

Submission to Standing Committee on the Environment and Sustainable Development

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1. Overview:

Carbon Connect International (CCI) is based in Calgary, Alberta, Canada and is a leading provider of emissions management and reduction solutions for the global energy transformation. CCI provides carbon accounting, baseline emissions quantification, technology partnerships, emissions reduction planning, carbon management strategies, education, and training solutions with a focus on the oil and gas industry, and extensive experience throughout the Western Canadian Sedimentary Basin.

Carbon Connect's experience in implementing baseline emissions quantification and reduction programs in Canada is unique and provides companies and governments and makes CCI a reputable partner for accelerating the implementation of decarbonization commitments through baseline quantification, technology implementation, and education. This expertise blends directly into meeting the UN targets for Climate Change, including the Nationally Determined Contributions (NDCs) for Canada and all nations.

In 2021 and 2022, through Alberta's Baseline and Reduction Opportunity Assessment (BROA) program and Methane Technology Implementation Program (MTIP) designed by CCI, CCI has provided program management for over 100 emissions reduction projects in Alberta, resulting in lifetime emissions reductions of over 17.4 million tonnes of CO₂-equivalent to date, and emission surveys under review and management for roughly 20,000 facilities. The BROA and MTIP programs combined totaled \$40 million in matched government expenditures by the government of Alberta which have been 100% allocated and oversubscribed.

In addition to designing managing emission reduction programs, CCI is a globally recognized expert in methane measurement and mitigation. The Company has delivered various decarbonization courses to the worldwide oil and gas community in Canada, the USA, Japan, Ecuador, United Arab Emirates, Indonesia, Russia, Croatia, France and the UK. CCI has also offered a number of courses and training programs in methane management and mitigation to the Canadian Trade Commissioner Service (TCS) to support the governments efforts to understand the international opportunity for Canada to profile its international leadership in methane emission policy and regulation, as well as to profile and support the introduction of Canadian technologies that have been developed, proven, and fully commercialized in Canada, into the international marketplace.

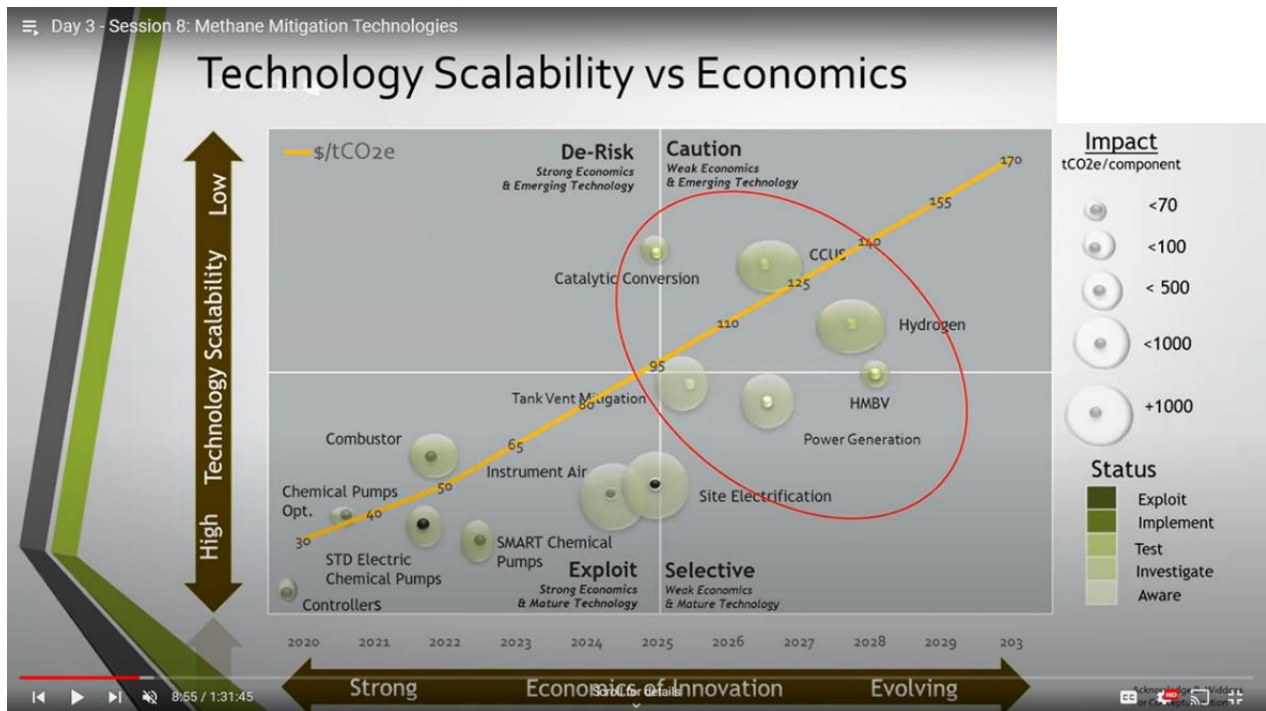
2. Why the Focus on Methane?

Decarbonization is a global challenge with impacts on many industrial sectors, as the energy mix of the future will certainly contain a number of low or no carbon solutions. This transition is already happening, and the only question is relative to timing and the ultimate supply mix in the transition. Whatever the ultimate outcome, it is incumbent that the immediate focus be on opportunities that deliver the most cost-effective and impactful solutions. Limited global financial resources, especially in developing countries, should be aligned to the most immediately implementable solutions given the recognized need to accelerate decarbonization efforts.

Methane gas has an 80x greater GWP than CO₂ over 20 years, and 25x greater GWP over 100 years. Methane emissions come from both natural and anthropogenic sources. Emissions from fossil fuels, though second to agriculture in terms of total worldwide methane emissions, present the most immediate opportunity for emission reductions in Canada. This includes the upstream and downstream oil and gas sector. And while decarbonization needs to address opportunities for decarbonization beyond methane (ie. Carbon Capture Utilization and Storage (CCUS) and Hydrogen,) the reduction of methane emission present a unique opportunity on two fronts:

1. Most high impact methane solutions can be addressed with existing, proven technology that can be implemented quickly. Canada is a world leader in this regard, with technology providers working to address new technology to address solution gaps.
2. Methane emission reduction is one of the most cost-effective solutions. Reference to Figure 1 where Technology Scalability and the Economics of Innovation determine which technologies should be exploited first. In the Exploit quadrant, virtually all of the technologies identified are technologies that are commercial and being implemented, at the present time, in Canada.

Figure 1: Technology Scalability and Economics



Source: PTAC 2021

While efforts to develop and implement emerging technologies like CCUS and Hydrogen are necessary and given the time to complete must be started now, a focus on methane emission mitigation in Canada and internationally is clearly critical and immediate action required.

3. Methane Emission Mitigation Programs – The Alberta Example

Alberta has long had a focus on methane emission reduction. While many jurisdictions are just now addressing issues like venting and flaring, Alberta implemented programs starting over a decade ago and has continued to monitor, update, and expand them. The Alberta Energy Regulator (AER) has a regulatory and enforcement framework that is a model internationally and which is continually updated. Alberta had the first carbon pricing and offsets system in North America, which has and continues to play an important role as a key tool to finance carbon emission mitigation. Alberta also leverages the Technology Innovation and Emissions Reduction (TIER) fund to deploy programs focusing on methane emissions management and mitigation, including the two key programs designed and implemented by CCI (BROA & MTIP).

Both the Methane Technology Implementation Program (MTIP) and Baseline Reduction Opportunity Assessment (BROA) programs grew from inception, with overall funding more than doubling over 2 ½ years, from an initial disbursement of \$15 million to \$40 million. The funds in these programs have been both fully deployed, with an approved project waiting list of an additional \$2 million in project applications received before the September 30, 2022 close date, should more funds become available. These programs have been broadly accepted by industry and offer real solutions in methane emissions reduction and operational efficiency. Of utmost importance, these programs have utilized off the shelf technology, and in most cases locally manufactured products, as well as existing service providers. The financial cost sharing provided by the Province of Alberta through these programs was additional, provided a strong incentive to implement technologies that did not necessarily lend themselves to financing through existing offset protocols. The financial support created clean tech jobs in existing Alberta technology providers, as well as clean tech jobs in the service sector in identification, verification, and implementation including installation. Many of these jobs were created in small communities, providing an important social component to the ESG opportunity clean technology implementation provides.

CCI uses in-house developed Greenhouse Gas (GHG) emissions quantification protocols along with other support tools. For the MTIP program, participants implement commercially available methane reduction technology at upstream and midstream Oil and Gas facilities. To ensure consistent and accurate quantification of the baseline and project conditions, CCI has developed GHG emission quantifications protocols for all 13 eligible project types within the program as well additional protocols for specific baseline conditions where incomplete combustion may be occurring. These protocols outline the inputs parameters as well as any measurement specifications for the baseline and the project conditions. The quantification methodology is based on the Alberta Emission Offset System quantification protocols for participation in the carbon market. This methodology is based on the progressive regulatory system in Canada, which is a significant global leader in the space.

One of the reasons for CCI's successful implementation was that, in addition to the quantification methodology, CCI developed a standardized device and equipment data template for collecting facility inventories for oil and gas baseline measurement. Being close to its ultimate clients, CCI developed this template through engagement of various stakeholders including the Government of Alberta, the Alberta Energy Regulator, Industry Associations, Producers, Emissions Data Collection Experts, Offset Developers and Verifiers. To aid with the collection of the extensive template parameters, CCI also developed a proprietary data collection application for use within the BROA program.

4. Methane Emission Mitigation - A Global Opportunity for Canada

CCI was founded with the purpose of conducting training courses for the Society of Petroleum Engineers (SPE), a global organization with some 140,000 members. As a former International President of SPE, CCI Managing Partner Darcy Spady, P.Eng. has access to this global community

of technical energy experts, having visited 49 countries to support local SPE Chapters during his term in office. It quickly became apparent that Canada was at least a decade ahead of most jurisdictions in the world on policy, regulation, and implementation of methane emissions solutions. CCI's expertise and Canada's strategic advantage in this respect was noted by NExT, the training arm of oilfield services giant SLB (formerly Schlumberger), who contracted with CCI to develop and deliver internationally a training portfolio of some eight courses in the de-carbonization space. Subsequently, as the general results of the baseline and implementation programs conducted for the Alberta Ministry of Environment and Parks became public, CCI started to provide these results in global environmental forums, conferences, and education and training programs. This has resulted in a massive global interest in Canada's methane reduction initiatives. The primary reason for this level of interest is that CCI is presenting real, actual measured results, not just aspirational goals that tend to dominate international climate and emission reduction discussions. CCI has a technical paper published within the literature (SPE-210455-MS), and several more abstracts have been submitted to be presented at upcoming conferences.

The implications of this global reach are significant. Canada as an acknowledged world leader in regulation, policy, and implementation in the petroleum sector does two things. First it demonstrates in real time that the transition to cleaner energy production is possible. Beyond just ambition, Canada can help other countries develop their own programs and implement technology pathways to achievement of their global commitments. Second, by bringing up the rest of the world to Canadian standards, we don't put our industry at a competitive disadvantage, which can effectively just 'offshore' the problem of emission management and mitigation. Helping to create a critical level playing field internationally, where everyone does their share of heavy lifting, is critical to achieve meaningful global environmental benefits.

5. Recommendations

a) Continue to Financially Support Methane Emissions Reduction Programs Nationally

Given the compelling opportunity that methane emissions reduction in the petroleum sector provides, the Federal Government should continue to financially support methane emission reduction programs nationally. The success of the Alberta program is one clear example of how a carefully designed and implemented program can achieve and exceed objectives. In financially supporting continued implementation of methane emissions reduction technology, we are not advocating that the Federal Government reduce its commitments to longer term, more costly but high impact programs like CCUS and Hydrogen. The key issue is that projects like large scale CCUS and Hydrogen will take years to develop and implement, and in most cases will have an impact beyond 2030. Methane emissions reduction programs deliver material emissions reductions required to meet enhanced 2030 targets and are far more cost effective. A lot has been achieved over the past few years, and the implementation momentum is growing exponentially with the support of government programs, offset opportunities, and

similar financial incentives. This can mostly be done with existing technologies as research and development for exceptional cases is completed.

There are opportunities to build off successful programs being delivered by the provinces. A simple solution would be to potentially 'top up' successful programs that exhibit continued demand for financial resources. Given the need for early action if we are to meet our commitments, time is of the essence in any path forward.

b) Canada Support Canadian Methane Emission Reduction Technology and Services Internationally

Development of decarbonization technology and expertise is an area for which Canada and Canadian companies are leaders. While there is always need for improvement, Canadian regulatory standards are known and accepted by many as a 'gold' standard to be emulated. Canadian methane emission reduction technologies are developed, proven, and ready for implementation as a result of Canadian early action. Like Canada, methane emissions reduction is the 'low hanging fruit' for short term action and implementation internationally, especially in developing countries.

CCI acknowledges the tremendous support offered by the Canadian Trade Commissioner Services (TCS). With nominal resources, they have shown both an interest and commitment to supporting Canadian companies in the methane emissions reduction space. Of note is that the TCS reached out to CCI to provide a number of education and training seminars on the topic. This is an example of a motivated and committed group. If Canada wants to be a global player with global influence in addressing the international climate change agenda, these people are on the front lines, and more financial resources and support to the TCS would be one of the most cost effective and simple solutions the Government of Canada could adopt.

Another area where the Government of Canada could have significant impact is by leveraging existing financial resources Canada provides to International Financial Institutions (IFI) like the European Bank for Reconstruction and Development, Africa Development Bank, Asia Development Bank, and the InterAmerican Development Bank. Canada should prioritize climate related initiatives in its lending criteria. If we agree that the climate crisis is an 'existential' issue, then Canada should simply communicate that Canada wants its partner institutions to give priority to climate related studies, programs and technologies implemented to reduce carbon emissions, and ideally to supporting projects where Canadian companies are clearly leaders. This would be a low-cost way of turning Canadian aspiration to action. Many developing countries have limited resources to do the necessary initial work necessary to meet global climate objectives, so helping them access critical resources to help them meet their Nationally Declared Contributions (NDC) under COP would seem to be an obvious and immediate opportunity.