



Enabling communities to tap into the trillion dollar global bioeconomy

BDO Zone Ratings® in North America and beyond

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Ottawa, Canada





The **BDO Zone Initiative** certifies 'regional readiness' for bio-manufacturing, creates global connections, and ignites an influx of clean energy opportunities.





What is a BDO Zone Rating?

A **BDO Zone rating** is a standards-based assessment of regional manufacturing readiness with respect to development potential of biofuels, renewable chemicals, biogas or bioproducts projects.

What do they do?

Investment grade ratings attract new bio-based manufacturing plants to the areas where they are most likely to succeed-- and create jobs.

BDO Zone Rating Scale

The BDO Zone ratings scale ranges from the strongest indication "AAA" indicating very strong capacity of supply chain infrastructure to support biobased development; to the weakest indication "CC" "indicating a very strong likelihood of biomass feedstock supply chain or infrastructure ("FS&I") failure.

The **modifiers** "pluses" or "minuses" may be appended to a rating to denote relative status within major rating categories.

"**Outlooks**" are assigned to ratings which indicate the potential for change in the rating over a 5-year period. Outlooks can be stable, positive or negative.

When applied to BDO Zone Ratings, the terms "**investment grade**" is capital market shorthand to describe the categories "AAA+" to "BBB-". "**Speculative grade**" refers to "BB+" to "C-". Investment Grade BDO Zone Ratings are particularly attractive to bio-based development, with higher ratings carrying more weight.

BDO ZONE RATING SCALE

AA

Very High Quality

'AA' ratings denote very high prospective viability of FS&I and very low expectations of default risk in the Zone. They indicate very strong ongoing capacity of a region to support new biobased plant operations. This capacity is not significantly vulnerable to foreseeable events.

BDO ZONE RATING SCALE

AAA

Highest Quality

'AAA' ratings denote highest prospective viability of FS&I attributes in the BDO Zone and lowest expectation of default risk over time. They are assigned only in cases of exceptionally strong fundamental characteristics related to feedstock supply chain and infrastructure capacity. This capacity is highly unlikely to be adversely affected by foreseeable events.

BDO ZONE RATING SCALE

A

High Quality

'A' ratings denote high prospective viability of FS&I and low expectations of default risk in the Zone. The capacity to support new biobased plant operations is considered strong. This capacity may, nevertheless, be more vulnerable to adverse weather, supply chain, economic or infrastructure conditions than is the case for higher ratings.

BDO ZONE RATING SCALE

BBB

Good Quality

'BBB' ratings indicate good prospective viability of FS&I and that expectations of FS&I risk are generally low in the Zone. The capacity to support biobased plant operations is considered strong. The capacity to support biobased plant operations is considered strong. The capacity to support biobased plant operations is considered strong.

BDO ZONE RATING SCALE

BB

Speculative

'BB' ratings indicate moderate prospective viability of FS&I with an elevated vulnerability to risk in the Zone, particularly in the event of adverse changes to economic conditions over time. However, the capacity to support biobased plant operations is considered strong. The capacity to support biobased plant operations is considered strong. The capacity to support biobased plant operations is considered strong.

BDO ZONE RATING SCALE

B

Highly Speculative

'B' ratings denote weak prospective viability of FS&I attributes in the Zone with elevated vulnerability to risk, particularly in the event of adverse changes to economic conditions over time. Limited range of capacity to support biobased plant operations is considered strong. The capacity to support biobased plant operations is considered strong. The capacity to support biobased plant operations is considered strong.

BDO ZONE RATING SCALE

CCC

Substantial Risk

'CCC' ratings denote very weak prospective viability of FS&I attributes in the Zone with high vulnerability to FS&I risk indicators. Low range of ability for prospective capacity to support biobased plant operations is considered strong. The capacity to support biobased plant operations is considered strong. The capacity to support biobased plant operations is considered strong.

BDO ZONE RATING SCALE

CC

High Risk

'CC' ratings denote extremely weak prospective viability of FS&I attributes in the Zone with extremely high vulnerability to FS&I risk indicators. Low capacity to support biobased plant operations is considered strong. The capacity to support biobased plant operations is considered strong. The capacity to support biobased plant operations is considered strong.

BDO ZONE RATING SCALE

NR

No Rating

'NR' ratings are issued in cases where FS&I risk is deemed higher than 'CCC'.

BDO Zone Ratings Due Diligence

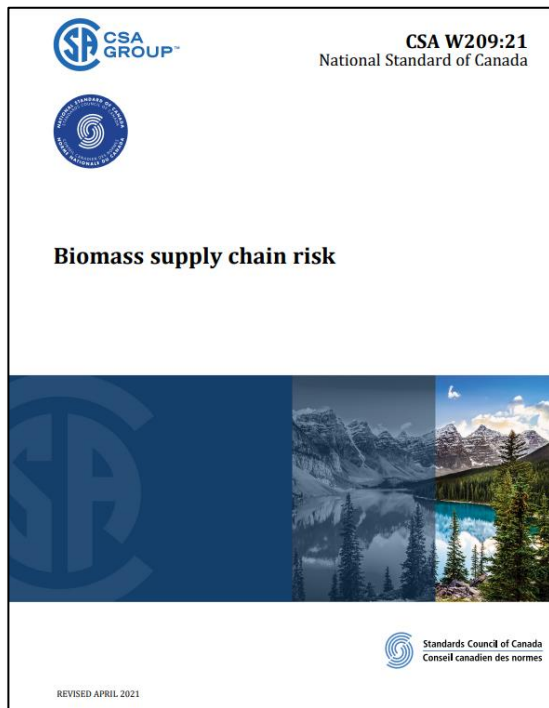
- BDO Zones undergo rigorous and extensive due diligence using a standardized framework of over 100 transparent and validated risk indicators.

The 3 Pillars of BDO Zone Designations



- “AAA”, “AA” and “A” BDO Zone Ratings identify optimal zones for new biobased development.

Recognized, Credible, Transparent, Standards-based Ratings Framework



- BDO Zone Ratings are issued within the framework of the *Standards for Biomass Supply Chain Risk*.
- National Standard in March 2021 by CSA and SCC (CSA W209:21). Accredited by Standards Council of Canada as 'Workshop Standard' in 2023. Slated for ASTM accreditation 2024.
- 6 years development by US Department of Energy (USDOE)/ Idaho National Labs, Ecostrat, and a 65 member, \$60B capital market ratings review committee.



- ✓ **Rating Parameters:** 235,000-333,000 dry tonnes of forest residues per yr within 120-km.
- ✓ **Rating Outlook: *Strong*.** Robust forestry and wood sectors with a long history of performance.
- ✓ **Infrastructure profile: *Excellent*.** Multiple potential site locations including the GIG which offers key attributes including water, electricity, an integrated transportation network, and ability to host a carbon capture hub.

*Download MD of Greenview and County of Grande Prairie
BDO Zone rating [here](#).*

Bioeconomy Development Opportunity Zone Mapping | BDO Zone Designation | Municipal District of Greenview and County of

Grande Prairie, AB
Date of Issue: August 30, 2023
BDO Zone Rating: 'A'

Bioeconomy Development Opportunity Zone Risk Rating

'A'

The Municipal District (MD) of Greenview and the County of Grande Prairie, AB, BDO Zone is rated 'A'. There is an abundance of available woody biomass, primarily forest residues within the BDO Zone, able to accommodate new biomass projects, with low risk of feedstock shortages. However, the supporting logistics infrastructure requires scale up.

Rating Parameters:

Category	Rated Quantity	Delivered Cost	BDO Zone Size
Forest Residues	262,200 bdt/yr	\$71-\$84/bdt	120-km Supply Radius
Urban Wood Waste	3,400 bdt/yr	\$50-\$70/bdt	with 80-km average transportation distance
Total Woody Biomass	265,600 bdt/yr		

Figure 10: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 11: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 12: Risk Indicators (Derived by Risk Levels)

Likelihood Factor	Abs	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Transportation Infrastructure	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
Feedstock Availability	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	
Processing Capacity	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	
Market Demand	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	
Government Support	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Environmental Impact	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	
Community Engagement	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	
Overall Risk Rating	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	

Figure 13: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

search, to characterize facility, to some facilities, the size of a facility or a collection of facilities, as shown in Figure 14. The production of bioenergy products, such as ethanol, can vary depending on the type of feedstock used. The increased costs that do not meet the same volume requirements may affect the viability and profitability of some facilities. The forest sector has been one of the most resilient sectors during the pandemic, largely due to its essential nature. The primary reason for this being the fact that most of the demand of food and services are required to keep people safe and healthy. Therefore, they are not likely to supply cut forest activities from the end users, making the investment still viable.

Figure 14: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 15: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 16: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 17: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 18: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 19: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 20: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 21: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 22: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 23: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 24: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 25: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 26: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 27: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 28: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 29: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 30: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 31: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

Figure 32: Forest Management Units located within the BDO zone including ECU, GSA, GSA, GSA and BBO.
Source: Alberta Forestry Centre, 2022

The BDO Zone Investment Coalition

April 22, 2021: \$1 Billion announced for deployment in BDO Zones

22 capital market leaders
with a collective goal of
investing \$1 billion in new
biofuel, renewable
chemical, biogas
manufacturing plants
located in BDO Zones.



Maximo Blandon
Stephens Inc.



Elliot Brown
Citigroup



David Livingstone
Citigroup



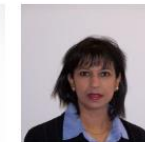
Justin Goldstein
Goldman Sachs



Mark Riedy
Kilpatrick Townsend &
Stockton



Max Vernier
Live Oak Bank



Rina Singh
Alternative Fuels &
Chemicals Coalition



Scott Chabina
Chabina Energy Partners



David Roeder
TortoiseEcofin



Gary Greenblatt
Marathon Capital



Geoff Paul
Marathon Capital



John May
HamiltonClark Sustainable
Capital



Shirley Speakman
Cycle Capital Management



Cynthia Thyfault
Global Biofuture Solutions



Susan Seagren
AMCREF Community Capital



Sandy Seiman
Greenlane Renewables



Richard Podos
Lance Capital



Chris Tindal
Commercial Aviation
Alternative Fuels Initiative



Derek Griffin
Munich Reinsurance
America



Hannah Kirby
Carolina Opportunity Funds



John Akridge
Height Capital Markets



Eric Edwards
IFG Asset Management, LLC



David Oxtoby
CarbonFree Technology

See all BDO Zone Investment Coalition members: www.bdozone.org/us/support



BDO Zones scaling rapidly in North America

Number of BDO Zones in July 2021:	1
Number in July 2022:	6
Number issued or in process by Oct 2023:	41

Number of BDO Zone Rating issues expected by end 2023: 50+

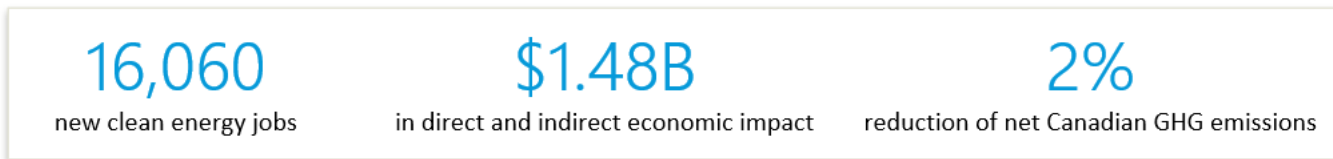
41 Ratings issued or in process right now:

- | | | |
|-----------------------|--------------------------------|----------------------------|
| ✓ Melville, SK | ✓ Logan County, CO | ✓ Region Nine, MN |
| ✓ Siloam Springs, AR | ✓ Renfrew, ON | ✓ Emporia, KS |
| ✓ Arlington, OR | ✓ Clarksville, AR | ✓ Lewis County, WA |
| ✓ Barnwell County, SC | ✓ Greenbrier, WV | ✓ Apache, AZ |
| ✓ Libby, MT | ✓ Trois Rivières, QC | ✓ Rayville, LA |
| ✓ Bon Wier, TX | ✓ Sarnia, ON | ✓ Barry County, MI |
| ✓ Estevan, SK | ✓ Matawinie, QC | ✓ Chippewa County, WI |
| ✓ Regina, SK | ✓ Southwest Nova Scotia | ✓ Toombs County, GA |
| ✓ Summit County, UT | ✓ Natchez, MS | ✓ Butte County, CA |
| ✓ Coronach, SK | ✓ Coconino County, AZ | ✓ Mason City, IA |
| ✓ Marathon, ON | ✓ North San Joaquin Valley, CA | ✓ Wyoming County, PA |
| ✓ Grande Prairie, AB | ✓ Morehead, KY | ✓ Caledonia County, VT |
| ✓ Tazewell, VA | ✓ London, KY | ✓ Mount Roger's Region, VA |
| ✓ Grenada County, MS | ✓ Conecuh County, AL | |

Economic and GHG Impact of BDO Zones

The BDO Zones are a powerful lever to 'move the needle' on GHGs and jobs

Impact of 100 BDO Zones on Canada



- 2% net GHG reduction is the equivalent of replacing 18% of all passenger cars in Canada with electric cars.

Impact of 1000 BDO Zones on the U.S.



- A single new renewable chemical, sustainable aviation and ground transportation fuel, or other biobased manufacturing plant means, on average, 321 direct, indirect, and induced jobs and more than \$29,000,000 annually to the local economy, as well as 300,000 mt CO₂e/year of GHG reduction.



BDO Zone Ratings support capital raises



Supporting >\$1B capital raise for
Velocys' development of an
advanced biorefinery in Natchez, MS



Supporting >\$1B capital raise for USA
BioEnergy's development of an
advanced biorefinery in Bon Weir, TX.



BDO Zone Community Self-Assessment Tool (SAT)

Supplier Risk

Competitor Risk

Supply Chain Risk

Scale Up Risk

Physical, Social Infrastructure and Community Support

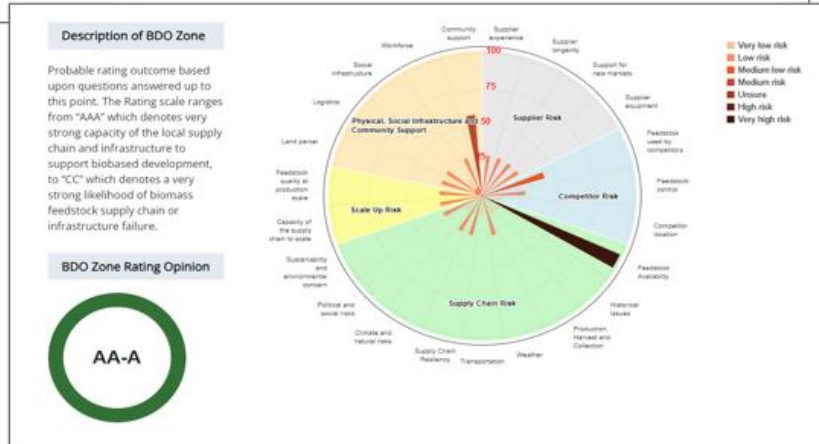
What proportion of the biomass generated in the region is used by current competitors?

☐ Current markets utilize the vast majority of biomass generated in the region.
☐ There is an abundance of additional biomass that could be used to serve additional markets. Therefore, suppliers could be expected to welcome additional markets.
☒ There's no real competition for biomass to speak of. No real markets in our region that utilize biomass.
☐ Not sure.

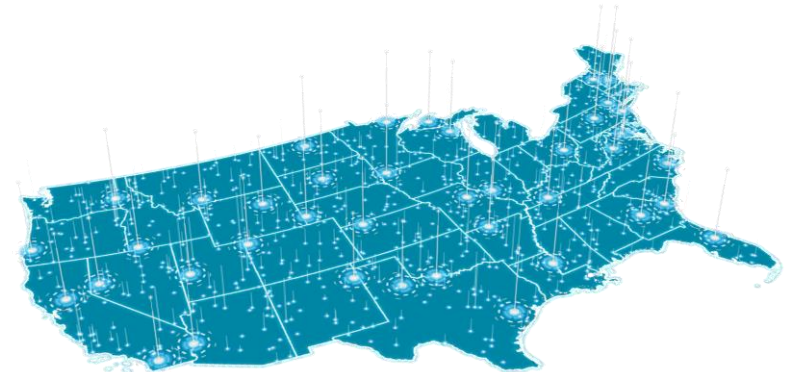
Previous Next

Current category's rating

AA-A



- BDO Zone SAT helps communities gauge **regional readiness** for new biomass-based manufacturing.
- Preliminary opinion on a BDO Zone rating outcomes in 15 mins.
- <https://sat.bdozone.org/>





Real people, Real Ratings, Real Impact





INTERNATIONAL

IBRA

BIOMASS RATING AGENCY

10 Mission Areas to catalyze the global bioeconomy

10. Grant Funding

Connection of BDO Zone projects with state/provincial and national grants, loan and incentive programs.



1. Issue BDO Zone Rating Licenses

Determine license terms with licensors to utilize BDO Zone ratings methodologies and protocols. Issue, renew, deny, suspend, withdraw, or amend licenses. Collect licence royalties and other payments.

9. Commercialization Services

Connection of BDO Zone projects with best of kind companies that can support project engineering, construction, commercialization, and operations.



2. Ratings Training

Provide foundational, intermediate and advanced training and certification programs to ensure that licensor employees have technical, analytical, and client-servicing skills to carry out BDO Zone ratings opinions.

8. DeveloperCONNECT

Connection of BDO Zone issuer with best of kind project companies.



3. Ratings Validation and Issue

Conduct comprehensive evaluation of licensors' ratings opinions. Validate and issue BDO Zone ratings

7. TechnologyCONNECT

Connection of clean energy projects locating in BDO Zones with best of kind technology companies.



4. Ratings Promotions

Support issuer with promotion of rating through IBRA programs, channels and partnerships. Coordinate with ratings issuer two track regional deal flow developed by BDO Zone rating

6. CapitalCONNECT

Connection of BDO Zone projects with investment capital via the *BDO Zone Investment Coalition*-- group of leading biobased capital markets' with a collective goal of investing \$1 billion in BDO Zones to build new biofuel, renewable chemical, biogas manufacturing plants.



5. Research and Development

Carry out research and development to improve quantification of feedstock and supply chain risk and accelerate bio-based project development and de-risk deployment of investor capital.



Want to know more?

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