CANTON, SD

Bioeconomy Development Opportunity Zone

RATING GRADE: 'A'

Date of Issue: June 22, 2026

A
High Quality

Rating Parameters:

Category	Rated Quantity	Delivered Price	Supply Zone Size
Corn Stover	**700,000 bdt/yr**	**$100-$115/bdt**	**75-mi drive distance from Canton, SD**

BDO ZONE ASSETS

- A large corn stover resource; rated supply of 700,000 bdt/year.
- Agronomically mature production system; long-established corn production and residue management experience.
- Very limited regional industrial competition for corn stover.
- Compact procurement radius; full rated quantity available within 40 miles.

BDO ZONE LIABILITIES

- Narrow, weather-sensitive post-harvest collection window.
- Uncertain farmer participation; dependence on pricing, contracts, removal rates, and harvest timing.
- Major scale-up requirements for baling, hauling, labor, logistics, and storage.
- Weather variability; drought, hail, and storm exposure affecting yield and collection.
- Dispersed farm base; high coordination burden across many independent producers.

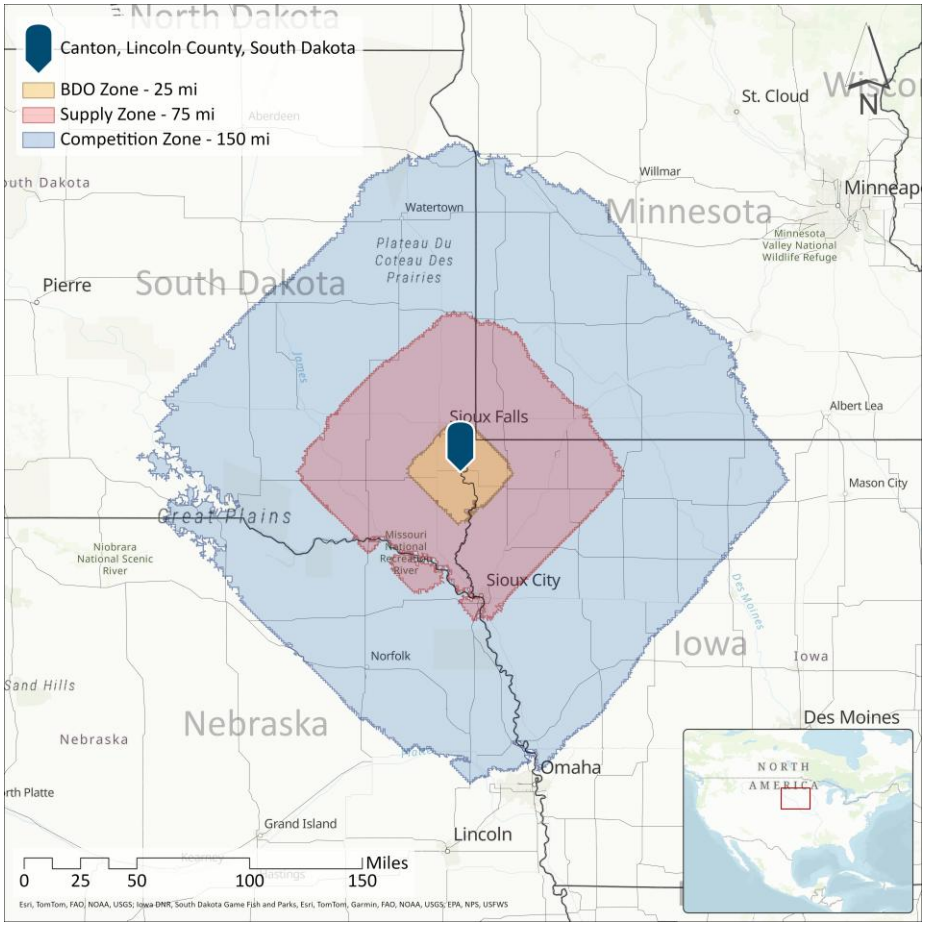
RATING GRADE

The Canton, SD Bioeconomy Development Opportunity Zone, is rated 'A', or 'low' risk.

Risk Rating Grades are defined as follows: AAA (extremely low), AA (very low), A (low), BBB (low-moderate), BB (moderate), B (moderate-high), and C (high).

'A' ratings denote high prospective viability of Feedstock Supply and Infrastructure and low expectations of default risk in the Zone. 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.

CANTON, SD BDO ZONE



ANALYST NOTES

The Supply Zone is a procurement area centered on Canton, South Dakota, spanning parts of South Dakota, Iowa, Nebraska, and Minnesota, across 32 counties. It supports an average of 2.3 million acres of planted corn annually, with county-level yields typically OF 150–210 bu/ac, but highly variable across counties. Dominant rotations are corn–corn and corn–soybean. Over the last decade, corn yields were generally between 161 bu/ac and 192 bu/ac, with notable reductions during 2019–2022 due to severe weather events.

From a farming structure perspective, the Supply Zone includes 11,200 cropland farms totaling 4.8 million cropland acres. Most farms are < 500 acres (75%), with 14% between 500–1,000 acres, and 11% above 1,000 acres. Long-term trends show a decline in cropland area and number of operations, alongside a shift toward more very large farms (>2,000 ac) and fewer medium farms (180–500 ac).

Estimated corn stover generation averages 9.1 million bdt/year, but after accounting for current uses (primarily soil protection) and collection limits/uncertainty, the analysis identifies a rated, low-risk available quantity of 700,000 bdt/year (about 8% of total generation), at an estimated delivered price of $100–$115/bdt.

BDO ZONE ASSETS

The primary asset of Supply Zone is scale. Spanning 32 counties across South Dakota, Iowa, Nebraska, and Minnesota and centered on Canton, South Dakota, it encompasses over two million acres of planted corn annually. Yield performance has generally remained high over the last decade, supporting a planning basis for repeatable biomass generation.

A second major asset is the agronomic maturity of the production system. Corn is a long-established crop across the region, and producers have multi-generational experience with corn cultivation, residue management, and field operations. While large-scale industrial stover procurement is not yet fully developed, the underlying crop-production knowledge, machinery familiarity, and seasonal workflow needed to support residue harvest are already present in the farm economy.

The Supply Zone also benefits from a very limited current competitive pressure for corn stover. No major operating commercial stover users exist within the Competition Zone, and the previously known POET Project Liberty facility is closed. Existing demand is largely non-industrial and is tied mainly to on-farm soil management and limited livestock bedding and feed use, which means a new project would be entering into a very supportive supply environment.

The sustainability basis for residue removal is also well defined. The rated quantity assumes substantial residue retention for erosion control and soil protection, while also incorporating nutrient replacement value into the farm-gate price paid to producers. In agronomic terms, this is important because it aligns feedstock procurement with soil conservation practice rather than relying on aggressive residue extraction.

Transport has another practical advantage as the full rated quantity is available within 40 miles of Canton, and project proponents would likely target procurement within roughly 50 miles to control hauling costs. This relatively compact sourcing radius is favorable for a bulky, low-density feedstock such as stover because it helps contain transportation exposure within a range that is operationally manageable.

BDO ZONE LIABILITIES

The principal liability is the operational complexity of aggregating corn stover at commercial scale during a very narrow harvest window. The analysis indicates that stover collection generally must occur within 45 days, from mid-September to early November, and that wet fall conditions, early snowfall, frozen ground, or excessive bale moisture can materially shorten the effective collection period and reduce feedstock quality. In agricultural terms, this is the central execution risk because residue harvest must compete with the most time-sensitive part of the grain-production calendar.

Producer participation remains a major commercial uncertainty. The analysis explicitly identifies farmer participation as one of the hardest variables to quantify and notes that producer decisions depend on stover price, nutrient replacement, removal rate, contract terms, distance to the plant, harvest timeliness, and soil-

management concerns. Even where physical residue exists, a project cannot rely on access to that material unless enough producers view stover removal as agronomically acceptable and economically worthwhile within the constraints of their row-crop operation.

A closely related liability is the need to scale logistics, labor, and equipment well beyond the level of current local practice. Supplying the rated quantity would require roughly 125 balers, 250 tractors, and 40 trucks with 53-foot flatbed trailers, along with timely bale pickup, transport scheduling, and covered storage planning. Although the regional machinery base is large, present systems are not yet organized to move the rated quantity efficiently, especially where farms rely heavily on custom operators and relatively few producers own dedicated hauling capacity.

The predominance of large round bales in the local market is another important constraint. Round bales are suitable for cattle bedding and feed markets, but large-scale industrial projects generally prefer dense square bales because they are more efficient for hauling, stacking, and storage. The analysis indicates that a commercial stover project would likely need to stimulate adoption of square-bale systems through stronger contracts, outside custom crews, or direct equipment deployment, which adds both capital and coordination risk to the supply chain.

Weather-related variability is another material liability. Recent years have shown yield impacts from drought and severe storms. In addition to affecting grain yields directly, these events can alter residue volume, delay field access, increase cattle-sector demand for stover in dry years, and reduce the reliability of annual procurement planning.

Supply coordination is further complicated by the structure of the farm base. Although the region contains many potential suppliers, most farms are relatively modest in size and geographically dispersed. This improves diversification, but it also means that a project must manage contracting, harvest timing, bale movement, and storage across a large number of independent producers rather than relying on a small number of concentrated supply points. The resulting supplier-management burden is a meaningful operational risk.

INFRASTRUCTURE PROFILE

The evaluated property is the Canton Industrial Park, a 20-acre shovel-ready industrial site located along SD Highway 18 in Canton, SD. The site is city-owned and operated by the Canton Economic Development Corporation, with serviced lots priced at $2.95 per square foot and zoned for both heavy and light industrial use.

The site benefits from utility infrastructure across all categories: electric service is provided by Xcel Energy and Southeastern Electric Cooperative with three-phase distribution and a substation one mile south; natural gas is provided by MidAmerican Energy; water and wastewater are both provided by the City of Canton, and fiber-optic service is provided by SDN Communications.

The site is located directly on SD Highway 18, which has recently been widened to four lanes from Canton's city limits to Interstate 29, and is adjacent to SD Highway 11. A BNSF mainline runs directly through the industrial park; however, no active spur currently serves the available lots. Canton Municipal Airport (general aviation) is 2.5 miles from the site, and Sioux Falls Regional Airport (FSD) is approximately 25 miles north with commercial service to major hubs.

SCORING & RATING METHODOLOGY

In assessing the biomass supply chain risk for the Canton Bioeconomy Development Opportunity (BDO) Zone, 75 Risk Indicators from the US Standards for Biomass Supply Chain Risk (BSCR) were applied. These BDO Zone Risk Indicators are the subset of BSCR Risk Indicators applicable to evaluating feedstock risk within a BDO Zone.

- The BDO Zone is a 25-mile drive distance from the center point, which represents the siting area for future biomass projects and is where the industrial site is located.
- The Supply Zone is a 75-mile drive distance from the center point, where feedstock availability was assessed.
- The Competition Zone is a 150-mile drive from the center point, where consumers can compete for feedstock generated in the Supply Zone.

Feedstock quantities are expressed in bone-dry tons per year (bdt/yr), while feedstock costs are expressed in

United States dollars (USD). Maximum transport distance is based on a 75-mile driving distance from the center point (Canton, SD).

The BDO Zone rating is based on an aggregation of the scores assigned to each BDO Zone Risk Indicator (RI) assessed in this report. First, each BDO Zone Risk Indicator is given a **Raw Risk Likelihood (RRL)** score, which denotes the likelihood of a risk to future BDO Zone projects due to the Risk Indicator. RRL Scores are scaled as either very low (2), low (4), medium (6), high (8), or very high (10).

Each BDO Zone Risk Indicator is given a **Raw Risk Impact (RRI)** score, which denotes the impact on a future BDO Zone project due to the Risk Indicator. RRI scores are scaled as either very low (2), low (4), medium (6), high (8), or very high (10). Impact level scores are based on the impact level of a risk on the successful development and deployment of a BDO Zone project with no mitigation measures.

The **Gross Risk Indicator (GRI)** score is then calculated as the product of the RRL and the RRI scores. For example, if an indicator is scored at an RRL of 2 and an RRI of 8, then the GRI for this risk indicator is 2 X 8 = 16.

If the analyst deems that a typical bio-based project could implement economically reasonable measures or best practices that mitigate the likelihood (RRL), the impact (RRI), or both, then the GRI will be notched accordingly.

The **Loaded RI** score for each Risk Indicator is the product of the GRI score and any notched scores. Loaded RIs are the final score for a Risk Indicator.

Loaded RI scores of 4 or less are deemed very low risk; scores between 5 and 16 are deemed low risk; scores between 17 and 36 are deemed medium risk; scores between 37 and 64 are deemed high risk; and scores of 65 and greater are deemed very high risk.

The total risk rating for the BDO Zone is the average of all Loaded RI scores and Infrastructure Indicators. The BDO Zone score for Canton, SD is ***18.1 out of 100, resulting in an 'A' designation.***

All scoring and rationale for each Risk Indicator are provided in Section D.

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SECTION A: RISK INDICATOR SUMMARY

Figure A-1. All Risk Indicators Sorted by Risk Level

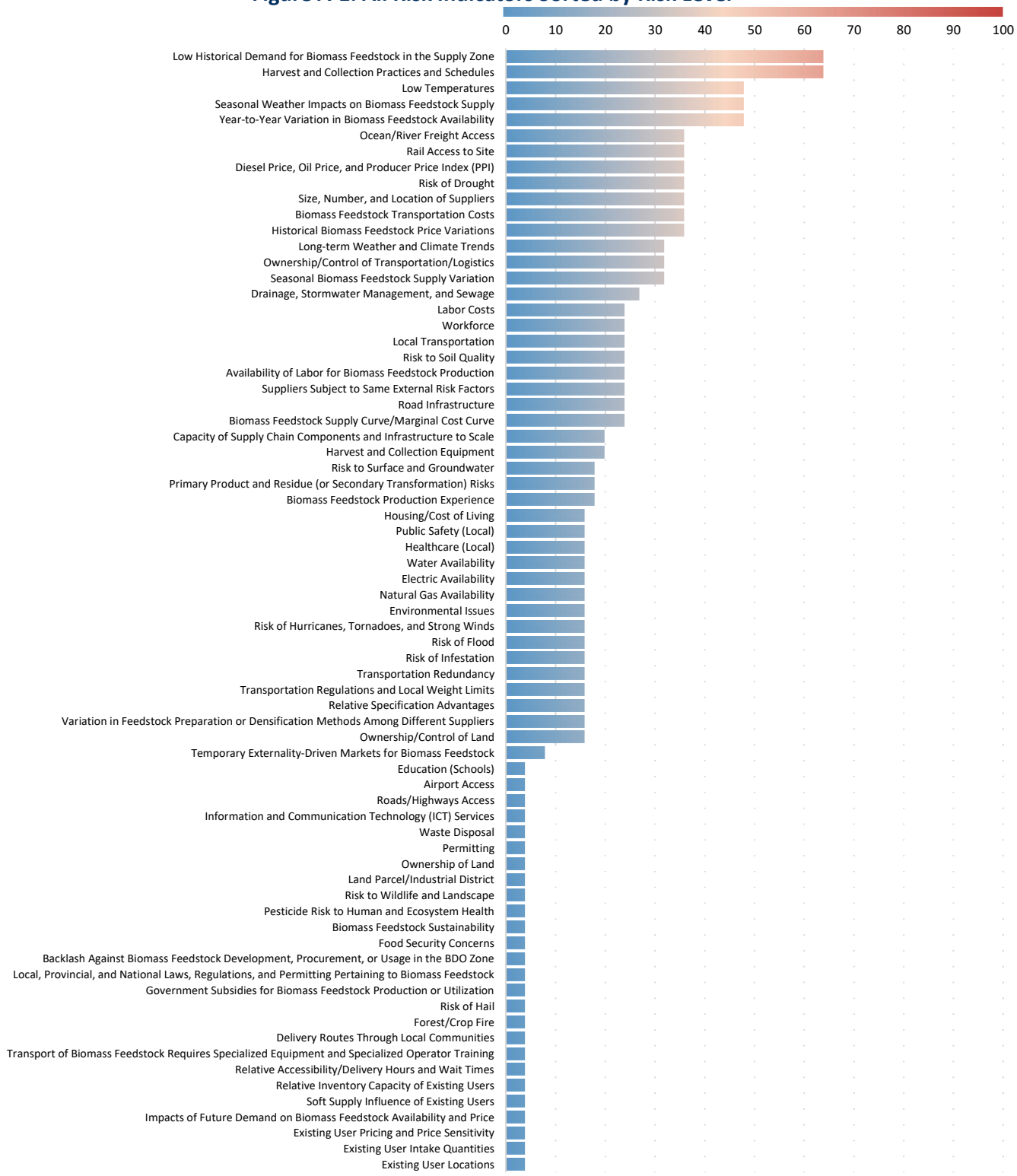


Table A-1. Risk Indicators and Associated Scores

Feedstock Supply Chain Risk Indicators	Raw Risk Likelihood	Raw Risk Impact	Gross Risk Indicator	Mitigation /Notching	Loaded RI Score
Category 1.0: Supply Chain Risk					
1.1 Risk Factor: Quantity and Delivered Cost of Available Biomass Feedstock					
1.1.1 Biomass Feedstock Supply Curve/Marginal Cost Curve	4	6	24	NN	24
1.1.2 Seasonal Biomass Feedstock Supply Variation	8	8	64	50%	32
1.1.3 Year-to-Year Variation in Biomass Feedstock Availability	8	6	48	NN	48
1.1.4 Historical Biomass Feedstock Price Variations	6	6	36	NN	36
1.2 Risk Factor: Harvest and Collection Risk					
1.2.1 Biomass Feedstock Production Experience	6	6	36	50%	18
1.2.2 Primary Product and Residue (or Secondary Transformation) Risks	6	6	36	50%	18
1.2.3 Harvest and Collection Practices and Schedules	8	8	64	NN	64
1.2.4 Harvest and Collection Equipment	10	8	80	75%	20
1.2.5 Ownership/Control of Land	4	4	16	NN	16
1.2.6 Variation in Feedstock Preparation or Densification Methods Among Different Suppliers	8	8	64	75%	16
1.3 Risk Factor: Existing Users					
1.3.1 Existing User Locations	2	2	4	NN	4
1.3.2 Existing User Intake Quantities	2	2	4	NN	4
1.3.3 Existing User Pricing and Price Sensitivity	2	2	4	NN	4
1.3.4 Impacts of Future Demand on Biomass Feedstock Availability and Price	2	2	4	NN	4
1.3.5 Soft Supply Influence of Existing Users	2	2	4	NN	4
1.3.6 Temporary Externality-Driven Markets for Biomass Feedstock	4	2	8	NN	8
1.3.7 Relative Inventory Capacity of Existing Users	2	2	4	NN	4
1.3.8 Relative Accessibility/Delivery Hours and Wait Times	2	2	4	NN	4
1.3.9 Relative Specification Advantages	4	4	16	NN	16
1.4 Risk Factor: Transportation					
1.4.1 Biomass Feedstock Transportation Costs	6	6	36	NN	36
1.4.2 Ownership/Control of Transportation/Logistics	8	8	64	50%	32
1.4.3 Transport of Biomass Feedstock Requires Specialized Equipment and Specialized Operator Training	2	2	4	NN	4
1.4.4 Delivery Routes Through Local Communities	2	2	4	NN	4
1.4.5 Transportation Regulations and Local Weight Limits	4	4	16	NN	16
1.4.6 Road Infrastructure	4	6	24	NN	24
1.4.7 Transportation Redundancy	8	8	64	75%	16
1.5 Risk Factor: Risks Related to Supply Chain Resiliency					
1.5.1 Size, Number, and Location of Suppliers	6	6	36	NN	36
1.5.2 Suppliers Subject to Same External Risk Factors	4	6	24	NN	24
1.6 Risk Factor: Biomass Feedstock Scale-up					
1.6.1 Capacity of Supply Chain Components and Infrastructure to Scale	10	8	80	75%	20
1.6.2 Availability of Labor for Biomass Feedstock Production	6	8	48	50%	24
1.6.3 Low Historical Demand for Biomass Feedstock in the Supply Zone	8	8	64	NN	64
1.7 Risk Factor: Climate and Natural Risks					
1.7.1 Seasonal Weather Impacts on Biomass Feedstock Supply	6	8	48	NN	48
1.7.2 Long-term Weather and Climate Trends	4	8	32	NN	32
1.7.3 Forest/Crop Fire	2	2	4	NN	4
1.7.4 Risk of Infestation	4	4	16	NN	16
1.7.5 Risk of Hail	2	2	4	NN	4
1.7.6 Risk of Flood	4	4	16	NN	16
1.7.7 Risk of Drought	6	6	36	NN	36
1.7.8 Risk of Hurricanes, Tornadoes, and Strong Winds	4	4	16	NN	16
1.7.9 Low Temperatures	6	8	48	NN	48
1.8 Risk Factor: Non-Weather Based Externalities					
1.8.1 Diesel Price, Oil Price, and Producer Price Index (PPI)	6	6	36	NN	36
1.8.2 Currency Risk	NR	NR	NR	NR	NR
1.8.3 Border Risk	NR	NR	NR	NR	NR
1.9 Risk Factor: Political and Social					
1.9.1 Government Subsidies for Biomass Feedstock Production or Utilization	2	2	4	NN	4
1.9.2 Local, Provincial, and National Laws, Regulations, and Permitting Pertaining to Biomass Feedstock	2	2	4	NN	4
1.9.3 Backlash Against Biomass Feedstock Development, Procurement, or Usage in the BDO Zone	2	2	4	NN	4
1.9.4 Consent of, and Cooperation with, Indigenous Communities	NR	NR	NR	NR	NR
1.9.5 Food Security Concerns	2	2	4	NN	4
1.10 Risk Factor: Sustainability and Environmental Concern					
1.10.1 Biomass Feedstock Sustainability	2	2	4	NN	4

1.10.2 Risk to Soil Quality	4	6	24	NN	24
1.10.3 Risk to Surface and Groundwater	6	6	36	50%	18
1.10.4 Water Use	NR	NR	NR	NR	NR
1.10.5 Pesticide Risk to Human and Ecosystem Health	2	2	4	NN	4
1.10.6 Risk to Wildlife and Landscape	2	2	4	NN	4
Category 2.0: Infrastructure					
2.1 Risk Factor: Physical Infrastructure					
2.1.1 Land Parcel/Industrial District	2	2	4	NN	4
2.1.2 Ownership of Land	2	2	4	NN	4
2.1.3 Permitting	2	2	4	NN	4
2.1.4 Environmental Issues	4	4	16	NN	16
2.2 Risk Factor: Utilities					
2.2.1 Natural Gas Availability	4	4	16	NN	16
2.2.2 Electric Availability	4	4	16	NN	16
2.2.3 Water Availability	4	4	16	NN	16
2.2.4 Drainage, Stormwater Management, and Sewage	6	6	36	25%	27
2.2.5 Waste Disposal	2	2	4	NN	4
2.2.6 Information and Communication Technology (ICT) Services	2	2	4	NN	4
2.3 Risk Factor: Transportation/Logistics					
2.3.1 Roads/Highways Access	2	2	4	NN	4
2.3.2 Rail Access to Site	6	6	36	NN	36
2.3.3 Airport Access	2	2	4	NN	4
2.3.4 Ocean/River Freight Access	6	6	36	NN	36
2.4 Risk Factor: Social Infrastructure					
2.4.1 Healthcare (Local)	4	4	16	NN	16
2.4.2 Education (Schools)	2	2	4	NN	4
2.4.3 Local Transportation	6	4	24	NN	24
2.4.4 Public Safety (Local)	4	4	16	NN	16
2.4.5 Housing/Cost of Living	4	4	16	NN	16
2.5 Risk Factor: Labor					
2.5.1 Workforce	6	4	24	NN	24
2.5.2 Labor Costs	6	4	24	NN	24
				Average	**18.1**

SECTION B: BIOMASS AVAILABILITY AND PRICING

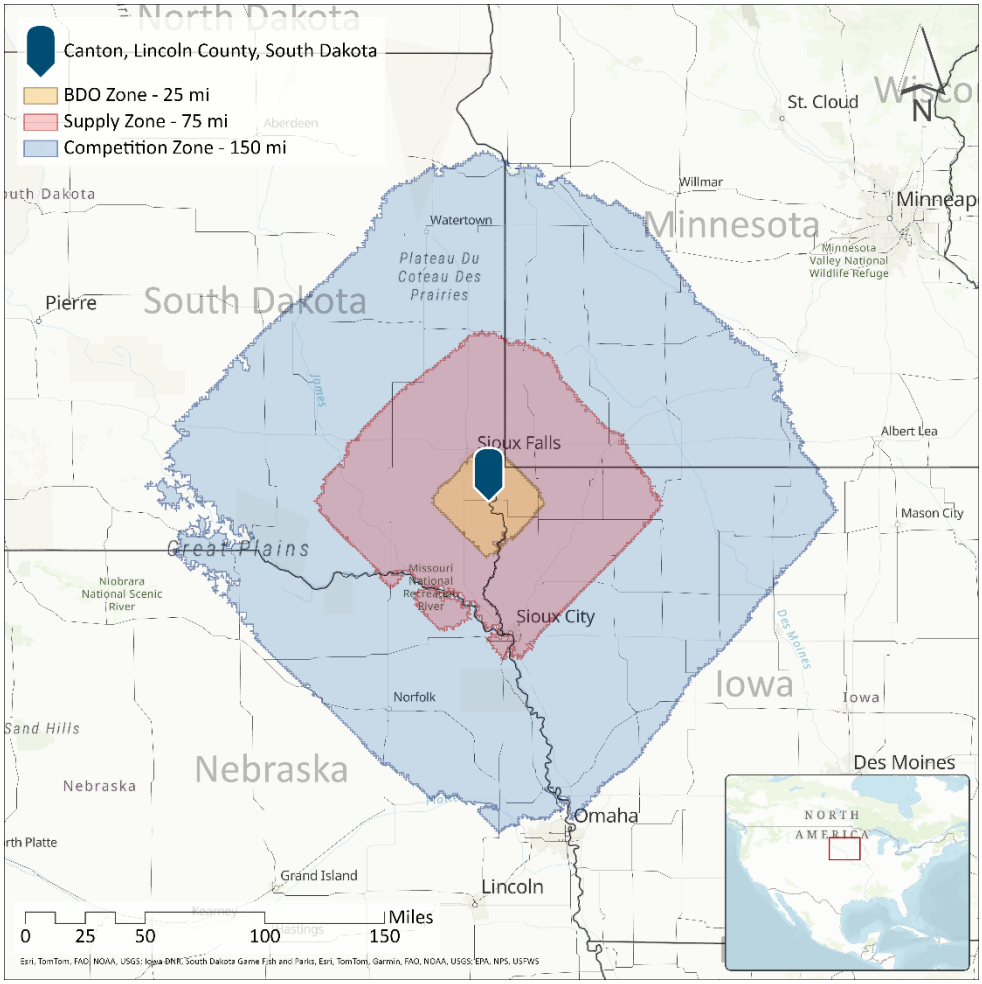
OVERVIEW

BDO Zone Risk Indicators are calculated using evaluated biomass quantities and associated pricing. The rated quantity of corn stover is derived by estimating the total potential production within the Supply Zone, defined as the area within a 75-mile driving distance of Canton, South Dakota (Map B-1).

To determine biomass availability for new projects, existing demand for corn stover within the Competition Zone—defined as a 150-mile driving distance from Canton—is subtracted from the total potential production. The resulting availability estimate is then divided by a Biomass Availability Multiple (BAM), typically ranging from 1.5 to 4.0. This adjustment accounts for uncertainties in data, modeling assumptions, producer participation, and future operating conditions.

The final rated quantity represents a conservative, low-risk estimate of biomass supply for a new project. As supply chains mature over time, additional biomass may become accessible beyond this initial estimate. The corresponding price range for the rated quantity is determined through market analysis and stakeholder outreach within the Competition Zone, reflecting the anticipated delivered cost required for a new project to secure this volume.

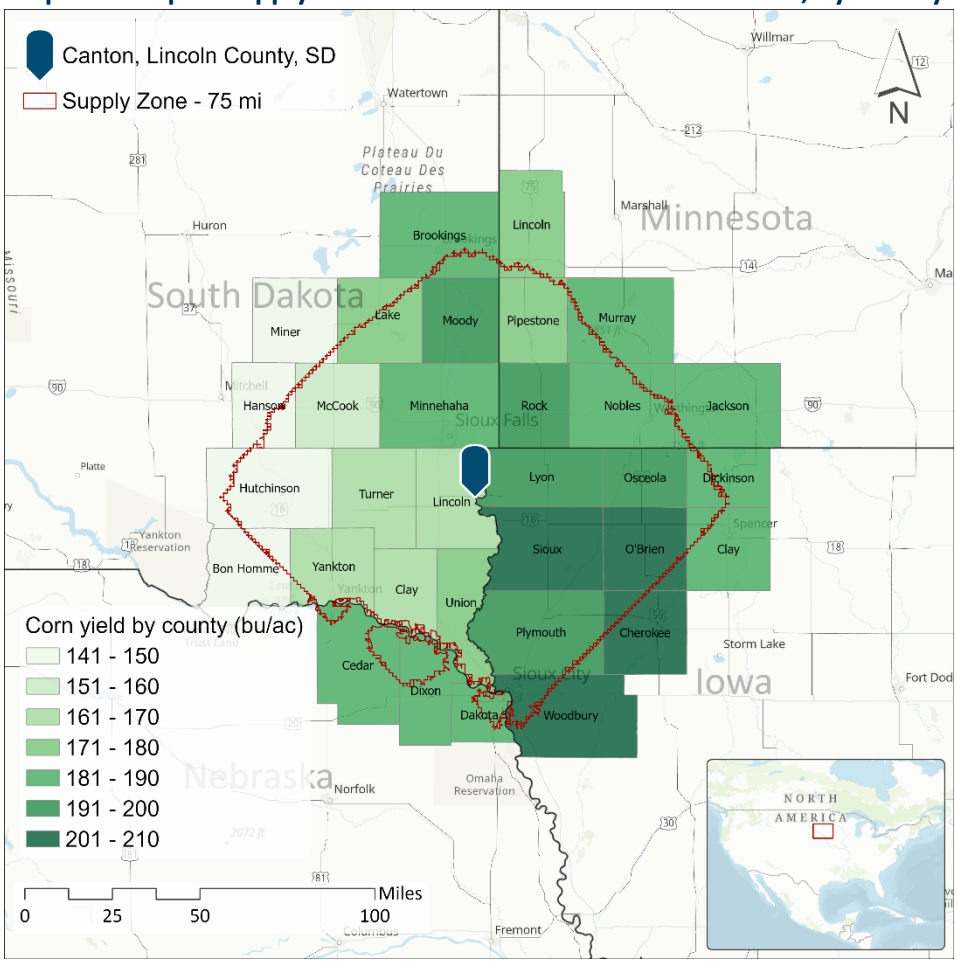
Map B-1. Map of BDO Zone, Supply Zone, and Competition Zone



SUPPLY ANALYSIS

The Canton BDO Zone is situated in southeastern South Dakota near the Iowa border (Map B-2), with its central point in Canton, SD. The Supply Zone extends across four states—South Dakota, Iowa, Nebraska, and Minnesota—covering 32 counties and encompassing approximately 2.3 million acres of corn planted annually. Corn yields within the Supply Zone typically range from 150 to 210 bushels per acre among counties (Map B-2). Common crop rotations include continuous corn (corn-corn) and corn-soybean systems. According to the 2022 USDA Census,[1] the Supply Zone contains about 11,200 cropland farms, totaling 4.8 million acres, with an average farm size of 425 acres. Most farms (75%) are smaller than 500 acres, while 14% fall between 500 and 1,000 acres, and 11% exceed 1,000 acres. Since 2002, the number of large farms (over 2,000 acres) has increased, while medium-sized farms (180–500 acres) have declined; the number of small farms (10–180 acres) has remained relatively stable (Figure E-1, Section E). Overall, from 1997 to 2022, both total cropland area and the number of farming operations in the Supply Zone have decreased (Figure E-2). Given the geographic dispersion of farms of varying sizes, efficient coordination of harvesting, baling, transportation, and storage—typically within one to two months following harvest—requires well-developed logistics systems.

Map B-2. Map of Supply Zone – Location and Corn Yield Values, by County[2]



[1] quickstats.nass.usda.gov
[2] Ibid.

Figure B-1 indicates that, while the average total corn planted area in the Supply Zone decreased, the average yield has remained between 161 and 192 bushels per acre in the past ten years.[3] An exception was the period 2019-22 in which severe weather events such as Derechos[4] and intense droughts, decreased corn yields significantly.

Figure B-1. Historical Average Planted and Harvested Areas and Grain Yield in the Supply Zone

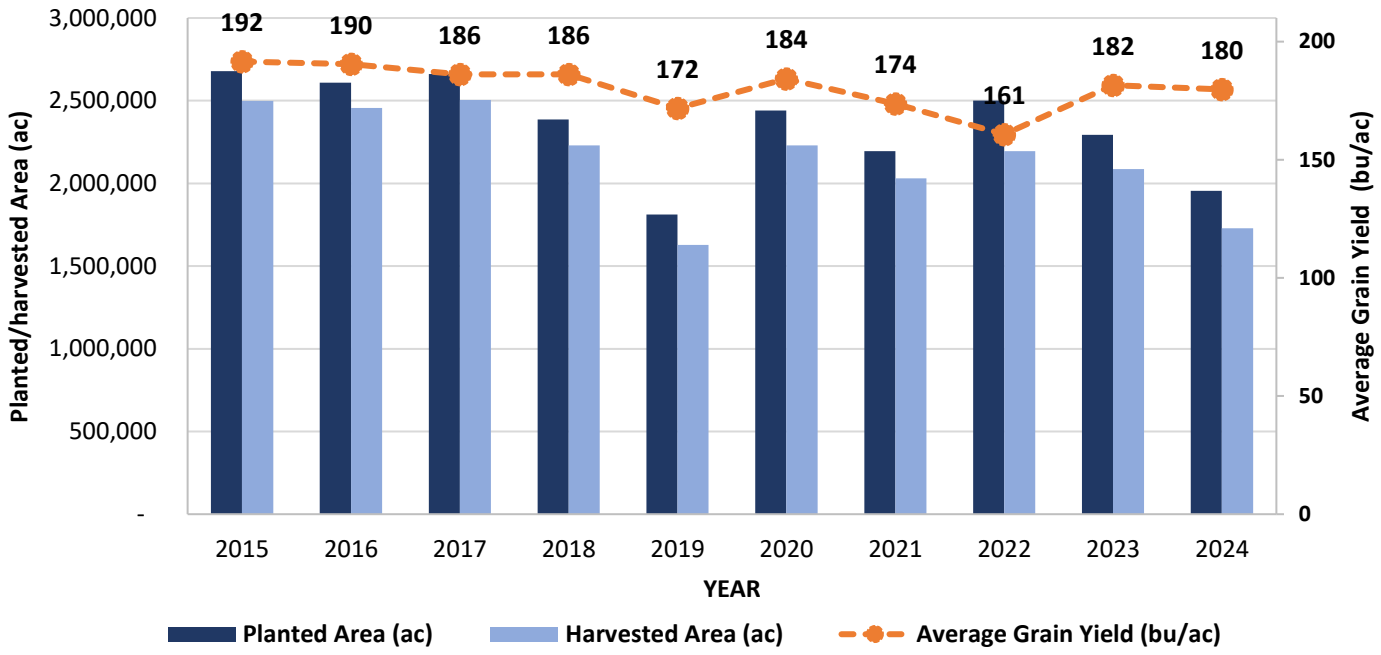


Table B-1 presents how the average corn stover generation was calculated from the total average area and average grain yield. According to our estimates, an average quantity of **9.1 million bdt of corn stover** can be generated annually in the Canton SD Supply Zone.

Table B-1. Annual Average Stover Generation*

Corn Stover Generation Factors	Values
Average annual harvested area (ac)	2,100,000
Average annual grain yield (bu/ac)	181
Average annual grain production (tons)[5]	10,600,000
Stover/Grain Ratio[6]	1.0
Average stover moisture content (wet basis)[7]	22%
Average annual silage generation (bdt)[8]	930,000
Average annual stover generation (bdt)	**9,100,000**

*All values were rounded

[3] Ibid.
[4] Extreme weather events characterized by heavy thunderstorms, hail, and winds (www.extension.iastate.edu/agdm/articles/hart/HartOct20.html)
[5] A conversion factor of 35.71 bu/ton was applied (www.farmbooks.ca/Converter.html)
[6] www.sciencedirect.com/science/article/abs/pii/S1364032112001062
[7] Ebadian, M.; Sokhansanj, S.; Lee, D.; Klein, A.; Townley-Smith, L. Evaluating the Economic Viability of Agricultural Pellets to Supplement the Current Global Wood Pellets Supply for Bioenergy Production. Energies 2021, 14, 2263. https://doi.org/10.3390/en14082263).
[8] quickstats.nass.usda.gov (historical survey data for silage harvested area and yield)

COMPETITION ANALYSIS

The two major uses of stover in the Supply Zone are soil quality management/protection and cattle bedding/feed (Table B-2). Agronomists recommend maintaining sufficient crop residue on the land to protect the soil from erosion. They suggest that approximately 60% of ag residues produced should be left in the field for soil management.[9] However, others recommend removing a certain amount of corn stover from corn fields as it can be beneficial to future corn yield. Partial removal of corn stover can help with warming the soil at the time of planting, reduce tillage intensity, and less fuel consumption for corn production.[10]

It was estimated that up to 1% of the total corn stover generated in the Supply Zone, mostly silage, is being used on average annually for cattle feed. This is an average conservative value estimated through personal communications with local producers and experts. The actual value will vary depending on wet or dry years, as more stover is retained for cattle in dry years than in wet years. However, this value assumes rare cases in which local cattle farmers would require large amounts of stover to supplement for lack of feed or bedding.

Outreach indicated that only one, now closed, and one proposed corn stover project exist in the Competition Zone, as follows:

POET Project Liberty Bioprocessing – Emmetsburg, IA[11] was a corn grain ethanol producer located 115 miles drive distance from Canton, SD, which in 2014 added a bioprocessing facility to convert corn stover into cellulosic ethanol. Following POET's lead, two other companies built cellulosic ethanol plants — one in Kansas and one in Nevada in Central Iowa (i.e., DuPont, currently Verbio). The owners of these two plants ended up selling their facilities by the end of 2017.[12] According to local news outlets and outreach, POET-Project Liberty closed in 2020, and no plans for restarting the facility are known. Considering the status of this facility, **there is no risk associated with this project competing for the rated quantity.**

Corn Board Manufacturing Inc. is, since 2020, a planned facility in Sac County, IA, located west of Odebolt, along Iowa Highway 175, approximately a 150-mile drive distance from Canton, SD. The company proposes to build a roughly 50,000-square-foot plant on about 40 acres that is designed to convert corn stover (leaves, stalks, and husks left after harvest) into an engineered pressed-board product branded CornBoard™, which is then used to make shipping pallets and other structural panel products.[13] The project has been described as creating 25–30 jobs and targeting stover procurement on the order of 50,000 tons/year sourced from 50-75 local farmers. While this project would constitute a significant corn stover development in the Competition Zone, after six years since its announcement, there is no clear information that construction or operation has started. Considering the status of this facility and the distance from Canton SD, **there is no risk associated with this project competing for the rated quantity.**

The following two corn stover projects are located outside the Competition Zone, thus having **no competitive impact** on a corn stover project located in Canton, SD:

Verbio (formerly DuPont) – Nevada, IA[14] is a subsidiary of Verbio Vereinigte BioEnergie AG in Germany, which bought the plant from DuPont in 2017 and began converting it. The plant is located 260 miles drive distance from Canton SD. Since December 2021, Verbio converts corn stover to renewable natural gas (RNG) in its 16 grain-bin sized methane-digester tanks fed with bacteria from local cattle manure. The RNG is injected directly into the natural gas distribution and

[9] www.saskatchewan.ca/business/agriculture-natural-resources-and-industry/agribusiness-farmers-and-ranchers/crops-and-irrigation/field-crops/cereals-barley-wheat-oats-triticale/harvesting-surplus-cereal-straw
[10] store.extension.iastate.edu/product/14073
[11] poet.com/emmetsburg
[12] www.farmprogress.com/commentary/final-chapter-for-cellulosic-ethanol-
[13] www.iowafarmbureau.com/Article/Manufacturer-to-make-pallets-from-corn-stover
[14] www.verbio-north-america.com/locations/verbio-nevada-biorefinery

transmission grid and sold as a green fuel. The plant consumes approximately 135,000 bales/yr (70,000 bdt/yr) of corn stover. To collect the stover, the company provides 25 trucks and 18 balers, choppers, and accumulators to local producers. The bales are stored on site at the Nevada plant.

DG Fuels SAF project in Phelps County, NE[15] is a planned Biomass + renewable electricity-based sustainable aviation fuel (SAF) plant located 320 miles from Canton SD. Phelps County states that the facility will purchase 1.2 million tons/year of corn stover from a 75-mile radius around the plant, initially focusing on an eight-county region in south-central Nebraska. Local economic-development estimates put annual payments to farmers for stover at ~$144 million/year when at full scale. Contracts are expected to be offered via public grower meetings, with "equal opportunity" for producers in the region rather than a closed group of early signers.[16]

Table B-2. Current Uses in the BDO Zone

Corn Stover Use Factors	Values
Soil quality management/protection	60%
Livestock bedding and feed	1%
Current or proposed competition	0%
Average annual use	**61%**

RATED QUANTITY AND PRICING

Table B-3 indicates the rated, low-risk stover quantity of **700,000 bdt/year** available for a new project in Canton, SD.

A **BAM of 4** was selected to account for uncertainty in the accuracy of existing data, scale-up readiness, historical harvesting practices and volumes, farmer participation, and annual changes in stover generation and demand. Among these factors, scientists and experts recognize that farmer participation is the most challenging to estimate and quantify. A review of literature reveals that several factors impact producers' decision to participate in a new biomass project, such as: stover price, contract terms, stover harvesting experience, stover removal rate, nutrient loss, soil erosion risk, distance to the biomass processing facility, harvest timeliness, crop rotation, and others.[17,18,19,20,21] Literature suggests that, among these factors, removal rate and straw price appear to have the highest impact on producers' participation.

Our rated quantity accounts for both a removal rate that ensures appropriate soil protection and a price that includes the nutrient replacement cost paid to the producers. A BAM of 4 ensures a realistic rated quantity representing **8% of the total** estimated stover generation in the Supply Zone, in agreement with local producers' expectations for a new project located in Canton, SD. This percentage is expected to increase once a mutually beneficial project is implemented.

[15] phelpscountyne.com, dgfuels.com
[16] www.phelpscountyne.com/in-the-news/p/item/60356/dg-fuels-set-to-transform-phelps-county-economy
[17] Corn stover as a biofuel feedstock in Iowa's bio-economy: An Iowa farmer survey
[18] Corn stover for bioenergy production: Cost estimates and farmer supply response
[19] Is Corn Stover Harvest Predictable Using Farm Operation, Technology, and Management Variables?
[20] Survey indicates farmers can supply corn stover biomass, but questions remain
[21] The "Stover Availability versus Supply" Puzzle and Contracting Options for Cellulosic Biomass

Table B-3. Annual Stover Availability and Rated Quantity Calculation*

Availability Factors	Values
Average annual stover generation (bdt)	9,100,000
Average annual demand (bdt)	5,500,000
Collection efficiency[22]	82%
Annual straw availability	2,900,000
BAM	4.0
Rated Quantity (bdt) [23]	**700,000**
Removal % from total	**8%**

*All values are rounded

Table B-4 shows the various cost components that participate in estimating the delivered price range. Note that the **farm gate price ranges** of **$69-$84/bdt**, or **$35-$42/bale** are similar to the 2025 hay prices of $92-$133/bdt, or $47-$68/bale.[24] While hay prices are not necessarily an accurate indicator of corn stover prices, their historical fluctuations presented in Figures E-3 and E-4 could provide a relevant picture of the seasonal demand from the cattle sector. A stover project would most likely stabilize any corn stover price fluctuations by securing quantities at a set price that included the nutrient replacement value and a producer's markup, as presented in Table B-4.

Table B-4. Farm Gate and Delivered Price Ranges[25]

Price/Cost Component	$/bdt	$/bale[26]
Chopping, Windrowing, Baling, Moving Cost[27]	$38 - $47	$19 - $24
Nutrient Replacement Value (paid to producer)[28]	$22 - $26	$11 - $13
Overhead/Markup (15%)[29]	$9 - $11	$5 - $6
Price at farm gate	**$69 - $84**	**$35 - $42**
Av. Transportation Cost (50-mi) [30]	$31	$15
Delivered Price	**$100 - $115**	**$50 - $57**

[22] Optimal straw collection ensures a high-quality straw for vast majority of straw projects (e.g., biofuels, bioenergy, etc.).
[23] Rounded value
[24] quickstats.nass.usda.gov (historical hay prices excluding Alph alpha)
[25] Price ranges assume +/-10% variation from the average value
[26] Assumes large round or square bales with an average weight of 1,300 lbs or 0.51 bdt (22% moisture content)
[27] https://www.extension.iastate.edu/agdm/crops/xls/a3-12historiccustomrates.xlsx
[28] This is a cost paid by project proponents to producers. It includes a 15% producer markup. Nutrient replacement value was calculated using an in-house calculator with current fertilizer prices (www.ams.usda.gov/mnreports/ams_2863.pdf) and nutrient contents (isuaamncus122stg.blob.core.windows.net/shop/PM1688.pdf)
[29] Includes compensation for temporary bale storage at producers' site
[30] Assumes $0.29/bale/loaded mile (2026 Iowa Custom Rate Survey), 53 ft flatbed trailer, 39 bales/load, 22% stover moisture content, loading/unloading cost.

OPERATIONAL CONSIDERATIONS

In summary, the rated quantity of corn stover was 700,000 bdt/yr (Table B-3) and the **delivered price range was $100-$115/bdt, or $50-$57/bale** (Table B-4).

If a new project located in Canton, SD utilized the rated quantity of corn stover, approximately **125 balers, 250 tractors**,[31] and **40 trucks with 53-ft flatbed trailers**[32] would be necessary. The 2022 Census, reported approximately 35,000 tractors and 3,600 balers[33] in the Supply Zone.

The most important operational considerations for harvesting and transporting corn stover to a commercial project revolve around narrow harvest windows, equipment availability, transportation logistics, and labor management. The harvest window for corn stover is very tight, typically lasting about 45 days from mid-September to early November. Weather is a critical risk factor, as wet fall conditions, early winter snow, or freezing ground can significantly shorten the collection timeframe. Baling must ideally occur in dry conditions immediately following the grain harvest to preserve the material, as excess moisture can result in moldy bales.

The current local standard is large round balers, which are widely owned by cattle operators for bedding and feed. However, large-scale commercial projects strongly prefer large square bales because they are much more efficient for transportation and storage. Because square baling equipment is uncommon in the area, a project developer would likely need to offer highly lucrative contracts, hire outside custom operators, or provide the baseline equipment infrastructure themselves. Consequently, investments in high-density square baling equipment may be necessary to significantly increase this efficiency. The Verbio facility can serve as a relevant example as it deployed a fleet of large square balers to support its production.

Transportation is consistently identified as the biggest logistical challenge for a stover project. High shipping costs can quickly match or exceed the actual value of the bales, making long-distance transport uneconomical. Most round bales are transported on semi flatbed trailers stacked two high as oversized loads. Route planning must also account for seasonal logistics, such as 40-ton weight restrictions on county roads when frost comes out of the ground. Because an estimated 10% or fewer of local farmers own their own transportation equipment, projects must heavily rely on custom haulers and truckers.

Managing the harvest requires significant labor and coordination during the busiest time of the agricultural year. Because farmers face intense time pressures in the fall, utilizing third-party custom baling and hauling services is often an appealing solution to manage the intensive labor required for bale pickup. Additionally, maintaining a year-round feedstock supply requires advanced planning and storage infrastructure. While 90% of current operations leave bales in unprotected field piles, securing high-quality stover 5 to 6 months into the future requires purchasing material well in advance and storing it under a roof to prevent weather degradation.

Finally, a new corn stover project would need to progressively build trust by first demonstrating collection and transportation equipment and optimal supply chain and storage systems. On the project development side, outreach indicated that all the above concerns can be well addressed by a project proponent and to a large degree, they have been addressed in previous and current projects.

[31] Assuming 2 tractors: one for the baler and one for the bale collector at 10-hr day x 40 harvest days per year x 25 bales/hr (www.extension.iastate.edu/agdm/crops/pdf/a3-24.pdf)
[32] Assuming 4 trips/day for 240 days/year
[33] Values adjusted by each county area within the BDO Zone (quickstats.nass.usda.gov)

SECTION C: INFRASTRUCTURE



PROPERTY OVERVIEW

Site Name:	Canton Industrial Park
Address:	SD Highway 18
City:	Canton
State:	South Dakota
County:	Lincoln
Acres:	20
Pricing Note:	$2.95/sq foot
Zoning:	Heavy & Light Industrial

SITE CONTACTS

Economic Development Contact
Tyler Tordsen
Sioux Metro Growth Alliance
(605) 679-7149
tylert@siouxmetro.com

Site Contact
Jeffery Tanner
Canton Economic Development Corporation
jeffery@cantonsdcoc.org

ADDITIONAL NON-RATED SITES[34]

Infrastructure Site Contact
Jaidan Hunt
Manager of Advisory Operations
jaidan@ecostrat.com

TRANSPORTATION

The Canton Industrial Park is located directly on SD Highway 18, which was recently widened to four lanes by SDDOT from the Canton city limits to Interstate 29, significantly increasing traffic and freight capacity along the corridor. SD Highway 11 runs adjacent to the park, providing a north-south connection toward the Sioux Falls metropolitan area, and I-29 is readily accessible via the upgraded Highway 18. A BNSF mainline runs directly through the industrial park; however, there is no active rail spur currently serving the available lots. Canton Municipal Airport, 2.5 miles from the site, provides general aviation access, and Marv Skie Airport is approximately 22 miles away. Sioux Falls Regional Airport (Joe Foss Field, FSD), approximately 25 miles north, provides commercial passenger service to major national hubs.

ELECTRIC SERVICE

Electric service is provided by Xcel Energy and Southeastern Electric Cooperative. There is 3-phase power in the area and a substation 1 mile south. **Contact:** Eric Pauli, eric.pauli@xcelenergy.com, (605) 229-8303.

NATURAL GAS

Natural gas is provided by MidAmerican Energy. Line size and capacity information is unavailable. **Contact:** Sam Wagner, sam.wagner@midamerican.com, (712) 223-7988

WATER

Water is provided by the City of Canton, which is supplied by 4 active wells and is connected to South Lincoln Rural Water (SLRW). The wells can handle the average need of approximately 350k gpd and SLRW is supplemented for peak demand or future growth opportunities. **Contact:** Bill Winter, bill.winter@cantonsd.org

WASTEWATER

There is no sanitary sewer line serving the site. The nearest WWTP is the Harrisburg Water Reclamation Facility, located 13 miles from the site. Current WWTP is designed to accommodate average flows of 0.4 MGD. **Contact:** Bill Winter, bill.winter@cantonsd.org

TELECOMMUNICATIONS

Telecommunication services are provided by SDN Communications and Century Link. Both fiber optic and internet is available to the site. **Contact:** Hannah Boquet, hannah.boquet@sdncommunications.com

[34] See Appendix F for additional non-rated site.

SECTION D: RISK INDICATOR SCORING METRICS

CATEGORY 1.0: SUPPLY CHAIN RISK

1.1 Risk Factor: Quantity and Delivered Cost of Available Biomass Feedstock

1.1.1 Biomass Feedstock Supply Curve/Marginal Cost Curve

Rationale: The greater the feasible transport distance, the more feedstock is accessible to the Issuer, but at a higher delivered cost. The feedstock supply curve, sometimes referred to as the marginal cost curve, is a function of feedstock availability over its cost, which is primarily, but not exclusively, a function of distance. The feedstock supply curve is used to determine the availability of redundant feedstock at various price points, as well as the cost of replacing feedstock with substitutes located at different distances.

Feedstock cost curves are useful in determining supply chain resilience; they provide information about the cost of feedstock availability in times of supply disturbance. Biomass supply chains are prone to supply disturbances over time; suppliers can become insolvent, or weather events can temporarily disrupt feedstock availability. When a disturbance occurs, the Issuer may need to source replacement feedstock from different suppliers at different locations and at different costs. A biomass supply curve indicates quantities of feedstock available at various price levels from suppliers generally located further away than the core supplier.

Risk Information: A supply/marginal cost curve was developed for total corn stover availability to assess accessible volumes at 5-mile drive-distance increments from Canton, South Dakota (Figure E-5). The analysis indicates that the full rated quantity is available within approximately 40 miles of the project site. In practice, project proponents would likely seek to secure most of this volume from within a 50-mile radius to limit transportation costs. However, because access to the full rated quantity within that preferred haul distance cannot be assured, the risk is considered low to moderate.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 24 out of 100.	**24**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 24 out of 100.	**24**

1.1.2 Seasonal Biomass Feedstock Supply Variation

Rationale: Biomass supply can present significant seasonal variations. Seasonal supply variations, combined with limitations associated with longer-distance transportation and storage, can lead to BDO Zone biomass supply imbalances,[35] which can manifest in shortages and higher costs for Issuers.

Risk Information: Corn stover availability is subject to pronounced seasonal constraints because the harvest and collection window is narrow, generally extending from mid-September to early November. Wet fall conditions, early snowfall, or frozen ground can materially reduce the time available for collection. Baling must also occur under sufficiently dry conditions to avoid moisture-related deterioration, including mold development. Although large-scale supply systems can reduce some of this risk through coordinated harvesting, storage, and transportation, the combination of a tight seasonal window and weather sensitivity supports a medium risk rating.

[35] Golecha & Gan, 2016.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed high, therefore the RRL is 8 out of 10.	8
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed high, therefore the RRI is 8 out of 10.	8
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 64 out of 100.	64
Mitigation/Notching	**Notch**
Any large-scale project utilizing corn stover will require a large inventory buildup during the harvesting season. Inventory mitigates seasonal supply variation significantly.	50%
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 32 out of 100.	32

1.1.3 Year-to-Year Variation in Biomass Feedstock Availability

Rationale: Biomass can have significant year-to-year supply variations due to variability in yield from biomass harvesting operations, particularly with agricultural biomass.

Risk Information: The Supply Zone has a strong and well-established history of corn production, supported by market conditions that have generally favored continued planting. Even so, annual yield (Figure B-1) and price variability (Figure E-3), particularly when driven by weather, can affect the volume of stover available for energy use. In dry years, cattle producers may also increase their use of stover for bedding and feed, further tightening supply. These pressures are partly offset by the large overall stover resource and the potential to mitigate shortages through storage; consequently, the risk is set to medium.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed high, therefore the RRL is 8 out of 10.	8
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	6
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 48 out of 100.	48
Mitigation/Notching	**Notch**
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 48 out of 100.	48

1.1.4 Historical Biomass Feedstock Price Variations

Rationale: If the historical feedstock price shows volatility, then the risk of future price fluctuation is elevated. If feedstock prices have historically exceeded the price at which the Issuer would have to cease operations or breach a financial covenant (i.e., the "red line" feedstock cost), then mitigation measures should be put in place.

Risk Information: Because a mature commercial market for corn stover has not yet developed in the region, historical price data are limited and largely anecdotal. This makes it difficult to establish a reliable long-term pricing pattern and creates uncertainty around future procurement costs. A new project would therefore need to manage this exposure through strong inventory practices and durable supply relationships with local producers. Given the limited price transparency and potential for variability as the market develops, the risk is assessed as medium.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	6
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	6

Gross Risk Indicator (GRI)	Score
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	36
Mitigation/Notching	**Notch**
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100.	36

1.2 Risk Factor: Harvest and Collection Risk

1.2.1 Biomass Feedstock Production Experience

Rationale: Risk is higher when suppliers have limited experience with planting, growing, harvesting, processing, and/or collecting biomass. Limited experience may be common for stover or other agricultural residue supply chains where farmers or producers may have no previous experience.

Risk Information: Producers in the Supply Zone have long-standing, multi-generational experience growing corn and handling corn stover. Although crop producers may be less experienced in harvesting stover at a commercial scale than cattle producers who already bale for their own use, they are generally familiar with the underlying practices. The principal uncertainty relates to scaling that experience to consistently supply the full rated quantity for a large project in Canton. For that reason, supplier production and harvesting experience is best characterized as a medium risk.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	6
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	6
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	36
Mitigation/Notching	**Notch**
The risk can be mitigated by the project developer who would likely offer lucrative contracts, hire outside custom operators, or provide the baseline equipment infrastructure themselves.	50%
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 18 out of 100.	18

1.2.2 Primary Product and Residue (or Secondary Transformation) Risks

Rationale: If the feedstock is a new/secondary crop or a by-product, suppliers may either lack sufficient experience to mitigate risk or be unable to react to such risk. Secondary crops or by-product producers may be less likely to prioritize production. For new crop types, inexperience in planting, harvest, collection, and yield data may pose higher levels of risk. If the feedstock is a secondary transformation (i.e., wheat straw, corn stover), then production can be subject to variables beyond suppliers' control (e.g., changing demand for primary crop prices).

Risk Information: Corn is a well-established primary crop in the region, and producers are familiar with baling stover. Prior local experience with corn stover projects further reduces uncertainty around the feedstock itself. However, supplying the full rated quantity at commercial scale would still require producers to adapt their current practices, equipment use, and logistics. Because the feedstock is secondary to corn grain production and scaling remains uncertain, this indicator is assigned a medium risk.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	6
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	6

Gross Risk Indicator (GRI)	Score
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	36
Mitigation/Notch	**Notch**
The risk can be mitigated by the project developer who would likely offer lucrative contracts, hire outside custom operators, or provide the baseline equipment infrastructure themselves.	50%
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 18 out of 100.	18

1.2.3 Harvest and Collection Practices and Schedules

Rationale: Differences in harvest timing and practices used can create risk to both the quantity and quality of feedstock. For example, feedstock harvested by different suppliers in different windows can undergo varying levels of exposure to sun, wind, and moisture, leading to variations in delivered feedstock quality. For example, agricultural feedstocks and energy crops have optimal harvesting windows to ensure minimal moisture content. In certain BDO Zones, these harvesting windows may coincide with heightened weather risks, such as frost or rain.

Risk Information: Corn stover harvest is constrained by a narrow collection period, typically about 45 days from mid-September to early November. Wet conditions, early snow, or frozen ground can significantly reduce the effective harvest window, while baling under suboptimal moisture conditions can degrade feedstock quality. Existing projects in the region demonstrate that collection and storage can be managed successfully, but not yet at the scale required for the rated quantity. Given the operational sensitivity of timing, weather, and scale, the risk is considered medium.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed high, therefore the RRL is 8 out of 10.	8
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed high, therefore the RRI is 8 out of 10.	8
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 64 out of 100.	64
Mitigation/Notching	**Notch**
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 64 out of 100.	64

1.2.4 Harvesting and Collection Equipment

Rationale: Different types of harvesting and collection equipment used by suppliers in a BDO Zone can have a significant impact on the quality and availability of feedstock. Using different types and combinations of harvesting, collection, and processing equipment among suppliers can lead to non-homogeneous feedstock. Equipment that is not designed specifically for biomass cultivation, harvesting, and collection can increase feedstock quality risks. Relevant equipment should be specified for the sake of product consistency and risk reduction.

Risk Information: Corn stover removal is already practiced in the Supply Zone, primarily to serve local cattle bedding and feed markets, and producers are familiar with the basic collection, transport, and storage steps. However, the current level of regional baling activity is limited relative to the needs of a large new project, and there remains uncertainty around whether project proponents will implement the most efficient collection and logistics systems. On balance, these factors support a medium risk rating.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed very high, therefore the RRL is 10 out of 10.	10
Raw Risk Impact (RRI)	**Score**

The risk impact is deemed high, therefore the RRI is 8 out of 10.	**8**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 80 out of 100.	**80**
Mitigation/Notching	**Notch**
A corn stover project in Canton SD could progressively build trust by demonstrating collection and transportation equipment and optimal supply chain and storage systems.	**75%**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 20 out of 100.	**20**

1.2.5 Ownership/Control of Land

Rationale: Suppliers that own land or a production facility where feedstock is produced tend to have better control of supply chains and present lower degrees of supply risk.

Risk Information: Agricultural land in the Supply Zone is privately owned, and producers have historically managed both corn production and stover use effectively. This is a typical structure of farmland across North America and any risks related to it are structural risks pertaining to any agricultural residue project. Risk is low.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

1.2.6 Variation in Feedstock Preparation or Densification Methods Among Different Suppliers

Rationale: The shape and density of the unit in which feedstock is supplied can impact feedstock cost and quality. Standard feedstock densification modes for biomass consist of round or square bales, pellets, cubes, chips, or grindings. Bales of different densities can absorb moisture at different rates. In certain cases, round bales have been viewed as problematic due to their uneven moisture content distribution.[36]

Risk Information: The prevailing regional practice is to bale corn stover in large round bales, which is adequate for current small-scale animal-use markets but may not be optimal for a large industrial project. The current regional capacity for required densification equipment is severely mismatched with industrial needs; while many local farmers possess the equipment to produce large round bales for personal livestock use, the specialized equipment required for high-efficiency industrial supply—such as heavy-duty large square balers, windrowers, shredders, and specialized loaders—is notably uncommon across the target area.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed high, therefore the RRL is 8 out of 10.	**8**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed high, therefore the RRI is 8 out of 10.	**8**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 64 out of 100.	**64**

[36] Huhnke, 2018.

Mitigation/Notching	Notch
It is assumed that a new entrant would heavily invest in baling equipment, or engage an investment-grade third-party provider, in which case the risk is notched down significantly.	75%
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	16

1.3 Risk Factor: Existing Users

1.3.1 Existing User Locations

Rationale: Competitors' locations relative to siting locations within a BDO Zone can affect the viability of procuring feedstock and the cost of that feedstock. Accurate and detailed competitor mapping provides an understanding of a competitor's geographical influence on new plants within a BDO Zone, including competitive advantages such as short hauling.

Risk Information: There is currently no major commercial or industrial corn stover user within the Competition Zone. Existing use is limited mainly to small local cattle operations for bedding and feed, with the remainder often left in the field for soil and erosion management. Because no large competitor is positioned to materially constrain access to the resource, this indicator is considered very low risk.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	2
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	2
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	4
Mitigation/Notching	**Notch**
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	4

1.3.2 Existing User Intake Quantities

Rationale: Clear understanding of feedstock consumption by key competitors for each rated feedstock type in the BDO Zone is essential to quantifying competitor risk.

Understanding current consumption and historical trends of feedstock utilization can provide valuable information about feedstock price elasticity during shortages and insight into events that may impact future supply conditions. It can enable more accurate estimates of the sensitivity of feedstock availability to potential future consumption levels or the impact of external events (e.g., weather events, structural economic changes, seasonality, or policy change).

Risk Information: In the absence of large-scale commercial buyers in the immediate supply basin, competitor intake volumes for corn stover are minimal. Current and recent historical demand from other users is therefore too small to materially affect feedstock availability for a new project. This supports a very low risk rating.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	2
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	2
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	4

Mitigation/Notching	Notch
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	4

1.3.3 Existing User Pricing and Price Sensitivity

Rationale: Understanding how much competitors pay (or receive) for different feedstock types is essential in determining the Issuer's competitiveness and accurately assessing the delivered cost range in the BDO Zone rating.

Current and historical prices paid/received by competitors provide insight into their procurement behaviors and exert pressure on suppliers in the BDO Zone, such as the ability/willingness to pay premiums for feedstock during times of feedstock shortage or reduce prices (or cut-off deliveries) during gluts. Competitors that have the ability to offer higher prices for feedstock during feedstock shortages can pose a significant risk to the Issuer.

Knowledge of competitor pricing and price sensitivity is also an essential prerequisite to formulating a feedstock cost curve, which can enable predictions of feedstock redundancy, i.e., how much feedstock could become available at different pricing levels.

Risk Information: There are no large-scale regional competitors for corn stover that could materially influence market pricing or outbid a new project during periods of tight supply. As a result, current competitor behavior is unlikely to exert meaningful pressure on procurement costs. This indicator is therefore assessed as very low risk.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	2
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	2
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	4
Mitigation/Notching	**Notch**
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	4

1.3.4 Impacts of Future Demand on Biomass Feedstock Availability and Price

Rationale: Feedstock utilization in a BDO Zone can change over time. Expansion of feedstock demand by current competitors can put additional pressure on feedstock and lead to higher prices, feedstock disruptions, shortages, supplier breaches, or other types of supply chain disruption.

If current markets for feedstock have been publicly signaling the potential for increased demand for feedstock, high interest in a supply zone can make suppliers overconfident, leading to a supplier-controlled market where short-term contracting becomes the norm and supply chain reliability is compromised for the Issuer. If and when it occurs, increased demand on feedstock may decrease availability and increase cost for new plants within the BDO Zone.

Risk Information: The existing or announced competitors do not affect the supply of the rated quantity. Accordingly, the risk is considered very low.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	2

Raw Risk Impact (RRI)	Score
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	2
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	4
Mitigation/Notching	**Notch**
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	4

1.3.5 Soft Supply Influence of Existing Users

Rationale: In some cases, existing markets for feedstock may be able to exert high degrees of pressure over local suppliers, effectively enabling control of feedstock, especially during times of shortage. This control can derive from qualitative or "soft" factors, such as long previous relationships between local suppliers and existing markets for feedstock.

Risk Information: No evidence was identified that existing users exert meaningful qualitative influence over local suppliers through long-standing relationships or other informal market advantages. Even during temporary shortages, such soft influence is not expected to materially constrain supply to a new entrant. This indicator is therefore assigned a very low risk.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	2
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	2
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	4
Mitigation/Notching	**Notch**
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	4

1.3.6 Temporary Externality-Driven Markets for Biomass Feedstock

Rationale: Alternative, non-traditional, externality-driven competitors for feedstock can drive feedstock demand (and cost) in unusual circumstances. For example, an Issuer using corn stover as a feedstock would not typically compete with the higher-end animal feed market. However, in times of significant hay shortage (e.g., during drought), farmers may use corn stover as hay replacement, driving the price of stover feedstock and decreasing its availability for bio-projects.[37]

Risk Information: Although the current corn stover market is small and localized, drought conditions could temporarily increase demand if cattle producers use stover as a substitute for hay. Such episodes could raise local prices and tighten supply in the short term. However, given the large quantity of stover generated in the Supply Area relative to the current level of animal use, this risk remains low.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	4
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	2

[37] Bergtold, 2018.

Gross Risk Indicator (GRI)	Score
The Gross Risk Indicator (RRL X RRI) is 8 out of 100.	8
Mitigation/Notching	**Notch**
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 8 out of 100.	8

1.3.7 Relative Inventory Capacity of Existing Users

Rationale: The more inventory a competing biomass facility is able to store, the more competitive pressure it can exert on supply. The ability to store large inventories allows competitors to purchase inventory when the prices are low, potentially giving it an economic advantage. Additionally, the ability to store inventory during feedstock supply surpluses can enable competitors to continue to intake feedstock when the Issuer's plant (with lesser inventory capacity) may be forced to put suppliers on quota. Larger inventory capacity on the part of competing markets creates supplier loyalty and can make it more difficult for new projects to secure supply without paying a significant premium.

Risk Information: There is no major commercial corn stover market in the region with substantial stockpiling or inventory capacity. As a result, existing users have limited ability to purchase and hold large volumes in ways that would intensify competition for supply. This indicator is therefore assessed as very low risk.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	2
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	2
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	4
Mitigation/Notching	**Notch**
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	4

1.3.8 Relative Accessibility/Delivery Hours and Wait Times

Rationale: The value attributed by suppliers to local competing markets for biomass is often directly related to the degree of flexibility the market provides in terms of delivery hours and the more efficient discharge can occur.

Risk Information: Accessibility constraints are not expected to pose a material issue, particularly if project proponents assume responsibility for harvesting and transportation to the facility. In that case, delivery flexibility and site access would be less dependent on competing local markets. This supports a very low risk rating.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	2
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	2
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	4
Mitigation/Notching	**Notch**
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	4

1.3.9 Relative Specification Advantages

Rationale: When choosing a market for biomass feedstock, suppliers not only look at price but also at relative quality requirements or specifications. It is important to understand feedstock quality specifications for competing markets within the BDO Zone in order to accurately quantify the risk that competitors can exert on the Issuer's supply chain.

Risk Information: There are no large-scale competing markets in the Supply Zone with established quality specifications for corn stover. A new project would likely require tighter standards for moisture, soil contamination, bale size, and bulk density than are currently common in local animal-use markets. This creates some risk that incoming material may not initially meet industrial quality expectations unless a robust quality-control program is implemented. Assuming such controls are put in place, risk is low.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

1.4 Risk Factor: Transportation

1.4.1 Biomass Feedstock Transportation Costs

Rationale: Transportation can be one of the most significant cost components of biomass supply chains. The average transport cost and percentage of total feedstock cost attributable to transport should be known.

Transport distances of 50-75 miles for biomass feedstocks are typical, but larger distances can be common. Where the average transport distance from suppliers to Issuers is high, the supply chain is subject to greater sensitivities to risks, such as increases in diesel cost, weather impacts, mechanical breakdown, and the demand for scarce feedstock from competitors closer to the source.

Understanding average transport distance can help flag higher-risk BDO Zones where transport distance materially exceeds the average.

Risk Information: Transportation to Canton over drive distances up to 50 miles represents roughly one-quarter of delivered feedstock cost (Table B-4). The supply curve in Figure E-5 indicates that the full rated quantity is available within approximately 40 miles, suggesting that exposure to higher transportation costs can be moderated if most supply is sourced from that core area. Because cost sensitivity exists but appears manageable within the current supply geometry, however, risk is still considered medium.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**36**

Mitigation/Notching	Notch
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100.	36

1.4.2 Ownership/Control of Transportation/Logistics

Rationale: In most cases, suppliers that own or lease transportation equipment necessary to transport biomass from fields are at lower risk than those that do not. However, in some circumstances, reliance on third parties to transport biomass is common practice and does not contribute to risk.

Risk Information: Producers currently rely on a combination of their own equipment, such as pickup trucks and trailers, and regional custom transport services. While this arrangement is workable for current volumes, it does not appear sufficient to move the full rated quantity required by a large project. Until transportation and logistics are organized at a more industrial scale, this indicator is high risk.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed high, therefore the RRL is 8 out of 10.	8
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed high, therefore the RRI is 8 out of 10.	8
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 64 out of 100.	64
Mitigation/Notching	**Notch**
The project entrant will most likely organize the transportation and storage logistics in mutual agreement with producers.	50%
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 32 out of 100.	32

1.4.3 Transportation of Biomass Feedstock Requires Specialized Equipment and Specialized Operator Training

Rationale: Requirements for specialized transport equipment (e.g., walking-floor trailers) can increase supply chain risk. Where there is low availability of required transportation equipment, equipment owners have increased leverage over transportation prices, and supply chain resiliency can be lower.

Risk Information: Corn stover bale transport does not require highly specialized hauling equipment or unusually advanced operator training. Standard flatbed trailers and B-train configurations are commonly used for this purpose. Because the transportation mode is conventional and widely understood, the risk is assessed as very low.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	2
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	2
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	4
Mitigation/Notching	**Notch**
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	4

1.4.4 Delivery Routes Through Local Communities

Rationale: Transportation of biomass can become a nuisance to local communities, especially if a large number of trucks pass through residential and school areas. Local communities often have the power to force regulations regarding truck transport, impeding the ability of BDO Zone suppliers to transport feedstock.

Risk Information: A project using the rated quantity would increase traffic in the area, but most delivery routes are rural and pass through agricultural communities already accustomed to grain and bale hauling. Since the transportation pattern would align with existing regional road use, community-disruption risk appears limited. This indicator is therefore rated very low.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

1.4.5 Transportation Regulations and Local Weight Limits

Rationale: In many BDO Zones, transportation is regulated based on seasonal road conditions. These regulations (e.g., "frost laws") often take the form of weight restrictions or limits on the number of trucks allowed on roads. Such regulations can impede the project's ability to source sufficient feedstock or increase the cost of doing so at certain times of the year.

Risk Information: Iowa, Minnesota, Nebraska, and South Dakota all provide some path for vehicles hauling agricultural goods to exceed ordinary weight limits, but they do so differently. Iowa allows raw agricultural products up to 25% over registered weight, Minnesota uses special ag-product permits that can allow 90,000 to 99,000 pounds depending on axle count and season, Nebraska allows seasonal-harvest permits up to 15% overweight, and South Dakota provides narrower statutory ag tolerances of 5% or 10% in specific situations. Minnesota and South Dakota have the clearest formal seasonal spring load-restriction systems, while Iowa's seasonal limits are more specific to certain farm equipment and Nebraska does not appear to have a comparable statewide spring-thaw restriction in the primary sources reviewed. In all four states, route-specific postings, bridge limits, and permit conditions can still override these general agricultural allowances. Considering these regulations, the risk is deemed low.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

1.4.6 Road Infrastructure

Rationale: Feedstock cost and availability can be a function of road infrastructure, in particular the accessibility the infrastructure provides to feedstock. Issues with road networks will translate directly to risks to feedstock supply.

Risk Information: Iowa, Minnesota, Nebraska, and South Dakota all rely heavily on rural road systems, with much of the mileage owned and maintained by counties or other local agencies rather than the state. Their state highways and Interstates carry most long-distance freight, but agricultural hauls often depend on local roads for first-mile and last-mile access. Those local roads are more likely to have lower pavement strength, posted bridge limits, gravel surfaces, and seasonal weakness during thaw periods. As a result, road condition and local restrictions can be just as important as statewide weight rules for agricultural transport. This reliance on rural roads elevates the risk to low-medium.

Raw Risk Likelihood (RRL) The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**Score** **4**
Raw Risk Impact (RRI) The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**Score** **6**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 24 out of 100.	**Score** **24**
Mitigation/Notching No adjustment.	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 24 out of 100.	**Score** **24**

1.4.7 Transportation Redundancy

Rationale: Transport equipment redundancy is important for dealing with seasonally variable feedstock supplies as well as the risk of equipment breakdowns.

Risk Information: Supplying the rated quantity would require an estimated fleet of approximately 40 trucks and flatbed trailers, assuming a 50-mile average haul distance and four trips per day. Existing transportation services in the region do not appear sufficient to provide this level of redundancy at present. Until greater fleet depth and backup capacity are established, the risk remains high.

Raw Risk Likelihood (RRL) The risk likelihood is deemed high, therefore the RRL is 8 out of 10.	**Score** **8**
Raw Risk Impact (RRI) The risk impact is deemed high, therefore the RRI is 8 out of 10.	**Score** **8**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 64 out of 100.	**Score** **64**
Mitigation/Notching The project entrant will most likely organize the transportation and storage logistics and ensure necessary redundancy.	**Notch** **75%**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**Score** **16**

1.5 Risk Factor: Risks Related to Supply Chain Resiliency

1.5.1 Size, Number, and Location of Suppliers

Rationale: In general, a supply portfolio involving multiple suppliers of various sizes (and from multiple BDO Zones) is important for ensuring steady and uninterrupted feedstock supply with minimal price fluctuations. If a small number of large suppliers provides a high proportion of total feedstock, a disruption or supplier breach will have greater impact

on the supply chain. In such cases the risk of disruption is lower, but the impact of those disruptions is higher. Conversely, many small suppliers are less likely to have the capacity to withstand internal disruptions and thus may be more likely to breach. Here, risk of disruption is higher, but their likely impact is lower. The number of suppliers as well as the ratio of small to large suppliers should be optimized. There is no pre-determined number or optimal ratio of suppliers, although having too many or too few can both pose higher degrees of risk.

Risk Information: The Supply Zone contains a large number of geographically dispersed farms of varying sizes, which is beneficial from a diversification standpoint but creates logistical complexity. Coordinating harvesting, baling, transportation, and storage across thousands of farms during a short post-harvest window will require strong supply-chain management. Given the trade-off between supplier diversity and coordination burden, this indicator is assessed as medium risk.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**36**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100.	**36**

1.5.2 Suppliers Subject to Same External Risk Factors

Rationale: When a single risk event can impact the feedstock production ability of all (or most) suppliers, then feedstock risk is higher and supply chain resiliency is lower. Resilience is maximized when biomass supply chains exhibit diversity in spatial location (i.e., geography), production practices, and other elements of supply chain structures such that the impact of single high-risk events has varying impacts on suppliers.

Risk Information: Farms are broadly distributed across the Supply Zone, with only modest yield differences among counties (Map B-2), which provides some geographic diversity. However, many suppliers remain exposed to the same regional external risks, particularly droughts and derechos. Although redundancy has been incorporated into the supply model, shared exposure to major weather events supports a low-medium risk rating.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 24 out of 100.	**24**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 24 out of 100.	**24**

1.6 Risk Factor: Biomass Feedstock Scale-up

1.6.1 Capacity of Supply Chain Components and Infrastructure to Scale

Rationale: Scale-up risk increases if supply chain components or underlying feedstock infrastructure necessary for these components cannot scale to handle Issuer feedstock requirements and throughput capacity. Capacity to scale should be demonstrated.

Risk Information: Existing round-baling capacity appears sufficient to support part of the required scale-up, but a project of this size would likely need substantial gains in baling density and transportation efficiency. That transition would require investment in high-density square balers and related logistics infrastructure. Producer hesitation to invest in such equipment, especially in the context of labor constraints, increases uncertainty around scalable execution.

Raw Risk Likelihood (RRL) The risk likelihood is deemed very high, therefore the RRL is 10 out of 10.	**Score** **10**
Raw Risk Impact (RRI) The risk impact is deemed high, therefore the RRI is 8 out of 10.	**Score** **8**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 80 out of 100.	**Score** **80**
Mitigation/Notching It is assumed that the new entrant will invest heavily in new equipment, or engage an investment-grade third-party company, in which case this risk will be effectively mitigated.	**Notch** **75%**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 20 out of 100.	**Score** **20**

1.6.2 Availability of Labor for Biomass Feedstock Production

Rationale: Skilled labor shortages can be difficult to remedy in the short term. The availability of suitable labor in an area can impact the ability to procure sufficient feedstock quantities on required schedules. Labor risks are higher where supply chains are not yet active or for Issuers for whom large feedstock requirements or the development of new (or expanded) supply chains demand significant additions to the local labor force.

Risk Information: Harvesting and collecting corn stover adds labor and coordination demands during the busiest period of the agricultural calendar. Third-party baling and hauling services may help relieve pressure, but outreach suggests that farms in the area are already experiencing labor shortages. Because labor availability could limit timely feedstock recovery at scale, this indicator is rated medium-high.

Raw Risk Likelihood (RRL) The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**Score** **6**
Raw Risk Impact (RRI) The risk impact is deemed high, therefore the RRI is 8 out of 10.	**Score** **8**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 48 out of 100.	**Score** **48**
Mitigation/Notching Producers expect that corn stover harvesting and transportation be provided by project proponents, thus reducing the risk of labor shortages.	**Notch** **50%**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 24 out of 100.	**Score** **24**

1.6.3 Low Historical Demand for Biomass Feedstock in the Supply Zone

Rationale: If Issuer BDO Zone does not have a history of developed large-scale feedstock procurement, suppliers may not have sufficient expertise in feedstock production to ensure reliable supply, especially in the early years. Where supply chains are not well-established, risk can be mitigated when new bio-based plants control a higher degree of feedstock processing.

Risk Information: Corn stover removal and use are established practices in the Supply Zone, but they have historically served relatively small local bedding and feed markets rather than large industrial procurement systems. As a result, the region has relevant experience, but not at the scale required for the rated quantity. Until project proponents demonstrate efficient collection, transportation, and storage systems at a commercial scale, the risk remains medium.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed high, therefore the RRL is 8 out of 10.	**8**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed high, therefore the RRI is 8 out of 10.	**8**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 64 out of 100.	**64**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 64 out of 100.	**64**

1.7 Risk Factor: Climate and Natural Risks

1.7.1 Seasonal Weather Impacts on Biomass Feedstock Supply

Rationale: Seasonal weather impacts are defined as those deriving from natural weather variations (e.g., spring thaws, rainy seasons, or dry seasons—as opposed to singular weather events like fires, droughts, or hurricanes). Seasonal weather changes can be a significant risk factor affecting feedstock availability, quality, and price.

Given the significant influence that weather has on multiple aspects of growing, harvesting, and transporting biomass, it is difficult to predict the availability of biomass at a specific location at different points in the future with a high degree of certainty. However, it is still possible, using past data and statistical models, to generate reasonable upper/lower bound estimates of biomass production in any given year in a wider supply zone. Such estimates are essential in assessing feedstock risk and enable accurate assessment of the efficacy of the Issuer's mitigation methods.

Risk Information: Large yield swings observed in recent years indicate that seasonal weather variability, including drought and severe storm activity, can materially affect corn stover supply. Because weather influences both crop production and the timing and quality of harvest operations, this remains a meaningful source of uncertainty. On that basis, this indicator is assessed as medium-high risk.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed high, therefore the RRI is 8 out of 10.	**8**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 48 out of 100.	**48**
Mitigation/Notching	**Notch**
No adjustments.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 48 out of 100.	**48**

1.7.2 Long-Term Weather and Climate Trends

Rationale: In certain BDO Zones, climatic trends and significant potential changes to future weather patterns can create feedstock risk.

Risk Information: The long-term climate trajectory for the region indicates a shift toward warmer, wetter, and more volatile conditions, which introduces significant risks to both the yield and logistical stability of the corn stover supply chain. Climate models project that average annual temperatures in the region will continue to rise through mid-century, leading to an increase in extreme heat days and elevated nighttime temperatures that increase plant respiration rates and shorten the critical grain-filling period, ultimately reducing overall biomass accumulation. Furthermore, long-term trends indicate a heightened probability of extreme precipitation events in the spring, followed by "feast or famine" water conditions and flash droughts during the summer, severely complicating planting schedules and harvest logistics. Although the likelihood of these occurrences is low, the impact to corn production can be high.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed high, therefore the RRI is 8 out of 10.	**8**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 32 out of 100.	**32**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 32 out of 100.	**32**

1.7.3 Forest/Crop Fire

Rationale: Forest/crop fires, especially when occurring on a large scale, destroy feedstock and create shortages. Fire-prone conditions are predicted to increase across North America. This could potentially result in a doubling of the amount of area burned by the end of this century compared with amounts burned in recent decades. Boreal forests, which have been historically greatly influenced by fire, will likely be especially affected by this change.

Other climate change impacts that could add damaged or dead wood to the forest fuel load (e.g., as a result of insect outbreaks, ice storms, or high winds) may increase the risk of fire activity. New research is aimed at refining these climate change estimates of fire activity and investigating adaptation strategies and options to deal with future fire occurrences. There is growing consensus that as wildfire activity increases, fire agency suppression efforts will be increasingly strained. However, analyses of fire history suggest that the effect of climate variability on precipitation regimes is the primary reason for the decreasing fire activity.

Risk Information: Using the latest wildfire acres and dividing by each state's land in farms, the burned share of agricultural land is approximately: Iowa 0.013%, Minnesota 0.059%, Nebraska 0.259%, and South Dakota 0.085%.[38] As a result, the probability that fire would materially disrupt the rated corn stover supply is considered very low.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**

[38] www.iii.org/table-archive/23284

The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching No adjustment.	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**Score** **4**

1.7.4 Risk of Infestation

Rationale: Risk of future infestation, including its estimated consequences on feedstock supply, should be calculated into the overall risk profile. Since insect populations are influenced by environmental conditions, future changes in climate can be expected to significantly alter the outbreak dynamics of certain insect species. In some cases, larger and more frequent insect outbreaks may occur, but in other cases, recurring outbreaks may be disrupted or diminished.

Risk Information: Corn production in the region is not significantly constrained by pest outbreaks, and standard mitigation measures such as insecticide use, crop rotation, and crop insurance are widely established. These practices reduce both the likelihood and severity of feedstock loss from infestation. The risk is therefore assessed as low.

Raw Risk Likelihood (RRL) The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**Score** **4**
Raw Risk Impact (RRI) The risk impact is deemed low, therefore the RRI is 4 out of 10.	**Score** **4**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**Score** **16**
Mitigation/Notching No adjustment.	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**Score** **16**

1.7.5 Risk of Hail

Rationale: Hail is one of the principal destroyers of agricultural crops in North America. There is much uncertainty about the effects of anthropogenic climate change on the frequency and severity of extreme weather events like hailstorms and their subsequent economic losses. Some studies indicate a strong positive relationship between hailstorm activity and hailstorm damage, as predicted by minimum temperatures using simple correlations. This relationship suggests that hailstorm damage may increase in the future if global warming leads to further temperature increases.

Risk Information: Although severe hail events have been reported in the region, hail does not pose a significant or systemic risk to the overall production or collection of corn stover in this specific area. This is primarily because hail events are localized; while a severe storm might batter stalks and destroy the crop canopy within a specific field or narrow storm path, it does not wipe out biomass across a multi-county Supply Zone. Additionally, this risk has been largely accounted for through the large BAM factor (Section B).

Raw Risk Likelihood (RRL) The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**Score** **2**
Raw Risk Impact (RRI) The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**Score** **2**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**Score** **4**
Mitigation/Notching No adjustment.	**Notch** **NN**
Loaded RI Score	**Score**

The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

1.7.6 Risk of Flood

Rationale: Floods can cause catastrophic disruption and delay in feedstock supply. Where there is a high risk of flood and thus a negative impact on feedstock supply, the BDO Zone rating should account for this risk.

Risk Information: No major flood risk was identified across the Supply Zone, although flash flooding can occur during storm events. Such episodes may temporarily disrupt operations, but they are not expected to materially impair overall corn stover supply. This indicator is therefore considered low risk.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

1.7.7 Risk of Drought

Rationale: Droughts can cause significant disruptions to feedstock supplies across entire BDO Zones for extended periods of time, especially in the case of agricultural residues and energy crops.

Risk Information: Yield fluctuations over the past decade suggest that drought remains a meaningful risk factor for corn stover availability. Historical precipitation data (Figure E-11) also indicate a declining trend that could intensify pressure on crop production over time. Because drought can reduce both grain and residue output across broad areas, this indicator is assigned a medium risk.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**36**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100.	**36**

1.7.8 Risk of Hurricanes, Tornadoes, and Strong Winds

Rationale: Hurricanes, tornadoes, and strong winds can destroy timber stands, crops, and feedstock piles. They can also delay agricultural operations. Hurricanes and tornadoes can indirectly cause temporary shortages of available transportation as available trucking moves to handle higher-value disaster-related contracts. For example, Katrina cleanup limited the availability of live-bottom trailers in the North and South East of the US for several months as truckers shifted operations to handle more lucrative government contracts.

Although scientists are uncertain whether climate change will lead to an increase in the number of hurricanes, warmer ocean temperatures and higher sea levels are expected to intensify their impacts. Recent analyses conclude that the strongest hurricanes occurring in some BDO Zones, including the North Atlantic, have increased in intensity over the past two to three decades.

Risk Information: The Supply Zone does experience severe storms. This increased exposure to tornadoes and strong winds can damage crops and disrupt agricultural operations. However, crop destruction due to these events is limited to the path of thunderstorms and tornadoes, and is relatively small compared to the size of the Supply Zone. Furthermore, the risk is partially accounted for by the relatively large BAM factor, discussed in Section B.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

1.7.9 Low Temperatures

Rationale: Low temperatures can cause crop failure, leading to shortages of biomass. Additionally, low temperatures can have adverse impacts on the operations of feedstock processing equipment in Northern BDO Zones.

Risk Information: Cold conditions can further narrow the already limited period available for harvesting, baling, and storing corn stover. Although this risk is generally seasonal rather than constant, lower temperatures can still interfere with timely feedstock recovery and handling. Accordingly, the risk is assessed as low to medium-high.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed high, therefore the RRI is 8 out of 10.	**8**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 48 out of 100.	**48**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 48 out of 100.	**48**

1.8 Risk Factor: Non-Weather Based Externalities

1.8.1 Diesel Price, Oil Price, and Producer Price Index (PPI)

Rationale: CPI and PPI can impact feedstock cost of harvest and collection over time. Sensitivities to worst-case scenarios should be run.

Risk Information: Diesel price volatility (Figure E-7) has materially affected transportation costs in recent years, with substantial increases observed since the pandemic period and additional upward pressure associated with geopolitical events. Broader inflationary movements, reflected in CPI and PPI trends (Figures E-8 and E-9), also affect harvest, collection, transportation, and other supply-chain costs. Because these external cost drivers can raise delivered biomass prices for a new project, the indicator is assessed as medium risk.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	6
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	6
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	36
Mitigation/Notching	**Notch**
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100.	36

1.8.2 Currency Risk

Rationale: Where feedstock is purchased in a currency different than that which a new bio-based plant will locate in a BDO Zone, currency exchange rates and volatility can constitute risk exposure. BDO Zones that cross the US-Canada border, for example, which intake feedstock from both countries, are exposed to such currency risk.

Risk Information: Currency risk is not relevant to this BDO Zone because feedstock procurement and project operations are expected to occur entirely within the domestic U.S. market.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed not relevant, therefore the RRL is not rated (NR).	NR
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed not relevant, therefore the RRI is not rated (NR).	NR
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is not rated (NR).	NR
Mitigation/Notching	**Notch**
Not rated.	NR
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is not rated (NR).	NR

1.8.3 Border Risk

Rationale: Where feedstock is transported cross-border to another country, risk exposure to border closures and crossing delays becomes present. The availability of trucks willing to do cross-border runs is limited, which can decrease supply chain flexibility and resilience. Plants near the US-Canada border, which intake feedstock from both countries, are exposed to these risks.

Risk Information: Border risk is not relevant because the rated feedstock supply does not depend on cross-border transportation.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed not relevant, therefore the RRL is not rated (NR).	NR
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed not relevant, therefore the RRI is not rated (NR).	NR
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is not rated (NR).	NR
Mitigation/Notching	**Notch**
Not rated.	NR
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is not rated (NR).	NR

1.9 Risk Factor: Political and Social

1.9.1 Government Subsidies for Biomass Feedstock Production or Utilization

Rationale: Feedstock that is directly subsidized through government programs can pose greater long-term risk than feedstock that is not. Subsidies may be subject to amendment or repeal, sometimes with minimal notice.

NOTE: This risk indicator refers to direct feedstock subsidies only; it does not apply to government subsidies that pertain indirectly to the Issuer's operations, such as Loan Guarantees, or to the markets for products produced by the Issuer.

Risk Information: None of the four states appears to offer a current direct per-ton subsidy to farmers specifically for harvesting corn stover, although several support facilities that use biomass or cellulosic feedstocks. Minnesota offers the strongest direct incentives for cellulosic biofuels and renewable chemicals, while Iowa, Nebraska, and South Dakota rely more on broader biomass-related programs, with Nebraska's renewable-chemical program currently paused for new applications from 2026 to 2029. Because corn stover collection itself is not dependent on direct producer subsidies, this indicator is considered very low risk.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

1.9.2 Local, Provincial, and National Laws, Regulations, and Permitting Pertaining to Biomass Feedstock

Rationale: Feedstock whose production is directly dependent on local, provincial, or national laws or government regulations can pose greater long-term risk than feedstock which is not, since laws and regulations may be subject to amendment or repeal.

If biomass utilization requires specific permits (e.g., percentage removal of corn stover, air emission, storage permits, rights-of-way, overweight permits for trucks, cross-border permitting for shipment of biomass, chain of custody, or certification of sustainability), the likelihood of obtaining such permits and/or complying with permitting requirements should be examined.

Risk Information: Iowa, Minnesota, Nebraska, and South Dakota generally do not require a specific local or state permit to remove corn stover from fields. The more relevant constraints are indirect, particularly federal USDA conservation-compliance requirements related to erosion control and residue management, along with any contractual or program-specific conditions. Minnesota introduces some additional sourcing requirements under its biomass incentive program, including soil-health and monitoring standards for harvested stover. Nonetheless, all these factors have been accounted for in this assessment and the rated quantities discussed here are not subjected to this risk.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**

The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching No adjustment.	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**Score** **4**

1.9.3 Backlash Against Biomass Feedstock Development, Procurement, or Usage in the BDO Zone

Rationale: Public backlash against biomass development in the Issuer BDO Zone can directly impact the Issuer's ability to procure, transport, trans-load, store, or utilize feedstock by affecting local policies, regulations, and the Issuer's ability to obtain necessary permitting.

Risk Information: No material backlash against the use of corn stover was identified in the region. As a result, this indicator is assigned a very low risk rating.

Raw Risk Likelihood (RRL) The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**Score** **2**
Raw Risk Impact (RRI) The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**Score** **2**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**Score** **4**
Mitigation/Notching No adjustment.	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**Score** **4**

1.9.4 Consent of, and Cooperation with, Indigenous Communities

Rationale: Where new project development on or near Indigenous land, or where near Indigenous communities exert influence over feedstock producing areas, consent of, and cooperation with, Indigenous communities decrease Issuer risk.

Risk Information: Not relevant.

Raw Risk Likelihood (RRL) The risk likelihood is deemed not relevant, therefore the RRL is not rated (NR).	**Score** **NR**
Raw Risk Impact (RRI) The risk impact is deemed not relevant, therefore the RRI is not rated (NR).	**Score** **NR**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is not rated (NR).	**Score** **NR**
Mitigation/Notching Not rated.	**Notch** **NR**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is not rated (NR).	**Score** **NR**

1.9.5 Food Security Concerns

Rationale: Despite the fact that any significant correlation between food prices and biofuel production is unclear, claims that biofuel production has driven up food prices, taken food from communities or had a negative impact on land use can fuel public backlash. For example, the removal of biomass may raise public concerns relating to food security if Issuer feedstock requires the use of land that would otherwise be used for growing food.

Risk Information: Corn stover is a by-product of corn production and does not compete with food. No land change/substitutions with non-food crops will occur if a corn stover project was implemented in the region. Risk is deemed very low.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

1.10 Risk Factor: Sustainability and Environmental Concern

1.10.1 Biomass Feedstock Sustainability

Rationale: Public concerns about the sustainability of feedstock production can jeopardize biomass feedstock operations. Sustainability certification schemes should be utilized where applicable to ensure that feedstock comes from sustainable sources.
Risk Information: Sustainable corn stover harvesting in the Supply Zone depends on adherence to established conservation practices and regulatory requirements intended to protect long-term soil productivity and habitat quality. In particular, conservation compliance standards and farm-specific management practices help limit the over-removal of residue on highly erodible land. In this region, sustainable procurement is generally supported by limiting removal rates, maintaining conservation tillage or reduced-tillage systems, using cover crops where appropriate, and replacing nutrients removed with the stover. Because the rated quantity already assumes 60% retention of corn stover, the sustainability risk is considered very low.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

1.10.2 Risk to Soil Quality

Rationale: Soil sustainability can be defined as the management of soil in a way that does not exert any negative or irreparable effects either on the soil itself or any other systems. There is a diversity of approaches to soil sustainability in jurisdictional guidelines for biomass harvesting and production. For different feedstock types, there are also different thresholds at which feedstock removal causes significant negative consequences on the soil.

Poor soil quality that negatively impacts the long-term sustainability of the feedstock can entail long-term feedstock risk. Sub-optimal soil management can leave exposed soil post residue-harvest, which can lead to soil wash-off and soil

carbon loss from precipitation and wind. Over-harvesting of biomass also depletes the carbon stock in the soil and creates a negative feedback loop that can degrade the soil and its nutrients.

Risk Information: Appropriate corn stover removal can be compatible with continued agricultural productivity and, in some cases, may provide agronomic benefits by improving spring soil warming, reducing tillage needs, and lowering fuel use. However, excessive residue removal can degrade soil quality by reducing organic matter, increasing erosion risk, and depleting nutrients over time. In this case, the assumed 40% sustainable removal factor materially reduces that exposure, provided producers and project developers implement field-specific removal practices that reflect local soil conditions and nutrient balances. On that basis, the risk to soil quality is considered low-to-medium.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 24 out of 100.	**24**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 24 out of 100.	**24**

1.10.3 Risk to Surface and Groundwater

Rationale: Excessive nutrient runoff from biomass feedstock production can accumulate in surface waters and result in algal blooms and hypoxia, which can lead to habitat loss for aquatic species higher up the food chain and alter aquatic ecosystem food webs. Damage to aquatic ecosystems can cause social and regulatory backlash. Water intake issues can also increase risk.

Risk Information: Corn stover removal can increase nutrient-related water-quality risk if too much residue is taken from the field, since reduced soil cover may increase runoff, erosion, and sediment-bound nutrient transport to nearby water bodies. Groundwater impacts are more site-dependent but can be more pronounced on tile-drained, irrigated, sandy, sloping, or highly erodible fields. The degree of risk is driven largely by residue removal rates, field characteristics, weather intensity, and the use of conservation measures such as cover crops and nutrient management. Overall, this indicator is best characterized as moderate, with the potential to rise on more vulnerable fields.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**36**
Mitigation/Notching	**Notch**
This risk is well mitigated by the rated quantity which assumes only 40% removal of corn stover generated in the Supply Zone and also a BAM factor of 4. Overall, the rated quantity represents only 8% of the total corn stover generated in the Supply Zone.	**50%**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 18 out of 100.	**18**

1.10.4 Water Use

Rationale: Biomass feedstock operations can have significant impacts on the hydrological flux (infiltration, groundwater recharge, interception, and transpiration) of ecosystems. This can lead to water shortages, lower yields, and backlash from regulatory bodies if management plans are not properly instituted.

Risk Information: Water-use risk is not considered relevant for corn stover production in this Supply Zone, because corn stover is a residue from existing grain production rather than a dedicated biomass crop requiring additional water demand attributable to the feedstock supply chain. As a result, this indicator remains not rated.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed not relevant, therefore the RRL is not rated (NR).	**NR**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed not relevant, therefore the RRI is not rated (NR).	**NR**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is not rated (NR).	**NR**
Mitigation/Notching	**Notch**
Not rated.	**NR**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is not rated (NR).	**NR**

1.10.5 Pesticide Risk to Human and Ecosystem Health

Rationale: Application of pesticides (i.e., herbicides, fungicides, and insecticides) on agricultural landscapes can result in adverse health effects for humans and ecosystems. If pesticide application is required in feedstock production, the impact must be considered in the BDO Zone rating.

Risk Information: Because corn stover is a by-product of grain production, its collection does not in itself introduce meaningful additional pesticide-related risks beyond those already associated with conventional corn cultivation. When removal is conducted under sustainable residue-management practices, incremental risk to human health and ecosystems is therefore very low.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

1.10.6 Risk to Wildlife and Landscape

Rationale: Biomass production and supply chain operations with negative impacts on wildlife and landscape are at a greater long-term risk of encountering project setbacks and disruptions.

Risk Information: The harvesting of corn stover poses minimal risk to local wildlife and landscape aesthetics because operations are strictly confined to existing, heavily cultivated agricultural fields rather than undisturbed natural habitats.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**

The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**Score** **4**
Mitigation/Notching No adjustment.	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**Score** **4**

CATEGORY 2.0: INFRASTRUCTURE RISKS

2.1 Risk Factor: Physical Infrastructure

2.1.1 Land Parcel/Industrial District

Risk Information: The Canton Industrial Park is a city-owned, shovel-ready industrial park located in Canton, Lincoln County, South Dakota. Up to 20 acres of serviced lots are currently available for development, with pricing of $2.95 per square foot, with the exception of a 4.6-acre lot available at $2.35 per square foot. The City of Canton, working with ISG Engineering and the Canton Economic Development Corporation, has proactive plans to option adjacent agricultural land that would add approximately 200 to 400 additional acres to the industrial park footprint, providing substantial long-term expansion capacity. The combination of shovel-ready lots, city ownership, planned 200–400 acre expansion, and location within the Sioux Falls MSA makes this a strong development site. The risk is assessed as very low.

Raw Risk Likelihood (RRL) The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**Score** **2**
Raw Risk Impact (RRI) The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**Score** **2**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**Score** **4**
Mitigation/Notching No adjustment.	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**Score** **4**

2.1.2 Ownership of Land

Risk Information: The Canton Industrial Park is owned by the Canton Economic Development Corporation, which operates as an extension of the City of Canton. Lots are available for sale at $2.95 per square foot. Public/quasi-public municipal ownership eliminates private-seller negotiation risk and demonstrates institutional commitment to industrial development. The city's proactive investment in infrastructure and active optioning of adjacent land for expansion further underscores the strength of the ownership structure. The risk is assessed as very low.

Raw Risk Likelihood (RRL) The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**Score** **2**
Raw Risk Impact (RRI) The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**Score** **2**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**Score** **4**
Mitigation/Notching No adjustment.	**Notch** **NN**
Loaded RI Score	**Score**

The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

2.1.3 Permitting Description

Risk Information: The Canton Industrial Park lots are currently shovel-ready. New tenants would still need to go through the City of Canton's permitting process, which includes site plan review and building review. Depending on the specific industry, some additional state-level permits may be required. The combination of shovel-ready lots, a straightforward municipal permitting process, and South Dakota's pro-business climate positions permitting as a very low risk factor.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

2.1.4 Environmental Issues

Risk Information: ISG Engineering indicated that environmental assessments have been conducted on the Canton Industrial Park site, however the date of the assessment is unknown. The shovel-ready designation implies that key environmental and site-readiness requirements have been met. The risk is assessed as low due to the shovel-ready designation.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

2.2 Risk Factor: Utilities

2.2.1 Natural Gas Availability

Risk Information: Natural gas service at the Canton Industrial Park is provided by MidAmerican Energy. Gas lines are available at the site, though specific line size, pressure, and available capacity details are unknown. MidAmerican Energy is a major Berkshire Hathaway subsidiary and one of the largest utility providers in the upper Midwest, ensuring reliable gas supply and corporate-grade service. The risk is assessed as low as natural gas is available but line size is unknown.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**

The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

2.2.2 Electric Availability

Risk Information: Electric service at the Canton Industrial Park is provided by Xcel Energy and Southeastern Electric Cooperative. There is 3-phase power in the area and a substation 1 mile south with distribution lines splitting the industrial park along West Industrial Road. The risk is assessed as low.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

2.2.3 Water Availability

Risk Information: Water service is provided by the City of Canton. The city operates four active wells and maintains a supplemental connection to South Lincoln Rural Water (SLRW). The wells can handle the average daily demand of approximately 350,000 gallons per day (GPD), with SLRW supplementing during peak demand or providing additional capacity for future growth. The City is currently working to achieve a water capacity target of 1.2 million GPD (MGD), which would represent a significant expansion well beyond current demand levels and position Canton to serve multiple large-scale industrial tenants. The risk is assessed as low — current supply is adequate for moderate industrial demand, with meaningful capacity expansion underway.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

2.2.4 Drainage, Stormwater Management, and Sewage

Risk Information: Wastewater service is provided by the City of Canton. The current wastewater treatment plant is designed to accommodate an average flow of approximately 0.4 MGD. The City of Canton is actively planning for a regionalized wastewater system with a goal of expanding wastewater and water capacity to 1.2 MGD. This expansion is currently in the study phase. For water-intensive biofuel operations, the current ~100,000 GPD excess capacity is

limited, making the planned expansion essential for large-scale industrial tenants. The risk is assessed as medium — current excess capacity is modest, but the active planning for 1.2 MGD regionalized expansion substantially mitigates the near-term constraint.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**36**
Mitigation/Notching	**Notch**
Risk is mitigated by the planned expansion to 1.2 MGD.	**25%**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 27 out of 100.	**27**

2.2.5 Waste Disposal

Risk Information: Solid waste disposal for the Canton area is served by the Sioux Falls Regional Landfill, located in the Sioux Falls metropolitan area. The Sioux Falls Regional Landfill is a large, well-managed metropolitan facility with significant remaining capacity, and tipping fees below the national average. Additionally, the site is serviced by A-OK Sanitary and Novak Sanitary Service. The proximity of a major metropolitan landfill ensures reliable, competitively priced waste disposal. The risk is assessed as very low.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

2.2.6 Information and Communication Technology (ICT) Services

Risk Information: Telecommunications at the Canton Industrial Park are provided by SDN Communications and CenturyLink (now Lumen Technologies). Fiber optic internet service is available at the site. SDN Communications is South Dakota's premier fiber network provider, offering enterprise-grade connectivity throughout the state. The dual-carrier fiber availability provides redundancy and ensures high-speed, reliable connectivity for industrial process control, enterprise systems, and business operations. The risk is assessed as very low.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	**2**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	**2**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	**4**
Mitigation/Notching	**Notch**
No adjustment.	**NN**

Loaded RI Score	Score
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	4

2.3 Risk Factor: Transportation/Logistics

2.3.1 Road/Highway Access

Risk Information: The Canton Industrial Park has strong road and highway access. The site is located directly on SD Highway 18, which the South Dakota Department of Transportation (SDDOT) has recently widened to four lanes from the Canton city limits all the way to Interstate 29, significantly increasing traffic and freight capacity on this corridor. SD Highway 11 runs north and is adjacent to the industrial park, providing an additional north-south connection toward the Sioux Falls metro. I-29, one of the major north-south interstate corridors in the upper Midwest, is readily accessible via the newly four-laned Highway 18. The combination of the recently completed four-lane upgrade, direct Highway 18 and Highway 11 access, and close proximity to I-29 positions road access as a very low risk factor.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	2
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	2
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	4
Mitigation/Notching	**Notch**
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	4

2.3.2 Rail Access

Risk Information: BNSF Railway operates a mainline that intersects directly through the Canton Industrial Park. However, there is no active rail spur currently serving specific lots within the park. The switch location is 30 miles away in Sioux Falls, SD. The BNSF mainline passing directly through the park makes spur construction substantially easier and less costly than extending service from a remote rail corridor. For biofuel operations requiring bulk feedstock movement, the existing BNSF through-track with spur potential is a strong foundation. The risk is assessed as medium — rail is immediately adjacent through the park but requires spur investment to become operationally useful.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	6
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	6
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	36
Mitigation/Notching	**Notch**
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100.	36

2.3.3 Airport Access

Risk Information: Canton Municipal Airport provides immediate general aviation access for the Canton area. The nearest airports for public use are the Canton Municipal Airport (2.5 miles away) and the Marv Skie Airport (22 miles away). The nearest commercial airport is Sioux Falls Regional Airport (Joe Foss Field, FSD), located approximately 25

miles north in the Sioux Falls metro. FSD is a mid-size commercial airport served by multiple carriers with direct service to major hubs including Minneapolis, Denver, Dallas, and Chicago. The 25-mile proximity to Sioux Falls Regional Airport represents strong commercial airport access; therefore, the risk is assessed as very low.
Raw Risk Likelihood (RRL) — **Score**
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10. — **2**
Raw Risk Impact (RRI) — **Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10. — **2**
Gross Risk Indicator (GRI) — **Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100. — **4**
Mitigation/Notching — **Notch**
No adjustment. — **NN**
Loaded RI Score — **Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100. — **4**

2.3.4 Water Freight Access

Risk Information: There is no navigable waterway or port access in the Canton / Lincoln County area. The nearest significant inland port is the Port of Sioux City, Iowa on the Missouri River, approximately 90 miles northwest, resulting in medium risk.
Raw Risk Likelihood (RRL) — **Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10. — **6**
Raw Risk Impact (RRI) — **Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10. — **6**
Gross Risk Indicator (GRI) — **Score**
The Gross Risk Indicator (RRL X RRI) is 36 out of 100. — **36**
Mitigation/Notching — **Notch**
No adjustment. — **NN**
Loaded RI Score — **Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100. — **36**

2.4 Risk Factor: Social Infrastructure

2.4.1 Healthcare (Local)

Risk Information: Canton is served by local clinics, and the Sioux Falls metropolitan area provides comprehensive tertiary and specialty healthcare through Avera Health and Sanford Health — two of the largest integrated health systems in the northern Great Plains. The Avera McKennan Hospital & University Health Center is located approximately 22 miles from the site, offering comprehensive inpatient and outpatient health care, specialty services, and emergency departments. Sanford USD Medical Center is a Level II Trauma Center (approximately 45 miles from the site), and both systems operate extensive specialty clinics, cancer centers, and research programs. The proximity to two major competing health systems in Sioux Falls is one of the strongest healthcare profiles in the BDO Zone portfolio. The risk is assessed as low.
Raw Risk Likelihood (RRL) — **Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10. — **4**
Raw Risk Impact (RRI) — **Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10. — **4**
Gross Risk Indicator (GRI) — **Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100. — **16**

Mitigation/Notching	Notch
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	16

2.4.2 Education (Schools)

Risk Information: Canton has its own K-12 school system, including Canton High School and Canton Middle School, which serve the local community. Additionally, the Harrisburg High School is located 12 miles from the site. For post-secondary education, the site benefits from proximity to the Sioux Falls metro, which offers the University of Sioux Falls, California Intercontinental University, Augustana University, Southeast Technical College (a major vocational/technical institution), and the University of South Dakota's satellite programs. Southeast Technical College is particularly relevant for industrial workforce needs, offering programs in welding, HVAC, machining, electrical technology, and process operations. The risk is assessed as very low given the Sioux Falls metro education ecosystem.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed very low, therefore the RRL is 2 out of 10.	2
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed very low, therefore the RRI is 2 out of 10.	2
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 4 out of 100.	4
Mitigation/Notching	**Notch**
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	4

2.4.3 Local Transportation

Risk Information: Personal vehicle travel is the predominant mode of transportation in Lincoln County and the Canton area. There is no public transportation service in Canton. Lincoln County's position within the Sioux Falls MSA means commute distances to the Canton Industrial Park are short for workers living in Canton itself and moderate for those commuting from the broader metro (approximately 20-30 minutes). The recently completed four-lane Highway 18 upgrade further reduces commute friction from I-29 and adjacent communities.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	6
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	4
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 24 out of 100.	24
Mitigation/Notching	**Notch**
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 24 out of 100.	24

2.4.4 Public Safety (Local)

Risk Information: Public safety in Canton is provided by the Canton Police Department, which employs seven full-time staff, and the Canton Fire Department. The Lincoln County Sheriff's Office and South Dakota Highway Patrol provide additional law enforcement coverage. Canton's dedicated municipal police and fire departments, supplemented by

county and state resources, provide adequate emergency response coverage. The industrial park's location within city limits ensures municipal response. Lincoln County ranks in the 77th percentile for safety (meaning it is safer than 77% of counties in the US) with a crime rate of 21.97 per 1,000 residents, resulting in a low risk score.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

2.4.5 Housing/Cost of Living

Risk Information: The BDO Zone consists of seven counties in South Dakota, Iowa, and Minnesota; however, most of the population within the BDO Zone resides in Minnehaha County, SD (68%) and Lincoln County, SD (26%). Minnehaha County's cost of living score is approximately 9.3% lower than the US average, and 1.6% higher than the state average. Lincoln County's cost of living score is approximately 4.4% lower than the US average, and 7.1% higher than the state average. In Minnehaha County, the median home sales price is $266,600 resulting in an affordability ratio of 3.4. The homeowner vacancy rate is 0.6 and the rental vacancy rate is 6.7.[39] In Lincoln County, the median home sales price is $323,500 resulting in an affordability ratio of 3.3. The homeowner vacancy rate is 0.3 and the rental vacancy rate is 3.7. While this indicates a low availability of housing in the area, the Liberty Addition project in Canton, SD broke ground in 2024 which will result in a new 64-acre housing subdivision. The low cost of living, rental vacancy, and new housing project results in a low risk score.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

2.5 Risk Factor: Labor

2.5.1 Workforce

Risk Information: In 2025, the BDO Zone had an estimated population of 276,800 people, with an average unemployment rate of 1.78% in September 2025 (based on Lincoln and Minnehaha Counties) compared to the national average of 4.2%. This indicates a tight labor market. However, both counties have high growth rates, indicating a strong population growth trajectory. The median age is 36 years, notably younger than the national average. Educational attainment is strong: in Lincoln County, 96% of residents aged 25 and older have a high school degree or higher, and

[39] Based on 2023 Census data.

43% have a bachelor's degree or higher, and in Minnehaha 93% of residents aged 25 and older have a high school degree or higher, and 35% have a bachelor's degree or higher. The site's position within the Sioux Falls metro provides access to a deep and diverse labor pool that far exceeds what the county population alone would suggest. Southeast Technical College, the University of Sioux Falls, and Augustana University provide a continuous pipeline of skilled workers. The risk is assessed as medium-low given the metro labor market access and population growth trajectory.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 24 out of 100.	**24**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 24 out of 100.	**24**

2.5.2 Labor Costs

Risk Information: South Dakota's effective minimum wage is $11.85/hour as of 2026. Lincoln County's average weekly wage for Q3 2025 was $1,271 and Minnehaha County was $1,264 which are among the highest in the state, and close to the national average of $1,459. In 2024, the median income in Lincoln County was $99,166 and in Minnehaha County it was $76,880. These are both higher than the state median of $75,081, but Minnehaha County is lower than the national median of $80,734. This results in a medium to low risk score.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 24 out of 100.	**24**
Mitigation/Notching	**Notch**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 24 out of 100.	**24**

SECTION E: TABLES AND FIGURES

Figure E-1. Historical number of farms by size category (2002-22)[40]

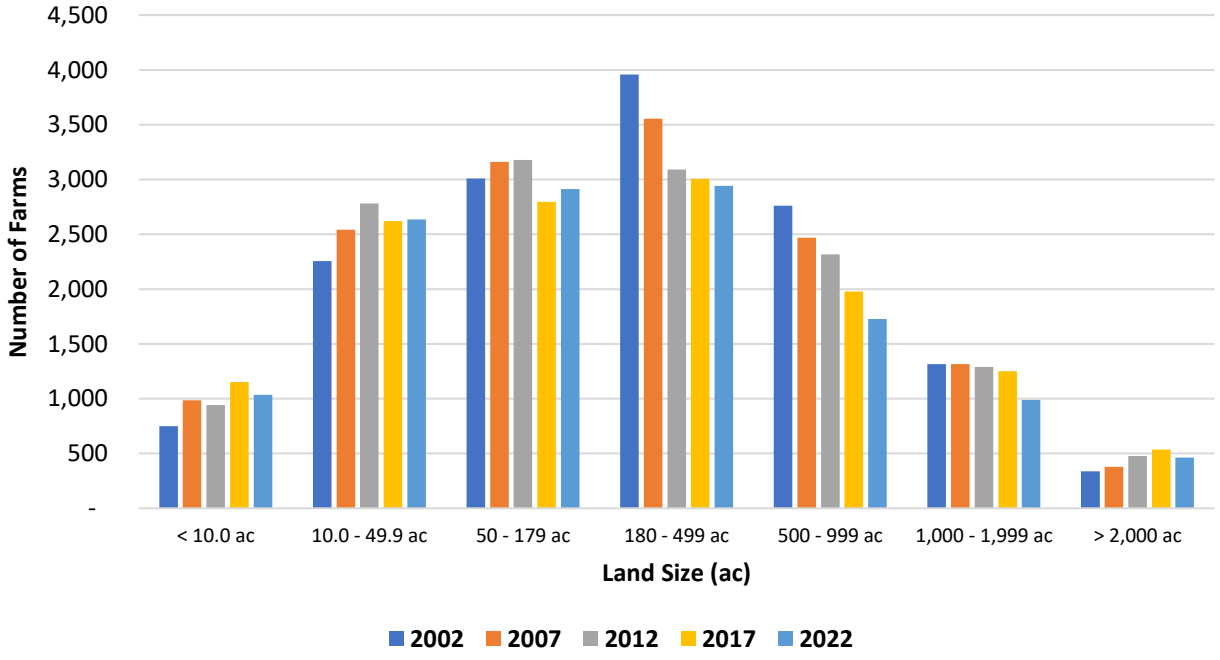
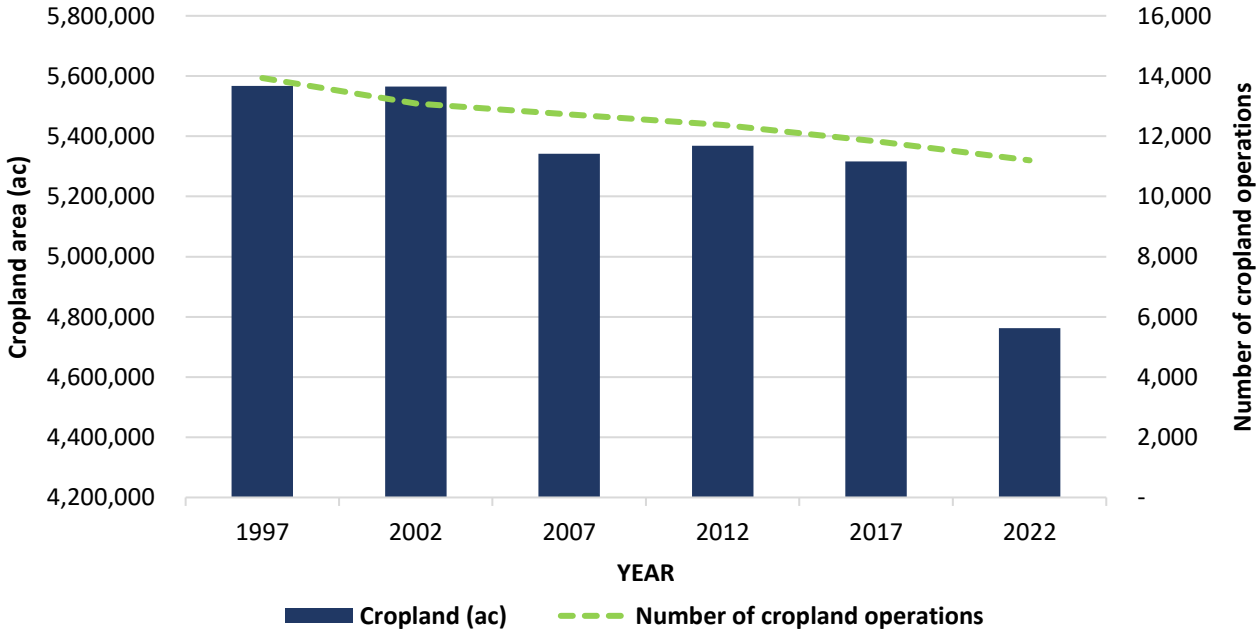


Figure E-2. Historical cropland (ac) and number of cropland operations (1997-2022)[41]



[40] quickstats.nass.usda.gov
[41] Ibid.

Figure E-3. Historical Average Annual Hay Prices ($/bdt, excl. alfalfa, 2016-2025)

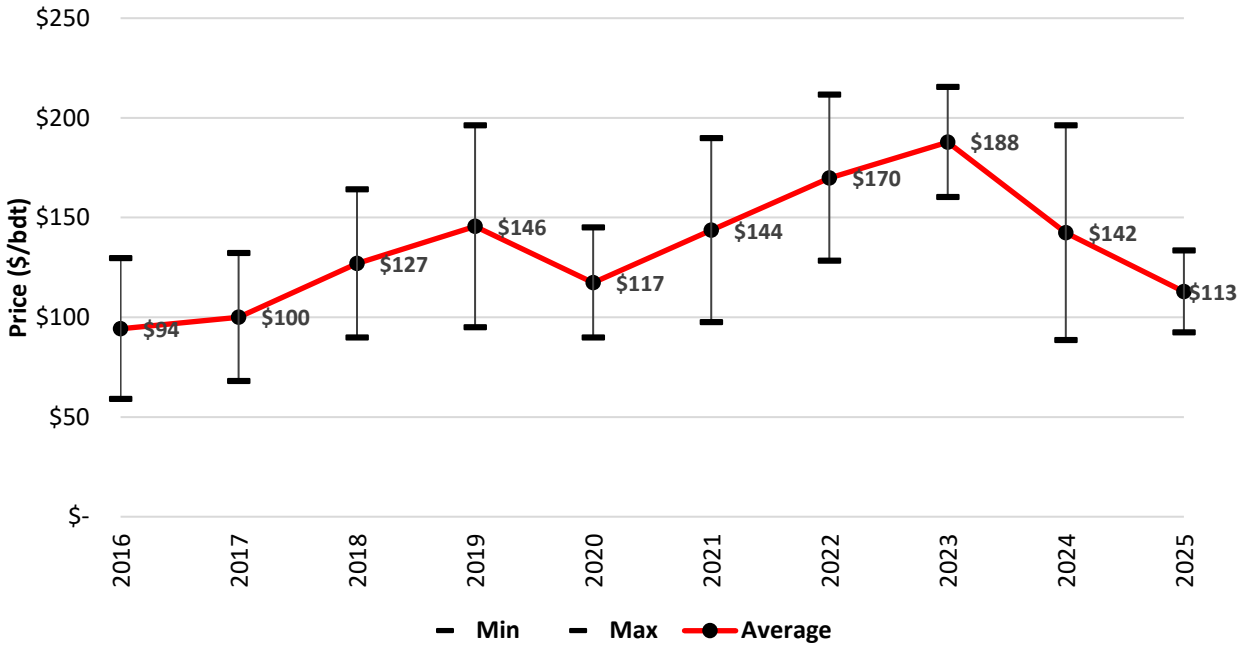


Figure E-4. Historical Average Annual Hay Prices ($/bale, excl. alfalfa, 2016-2025)

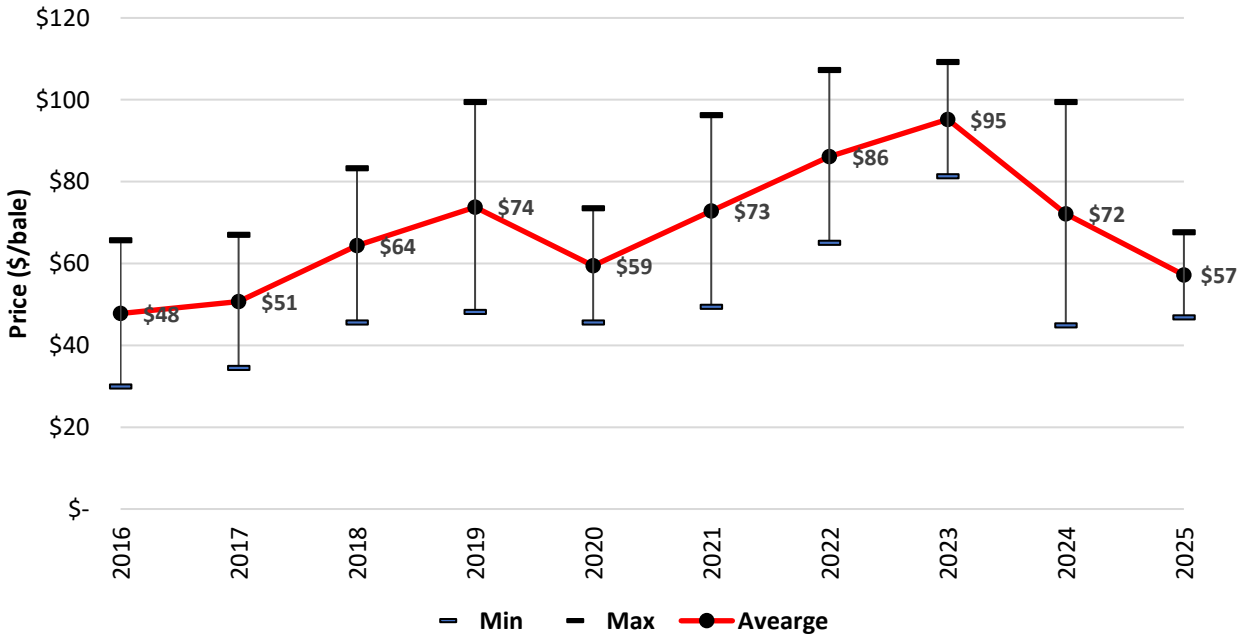


Figure E-5. Supply/Marginal Cost Curve and Rated Quantity of Corn Stover Generated in the Supply Zone

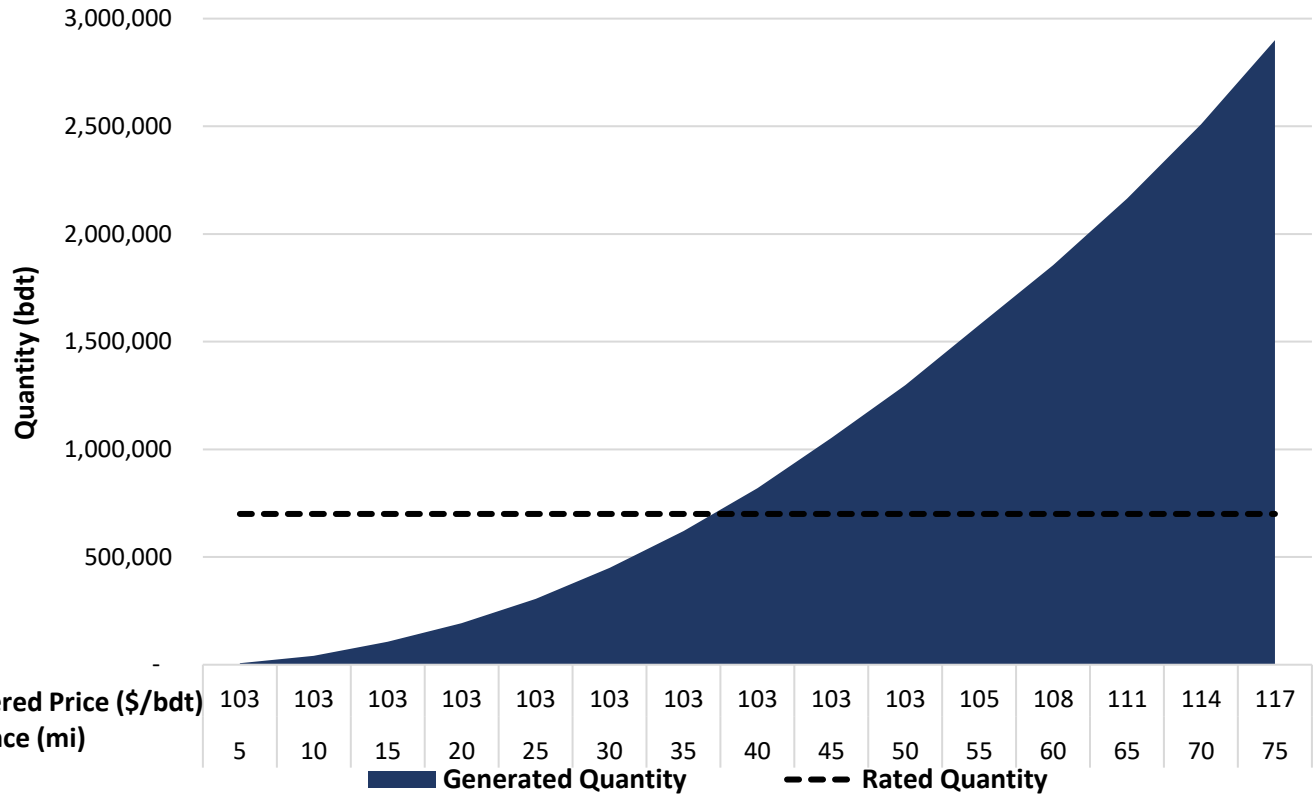


Figure E-6. Historical Average Annual Corn Grain Prices in Iowa, Minnesota, Nebraska, and South Dakota (2016-2025)

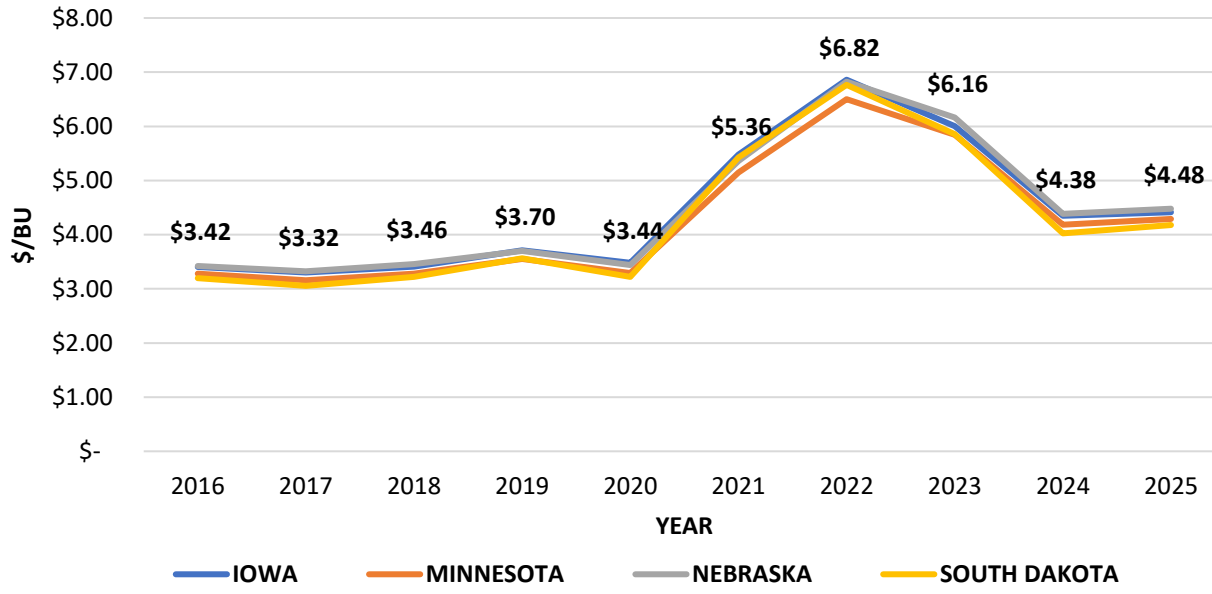


Figure E-7. Historical Average Monthly Diesel Prices (US Midwest, 2017-2026)[42]

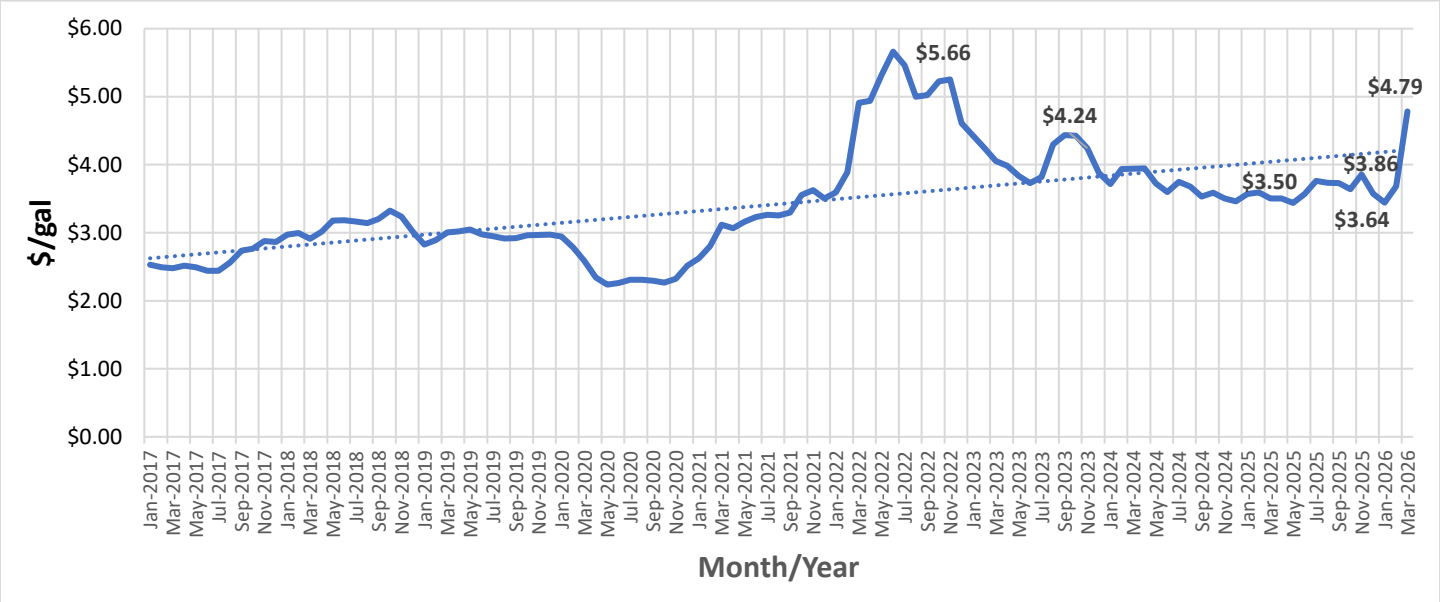
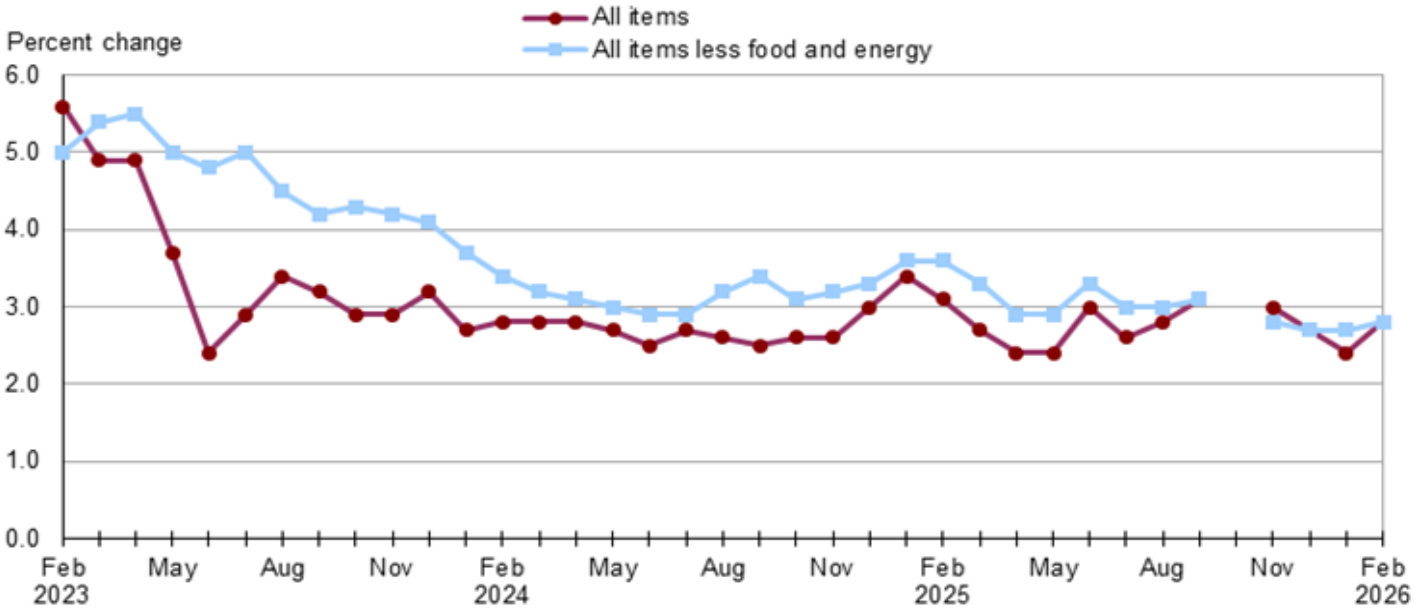


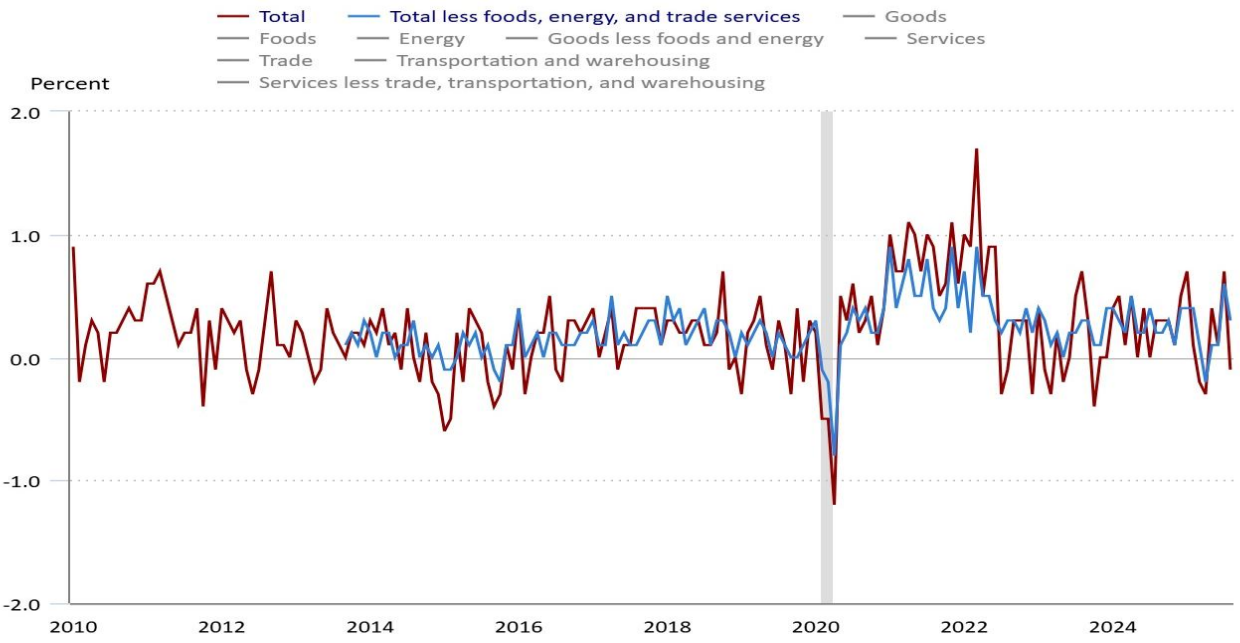
Figure E-8. Consumer Price Index - US Midwest Region (2023-25)[43]



Note: The October 2025 data values are not available due to the 2025 lapse in appropriations.
Source: U.S. Bureau of Labor Statistics.

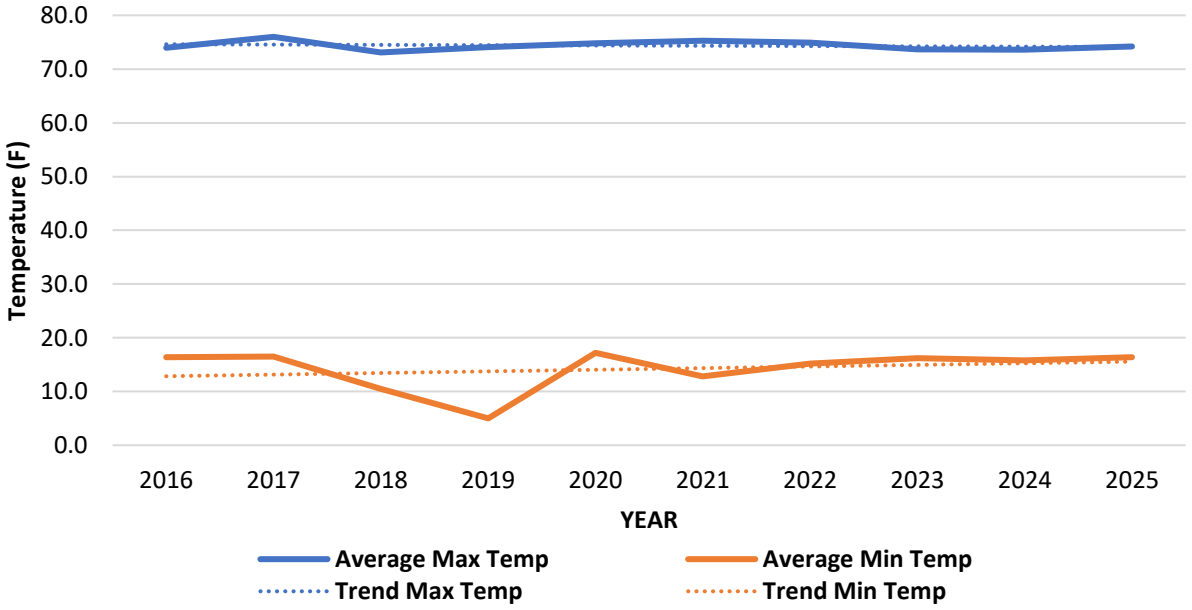
[42] www.eia.gov/dnav/pet/pet_pri_gnd_dcus_r20_m.htm
[43] www.bls.gov/regions/mountain-plains/news-release/consumerpriceindex_midwest.htm

Figure E-9. Producer Price Index - US Midwest Region (2010-2025)[44]



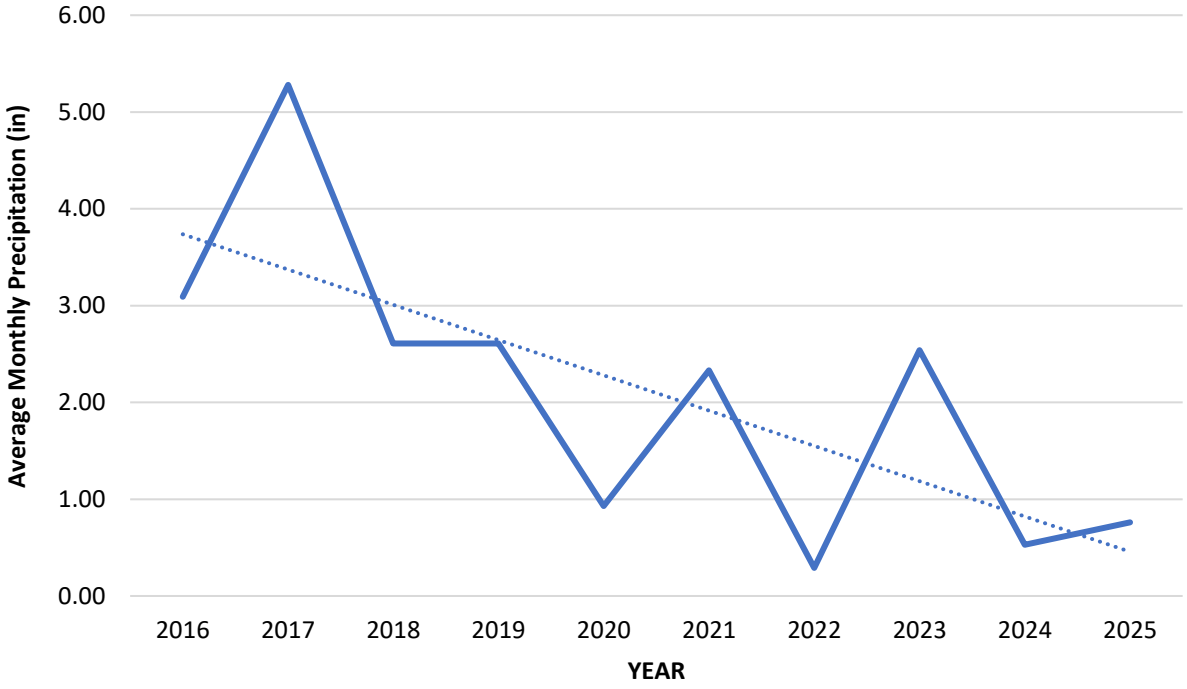
Source: U.S. Bureau of Labor Statistics.

Figure E-10. Historical Average Monthly Maximum and Minimum Temperatures (Sioux Fall SD)[45]



[44] www.bls.gov/charts/producer-price-index/final-demand-1-month-percent-change.htm#
[45] www.weather.gov/wrh/climate?wfo=fsd

Figure E-11. Average Monthly Precipitation (Sioux Fall SD)[46]



[46] Ibid.

SECTION F: ADDITIONAL SITE



PROPERTY OVERVIEW

Site Name:	I-29 Ag Industrial Park
Address:	Innovation Ave & Crossroad St
City:	Worthing
State:	South Dakota
County:	Lincoln
Acres:	63
Pricing Note:	$3-$4/sq ft
Zoning:	Heavy & Light Industrial

SITE CONTACTS

Economic Development Contact
Tyler Tordsen
Sioux Metro Growth Alliance
(605) 679-7149
tylert@siouxmetro.com

ADDITIONAL NON-RATED SITES

Infrastructure Site Contact
Jaidan Hunt
Manager of Advisory Operations
jaidan@ecostrat.com

TRANSPORTATION

The I-29 Ag Industrial Park is located on Innovation Ave & Crossroad St, with access from 471st avenue off Highway 18, which has no truck traffic weight restrictions. The site is in close proximity to I-29. The Sioux Falls Regional Airport (FSD) is located 23 miles from the site. There is no direct rail spur on the site.

ELECTRIC SERVICE

Electric service is provided by Southeastern Electric. 3-Phase power is available.

NATURAL GAS

Natural gas is provided by MidAmerican Energy.

WATER

The City of Worthing operates a lagoon treatment system, and receives water supply from South Lincoln Rural Water System.

WASTEWATER

The City of Worthing operates a lagoon treatment system, and receives water supply from South Lincoln Rural Water System. There is no sanitary sewer line to the site.

TELECOMMUNICATIONS

Telecommunication services are provided by Midco and Bluepeak.

SECTION G: LEGAL DISCLAIMER

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