
**True North Renewable Fuels
Investment Attraction Opportunity
Recommendation from Economic Development Regina
February 28, 2021**

Subject: Renewable Fuel Refinery – Support Mechanism for Consideration

A. Issue

To support the development of a renewable fuel refinery and associated economic impact and associated value-added agriculture processing facility in or around the Greater Regina Area.

B. Recommendation

That Economic Development Regina support the City's pursuit of the True North Renewable Fuels (TNRF) business investment opportunity in alignment with the Economic Growth Strategy and the potential economic value-add for the Greater Regina Area. Further that a financial contribution by the City with consideration to negotiate up to a \$1 million to the TNRF Consortium, on terms acceptable to the City, is reasonable and commensurate with the benefits that EDR is aware of, subject to further due diligence on behalf of the City. (For the purpose of TNRF accessing up to \$5 million of Government of Canada grant funding under the Government of Canada's Agriculture Clean Technologies Program and/or any other available grant programs as may be available) The EDR Board understands that the City, Province and Federal Government will consider this project in concert with Government support programs available now and in the future.

C. Background and Rationale

Over the past four years, TNRF has been undertaking technical and financial feasibility studies for a proposed renewable refinery facility for construction in Western Canada. TNRF has focused on a commercially proven technology for the manufacture of renewable diesel and aviation fuel based on a commercially proven technology for hydrogenation of fats and oils from renewable sources (Canadian canola oil, US soybean oil, other waste animal fats and greases). This proven technology is available to be licensed from global energy technology firms including Honeywell UOP, Axens, and Haldor Topsoe. The chosen technology produces renewable fuels through a four-step process which consists of hydro processing the fats, oils and grease feedstock, removing acid gas, hydrocracking isomerization and fractionation. The process results in converting organic fats into a renewable fuel that unlike biodiesel can be easily blended into conventional fossil fuels to produce cleaner fuels contributing to reduced CO₂ emissions for transportation fuels. Alternatively, the renewable diesel fuel can be used neat, or unblended, in certain applications.

While electric vehicles are likely to be the main technology used to mitigate climate related transportation for personal purposes, the prospects of electric powered industrial equipment and

aircraft faces at minimum, a long development cycle to commercialization. As such, renewable based diesel and aviation fuel is the best option available to meet Canada's clean fuel standards for vehicles such as construction equipment, railway locomotives, bus and truck fleets, aircraft and similar applications.

C.1 Canadian Clean Fuel Standards

In Dec 2020 the Government of Canada announced its intention to adopt a set of Clean Fuel Regulations requirements as part of its commitment to implementing policies and programs required by signatories to the Paris Climate Accord. The objective of the proposed regulations is to achieve 30 mega-tonnes of annual reductions in GHG emissions by 2030, contributing to Canada's effort to achieve its overall GHG mitigation target of 30% emission reduction below 2005 levels by 2030.

The clean fuel standard will establish lifecycle carbon intensity requirements separately for liquid, gaseous and solid fuels used in transportation, industry and buildings. This performance-based approach will incent innovation, development and use of a broad range of low carbon fuels, energy sources and technologies. Regulated parties under the standard will include the producers or importers of the liquid fuel (for example, gasoline, diesel, and heavy fuel oil).

The federal Renewable Fuels Regulations require 5% renewable content in gasoline and 2% renewable content in diesel fuel and heating distillate oil. In the short-term, these volumetric requirements will be maintained. In the longer-term, regulated parties will be required to reduce the lifecycle carbon intensity thus creating demand for the refinery products. Market incentives to encourage the greater use of renewable liquid fuels such as that proposed by this development will be further incented through carbon tax pricing on liquid fuels.

This regulatory action is creating both a need and a market for renewable fuels such as would be produced by the proposed facility. In addition, other trends such as best practices around ESG (environmental, social, governance), UN Principles for Responsible Investment, and general trends towards corporate social responsibility are further incenting institutional investors (e.g. pension and insurance funds) as well as large industrial consumers of fuel (municipalities, corporations, airlines, etc.) to want to move to include more renewable fuels in their ongoing business operations, even absent the new clean fuel standards.

C.2 The Project

In response to these general market conditions, TNRF is proposing to construct a 1 billion litre per year renewable fuels refinery in the Regina area utilizing the technology noted above. In addition, a dedicated canola crush plant and a canola protein extraction plant is proposed to be constructed adjacent to the refinery capable of producing slightly less than 1 million tonnes per year of canola oil from 2 million tonnes of canola seed as the renewable oil feedstock for the refinery. The entire complex, including all three projects, is likely to result in a capital expenditure of approximately \$2.4 billion CDN in and around Regina and create more than 2,500 construction jobs and 300 permanent operating jobs. As

such it represents a major economic development initiative for Regina and would add a very significant boost to Regina's economic recovery coming out of the COVID-19 pandemic.

C.3 Next Steps to Proceed to Development

In order to construct the proposed industrial facility, the following work needs to be undertaken:

- Front End Engineering Design—costing approximately \$21 CDN million, this work involves the initial engineering design as described in detail in Appendix A of this decision item.
- The work is required to define the capital cost requirements, permitting and detailed construction planning as well as all other matters necessary to secure the construction and operational financing of the project.
- The \$21 million to conduct this next phase of the development (FEED) will be provided through a combination of \$15 million in private sector investment, a \$5 million grant approved by the Government of Canada through its Agriculture Clean Technology Fund (ACT) and a \$1 million investment by the City of Regina.
- The ACT program can provide up to 50% in grant funding of eligible costs for this type of project. The eligible costs are estimated at \$10 million and a 10% requirement from a local government requires that the City of Regina provide up to \$1 million in order to meet the program guidelines for the Government of Canada's ACT program.

The following mechanism has been devised to allow the City to be able to meet this Government of Canada, ACT Fund requirement, while protecting the City's investment. The fund transfer and associated obligations would work as follows:

- TNRF will provide a \$1 million letter of credit or restricted trust to the City of Regina that will be drawn in the event that the project does not proceed to construction within 5 years, or proceeds outside the Greater Regina Region.

The letter of credit (or similar agreement) will be released once the refinery has reached production and will be replaced with a fuel offtake agreement to an upset amount of at least \$1 million in discounted fuel purchase. This benefit can be assigned to a third party at the City's sole discretion.

Further, TNRF will agree to pay a penalty of \$1 million if for any reason the project is constructed in a community other than the Greater Regina Region. This obligation will extend to any entity that acquires or merges with TNRF in the future, or obtains rights to the FEED study.

D. Considerations

The key issues, risks and other considerations involved in this decision item relate to the following items:

1. Understanding the risks involved and the adequacy of associated mitigative measures for these risks associated with:

- a. Risks for the City of Regina as proposed in the transaction from a legal, financial and reputational perspective.
- b. Any uncertainties regarding the prospect of lands being proposed for the development not being possible to annex by the City of Regina or complications related to such actions that would cause delays unacceptable to the viability of the project.
- c. The Government of Canada approving of the proposed funding mechanism.
- d. The management of conflicts for approvals within the EDR board.

To address these conflicts the following mitigative matters have been undertaken or are proposed:

Identified Risk	Proposed or Concluded Mitigative Measure (all to be confirmed)
EDR and City of Regina financial and reputational risk management	<ul style="list-style-type: none"> • The City of Regina's financial risk will be mitigated based on its senior financial position for repayment relative to other investors and the inclusion of restrictive covenants on the use of the City's investment to ensure that the investment is used on terms acceptable to the City's security requirements. • Reputational risk will be mitigated by the transparency of the decision-making process, both within EDR and the City of Regina Council. • Regina's reputational risk will be further mitigated by its ability to claw back its \$1 million investment if the project is not constructed in the greater Regina area on terms to be specified in the City's agreement with TNRF. In the event TNRF violates the provisions of the debenture agreement, TNRF will agree to repay the City's \$1 million investment plus a penalty if for any reason the project is constructed in a community other than the Greater Regina Region or other terms and conditions as agreed are not met by TNRF for any reason. • Certain members of the EDR board will declare a conflict of interest in that they may work for employers who will be potential investors in the project or their employer acts for potential investors in the project, or they are in competition with at least some aspect of the project. EDR's governance of the decision has been guided by independent legal counsel to ensure EDR's conflict of interest policies are strictly followed. EDR's independent legal counsel has advised that the EDR decision has been made in full compliance with EDR's conflict of interest guidelines which are consistent with good corporate governance practices for public entities.
Any uncertainties regarding the site being proposed for the development not being possible to be annexed or complications related thereto for any such actions.	<p>TNRF intends to select a site for the project on lands in the Regina area for which it will:</p> <ul style="list-style-type: none"> • be possible to obtain the required building and environmental permits, • can connect with the required services and related infrastructure needed from the City of Regina and that • can function operationally in terms of transportation logistics and other key business requirements.

	Ideally these lands would be contiguous with existing City of Regina boundaries so that these lands can be annexed in the future. As yet, there is as yet no guarantee that such a site can be secured as the preferred location for the development. However it is the proponent's intent to work with the City of Regina in selecting a site that can meet all of the essential requirements as described in this decision item.
The Government of Canada approving of the proposed mechanism	The Government of Canada through the ACT program has approved of the proposed mechanism whereby the City is investing and confirmed that it will meet the ACT program guidelines.

E. Economic Impact and Benefits for Regina

True North Renewables Fuels Ltd. (TNRF) is proposing the construction and operation of a renewable fuels operating in the Regina Region. This facility is expected to produce 1 billion liters per year of renewable fuels to be used in the aviation, marine, rail, and road transportation industries.

TNRF believes that this investment will provide additional investment as the TNRF refinery process provides the corner stone from which to build out a complete set of complementary business aimed at increasing the "value added" from the agriculture industry. This is referred to as the "Agriculture Value-Add Complex." The Agriculture Value-Added Complex is a purpose-built supply chain and is expected to attract a canola crushing plant and a vegetable protein extraction manufacturing facility. The canola crushing plant will produce canola oil and the by-product of canola meal. These new value-added products will be further processed to produce enhanced vegetable protein extracts to create sustainable food sources.

The estimated direct impact of the proposed project, exclusive of farm level agricultural production, is summarized as follows:

	Construction Employment (Jobs)	Permanent Employment (Jobs)
TNRF	1500	150
Protein Extraction	750	100
Canola Crushing Plant	500	50
Total	2750	300

To estimate the economic impact for this project, EDR reviewed capital and economic forecasts with TNRF and utilized the latest provincial input-output economic models to evaluate the larger scale city-

level economic benefits for Regina. City level impacts were estimated by constructing an economic impact model for the region using regional employment by industry to estimate regional output, a community hierarchy model to assess regional trade flows and leakages, and re-balancing to ensure model cohesiveness.

This analysis provides two ways to look at the total impact of the proposed project.

1. Gross Economic Output: total expenditures on local goods and services as well as payments to labour and business profits. Gross output includes double counting because it includes the value of inputs used in production rather than net value added alone.
2. Gross Domestic Product or GDP: only considers the value-added plus indirect taxes less subsidies.

Employment is measured by the estimated total positions.

This economic impact analysis totals are comprised of:

- Direct Impact of each project expenditure: construction or operating outlays.
- Indirect Impact: the secondary impact that includes inter-industry transactions, purchases of inputs from supporting industries.
- Induced Impacts: the additional impact from changes in household spending as industries modify labour input requirements in response to altered levels of demand for output.

Overall Economic Impact of the “Agriculture Value-Add Complex”¹

The Agriculture Value Add Complex combines the efforts of three manufacturers to create new economic value as they process canola into the final products of fuel, protein extract and animal feed. Through processing and refining activities, new economic value and new employment opportunities are created. Otherwise, these opportunities would not exist, as the raw canola commodity would be exported somewhere else to be processed or refined – taking the economic benefits with it. On a \$/tonne basis, \$487 in total is created from the TNRF, protein extraction and canola crushing plants. These value-added processes generate the following economic impact based on the revenue it generates.

Operations	Gross Economic Output	Gross Domestic Product at Basic Prices ²	Employment Impact (Jobs)	Labour Income Impact
TNRF	\$1.85B	\$0.62B	1,923	0.076
Protein Extraction	\$0.88B	\$0.30B	949	0.043

¹ Prices, construction costs, estimated revenue, and corresponding economic impacts are forward looking forecasts and estimates. Economic impact analysis is dependent upon realizing these forward looking cost and revenue projections.

² • GDP at market prices: GDP at factor cost plus indirect taxes less subsidies.

Canola Crushing Plant	\$1.72B	\$0.60B	1,697	0.074
Total Impact	\$4.45B	\$1.52B	4,569	0.19

TNRF operational impact will have a significant impact on the economy as it will generate \$1.85 billion in gross economic output.³ This helps create over 1,900 jobs and \$76 million in wages. If the additional investments from the protein extraction and the potential crushing plant are realized, the combined economic direct and indirect impacts is \$4.45 billion for the city creating 4,569 employment opportunities.

Gov't Revenue Generated by Operations	TNRF	Protein Extraction	Canola Crushing Plant	Total
Municipal Government Revenue Impacts⁴	\$25.52M	\$12.21M	\$23.69M	\$61.42M

The impact for city finances is substantial, as TNRF is expected to generate directly and indirectly \$25.52 million in revenue. This impact expands to \$61.42 million if the full investment is realized.

The total economic benefit realized through the construction and capital investment of these plants are as follows:

Construction	Gross Economic Output	Gross Domestic Product at Basic Prices	Employment Impact (Jobs)	Labour Income Impact
TNRF	\$1.26B	\$0.56B	2,857	0.15
Protein Extraction	\$0.29B	\$0.13B	1,063	0.05
Canola Crushing Plant	\$0.58B	\$0.26B	1,126	0.06
Total Impact	\$2.13B	\$0.95B	5,046	0.26

³ • Gross Economic Output: total expenditures on local goods and services as well as payments to labour and business profits. Gross output includes double counting because it includes the value of inputs used in production rather than net value added alone.

⁴ Municipal Revenue are estimates comprised of taxation, Fee/Changes, Service Agreements, Licenses, levies, as well as electrical and gas distribution, etc.

The investment and construction of the TNRF facility generates \$1.26 billion in economic activity for the city. This investment creates directly and indirectly 2,857 employment opportunities. If the construction and investment for the entire complex is realized, the economic benefit exceed \$2.1 billion in gross economic output. This will create employment impact of over 5,000 jobs in the city.

Gov't Revenue Generated by Construction	TNRF	Protein Extraction	Canola Crushing Plant	Total
Municipal Government Revenue Impacts	\$23.19M	\$5.35M	\$10.70M	\$39.24M

The impact for city revenue resulting from the TNRF construction will generated directly and indirectly approximately \$23.19 million. The full construction for the Value-Added Complex has the potential to generating directly and directly \$39.24 million for the city.

F. Implementation Plan

True North has identified six key activities that will be undertaken to implement the requisite Front-End Engineering and Design (FEED) work:

- Technology Licensing
- Site selection and acquisition
- Environment and Regulatory Approvals
- Preliminary Engineering Design
- Feedstock and Offtake Agreements
- Capitalization and Final Investment Decision

A detailed outline of the components of each key activity is provided in Appendix A of this decision item.

The True North team has collectively contributed over 11 person-years of full-time work to date on the project, representing in excess of US\$3 million to develop the project to the state it is at today. This demonstrates the commitment of the TNRF team to developing Canada's agricultural value-added sector and to reducing Canada's GHG emissions and to ensure the project is financially and technologically viable. The True North team has cultivated relationships with many key players, which may ultimately contribute or be contracted in various aspects of the project. These include:

- Honeywell UOP – technology licensor – Honeywell is a leading global technology provider for the development of renewable fuel refineries which contributed to commercially successful plants in the United States. True North would rely on Honeywell's expertise, and in particular their modular design, throughout the FEED phase and into construction and operations; largely, True North will look to modify the latest examples of successful renewable refineries to meet Canadian standards. Honeywell has and continues to actively support True North's efforts in developing a Canadian based renewable fuel refinery.

- WSP Global Inc. – engineering and procurement specialists, public consultation advisors – As a leading Canadian engineering specialist, True North may look to WSP for the technical and engineering oversight with respect to the detailed work required to move through FEED to a positive final investment decision and ultimately into construction. To date, WSP has provided high-level support and guidance to True North with continuing to advance the development of the project, including the initial steps required in an environmental assessment.
- Dentons Canada LLP – legal advisor – As a national law firm, Dentons has the required legal specialists for all aspects of the project, including: commercial arrangements, off-take arrangement, vendor/technology, environmental, corporate, etc.
- Deloitte Canada – financial governance – As a globally recognized accounting firm, Deloitte may be tasked with providing financial oversight and compliance with industry accounting standards.
- Canola Council of Canada – canola market intelligence – As the official advocate for the Canadian Canola industry, it is supportive of initiatives focused on the enhancement and continued development of Canadian canola. To date, the Canola Council has formerly supported the development of a domestic renewable fuels sector, and specifically True North, to enhance the value of Canadian canola.
- Capital providers (debt and equity) – these discussions are commercially sensitive – Due to the overall capital requirement for the construction to bring the facility to nameplate production capacity, capital will be obtained from various qualified Canadian and international sources. The nature of the investment proposal, including the environmental merits, are considered highly desirable when compared to alternative investment opportunities on a risk and ESG adjusted basis.

It should be specifically noted that once through FEED, True North fully intends to finance the construction of the project through the utilization of traditional forms of private debt and equity capital. True North currently has a term sheet from one of Canada's large financial institutions outlining indicative terms for which it would provide a portion of the debt capital upon certain terms being met. With regards to the equity portion of the project, True North has spoken to numerous capital providers (Canadian, American and European sources) which, include pension funds, private institutions and strategic partners and the Canada Infrastructure Bank, all of whom have all expressed interest in participating once construction costs are finalized and commercial contracts have been successfully negotiated.

G. Due Diligence

Through various discussions with both the Canadian Ministry of Agriculture and Agri-food (AAFC), specifically the Agriculture Clean Technology Program (ACT), and investors who have signed terms willing to invest, True North supplied data, analysis, summaries as well as insights related to its business plan, the market and the investment opportunity. The following is a summary of the information related to due diligence items presented at the request of both parties who have conducted extensive due diligence in support of their willingness to invest millions of dollars in the project:

- **General Business Information** – summary of incorporation, contact details, address, organization identification and primary location.
- **Organizational Capacity** – description of the organization, including: i) number of employees; ii) year established; iii) mandate of the organization; and iv) target clientele.

- **Ability of the Organization to Deliver on the Project** – detailed summary of management’s work-related history highlighting certain projects which were delivered on time and on budget. Summary also included work completed to date by the management team in advancing the project to its current status. Also identified a number of key partners / service providers who are or may become involved with the company and will benefit the overall project’s success.
- **Timeline** – a schedule from the closing of the financing to achieving nameplate production capacity.
- **Purpose of the FEED Phase** – details surrounding the requirements of the FEED in the overall process and design of the facility.
- **Nature of the Project** – how the project will address the needs / targets of the Government of Canada and the target market(s).
- **Objects of the Project** – overall intent of the project and what the project aims to achieve.
- **Project Collaborators** – a list of various other groups which may provide services to the company or become a partner in its overall operations.
- **Activities to be Undertaken** – a detailed summary of all activities to be undertaken during FEED.
- **Performance Measures** – a detailed summary of expected outcomes, indicators and targets to be completed through FEED.
- **Budget for FEED** – detailed summary of the costs associated with each approved activity associated with the project, this included a timeline for spending for each individual activity and the allocation of public / privately sourced capital.
- **Budget of Construction and Start-up** – detailed summary of the major components, based on preliminary estimates and assumptions.
- **Letters of Support for the Project** – all and any formal support from governing bodies with respect to the viability of the project and support for its advancement.
- **Incorporation Documentation** – financial statements, articles of incorporation, board minutes, board resolutions, corporate By Laws.
- **Investment Overview and Summary** – details around the investment thesis including capital required, potential valuation(s) at various stages of the project’s development and potential investor returns.
- **Key Personnel Summary** – details of each executive including a work and education history and current and go-forward responsibilities. Also detailed missing skillsets and personnel to be added to the team (position specific, not including identified individuals). Discussed the proposed composition of the board, and the requirement of independent financial oversight.
- **Project Overview** – detailed summary of: i) the business plan; ii) operations; iii) production yields; iv) milestone and achievements made to date and for future milestones; v) capital costs and full cycle economics; vi) location and attributes; vii) process overview and material balances; viii) renewable fuel characteristics and properties; ix) carbon intensity, approved and assumed in other jurisdictions, including a comparison vs. other market sources; x) current alliances / partnerships.
- **Feedstock Overview** – analysis and detailed summary of Canadian canola, specifically Saskatchewan canola, including: i) generic industry overview; ii) process life cycle analysis; iii) analysis with respect to supply / demand, including industry growth forecasts; iv) catchment

area analysis; v) RSB and CORSIA compliance, including food for fuel and indirect land use change analysis

- **Quality, Safety and Sustainability** – a discussion with respect to True North’s proposed Safety, Health, Environment and Social Responsibility Management System
- **Off-take Structures and Potential Pricing** – analysis relating to the pricing of renewable fuels, this included both industry specific spot market pricing, long-term arrangements currently in use in the industry and a True North specific pricing mechanism. This analysis includes both historical / look back pricing, as well as, forward looking indicative pricing based on industry assumptions and commodity forecasts.
- **Risks and Constraints** – highlights certain areas of weakness and potential obstacles of achieving the targets and forecasted results, this included: i) technical; ii) non-technical; and iii) economic.
- **Capital Markets Considerations** – included comparable analysis used for valuations, capital sourcing for construction highlighting “ESG” and “Green” centric source of funds; this also highlighted the appetite for “green bonds”.
- **Summary of Clean Fuel Standards** – comparison of the standards based on jurisdiction.
- **Supply / Demand of Renewable Diesel and Renewable Aviation Fuel** – analysis and detailed summary of locations and facility specifics.
- **ESG Considerations** – a discussion with respect to True North’s views on appropriate ESG practices to be formally implemented, general discussion items which True North was asked to opine on:
 - Corporate Governance / Policies
 - Workforce Diversity and Inclusion
 - Indigenous Issues
 - Stakeholder and Community Engagement
 - Customer Philosophy / Approach to Service
 - Environment and Regulatory Permitting
 - Life cycle assessments
 - ESG target setting and measurement and report against targets
- **Specific Questions Following the Delivery of the Detailed Summary Presentation** – questions were asked and answered, in a formal in-person setting, relating to the materials provided, including specific questions on:
 - i. competitive threats and how they affect the overall business plan / strategy of True North;
 - ii. competitiveness vs. existing and potential new market players (both greenfield and conversions);
 - iii. risks associated with an oversupplied market;
 - iv. risk of a biodiesel facility conversion;
 - v. role of major refiners in True North’s overall business plan;
 - vi. carbon intensity and associated credit values;
 - vii. logistics requirements, specifically rail car movements;
 - viii. details surrounding pricing mechanisms;
 - ix. views on the Carbon tax and utilizing HDRD;
 - x. blending process and accuracy;

- xi. details surrounding the departure of various previous True North team members and the plans to cover their respective responsibilities;
- xii. details on dilutive instruments issued and outstanding;
- xiii. formal agreements relating to the technology;
- xiv. key milestones to achieve compliance in other markets;
- xv. marketing plans for the sale and distribution of various renewable fuels produced;
- xvi. detailed build-up of approved carbon intensity and comparison to default carbon intensity under the proposed CFS;
- xvii. a detailed discussion on the anticipated impacts of the clean fuel standard, from True North's point of view, and as it relates to the project; and
- xviii. pricing summary and comparison to fossil-based diesel.

Files delivered for review as part of the due diligence process included:

- Investment Overview – detailed presentation outlining the business plan (90 slides)
- Feasibility and Market Research – TN internally generated feasibility study (~150 page report), Market analysis and market research
- Canadian Clean Fuel Standard – Healthy Environment Healthy Economy, Draft Regulations – Gazette Part 1, Draft Regulations – Supporting Methodology, ECCC Clean Fuel Standard – Presentation, True North submission to ECCC
- Models: detailed Financial Model and fuel note model
- Government Funding and support – SK income tax incentives, AG Clean Tech Fund
- FEED Documents – Site Selection, Technology Providers, FEED Engineering
- True North Minute Books (Feb 2020) – Certificate of Incorporation, Articles of Incorporation, Unanimous Shareholder Agreements, Shareholder Ledger, By-Laws and Amendments, Directors Meetings, Shareholder Meetings, Directors Register, Securities Register, Share Certificates, Notices, Annual Reports, Contracts, Banking Resolution, Financial statements, Agreements, Share Ownership summary.
- Canola Overview, supply / demand analysis, growth, initiatives
- Updates to the project assumptions
- Frequently asked questions (FAQ)

Upon completing the review of these documents and through various ongoing discussions with True North, each party was satisfied that True North had met their due diligence requirements and the decision to invest/participate was formally recommended to the executive level within their respective organizations.

H. Conclusion

The project will provide significant economic and environmental benefits to Regina in particular, and Canada overall. The entire project if fully executed as planned will create approximately 5,000 jobs for the Regina area and provide approximately one third of Canadian demand for renewable diesel fuel to meet Canada's targeted CO₂ emissions reduction. The timing of the project will be important to contribute to a strong local Regina economic recovery as the pandemic restrictions end and as the economy returns to normal operations. The location of the project in the Regina area provides a major

boost to the City of Regina and EDR's economic growth plans to make Regina a North American hub for agriculture and clean fuel production. It also provides the City of Regina with the most low cost alternative to comply with Canada's clean fuel standards and contribute to Regina's efforts to be an exemplary city in environmental sustainability.

Appendix A

Front-End Engineering and Design Execution

Technology Licensing

True North will require technology licenses and detailed engineering from technology providers in the three key areas: (a) feedstock pre-treating, (b) hydrogen generation, and (c) feedstock hydrogenation and fractionation. All of these technologies may be commercially licensed from multiple technology providers. Selection of the technology providers will be completed in the initial phase of the FEED study. Selection will be based on constructability and operability characteristics of the technology provided. The degree of modularization offered will be a prime consideration. Process technology deliverables will include:

- Process flow diagrams
- Process description including normal operating conditions
- Process simulation (mass and energy balances)
- Utility requirements
- Equipment list and specifications
- Modular descriptions (if applicable)

The technology providers will be required to establish a close working relationship with the engineering contractor. A strong RACI (Responsible, Accountable, Consulted, Informed) communication plan will be essential to ensure the flow of communication between the technology provider, the engineering contractor and True North to minimize potential delays of the FEED study.

Pre-treatment may not be required when processing higher quality (i.e. refined, bleached, and deodorized) vegetable oils, however, pre-treatment to control gums, free fatty acids, metals, and other contaminants of the feedstock is required when using animal and used fats or crude degummed vegetable oils to ensure suitable quality and protect the catalysts from fouling. Protection of the hydrotreating catalyst is critical to ensure reliable operation and avoid expensive pre-mature catalyst failures. Candidates for supply of pre-treating technology include Desmet Ballestra, Alfa Laval and others.

Steam reforming and auto-thermal reforming are well-established process for the production of hydrogen. The reactions occur in two stages: (a) reaction of methane and water to produce syngas (hydrogen and carbon monoxide and (b) the water shift reaction where the carbon monoxide intermediate is reacted with water to produce carbon dioxide and hydrogen. Hydrogen is purified using a pressure-swing adsorption unit. As an alternative to fossil methane, renewable propane produced as a by-product from the hydrogenation process can be used to reduce the lifecycle carbon intensity. Leading technology providers of steam reforming and pressure swing adsorption include Haldor-Topsoe and AirLiquide.

Hydrogenation of fats, oils and greases can be commercially licensed from Honeywell UOP, Haldor Topsoe and Axens. All three technology providers have operating facilities. Honeywell UOP claims to have modularized their process into 500 million litre per year standard modules and has made recent advances to improving renewable product yields and capital efficiency.

The Honeywell UOP process was developed jointly with ENI, the Italian energy company. ENI converted an existing petroleum refinery at Venice which is now producing 590 million litres. ENI converted a second refinery at Gela, Sicily to produce renewable fuel. Honeywell UOP licensed the technology to Diamond Green Diesel, a joint venture between Valero Energy, a major US refiner, and Darling Ingredients, a global leader in creating sustainable food, feed and fuel ingredients. Diamond Green Diesel co-located a hydrogenation facility near the Valero refinery at Norco, LA, USA. Diamond Green Diesel doubled the size of the facility from 500 million litres annually to 1 billion litres annually. They have subsequently doubled the facility again to 2 billion litres annually. Honeywell UOP also licensed their technology to World Energy who converted a refinery Paramount, CA, USA for sustainable aviation fuel production and to Marathon who converted the Dickinson, ND, USA refinery for renewable diesel fuel production.

Site Selection and Acquisition

It is essential that the site selected for True North's proposed renewable fuel facility have a competitive advantage to securing feedstock. The greater Regina area meets this essential element, being located in the canola growing area, especially with the proposed expansion of the Lake Diefenbaker irrigation project.

A suitable site location will have:

- Approximately 160 acres, relatively flat
- Favourable rail logistics for feedstock supply and product shipping
- Zoned for industrial use; non environmentally sensitive land with a clear path to regulatory approval
- Access to sufficient power (~12 MW)
- Access to sufficient natural gas (4 MMscf/d)
- Access to sufficient raw water (350 m3/d)
- Competitive tax incentives (e.g. Saskatchewan Commercial Innovation Incentive)
- Proximal to either a refined products pipeline or a refinery
- Proximal to industry services and skilled workforce

True North has identified three preferred locations within the greater Regina area that meet our criteria.

Environment and Regulatory Approvals

The engineering contractor selected will have sufficient resources to coordinate and execute on all necessary studies and analysis to procure all necessary environmental and regulatory approvals and to assist with the required public notification and consultations. These matters include:

- Environmental
 - Field Assessment
 - Environmental Protection Application & Approval
 - Water Resource Application & Approval
 - Historical Resources Application & Approval

- Air Quality Assessment
- Regulatory
 - Navigation Canada/Transport Canada Applications
 - Consultation and Notification support
 - Development Permit(s)

The engineering contractor will work with True North to identify project regulatory processes to ensure that environmental and/or design requirements for regulatory applications are well understood and regulatory timelines are incorporated into project scheduling. The engineering contractor will also work with the technology providers to ensure process and operating information needed for environment and regulatory approval is accurate and complete.

Preliminary Engineering Design

True North has completed extensive discussions with several engineering companies with respect to developing an execution plan for the Preliminary Engineering Design. At this point, three companies are considered for this work. Owing to the competitive and commercially sensitive nature of this engagement, names of possible engineering contractors are not included here.

Deliverables required by the engineering contract at kick-off include:

- Final Process Design Basis Document
- Preliminary Project Execution Plan
- Preliminary Design Basis Memorandum
- Complete Technical Information Package from technology providers
 - Process Simulation (mass/heat balance) and process flow diagram
 - Process Description and Summary
 - ISBL Plot Plans (preliminary)
- Regulatory Roadmap Finalization
- Environmental Overview Report
- Preliminary Block Flow Diagram
- Preliminary Cost Estimate and Basis of Estimate – Class 4
- Initial Risks Register
- SWOT Analysis
- Preliminary Project Schedule
- Initial Equipment List
- FEED Execution Plan Including:
 - Finalize FEED Deliverable list
 - Finalize FEED Schedule and Execution Strategy
- Utility availability
 - City of Regina (water/waste water),
 - Transgas (natural gas),
 - Sask Energy (power)
- Feed stock composition including a listing of trace impurities
- Product Specifications including a maximum allowable content of trace contaminants
- Sparing Philosophy for rotating equipment, filtration, etc.
- Storage capacity required (quantity of days/hours) – for both feedstock and product
- Expected method of feedstock delivery

- Expected sales delivery method (Trucks / Rail / Pipeline etc.)
- Final product specifications

Many of these deliverables have been completed, however, suitable time should be allocated to ensure timely kick-off of the preliminary engineering work.

Key deliverables of the FEED engineering work include:

- Project Management
 - Approved Project execution plan
 - AACE Class 3 Total Installed Cost Estimate
 - Basis of Estimate
 - ACE Level 3 Schedule for the entire project
- Process Design
 - Process Design Basis Document
 - Approved Design Basis Memorandum
 - Process simulation results
 - Process Flow Diagrams
 - Process Summary
 - Block Flow Diagram
 - Metering Diagram
 - Piping & Instrument Diagrams (P&ID's)
 - Utility requirements
- Piping
 - 30% model development
 - Piping modeling for 6" and larger
 - Bulk material take-off from model
- Mechanical
 - Drawing Deliverables List
 - Detailed equipment list and sizing
 - Plot Plan (IFD)
 - Preliminary HAZOP
 - Initial Constructability review
 - Major equipment datasheets
 - Specialty items list
 - Fire Protection and Safety Requirements
 - Safety and Security Requirements
 - Water Supply, Treatment and Disposal Study
- Electrical
 - Primary power feed identification
 - Preliminary cable trays sizing and layout
 - Preliminary Motor Control Centre and switchgear sizing
 - Transformer sizing required for the plant capacity
 - Load study
 - Single Line Diagram
 - Hazardous Area Classification Plans & Details
- Civil
 - Topographical Study Report

- Geotechnical Evaluation Report
- Preliminary Grading Plan
- Access Road Design
- Building Layout
- Civil Design Basis
- Storm Water Treatment and Containment Study
- Major foundation design basis
- Preliminary pile counts
- Preliminary pipe rack layout and materials takeoff (structure)
- Instrumentation and Controls
 - Datasheets on major instruments (outside of licensor and vendor supplied packages)
 - Controls and Communication System Design
 - Instrument Index
- Procurement
 - Finalize Procurement Strategy with True North
 - Obtain budgetary quotes for long lead process equipment and major utility equipment
- Detailed Design Proposal Including:
 - Finalize Detailed Design Specifications and Deliverable list
 - Finalize Detailed Design Level 3 Resource Loaded Schedule
 - Finalize Engineering Man-Hour Estimate for Detailed Design

The engineering contractor will complete specification sheets for all major pieces of equipment and Packages and will develop a bidders list with True North's input/approval. Supply Chain Management will be used to obtain formal quotes for all major pieces of equipment. Upon receipt of all major equipment quotes, the initial Class 4 factored capital cost estimate will be reviewed prior to proceeding with the detailed cost estimate development. The engineering contractor will develop P&ID's for the facility, mainly package connection P&IDs but will also be required to supply vendor package P&IDs as received.

To support the Class 3 Cost Estimate, the engineering contractor will develop a preliminary piping model. The model will show equipment locations, initial routing for 6" and larger pipe, major steel and major cable tray routing. This model will assist in the constructability review throughout the full lifecycle of the project and provide the material take offs for the cost estimate. The engineering contractor will perform the following reviews during the preliminary engineering work:

- A 10% model review will be completed for this project early during the preliminary engineering phase
- A 20-30% model review will take place near the end of the preliminary engineering phase

A constructability resource early in this project will be required. The constructability resource would continue to support during the Detailed Design phase (where 30%, 60% and 90% model reviews take place). Leveraging a constructability plan and initial review early into the process mitigates potential risks to the construction schedule. It is expected that the construction scope of work would be competitively bid during Detailed Design and is considered to be the most cost-effective strategy. While there are synergies in having the construction company who provided the personal for the constructability reviews awarded the on-site work, it is not necessary to achieve the desired results. Regulatory requirements for the new facility will be incorporated into the engineering contractor's deliverables including the equipment/package specifications, plot plan, and cost estimate.

Feedstock and Offtake Agreements

Feedstock supply and product offtake arrangements will be defined during the FEED study stage in order to meet investment requirements and successfully capitalize detailed engineering and construction. True North is in various stages of discussions, which are considered commercially sensitive and under non-disclosure agreements, with several parties with respect to both long-term supply of feedstock and long-term agreements for product offtake. The total capital cost of the facility will be a primary factor in the proposed pricing structure of renewable fuels and an essential component of the discussions and negotiations with respect to long-term contracting of product offtake. Feedstock agreements are intended to be long in nature in order to provide competitive pricing of renewable fuels, as well as to ensure long term deliverability as the demand for these fuels increases. Matching the term of a renewable fuels offtake agreement with a feedstock agreement offers considerable economic advantages and financial security for the Facility. In addition, selecting the most suitable partners for both offtake and feedstock offers considerable strategic advantages for the overall success of the project and the long-term viability of the Facility. These considerations and analysis, as well as, negotiations with both offtake parties and feedstock providers will be carried out during the FEED stage with a target of a minimum of 50% of the renewable fuels and feedstock supply contracted.

Capitalization and Final Investment Decision

In order to properly capitalize the development of True North's Facility, a completed front-end engineering and design "FEED" study is required to properly define preliminary project engineering and capital cost requirements. Additionally, capital providers will require sufficient confidence in feedstock supply and product offtake arrangements ensuring the financial sustainability of the Facility, as well as, necessary environmental and regulatory approvals. It is True North's intent to capitalize the detailed engineering and construction utilizing an approximate 65% debt and 35% equity finance model. It will be necessary to ensure product offtake agreements provide adequate debt service and repayment coverage.

True North has been given initial indication that the Facility will qualify under the "Green Bond" framework and, as such, True North will explore the opportunity of sourcing capital globally from "Green Bond" investors.