

International Carbon Registry Trading Mechanism (ICRTM) Reporting Protocols for GHG Emission Reduction Requirements

Summary: Climate Care Innovations Inc.

Overview

Climate Care Innovations Inc. is involved in developing methodologies for GHG emissions reductions and carbon sink projects, relevant to the International Carbon Registry Trading Mechanism (ICRTM). The methodologies comply with protocols from the Intergovernmental Panel on Climate Change (IPCC) and the EPA's eGRRTS reporting systems, ensuring rigorous monitoring, reporting, and verification (MRV) standards.

GHG Emission Reduction Requirements

IPCC Protocols:

- **Baseline Emissions:** The IPCC Guidelines allow for different tiers to estimate emissions and removals by sinks. Tier 1 uses international factors, Tier 2 uses regional factors, and Tier 3 involves project-specific data for higher accuracy.
- **Emission Factors:** Emissions factors are critical for calculating GHG emissions. These factors are refined through ongoing research and field data collection to improve accuracy and reliability.
- **Monitoring and Verification:** The IPCC emphasizes continuous improvement in monitoring technologies and methodologies, enhancing the accuracy and reliability of GHG inventories.

EPA eGRRTS Protocols:

- **Regulatory Compliance:** Projects must comply with EPA's Greenhouse Gas Reporting Program (GHGRP), which mandates detailed reporting of emissions from various sectors.
- **Data Integration:** The EPA integrates data from multiple sources, including remote sensing and ground-based measurements, to verify reported emissions. This approach helps reconcile top-down and bottom-up emission estimates.
- **Sector-Specific Guidelines:** The EPA provides specific guidelines for various sectors, such as agriculture, forestry, and energy, to ensure accurate GHG emissions reporting and reductions.

Emission Intense Projects

Project Examples and Protocols:

- **Coal Mines:** Emissions from coal mining, especially methane, are significant. The EPA uses both default emission factors and site-specific measurements to estimate emissions. Continuous monitoring and advancements in remote sensing technologies are improving emission estimates from these sources.
- **Industrial Processes:** The IPCC guidelines support the use of project-specific data for industrial emissions, ensuring that reported data reflects actual emissions more accurately.

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Carbon Sink Projects

Forestry and Land Use:

- **Soil Carbon Monitoring:** Technologies like spectroscopy are being developed and adopted to measure and monitor soil carbon efficiently. This is crucial for projects focusing on carbon sequestration in soils.
- **Forest Management:** Accurate forest carbon inventories are essential. Remote sensing and ground-based methods are integrated to monitor forest carbon stocks and fluxes, ensuring the reliability of carbon sink projects.

Marine CO2 Removal:

- **Ocean Carbon Uptake:** Monitoring oceanic carbon uptake is critical, as oceans absorb a significant portion of CO2 emissions. Technologies such as profiling floats and surface platforms provide data for quantifying ocean carbon sinks, which are crucial for marine CO2 removal projects.

Decarbonization Projects for Current Sectors

Agriculture:

- **GHG Emissions from Agriculture:** The largest agricultural sources of GHG emissions are nitrous oxide emissions from the management of agricultural soils and methane emissions from enteric fermentation and manure management. Advanced process models and integrated measurement systems are being developed to accurately estimate and mitigate these emissions.

Energy:

- **Carbon Capture and Storage (CCS):** CCS involves capturing CO2 emissions from fossil fuel use in electricity generation and industrial processes, transporting the CO2 to a storage site, and depositing it where it will not enter the atmosphere. Protocols include monitoring, verification, and reporting to ensure effective carbon storage and minimal leakage.

Waste Management:

- **Methane Capture:** Efforts are focused on capturing methane emissions from waste management practices. This includes the use of biogas from landfills and anaerobic digestion of organic waste, which can be used for energy production while reducing GHG emissions.

Industrial Processes:

- **Emission Reduction Technologies:** Innovations in industrial processes, such as improvements in the efficiency of chemical reactions and the adoption of low-carbon technologies, are key to reducing emissions from industrial sectors. Monitoring and

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verification protocols ensure that these technologies deliver the promised emissions reductions.

Conclusion

Climate Care Innovations Inc. aligns its methodologies with international protocols from the IPCC and EPA to ensure accurate and reliable reporting of GHG emissions reductions and carbon sequestration. These protocols are essential for maintaining the integrity of the International Carbon Registry Trading Mechanism, providing a robust framework for both emission-intensive and carbon sink projects. The integration of decarbonization projects across various sectors further enhances the effectiveness and comprehensiveness of GHG reduction strategies.

For detailed protocol descriptions and specific methodologies, refer to the provided documents: [IETA GeoStorage Carbon Crediting Handbook 2024](#) and [National GHG MMIS Strategy 2023](#).

