

Jan 05, 2018

Submitted online to: lcfr@bc.ca

Attn: The British Columbia Low Carbon Fuels Branch
Ministry of Energy, Mines and Petroleum Resources

Regarding: BC LFCS Consultation on Pathway Assessment 2017.

Carbon Engineering is pleased to respond to the B.C. Ministry of Energy, Mines and Petroleum Resources Pathway Assessment 2017 discussion paper. As a B.C.-based developer of technology to capture CO₂ directly from atmospheric air and convert it into clean-burning drop-in compatible transportation fuel-stock, we have an interest in contributing to B.C.'s advanced fuels ecosystem. As world markets increasingly transition towards clean fuels, B.C. and Canada can lead the way on policy and innovation, and can cultivate technologies and markets that will reduce emissions at home, and create opportunities to export technology and know-how to do the same internationally. We offer the following selected points of feedback from our perspective as a developer of clean fuel technology.

Selected feedback:

- Firstly, we commend the Ministry for taking policy leadership on clean fuels with the RLCFRR, and for the emissions reductions and benefits to B.C. citizens already achieved. The Pathway Assessment 2017 discussion document provided a helpful level of detail on current and prospective supplies and carbon intensities of the many transportation fuel types, and provides a useful basis on which to comment.
- We encourage the Ministry to stay the course with the RLCFRR, to follow the compliance schedule to 2020, and to consider implementing a carbon intensity reduction target of 20% by 2030. We think that this target is well within Canada's technical, industrial, and entrepreneurial capability to attain, and is also necessary to spur the evolution in Canada's energy industry which will be required to meet subsequent targets after that. Setting and attaining aggressive emissions reduction targets establishes Canadian leadership on climate change, delivers direct benefits to Canadian citizens in the form of lowering pollution and creating high-tech jobs that come with deployment of advanced fuels and clean vehicles, and also establishes Canadian expertise and know-how that can be exported to other global markets as they follow the same trend towards clean transportation.
- B.C.'s existing RLCFRR targets and those under consideration for 2030 will build on the achievements of the program thus far, and are comparable with targets being set at the Canadian Federal level, in California's LCFS, by the US EPA's Renewable Fuel Standard, and at both the European Union and member state levels.

- At Carbon Engineering, we are working on a transformative fuel production pathway called “Air to Fuels”. We highlight ourselves both as one of many fuel technology developers that will thrive under continued progression of the RLCFRR, and a home-grown technology that can domestically produce high-volumes of clean burning renewable fuels.
 - Air to Fuels involves atmospheric capture of CO₂ combined with renewably-powered water electrolysis to deliver hydrogen, and then a thermo-catalytic combination of the CO₂ and H₂ to form liquid hydrocarbons (either Fischer-Tropsch Liquids, known as “synthetic crude” or blend-ready fuels like gasoline and diesel). Such synthetic fuels are fully compatible with existing engines, have no blend wall, are cleaner burning than fossil fuels, and can be ultra low carbon intensity on a life-cycle basis.
 - We have demonstrated end to end Air to Fuels at our pilot facility in Squamish, B.C., and are pursuing opportunities to develop and site future commercial facilities in the Province.
- Longer-term compliance with the aggressive targets that will follow 2030, which will be essential to meeting Paris Commitments, and avoiding climate change, will require continued technology innovation. Our example of Air to Fuels is one of many innovative technologies that will be required to meet this challenge, but which also offer great promise and opportunity to those that gain a leadership position. We encourage the Ministry to include consideration of how to incentivize innovative fuels technologies as part of the periodic RLCFRR review process.
 - The existing Part 3 Agreement feature of the Regulation forms an excellent basis, and continued examination of how to encourage leading fuels technologies to enter B.C.’s marketplace with demonstration projects and early commercial facilities is warranted. Consideration should be given on how to incentivize incumbent fuel producers, importers, and refiners to seek out developers of innovative fuel technologies and partner on early commercial projects.

We submit this as a non-exhaustive set of feedback and perspectives, and welcome any interested parties to contact us at any time for further discussion.

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