BDOZ | THE BIOFUEL DEVELOPMENT OPPORTUNITY ZONE INITIATIVE

Building the Bioeconomy Infrastructure

BDO Zone Ratings® and Feedstock Supply Insurance®

Empowering Market Diversification

Enabling Innovation

Energizing Canada’s Rural Economies

Jordan Solomon
President & CEO, Ecostrat
Chairman, BDO Zone Initiative

BDO Zone Ratings®

A proven program to accelerate new market development

- ✓ **$10B+** of capital being raised for BDO Zone projects right now.
- ✓ **$30B+ additional private investment** across 61 active BDO Zone pipelines.
- ✓ **Annual economic impact of >$423M per project** announced in BDO Zones.
- ✓ **$845M Provectus biofuels plant** announcement in Vegreville, AB BDO Zone.

What is a BDO Zone Rating®?

Standards-based assessment of a specific region’s suitability for biofuel, renewable chemical, biogas or bioproduct projects.

What do they do?

Ratings send *clear and powerful signals* to biobased developers and investors worldwide that a region is “bio-manufacturing ready”.

Ratings are *site location bullseyes* for bio-project development, they *create connections* between BDO Zones bio-project developers globally, and *catalyze* new project development.

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

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

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

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 currently low in the Zone. The capacity to support new biobased plant operations is considered adequate, but adverse weather, supply chain, economic or infrastructure conditions are more likely to impair this capacity over time. Limit of Investment Grade ratings.

BDO ZONE RATING SCALE

BB
Speculative

'BB' ratings indicate moderate prospects for prospective FS&I viability with an elevated vulnerability to risk in the Zone, particularly in the event of adverse changes in business or economic conditions over time. However, good redundancy or flexibility exists within or outside of the Zone that supports maintenance of a functioning supply chain with additional expense outside of rating limits.

BDO ZONE RATING SCALE

B
Highly Speculative

'B' ratings denote weak prospects for establishment and ongoing viability of FS&I attributes in the Zone with material vulnerability to risk, particularly in the event of adverse changes in weather, supply chain, economic or infrastructure conditions over time. Limited margin of safety remains but primarily through access through redundant feedstock capacity or supply chain attributes outside the zone period. Capacity is vulnerable to deterioration in the business and economic environment.

BDO ZONE RATING SCALE

CCC
Substantial Risk

'CCC' ratings denote very weak prospects for establishment and ongoing viability of FS&I attributes in the Zone with high vulnerability to key FS&I risk indicators. Low margin of safety for a prospective supply chain, with supply chain default deemed a real possibility. Low supply redundancy (i.e. low BAM), lack of key infrastructure attributes , or high estimates of delivered feedstock cost may drive CCC ratings.

BDO ZONE RATING SCALE

CC
High Risk

'CC' ratings denote extremely weak prospects for establishment and ongoing viability of FS&I attributes in the Zone with extremely high vulnerability to key FS&I risk indicators. Low supply redundancy (i.e. very low BAM), inability to mitigate key infrastructure risks or develop infrastructure requirements, or extremely high estimates of delivered feedstock cost may drive CC ratings. Very ow margin of safety for a prospective supply chain. Supply chain not possible to establish and/or default deemed likely.

BDO ZONE RATING SCALE

NR
No Rating

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

2025: BDO Zones by the Numbers…

61
BDO Zones
> 30 developing projects

$10 Billion +
BDO Zone ratings currently being used to **support over $10 B of capital** by 6 projects.

69%
increase
in inbound inquiries from project developers, on average.

6.3 million
BDO Zone ratings promoted to over **6.3 million industry project developers, investors and sector stakeholders** worldwide.

$30 Billion +
Additional private investment across **61 active BDO Zone pipelines**

850 per rating
Average number of rating downloads/views by project developers, capital markets and other stakeholders per individual rating issue.

1 Biofuels Digest (6.3M readers / viewers) and BDO Connect Webinars
2 USA Bioenergy, TX- $2B; Velocys, MS -$1.5B; Azure KA-undisclosed. Estimated $500M. Red Leaf Pulp, SK- undisclosed

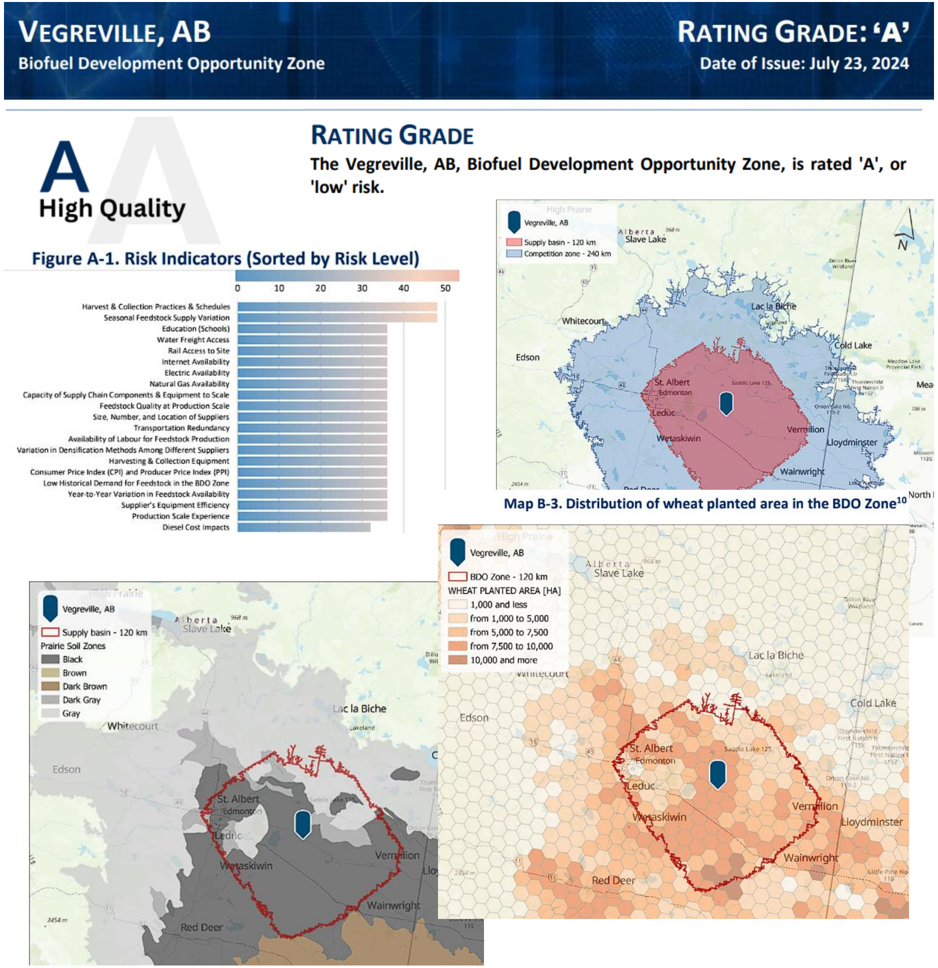
C-SAF Canadian Council for Sustainable Aviation Fuels
Conseil canadien des carburants d'aviation durables

'A' RATING

Vegreville, AB BDO Zone
'A' Rating for SAF
Supported by Canadian Council for SAF (C-SAF)

- ✓ **Rating Parameters:** 455,000 bdt/ yr of low-risk wheat straw at $115-$140/ bdt
- ✓ **Rating Outlook: Low Supplier Risk:** Long history of wheat production, and growers willing to participate in biomass projects.
- ✓ Existing, underutilized fleet of harvest and transportation equipment
- ✓ Conveniently located in proximity to large population centers – Edmonton & Calgary.

View and download the Vegreville BDO Zone Rating here.



BD|OZ THE BIOFUEL DEVELOPMENT OPPORTUNITY ZONE INITIATIVE

BDOZ INITIATIVE

Alberta - Vegreville BDO Zone

Funded through Natural Resources Canada's Clean Fuels Fund

PROVECTUS BIOFUELS

Cleanest fuels on earth

PROJECT

Provectus Biofuels – Vegreville Dobrojet Renewable Jet Fuel Project (Wheat Straw-Renewable Jet Fuel)

INVESTMENT

- $845 Million
- *Vegreville BDO Zone Funded through Natural Resources Canada's (NRCAN) Clean Fuels Fund*

JOBS

- 100 permanent skilled jobs
- 400-500 construction jobs (2-year period)

TIMELINE

- LOI w/ Town of Vegreville - July 2025
- LOI for Front-End Engineering and Design ("FEED") phase w/ SOS Engineering Ltd. - August 2025

FEEDSTOCK

- 165,000 tons/year of local wheat straw residues

ECONOMIC BENEFITS

- Tens of millions in local contract opportunities
- New revenue stream for farmers
- Alternative to burning/plowing straw → reduces air pollution & carbon emissions
- Strong alignment with federal & provincial clean energy transition goals

OUTPUT

- 100 million liters/year of renewable jet fuel
- Potential co-products: gasoline, diesel, biochar
- Significant water recovery → oversized lagoon system with irrigation potential for farmers

BIOFUEL DEVELOPMENT OPPORTUNITY ZONE INITIATIVE

'A' RATING

Vegreville, AB

BDO Zone Rating
A

Feedstock Type
Wheat Straw

Feedstock Amount
455,000 tons/year

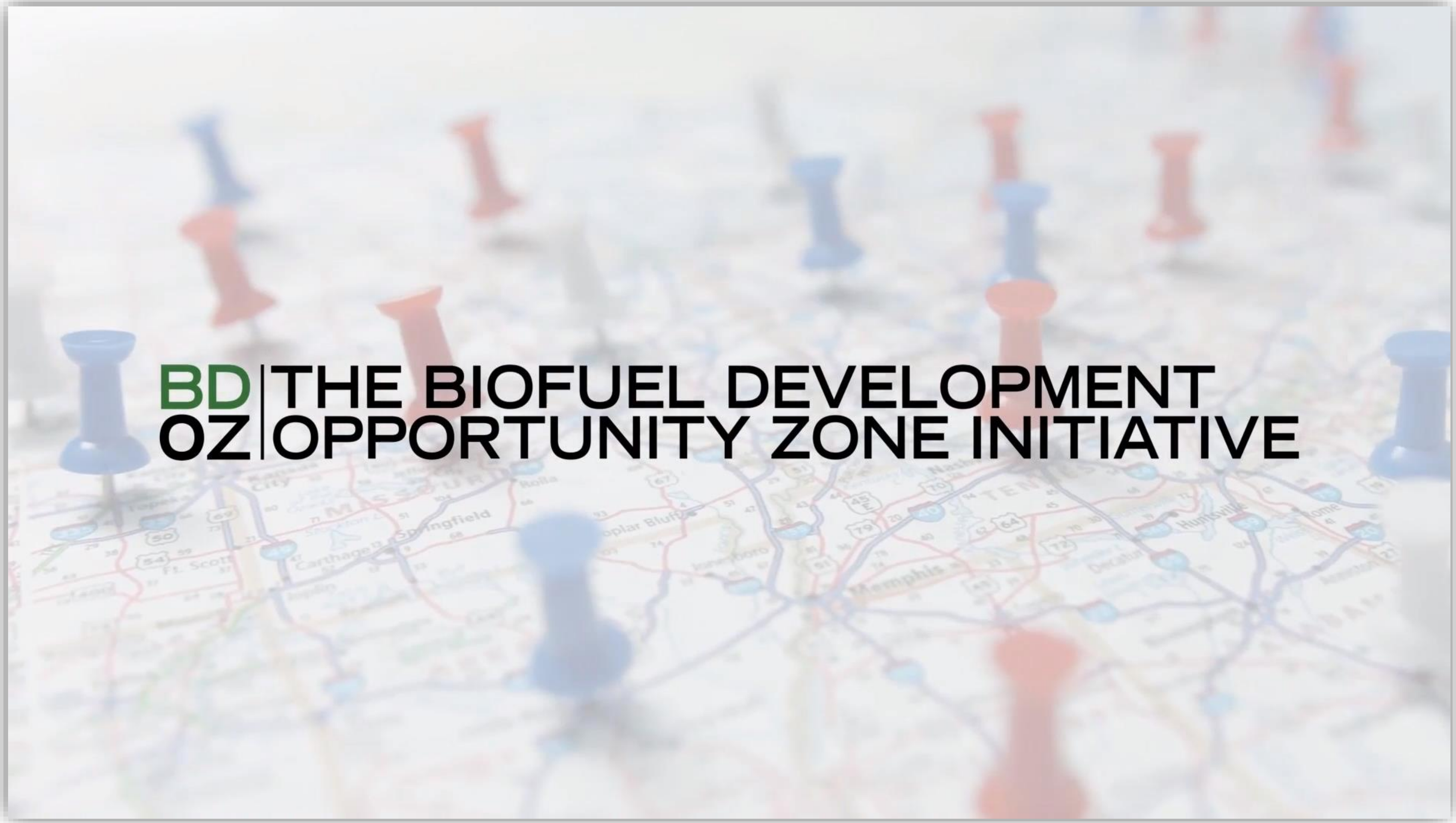
Before the BDO Zone Rating, interest was minimal. Once our A Rating was published, it de-risked the feedstock potential and interest surged—Provectus biofuels and three other companies reached out. The A Rating validated our agricultural region, with Vegreville at the epicenter, and spotlighted the Alberta HUB region as a prime destination for investment.

Bob Bezpalko
Executive Director - Alberta HUB

The BDO Zone Rating definitely impacted our decision to look at Vegreville. I got excited about the 455,000 tons of excess wheat straw—an insurable, bankable supply for decades. Vegreville will be the first hub, but in 10 years we predict 40 or 50 BDO Zones acting as spokes that draw into it.

Jon Jacque
CEO - Provectus Biofuels

Real People, Real Ratings, Real Impact



Recognized, Credible, Standards-based Rating Framework

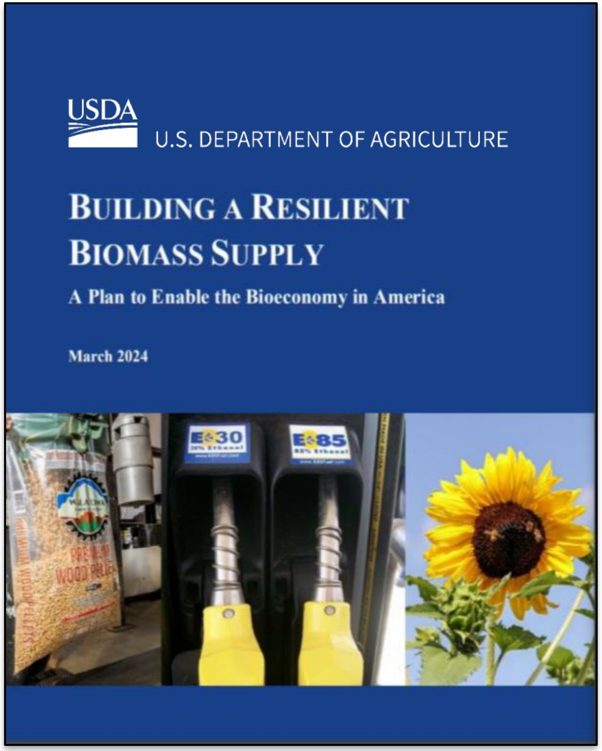
- **CSA Technical Specification-005:25: *Bioeconomy Development Opportunity (BDO) Zone Assessment* issued in 2025.**
- **CSA Canadian National Standard issued in 2021.**
- **ASTM accreditation** slated for 2026.

Governance: BDO Zone Ratings

INTERNATIONAL
IBRA
BIOMASS RATING AGENCY

The International Biomass Rating Agency (IBRA) is the **world's first biomass rating agency**. IBRA fosters market stability and accelerates growth by issuing BDO Zone ratings and providing critical information and new tools that help accelerate and derisk biomanufacturing globally.

International recognition as powerful bioeconomy development tools



- BDO Zone Ratings referenced four times in the **US Department of Agriculture's 2024 "*Plan to Enable the Bioeconomy in America: Building a Resilient Biomass Supply*"** as a important tools to accelerate market development *(March 2024; pp.4, 27, 28 and 29).*

- USDA's response to President Biden's *Executive Order 14081, "Advancing Biotechnology and Biomanufacturing Innovation for a Sustainable, Safe, and Secure Bioeconomy"*.

- USDA Rural Development has directly funded over 50 BDO Zone ratings.

2025 Modelling of Economic Impact of BDO Zones:

$423M per project per year

Economic Impact Modelling of BDO Zones
Oct 20, 2025 – Draft for publication

The Economic Impact of BDO Zones: Methods, Project-Level Estimates, and 100-Zone National Scaling

Dr. Burton C. English

Institute Professor Emeritus (ret.) Institute of Agriculture, Department of Agricultural and Resource Economics, University of Tennessee, Knoxville, TN, United States

Executive Summary

The purpose of this study is to determine an average economic impact of projects located in BDO Zones based on six case-study projects that have been announced in BDO Zones and are currently in the capital-raise stage. For each project we calculate total economic impact over ten years (2024 USD) and derive an average impact representative of each project located in a BDO Zone.

This analysis utilizes the economic impact framework for biofuels/biomanufacturing described by English, Menard, and Wilson in "*The Economic Impact of a Renewable Biofuels/Energy Industry Supply Chain Using the Renewable Energy Economic Analysis Layers (REEAL) Modeling System*" (2022). Using this method, we present construction (one-time) and operations (annual) impacts with direct, indirect, and induced effects reported separately. Summary tables and figures provide per-project results, a six-project average, and an estimate of the economic impact of 100 BDO Zones based on the observed actualization ratio of projects announced in rated BDO Zones.

*The average annual economic impact to local regional BDO Zone economies is over **$423 million** per BDO Zone project. The average total 10-year cumulative economic impact[1] in BDO Zones is over **$4.2 billion** per BDO Zone project.*

We present Low / Base / High scenarios around national economic impact of 100 BDO Zones based upon various actualization ratios:

Summary 100 BDO Zone National Scaling

Scenario (100 BDO Zones)	Actualization Ratio over 5 Years	Annual Impact	10-Year Impact
Low Impact	5%	$2,116,757,061	$21,167,570,614
Base Impact	10%	$4,233,514,123	$42,335,141,227
High Impact	15%	$6,350,271,184	$63,502,711,841

[1] Total of direct, indirect and Induced economic impact from one-time plant construction plus steady-state annual operations.

Dr. Burton English
Institute Professor Emeritus (ret.) Department of Agricultural and Resource Economics
University of Tennessee

AG & RESOURCE ECONOMICS
THE UNIVERSITY OF TENNESSEE KNOXVILLE

Dr. Burton C. English
Institute Professor Emeritus (ret.) Institute of Agriculture, Department of Agricultural and Resource Economics, University of Tennessee, Knoxville, United States

.

Economic impact modelling of six biomanufacturing projects announced in BDO Zone in capital raise stage.

*"The average economic impact to local regional BDO Zone economies is over **$423 million** per BDO Zone project per year.*

Dr Burton English is founding member of both the Agri-Industry Modeling and Analysis Group (AIM-AG) and the Biobased Energy Analysis Group (BEAG). He is recipient of the UT Chancellor's Award for Research, the UT AgResearch Impact Award, the UTIA Research Team Award. His research has attracted more than $32 million in external funding. He has contributed to 140 journal articles, 20 book chapters, seven books, 223 abstracts or proceedings and 282 bulletins or reports.

The CANADA FIRM ("Forest Innovation & Renewable Markets") Challenge

BDO Zones are a **proven, investment-ready solution** to the urgent need for Canada to **expand domestic markets for forest biomass** to mitigate escalating threats from U.S. tariffs.

The **CANADA FIRM Challenge**:

- **Expands** Canada's existing network of BDO Zones to 100
- **Drives** market diversification for Canada's forest sector
- **Creates** a powerful pipeline of applicants for other government programs

Estimated Impact on Canada's economy: ***$2B - $6B per year***

Feedstock Supply Insurance

FEEDSTOCK SUPPLY INSURANCE
Powered by Ecostrat and NER

The goal: Decrease investor uncertainty around feedstock supply and reliability

- ✓ Create investment-grade biomass supply chains.
- ✓ Secure long-term debt repayment obligations.
- ✓ Enable faster deployment of capital at lower risk.
- ✓ Catalyze and accelerate biomanufacturing project development globally.

NEW ENERGY RISK ECOSTRAT

FSI Partnership

Underwriting a Greener Future™

- New Energy Risk (NER) is a Managing General Underwriter founded in 2010. Since 2022, New Energy Risk is a wholly-owned division of **Paragon Insurance Holdings**.
- NER has supported **$4.7B** in capital investment to our clients and insureds.
- NER leverages engineering expertise and techno-economic risk modeling to offer a performance insurance solutions that **unlock financing** for breakthrough technologies.
- Coverages are typically 2 -15 years, and $5m-$350m insurance capacity per project. Policies provided by affiliated, A-rated global insurance companies.

FSI Partnership

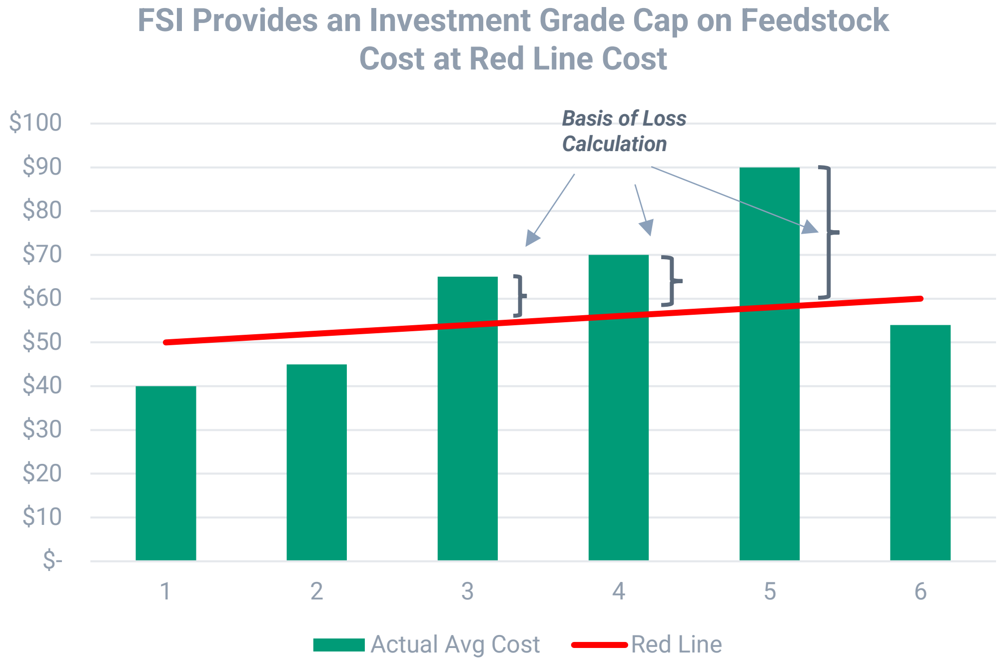
ECOSTRAT
GOT FEEDSTOCK RISK? GET ECOSTRAT.

The Industry Standard for Biomass Risk Analytics

- Ecostrat's Biomass Advisory Group is the **North American market leader in biomass feedstock supply due diligence** for investors, capital markets and project developers. >20 years experience.
- Ecostrat's Biomass Supply Group has over 25 years of experience in **sourcing and supplying over 5 million tons of biomass feedstock** for bioenergy, biofuel, and renewable chemical projects across North America.
- State-of-the science forecasting models and risk quantification tools for biomass supply chains.
- Led development of national Standards for Biomass Supply Chain Risk.

FSI Illustrative Example

Policy covers excess feedstock cost above ‘Red Line Cost’



Red Line Cost:

The ‘**Red Line Cost**’ is the maximum delivered feedstock cost at which a project can sustain debt service obligations.

FSI caps delivered feedstock cost at the Red Line Cost and covers excess cost above the Red Line.

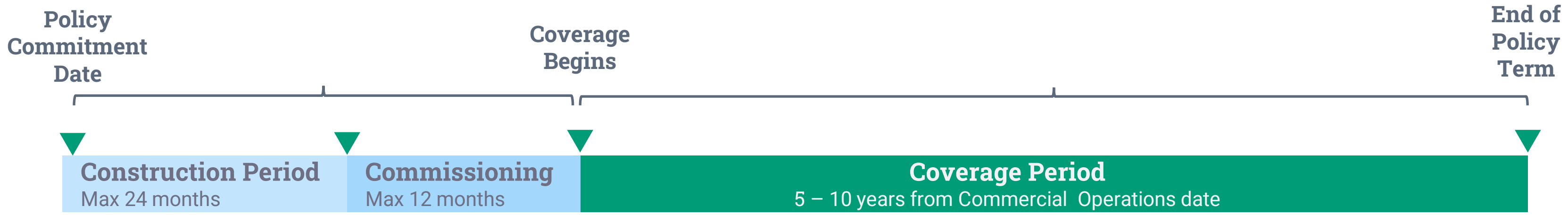
Loss Calculation:

Lesser of:

(Actual average feedstock cost – Red Line Cost) X Actual Quantity

Up to Policy Limit

FSI Coverage Overview



- **Policy Limit:** **$10m-$100m**, to be determined with Named Insured
- **Commitment Period:** Up to 3 years from FID (including construction and commissioning periods)
- **Coverage Period:** **Up to 10 years** from Commercial Operation Date, coterminous with debt term
- **Loss Calculation:** Actual average cost of feedstock *minus* 'Red Line Cost' *multiplied by* Quantity
- **Loss Triggers:**
  1. Actual average cost of feedstock exceeds the 'Red Line Cost', **<u>and</u>**
  2. Designated Reserve is depleted.
- **Policy Cost:** Due Diligence Fee, Premium, Supply Chain Monitoring and Management Fee

FSI Policy Engagement Process

2 – 3 weeks	10 – 12 weeks		Up to 13 years (FID + Construction + Commissioning + Operations)	
High-level Project Assessment	Formal Engagement	Policy Development	Financial Close Policy Commitment Date	On-going Operations Policy On Risk
Preliminary Diligence	**Detailed Diligence**	**Policy Execution**	**Policy Binds**	**Coverage**
• High-level assessment of FSI product fit	• Confirm 'Red Line Cost' • Develop coverage parameters	• Finalize policy T&C • Secure insurance capacity	• One-time premium due at closing	• Supply Chain Risk Monitoring • Ongoing feedstock DD

FSI is the Infrastructure that Supports Key Market Players

FEEDSTOCK SUPPLY INSURANCE
Powered by Ecostrat and NER

Capital Markets

- Help manage risk and prevent exposure.
- Enable capital to properly structure around feedstock risk.
- Faster and more accurate investment decision-making.

Governments

- Drive needed capital into biomass-based projects. Accelerate the rate of biomass project development.
- Prevent project failure and subsequent dampening effects on future investment in the sector.
- Enable government to accurately calibrate suitable levels of support.

Developers

- Enable access to a wider pool of less expensive capital.
- Gain clarity on feedstock risk and mitigation insights.
- Decrease likelihood of project failure due to feedstock risk.
- Create more resilient projects.

NEW ENERGY RISK ECOSTRAT

What to learn more?

Jordan Solomon, President, Ecostrat / Chairman BDO Zone Initiative jordan.solomon@ecostrat.com

Brad Price, Managing Director of Due Diligence, New Energy Risk bradprice@newenergyrisk.com