

How the energy sector can extract value from emissions data

■ The better the question

1 Can data rewrite your sustainability story?

Evolving stakeholder expectations mean new challenges for energy companies, requiring a new approach.

Many companies face increasing pressure from stakeholders to address the climate impacts of their operations but energy companies face a more urgent and daunting challenge. Identifying, tracking and mitigating greenhouse gas emissions across the global value chain is an immense task.

Transforming for tomorrow requires a new approach today. The world needs more energy and reduced emissions. Energy companies that lean into the challenges, embrace opportunity and make the transition to a lower-carbon future will thrive. Some of them have said they want to make their operations less carbon-intensive or are embracing lower-carbon businesses. But one US-based energy company decided to take an innovative approach, recognizing the emerging business imperative and the vast scope of the effort.

First, it would assess how emerging technologies could drive carbon tracking. The company wanted to determine how to best create a formal “system of record” for one of its major business lines to test the technology and processes needed to accurately capture and store emissions data.

If successful, the project could even serve as a proof of concept for other operational functions. Additionally, the captured data could then be used to both demonstrate ongoing emissions performance to customers and prospective customers and support regulatory and stakeholder reporting.

The potential benefits of an integrated carbon-tracking system were clear. But how best to approach this ground-breaking project? To guide this unprecedented journey, the company called in Ernst & Young LLP (EY US).

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■ The better the answer

Smart people and the latest technology drive long-term value

A multifunctional team develops an innovative framework for collecting emissions data.

Early on, the company and EY US teams recognized that the real-world validity of this assessment depended on two factors:

- 1 | Leveraging technology to develop complex and integrated processes would require access and coordination across multiple functions and geographies. This can be a challenge in an industry known for its traditional, siloed functional approach.
- 2 | Accounting for how employees adopt and leverage innovative technology would be essential. The company has invested significantly to improve its digital fluency in recent years, but a major lesson has been that technology alone isn't enough. The “human element” - input and buy-in from knowledgeable people representing the numerous vital functions needed to collaborate on the capture, tracking and utilization of emissions data - is critical.

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Humans at the center – facilitating cross-functional collaboration

With these touchstones guiding the project, the company established a cross-functional team that included more than 40 stakeholders representing 11 functions. Their insights were key to understanding the multiple processes and interactions between business groups that would need to be coordinated. They were supported by an EY US team that included leaders in strategy development, digital technology, blockchain implementation, climate change and sustainability, energy trading, tax and finance.

The initial project scope focused on assessing blockchain technology for emissions tracking and traceability across the business unit's operations. The collaborative process included significant input from the cross-functional stakeholders and the EY US team at every step: initial assessment interviews, process and technology walk-throughs, “pain point” identification, work stream validations and much more. Thanks to this approach, in just seven weeks, the team was able to:



Technology at speed – a digital ecosystem to enable the solution

As it developed the assessment, the combined team evaluated a number of technology solutions. It determined that a digital trust program would need to facilitate a multiparty ecosystem to enable data capture, storage and access, and collaboration among participants, underpinned by a blockchain network. **Blockchain** is a distributed ledger that is shared between all stakeholders in a trusted ecosystem, such as between a company and its customers, increasing data accuracy and transparency and making it possible to automate contract execution, audits and reporting.

The assessment showed that an indisputable system of record – featuring verified carbon emissions data, captured digitally at the emissions source and stored via the blockchain ledger – had the potential for significant benefits. Data quality standards confirm that emissions aren't undercounted or double-counted within the carbon footprint. And because the distributed ledger is tamper-proof, it provides a trusted source of data that can be viewed by anyone with permission, both inside and outside the company.

Further, the blockchain ecosystem could, in time, enable collaboration among market participants and allow for easy publishing of data for regulatory compliance and the benefit of investors, buyers and consumers.

Innovation at scale – technology alliances to drive transformation

The project's unique carbon-tracking platform is powered by technology alliances that will enable further customization via ongoing innovation, extensions and third-party application integration. For example, the solution utilizes a suite of **Microsoft** cloud technologies, including Azure for blockchain, to provide a common data model across multiple sites and user interfaces.

These alliances equip the company with a highly scalable platform architecture that can be expanded and upgraded with future digital components, such as artificial intelligence, machine learning and predictive analysis. In addition, the platform now can be easily tailored to work with other operational functions across the company.

■ The better the world works

From tracking and transparency, to value-led sustainability

Data transparency can help energy businesses enhance their license to operate while creating new opportunities.

Today, as a result of this assessment, the client is ready to benefit from quality data collection and verification methods, which are critical both for greenhouse gas inventory reliability and as a starting point for meaningful, long-term emissions reductions.

The company is also on the verge of realizing other benefits:

- 1 | Creating carbon footprint transparency and trust**
If desired, the company can enable access to carbon emissions data across business units and with customers, investors and consumers. That system would be supported by digital data capture, automated workflows and the blockchain ledger, which provides an indisputable system of record for verified emissions data and real-time visibility.
- 2 | Monetizing carbon emissions**
This level of data quality makes it possible for the company to eventually utilize carbon offsets (aiding emissions management) and emissions credit trading (enabling monetization).
- 3 | Setting the stage for creating industry standards and influencing regulatory requirements**
Eventually, the company could work with a third party to assemble and organize decentralized autonomous organization (DAO) to create a social governance community that utilizes standardized rules and consistency of technology and tracking methods across all participants, including other energy companies. Setting this up could create a powerful incentive for the entire industry to support increased transparency around emissions. A DAO would also strengthen the company's ability to monetize its emissions data through trusted connections with various exchanges.

By working with EY US, this complex company accelerated its ability to truly understand and track its emissions in an unprecedented manner and with global implications. It is positioned to capture a first-mover advantage in emissions tracking and data monetization, helping it create value during the transition to a lower-carbon future. But beyond that, it can also influence the broader business world, paving the way toward more impactful and trustworthy emissions tracking – clearing a hurdle that stands between us and addressing climate change.

Contacts



Mitch Fane

Americas Energy & Resources
Leader and US Oil & Gas Leader
Ernst & Young LLP
mitchell.fane@ey.com
+1 713 750 4897



Erik Funfar

Oil & Gas Leader for Microsoft
Services
Ernst & Young LLP
erik.r.funfar@ey.com
+1 858 535 7287

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