

Carbon Offset Market



Increasing participation, sophistication and liquidity in the U.S. carbon markets are making it possible to convert this historical liability into an asset for coal mines in North America.

By Greg Arnold

Until recently, converting the collection and destruction of [Coal Mine Methane \(CMM\)](#) into a valuable and marketable commodity occurred mainly outside the United States. Today increasing participation, sophistication and liquidity in the U.S. [carbon markets](#) make it possible to convert this historical liability into a new source of revenue for [North American coal mine owners](#).

Sophisticated partners with the technical and financial capabilities are necessary for [U.S. based coal mine](#) owners to capitalize on similar mechanisms that international mine owners have benefited from for years. Demand and liquidity for [carbon offsets](#), the instruments created from the destruction of methane, are now at a stage where such projects can be economically feasible. The role of coal mine methane offsets in the EU-Emissions Trading Scheme (EU-ETS) - [European Union's cap and trade program](#) - provides a good analog to help U.S. mine owners understand how real the opportunity has become.

Since 2005, European utilities, oil refineries and other energy intensive industries have operated with a cap on their carbon dioxide emissions under the EU

Emissions Trading Scheme enabled by the [Kyoto Protocol](#). A key component of the EU-ETS is the ability of "covered entities" to purchase carbon offsets or GHG reductions from non-covered sectors in order to meet their [carbon dioxide reduction goals](#). These reductions can be made at a lower marginal cost the emitters can achieve themselves. To date, roughly 300 million tons of offsets have been created through a variety of projects under the Clean Development Mechanism (CDM) of the Kyoto Protocol - the treaty's primary cost containment mechanism - which allows carbon emissions reductions to be created in developing countries.

Several steps were necessary for the quantities of offsets to reach these levels. First, covered entities and market participants had to believe that such a program had a high probability of coming into effect. Once this belief was established, participants had enough information to begin anticipating how the framework and rules would develop in order to begin allocating capital and managing risk decisions. The EU-ETS required participants to understand a number of factors including: (1) who would be considered a covered entity, (2) the emissions cap anticipated to be placed on those covered entities, (3) the CO₂ reductions required to meet the cap

and (4) how the program would achieve cost containment. As participants in the EU-ETS gained this knowledge, decisions about how the covered entities would comply with their obligations became clearer. Capital began to form to invest in carbon offset projects under the CDM, an important cost containment mechanism for the EU-ETS. A tradable offsets market materialized as financial institutions began trading these instruments in a "pre-compliance phase" that transformed into the launch of a formal compliance market.

These events benefitted projects that were able to destroy CO₂, or methane, a greenhouse gas known to be twenty one times more potent than carbon dioxide, and create carbon offsets that could be used in compliance programs. Because coal mines are a significant source of methane, they had the potential to be a major source of carbon offsets for the European Union program.

Capitalization

In order for coal mine owners to capitalize on this opportunity they had first to confirm their rights to the environmental attributes. In addition, an evaluation of the economic feasibility had to be conducted using an analysis on the gas potential, estimates of equipment costs, and estimates of carbon offset potential. Lastly, experience in the process, structuring and mechanisms for turning this project into monetized carbon offsets was necessary. Fortunately, the mine owners did not have to go it alone. As the market became familiar with many of the issues described above, participants evolved who possessed the financial and technical expertise to work with mine owners. These participants provided the expertise necessary to conduct the feasibility study, design a project, procure the appropriate vendors and equipment, and navigate the contracting, registration, verification and financial markets that turned this methane destruction into revenue.

The evolution has significant implications for U.S. mine owners. With the June 2009 passage of the American



[Watch this video about carbon capture and storage technology.](#)



[Watch the "Carbon Capture: The Alberta Story" video.](#)

Clean Energy and Security Act of 2009 ([Waxman Markey](#)) legislation by the U.S. House of Representatives and the introduction of the Clean Energy Job and American Power Act of 2009 ([Kerry-Boxer](#)) bill in the Senate, clear expectations are developing regarding the structure of a U.S. based cap and trade program. The role of offsets in a federal program is clearer, as are the types of offsets likely to have value in such a system. The U.S. carbon markets have developed so that increasing levels

of capital are available, price discovery is occurring and demand for offsets is increasing. Companies with financial and technical expertise, and capital, are now in place to partner with mine owners to help them evaluate project opportunities, understand the rules, regulations and processes required to maximize the value of such projects, provide capital to finance such projects and secure the necessary engineering and other technical expertise to undertake a successful project. These or other firms also possess

the presence and capability to navigate the carbon markets and turn this work into tangible revenue.

The experience of developing country mine owners provides a viable analog that should help their US counterparts to realize the significant opportunity and financial benefit of carbon markets. Participants are available to help coal mine owners evaluate, fund and execute on these opportunities to create both economic and environmental benefits. ■

* *Gregory Arnold is a managing partner for [CE2 Capital Partners](#)*

Links and References

- [Carbon Market](#)
- [Carbon Offsets](#)
- [CE2 Capital Partners](#)
- [Coal Mine Methane \(CMM\)](#)
- [Clean Energy Jobs and American Power Act](#)
- [European Union Greenhouse Gas Emission Trading System](#)
- [History of Coal in North America](#)
- [Kyoto Protocol](#)
- [Low-Carbon Challenge Cannot Wait](#)
- [Major U.S. Coal Mines](#)
- [Sustainable Power Generation from Fossil Fuels](#)
- [The Senate Climate Bill](#)
- [The Waxman-Markey Bill](#)

Videos in this Article:

- [Carbon Capture and Storage Technology](#)
- [Carbon Capture: The Alberta Story](#)

Click here for full list of links:
<http://go.mining.com/mar10-a11>