



FERTILIZER CANADA

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March 4, 2022

Natural Resources Canada
580 Booth Street
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Via email: ccus-cusc@nrcan-rncan.gc.ca

Re: CCUS Strategy for Canada

On behalf of our member companies, Fertilizer Canada would like to thank you for the opportunity to provide input into the *Carbon Capture, Utilization, and Storage (CCUS) Strategy for Canada*. We are pleased that Natural Resources Canada has recognized the importance and potential of CCUS for our industry in Canada and greatly appreciate your ongoing stakeholder engagement to ensure the success of CCUS at our Canadian facilities.

CCUS technologies offer significant opportunities for our member companies in Canada. However, we must note that an eight-business day consultation period does not provide sufficient time for our members to thoroughly review the draft strategy to construct comprehensive recommendations for our industry. Although we thank the department for a business day extension, we ask that Natural Resources Canada work in the future to provide stakeholders with standard consultation timelines which have been established to ensure stakeholders can offer meaningful recommendations to ensure policy success.

We have provided our preliminary feedback in the attached *CCUS Strategy Template*. Additionally, we have attached our recently completed *Low-Carbon Technology Scan for the Canadian Fertilizer Industry*, which outlines the current opportunities and challenges associated with implementation of low-carbon technologies, such as CCUS, at our Canadian mines and facilities. Fertilizer Canada welcomes any questions as it relates to our consultation response or *Low-Carbon Technology Scan for the Canadian Fertilizer Industry*, and we would be pleased to schedule a virtual meeting to discuss this information in more detail.

Thank you again for this opportunity to submit feedback on the CCUS Strategy for Canada. Fertilizer Canada stands ready to work with the Government of Canada as the CCUS Strategy for Canada is developed and implemented.

Sincerely,

McKenzie Smith,
Director, Stewardship & Regulatory Affairs

CCUS Strategy – Template for Input

Request: Please review each section and provide comments and recommendations to address any identified gaps or areas to expand upon or refine.

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| Section 1: Context |
| Comments: No additional comments. |
| Section 2: CCUS Primer |
| Comments: <i>What is needed to enable deployment of mature CCUS technologies this decade?</i> Regulatory stability (including carbon price certainty), a well-designed CCUS Investment Tax Credit, and public infrastructure for carbon storage and transportation are the leading factors that will allow Canada to implement CCUS technologies in a global market. Other jurisdictions that are moving quickly and aggressively to reduce barriers to CCUS investment and, as one of Canada’s most Energy-Intensive and Trade-Exposed (EITE) industries in Canada, our sector will need public support to secure such investments domestically. We encourage the Government of Canada to develop funding programs that support the implementation of mature CCUS technologies as well as the required infrastructure (including carbon transportation and storage) as this will help encourage CCUS investments and encourage widespread adoption of this technology in Canada. Additionally, we ask that the Government of Canada coordinate across departments and with provincial governments to prioritize the construction of public infrastructure for CCUS, including carbon transportation and storage, as lack of accessible CCUS infrastructure is a key barrier to the widespread adoption of CCUS technology in our industry. Without accessible infrastructure, the cost of implementing CCUS at a facility is significantly higher, as the facility must bear the costs of developing the storage and delivery mechanism in addition to the capture costs. <i>What is needed today to drive RD&D and innovation of early stage CCUS technologies to commercial solutions for future decades?</i> Currently, our industry can readily capture Industrial Process (IP) emissions. Our facilities use the captured CO ₂ in the production of additional nitrogen-based fertilizers, including urea and urea ammonium nitrate. However, capture of combustion emissions presents both significant financial barriers and challenges with current technologies. Advancements in technologies used to capture combustion emissions at an industrial scale will provide industry with more certainty when investing in these technologies. Additionally, a lack of accessible carbon storage or utilization locations is a key barrier for our sector. With cost-effective access to underground sequestration sites, process emissions from fertilizer plants could offer some of the earliest opportunities for large-scale sequestration of CO ₂ . Implementation of CCUS technologies at one of our member facilities was supported with access to a carbon trunkline. Extension of such infrastructure or innovative carbon storage hubs would |

support the widespread adoption of this technologies throughout our industry. The Government of Canada should prioritize research funding programs that support scalability of such technologies at our facilities and invest in expansion and development of a range of CCUS infrastructure solutions to encourage implementation of CCUS more broadly.

Additionally, we encourage the Government of Canada to support and coordinate the development of provincial regulatory frameworks for CCUS where appropriate to ensure that CCUS technologies can be implemented in the locations where they will be most effective. For example, regulations surrounding pore space access are in varying stages of maturity across provinces, and, in some provinces, there are no regulations in place. Provincial CCUS regulatory frameworks will have a significant impact on the development and adoption of CCUS technologies, and coordination between these frameworks where possible will simplify the regulatory landscape for industry members and enable CCUS implementation.

Section 3: Global CCUS Context

Comments:

Other jurisdictions are moving quickly and aggressively to reduce barriers to CCUS investment and, as one of Canada's most Energy-Intensive and Trade-Exposed (EITE) industries in Canada, our sector will need public support to secure such investments domestically. Not only will our sector, amongst other EITE industries, depend on public infrastructure developments and regulatory certainties to secure these significant, multi-year projects in Canada, broad adoption of CCUS technology will be supported with competitive investment tax credits, such as the 45Q in the United States.

Section 4: Canada's CCUS Advantages

Comments:

Implementation of CCUS technologies at one of our member facilities was supported with access to a carbon trunkline. Extension of such infrastructure or innovative carbon storage hubs would support the widespread adoption of this technology throughout our industry. Canada has geographical advantages for successful CCUS implementation, such as geothermal storage opportunities in Ontario or trunkline extension options in Alberta, that need to be harnessed to support Canadian industries investments in CCUS technologies.

Section 5: Opportunities for Canada's CCUS Industry

Comments:

Fertilizer Canada and our members are pleased that our industry is recognized within the CCUS Strategy as a key sector that can benefit from CCUS technology. The Canadian fertilizer industry recognizes this and is committed to the continued improvement of its environmental performance. As a leader in improved environmental sustainability, the Canadian fertilizer industry continues to actively assess new and emerging low-carbon technologies to further reduce fertilizer manufacturing emissions. The Technology Scan explains current manufacturing processes, evaluates new and emerging technologies against their emission reduction potential, commercial

scalability, economic viability, and regional considerations, and provides technology and policy recommendations based on this evaluation. Through this exercise, CCUS was identified as one of the most promising technologies for emission reduction for the fertilizer industry in Canada in the medium- to long-term, depending on the type of emissions CCUS is applied to as well as other factors like availability of infrastructure for carbon storage and transportation. In fact, CCUS is one of the few opportunities to address hard-to-abate emissions from fertilizer manufacturing, and its large-scale, cost-effective deployment will be key to preserving our industry's long-term competitiveness in a rising carbon price environment.

For our industry, which is already a major producer of hydrogen and ammonia, CCUS also presents an opportunity to produce blue ammonia and hydrogen for emerging domestic and international energy markets.

Please see the attached document, *Low-Carbon Technology Scan for the Canadian Fertilizer Industry*, for additional details on the opportunities for CCUS in our industry.

Section 6: Costs of CCUS Technologies

Comments:

The *Low-Carbon Technology Scan for the Canadian Fertilizer Industry* compared each viable low-carbon technology for our sector against its emission reduction potential, capital and operational cost requirements and years to implement. It was found that, although CCUS of IP emission is a near-to-medium term technology for our sector, the estimated capital cost of this technology would be between up to \$50 million dollars, although costs will vary considerably based on factors such as facility size and location. Additional, more challenging, capture of flue gas emissions through CCUS was identified as a long-term technology for our industry requiring over \$50 million dollars of capital investment. In addition to these significant capital investment requirements, our study found that operational costs would increase in similar proportions above status quo.

Section 7: Requirements for advancing CCUS in Canada

Comments:

Fertilizer Canada supports the intent to develop a policy environment that aims to provide long-term support for CCUS, as regulatory uncertainty can be a significant barrier when attempting to secure large, long-term capital investments in Canada. The development and implementation of CCUS technologies requires major investments of time and capital, and an unstable regulatory environment can strongly discourage global companies from making those investments in Canada. Further, we strongly agree that government has a crucial role to play in providing a coherent and supportive policy framework that ensures the unit cost of CCUS does not exceed the expected future cost of carbon regulation, as this is key to encouraging significant investments in CCUS technologies in the near future.

We appreciate the consultation of international best practices for CCUS policies and standards. As is recognized in the draft strategy, Canada's CCUS business environment must be competitive with other jurisdictions that are working to attract investments in CCUS research and deployment. Importantly, incentives like the

planned CCUS Investment Tax Credit must be competitive with similar programs in other countries, including the 45Q tax credit in the United States.

Further, restrictions on eligible carbon capture and use projects should be minimized to ensure that all CCUS projects with significant emission reduction potential can receive credit for these reductions. For example, in other jurisdictions where CCUS adoption is growing, enhanced oil recovery (EOR) has been a primary motivator for many CCUS projects. EOR results in reduced overall emissions compared with traditional oil production, and the required technology for this process is more readily available than what is required for many other CCUS applications. Despite this, in the development of the CCUS Incentive Tax Credit, Finance Canada has indicated that EOR projects would not be considered for the tax credit. Fertilizer Canada recommends that EOR be considered a viable carbon storage option as economies and technologies transition over the next decade.

Additionally, Canadian industries will need access to public infrastructure pipelines and hubs to ensure captured carbon can be stored or utilized supporting a return on investment for implementation of these technologies.

We support the development of the “Canadian CCUS Assessment Framework” and ask that Natural Resources Canada consult with our industry as the framework is developed to ensure that the tools under development will be as practical and beneficial as possible.

As federal and provincial CCUS strategies, policies, and programs are developed, we encourage the federal government to provide support and coordinate with provincial governments where appropriate to ensure that the various jurisdictions within Canada set a cohesive path forward for CCUS development and implementation.

Section 8: Vision and What We Heard

Comments:

Fertilizer Canada and our members are encouraged by the involvement of a number of federal departments and organizations in the development and implementation of the CCUS Strategy for Canada. Strong cooperation across government at both the federal and provincial levels will be required for the CCUS strategy to be carried out successfully.

We support the four pillars identified as areas for action, as these categories (CO₂ Storage, Infrastructure, and Hubs; Innovation and RD&D; Policies and Regulations; and Trade and Investment) are closely aligned with the key action areas that we have identified as necessary to support CCUS development and implementation in the Canadian fertilizer industry.

Annex 1: CCUS Across Canada

Please note the provincial governments provided their respective sections and will reflect recent developments prior to the CCUS Strategy’s publication.

No additional comments.

Annex 2: First Wave of Large-Scale Projects and their Unique Learnings

Fertilizer Canada
March 7, 2022

No additional comments.

Annex 3: Outcomes and Indicators towards the 2050 Vision for CCUS in Canada

We support the use of indicators to measure progress toward the 2050 objectives for CCUS. However, at this time Fertilizer Canada does not have a position on the specific indicators that should be used.