

MUNICIPAL DISTRICT OF GREENVIEW No. 16

GREENVIEW INDUSTRIAL GATEWAY COMMITTEE MEETING AGENDA

Wednesday, January 25, 2023

9:00 a.m.

Council Chambers Administration Building Valleyview, AB

#1	CALL TO ORDER	
#2	ADOPTION OF AGENDA	
#3	MINUTES	3.1 Greenview Industrial Gateway Committee Meeting Minutes held Wednesday, September 14, 2022.
#4	DELEGATION	4.1 Ecostrat Incorporated Biomass Presentation
#5		5.1 Biomass Report
		5.2 Water Station Installation
		5.3 Enhance Energy Inc. Letter of Support – Carbon Sequestration Hub
		5.4 Greenview Industrial Gateway Land Use District
		5.5 Director Report
#6	CLOSED SESSION	6.1 Privileged Information (Section 27, FOIP)
#7	ADJOURNMENT	

Minutes of a

GREENVIEW INDUSTRIAL GATEWAY COMMITTEE MEETING MUNICIPAL DISTRICT OF GREENVIEW NO. 16

Greenview Administration Building, Valleyview, Alberta on Wednesday, September 14, 2022.

#1 CALL TO ORDER	Chair Winston Delorme called the meeting to order 12:18 at p.m.			
PRESENT	Ward 9	Reeve Tyler Olsen(virtual)		
	Ward 8	Deputy Reeve Bill Smith (absent)		
	Ward 1	Councillor Winston Delorme		
	Ward 2	Councillor Ryan Ratzlaff		
	Ward 3	Councillor Sally Rosson		
	Ward 4	Councillor Dave Berry		
	Ward 5	Councillor Dale Smith(absent)		
	Ward 6	Councillor Tom Burton		
	Ward 7	Councillor Jennifer Scott		
	Ward 8	Councillor Christine Schlief		
	Ward 9	Councillor Duane Didow		
ATTENDING	Chief Administrative Officer	Stacey Wabick		
	Director, Community Services	Michelle Honeyman		
	Director, Infrastructure and Engineering	Roger Autio		
	Director, Corporate Services	Ed Kaemingh		
	Acting Director, Ec. Dev and Planning	Stacey Sevilla		
	Executive Director, Industrial Developmen	-		
	Manager Communications and Marketing			
	Recording Secretary	Natalie Bartlett		
ABSENT	Martino Director, Ec. Developme	ent and Planning		
	Verhaeghe			
	Bill Smith Deputy Reeve			
	Dale Smith Councillor			
#2	MOTION: 22.09.38 Moved by: COUNCILLO	R DUANE DIDOW		
AGENDA	That the Greenview Industrial Gateway Committee adopt the September			
	14, 2022, Greenview Industrial Gateway C	•		
	, , ,	0 0		

presented.

CARRIED

#3 MINUTES

3.0 MINUTES

MOTION: 22.09.39 Moved by: COUNCILLOR RYAN RATZLAFF

That the Greenview Industrial Gateway Committee adopt the July 13, 2022, Greenview Industrial Gateway meeting minutes as presented.

CARRRIED

BUSINESS ARISING

#4 DELEGATIONS 4.0 DELEGATIONS

No Delegations presenting

#5 NEW BUSINESS 5.0 NEW BUSINESS

5.1 Greenview Industrial Gateway Proposed Budget 2023

GIG PROPOSED 2023 BUDGET MOTION: 22.09.40 Moved by: COUNCILLOR JENNIFER SCOTT

That the Greenview Industrial Gateway Committee accept the 2023 Proposed Greenview Industrial Gateway Budget for information, as

presented.

CARRIED

5.2 Executive Report

MOTION: 22.09.41 Moved by: COUNCILLOR RYAN RATZLAFF

That Greenview Industrial Gateway Committee accept the Executive report

for information, as presented.

TABLED

MOTION: 22.09.42 Moved by: COUNCILLOR RYAN RATZLAFF

Councillor Burton tabled the motion for Greenview Industrial Gateway

Executive report.

CARRIED

CLOSED SESSION 6.0 CLOSED SESSION

MOTION: 22.09.43 Moved by: COUNCILLOR CHRISTINE SCHLIEF

That the meeting go to Closed Session, at 1:19 p.m. pursuant to Section

197 of the Municipal Government Act, 2000, Chapter M-26 and amendments thereto, and Division 2 of Part 1 of the Freedom of

Information and Protection Act, Revised Statutes of Alberta 2000, Chapter

F-25 and amendments thereto, to discuss Privileged Information with regards to the Closed Session.

CARRIED

6.1 PRIVILEGED INFORMATION

6.2 PRIVILEGED INFORMATION

OPEN SESSION

MOTION: 22.09.44 Moved by: COUNCILLOR DAVE BERRY That, in compliance with Section 197(2) of the Municipal Government Act, this meeting come into Open Session at 1:46 p.m.

CARRIED

6.1 Greenview Industrial Gateway Project Cost Analysis

MOTION: 22.09.45 Moved by: COUNCILLOR DUANE DIDOW That the Greenview Industrial Gateway Committee accept the Greenview Industrial Gateway Project Cost Analysis Report for information, as presented.

CARRIED

6.2 Executive Director Report

MOTION: 22.09.46 Moved by: COUNCILLOR SALLY ROSSON That Greenview Industrial Gateway Committee accept the Executive report for information, as presented.

CARRIED

5.2 MOTION: 22.09.47 Moved by: COUNCILLOR TOM BURTON Councillor Burton makes motion to lift tabled motion 22.09.41 Agenda item 5.2 Greenview Industrial Gateway Executive Report.

CARRIED

5.2 Executive Report

MOTION: 22.09.48 Moved by: COUNCILLOR RYAN RATZLAFF That Greenview Industrial Gateway Committee accept the Executive report for information, as presented.

CARRIED

#7 ADJOURNMENT ADJOURN

7.0 ADJOURNMENT

MOTION: 22.09.49 Moved by: COUNCILLOR JENNIFER SCOTT That the Committee adjourn this Greenview Industrial Gateway Meeting at 2:09 p.m.

CARRIED

Minutes of a Greenview Industrial Gateway Meeting	April 13, 2022
MD of Greenview	

RECORDING SECRETARY

CHAIR



REQUEST FOR DECISION

SUBJECT: Ecostrat Incorporated Biomass Presentation

SUBMISSION TO: Greenview Industrial Gateway REVIEWED AND APPROVED FOR SUBMISSION

Committee

MEETING DATE: January 25, 2023 CAO: SW MANAGER: DEPARTMENT: CAO SERVICES GM: PRESENTER:

STRATEGIC PLAN: Economy LEG:

RELEVANT LEGISLATION:

Provincial (cite) - N/A

Council Bylaw/Policy (cite) - N/A

RECOMMENDED ACTION:

MOTION: That the Greenview Industrial Gateway Committee accept the Ecostrat Incorporated Biomass presentation for information, as presented.

BACKGROUND/PROPOSAL:

Greenview has partnered with the County of Grande Prairie to have Ecostrat Incorporated prepare a Phase I report on woody biomass within geographical areas of the Greenview Industrial Gateway (GIG).

Representative(s) from Ecostrat Incorporated will be in attendance to provide a presentation on the Bioeconomy Development Opportunity (BDO) Zone.

BENEFITS OF THE RECOMMENDED ACTION:

1. The benefit of the recommended action is that the Committee will be updated on the bioeconomy development opportunities within the geographical areas of the Greenview Industrial Gateway (GIG).

DISADVANTAGES OF THE RECOMMENDED ACTION:

There are no perceived disadvantages of the recommended motion.

ALTERNATIVES CONSIDERED: N/A

FINANCIAL IMPLICATION:

There are no financial implications of the recommended motion.

STAFFING IMPLICATION:

There are no staffing implications of the recommended motion.

PUBLIC ENGAGEMENT LEVEL:

Greenview has adopted the IAP2 Framework for public consultation.

INCREASING LEVEL OF PUBLIC IMPACT

Inform

PUBLIC PARTICIPATION GOAL

Inform - To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.

PROMISE TO THE PUBLIC

Inform - We will keep you informed.

FOLLOW UP ACTIONS:

There are no follow-up actions to the recommended motion.

ATTACHMENT(S):

N/A



BDO Zone Rating Opinion

MD of Greenview and County of Grande Prairie, AB





BDO Zone ratings in a nutshell...

A BDO Zone rating is a standards-based assessment of regional biomass feedstock and infrastructure attributes with respect to development potential of new biofuel, renewable chemical, biogas or bioproduct manufacturing plants.

BDO Zone ratings <u>demonstrate</u> the maturity of local biomass supply <u>chains and infrastructure</u>: whether they are developed enough to support bio-based manufacturing without excessive risk.





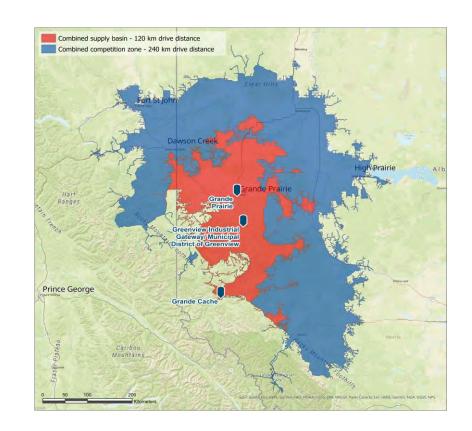
BDO Zone Assessment geography

MD of Greenview and County of Grande Prairie, AB

Sources of woody biomass supply were assessed within a 120-km drive distance from the County of Grande Prairie, Greenview Industrial Gateway, and Grande Cache, AB which serves as the BDO Zone center points.

Potential competing markets within a 240-km drive distance was included in the analysis and scoring (the "BDO Zone region").

Map to right shows red supply and blue competition basins assessed for purposes of this Rating Opinion.





Rating Opinion- expected rating: 'A'

RATING DRIVER 1

Underutilized forest residues and price constraints of current markets:

- Large underutilized commercial quantities of forest residues-- 300-350,00 odt per yr.
- ➤ Majority of underutilized forest residues in the MD of Greenview and County of Grande Prairie BDO Zone can be delivered to the BDO Zone center points at a high-level delivered cost range of \$80-90 per dry tonne. Current markets constrained at prices significantly above \$80/dry tonne.
- > 50,000 dry tonnes of sawdust and wood shavings could be available at a high-level delivered cost range of \$40-50 per dry tonne.

RATING DRIVER 2

Robust fiber harvest infrastructure

- Commercial quantities of woody biomass currently underutilized.
- > Harvest infrastructure appears to be adequate to access and manage feedstock delivery.

RATING DRIVER 3

Key supply chain infrastructure

- Physical infrastructure is excellent. Grande Prairie has two major industrial hubs: 1. Tradesman, an industrial area with 192 hectares of land for future expansion and 2. NW Clairmont, which has 1651 hectares of land with on-site rail lines. The MD of Greenview also has two major industrial parks: 1. Greenview Industrial Gateway at 2000 acres and 2. Big Mountain Industrial Park with 108 acres. All sites have access to natural gas and electricity.
- Good transportation links, including rail to Port of Prince Rupert in BC.
- Social infrastructure is also attractive, with the cost of living lower than in other areas in Alberta, lower than averaging housing pricing and availability, natural beauty, and good education, including post-secondary.



BD OZ INITIATIVE

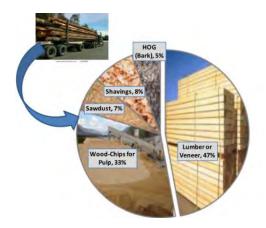
Woody Biomass Sources

Primary sources of woody biomass supply in the BDO Zone include:

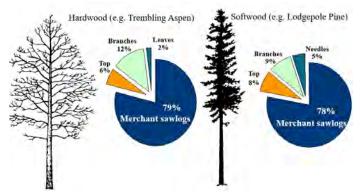
- Sawmill Residues, including woodchips, sawdust, wood shavings, and hog fuel.
- Forest Residues from harvesting and fuel reduction operations (tops, limbs, and log waste).

We expect additional potential sources of woody biomass from communities with fire management and fibre utilization plans, pulp logs, and wood waste in urban areas.

The potential availability of these biomass resources will be evaluated in final rating issue.



Sawmill Residues



About 20% of harvested timbers ends up in the forest as forest residues



AAC History in Alberta

- Stable ACC. Alberta has not experienced severe natural disturbances in recent years such as insect outbreaks and wildfires and thus AACs and the harvest levels in the majority of FMUs have not changed significantly.
- Between 2015 and 2020, the five-year average provincial AAC has ranged from 31 million to 32 million cubic metres (insignificant change), while the five-year average harvest has ranged from 21 million to 24 million cubic metres during the same time period.
- The gap between the harvested volume and allowable cut has decreased from 10 million to 7 million cubic metres. Fluctuations in harvest volume from year to year reflect demand trends in lumber and pulp markets.

Sustainable Timber	Prior Years' Results				Target	Actual
Harvest	2015-16	2016-17	2017-18	2018-19	2019-20	2019-20
Annual Allowable Cut (million cubic metres)	31	32	32	32	Harvest does not exceed the	31
Harvest (million cubic metres)	22	23	23	23	approved harvest	24



Definitions and FMUs of interest for BDO Zone Rating

Forest Management Agreement (FMA): Long-term (20 year), renewable, area based form of forest tenure which functions to allocate timber and provide rights regarding Crown timber --the most secure tenure type in Alberta. FMA requires an approved forest management plan in place before timber can be harvested. Alberta owns all timber on provincial public 'Crown' lands.

Forest Management Units (FMUs): In Alberta, Annual Allowable Cuts (AACs) are set for in the FMUs. A FMU is an area of forested public land designated by the department, under the authority of the Forests Act, as an administrative unit to manage timber.

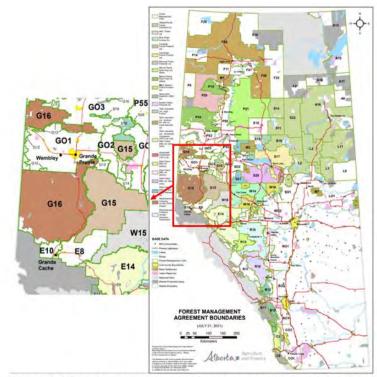
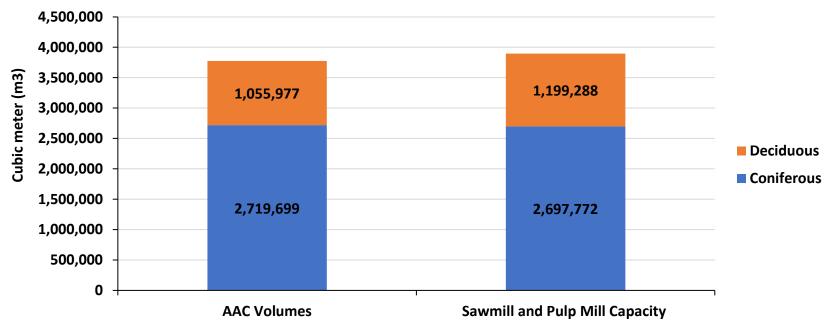


Figure 1. Map of current Forest Management Units (FMUs) and the FMUs located in the Supply Basin (red box).



AAC and Harvested Timbers in the FMUs of Interest

Expect current sawmill and pulp mills in the FMUs of interest to utilize full allocated AAC volumes at full capacity.





Sawmill residues production and consumption

Four major sawmills in the FMUs of interest produce about 485,000 odt and 186,000 odt of residual wood chips, and sawdust/wood shavings, respectively.

Wood chip demand from International Paper's pulp mill outstrips the wood chip supply within the FUMs of interest. Expect pulp mill to meet remaining portion of its wood chips demand (over 25,000 odt) from whole pulp logs chipping and other sawmills in the region.

About 50,000 odt of sawdust and wood shavings should be available after meeting the feedstock demand of the two Cogen facilities in the region.

This volume has been used for other applications such as livestock bedding and landscaping (under short-term contracts). This volume would be available for bioeconomy initiatives under long-term contracts.

Sawmill Residue Production	Residual Wood chips (ODT)	Sawdust and wood shaving (ODT)
Weyerhaeuser Dimension lumber sawmill	165,000	85,000
Canfor lumber sawmill	142,000	72,500
Foothills Forest Products lumber sawmill	58,000	30,000
Norbord/West Fraser OSB mill	121,000	-

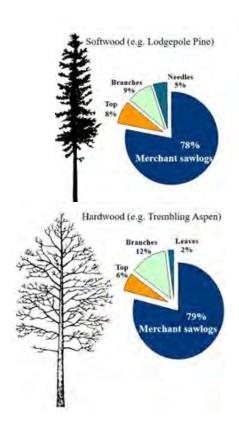
Sawmill Residue Consumption	Wood chips (ODT)	Sawdust and wood shaving (ODT)
International Paper Pulp mill	510,000	-
TC Energy Cogen facility	-	76,000
Canfor Cogen	-	60,000
Total demand	510,000	136,000
Total supply	485,000	186,000

Forest Residues/Logging Residues

About 20% of harvested timbers ends up in the forest as forest residues.

Due to the lack of large scale biomass power/Cogen plants and pellet plants within the competition zone, currently there is no established demand for forest residues. Usually piled and burned to prevent forest fires.

Given the capacity of current sawmills and the pulp mill in the supply area, we expect approximately 218,000 odt and 97,000 odt of forest residues are produced from harvest of coniferous and deciduous timbers, respectively.





Key Drivers: Woody Biomass Availability

Primary source of available woody biomass is forest residues. We estimate over 300,000 odt of forest residues are produced annually. We note that forest residues are a secondary transformation and that actual annual quantity will depend on volume of harvested timbers by primary wood processing facilities.

Secondary source of available woody biomass is sawdust and wood shavings. We estimate that about 50,000 odt could be available under long-term contracts.

We expect additional potential sources of woody biomass in the BDO Zone— specifically in communities with fire management and fibre utilization plans and wood wastes in the urban areas. The potential availability of these potential biomass resources will be evaluated for final rating issue.

We see strong existing demand for wood chips from the pulp and paper industry in the region and expect that no material quantities of wood chips to be available for new bioeconomy plant utilization.

Type of woody biomass	Estimated Supply (ODT)	Estimated Demand (ODT)	Cost Range (\$/ODT)
Residual Wood Chips	485,000	510,000	90-150
Sawdust and wood shavings	186,000	136,000	40-50
Forest/Logging Residues	315,000	No established markets	60-130



Key Drivers: Supply Chain Infrastructure

Road and logging infrastructure to support removal and transport of woody biomass are adequate to supply a proponent facility.

Terrain variability, interference with logging operations, and lack of proper road access to logging residues at some of the cut blocks can make accessing this material problematic in some cases; but most of it can be accessed with proper planning and placement of piles.

Physical infrastructure is excellent with Grande Prairie having two major industrial hubs: 1. Tradesman, an industrial area with 192 hectares of land for future expansion and 2. NW Clairmont, which has 1651 hectares of land with on-site rail lines. MD of Greenview also has two major industrial parks: 1. Greenview Industrial Gateway at 2000 acres and 2. Big Mountain Industrial Park with 108 acres. All sites have access to natural gas and electricity.

Good transportation links, including rail to Port of Prince Rupert in BC.



Rating Opinion—expected rating: 'A'

Given the current Allowable Annual Cut (AAC) volumes and the production capacity of sawmills in the BDO Zone region, it is estimated that approximately 300,000-350,000 oven dry tonnes per year of woody biomass-based feedstock are functionally available (underutilized) to new bio-based markets within the 120-km supply radii that cover the county of Grand Prairie, Greenview Industrial Gateway, and Grande Cache, AB. In addition, the BDO Zone assessment shows excellent initial scoring on key infrastructure and supply chain risk indicators.

There is already a strong demand for wood chips from the pulp and paper industry in the north and south west, and central Alberta, and we expect that no significant quantities of this biomass category will be available for future bio-project development.

The primary source of available and underutilized woody biomass is forest residues. We estimate that over 300,000 oven dry tonnes of forest residues are produced annually from cutting timber to meet the fibre demand of sawmills and pulp mills. The actual annual quantity depends on the volume of harvested timber by these primary wood processing facilities in a particular year.

A second source of available woody biomass in the BDO Zone is sawdust and wood shavings. We estimate that about 50,000 oven-dry tonnes could be available under long-term contracts. We note additional potential sources of woody biomass located in communities with fire management and fibre utilization plans, as well as wood waste in urban areas. The potential availability of these additional biomass resources will be evaluated in Phase 2 of the rating.

The rating for The MD of Greenview and County of Grande Prairie, AB BDO Zone is expected to be at least 'A'.





REQUEST FOR DECISION

SUBJECT: Biomass Report

SUBMISSION TO: Greenview Industrial Gateway REVIEWED AND APPROVED FOR SUBMISSION

Committee

MEETING DATE: January 25, 2023 CAO: SW MANAGER:

DEPARTMENT: CAO SERVICES GM: PRESENTER: KR

STRATEGIC PLAN: Economy LEG:

RELEVANT LEGISLATION:

Provincial (cite) – N/A

Council Bylaw/Policy (cite) - N/A

RECOMMENDED ACTION:

MOTION: That the Greenview Industrial Gateway Committee recommend Council authorize Administration to enter into an agreement with Ecostrat Incorporated for an additional biomass report to a maximum amount of \$62,260.00 with funds to come from the GIG 2023 Budget.

BACKGROUND/PROPOSAL:

Greenview partnered with the County of Grande Prairie to have Ecostrat Incorporated to complete a Phase I report on woody biomass potential within geographical areas of the Greenview Industrial Gateway (GIG), the MD of Greenview, and County of Grande Prairie.

By partnering we were able to capture this high-level assessment over much of Greenview versus just the geographic area defined by the GiG, while receiving a regional discount.

This desire to gain a better understanding is due to the fact that the GIG has received multiple inquiries from companies regarding the potential of biomass. Whether or not this is to process the biomass into pallets or other value-added products or to use this biomass as a feedstock to further process Natural Gas.

One company has recently shortlisted the GIG for a much larger scale woody biomass project. With a very large electrical requirement, access to rail and large-scale emissions, we continue to work with them on a location. This information supplied in the initial assessment was a key factor in them looking at the MD as a credible location.

If this continues to progress in a positive manner then intent would be to introduce them to this committee at an upcoming meeting for an overview of their operations.

Ecostrat Inc. had been retained to carry out Bioeconomy Development Opportunity (BDO) Zone rating activities within the framework of the Standards for Biomass Supply Chain Risk. This Phase 1 rating Opinion

Letter ("Rating Opinion") provides the assumptions behind a preliminary and high-level scoring and rating of woody biomass supply and feedstock supply chain resilience for Greenview and the County of Grande Prairie, AB.

The BDO Zone Initiative is a regional risk-rating and certification program that enables regions to leverage local biomass assets to attract new bio-based manufacturing plants and create jobs. A BDO Zone rating is a qualified assessment of biomass feedstock and infrastructure attributes of a region with respect to the development potential of new biofuel, renewable chemical, biogas or bioproduct manufacturing plants.

- Use internationally recognized risk metrics to credibly quantify and signal key biomass feedstock and infrastructure "success" characteristics valued by biobased developers and investors around the world.
- Connect 'A' and 'AA' rated communities with bio-based project developers looking to build new plants in BDO Zones.
- Help get biomass-based manufacturing plants built in the places they are most likely to succeed.

With the current Allowable Annual Cut (AAC) volumes and the production capacity of sawmills in the BDO Zone region, it is estimated that around 300,000 – 350,000 oven dry tonnes per year of woody biomass-based feedstock functionally available (underutilized) to new bio-based markets within 120 km supply radii that cover the County of Grande Prairie, Greenview Industrial Gateway, and Grande Cache, AB. In addition, the BDO Zone assessment shows excellent initial scoring on key infrastructure and supply chain risk indicators.

There is already a strong demand for wood chips from the pulp and paper industry to produce net electricity or value-added products. A localized example can be the Canfor biomass facility that is used to generate their own localized power supply. This is small in nature, but a good example of the type of facility.

The GIG has been receiving and will continue to receive numerous requests from interested parties regarding biomass potential given the abundance of feedstock, and potential to integrate it into Natural Gas upgrading. The abundance of timber will lead this companies to this discussion.

Administration is recommending to advance with the Phase II report as outlined by Ecostrat Incorporated due to the initial assessment received an audit of an A rating. The additional report will further define the applicable product available in each geographical area as well as define possible haul traffic patterns and associated per ton cost etc. The report will be an added component in attracting further biomass development opportunities within Greenview.

This Phase 2 will not be in partnership with the County of Grande Prairie. This analysis would be used to attract potential biomass companies to the GIG and Greenview.

BENEFITS OF THE RECOMMENDED ACTION:

The benefit of the recommended action is that the additional report will further define the applicable
product available in each geographical area, define possible haul traffic patterns etc. and be an added
component in attracting further biomass development opportunities within Greenview.

DISADVANTAGES OF THE RECOMMENDED ACTION:

There are financial implications associated.

ALTERNATIVES CONSIDERED:

1. The Greenview Industrial Gateway Committee has the alternative to alter or deny the recommended motion.

FINANCIAL IMPLICATION:

The financial implication of the recommended motion will be \$62,260.00 with funds to come from the GIG 2023 Budget.

STAFFING IMPLICATION:

There are no staffing implications of the recommended motion.

PUBLIC ENGAGEMENT LEVEL:

Greenview has adopted the IAP2 Framework for public consultation.

INCREASING LEVEL OF PUBLIC IMPACT

Inform

PUBLIC PARTICIPATION GOAL

Inform - To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.

PROMISE TO THE PUBLIC

Inform - We will keep you informed.

FOLLOW UP ACTIONS:

Administration will contact Ecostrat Incorporated to advise of the decision with regard to proceeding with an additional report.

ATTACHMENT(S):

• BDO Zone Rating Designation Report – Greenview and County of Grande Prairie

BDO Zone Rating Designation

Grande Prairie, AB

Prepared For:

County of Grande Prairie

Municipal District of Greenview

Prepared By:

Ecostrat Inc.





1: INTRODUCTION

Ecostrat understands that the County of Grande Prairie ("Grande Prairie") and MD of Greenview ("Greenview") are looking to leverage it's access to woody biomass (i.e. forest residuals) and other infrastructure-related supply chain advantages to help attract biobased "deal-flow" and support new biobased economic development.

The goal of this "BDO Zone Rating Designation – Grande Prairie, AB" is to enable Grande Prairie to leverage its biomass resources as a powerful engine for biobased economic development.

It will accomplish this goal by:

- 1. Carrying out the due diligence work to provide Grande Prairie with an 'A' or 'AA' BDO Zone Rating,
- 2. Supporting the issue of the BDO Zone rating, and
- Promoting economic development activities post-issue to accelerate
 the quantity of serious inbound inquiries from accredited bio-project
 development companies and investors looking to construct new biofuel,
 renewable chemical, biogas or bioproduct manufacturing plants in BDO
 Zones.

All ratings activites will be carried out within the framework of the <u>Standards for Biomass Supply Chain Risk</u>. Ecostrat's team of Risk Rating Analysts will assess, score, and rate key feedstock and infrastructure risks and other project "success attributes" and draft the BDO Zone Rating. Ecostrat's BDO Zone Project Team will work with Grande Prairie and Greenview to issue and support the BDO Zone rating and carry out other post-rating economic development activities.

The BDO Zone Program: Overview

The Bioeconomy Development Opportunity (BDO) Zone Initiative (www.bdozone.org) is a certification and regional risk rating program that accelerates biobased project development in economically distressed communities.

BDO Zone ratings do this by carrying out credible, technical evaluations on feedstock and infrastructure risk, and then enabling communities to effectively and easily signal and promote key feedstock and infrastructure "success" characteristics to biobased developers and investors around the world. 'AA' or 'A' rated BDO Zones identify the best areas for low-risk bioeconomy project development.

BDO ZoneCONNECT (Appendix A) supercharges project dealflow to BDO Zones by putting local economic developers "in the room" with hundreds of bio-based project developers and investors looking to locate new plants in BDO Zones.

BDO Zone Ratings help materially de-risk investment in new bioeconomy production plants for project developers and investors. By doing so, they drive regional economic development, enabling local communities to harness their natural resources to support biobased manufacturing and renewable energy production.

"AA" AND "A" BDO
ZONE RATINGS DRIVE
REGIONAL ECONOMIC
DEVELOPMENT

BDO Zone Ratings help leverage local biomass feedstock advantages to create new jobs.

'AA' or 'A' ratings drive deal-flow and distinguish BDO Zones from other areas.

Credible, standardsbased on technical evaluations of bioproject "success attributes".

Market-making platform to connect 'AA' and 'A' rated BDO Zones to developers and investors worldwide.



2: COMPANY PROFILE

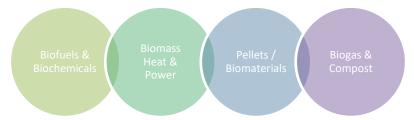
Ecostrat is a North American leader in assessing, developing, optimizing, and managing biomass supply chains. We have led the development of the *US and Canadian National Standards for Biomass Supply Chain Risk (BSCR)* (see below 3.2 Case Studies: Project 1) and are now focused on 'ratings case studies' to help develop and calibrate the BSCR Risk Ratings methodology and protocols.

Our approach has been developed and refined over a decade working closely with leading investment banks, lenders, investors and developers in the biomass industry to deliver clear, actionable insight that enables confident decision-making on the part of investors. Through the development of the BSCR Standards, Ecostrat has consolidated this knowledge into a standardized tool that can be used to evaluate projects against the most up-to-date risk rating criteria, advancing the state-of-the-science of biomass feedstock risk and enabling credible communication of feedstock risk to investors, project developers and greentech companies.

We are comprised of two groups:

Biomass Advisory Group

The *Ecostrat Advisory Group* is a leading North American advisory firm focused exclusively on assessing, validating and optimizing biobased supply chains for projects across the following sectors:



Founded in 2008, our Biomass Advisory Group has prepared +250 Biomass Supply Assessments and Risk Assessments for leading project developers, power utilities, financial institutions, investment funds, engineering companies, US National Labs, governments and First Nations across North America. Our trusted approach has been developed and refined over a decade working closely with our clients and industry experts to ensure our reports provide clear, actionable insight and the necessary data and analysis required to understand and mitigate risk.

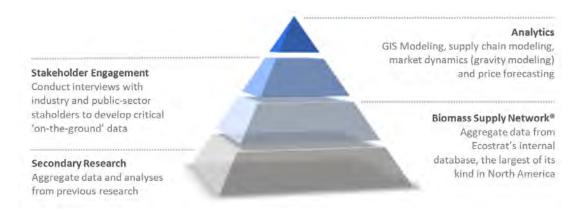
Methodology:

Our trusted methodology combines industry-leading data collection methods and analytics to deliver clear, actionable results. Central to our methodology is sourcing and aggregating point-source data obtained directly from biomass generators and end-use markets and other industry and public-sector stakeholders. From this primary data, and with supporting data sourced from secondary sources, our analysts use industry-leading analytics to accurately model total biomass generation, material flows and market dynamics (i.e. availability of biomass as a function of price).

Information Capital:

Our proprietary *Biomass Supply Network*® is the largest and most comprehensive database of biomass availability, pricing and markets in North America. The *Biomass Supply Network*® is the result of over 12 years of aggregating and curating transactional market data from both suppliers and users of biomass. The *Biomass Supply Network*® enables best-of-kind analyses regarding biomass generation, availability and price, markets, key players, logistics, risks, and sensitivities.





Biomass Supply Group

Founded in 1997, our *Biomass Supply Group* is a North American leader in sourcing, aggregating and supplying biomass. Over 20+ years in the biomass industry, we have developed a deep understanding of the biomass supply value chain, from point of generation through to delivery of the final product and, as a result, are able to offer long-term, fixed-price supply contracts.

We currently move ~500,000 tons of biomass on an annual basis within North America, servicing a wide range of markets, including heat and power, solidification, anaerobic digestion ("AD"), animal bedding, land application, soil amendment, compost, mulch, and wood pellet.

3: QUALIFICATIONS

3.1: PAST CLIENTS

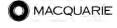












































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3.2: SELECTED RECENT EXPERIENCE

Project 1: National Standards for Biomass Supply Chain Risk

Client:

U.S. DEPARTMENT OF ENERGY

Facility Type:

All bioenergy technology platforms

Location:

USA

Description:

Ecostrat, working together with Idaho National Laboratory (INL), has been leading the program to develop the Biomass Supply Chain Risk Standards for the United States for over 4 years.

Objectives:

The primary objective of this project was to develop a framework of standards and certification protocols to allow companies in the biomass sector to clearly demonstrate the risk of their feedstock supply chain. The quantitative risk assessment architecture provide the framework for the development of a set of standards, indicators, guidelines, and recommended methods and tools to quantify supply chain risks and to rank and rate those risks on an objective and accepted scale.

Impacts and Outcomes:

The BSCR Standards are now an <u>accredited National Standard of Canada in March 2021 by CSA and SCC (CSA W209:21)</u>. ANSI accreditation in the US slated to be complete by 2023. BDO Zone Ratings are issued within the framework of the BSCR Standards.

The project outcome was a published and validated framework of standards and a certification protocol that provides the major credit rating agencies, commercial lenders, and bioenergy investors with a common and recognized means to evaluate and quantify the supply chain risks of bioenergy projects.

The impact of the BSCR Standards is accretive and immediately transferable across the full spectrum of the biobased industries: the benefits will impact bioenergy, advanced biofuels, biobased heat and power, and pellet production, among others. The standardized and certified risk assessment process reduced the level of uncertainty that is a primary cause of low bioenergy project credit ratings and higher commercial debt costs. The ultimate goal was to unlock significant development potential in the bioenergy space and increase the rate of development of bioenergy projects in North America.





Client:

Coca Cola

Location:

North America

Facility Type:

Biochemicals

Description:

Our client had a need to understand pulpwood supply conditions across North America and to determine sites amenable to new project development from a feedstock supply perspective.

Ecostrat developed a composite geospatial ("heat map") analysis utilizing GIS-based data rendering and modeling based on multiple feedstock supply criteria, including:

- Forest inventories;
- Growth and removals;
- Historical and forecasted pulpwood pricing;
- Existing demand for Pulp, OSB, and Pellet Mills.

The output was a ranked list of top sites for development.

Project 3: Multi-Site Comparative Biomass Supply Assessment

Client:



Location:

Southeast USA

Description:

Cellulosic Biofuels

Our client had identified five (5) sites in the southeast US that were targeted for development of biorefineries and had a need to understand how they ranked from a feedstock supply perspective. All biomass had to qualify as Renewable Biomass under the Renewable Fuel Standard (RFS) program.

For each site, Ecostrat developed analyses of qualifying pulpwood supply and demand, including standing forest volumes, growth and removals, demand from major competitors (i.e. pulp and paper, OSB, etc.) and forecasted pricing to 2030.

Based on the results for each site, Ecostrat provided a ranking of top sites for development.





Client:

NRG YIELD.

Location:

Confidential

Facility Type:

Biomass Power

Description:

Ecostrat conducted a detailed assessment of biomass fuel availability and price for an operating utility scale power plant as part of an acquisition due diligence.

The Study assessed the availability and price of low-cost biomass, including clean (untreated) C&D wood, green waste, sawmill residuals and harvest residues (slash and unmerchantable wood) based on a literature review, outreach to local industry and public-sector stakeholders, including public-sector research agencies, transfer stations, tree service companies, loggers, haulers and sawmills, and analyses of competing markets.

Project 5: Multi-Site Biomass Supply Assessment and Price Forecast

Client:

ENGIE

Location:

5 Plants: Michigan and New England

Facility Type:

Biomass Power

Description:

Ecostrat conducted a detailed assessment of woody biomass fuel availability and price for the owner of five (5) operating utility-scale power plants. Specifically, this Study provided an independent review of each plant's feedstock supply base, including a review of existing suppliers and supply contracts, and an analysis of biomass availability, pricing and supply dynamics in each woodshed.

Data collection: Ecostrat hosted meetings with procurement managers at each plant, obtained historical procurement (volume and price) data from each plant, obtained and analyzed inventory and harvest data, conducted secondary research, and surveyed suppliers, competitors and other local stakeholders.



3.3: KEY PROJECT PERSONNEL

Jordan Solomon - President & CEO

CV:

Jordan R. Solomon has held the position of President and CEO of Ecostrat for over 20 years where he oversees the biomass supply chain risk consulting group and the biomass feedstock supply group. He is a recognized North America thought the leader in biomass feedstock supply, markets, analytics, and risk. His responsibilities include new project origination, markets development and commercialization,



corporate strategy and team support. His areas of expertise include biomass contracting, financing, and risk mitigation.

Jordan currently leads the 6-year project funded by the US Department of Energy (BETO) and NRCan to develop the *US and Canadian National Standards for Biomass Supply Chain Risk*.

As head of Ecostrat's Biomass Advisory Group, Jordan directed development the $Biomass\ Supply\ Network^{\odot}$ the largest proprietary biomass supplier and market database in North America.

As head of the biomass supply group for over two decades, Jordan has overseen development and operation of biomass supply chains for over 5,000,000 tons of biomass. He has negotiated, structured supply chains, financed and executed bulk shipments of biomass within North America and overseas to Europe and Asia. In 2003 Jordan led the team that executed the first bulk vessel shipments of wood pellets from the Port of Trios Rivieres, PQ, Canada for then-nascent European biopower industry. In 2004 he established the export chip market from the North America to Turkey by derisking the wood fiber supply chain and sending the first full vessel shipment of woodchips for the composite board market, an overseas market which now intakes over two million tons of chips per annum (with almost a million tons from Canada). In 2014, he led the team that established the supply chain and oversaw the shipment of 225,000 tons of wood fiber from the US south overseas to Daewoo North America.

He has previously served on the Board of First Asset Renewable Power Flow-Through Limited Partnership as a Director of First Asset Power Funds Inc. (I, II, III, IV). He currently sits on the public company Board of Directors of the public Special Purpose Acquisition Corporation (SPAC) Dundee Acquisition Ltd. (TSX: DAQ.UN) and on the Bioenergy Feedstock National User Facility Advisory Board (Idaho National Laboratory / US Department of Energy).

Jordan holds a B.A. Honors (Eng. Phil.) from University of Western (1989) and a Masters in Environmental Studies with a specialty in *Environmental Consumption Behaviors and Marketing Strategy* from York University (1994).





CV:

Marcin Lewandowski is the Director of Risk and Analytics, Biomass Advisory Group. Marcin has over a decade of experience in domestic and international logistics sectors. Marcin oversees Ecostrat's consulting practice as well as its organic substrate supply division. He has managed dozens of consulting projects for clients including Shell, Coca-Cola, JP



Morgan, and Macquarie Bank. Currently, Marcin is responsible for developing US National Biomass Supply Chain Risk Standards to promote markets, development and investor confidence in the bioenergy sector.

Marcin holds BA in Geographic Analysis from Ryerson University, Masters of Forest Conservation from the University of Toronto, and Masters of Disaster and Emergency Management from York University. He has focused his studies on computer modeling of supply risk in the natural resource sector, from GIS analyses of timber inventories to advanced simulations of forest fiber supply chains. Marcin is a Committee Member – Political Action Committee on Natural Resources, Ontario Progressive Conservative Party; Committee Member – Forestry Graduate Education Committee; and Chairman, Forestry Alumni Association for the University of Toronto.

Azim Shamshiev – Head of Predictive Analytics

CV:

Azim Shamshiev combines a background in environmental science with several years of project management experience and a diverse set of skills in advanced statistical modelling and geo-spatial analysis.



As Head of Predictive Analytics, Azim carries out a wide range of analytics and modelling tasks including high-level

statistical analysis, time series forecasting, gravity modelling and feedstock supply risk modelling using Monte Carlo simulations. He is proficient in several scripting languages such as Python, SQL and SAS. He also leads biomass supply assessment projects on renewable fuels.

Azim holds a Bachelor's degree in regional economics from the National University of Uzbekistan, a Master of Science in Environmental Science from the University of Manchester and Ph.D. in Environmental Science and Policy from Central European University.

He is an IBM-certified data science professional with an advanced diploma in data science and application from the Metro College of Technology. He also holds a Specialization in GIS, Mapping and Spatial Analysis from the University of Toronto.

Azim is keen on applying machine learning models and spatial analysis tools to tackle complex environmental problems. His IBM capstone segmented Toronto's neighbourhoods based on sustainability indicators using K-means clustering algorithm.



4: SCOPE OF WORK

4.1 BDO Zone Region¹

For the purposes of this BDO Zone Designation, sources of supply located within a 120-km drive distance of Grande Prairie, Alberta and potential competing markets within a 240-km drive distance will be included in the analysis (the "BDO Zone region").

4.2 Rating Activities

Carrying out the BDO Zone Rating will require multiple interviews with relevant Grande Prairie employees, industry bodies, key feedstock suppliers within each designated zone, and other stakeholders to assess and rate the biomass supply chain risk in the BDO Zone. In view of COVID-19, all activities will be carried out remotely. A confidential data room will be set up where client(s) will upload relevant information in its possession.

Ratings activities will be divided into 2 phases. Phase 1 will be a preliminary assessment to determine the availability of woody biomass and probability of an 'AA' or 'A' BDO Zone rating for the BDO Zone region. The outcome of this phase will be a high level, pre-feasibility estimate of the likelihood of Grande Prairie receiving an 'A' designation or higher. The study will move forward to Phase 2 if it is deemed that such a designation is sufficiently likely, at the sole discretion of Grande Prairie. Phase 1 will take approximately 6-8 weeks to complete; Phase 2 will take approximately 8-12 additional weeks.

The BDO Zone Rating will be based on the following activities:

4.2.1: PHASE 1

4.2.1.1 PRELIMINARY ASSESSMENT

Objective:	VVOI
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Activities:	ratio

Work with Grande Prairie to develop a high-level assessment of the feedstock markets and production to determine the likelihood of 'AA' or 'A' BDO Zone rating.

- 1. Run a high-level assessment to estimate woody biomass feedstock concentration and BDO Zone infrastructure requirements for the Grande Prairie BDO Zone.
- 2. Screen for major risks by identifying significant potential supply chain shortcomings.
- 3. Run preliminary scoring protocols to estimate BDO Zone ratings level.
- 4. Draft a preliminary risk rating report outlining Phase 1 results.
- 5. Determine Go/No Go for Phase 2 basis likelihood of minimum 'A' rating.

¹ Depending on regional economics, supply and competition basin subject to change.



4.2.2: PHASE 2

4.2.2.1: MODIFY BSCR STANDARDS FOR GRANDE PRAIRIE BDO ZONE DESIGNATION

Objective:

Determine BSCR Risk Categories, Factors and Indicators used to designate, score, and certify BDO Zone.

Activities:

- 1. Form BDO Zone Advisory Committee (10 15 members).
- 2. Review <u>BSCR Standards</u> and designate relevant Risk Categories, Factors and Indicators.
- 3. Determine additional Risk Factors relating to Infrastructure, and incorporate into BDO Zone Scoring criteria.
- 4. Confirm suitability of scoring protocols and ratings thresholds for Grande Prairie. Modify as necessary.

4.2.2.2 DATA COLLECTION

Supply-Side Data:

Gather data to assess potential feedstock supply risk in nominated BDO Zone.

- Source and review regional data in order to evaluate feedstock supply, cost, and quality risks in the BDO Zone in the following BSCR Risk Categories: Supplier Risk, Competitor Risk, Supply Chain Risk and Scale-Up Risk.
- 2. Source regional data on key Anchor Suppliers in the BDO Zone including:
 - a. Company names;
 - b. Location;
 - c. Annual production / potential feedstock production;
 - d. Other factors pertaining to reliability, longevity, and resilience of feedstock supply.

Competitor Data:

Gather data to assess key competing market risks for feedstock in the BDO Zone.

- 1. Generate a list of competing (and potentially competing) markets in the BDO Zone based on:
 - a. Data aggregated by the client;
 - b. Secondary research (including Ecostrat's *Biomass Supply Network*®)
- 2. Determine, as possible, for each market:
 - a. Name:
 - b. Location;
 - c. Intake capacity (tons per year);
 - d. Current and historical gate pricing (\$/ton).
- 3. Conduct primary research to identify any announced or potential competing projects.



Infrastructure Data:

Gather data to assess Infrastructure risk to ongoing operations in the BDO Zone.

 Review infrastructure information supplied by Grande Prairie, regional economic development bodies and/or other local regional market stakeholders.

4.2.2.3 DATA ANALYSIS

Feedstock Demand:

- 1. Aggregate and map competing markets;
 - a. Calculate demand impact of each market on the BDO Zone;
 - b. Calculate total demand within the BDO Zone.

Feedstock Availability:

- 2. Aggregate supplier data and calculate:
 - a. Total volumes available from key suppliers;
 - b. Total biomass generated in the supply basin;
 - c. Biomass Availability Multiple (BAM).

Feedstock Availability Curves:

Rating:

- 3. Based on the results of Feedstock Demand and Feedstock Availability, calculate:
 - a. Feedstock availability curve for BDO Zone (Price vs Quantity).
- 4. Discuss Feedstock Price, Availability and Quality Risk Drivers.

4.2.2.4: RISK EVALUATION, SCORING AND RATING

Objective: Develop a comprehensive feedstock supply chain risk assessment expressed as a Risk Rating. **Application of BSCR** Aggregate current market and project data. Review and identify areas of feedstock Standards: related risk exposure using the framework of the Industry Standards for Biomass Supply Chain Risk (ecostrat.com/standards) and recommend mitigation strategies. Evaluate, score and rate risk in 6 Feedstock Risk Categories (Supplier Risk, Risk Assessment, Competitors Risk, Supply Chain Risk, Feedstock Quality Risk, Scale-Up Risk, **Scoring and Ratings:** Infrastructure Risks), and (as relevant and subject to available data) applicable Risk Factors and Risk Indicators. Draft and issue BDO Zone Rating (Ecostrat and the BDO Zone Advisory Committee). **Issue of BDO Zone**

Rating is valid for 2 years.



4.2.2.5: BDO ZONE RISK RATING COMMUNICATION AND PROMOTION

Objective:

Drive new bio-based business development opportunities to Grande Prairie.

Activities:

- 1. Appoint Local Development Leader (LDL).
- 2. Draft and issue joint press release (Ecostrat, Grande Prairie and Greenview) to relevant biobased organizations and sector publications world-wide.
- 3. Promote/share rating on respective websites and social media channels of BDO Zone Initiative, Ecostrat, Grande Prairie, Greenview and the TAC.
- 4. Issue BDO Zone rating to:
 - a. Invest in Canada to communicate to Canadian Trade Commissioner Offices and Cleantech Trade Officers;
 - b. National Biobased Associations;
 - c. BDO Zone Strategic Alliance Partners.
- 5. Participate in one BDO ZoneCONNECT Monthly Webinar series to promote the BDO Zone Rating to bioproject developers and investors worldwide.
- 6. Participate in BDO ZoneCONNECT 'Rapid Accelerator' Webinar: private hosted (virtual) discussion groups with pre-qualified biobased project developers and investors from around the world. Guaranteed attendance of at least 100 biobased project developers and investors specifically focused on utilizing Grande Prairie's biomass type.

4.3 PROGRESS REPORTING & DELIVERABLES

Confidentiality

All work under this engagement will be strictly confidential and will not be disclosed, released, or published without the written permission of client.

Update Calls

Ecostrat will host regular update calls to update client on progress to date and discuss the path forward to rating completion.

Final Regional Risk Ratings and Report

The final work product will be a BDO Zone Risk Ratings report containing Ecostrat's analysis (Appendix B), along with all supporting maps and high-level scoring protocols. Granular scoring dates shall be confidential. The report will be delivered in Word (.docx) and PDF (.pdf) formats, data can be delivered separately in Excel (.xlsx) format.

GIS Database

If relevant, the final work product of this Project will contain a GIS database containing all data developed from research activities.

No Guarantee of Ratings

Ecostrat does not guarantee any BDO Zone Rating.



5: COMMERCIAL OFFER

Phase 1

Preliminary Assessment	\$22,000
Ecostrat Inc. in-kind contribution	
Net owed by County of Grande Prairie	CAD 7,370
Net owed by MD of Greenview	CAD 7,370
Phase 2	
BDO Zone Designation – Grande Prairie, AB	\$85,250
Ecostrat Inc. in-kind contribution	** * *
Net	CAD 62,260

Payment Schedule:

Phase 1

100% (non-refundable) payable upon Rating Authorization. Payment due net 15 on invoice. If Phase 1 Preliminary Assessment determines that Grande Prairie is unlikely to receive an "A" or "AA" rated BDO Zone designation, then Phase 2 will not proceed.

Phase 2

50% retainer (non-refundable) payable upon authorization; balance payable upon submission of the Final Ratings Report. Payments due net 15 on invoce. Should project billable hours exceed that of the value listed above, additional hours will be charged.

BDO ZoneCONNECT Rapid Accelerator webinar

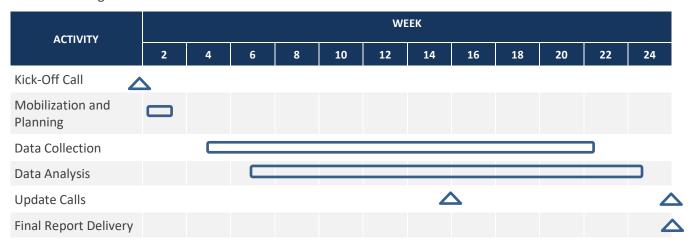
Included in BDO Zone Rating.

Note: Funding opportunities such as the Clean Fuels Fund, Green Municipal Fund, or other local/municipal/federal opportunities can be considered to help offset the cost of a BDO Zone rating. Communities in the US have also turned to federal USDA programs and philanthropic organizations that have contributed funds to cover the cost of a BDO Zone designation.



6: TIMELINES

The project team will host a Kick-Off Call upon receipt of the retainer payment and will proceed according to the following timeline:



7:CONFIRMATION OF AGREEMENT TO PROPOSAL TERMS

Authorized signing officer



9: ECOSTRAT VISION AND VALUES

OUR VISION

To increase the rate of adoption of biofuels, renewable chemicals, bioenergy and bio-products across North America and the world. We will do this by:

- Constantly updating our *Biomass Supply Network*® to ensure that it is always the largest and most comprehensive knowledge base of biomass supply in North America.
- Supplying the highest quality biomass, under long-term fixed-price contracts anywhere in the world.
- Providing accurate, up to date information on biomass supply and feedstock risk to any clean energy project in any location.
- Attracting top quality people who share our vision.

OUR VALUES

Integrity

Integrity of action, clarity of thought, fair dealing, respect in all interactions. These values are of the utmost importance.

Customer Satisfaction

Our future depends on us helping to make our customers successful. We are proactive and easy to do business with. We offer expert knowledge and practical solutions, and we deliver on our promises.

Employee Engagement

We foster a culture that promotes excellent performance, teamwork, inclusion, leadership and growth.

Innovation

We are a company of firsts. We encourage innovation and support new ways of thinking. We invest time, intelligence and capital in innovative approaches to clean energy.

Sustainability

We strive to achieve sustainable economic growth in the energy sector by promoting and developing the most efficient use of renewable resources.



Appendix A: BDO ZoneCONNECT

Gives BDO Zones the ability to connect directly to real decision makers at bio-project development companies across the globe who are looking to build new plants in areas with BDO Zone "success" characteristics.

"A DEAL-FLOW ENGINE"

Leverages the credibility of a BDO Zone Rating and supercharges economic development in BDO Zones.

"A MARKET-MAKING PLATFORM"

Directly connects 'A' and 'AA' rated BDO Zone communities with hundreds of project developers worldwide.

"AN EFFICIENCY MACHINE"

Enables rapid scale-up of the project lead pipeline and fast progression to substantive development discussions-- with the right companies

There are two different levels of engagemet for BDO Zone Local Development Leaders (LDLs):

BDO ZoneCONNECT Monthly Webinar Series

"Promote new BDO Zones to bio-project developers and investors worldwide"

- Gives recently designated BDO Zones a market-making platform to promote directly to TheDigest's >5 million unique online bioeconomy sector readers, 140,000 streaming viewers, bio-industry stakeholders and 45,000 daily newsletter subscriptions.
- Creates profile and media contacts with hundreds of bio-product developers and sector participants.
- One time participation included in a BDO Zone Rating.

BDO ZoneCONNECT 'Rapid Accelerator' Webinar

"Everyone you could do business with in the next year – all in one room"

- Private hosted discussion groups with pre-qualified bio-project developers, investors, and key supply chain partners from around the world.
- Guaranteed attendance by at least 100 project developers, biobased project investors and BDO Zone Strategic Alliance Partners².
- All attending companies are pre-qualified to meet the specific BDO Zone Ratings specifications and have "opted in" to attend.
- One time participation included in a BDO Zone Rating.

² BDO Zone Strategic Alliance Partners support, finance and help de-risk biobased development in BDO Zones.



Appendix B: Illustrative BDO Zone Ratings Report – Executive Summary





REQUEST FOR DECISION

SUBJECT: Water Station Installation

SUBMISSION TO: Greenview Industrial Gateway REVIEWED AND APPROVED FOR SUBMISSION

Committee

MEETING DATE: January 25, 2023 CAO: SW MANAGER:

DEPARTMENT: CAO SERVICES GM: PRESENTER: KR

STRATEGIC PLAN: Economy LEG:

RELEVANT LEGISLATION:

Provincial (cite) - N/A

Council Bylaw/Policy (cite) - N/A

RECOMMENDED ACTION:

MOTION: That the Greenview Industrial Gateway Committee recommend Council approve the installation of a water station on the Smoky River for the GIG in close proximity at a cost of \$30,000.00 capital and \$27,500.00 operating annually with funds to come from the 2023 GIG Budget.

BACKGROUND/PROPOSAL:

Greenview is currently engaged in the process of obtaining a water license granted by the AEPA Alberta Environment and Protection Agency for the water supply to the GIG Greenview from the Smoky River. Watersmart, Greenview's engineering firm regarding water issues has been in contact with WSC Water Survey of Canada. The WSC representatives have concluded the following:

- The Water Survey of Canada (WSC) operates river gauge stations throughout Canada. These stations measure river height and correlate this to river flow rate (m³/s). This flow rate is often used by regulators in Alberta to govern how proponents can withdraw water (e.g. if water flow at WSC station X is greater than or equal to value Y, then you may divert up to your licenced volume; if the flow is less than Y, you may not divert water).
- In WaterSMART's analysis of water availability for the GIG, we used the two closest stations on the Smoky River. One station is well upstream of the GIG near Grande Cache (Smoky River Above Hells Creek), and the other is well downstream near Watino (Smoky River at Watino). Our modelling was set up to compensate for the distances between these stations and the GIG; however, there remains some uncertainty regarding how much water is flowing at the GIG at any given time, because neither existing station is proximate to the GIG.
- Informally, we have learned from AEPA that a water licence granted for the GIG would likely be governed using the downstream WSC station at Watino (about 120 km away) and, because of the uncertainty in how this data correlates to flow at the GIG, the governing rules for water diversion

may be conservative (i.e. river flow at the GIG will need to be higher in order to allow diversions than is strictly necessary for fish protection because there is uncertainty over the flow rate).

- Therefore, we have received informal guidance from AEPA that it may benefit the GIG operationally to have a WSC station installed proximate to the GIG's point of diversion. This station would provide greater certainty for water flow rates at any given time. In turn, it is expected that this station would be used for governing the GIG's diversion, and therefore less conservative rules would need to be applied thanks to the greater certainty afforded by the station. This would reduce the frequency of days in low flow years during which diversions are restricted, and in turn reduce water supply risk for the GIG's tenants.
- There is a benefit to installing the station sooner, rather than later (on the scale of years), to begin gathering baseline data to inform future operations.

Setting up a WSC station:

- WaterSMART met with representatives of WSC to discuss the possibility of installing a WSC station near the GIG.
- WSC station installation and maintenance may be paid for by the federal/provincial governments if the location of the station is identified as a high priority.
 - At this time, a location nearby the GIG is not a high priority for either WSC or AEPA to fund.
 - Therefore, the MD would likely be expected to pay for the installation and maintenance of a new station which has the potential to benefit them operationally.
- WaterSMART secured a quote for a WSC station (attached). CAPEX = \$30K, OPEX = \$27,300/yr (note a new quote should be secured to verify this pricing).

Potential next steps:

- If the MD is supportive of the WSC station and willing to pay for CAPEX and OPEX, WaterSMART will re-engage WSC and connect their representative to the GIG for the purposes of contracting, payment, and scheduling the installation.
- WaterSMART can provide more information to the MD to inform this decision, upon request.

The capital and operating costs of installing a water station will be passed on to potential developers within the GIG development. Administration is recommending proceeding with the installation of the water station.

BENEFITS OF THE RECOMMENDED ACTION:

1. The benefit of the recommended action is that a water station will be established) to begin gathering baseline data to inform future operations and the capital and operating costs will be passed on to potential developers within the GIG development.

DISADVANTAGES OF THE RECOMMENDED ACTION:

There are no perceived disadvantages of the recommended motion.

ALTERNATIVES CONSIDERED:

The Greenview Industrial Gateway Committee has the alternative to alter or deny the recommended motion.

FINANCIAL IMPLICATION:

The financial implication of the recommended motion is \$30,000.00 capital and \$27,500.00 operating annually with funds to come from the 2023 GIG Budget.

STAFFING IMPLICATION:

There are no staffing implications of the recommended motion.

PUBLIC ENGAGEMENT LEVEL:

Greenview has adopted the IAP2 Framework for public consultation.

INCREASING LEVEL OF PUBLIC IMPACT

Inform

PUBLIC PARTICIPATION GOAL

Inform - To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.

PROMISE TO THE PUBLIC

Inform - We will keep you informed.

FOLLOW UP ACTIONS:

There are no follow-up actions to the recommended motion.

ATTACHMENT(S):

N/A



REQUEST FOR DECISION

SUBJECT: Letter of Support – Carbon Sequestration Hub

SUBMISSION TO: Greenview Industrial Gateway REVIEWED AND APPROVED FOR SUBMISSION

Committee

MEETING DATE: January 25, 2023 CAO: SW MANAGER:

DEPARTMENT: CAO SERVICES GM: PRESENTER: KR

STRATEGIC PLAN: Economy LEG:

RELEVANT LEGISLATION:

Provincial (cite) - N/A

Council Bylaw/Policy (cite) - N/A

RECOMMENDED ACTION:

MOTION: That the Greenview Industrial Gateway Committee recommend Council authorize Administration to provide a letter of support to Enhance Energy Inc. for the development of a carbon sequestration hub.

BACKGROUND/PROPOSAL:

Greenview has previously applied to the Provincial Government for a carbon sequestration hub located on the Leduc Steep Creek Reef, however the submission was unsuccessful in that Greenview's submission was not considered. Three other industry companies did receive approval to advance their applicable carbon sequestration hubs within certain geographic areas. All of the three approved companies will require a significant monetary investment to advance their project initiatives. Approved companies include Enhance Energy, Keyera and ARC Resources.

Enhance Energy Inc. has been in contact with Administration seeking a letter of support to advance the development of a carbon hub to service emissions generated by the development of the Greenview Industrial Gateway (GIG) and surrounding industry. The following is a briefing of those companies in relation to carbon sequestration and the GIG.

Keyera

- CO2 Management System will be developed approximately 160 km away benefiting Northwest (NW) Alberta and Northeast (NE) British Columbia.
- Shown an interest to incorporate the emissions generated by the Grande Prairie Region and GIG.
- Capacity to handle all future emissions.
- Established stakeholder and taxpayer to Greenview.

ARC Resources

- CO2 Management System will be developed approximately 110 km away benefiting Arc east of the Smoky River.
- Shown an interest to incorporate the emissions generated by the Grande Prairie Region and GIG.
- Capacity to handle all future emissions.
- Established stakeholder and taxpayer to Greenview.

Enhance Energy Inc.:

- CO2 Management System will be developed approximately 50 km away (refer to map for location).
- Infrastructure would be focussed on the emissions generated by the Grande Prairie Region and specifically the GIG.
- Capacity to handle all future emissions for the entire Region for an immense amount of time.
- Opportunity for Indigenous participation in infrastructure such as pipeline development.
- Willing to lead this proposal with Greenview's support.

GIG industrial developers would have the option to enter into an agreement with any of the three proponents as to address their CO2 requirements. The proposed Enhanced Energy Inc. project would be an additional benefit in attracting GIG developments in addressing their CO2 requirements.

Administration is recommending that a letter of support be given to Enhance Energy Inc. for the development of a carbon sequestration hub.

BENEFITS OF THE RECOMMENDED ACTION:

The benefit of the recommended action is that the letter of support for Enhance Energy Inc. will assist
in advancing the development of a carbon hub to service emissions generated by the development of
the Greenview Industrial Gateway (GIG) and surrounding industry.

DISADVANTAGES OF THE RECOMMENDED ACTION:

There are no perceived disadvantages of the recommended motion.

ALTERNATIVES CONSIDERED:

The Greenview Industrial Gateway Committee has the alternative to alter or deny the recommended motion.

FINANCIAL IMPLICATION:

There are no financial implications of the recommended motion.

STAFFING IMPLICATION:

There are no staffing implications of the recommended motion.

PUBLIC ENGAGEMENT LEVEL:

Greenview has adopted the IAP2 Framework for public consultation.

INCREASING LEVEL OF PUBLIC IMPACT

Inform

PUBLIC PARTICIPATION GOAL

Inform - To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.

PROMISE TO THE PUBLIC

Inform - We will keep you informed.

FOLLOW UP ACTIONS:

Administration will request Council's authorization to submit a letter of support to Enhance Energy Inc. if the Committee approves the recommended motion.

ATTACHMENT(S):

- Enhance Grande Prairie CCS Hub Overview
- Carbon Hub Map



enhance The Grande Prairie CCS Hub

Project Overview

December 08, 2022



Enhance is evaluating a centrally located carbon sequestration hub serving the Grande Prairie region. The Grande Prairie CCS Hub will be an open-access, scalable, world-class infrastructure development serving current and future industrial economic development in Northwestern Alberta.

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The Grande Prairie CCS Hub

The Grande Prairie CCS Hub is a continuation of the collective vision that Government of Alberta and Enhance share in creating a vibrant CCUS economy in Alberta, placing our province at the forefront of carbon mitigation around the globe. This vision was born from the historic efforts of Enhance, its collaborative and business partners, and the Alberta and Federal Governments, who supported the ACTL Project to make it a world renowned CCUS operation that is successfully capturing, transporting, and sequestering over 1.7 million tonnes of CO₂ per year. Our collective experience in developing the ACTL Project will continue to be valuable toward the development of common CO₂ infrastructure projects across Alberta.

Carbon capture and sequestration infrastructure is vital to increase the Grande Prairie region's profile and attract low carbon investment to the area. The proposed Grande Prairie CCS Hub will put a spotlight on Northwest Alberta over other jurisdictions. This project will have the capacity and scalability to meet the Grande Prairie Region's sequestration needs now and in the future. Developed by an experienced CCUS operator, this project will create certainty in the market that an accessible, low-cost CO₂ management system will be available to support low carbon initiatives in the area.

The Project's location is strategically chosen to provide service to the City of Grande Prairie and surrounding area, the Montney gas processing complex and the Greenview Industrial Gateway. The site selection minimizes subsurface interaction with other industrial users in the region.

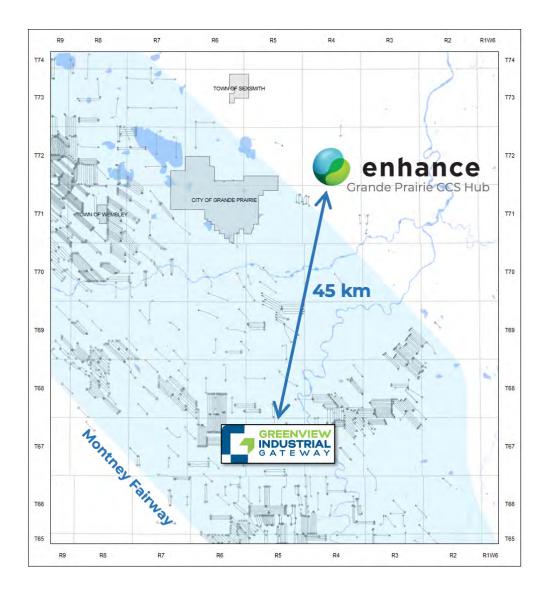
Enhance has the experience and expertise to successfully develop and operate this initiative. We have the proven capacity to execute, and the commitment to work with the Province, communities and other stakeholders to make the Grande Prairie CCS Hub a key part of Alberta's Net Zero future.



The Grande Prairie CCS Hub

Project Attributes

- ▶ 600,000 acres of pore space allocated over three stacked reservoirs.
- ▶ More than 2 billion metric tonnes of potential CO₂ sequestration capacity.
- ▶ Site selected outside of the competitive subsurface of the Montney Fairway to increase regulatory certainty.
- ▶ Feasibility cost estimates for sequestration service less than \$10 per tonne.



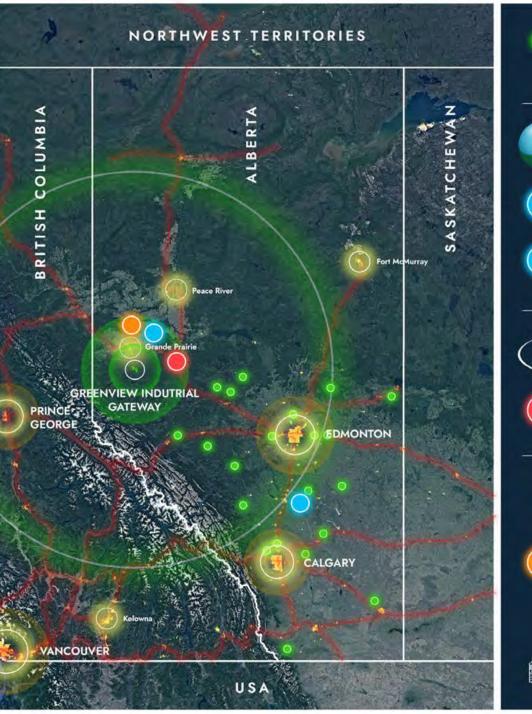
Work with Enhance

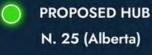
- ▶ Enhance is the founding partner of the world's largest anthropogenic CO₂ sequestration system, now operating in Central Alberta.
- ▶ Enhance has permanently sequestered over 3 million tonnes of CO₂ to date and continues to sequester 1.7 million tonnes CO₂ of each year.
- ▶ Enhance has demonstrated experience in creating verified carbon credits using CCUS protocols under various programs.
- ▶ Enhance manages CO₂ on behalf of large emitters and does not generate its own CO₂ for sequestration. Enhance's Grande Prairie CCS Hub will be an open-access, emitter client-focused service infrastructure.

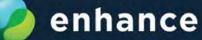


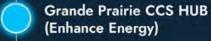


enhance









Origin Project (Enhance Energy)



Greenview Region CCS Project (ARC Resources)

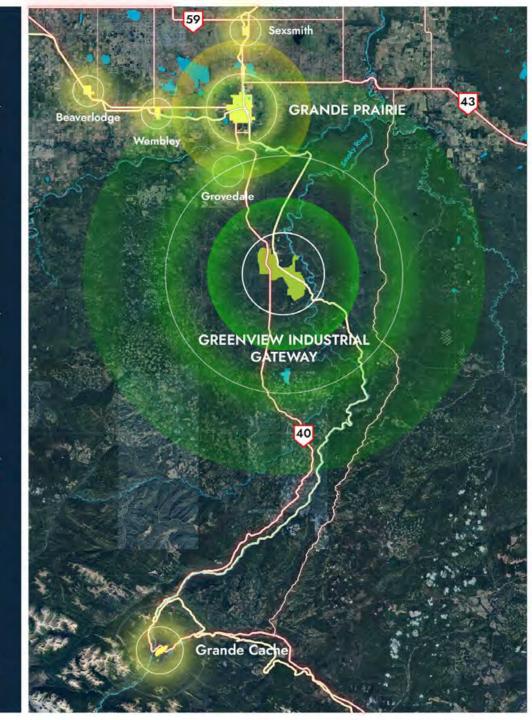




Grande Prairie Net Zero Gateway - North River (Keyera, Entropy)











REQUEST FOR DECISION

SUBJECT: Greenview Industrial Gateway Land Use District

SUBMISSION TO: Greenview Industrial Gateway REVIEWED AND APPROVED FOR SUBMISSION

Committee

MEETING DATE: January 25, 2023 CAO: SW MANAGER: KR DEPARTMENT: CAO SERVICES GM: PRESENTER: CC

STRATEGIC PLAN: Governance LEG:

RELEVANT LEGISLATION:

Provincial (cite) – Municipal Government Act, RSA 2000

Council Bylaw/Policy (cite) – Land Use Bylaw No. 18-800 and Greenview Industrial Gateway Area Structure Plan Bylaw No. 19-815.

RECOMMENDED ACTION:

MOTION: That the Greenview Industrial Gateway Committee accept the proposed new Greenview Industrial Gateway-Heavy Industrial-One (GIG-HI-1) District land redesignation for information, as presented.

BACKGROUND/PROPOSAL:

The Greenview Industrial Gateway Phase 1 Settlement Lot 1, Block 1, Plan No. 222 1786 is currently zoned Industrial General (M-2) District as of August 23, 2022. A new land use district within the Greenview Industrial Gateway Phase 1 Settlement Lot 1, Block 1, Plan No. 222 1786 is being proposed by Administration for the Committee's review and consideration. The purpose of the proposed Greenview Industrial Gateway-Heavy Industrial One (GIG-HI-1) District land redesignation will be to provide appropriate permitted and discretionary uses for the potential developments within the Greenview Industrial Gateway 810.00 hectare \pm (2000.00 acre) parcel.

The proposed permitted and discretionary uses, definitions and a map are included as separate attachments for review and consideration.

BENEFITS OF THE RECOMMENDED ACTION:

1. The benefit of the recommended action is that the Committee will have the opportunity to review and discuss the proposed Greenview Industrial Gateway-Heavy Industrial-One (GIG-HI-1) District land use redesignation prior to the bylaw being presented to Council for first reading

DISADVANTAGES OF THE RECOMMENDED ACTION:

There are no perceived disadvantages of the recommended motion.

ALTERNATIVES CONSIDERED: N/A

FINANCIAL IMPLICATION:

There are no financial implications of the recommended motion.

STAFFING IMPLICATION:

There are no staffing implications of the recommended motion.

PUBLIC ENGAGEMENT LEVEL:

Greenview has adopted the IAP2 Framework for public consultation.

INCREASING LEVEL OF PUBLIC IMPACT

Inform

PUBLIC PARTICIPATION GOAL

Inform - To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.

PROMISE TO THE PUBLIC

Inform - We will keep you informed.

FOLLOW UP ACTIONS:

Administration will present the Greenview Industrial Gateway-Heavy Industrial-One (GIG-HI-1) District redesignation bylaw to Council for first reading pending the Committee's approval.

ATTACHMENT(S):

- Proposed Permitted and Discretionary Uses
- Definitions of the proposed Uses
- Registered Plan No. 222 1786 Greenview Industrial Gateway Phase 1 Settlement Lot 1, Block 1

GREENVIEW INDUSTRIAL GATEWAY-HEAVY INDUSTRIAL-ONE (GIG-HI-1) DISTRICT

Purpose

a) The purpose of this District is to provide for industrial uses that require relatively large tracts of land within the Greenview Industrial Gateway (GIG) area.

Uses

PERMITTED USES	DISCRETIONARY USES
ACCESSORY BUILDING(S) AND USES	CARBON CAPTURE AND
	SEQUESTRATION/STORAGE (CCS) FACILITY
ACCOMODATION, EMPLOYEE	WORK CAMP
BIOMASS POWER FACILITY	WORK CAMP, PROJECT ORIENTED
BORROW PIT	
CARTAGE TERMINAL	
DUGOUT	
GEOTHERMAL FACILITY	
OFFICE TRAILER	
OIL & GAS FACILITY	
OUTDOOR STORAGE	
PETROCHEMICAL FACILITY	
POWER GENERATION PLANT	
RAIL SPUR	
RAIL YARD	
SHIPPING CONTAINER	
STORM WATER POND	
TRANSLOADING FACILITY	
WAREHOUSING FACILITY	
WATER RESERVOIR	

Matte	er to be Regulated	Regulation
.1	Minimum Parcel Size	At the discretion of the Development Authority
.2	Maximum Parcel Size	At the discretion of the Development Authority
.3	Minimum Setbacks	Provincial highway: 40.0 m (131.2 ft)
		Undeveloped road allowances: 40.0 m (131.2 ft)
		All other setbacks: At the discretion of the
		Development Authority

Additional regulations:

a) Developers in this District may be required to demonstrate an adequate water supply exists to provide for firefighting needs. This may be demonstrated by means of pump tests on wells or through the provision of dugouts or other stored water supplies;

- b) Emergency response plans may be required where the development involves the production, storage, or use of materials that may be hazardous.
- c) The applicant must enter and comply with the terms of a development agreement for the provision of municipal services in accordance with the Municipal Government Act (MGA), s. 650.
- d) See the General Regulations (Section 5.0) for additional regulations and exceptions.

Definitions

Biomass Power Facility

Mean a facility designed to generate electricity from plant-based materials such as biomass and/or biogas sources.

Carbon Capture and Sequestration/Storage (CCS) Facility

Means the process of capturing carbon dioxide (CO2) formed during power generation and industrial processes and storing it deep underground in geological formations so that it is not emitted into the atmosphere. CCS technologies have significant potential to reduce CO2 emissions in energy systems.

Geothermal Facility

Means a facility that uses geothermal energy to produce electricity. Geothermal energy is derived from a geothermal deposit from a reservoir consisting of natural heat that is stored in rocks or in an aqueous liquid or vapour.

Petrochemical Facility

Means a facility for the processing of chemicals derived from petroleum or natural gas and further uses for a variety of chemical purposes. Petrochemical products are the second-level products being derived from crude oil after several refining processes.

Power Generation Plant

Means an industrial facility that generates electricity from a primary fuel or primary energy such as but is not limited to, natural gas, coal, uranium, geothermal, hydroelectricity, wind and solar. Most power plants use one or more generators that convert mechanical energy into electrical energy to supply power to the electrical grid.

Rail Spur

Means the section of railroad track connected to the rail yard.

Rail Yard

Means a series of tracks in a rail network for storing, sorting, loading and unloading rail cars.

Storm Water Pond

Means an artificially constructed pond that collect and retain rainwater.

Transloading Facility

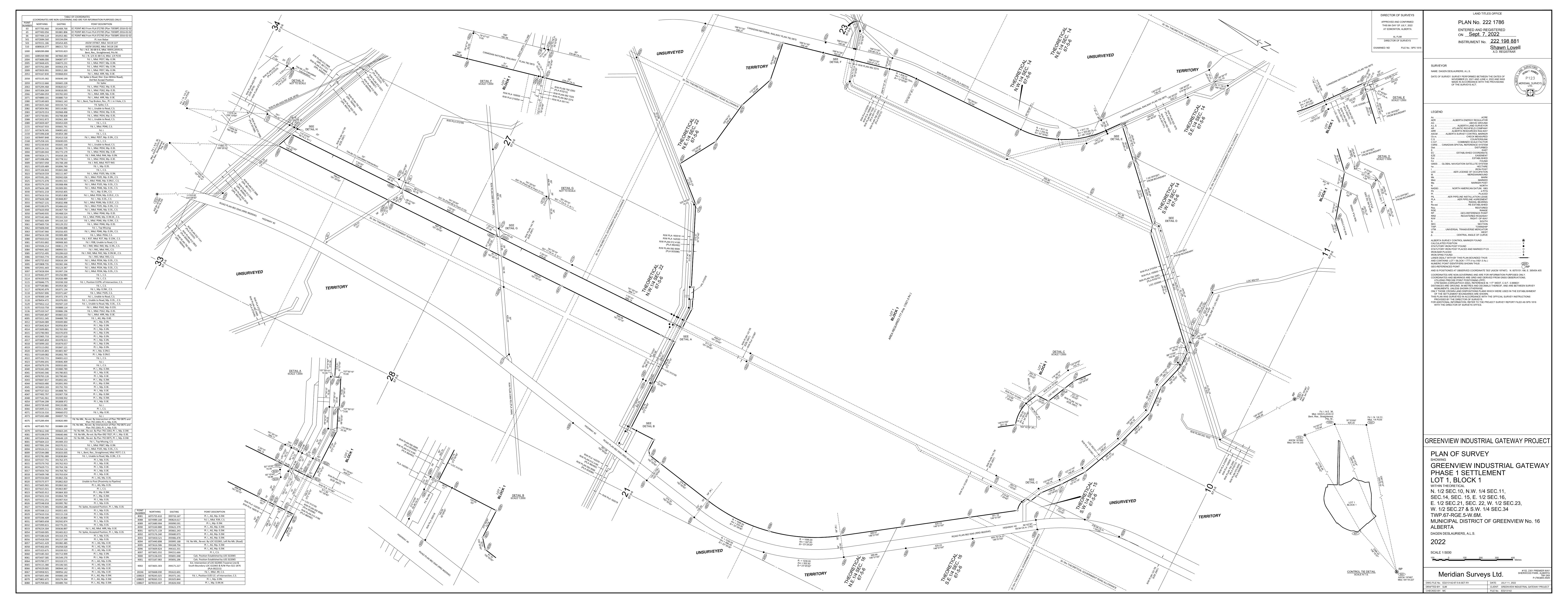
Means a facility that transfers large amounts of cargo from one form of transport to another.

Warehousing Facility

Means a facility that stores physical goods before they are sold or further distributed.

Water Reservoir

Means a large open-air impoundment or storage area, whether natural or artificial, where water is collected or accumulated for extra supply, stock, reserved, or stored water that is available for use in large quantities.



GREENVIEW INDUSTRIAL GATEWAY

PUBLIC JANUARY MONTHLY REPORT



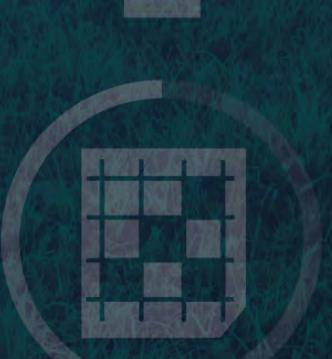




Executed dispositions and easements continue to be submitted to province.

Land title was submitted

SEPTEMBER 2022



Geotechnical drilling on Smoky River has been completed and awaiting initial assessment.

Engineering and approvals.

STILL EXPECTED TO BE **COMPLETED SUMMER 2023** Clearing completed with construction scheduled

JUNE 2023

Intersection construction scheduled

JULY 2023

Dominion Rail Services continue to work to define what the elevation and rail system would look like.

Engineering Design for rail

CONTRACT APRIL 2023

MD of Greenview was unsuccessful in the award of a permit for further analysis pertaining to a carbon sequestration and management hub.





