PERSPECTIVES

Carbon Capture & Storage: New Criteria Created for Crediting Carbon Geostorage

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New Criteria to Govern Carbon Capture Credit Development

The International Emissions Trading Associate (IETA) has released its High Level Criteria for Crediting Carbon Geostorage Activities. The criteria will govern activities where carbon dioxide (CO_2) reduction and removal activities are undertaken for the purposes of developing tradable credits. The release of the criteria in late 2022 follows a year-long consultation process with business stakeholders, experts, developers, investors, and project host countries.

SIX SAFEGUARDS TO CREDITING CARBON GEOSTORAGE

IETA has proposed methodological components and safeguards to underpin and guide the crediting of carbon geostorage activities in carbon markets. Methodological components describe the rules and procedures to quantify CO_2 reductions from reduction and removal activities. These include six core components:

1. **Applicability conditions.** These define the circumstances, attributes, and other conditions that apply to geological storage. This includes eligible sources of captured CO_2, transportation, and storage media.

2. **Project boundary and leakage.** This defines emission by sources and removal by sinks that must be measured and accounted for across the capture, transport, and storage phases. The boundary should also include emissions that occur outside of the project boundary (e.g., upstream emissions) which can be attributable to the project activity.

3. **Baseline.** A business-as-usual scenario as used to justify a GHG emission reduction claim and quantify the net emission reductions or carbon removals. Options for setting a baseline condition include project-based approaches (e.g., historical emissions or estimated future emissions without CO_2 capture) or standards-based approaches (e.g., using benchmark emissions of a comparable activity with CO_2 capture).

4. **Additionality.** The carbon storage activity must deliver emissions reductions or removals that would not have occurred in the absence of the market incentive that a carbon credit provides. There are different ways to test for project additionality. Examples include technological/first-of-its-kind, regulatory surplus, or financial additionality.

5. **Non-permanence and liability.** Geological storage sites must be appropriately characterized, selected, developed, managed, and closed so that the risk of CO_2 reversal is limited. This is commonly referred to as quality assurance. Liability allocation, whereby the impact of any carbon reversal is allocated, must also be considered. Safeguards for non-permanence can be implemented through local laws and regulations or through other safeguard mechanisms.

6. **Monitoring.** Robust monitoring is needed to quantify creditable CO_2 reductions or removals (this includes measuring flows and emissions related to CO_2 capture and storage infrastructure) and ensure that human health and natural ecosystems are protected (e.g., checking for leaks in and around the storage site).

10 CRITERIA & CHECKPOINTS FOR SAFE CARBON CAPTURE

IETA's safeguards identify and manage the specific impacts and potential risks associated with carbon storage. There are 10 criteria and supporting checkpoints to support the safe deployment of carbon capture. Note that non-permanence and monitoring relates to both methodological components and safeguards. The 10 safeguards can be bucketed into three main categories and are presented below:

Political Acceptability

1. **Significant and cost-effective for national climate mitigation.**
   Carbon capture technologies should be cost-optimized and Paris-aligned with an individual country's national mitigation pathway while taking the UN Sustainable Development Goals (SDGs) into consideration.

2. **Aligned with national development priorities and policy aims.**
   Geostorage technologies must align with a country's national development plans, policies, and sectoral programs for economic, energy, and industrial development.

3. **Public acceptance.**
   Carbon capture should only be credited where the host country has undergone robust stakeholder consultation and costs/benefits are accepted.

Legal and Regulatory Framework and Safe Storage

4. **Legal basis for injection and storage.**
   Carbon storage activities that are credited under international standards must first comply with local laws and regulations. Regulatory power is usually vested in the local or national government (but in some cases may be private landowners).

5. **Effective site selection and development.**
   Geological pore space for CO_2 storage must follow the appropriate permitting process. Safety and security of a disposal site must be ensured through robust site characterization and consider site selection, development, operation, and closure plans.

6. **Robust oversight of site operation and closure.**
   Geological storage activities must operate with site permits and have the oversight of a competent body.

7. **Liability for carbon reversal.**
   The responsibility for CO_2 permanence in a geological formation must be allocated, and remedial measurement should be implemented in the event of leakage at the storage site.

Environmental and Social Safeguards

8. **Risk and safety assessment.**
   Since geology is heterogenous, there are unique safety, durability, and non-permanence risks that must be considered. There is also inherent uncertainty with geological storage that must be considered. As a result, specific features and potential events and processes must be understood for the risks to be quantified.

9. **Environmental and social impacts.**
   The leakage of CO_2 must be considered in the context of scenarios and measures must be taken to manage such risks and impacts.

10. **Sustainability.**
    Tangible co-benefits, such as those that contribute to the United Nations Sustainability Development Goals, must be demonstrated. These should be considered as part of the project assessment. Implementation can be accompanied by community support programs, knowledge sharing, and engagement actions.

The development of IETA's six methodological components and 10 key safeguards marks continued momentum for carbon storage. The International Energy Agency expects that by 2050, 7.2 billion tonnes of carbon dioxide will need to be captured and stored. This includes not just industrial point source capture, but also direct air capture. IETA predicts that volumes could be much higher. In their own net zero scenario, IETA predicts that 16 billion tonnes of capture are needed by 2050. IETA also predicts that trading of carbon capture credits will play a key role in supporting technology deployment.

CONCLUSION

Regardless of the precise volumes of carbon capture needed in a future net-zero world, deployment of this technology is expected to grow significantly. IETA's methodological components and safeguards offer a roadmap to ensure that carbon capture technology can scale-up in a way that considers environmental and social impacts. It also offers a framework for robust crediting of stored CO_2, which is critical for ensuring offset integrity. Carbon capture and removal provides the opportunity for firms to address hard-to-abate emissions and proactively demonstrate commitment to managing environmental, social, and governance risk. Managing ESG risks proactively signals to the market that your company is effectively managing its entire risk portfolio. The stock market rewards good risk management. The time to begin creating enterprise value through best-in-class ESG performance is now.Frostbyte provides a full suite of ESG and Sustainability Services. Our greenhouse gas management services are informed by two decades of direct experience with all aspects of measuring, forecasting and tracking greenhouse gases. We're helping our clients to understand current ESG pressures, assess relevant risks and opportunities in their specific businesses, and implement effective management plans, processes and systems. Find out how we can help!

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Daniel Artzer is a Senior Business Consultant in J.S. Held's Environmental, Health and Safety (EHS) practice. Daniel is an experienced professional and fast-emerging expert in the EHS field. He has worked in multiple EHS roles in his 10+ years of experience, including as a Staff Engineer, Senior Environmental Engineer, and Senior Management Consultant. His areas of expertise include business analysis, regulatory compliance (focusing on Air Emissions Quality), and design and implementation of EHS Information Systems. He has worked extensively across enterprise-wide EHS software suites, including Enablon and FirstCarbon Solutions. He has served as a Change Manager utilizing the Prosci ADKAR model for large software implementations. He also has experience as an associate project manager overseeing scope, schedule, and budgets.

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