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Executive Summary

Doyletech Corporation recently concluded a study on the economic impact of an enhanced mandate for biofuels in Ontario. The study, prepared for Renewable Industries Canada, relied on two operating assumptions:

1) for ethanol, an increase in the provincial mandate from 5% to 10%;
2) for biodiesel, an increase in the provincial mandate from 4% to a 5%, with the retention of a carbon intensity factor of at least 70% reduction in the biodiesel component of the blended fuel.

The Doyletech's 2017 analysis was based on similar national economic impact assessments of biofuel policies conducted by the firm in 2010 and 2013. The objective of the study was to determine how mandate enhancements under consideration by the provincial government would impact the economy, in terms of investment, jobs and tax revenues. Doyletech's findings point to a healthy industry with significant capacity for further growth, given the right set of markets signals.

Key Findings

Increased ethanol production would generate an economic impact of $526M during the build-out period (2572 jobs) and total additional, ongoing, economic benefits of $638M annually (264 jobs) thereafter.

Increased biodiesel production would generate additional, ongoing, economic benefits of $184M annually (133 jobs).

The three levels of government stand to reap a combined total of $283M from taxes during the construction phase and a combined net annual benefit of $175.8M on an ongoing basis.

Ethanol

In its 2017 study, Doyletech found that the ethanol sector in Ontario remains strong, with six plants operating at or near 100% capacity. Together these six facilities are producing 1.046 billion liters of fuel ethanol per year.

The domestic production, combined with net imports of 221 million liters of ethanol, indicates ethanol consumption in Ontario at 7.7%, well above the mandated 5% blend target (based on annual fuel sales of 16.5 billion liters). This excess is explained by the fact that ethanol is usually blended at 10%, allowing for the fact that premium gasoline usually does not contain ethanol, and that ethanol is not blended at all supply points in the province.

Doyletech also found Ontario plants were increasing production of high-value by-products, reflecting a shift of the value chain from the simple manufacture of ethanol to actual refinement of corn and corn byproducts, consistent with the "bio-refinery" concept. More potential exists for producing new composite materials, renewable chemicals, and other value-added products. This important step in the evolution of the industry would gain additional momentum if the ethanol and biodiesel mandates were increased.

Using 2016 consumption data, Doyletech projects that an increase of the ethanol mandate to 10% would result in blending totaling just under 1.5 billion liters annually. This means that 550 million liters per year of new production capacity would need to be built to meet the expanded mandate (while pushing out imports and maintaining exports). Based on its interviews with industry, Doyletech found that **such an increase is fully feasible** and would be accomplished by a combination of construction of new plants and expansion of existing facilities.

Doyletech's econometric model (which includes indirect and induced effects) indicates a major positive gain for Ontario from the increased production activity. New construction and/or expansion of existing facilities would bring about **one-time economic benefits of $526 million**, and provide **2572 jobs**. Furthermore, the new capacity would collectively produce total economic benefits of **$638 million annually**, representing **264 jobs**. This would be over and above the current levels of economic value for ethanol production in Ontario, which for 2016 was $1.43 billion and 502 jobs.

<u>Biodiesel</u>

The biodiesel sector has seen a more fluctuating market. Tighter margins and the drop in oil prices have had an effect on production. Doyletech's study found that Ontario biodiesel plants are currently producing approximately 185 million liters annually, representing roughly 62% of current installed production capacity. Until recently, the bulk of that production was exported to the United States, owing to a favourable tax credit for US-based blenders.

A variety of factors need to be weighed in establishing how an increase in the biodiesel mandate from 4% to 5% would impact the economy of Ontario. These factors include where the biodiesel would be sourced (which is affected by the CI requirement) and the degree to which imported HDRD would be used as a "drop-in fuel" in place of blending.

For its 2017 analysis, Doyletech assumed local production, with its favourable CI numbers upwards of 119%, will prevail and that existing capacity will be utilized to meet the mandate requirements. Doyletech finds that an expanded mandate will encourage producers to use their plants more fully. The survey indicates that at least two producers would look to expand; another producer would consider building a new plant. In 2016, the total economic impact including indirect and induced effects, of the biodiesel sector in Ontario was **$250 million**. Including displaced oil imports worth $69 million, the total impact was **$319 million annually**. Collectively, Doyletech found that increasing the biodiesel mandate in Ontario would have an **ongoing annual economic impact of $503 million** and **364 jobs**, representing a substantial gain of **$184 million (annually)** and **133 jobs** more than at present.

<u>Impact on Government Revenues</u>

Based on the expanded mandates, Doyletech also finds that governments will benefit significantly from a buildout of the production capacity in the biofuels sectors. The construction phase would yield total taxes and other returns **of $161M to the federal government** and **$102M to the Ontario Government**. Municipal governments would realize total tax gains of $20.7M. The operational phase of the new/expanded facilities would yield: increased returns of $61.6M to the federal Government, as well as reduced stabilization payments of $22M; an additional $72.6M to the Ontario Government, as well as reduced stabilization payments of $15M. Collectively**, municipal governments in Ontario would realize tax gains totalling $4.6M.**