

**Comments regarding the *Joint California-Québec Public Workshop: Potential Amendments to the Cap-and-Trade Regulation***

***Carbon Removal and the WCI***

Presented to

**California-Québec Public Workshop**

by

**Deep Sky**

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Contents

[**Introduction of Deep Sky: A Carbon Dioxide (CO₂) Removal Company** 3](#_Toc139614331)

[**Driving a Sustainable Carbon Removal and Storage Industry in the WCI** 3](#_Toc139614332)

[**Necessity of Technology-Based Carbon Removal in Achieving Net Zero** 4](#_Toc139614333)

[**Integration of CDR Within WCI** 5](#_Toc139614334)

[**Implementation** 6](#_Toc139614335)

[**Conclusion** 7](#_Toc139614336)

## **Introduction of Deep Sky: A Carbon Dioxide (CO₂) Removal Company**

Deep Sky is a state-backed company focused on gigaton-scale carbon dioxide (CO₂) removal. Our mission is to mitigate, halt, and ultimately reverse climate change. By partnering with cutting-edge direct air capture (DAC) and ocean capture technology companies worldwide, Deep Sky aims to construct infrastructure capable of capturing and permanently sequestering gigatons of CO₂. Powered by renewable energy, our operations will remove gigatons of CO₂ from the atmosphere and oceans, utilizing geological storage for permanent sequestration.

Ultimately, Deep Sky will eliminate gigatons of legacy CO₂ emissions accumulated since the industrial era. Our ambition is to scale operations to a megaton scale (1 million tons of CO₂ removed annually) within 5 years and subsequently achieve the final gigaton scale (1 billion tons removed annually) within 10 years. Deep Sky aims to establish itself as a global leader in large-scale technology-based carbon removal and storage.

## **Driving a Sustainable Carbon Removal and Storage Industry in the WCI**

Deep Sky aims to contribute to the development of a viable policy framework that will support a sustainable carbon removal and storage industry within the Western Climate Initiative (WCI). By doing so, we believe the industry can make a tangible impact on climate change. Moreover, Deep Sky seeks to leverage the unique combination of natural resources in Eastern Canada, including clean hydroelectric energy, vast wind energy potential, renewable freshwater, extensive ultramafic rock formations, and deep saline aquifers. These resources provide ideal conditions for carbon dioxide removal operations to take place. Deep Sky's ambitions and operations not only have global benefits but also position the WCI as a leading policy innovator and global influencer in the field of carbon removal. Our rapid scaling and inclusion of innovative DAC and other carbon removal technologies will elevate the WCI's status in the carbon removal space.

## **Necessity of Technology-Based Carbon Removal in Achieving Net Zero**

As the world progresses toward achieving net zero emissions, it has become increasingly evident that carbon removal will be crucial. Governments, businesses, and organizations will find it challenging to reach net zero without employing carbon removal technology to some degree. Unfortunately, certain voices have raised concerns about the use of carbon removal, claiming it facilitates greenwashing or acts as a permit to pollute. At Deep Sky, we firmly believe that carbon removal is not only beneficial but also necessary in the fight against climate change, especially when employing DAC and ocean capture technologies.

Firstly, carbon removal does not grant buyers of carbon credits a "permit to emit." To avert the most catastrophic climate change scenarios, we must go beyond achieving net zero and strive for net negative emissions, including the removal of past emissions. Recent studies[[1]](#footnote-2) indicate that there is a significant and growing risk – up to 42% – of exceeding the global climate change target of 1.5 degrees Celsius unless serious action is taken to reduce or remove greenhouse gas emissions (GHG) immediately. In a world still far from effectively and globally reducing GHG emissions, capturing and sequestering carbon from current and past emissions becomes imperative to reach net zero and mitigate the worst impacts of climate change.

Secondly, attaining net zero emissions poses significant challenges for hard-to-abate industries. For example, the airline industry will likely require the use of carbon removal technologies due to the limitations of Sustainable Aviation Fuel (SAF). The most widely available SAF falls short of fully eliminating GHG emissions by reducing emissions up to a maximum of 85%. Even in an ideal scenario where 100% of aircraft adopted SAF tomorrow, achieving net zero would remain unattainable with current technology. The global air fleet will take years or even decades to transition entirely from conventional jet fuel aircraft to SAF-compliant aircraft, and even then SAF does not eliminate emissions. Airlines are just one example; other industries with high Scope 1 emissions will find it impossible to eliminate emissions entirely. Therefore, net zero can only be achieved if companies have additional means to remove or reduce emissions.

Finally, out of all the possible carbon removal technologies available, DAC and ocean capture are particularly attractive because of the permanence of its storage - geological storage - and because of its limited area footprint when compared to nature-based solutions. Moreover, the ability to precisely measure the amount of carbon removed and then the permanence of the storage set this technology apart. Reliability and quality are what will build trust between the companies capturing and storing carbon, and as well as the buyers, regulators, and the general public.

## **Integration of CDR Within WCI**

As technology-based carbon dioxide removal (CDR) solutions gain recognition, their seamless integration into existing carbon markets, such as the Western Climate Initiative (WCI), becomes essential for their success. Facilitating the participation of carbon removal companies within the WCI's carbon market will be crucial in maximizing the adoption of technology-based carbon credits.

When considering the inclusion of DAC, ocean capture, or other technology-based CDR methods within the WCI, managing credit quality and supply becomes a central concern. The incorporation of CDR technologies within the WCI introduces a substantial new source of credits alongside those auctioned by the government.

*Ensuring Quality*

The inclusion of carbon removal credits within a carbon market must address any potential concerns on quality. To maintain confidence in the integrity of generated credits and the overall WCI, technology-based carbon removal companies must adhere to world-class, internationally recognized standards. Achieving quality assurance requires collaborative efforts from participating WCI governments. Best practices should be enshrined in laws or regulations, ensuring a minimum threshold of quality across all participating jurisdictions. Competent authorities should monitor these best practices, while potential CDR credit sellers must meet these criteria before being eligible to sell credits to market participants.

One approach to ensuring quality and the capacity of participating governments to enforce regulations is to **require carbon removal facilities to be geographically located within WCI participating entities, specifically California and Québec.**

*Managing Supply*

Managing credit supply is a complex endeavor that necessitates consideration of the WCI's overall emissions cap, government revenue, and revenue streams for CDR companies. The WCI will maintain its emissions ceiling and continue to reduce the quantity of allowed emissions, aligning with global emission reduction objectives. An adequate number of credits from removal activities must be allowed to ensure the financial viability of CDR companies, all while ensuring credit price stability. Balancing these three interests is crucial to achieving the goal of reducing net GHG emissions. However, the easiest methods to control supply is to simply keep in place a price floor for credits.

New Zealand's framework offers some inspiration in this regard. Their system allows "removal activities" to generate emission allowances that can be sold within the carbon market. Although New Zealand's removal activities currently do not encompass dedicated CDR activities such as DAC or ocean capture, they incorporate forestry. In their approach, **the total amount of CDR-origin credits is simply added to the total number of credits auctioned by the government.** To account for additional supply generated by CDR, New Zealand maintains a floor price for credits.

## **Implementation**

The integration of CDR-generated carbon credits within the WCI could be accomplished through the following steps:

1. Establishing a Regulatory Framework: WCI governments should collaboratively establish a regulatory framework that ensures the quality and integrity of DAC-generated carbon credits. This framework should include minimum standards, verification processes, and monitoring mechanisms to maintain the trust and transparency of the market as well as an exhaustive consultation process to put it all in place. Alberta, which has one of the world’s leading CCUS regulatory framework, could be a source to learn best practices from.
2. Alignment with Global Standards: The regulatory framework should align with global standards for carbon removal, like UNFCCC Article 6.4 Emissions Reductions and others. The framework should also draw upon existing guidelines and best practices developed by international bodies such as the IPCC and the International Standards Organization (ISO).
3. Carbon Accounting Protocols: Develop standardized carbon accounting protocols specific to DAC and ocean storage technologies within the WCI framework. These protocols should provide clear guidelines on carbon removal measurement, verification, and reporting, enabling accurate and consistent tracking of carbon removal activities.
4. Pilot Programs and Demonstrations: Initiate pilot programs and demonstrations to test the effectiveness of DAC technologies and their integration within the WCI. These programs can help identify challenges, refine the regulatory framework, and build confidence in DAC-generated carbon credits.
5. Gradual Scaling: Gradually scale up the integration of CDR-generated carbon credits within the WCI, allowing for adjustments based on market dynamics, technological advancements, and policy developments. This phased approach ensures a controlled and managed expansion of the carbon removal industry.

## **Conclusion**

This submission echoes the growing consensus that carbon removal will not only be helpful in the fight against climate change, but it will also be necessary. Because of this, credits must be made available within the WCI so that participating businesses can purchase reliable and verifiable CDR credits from trustworthy sources in order to reduce their net emissions.

By creating a healthy market for CDR credits, the seamless integration of carbon removal credits within the WCI will sustainably support the carbon removal industry and allow it to attain the critical mass needed to measurably impact and eventually reverse climate change.

Ensuring that this industry is located within WCI-member states and provinces will ensure that regulators can verify quality and enforce regulations. It may also provide an economic incentive to other states and provinces wanting to join the WCI.

The magnitude of the challenge of climate change must be met with a proportional response from governments and organizations. The WCI will need to be agile in the face of the rapidly evolving technological situation in the carbon removal industry to support participating businesses in the WCI to attain their ultimate objective of net zero.

More work needs to be done to clearly define the parameters of the inclusion of carbon removal, including DAC, within the WCI. Deep Sky will proactively engage with the necessary regulators and governments to help define and elaborate regulation that protects the public and environment, all while ensuring that the carbon removal industry is able to develop successfully and sustainably.

Deep Sky’s overarching mission to ultimately reverse climate change informs every one of its actions, and this mindset will be reflected in any future collaboration between Deep Sky and the WCI or any regulator that wishes to do its part in the fight against climate change.

1. Dvorak, M. T., Armour, K. C., Frierson, D. M., Proistosescu, C., Baker, M. B., & Smith, C. J. (2022a). Estimating the timing of geophysical commitment to 1.5 and 2.0 °C of global warming. *Nature Climate Change*, *12*(6), 547–552. https://doi.org/10.1038/s41558-022-01372-y [↑](#footnote-ref-2)