



Federal Pre-Budget Consultation - Submission 2015

Recommendations to support growth and development of commercial production of cellulosic biofuels for a stronger and greener economy

Executive Summary

Enerkem is a Canadian cleantech private company which was founded in 2000. Enerkem's technology is a breakthrough innovation that uses garbage to produce cellulosic biofuels and renewable chemicals. Headquartered in Montreal, Enerkem now employs 170 people across Canada. The company operates both a demonstration plant and a pilot facility in Quebec and recently inaugurated its first full-scale commercial facility in Edmonton, Alberta. This game-changing plant is the world's first full-scale facility to convert non-recyclable residential waste into cellulosic biofuels and renewable chemicals. Enerkem is also developing additional biorefineries in Canada and globally, based on its modular manufacturing approach.

Disruptive technologies are not overnight successes. They are crafted by like-minded customers, visionary entrepreneurs and investors as well as determined employees. Pilot and demonstration plants take years to develop and require discipline and sustained efforts. They also require public policies and programs that stimulate private investment, open the marketplace, level the playing field and help move from lab, pilot, demonstration, to full-scale production.

Over the years, Enerkem has benefited from the support of the federal government who, through Natural Resources Canada, NSERC, and the Sustainable Development Technology Canada TechFund and Next Generation Biofuels Fund, has provided support in developing the technology early on and, to this day, has been an essential partner in our success.

Cellulosic biofuels are produced from non-traditional renewable feedstocks (such as lignocellulosic materials, municipal solid waste and forest biomass) using transformative technologies that are not widely commercially used yet. These advanced biofuels are on the cusp of commercialization in Canada and will play an instrumental role in the continuing growth of a strong Canadian biofuels industry and economic development. Cellulosic biofuels represent a growing segment of the clean technology industry in Canada. Utilizing breakthrough technologies and innovation, these biofuels significantly reduce GHG emissions which lead to environmental and health benefits all Canadians can benefit from for generations to come.

while directly contributing to the government's goal for economic growth by creating new high quality jobs.

In the absence of strong policy measures designed to promote the production and use of cellulosic biofuels in Canada, domestic production of cellulosic biofuels will be limited and Canadian-made cellulosic biofuels are likely to be sold into the US market to capture price premiums associated with cellulosic biofuels tax incentives and regulatory compliance credits available in this market. Other countries around the world are developing policies stimulating investment in cellulosic biofuels, including non-fiscal incentives. For example, in the UK, the Renewable Transport Fuels Obligation (RTFO) allocates 'double credit' towards targets of biofuels derived from specified wastes and residues (including municipal solid waste).

For this reason Enerkem respectfully submits the following three recommendations:

- Exempt cellulosic biofuels from the federal excise tax on gasoline (10 cents per litre)
- Create a biorefinery fund for innovation and commercialization in the bioeconomy
- Encourage the development of infrastructure and higher renewable fuel blends to offer more consumer choices at the pump

With an understanding of current fiscal realities, these recommendations will ensure that Canada's cellulosic biofuels industry continues to evolve and can generate the economic growth expected from facilities such as Enerkem's newly built biorefinery in Edmonton. According to an independent economic impact study, during the construction of Enerkem's first commercial scale plant, 191 direct and indirect jobs were created along with a total spending increase of \$150M throughout Canada. When running at full capacity, this facility is expected to create a total of 152 direct and indirect jobs and increase net economic spending in the local area by nearly \$65 million each year. This impact is expected from subsequent cellulosic biofuels plants.

Enerkem would welcome the opportunity to discuss this proposal before parliamentary committees.

Recommendation #1: Exempt cellulosic biofuels from the federal excise tax on gasoline.

Presently, there is no federal policy incentivizing the use of cellulosic biofuels. This proposed exemption (valued at 10 cents per litre) builds on the success of the federal ethanol excise tax exemption that benefited the conventional ethanol industry until April 1, 2008. Subsequently the EcoEnergy for Biofuels program was launched to replace the excise tax exemption. Both these invaluable programs played a vital role in the successful launch of the Canadian conventional ethanol industry. Unfortunately, the cellulosic biofuels industry was still in the early stages of development and therefore neither of those programs were accessible. This is why we are proposing that the Regulations of the Federal Excise Tax Act be amended to zero-rate (or exempt) the cellulosic biofuels portion of any sales of blended gasoline in Canada. This would enable the value of the federal excise tax to accrue to the cellulosic biofuels producer which would level the playing field in order to advance production and drive consumption of cellulosic biofuels in Canada. It would also entice Canadian, as well as global, businesses and investors to pursue development opportunities in Canada.

As demonstrated with similar treatment for other commodities, this relatively small tax measure will encourage domestic production, retain cellulosic biofuels in Canada, and ensure economic and environmental benefits accrue locally – where it matters most. In the absence of a competitive policy measure that is designed to promote the use of cellulosic biofuels in Canada, Canadian production of cellulosic biofuels will most likely be sold into the United States market to capture aggressive price premiums associated with the US Renewable Fuels Standard compliance credits for cellulosic biofuels, the production tax credits for cellulosic biofuels and the accelerated depreciation for cellulosic biofuels facilities.

The total cost of a cellulosic biofuels excise tax exemption, based on the facilities currently under development, is estimated at approximately \$15 million (based on 152 million litre production) annually when full capacity is reached. Each facility is at an individual stage of planning, implementation and start-up, so ramp up will understandably take some time.

Recommendation #2: Create a biorefinery fund for innovation and commercialization in the bioeconomy.

Canada has a vibrant clean technology sector. Policy platforms are needed to help attract critical investment dollars to Canada, support pre-commercial demonstrations, and close the funding gap so that new biofuels, renewable chemicals and biobased product technologies are developed and successfully commercialized in Canada. To date, a program like the Sustainable Development Technology Canada (SDTC) TechFund™ has proven very successful and the SDTC NextGen Biofuels Fund™ (NGBF) is clearly contributing to filling the commercial gap for advanced biofuels.

Canadian cleantech companies developing new technologies or looking for market diversification and penetration into commercial markets face resource challenges and stiff competition. The SDTC TechFund™ has been an unparalleled success in helping cleantech companies demonstrate the viability of their technology. There has not been a great deal of post TechFund developments, and SDTC needs a way to demonstrate the successes of

TechFund technologies moving into the larger marketplace so that the economic benefits they have the potential to generate can actually materialize.

Enerkem applauded Budget 2013's recapitalization of the SDTC TechFund™, and wants to see continued government leadership in attracting investment to Canada. There are ample TechFund success stories which have since stalled due to a lack of investment capital to commercialize the technology. However, there is no commercialization fund for the broader bioeconomy which would help biotechnology companies break through to commercialization.

As recognized by a report prepared by McKinsey and Company for Natural Resources Canada and SDTC, the bioeconomy is a fertile area for growth in the global marketplace. But, in order to be commercially viable, a transition fund for these new technologies is needed. Around the world, many other jurisdictions are making strategic investments to attract research and development and further the commercialization of these nascent technologies. We believe that those jurisdictions are drawing investment away from Canada where we have a decided natural resources advantage.

Enerkem proposes creating a biorefinery fund for commercialization and innovation in the bioeconomy. This new fund will ensure that new clean technologies and innovation developed in Canada are effectively commercialized and brought to market in Canada. To be eligible for this proposed fund, Enerkem believes the following are key features of eligible projects:

- Focus on commercialization of innovative clean technologies and products (biofuels, renewable chemicals, bioproducts) - Short of a First-in-Kind Provision, but focusing on innovation in Canada.
- GHG Reduction – Drive carbon use out of products and/or reduce the overall lifecycle footprint of a substitute when compared to the traditional petroleum product.
- Seeks to increase efficiencies of current processes to help improve the footprint of current operations. This specifically includes feedstock preparation, innovative process improvements, etc.
- Feedstock Agnostic – No crop limitations provided that the biomass is sustainable/renewable and inclusion of urban waste such as municipal solid waste.
- Stacking provisions which are consistent with current Treasury Board Guidelines (70%).

So doing will specifically contribute to research, development, innovation and commercialization in Canada.

Recommendation #3: Encourage the development of biofuels infrastructure and higher renewable fuel blends to offer more consumer choices at the pump

Starting in 2017, North American automakers will be required to improve their fuel economy under the Corporate Average Fuel Economy (CAFÉ) standards. By 2025, vehicles in Canada will have to more than double their efficiency and run, over a fleet average, at 54 miles per gallon.

The overwhelming consensus from domestic vehicle manufacturers is that the pathway to compliance must include both technological change from manufacturers and new fuels to drive that technology. These manufacturers have publicly stated that they need a fuel that has a

higher octane rating to drive the smaller, lighter engines that these new fuel economy standards will require.

There is no cheaper and cleaner source of octane than ethanol. Ethanol and ethanol-blended gasolines (like E20 or E30) are the lowest cost octane available and deliver the increased level of octane required to drive the new smaller high-compression engines while reducing tailpipe emissions. With a blending octane rating of 113, ethanol and higher-level ethanol blends are uniquely poised to help automakers achieve stricter fuel economy and emissions requirements.

In fact, European auto manufacturers have called for ethanol blends in the 20% range, and Brazil has a requirement for 25% ethanol in its gasoline.

Fueling infrastructure turnover requires significant time to build out properly. For example, there are over 3.5 million vehicles on Canada's roads that can take up to 85% ethanol (E85). In the United States, there are over 3,000 E85 pumps, and thousands of others that offer mid-level ethanol blends. The United States is seeing the growth of commercial pumps offering 10-20% biodiesel directly to consumers. In Canada there are four pumps that offer E85 to consumers and none that offer higher biodiesel blends at commercial sites. Canadian consumers simply do not have access to any alternatives to petroleum products.

Now is the time to undertake the work necessary to properly build-out Canada's fueling infrastructure so that higher-octane and cleaner fuel blends, such as cellulosic ethanol, become available to consumers and Canada can achieve its environmental goals. By providing tax incentives – through either a direct tax credit or capital cost allowance depreciation – to those individuals who want to offer consumers these alternative fuels, existing pump turnover and new market entrants will be strongly encouraged.

Conclusion

A thriving cellulosic biofuels industry will play a significant role in a successful Canadian energy diversification strategy as well as contribute to the agriculture, forestry, marine and manufacturing sectors. These biofuels utilize breakthrough technologies and innovation while significantly reducing GHG emissions which leads to environmental and health benefits all Canadians benefit from. All while directly contributing to the government's goal of creating economic growth in a fiscally responsible manner.

By accepting Enerkem's three recommendations, this Government will take great strides towards building a strong domestic cellulosic biofuels industry and ensuring that the Canadian-made product is consumed within our borders, where it belongs.

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