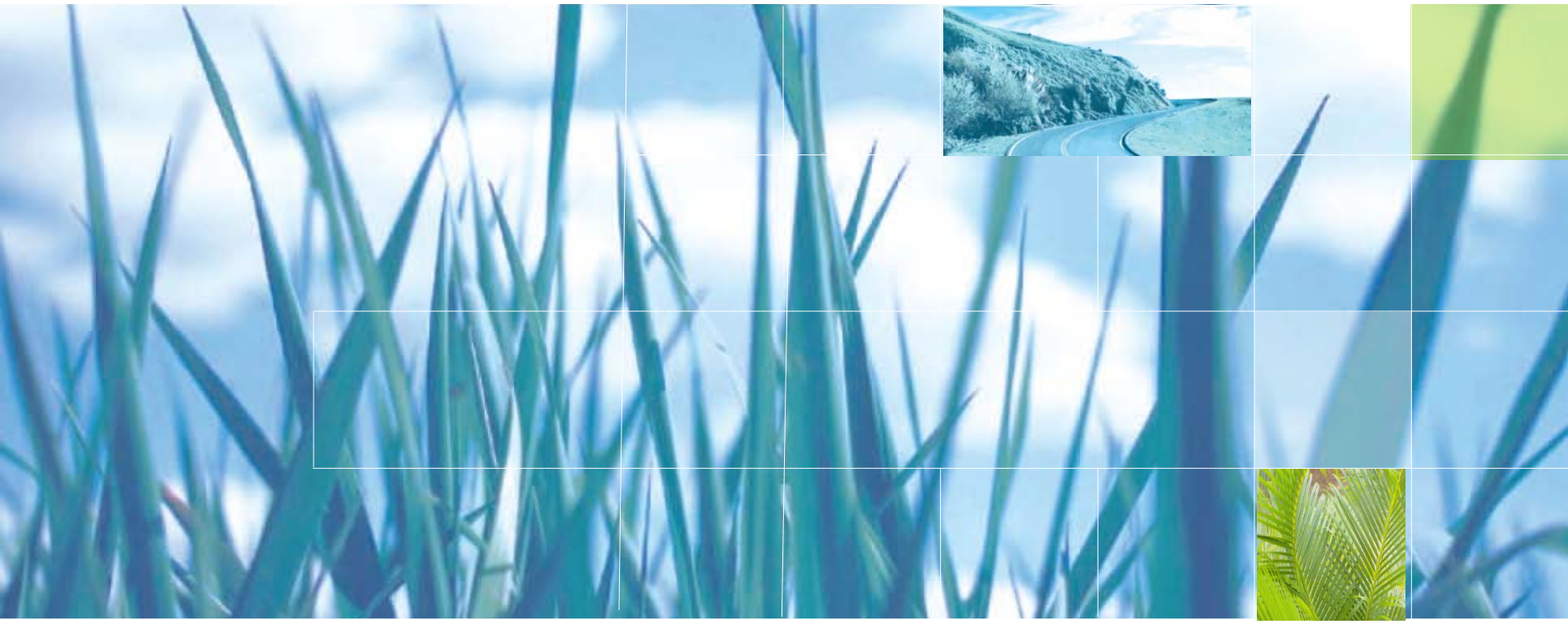
The Community Economic Impact of the IGPC Renewable Fuels Plant at Aylmer, Ontario

Final Report



DOYLETECH CORPORATION

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Objective:

To do an economic impact assessment illustrating the benefits that new renewable fuels plants bring to the communities in which they are located.

- The IGPC plant in Aylmer is an excellent model for doing such analysis.
- The plant is owned by a cooperative of farmers from within the region.
- It would make a good illustration of the impact value of both capital investment and operating revenues accruing to a specific rural region.
- Subsequently, it would be possible to evolve the assessment to other locations in Canada.

Description of IGPC Plant – Location:

- The IGPC plant is on the outskirts of Aylmer Ontario, a town of about 2000 population near London.
- Within a 30 kilometre radius is a local population of about 100,000 (including St. Thomas, Ontario).
- Within a 200 kilometre radius is a much larger regional population, including London, and touching on Hamilton, Kitchener-Waterloo, and Guelph.

Description of IGPC Plant – Capabilities:

- The plant was designed and constructed starting March 2007, and had first "shovel in the ground" in June 2007. It has been operational since October 1, 2008.
- The feedstock is corn, grown by local area farmers.
- The plant has a capability of producing 162 million litres of ethanol annually (43 million US gallons).
- It also produces 129,600 tonnes of DDGs annually, which can be sold as feed for livestock.

Description of IGPC Plant – Ownership:

- The plant is owned by a Cooperative of about 900 persons, with about half being local or regional farmers, and half being from agriculture-related industries.
- Total capitalization was substantial, being well over $100 million, including “soft costs” and design/engineering.
- Part of the capitalization was equity investment put in by the owners, part debt investment from a consortium of banks, and part from federal and provincial government incentive programs.
- Overall, we calculated that 82% of the total capitalization came from outside the locality.

Our Methodology – the EconWin Model:

- This model is specifically designed for assessing the economic impact of a new capital investment within communities of less than 100,000.
- EconWin is an econometric model that is able to isolate individual investments (such as an investment in renewable fuels infrastructure) and then calculate, under a variety of scenario conditions, what the returns would be to the community as a whole in terms of increased economic activity.
- The model works on what is known as the “economic base” principle, i.e., it differentiates between an investment that serves purely local needs, as opposed to an investment that effectively brings in revenues from outside the locality. As well, the model differentiates between the “local” economy and the surrounding “regional” economy. The model takes the latter as being related to the local economy, but the benefits of a new investment are diluted by the model to reflect the distance involved.
- The model integrates key exogenous inputs (such as the value of construction and operating labour and materials) and projects forward, using various endogenous economic multipliers, the value of eventual total outputs (such as number of jobs created, value of extra local spending, and new municipal taxes generated).
- A key value of the model is its ability to calculate “indirect” and “induced” economic effects, taking into account the “downstream” multiplier effects from the original investment.
- It was necessary to run the model for two Phases:
  - First, for a “Construction Phase”, in which jobs and spending are generated, but with a fixed period of time only, after which the plant became operational and no further construction spending or jobs are created; and
  - Second, for an “Operating Phase” in which jobs and spending are generated on a continuing, annual basis.

Our Prior Use of the EconWin Model:

- Doyletech has used the EconWin model extensively across Canada.
- Among other places, the model was used for assessing the impact of:
  - A new Peterborough Regional Health Centre;
  - North Bay and Sault Ste. Marie new hospital construction;
  - The Soulanges Canal Recreation and Tourism Complex, now under development;
  - The value of Oceans Technologies industries in four localities across Canada (Dartmouth, St. John's, Rimouski, and Victoria);
  - Investment in local communities in the Nunavut; and
  - New manufacturing facility in Vaughan, Ontario.
- It seems fair to say that these were all successful projects, with the model's results facilitating subsequent investments.

Key Assumptions and Parameters – the Local Community and the Local Economy:

- The local community was taken as having a population of 100,000. It was assumed that approximately 40,000 households and workers were included, with a representative average of 2.5 persons per household.
- This community was taken as being a reasonable area from which to draw most construction labour and commonly-used construction supplies and equipment.
- The local economy has been affected by downturns in the auto industry. Based on local data, unemployment was taken at 11%.
- Moreover, these would have been relatively high-paying jobs. Again, based on local research, we took $52,000 annually ($25/hour) as a prevailing local average wage. The prevailing provincial or regional wage we took as $40,000 ($20/hour). These values affect the spending and job-creation outputs of the model when the indirect and induced effects are projected.
- Local research revealed that slightly less than 1,500 people were on welfare in the local county area.
- We assumed that, of the new workers operating the plant, 90% were *effectively* equivalent to reducing the number of unemployed workers, 5% came off the welfare rolls, and 5% were entirely new entrants into the labor force. Local research indicates that this appears to be reasonably accurate.

Key Assumptions and Parameters – The Regional Community and the Regional Economy:

- The broader regional economy was taken as being capable of providing most of the specialized heavy equipment and specialized skilled labour such as construction project management and construction engineering.
- In conjunction with local labour and supplies, this meant the project could mostly be sourced locally or regionally – a big advantage.
- The prime contractor on the construction was a well-known firm from Guelph, Ontario, within the regional area.
- However, not all of the necessary construction inputs were available from even the regional economy. Certain categories of specialized heavy equipment for renewable fuels plants have to be sourced from the US. As well, engineering design was done by a US firm with a proven track record.

Key Assumptions and Parameters – Construction Phase:

- A detailed list of costs associated with the construction of the plant through all stages of design, engineering, and procurement ,was built up and classified according to whether it was sourced locally, regionally, or was imported from outside Ontario . This list in turn was also divided into “labour” or “capital”.

- Accordingly, there were 6 separate “bins” for the investment. (For example, dollar values for “local labour”, “regional labour”, “imported capital”, etc.) Critical differentiations were the bins of imported labour and capital as apart from the local or regional bins. The imports represent funds that are lost to the local and regional economies: the local and regional bins, of course, retain them. Key factors were that construction was done by a regional firm out of Guelph, and that much (but not all) of the labour and equipment was supplied locally or from the region.

- Most of the capitalization for funding the construction came from outside the local area. It would have been funds imported into Canada through the banks consortium, or it would have come from accounts effectively saved or invested within the Canadian banking system, primarily in the Greater Toronto, Montreal, or other large city areas. This is good for the community economic impact. Money is being spent on construction that is not taken from other local economic activities.

Key Assumptions and Parameters – Construction Phase: *Continued*

- The model was run using “multiplier” factors of 1.3 for the local economy, and 1.5 for the regional economy. These numbers reflect relative levels of “leakage” out of the respective area for spending in general (i.e., the regional economy is more self-sufficient than the local one).

- However, a proportion of the funds was equity that might well have been invested in the local economy – local equipment upgrades such as purchase of a new tractor, etc., that would have aided the local economy anyway.

- Accordingly, the model had to be run twice to get net benefits. The opportunity costs of other local investments had to be deducted from a part of the equity investment sum.

Key Assumptions and Parameters – Operating Phase:

- Almost all the ethanol production (98%) is exported out of the region.
- We have taken a price for ethanol (including government incentives) of 70 cpl.
- The DDGs are sold internally within the region. This is debatable. It is possible the DDGs could be exported out of the region. If so, the economic benefits would be greater than those shown here.
- We have taken a price of $125/tonne for DDGs.
- We have allowed for corn inputs of 405,000 tonnes annually, at a cost of $155/tonne.
- We took the corn feedstock as coming from within the region or locally. Again, this is debatable. Ontario sometimes imports corn. If the corn feedstocks were imported, it would reduce the benefits shown here. However, in conjunction with our assessment of DDG sales, we believe the overall benefits shown here are valid.

Key Assumptions and Parameters – Operating Phase: *Continued*

- We have also allowed for other costs such as natural gas, electricity, enzymes, and various other consumable supplies. These were taken as coming from outside the locality or region, which acts to constrain benefits.
- A key factor in the model is the "export ratio" – the proportion of net output value that is sold outside the region. We have calculated this at 63%.
- Although most of the capitalization came from outside the locality, which worked positively for the construction job and spending creation, during operations a significant portion of the capital has to be re-paid with interest (loan) or amortized (re-paid to equity investors in line with depreciation). This cash flow has to be included in the plant's costs.
- We took loan repayment as being over 15 years and amortization as being straight-line depreciation over 20 years.

Model Results – Construction Phase:

The overall results are extremely positive:

- There would be net job creation of **1,152 person-years**. This reflects the positive availability of labour in the locality and the region.
- Total spending increase (including the investment itself) within the region and locality was **$276,089,000**. This reflects the fact that a high proportion of the total investment was spent in either the local community or at least regionally. Even with an initial investment of well over $100 million, it shows the incremental gain was many tens of millions over the value of the investment.
- Out of this extra spending, governments receive an important share.
- The net Municipal government benefit was **$7,835,550**. This reflects improved property tax collections, slightly reduced welfare payments, and multipliers from indirect and induced spending.
- The net Provincial government benefit was **$44,172,000**. This reflects increased PST collections, lower welfare commitments, and corporate/personal income tax.
- The net Federal government benefit was **$70,088,000**. This reflects increased tax collections and lower EI costs.

Model Results – Operating Phase:

Once again, the annual results are quite positive:

- A total of **55 person-years** of employment is created each year.
- There is an annual increase in net economic spending in the local community of **$53,762,200** coming from the plant's operations. This is over and above the net revenues, after costs, obtained by the plant for its ethanol and DDG production.
- Governments share in this spending.
- There is an annual benefit to the Municipal government of **$628,000** from the plant's property taxes and other improved Municipal tax collections, lower welfare costs, and indirect employment benefits.
- There is an annual benefit to the Provincial government of **$5,164,690** from enhanced PST collections and income tax, lower welfare costs, and indirect spending.
- There is an annual benefit to the Federal government of **$5,191,250** from improved GST collection and income tax, lower EI spending and corporate tax.

Conclusions – Why These Benefits?

- The project contributes substantially to the local area's "economic base". The output value of net exports from the locality exceeds the extra costs incurred by the community to fund the project, even after allowing for repayment of debt investment and necessary amortization against equity capital.
- The model results are harmonious with previous EconWin model analyses of other large capital projects. For example, the Peterborough Regional Health Centre development, an approximately $150 million construction project, was calculated to generate between $125 million and $175 million in additional spending benefits from construction, and between $42 million and $54 million annually in operations.
- The region has suffered from the downturn in the automotive sector, and hence labour is effectively available at a competitive cost; similarity, interest rates are relatively low. The plant therefore represented a highly positive opportunity for both the local community and the region.
- The government incentive programs at both the federal and provincial level have materially facilitated the success of the project.