental community that forty years of climate advocacy has built up. “They don’t want to be connected to coal mining,” Porritt said, “and they’re pretty suspicious about credits, about carbon markets in general. So it’s a hard ask, let’s be honest.” He was direct about something else too: the methane is being released now, the warming is happening now, and waiting for the environmental movement to come around is not a strategy that fits the timescale of the climate problem.

This is the moment Bobsein’s question becomes the right one. If the resistance from the environmental movement is cultural rather than technical, the answer is not to try to persuade it. The answer is to build the financial architecture that makes the category attractive to capital that does not share the cultural reluctance.

III. What could be built

Bobsein’s own framing from his interview is the starting point. Insurance companies could underwrite change-in-law risk in federal tax programmes that currently expose operators to political cycles. Reinsurance instruments could structure exposure to credit-price volatility in ways that bring large pools of capital into the category without each pension fund having to take direct credit risk. “That’s where insurance companies, I think, could step up,” he said, “and this could be a part of their sustainability mission as well.” The Geneva insurance representative who had spoken up — about portfolio risk, about wanting to engage — was a signal of demand-side interest forming, not yet a deal.

The parallels from financial history are instructive, but worth reaching for carefully.

Catastrophe bonds turned catastrophic-event risk — once considered uninsurable and uninvestable — into a tradable instrument institutional capital now holds at scale. Junk bonds turned below-investment-grade debt into a mainstream asset class. Both started with underlying categories that institutional capital did not engage with, and ended as accepted parts of large portfolios. What changed was not the underlying asset. What changed was the architecture built around it — the aggregation, the rating, the insurance wrappers, the tranching that let large pools of capital own the category in the forms their balance sheets could hold. Methane abatement credits in 2026 sit in something like that earlier position. The underlying asset is sound. The architecture has not yet been built.

What that architecture would look like is constructive financial engineering of a kind investment banks and reinsurers have done many times before. Aggregated credit pools rated for institutional buyers. Insurance products that bound downside exposure to project-level risk. Hedging instruments for the change-in-law risk in federal tax credits that Bobsein specifically named. Bond structures that match the cash-flow profile of long-lived abatement projects to the duration preferences of institutional capital. None of this exists today for engineered methane abatement at coal mines. All of it would be doable. The work is the kind of category-building financial engineering that has produced every other recognised asset class in modern markets.

Of these, the bond is the least speculative, because the market already exists. Green and transition bonds have grown from a 2007 curiosity into a channel that now holds nearly seven trillion dollars in cumulative aligned debt, with more than a trillion priced every year — and they are built for precisely this shape of problem: capital-intensive, long-lived infrastructure with a predictable cash flow. A regenerative thermal oxidiser — ten to twenty million dollars of plant, abating for as long as the mine runs — is exactly the kind of asset a use-of-proceeds bond was designed to fund, with the carbon revenue servicing the debt. The distinction matters: the credit is the asset, sold to a buyer; the bond is the debt that builds the thing that produces it. A serious methane-abatement category needs both faces, and only one of them is exotic.

And the standard-setters are already moving. The Climate Bonds Initiative — the body behind much of the science that defines a credible green or transition bond — has begun folding methane abatement into its transition-finance frameworks, with published work spanning oil and gas, agriculture and waste, even as it acknowledges that explicit methane references in green bonds remain at an early stage. Coal mine methane is the conspicuous absence: not excluded on the merits, simply not yet mapped. The work here is less invention than extension — taking a category the

architecture already recognises elsewhere and admitting the one source with the cleanest additionality case of them all.

CNX would benefit substantially from this architecture being built. The company currently markets its voluntary carbon attributes through a single exclusive arrangement, in a thin market with limited price discovery. A deeper market — with institutional buyers engaged through aggregated products — would improve the pricing on the credits CNX is already producing, lift the deployment ceiling for further capture at additional sites, reduce the company's dependence on the political stability of the five revenue streams it has assembled, and position CNX's existing measurement infrastructure and offtake relationships as foundational assets in a category being taken seriously rather than as outlier resources in a category being avoided.



CNX Resources Head Office in Pennsylvania, US @CNX

The argument is not that CNX needs rescuing. The argument is that the operator who has proven the model would benefit from the model becoming the market, rather than remaining the exception.

There is a demand-side that gives this architecture its economic logic. Steel is still made with coal. The coking coal mines that supply it release methane in the same way other coal mines do, and there is no scaled alternative on a timeframe that matters. Steel producers face growing pressure from their own customers — automotive manufacturers, construction firms, sovereign procurement — to lower the carbon footprint of the coal they buy. The alternative route, green steel through hydrogen, is, in Porritt's words, "impossible" to scale affordably on relevant timeframes. Coking coal, he said, is "not going to be phased out in the next decade. Oh, decades." That timeline matters. It means the methane will continue to be released for as long as anyone making investment decisions today needs to plan for.

The supply side is the cheap, verifiable abatement. The demand side is steel's Scope 3 pressure. The missing middle is the product architecture that connects them at institutional scale.

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The financial architecture is buildable. It is the kind of work the climate finance community already knows how to do — designing products, structuring risk, aggregating cash flows, wrapping instruments in insurance. The category these would sit around is stronger on its underlying merits than most of what the market has built products around already. And it offers what the climate question most needs right now: a way to reduce warming on the timescale the planet has to work with, with technology that is proven, abatement that is measurable, and economics that already work.

A reckoning is coming on forest credits as they are seen not to have delivered the abatement that was promised, and credit buyers will look elsewhere for what a gold-standard credit means. Engineered methane abatement is what they will find. The methane is being vented now, from working coal mines across Appalachia, Australia, India, and the other coalfields that supply the world. The technology to abate it exists. The economics work. What is missing is the architecture that turns the abatement into a product capital can hold. That was the question Bobsein from CNX left hanging at the end of his interview. It is now a question for the people in the climate finance world who are positioned to answer it.