LAUREL COUNTY, KY

Biofuel Development Opportunity Zone

RATING GRADE: 'A'

Date of Issue: February 24, 2026

A
High Quality

Rating Parameters:

Category	Rated Quantity	Delivered Price	Supply Zone Size
Pulpwood	153,000 bdt/yr	$54-$66/bdt	75-mi drive
Forest Residues	122,000 bdt/yr	$60-$70/bdt	distance from
Sawmill Residuals	67,000 bdt/yr	$34-$90/bdt	London, KY

BDO ZONE ASSETS

- Declining trend in demand for pulpwood and some types of sawmill residuals.
- Regional pulpwood prices at historic lows.
- Mandated professional logger certification program ensures environmental sustainability of logging activities in the state.
- Project development site within six miles of downtown London with natural gas, three-phase electric, high speed internet, and heavy industrial zoning.

BDO ZONE LIABILITIES

- Lack of logging contractors that own and operate mobile chippers and grinders.
- Mountainous terrain complicates forest residue recovery.
- Declining primary product markets increase long-term feedstock supply risk.

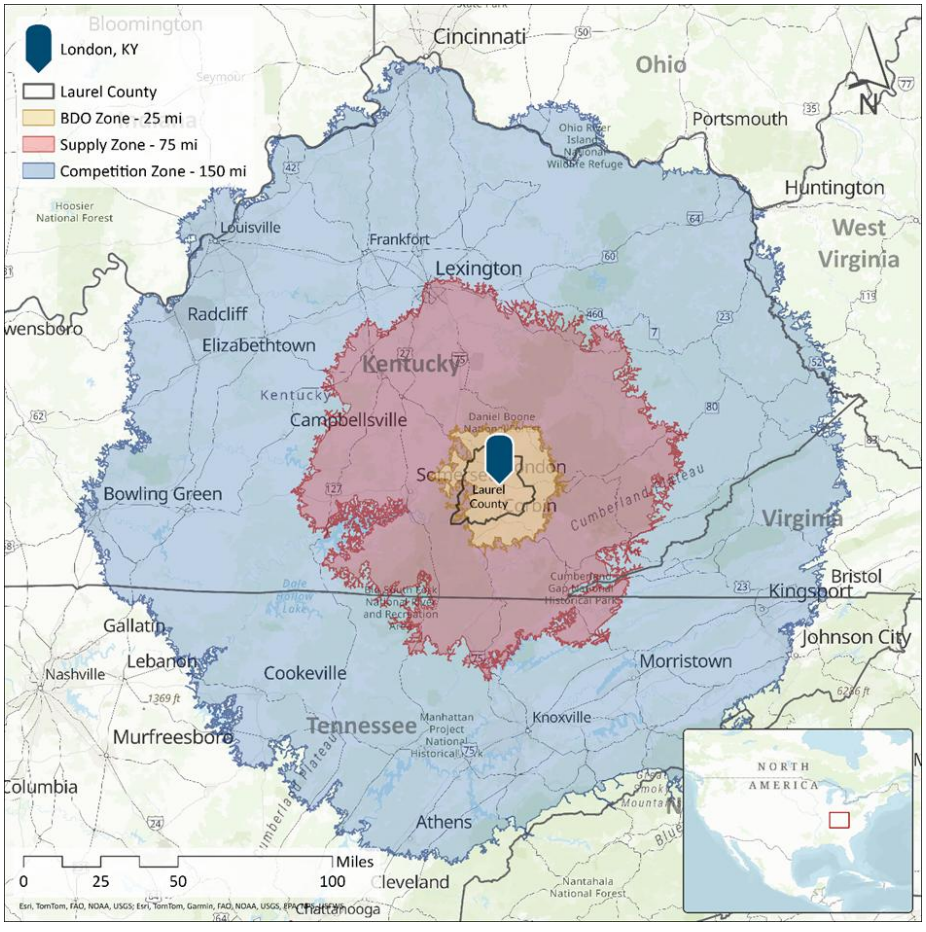
RATING GRADE

The Laurel County, KY, Biofuel 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.

LAUREL COUNTY, KY BDO ZONE



ANALYST NOTES

The merchantable volume of the region's hardwood-dominant forests has been increasing over the past decade due to declines in the number and capacity of sawmills and pulp and paper mills. These declines have been influenced by broader trends, including reduced demand for hardwood lumber products and international competition in the pulp and paper industry. There are 13 sawmills currently operating in the Supply Zone and a total of ten facilities that intake sawmill residuals, pulpwood, and forest residue. Logging contractors in the region tend to operate as single, semi-mechanized crews, but historical harvesting data indicates that logging capacity is likely sufficient for the rated quantities.

A total of 342,000 bdt/yr of wood fiber is estimated to be available for new projects within a 75-mile drive distance of London at low-to-medium risk. This includes 153,000 bdt/yr of pulpwood, 122,000 bdt/yr of forest residue, and 67,000 bdt/yr of sawmill residuals. The average delivered price is expected to range from $54-$66/bdt for pulpwood, $60-$70/bdt for forest residue, and $34-$90/bdt for sawmill residuals. The large price range for sawmill residuals reflects the inclusion of high value wood chips ($75-$90/bdt) and lower value sawdust and bark ($34-$55/bdt) in the availability estimates. A description of the methods used to estimate the rated quantities and prices is presented in Section B.

Risks were assessed using 75 Risk Indicators from the US Standards for Biomass Supply Chain Risk (BSCR). Details of the risk assessment are presented in Section C. The following is a summary of the most significant assets and liabilities of the region, as inferred from the risk assessment.

BDO ZONE ASSETS

Pulpwood demand within the Supply Zone is at a historic low. Local industry sources indicate that markets are either nonexistent or, in the southern portion of the region, limited to a single OSB facility. The only remaining paper mill in the Competition Zone is fully supplied by sawmill chips and no longer purchases roundwood pulpwood. A chip mill located near London that supplied the paper mill has closed as a result, eliminating the market for pulpwood in the area. Current intake quantities of pulpwood from the Supply Zone are likely to total around 70,000 bdt/yr. Historical data also indicates a downward trend in pellet production, indicating a decline in demand for sawmill residuals such as sawdust.

Significant declines in the delivered price of pulpwood have attended the decline in pulpwood demand. Pulpwood prices in many areas of the Supply Zone have reached lows of $22/ton ($44/bdt), compared to prices in the range of $30-$35/ton ($60-$70/bdt) in previous years. Loggers operating in the Supply Zone typically do not find it profitable to deliver pulpwood given the low prices and distance from purchasing facilities.

The BDO Zone benefits from Kentucky's distinctive forest regulatory and institutional framework. Unlike most states, Kentucky mandates the use of Best Management Practices (BMPs) and requires logging operations to be supervised by a certified Kentucky Master Logger, ensuring strong environmental compliance while imposing defined operational standards on the workforce. Looking ahead, tighter air-quality regulations on prescribed burning could restrict slash disposal practices and potentially increase the availability of forest residue. In addition, programs such as Forestry Works and the Kentucky Master Logger Program provide a stable pathway for long-term workforce development if engaged directly by project proponents.

BDO ZONE LIABILITIES

Forest residue supply chains are not currently established in the Supply Zone. The only logging contractor identified during outreach that regularly processes forest residue does not operate in the vicinity of London and does not produce more than 10,000 bdt/yr. Establishing a supply chain for the rated quantity of forest residue would require investments in at least three chippers or grinders, which range in cost from $500,000 to over $1,000,000. Logging contractors that regularly operate in the Supply Zone may not have sufficient solvency or willingness to make the required investment.

Forest residue supply will likely be further complicated by the mountainous terrain characteristic of the area. Narrow logging roads and small landings preclude the operation of in-woods chipping or grinding equipment and chip truck traffic. While the BAM of 4.0 was selected

to account for these terrain-related barriers to forest residue recovery, there is significant risk that the rated quantity of forest residue will not be available to project proponents until the project has been proven and sufficient time has elapsed for operators to purchase the equipment and plan operations.

The state of the regional value-added forest industry also presents an elevated risk to the rated quantities of biomass. Sawmill capacity in the Supply Zone has declined by 15% over the past decade and currently totals 170 MMBF/yr, which is modest compared to other regions in the U.S. South. The largest sawmill was recently reopened after a prolonged closure. Declining markets for hardwood products are the main cause of these trends. Temporary and permanent declines in sawtimber demand decrease sawmill residual generation and reduce the number, capacity, and solvency of logging companies, thereby reducing the generation of pulpwood and forest residue. Significant declines in the regional pulp and paper industry have also negatively impacted logging contractors in the region. Programs like Forestry Works and the Kentucky Master Logger Program moderate risks related to logging contractor solvency and profitability.

INFRASTRUCTURE PROFILE

The evaluated property is located in the McDaniel Industrial Park, located six miles from downtown London. The developable site is zoned for heavy industrial use and all required permits are likely to be obtained within 1.5 months. Utilities available include natural gas, 3-phase power, an 8-inch water line, and fiber optic internet. Natural gas and electricity transmission infrastructure are located within two miles of the site and would likely be capable of handling renewable natural gas or renewable power with modest investments (<$1 million). The combination of strong community support and affordable living costs further improves prospects for bio-project development. Higher risk items, including lack of rail access, local transportation limitations, and below-average post-secondary education rates, are noteworthy but are unlikely to significantly impact new projects.

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SCORING & RATING METHODOLOGY

In assessing the biomass supply chain risk for the Biofuel 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.[1]
- 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 (London, KY).

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 Laurel County, KY is ***16.18 out of 100, resulting in an 'A' designation.***

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



[1] Note: Infrastructure indicators assess the industrial site, and Laurel County, which covers 39% of the BDO Zone.

SECTION A: RISK INDICATOR SUMMARY

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

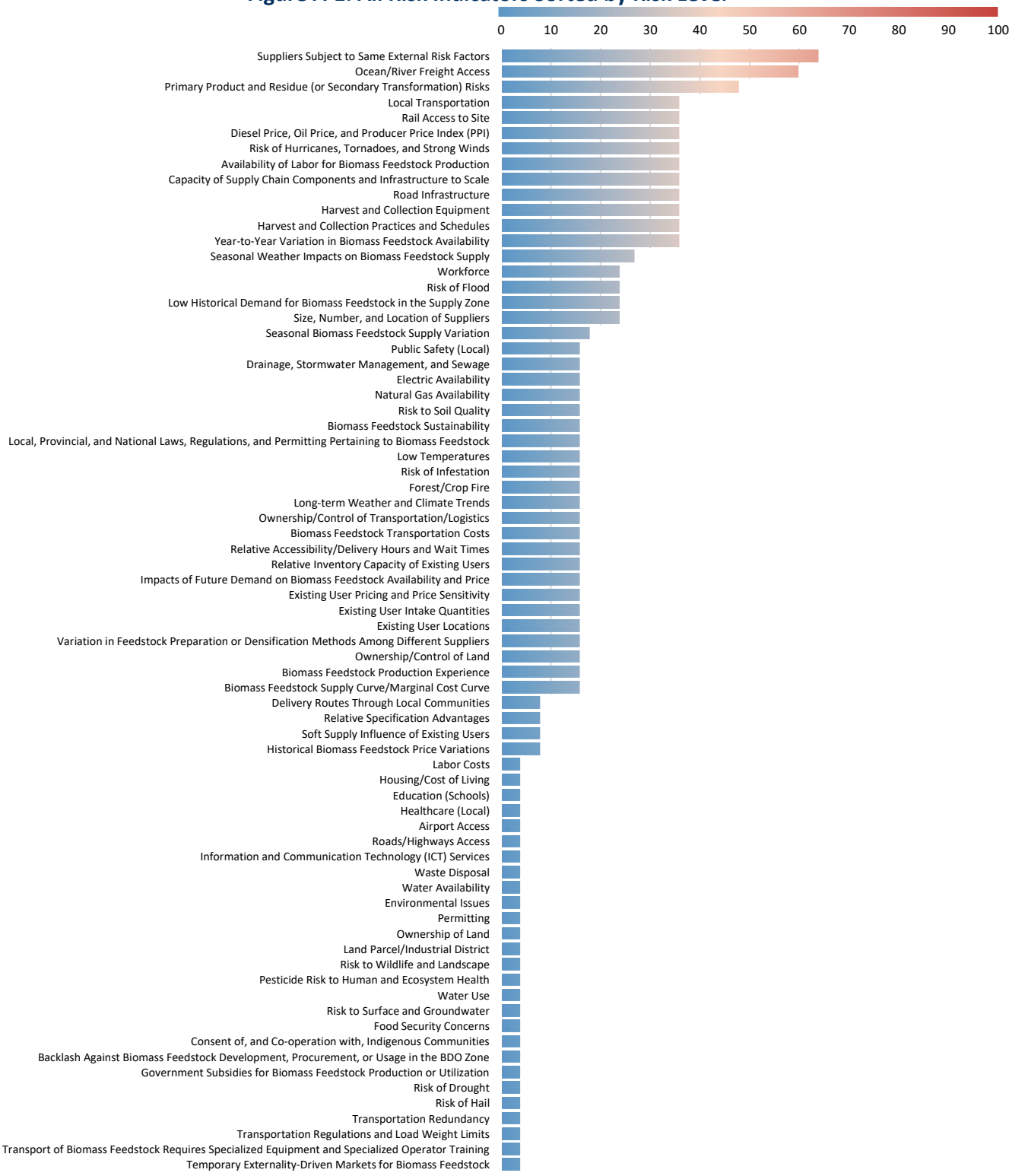


Table A-1. Risk Indicators and Associated Scores

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	4	16	NN	16
1.1.2 Seasonal Biomass Feedstock Supply Variation	6	6	36	50%	18
1.1.3 Year-to-Year Variation in Biomass Feedstock Availability	6	6	36	NN	36
1.1.4 Historical Biomass Feedstock Price Variations	2	4	8	NN	8
1.2 Risk Factor: Harvest and Collection Risk					
1.2.1 Biomass Feedstock Production Experience	4	4	16	NN	16
1.2.2 Primary Product and Residue (or Secondary Transformation) Risks	6	8	48	NN	48
1.2.3 Harvest and Collection Practices and Schedules	6	6	36	NN	36
1.2.4 Harvest and Collection Equipment	6	6	36	NN	36
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	4	4	16	NN	16
1.3 Risk Factor: Existing Users					
1.3.1 Existing User Locations	4	4	16	NN	16
1.3.2 Existing User Intake Quantities	4	4	16	NN	16
1.3.3 Existing User Pricing and Price Sensitivity	4	4	16	NN	16
1.3.4 Impacts of Future Demand on Biomass Feedstock Availability and Price	4	4	16	NN	16
1.3.5 Soft Supply Influence of Existing Users	2	4	8	NN	8
1.3.6 Temporary Externality-Driven Markets for Biomass Feedstock	2	2	4	NN	4
1.3.7 Relative Inventory Capacity of Existing Users	4	4	16	NN	16
1.3.8 Relative Accessibility/Delivery Hours and Wait Times	4	4	16	NN	16
1.3.9 Relative Specification Advantages	4	2	8	NN	8
1.4 Risk Factor: Transportation					
1.4.1 Biomass Feedstock Transportation Costs	4	4	16	NN	16
1.4.2 Ownership/Control of Transportation/Logistics	4	4	16	NN	16
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	4	8	NN	8
1.4.5 Transportation Regulations and Load Weight Limits	2	2	4	NN	4
1.4.6 Road Infrastructure	6	6	36	NN	36
1.4.7 Transportation Redundancy	2	2	4	NN	4
1.5 Risk Factor: Risks Related to Supply Chain Resiliency					
1.5.1 Size, Number, and Location of Suppliers	4	6	24	NN	24
1.5.2 Suppliers Subject to Same External Risk Factors	8	8	64	NN	64
1.6 Risk Factor: Biomass Feedstock Scale-up					
1.6.1 Capacity of Supply Chain Components and Infrastructure to Scale	6	6	36	NN	36
1.6.2 Availability of Labor for Biomass Feedstock Production	6	6	36	NN	36
1.6.3 Low Historical Demand for Biomass Feedstock in the Supply Zone	4	6	24	NN	24
1.7 Risk Factor: Climate and Natural Risks					
1.7.1 Seasonal Weather Impacts on Biomass Feedstock Supply	6	6	36	25%	27
1.7.2 Long-term Weather and Climate Trends	4	4	16	NN	16
1.7.3 Forest/Crop Fire	4	4	16	NN	16
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	6	24	NN	24
1.7.7 Risk of Drought	2	2	4	NN	4
1.7.8 Risk of Hurricanes, Tornadoes, and Strong Winds	6	6	36	NN	36
1.7.9 Low Temperatures	4	4	16	NN	16
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	4	4	16	NN	16
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 Co-operation with, Indigenous Communities	2	2	4	NN	4
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	4	4	16	NN	16

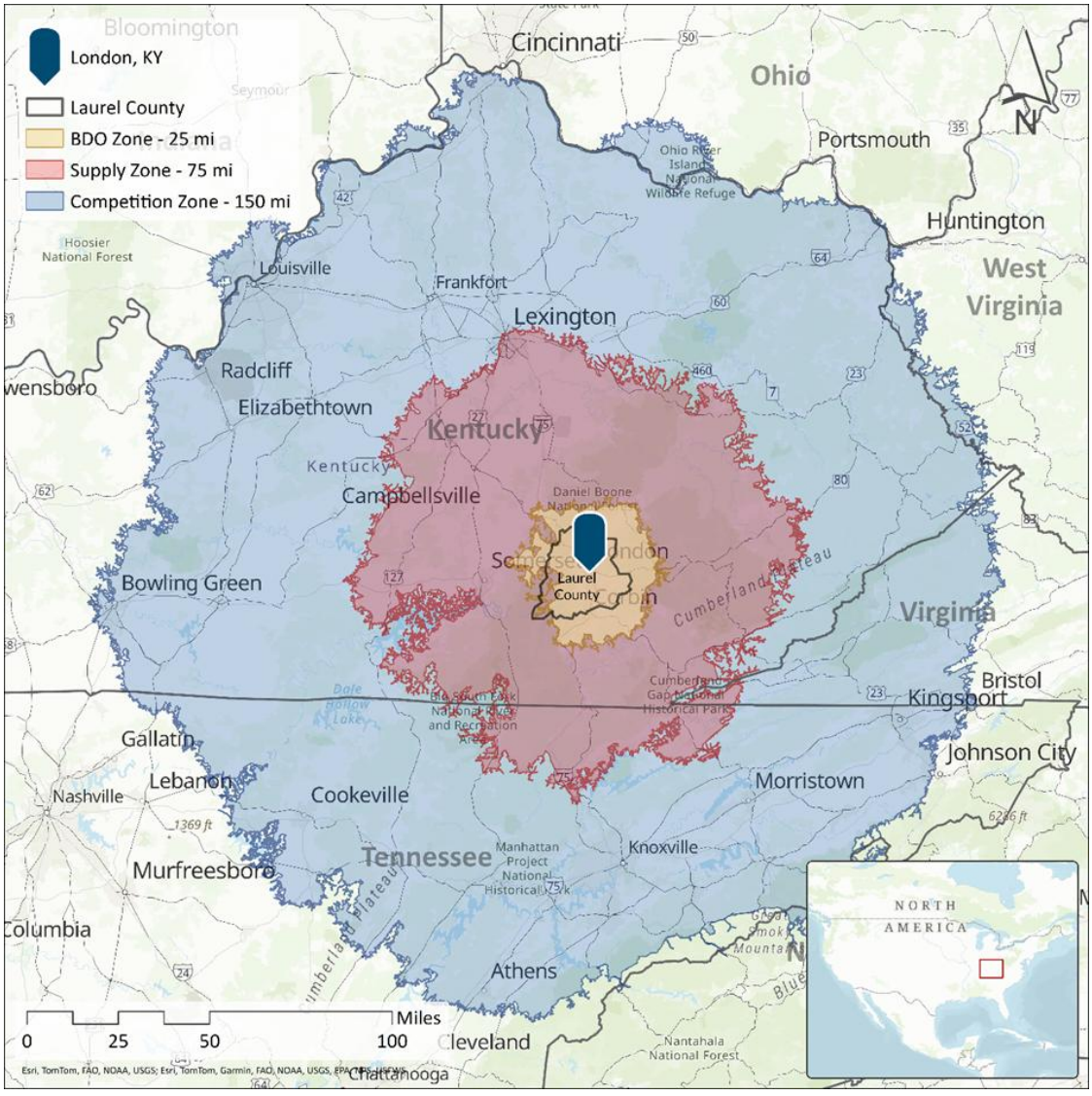
1.10.2 Risk to Soil Quality	4	4	16	NN	16
1.10.3 Risk to Surface and Groundwater	2	2	4	NN	4
1.10.4 Water Use	2	2	4	NN	4
1.10.5 Pesticide Risk to Human and Ecosystem Health	2	2	4	NN	4
1.10.6 Risk to Wildlife and Landscape	2	2	4	NN	4
Category 2.0: Infrastructure					
2.1 Risk Factor: Physical Infrastructure					
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	2	2	4	NN	4
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	2	2	4	NN	4
2.2.4 Drainage, Stormwater Management, and Sewage	4	4	16	NN	16
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	10	6	60	NN	60
2.4 Risk Factor: Social Infrastructure					
2.4.1 Healthcare (Local)	2	2	4	NN	4
2.4.2 Education (Schools)	2	2	4	NN	4
2.4.3 Local Transportation	6	6	36	NN	36
2.4.4 Public Safety (Local)	4	4	16	NN	16
2.4.5 Housing/Cost of Living	2	2	4	NN	4
2.5 Risk Factor: Labor					
2.5.1 Workforce	6	4	24	NN	24
2.5.2 Labor Costs	2	2	4	NN	4
				Average	**16.18**

SECTION B: BIOMASS AVAILABILITY AND PRICING

OVERVIEW

The objective of the assessment is to determine the quantity and delivered price of feedstock that could be available to new projects located within the BDO Zone, defined by a 25-mile drive distance from the city of London, KY. The quantity of biomass that could be available for new projects is determined by subtracting current and anticipated biomass demand within the Competition Zone (150-mile drive distance from London) from total annual biomass generation within the Supply Zone (75-mile drive distance from London). The resulting estimate of availability is then divided by a factor of between 1.5 and 4.0 (the Biomass Availability Multiple (BAM)) to account for uncertainty in data, models, assumptions, and future operating conditions. The resulting rated feedstock quantities are conservative estimates of availability for new projects. The price range associated with each rated quantity is determined through outreach and market analysis in the Competition Zone and reflects the anticipated price that a new project would have to pay to secure the rated quantity of biomass.

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



EVALUATED FEEDSTOCKS

Pulpwood: Roundwood (logs) sourced from trees with a diameter at breast height between 5 and 11 inches or from the branches and upper stem sections of larger-diameter trees. Pulpwood is typically recovered concurrently with sawtimber in conventional forest operations.

Forest residues: Branches, the top section of tree stems, and small diameter trees that are recovered during forest operations but that cannot be sectioned into roundwood (logs). Recovery of forest residue typically occurs following conventional forest operations and involves the use of mobile chippers or grinders capable of comminuting the material into smaller, homogenous particle sizes.

Sawmill residuals: Byproducts of sawmill operations (wood chips, sawdust, shavings, and bark/hog fuel) generated from converting sawlogs into lumber.

SUPPLY ANALYSIS

Of the approximately six million acres of land within the Supply Zone, four million acres is comprised of timberland. The majority of standing timber volume (77%) is located on privately owned land (Figure E-1). Hardwood tree species including oak (35%), maple (16%), yellow poplar (11%), and American beech (6%), constitute 90% of the standing tree volume in the Supply Zone. The remaining 10% of the standing tree volume consists mostly of pine species and red cedar.[2]

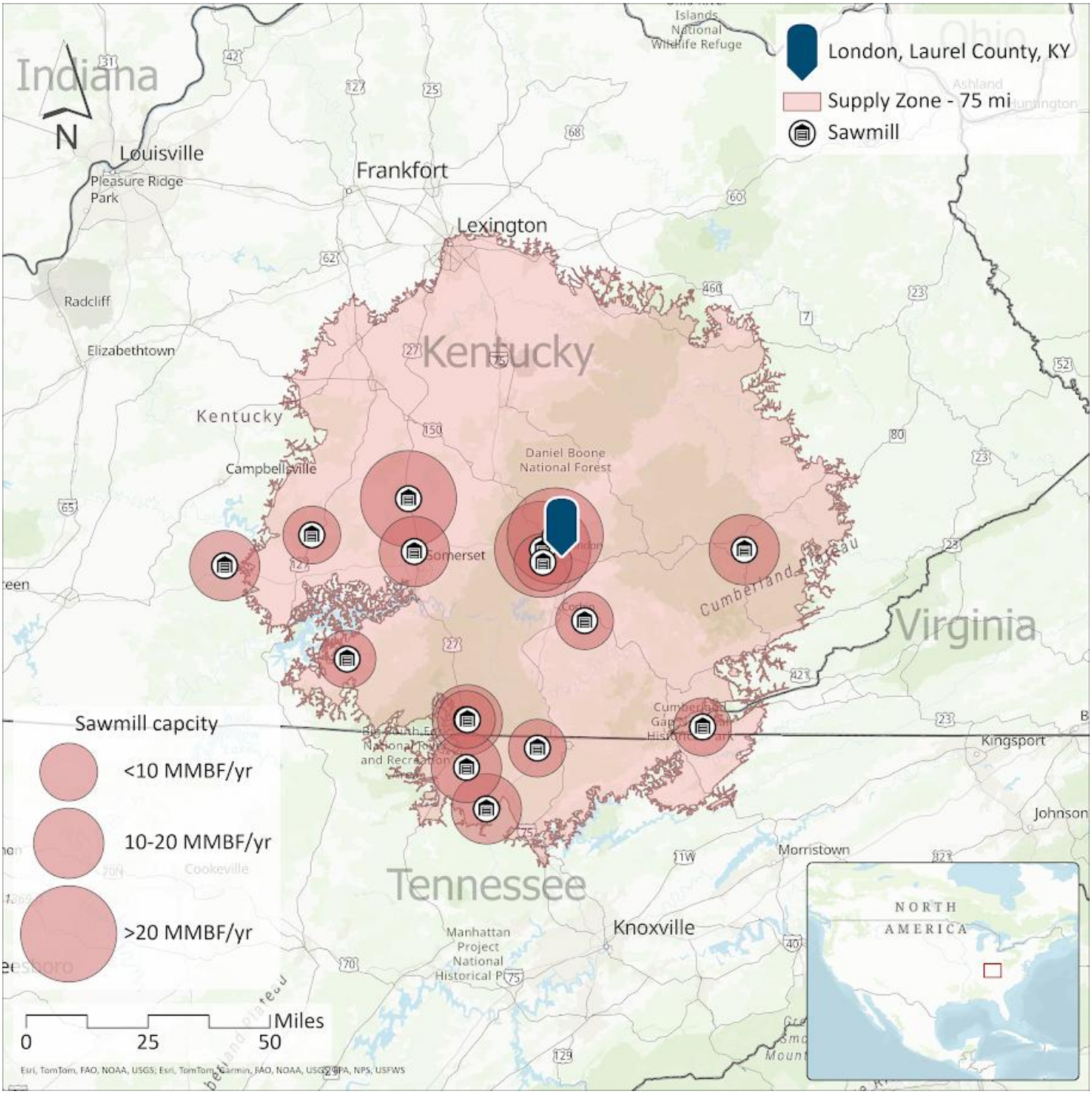
There are currently 13 operational sawmills located within the Supply Zone with capacities larger than 5 MMBF/yr, generating approximately 335,000 bdt/yr of sawmill byproducts (Table B-1). Sawmill lumber production capacity ranges from 5 to 38 MMBF/yr and averages 13 MMBF/yr. Sawmills are concentrated in the southern portion of the Supply Zone (Map B-2). Over the past decade, sawmill capacity within the Supply Zone has declined by approximately 15% (Figure E-2).

Table B-1. Sawmill Residuals Generation in the Supply Zone

Type	Generation (bdt/yr)
Wood chips	213,000
Sawdust	42,000
Bark	80,000
Total	**335,000**

[2] apps.fs.usda.gov/fiadb-api/evalidator

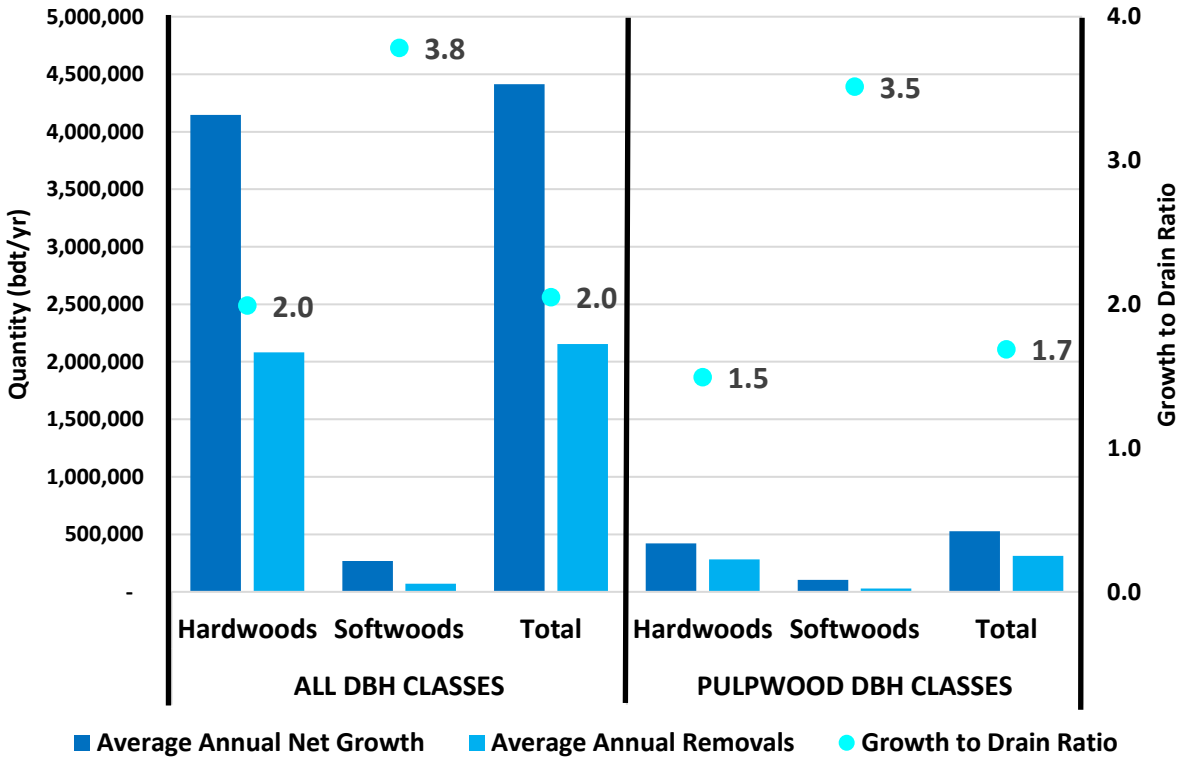
Map B-2. Location of Sawmills Within a 75-mile Drive Distance of London



Regional demand for sawtimber and pulpwood has declined as a result of sawmill and pulp and paper mill closures. Consequently, there has been an increase in standing merchantable volume in the region. FIA data indicates that between 2014 and 2021, standing merchantable timber inventories increased by 24.7 million bdt (10%), almost entirely in hardwoods. Pulpwood-sized timber increased by 2 million bdt (4%) (Figures E-3 and E-4).

Figure B-1 illustrates average annual net growth and removals over the 2012-2021 period per major species categories (hardwoods and softwoods) for all DBH classes (left) and pulpwood DBH classes (right).[3] On average, the forest stands in the Supply Zone exhibit substantial annual net growth (4.4 million bdt/yr), of which only one half (2.1 million bdt/yr) is harvested. The growth-to-drain (GTD) ratio[4] of 2.0 indicates a sustainable harvest level and an opportunity to increase timber harvesting levels by a factor of up to 2x without compromising long-term growth and yield. The GTD ratio of the forests in the Supply Zone has most likely increased since 2021 due to the collapse of pulpwood markets in recent years.

Figure B-1. Average Net Growth, Average Annual Removals, and Growth to Drain Ratios for All DBH Classes (left) and Pulpwood DBH Classes (right) in the Supply Zone (2012-2021)[5]



The FIA data indicates that approximately 180,000 bdt/year of pulpwood is produced from trees with DBH between 5 and 11 cm. An additional 120,000 bdt/yr of pulpwood is estimated to be produced from upper stem sections and large branches of trees with DBH greater than 11 cm. Therefore, a total of 300,000 bdt/yr of pulpwood is likely to be generated in future years, assuming average harvesting levels over the 2012-2021 period are representative of future conditions. The FIA data also indicates that an average of 500,000 bdt/yr of tops and branches from trees with DBH greater than 5 cm

[3] Ten-year averages (2012-2021). Note that the discrepancy between current pulpwood removals of ~70,000 bdt/yr and the annual average pulpwood removals of ~300,000 bdt/yr over the 2012-2021 period is due to the collapse of pulpwood markets in recent years.
[4] The ratio between the annual net growth and removals. A GTD > 1.2 indicates sustainable removals below the net growth measured in a forest area
[5] apps.fs.usda.gov/fiadb-api/evalidator

are generated annually as a byproduct of forest operations. Final estimates of total potential feedstock generation within the Supply Zone are presented in Table B-2.

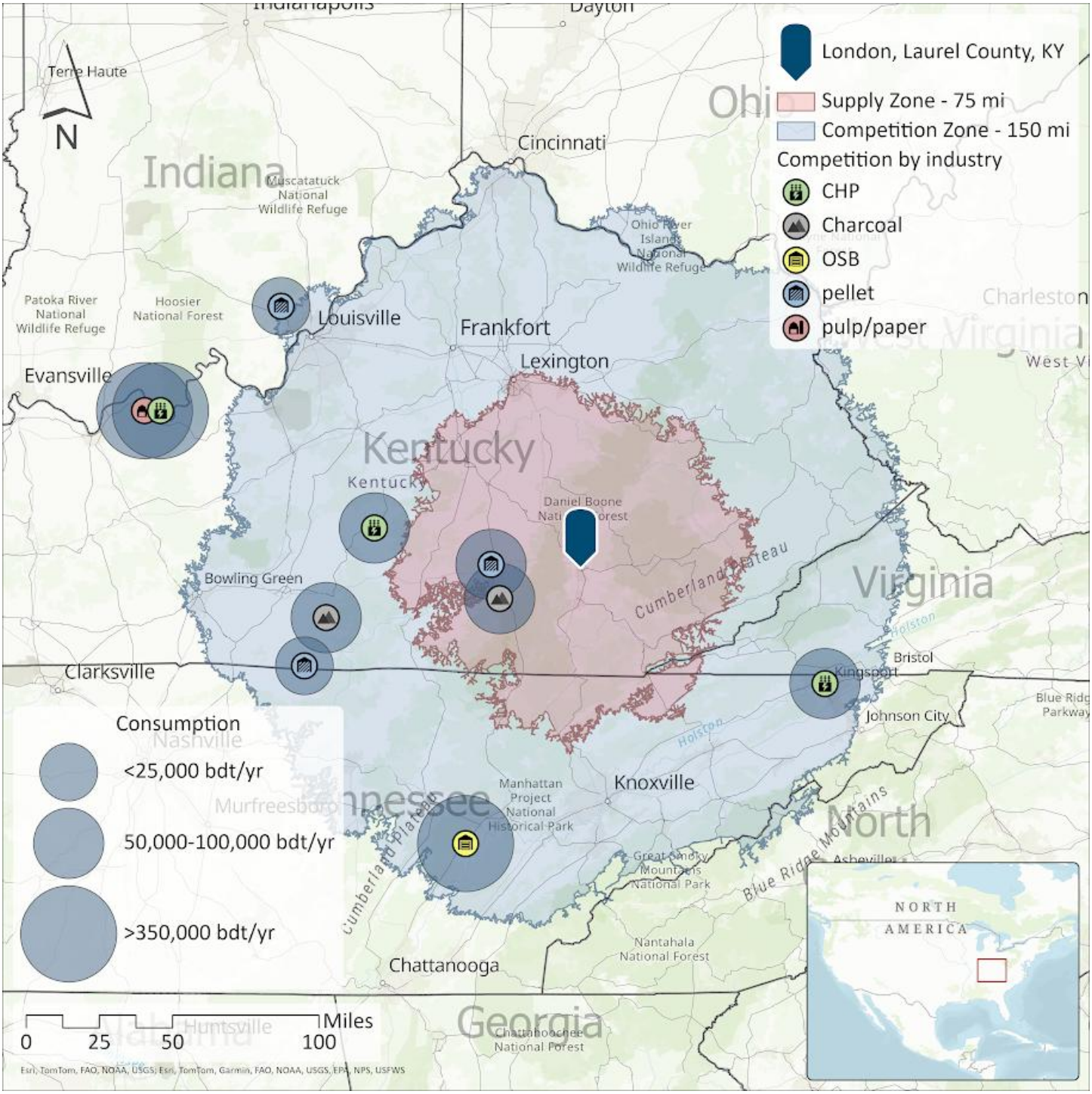
Table B-2. Annual Feedstock Generation in the Supply Zone

Type	Generation (bdt/yr)
Sawmill Residuals	335,000
Pulpwood	300,000
Forest Residue	500,000
Total	**1,135,000**

COMPETITION ANALYSIS

There is a total of ten facilities located within or just outside the Competition Zone that intake sawmill residuals, pulpwood, and forest residue from the Supply Zone including three pellet mills, two charcoal plants, one stand-alone combined heat and power (CHP) unit, one pulp and paper mill, one CHP unit integrated with the pulp and paper mill, and one OSB mill (Map B-3). The total estimated feedstock intake capacity for the identified facilities is approximately 1.3 million bdt/yr. After adjusting for overlap of each facility's theoretical procurement area, the identified facilities have an estimated intake of approximately 268,000 bdt/yr from the Supply Zone (Table B-3). Feedstock demand in the Competition Zone has declined by approximately 25% over the past decade (Figure E-5). This is due in large part to the conversion of a pulp and paper mill in Kingsport, TN to recycled containerboard in 2020, the closure of a pulp and paper mill in Chillicothe, OH in 2025, and the cessation of pulpwood chip intake by a pulp and paper mill in Hawesville, KY in 2025. Table B-4 shows that 135,000 bdt/yr of sawmill residues, 230,000 bdt/yr of pulpwood, 490,000 bdt/yr of forest residues are available to a new project.

Map B-3. Location of Competitors Within a 150-mile Drive Distance of London[6]



[6] forisk.com/product/north-american-forest-industry-capacity-database

Table B-3. Feedstock Intake from Supply Zone by Competitor Category

Competitor Category	Intake (bdt/yr)	Biomass Intake Types
Pulp and Paper	27,900	90% sawmill residuals, 10% forest residue
OSB	71,500	100% pulpwood
Pellet	47,300	100% sawmill residuals
Charcoal	104,500	90% sawmill residuals, 10% forest residue
CHP	16,800	100% sawmill residuals
Total Consumption from Supply Zone	**268,000**	

Table B-4. Woody Biomass Generation, Demand, and Availability by Feedstock Type

Feedstock Type	Generation (bdt/yr)	Demand (bdt/yr)	Availability (bdt/yr)
Sawmill residues	335,000	200,000	135,000
Pulpwood	300,000	70,000	230,000
Forest residues	500,000	10,000	490,000
Total	**1,135,000**	**280,000**	**855,000**

RATED QUANTITIES AND PRICING

Rated quantities and price ranges for each feedstock type are presented in Table B-5. The rated quantity of pulpwood was determined by applying a Biomass Availability Multiple (BAM) of 1.5 to the estimated pulpwood availability. The low BAM value is supported by pulp and paper mill closure trends and outreach to local forestry professionals, who emphasized the lack of markets for pulpwood. The rated quantity of forest residue was determined using a BAM of 4.0, as there is a lack of regional forest residue supply experience. The rated quantity of sawmill residuals was determined using a BAM of 2.0, reflecting the willingness of sawmill owner-operators to share generation and pricing data. Price ranges are based on cost estimates and outreach to sawmills and logging companies (Table B-6).

Table B-5. Rated Quantities and Delivered Price Ranges of Biomass in the Supply Zone

Feedstock Type	Available Quantity (bdt/yr)	Biomass Availability Multiple (BAM)	Rated Quantity (bdt/yr)	Delivered Price Range ($/bdt)
Sawmill residuals	135,000	2.0	67,000	34-90
Pulpwood	230,000	1.5	153,000	54-66
Forest residue	490,000	4.0	122,000	60-70
TOTAL	855,000		**342,000**	

Table B-6. Price Estimates from Outreach

Feedstock Type	FOB Price ($/bdt)	Delivered Price ($/bdt)	Notes
Sawmill residuals – Chips	44	112	--
Sawmill residuals – Chips	--	88-90	--
Sawmill residuals – Chips	50-60	82-92	Assumes transport cost of $32/bdt @50 miles
Sawmill residuals – Sawdust	--	54	--
Sawmill residuals – Sawdust	30	62	Assumes transport cost of $32/bdt @50 miles
Sawmill residuals – Bark	**--**	**34**	**--**
Pulpwood	--	54-64	--
Pulpwood	**--**	**60-66**	**--**
Pulpwood	--	54-60	--
Forest residues	40	72	Assumes transport cost of $32/bdt @50 miles

OPERATIONAL CONSIDERATIONS

To supply the rated quantity of pulpwood, three logging crews and 12 logging trucks would be required.[7] Supplying the rated quantity of forest residue would require approximately three chippers or grinders and 11 chip trucks.[8] While regional logging capacity is sufficient to recover the rated quantity of pulpwood, forest residue supply will require that logging contractors and other interested parties purchase at least three chipping or grinding units. Presently, there is only one logging contractor in the region that owns and operates chipping equipment. It was determined through outreach that this individual is unlikely to supply a new customer due to current customers and business model. While it is expected that contractors will obtain financing to purchase equipment if a consistent offtake for forest residue can be demonstrated by a new project proponent at the rated price range, a scale-up period of 3-5 years will likely be required before the chipping/grinding units are operational.

[7] Assumes 14 loads/day, 14 bdt/load, 225 days/year, and 4 loads/day.
[8] Assumes a chipping/grinding productivity of 20 bdt/hr, 225 days/year, 10 hrs/day, and 4 chip vans per grinder/chipper.

SECTION C: INFRASTRUCTURE



PROPERTY OVERVIEW

Site Name:	McDaniel Industrial Park
Address:	948 Sinking Creek Road
City:	London
County:	Laurel
State:	Kentucky
Acres:	75 greenfield, 3 developable
Pricing Note:	$18,000/acre
Topography:	1,160-1,200 feet elevation
Zoning:	Mixed Use/Planned Development Heavy Industrial Allowed

SITE CONTACTS

Economic Development Contact
Paula Thompson
London-Laurel County Economic Development Authority
606-864-8115
paula@lookatlondonky.com

PROPERTY PROFILE

The evaluated property is located six miles west of downtown London and is owned by the London-Laurel County Economic Development Authority (LLCEDA). Highway I-75 is within three miles of the site. Utilities include natural gas, three-phase electric, and fiber optic internet. The site is zoned for heavy industrial use and permitting time is expected to be less than 1.5 months.

Transportation

Nearest Highway: Hwy 1535 (adjacent)
Nearest Interstate: I-75 (3 mi)
Rail Carrier: CSW
Rail Served: No
Nearest Airport: Blue Grass (80 mi)
Airport Identifier: LEX
Longest Runway Length: 7,004'
Nearest Port: Port of Louisville, KY (150 mi)

Electric Service

Transmission: East Kentucky Power Coop.
Distance to Transmission Line: 0.09 mi
Voltage of Transmission Line: 69 kV
Distance to Substation: 0.2 mi
Distribution: Jackson Energy Cooperative
Distance to Distribution Line: 0'
Voltage of Distribution Line: 12.47 kV
Existing Electrical Capacity: 2 MW

Natural Gas

Supplier: Delta Natural Gas Co., Inc.
Nearest Distribution Line: 60'
Size of Distribution Line: 4"
Pressure: 25 psig
Capability: No current user
Nearest Transmission Line: 2 mi
Nearest CGT Transmission Line: 40 mi
Size of Transmission Line: 30"

Water

Supplier: Wood Creek Water
Distance to Water Line: 3,500'
Total Water Line Capacity: 0.5 MGD
Water Line Size: 8"
Excess Water Line Capacity: 0.15 MGD

Wastewater

Supplier: London Utility Commission
Wastewater Line Size: 6"
Wastewater Line Capacity: 180-200 GPM
Wastewater Line Type: Force Main
Existing Wastewater Capacity: 1.9 MGD

Telecommunications

Supplier: Windstream
Distance to Telecommunications: 4,100'
Services: Copper and Fiber
Timeline to Serve: 3 months

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: Analysis of the supply curve data indicates that procuring over 50% of the total available quantity requires a procurement radius of 55 miles for both pulpwood and forest residues, and 40 miles for sawmill residuals. Significant increases in sawmill residual availability are observed between 40 and 50 miles and between 60 and 70 miles, which can be explained by the expansion of the sourcing radius into established sawmill clusters in neighboring counties such as McCreary and Wayne. Up to 228,000 bdt of pulpwood is generated for the rated price range of $54-66/bdt (Figure E-5). Up to approximately 330,000 bdt of forest residue is generated for the rated price range of $60-$70/bdt (Figure E-6). Up to 340,000 bdt of sawmill residuals is generated for the rated price range of $34-$90/bdt.

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

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,[9] which can manifest in shortages and higher costs for Issuers.

Risk Information: Seasonal supply variations in the region are driven primarily by precipitation and winter weather, with operations often slowing down between January and April due to wet conditions and freezing temperatures. Local loggers report missing approximately six to eight weeks of work on average during the winter months, a challenge exacerbated by the steep, mountainous terrain of eastern Kentucky which makes wet-weather harvesting difficult and dangerous. To mitigate these fluctuations, mills in the area typically engage in stockpiling during the drier fall months (September through November), which historically offer the highest output conditions, ensuring consistent supply availability through the wetter winter and spring seasons.

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**
RRL Mitigation (Notch) Stockpiling practices ensure that supply is not impacted by typical seasonal weather. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.	**50%**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 18 out of 100.	**18**

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.

Risk Information: Historical data demonstrates distinct year-to-year variation in harvested feedstock supply, with regional pulpwood yields fluctuating between a low of 152,347 bdt in 2014 and a peak of 199,299 bdt in 2019, representing a historical volatility range of approximately 24%. This observed variability is driven primarily by downstream market dynamics; for instance, local outreach indicates that the recent closure of a paper mill in Chillicothe, Ohio, and a chipping facility in Laurel County has temporarily depressed harvest rates by removing key outlets for low-grade wood. There has also likely been notable variation in the year-to-year generation of sawmill residuals due to the weak hardwood lumber markets and temporary closures of sawmills, as evidenced by the recent prolonged closure of the largest sawmill in the Supply Zone.

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**

[9] Golecha & Gan, 2016.

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

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: An analysis of the last five years of price data shows Hardwood Pulpwood prices averaging around $35.78/ton in 2021, increasing to $45.14/ton in 2022, before decreasing to $33.22/ton in 2024. Softwood Pulpwood prices increased from around $25.60/ton in 2020–2021 to $31.15/ton in 2022, stabilizing near $30.49/ton in 2024. Outreach indicates that recent facility closures have eliminated key markets, resulting in delivered pulpwood price decreases to as low as $22–$24/ton in some areas due to an oversupply relative to current demand. Price variations over the past five years have reflected anomalous events (e.g., COVID pandemic and associated policies and supply chain disruptions) that are unlikely to recur. Overall, risk is assessed as low due to the significant pulpwood price decline observed in recent years.

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

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 forest residue supply chains where forestry producers may have no previous experience.

Risk Information: There is a general lack of multi-crew companies and fully mechanized crews that operate in the Supply Zone. Local outreach indicates that approximately 90% of the regional workforce utilizes semi-mechanized methods consisting of manual chainsaw felling and skidders rather than fully mechanized systems, and the majority of local logging companies operate only a single crew rather than multiple units. However, the lack of mechanization is unlikely to affect the rated quantities: historical pulpwood harvesting data shows annual yields fluctuating between a low of 152,347 bone dry tons (bdt) in 2014 and a peak of 199,299 bdt in 2019. While investments in feller-bunchers and excavators may improve production, it is likely that the rated quantity of pulpwood could be procured without major capital investments.

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

1.2.2 Primary Product and Residue (or Secondary Transformation) Risks

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

Risk Information: Biomass feedstock availability in the region is inextricably linked to the market health of primary products such as hardwood lumber and white oak staves, which face long-term structural declines in the furniture, cabinet, and flooring sectors due to competition from vinyl substitutes and imports. Sawmill capacity in the Supply Zone decreased by approximately 15% over the past decade. Evidence of a long-term decline in harvesting and pricing for primary forest products in the region leads to an assessment of medium-to-high risk. Risk is moderated by the relatively slow rate of sawmill closures (15% decline in sawmill capacity over the past decade, Figure E-2).

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**
RRL Mitigation (Notch)	**NN**

No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score — **Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 48 out of 100. — **48**

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 forestry biomass, unsightly clear-cuts and slash piles (even on plantation forests and especially when located near communities) can provoke unwanted public backlash even when suitable and sustainable replanting regimes are followed.

Risk Information: Harvest practices in the region are dictated by the steep, mountainous terrain, necessitating in many areas manual felling with chainsaws and the use of cable skidders rather than fully mechanized feller-buncher systems. Reliance on manual felling can decrease operational productivity, particularly for inexperienced operators. Risk is assessed as medium due to the lack of forest residue supply experience and the difficulties associated with in-woods chipping and chip truck transit in mountainous environments.

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

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: The region's logging capacity relies primarily on semi-mechanized crews utilizing chainsaws, cable skidders, and knuckleboom loaders, as steep slopes make the operation of feller bunchers difficult and cost-prohibitive for most contractors. While a few larger operators utilize excavators equipped with dangle head processors to manage larger trees, fully mechanized crews constitute only about 10% of the workforce. The availability of forest residue for

new projects will depend on logging contractors making investments in chippers and/or grinders, as in-woods comminution capacity is virtually non-existent. Financing for new, expensive comminution equipment remains a challenge without specific assistance programs and/or offtake agreements.
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** *RRL Mitigation (Notch)* **NN** No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score **Score** The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100. **36**

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: Land ownership in the region is overwhelmingly private, accounting for approximately 97% to 99% of forestland, composed largely of small family parcels and some corporate holdings. A significant structural shift occurred between 1998 and 2008 when the forest products industry divested massive land holdings to Timber Investment Management Organizations (TIMOs) and Real Estate Investment Trusts (REITs). While public lands like the Daniel Boone National Forest exist, they contribute negligibly to commercial wood supply.
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** *RRL Mitigation (Notch)* **NN** No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
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. The size of wood fiber processed in a grinder is less homogenous than if a chipper is used.

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.[10]

Risk Information: Historically, feedstock preparation in the region has been heavily reliant on stationary processing infrastructure due to the practice of chipping pulpwood at satellite yards before chip delivery to pulp and paper mills. There is a scarcity of in-woods densification equipment, with local experts reporting that only one or two in-woods chipping crews currently operate across the entire state. This limitation is primarily driven by the region's steep topography, which restricts the availability of landing sites large enough to accommodate mobile chipping operations to approximately 25% of the harvestable area. The supply chain is structured around transporting roundwood or sawmill residuals rather than densifying material at the harvest site. While logging contractors will find it difficult to finance new mobile comminution units and will require a period of learning to bring forest residue production up to scale, no significant variation in feedstock quality is likely to result from the types of chipping or grinding units used.

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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
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 have been three buyers of regional pulpwood since 2020 when the Domtar Kingsport, TN mill was converted to recycled paper. However, since the closure of a pulp and paper mill in Chillicothe, OH in 2025 and the recent decision by a pulp and paper mill in Hawesville, KY to intake sawmill chips only, there is currently only a single buyer of pulpwood in the region. Prices paid by the facility (an OSB mill) are only sufficient to support deliveries of pulpwood from the southern quadrant of the Supply Zone. With regards to the rated quantity of sawmill residuals, a

[10] Huhnke, 2018.

new project located in the vicinity of London would likely have access to wood chips generated by many of the sawmills in the Supply Zone due to locational advantage (the nearest pulp and paper mill is located approximately 150 miles from London). Charcoal production facilities in the region are known to purchase forest residue and one facility is located within 30 miles of London and therefore risk is elevated slightly.

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

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: Current intake quantities of pulpwood and forest residue are likely less than 100,000 bdt/yr combined whereas there is complete utilization of sawmill residuals generated in the study area. Overall, the relative lack of competitors and the locational advantage to sawmill residuals for a project located in the vicinity of London leads to a low risk assessment for this indicator.

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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**

Loaded RI Score	Score
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	16

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: Pricing for biomass feedstock has recently softened due to a surplus of supply relative to demand, with delivered pulpwood prices reportedly dropping to $22–$24 per green ton in some areas, down from typical levels of $25-$30 per gt (Table E-1). Formal long-term contracts for pulpwood are rare in this market; transactions are typically conducted on a "gate rate" basis, leaving suppliers sensitive to spot market fluctuations and the operational status of the few remaining buyers. Contractual arrangements for sawmill residuals could not be determined through outreach. Overall, risk is assessed as low due to the decline in pulpwood pricing, the lack of demand for forest residue, and the willingness of sawmill operators contacted during outreach to share availability and pricing information.

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

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 (in the case of a sawmill adding a shift or pulp mill potentially expanding into the production of renewable chemicals, for

example), 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: There is a trend towards reduced demand by competitors in the Competition Zone. Pulpwood demand is now non-existent in most areas and buyers of sawmill residuals are restricted to a few small pellet mills and landscaping companies. Further, no planned facilities that could compete for the evaluated feedstocks were identified during outreach. The likelihood of increases in future demand for biomass feedstock by new competitors is therefore 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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

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: There is no evidence of significant soft supply influence by existing buyers of pulpwood and sawmill residuals. Demand for pulpwood is depressed or non-existent in most areas of the Competition Zone, and most sawmill operators contacted during outreach expressed interest in selling residuals to new customers. The charcoal facilities and pulp and paper mills that purchase forest residue work with suppliers that operate outside of the Supply Zone.

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 low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 8 out of 100.	**8**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)*	**NN**

No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score — **Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 8 out of 100. — **8**

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.
Risk Information: Temporary and alternative markets for biomass feedstock in the region are limited to firewood. Biomass availability can temporarily increase as a result of severe weather events such as tornados and floods but this material is difficult to recover and is of heterogenous quality. Overall, there is no evidence that temporary markets for biomass would constitute a risk to feedstock supply for new projects.
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**
RRL Mitigation (Notch) — **NN** No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score — **Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100. — **4**

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: Existing users, including sawmills and competitors, stockpile to mitigate seasonal supply interruptions. The one remaining paper mill in Hawesville, KY has a significant inventory capacity for wood chips but this facility does not buy and stockpile pulpwood.
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
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	16

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: The limited number of competitors are relatively small in size or do not purchase pulpwood. We were unable to determine whether or not accessibility of current markets for sawmill residuals is a concern. Risk that competitors will have an advantage in procurement due to management of inbound deliveries of feedstock is assessed to be 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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	16

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: Standard pulpwood specifications in the region typically include a minimum 8-inch DBH and a 4-inch top. These specifications do not pose any risk to a new project, particularly due to the lack of competitors for pulpwood in the region. The one remaining pulp mill now purchases wood chips from sawmills only, significantly reducing risks to new projects as they relate to competitors' specification advantages. Some buyers of sawmill residuals like pellet mills and charcoal producers also have very specific feedstock requirements (e.g., specific species), reducing risk that a new entrant will compete with existing users.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	4

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

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: Local outreach in the BDO Zone indicates that typical biomass feedstock payloads are 25-28 green tons per load, or 12.5-14 bdt. Transportation costs are reported at roughly $150 per hour and $4.00 per loaded mile. For payloads of 25-28 green tons, this equates to a cost per loaded mile of $0.14-$0.16/gt/loaded mile. This cost range is low relative to known regional transportation costs in the USA. The data also indicates that the share of transportation costs in total delivered costs is 20-30%. 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 *RRL Mitigation (Notch)* No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**Notch** **NN**
Loaded RI Score	**Score**

The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

1.4.2 Ownership/Control of Transportation/Logistics

Rationale: In most cases, suppliers that own or lease transportation equipment necessary to transport biomass from forests or 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: Ownership of transportation assets in the region is a mix of mill-owned fleets, logging contractor-owned trucks, and third-party transportation contracting. Larger aggregators and mills often maintain significant control over logistics, with one chip mill having up to 80 trailers. Some logging contractors own and operate one or two trucks and trailers to ensure timely deliveries. However, for many independent logging contractors, the trend is to contract trucking out to avoid the high overhead, difficulty of finding drivers, and insurance liabilities. The presence of a mix of large and small companies with trucking capacity reduces risk that the rated quantities of biomass feedstock will be unavailable to new projects.

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

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: The region has a robust availability of specialized transport equipment necessary for biomass delivery, specifically chip trailers. Outreach indicates that trucking capacity is sufficient with an ample supply of both walking floor and tipper trailers available to service the market. Aggregators in the region support regional demands by maintaining diverse fleets that include walking floors, tippers, and open/closed top trailers to ensure compatibility with different receivers.

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**

RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**Score** **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: The forest industry in the region benefits from favorable public sentiment. The Laurel County area has historically acted as a hub for sawmills and chip mills. To minimize community impact and maximize logistical efficiency, potential development sites are strategically located near bypasses to facilitate heavy transport without congesting local town centers.

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

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: Federal regulations on Kentucky interstates mandate maximum weights of 80,000 lbs. gross vehicle weight (GVW), 20,000 lbs. for single axles, and 34,000 lbs. for tandem axles. Off-interstate, Kentucky utilizes a road classification system (A, AA, AAA), where AAA roads permit up to 80,000 lbs. GVW. The region features specialized networks such as the Extended Weight Coal Haul Road System and the Kentucky Metal Commodities Hauling Network, which allow for increased weights of up to 120,000 lbs. on specified routes. Primary forest products, including wood chips, logs, and sawdust, are eligible for a 10% gross weight tolerance on state-maintained roads, effectively allowing a

GVW of 88,000 lbs. Furthermore, axle weight provisions do not apply to forest products registered under farm plates, while those with commercial registrations are allowed a 10% axle weight tolerance.
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** *RRL Mitigation (Notch)* **NN** No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score **Score** The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100. **4**

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: Generally, road infrastructure is of adequate condition for the purposes of the forest industry. However, forest residue supply would be negatively affected by steep, mountainous terrain, which makes building and maintaining access roads for in-woods chippers and chip vans difficult. Roads are also vulnerable to extreme weather events. For example, the 2022 Appalachian floods caused catastrophic damage, washing out bridges and roads and temporarily blocking access to rural communities. Although major flooding events are rare and road surfaces are generally in good repair, risk is assessed as medium due to the difficulty of accommodating in-woods chipping units and chip vans required for forest residue recovery.
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** *RRL Mitigation (Notch)* **NN** No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score **Score** The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100. **36**

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: The region exhibits strong transportation redundancy, with local outreach confirming that trucking capacity is adequate and that there is an ample supply of both walking floor and tipper trailers. One large aggregator in the region operates a fleet of 75 to 80 trailers that includes walking floors, tippers, and open/closed tops to accommodate diverse mill receiving requirements. The availability of trucks and trailers for new projects has increased over time as the regional pulp and paper industry has declined.

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

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: For pulpwood and forest residue, the supplier base is characterized by a network of small, independent logging contractors anchored by a few large-scale aggregators located strategically near key transport arteries. While most logging contractors operate smaller businesses with only one or two crews, there is at least one company that operates multiple crews with significant production capacity. Overall risk for pulpwood and forest residue is slightly elevated due to the lack of companies with multiple crews. With regards to suppliers of sawmill residuals, there are a total of 13 sawmills in the Supply Zone. Average capacity is approximately 13 MMBF/yr and the largest sawmill has a capacity of 38 MMBF/yr and is located within London, KY and interested in selling to new customers. The availability of sawmill residuals from multiple sawmills in the Supply Zone moderates risk impact.

Raw Risk Likelihood (RRL)	**Score**

The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**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 *RRL Mitigation (Notch)* No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 24 out of 100.	**Score** **24**

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 have varying impacts on suppliers.

Risk Information: Suppliers across the region are uniformly subject to significant risks driven by extreme weather, steep terrain, and downstream market volatility. The steep, mountainous topography of eastern Kentucky restricts mechanization and exacerbates the impact of severe weather events. Moreover, the financial viability of harvesting low-grade biomass is inextricably linked to the demand for primary products like sawlogs, veneer, and furniture. Long-term declines in the domestic furniture industry and recent sluggishness in the housing market directly constrain the availability of residues and the economic feasibility of logging operations. While declines in the pulp and paper industry have led to an increase in the availability of pulpwood for new markets, risk of supplier breach owing to the factors outlined above is assessed as 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 *RRL Mitigation (Notch)* No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 64 out of 100.	**Score** **64**

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: The supply chain possesses significant latent capacity in processing and transportation, though harvesting scalability is physically constrained by terrain. Aggregators with stationary comminution equipment reported during outreach the ability to more than double output using existing idle capacity. However, scaling up in-woods operations is difficult as only about 25% of landings in the Supply Zone are likely large enough to accommodate the equipment necessary for on-site chipping, forcing a reliance on roundwood transport. While trucking capacity is likely sufficient to handle the rated quantities, the high cost of new comminution equipment and high insurance premiums for labor remain barriers to rapid expansion for smaller contractors.

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

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: The region benefits from an experienced workforce, comprised of forest equipment operators with decades of experience as well as operators who have transitioned from the declining coal industry. Outreach indicates that while there is currently an ample labor supply under current market demand, the workforce is aging, and recent market downturns have caused some loggers to exit the industry. To address future labor gaps, state initiatives and programs like Forestry Works and the Kentucky Master Logger program are actively engaged in training and recruitment, though finding new entrants remains a long-term challenge.

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

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. This can be particularly true for forest residues, where, typically, the infrastructure for collection, processing, and delivery is immature.

Where supply chains are not well-established, risk can be mitigated when new bio-based plants control a higher degree of feedstock processing. For example, if a BDO Zone rating is issued for clean wood chips and the historical demand in the Zone has been exclusively for pulpwood, then supply chain risk will be decreased for new bio-based plants that intake pulpwood and manage log debarking and chipping internally, rather than requiring inexperienced suppliers to deliver debarked wood chips.

Risk Information: Historical demand for biomass feedstock in the region has been marked by significant volatility and a recent sharp decline due to the closure of primary consuming facilities. Regional pulpwood and pulpwood chip demand has likely decreased by between 500,000 and 1,000,000 tons/yr since 2020. Historical data also shows a general decline in pellet production, indicating that demand for sawmill residuals such as sawdust has also declined in recent years. While this broader trend of low or inconsistent historical demand for low-grade biomass in the Supply Zone has been concentrated over the past five years, it has likely resulted in the loss of equipment and skilled operators required for a new project. However, the recent drop in regional pulpwood demand and historical pulpwood production data provide assurances that the rated quantity of pulpwood will likely be available without supplier recruitment or investment. It is also likely that no significant increase in worker recruitment will be required for supply of the rated quantity of forest residue.

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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**

The Loaded RI Score ((1-Total Notch) X GRI Score) is 24 out of 100.	**24**

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: Seasonal weather patterns in the region create distinct operational bottlenecks, primarily during the wet winter months from January through April. Local loggers report missing an average of six to eight weeks of work during this period due to rain and freezing temperatures. To mitigate these predictable supply disruptions, mills typically engage in stockpiling during the drier fall months (September through November), which offer the highest output conditions. Extreme winter events, such as the 1994 North American cold wave, can further exacerbate these issues by freezing major transport arteries like the Ohio River and shutting down infrastructure for extended periods. While events like this are rare, supplies can be temporarily disrupted without proper safeguards in place.

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 medium, therefore the RRI is 6 out of 10.	**Score** **6**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**Score** **36**
Mitigation/Notching *RRL Mitigation (Notch)* Project proponents can mitigate seasonal supply disruptions through the practice of stockpiling. Feedstock inventory capacity at the Project site should be sized accordingly to ensure a two-month stockpile can be accommodated. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 25%.	**Notch** **25%**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 27 out of 100.	**Score** **27**

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 region is susceptible to severe natural disturbances that pose long-term risks to infrastructure and feedstock accessibility, including catastrophic flooding, tornadoes, and extreme cold. The historic flooding of July 2022, described as a 1-in-1,000-year event, dropped up to 16 inches of rain, washing out bridges and roads, blocking access to rural timberlands, and resulting in the deadliest natural disaster in eastern Kentucky in decades. Furthermore,

the region experiences periodic violent tornado outbreaks, such as the December 2021 event that produced a long-track EF-4 tornado destroying infrastructure in Mayfield, KY, and the historic 1890 outbreak, which remains one of the deadliest on record. Climate projections suggest a trend toward warmer and wetter conditions, potentially increasing the frequency of these extreme precipitation events and hydrological stresses. These events will, however, remain infrequent (multidecadal) and therefore do not constitute a serious risk to biomass supply for new projects.

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

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: While wildfire has been less catastrophic in recent decades due to suppression efforts, it remains a priority for the Kentucky Division of Forestry, particularly during drought conditions. The region experiences heightened fire risk during flash droughts, such as the event in September 2019 when the state forestry division reported 107 wildfires in a single month—a time typically devoid of such activity. Although large-scale events like the 2007 Okefenokee fires occurred further south, the region's susceptibility is rising; experts note that Kentucky is "long overdue" for a notable forest fire event as climate trends potentially extend the spring and autumn fire seasons. The predictions of climate models are associated with significant uncertainty and therefore risk is assessed as low due to the notable lack of frequent wildfire events in the study region.

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

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 forest insect populations are influenced by environmental conditions, future changes in climate can be expected to significantly alter the outbreak dynamics of certain forest insect species. In some cases, larger and more frequent insect outbreaks may occur, but in other cases, recurring outbreaks may be disrupted or diminished. As the climate continues to change, we can expect more situations, particularly at the margins of tree ranges, where sub-optimal conditions for tree growth and reduced tree vigor can lead to outbreaks of forest insects.

Risk Information: The Supply Zone faces significant threats from invasive pests that target key timber species, specifically the Emerald Ash Borer and the Hemlock Woolly Adelgid. The Emerald Ash Borer has destroyed tens of millions of ash trees and has shown resilience to extreme cold snaps, such as the 2014 polar vortex, continuing to ravage forests despite freezing temperatures. Conversely, the Hemlock Woolly Adelgid, which threatens the ecological viability of hemlock stands in the Appalachian region, can be partially checked by severe cold events which kill off larvae. Overall, risk to a new project is assessed as low because these species are coniferous and not significant sources of wood supply in the hardwood-dominant forests of southeastern Kentucky.

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 *RRL Mitigation (Notch)* No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**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: 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: Hail does not constitute a serious threat to woody biomass supply and therefore 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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No 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: The region is highly susceptible to catastrophic flooding, which can sever logistical access to feedstock by washing out roads and bridges. The most recent major flood event in the region occurred in July 2022. The floods destroyed infrastructure, blocked road access, and resulted in 45 fatalities. These events are rare but climate models project that heavy precipitation events will become more frequent and intense, particularly in the winter and spring. Climate model projections are marked by significant uncertainty and therefore risk is assessed as low-to-medium, based on the likelihood for flooding events to have a negative effect on wood supply over the next 20-40 years.

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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment.	**NN**

The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score **Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 24 out of 100. **24**

1.7.7 Risk of Drought

Rationale: Droughts can cause significant disruptions to feedstock supplies across entire BDO Zones for extended periods of time. Tree species are adapted to specific moisture conditions. Having less water available through drought has a range of negative impacts on the health of forest ecosystems. Direct impacts include reduced growth, increased tree mortality, and failure to regenerate. Indirect impacts include reduced ability to defend against insects and disease and increased fire risk. These impacts can affect the availability of wood fiber for an Issuer.

Risk Information: While the region typically receives ample precipitation, it is vulnerable to "flash droughts" during the summer months, which can rapidly dry out vegetation and increase wildfire risks. Notable historical droughts occurred in 1930, 1954, and 1988, with the 1930 event recording the driest year in state history. More recently, a flash drought in September 2019 resulted in Lexington recording zero rainfall for the entire month—the first time in recorded history—and Louisville receiving only 0.04 inches. Tree die-back events have been rare in the region and therefore risk to future biomass supply chains 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**
RRL Mitigation (Notch) No adjustment.	**NN**
RRI Mitigation (Notch) No adjustment.	
The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

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 forestry 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 faces risks from tornadoes and the remnants of tropical systems, which can level vast tracts of timber and disrupt power for weeks. The historic tornado outbreak of December 10–11, 2021, produced a long-track EF-4 tornado that devastated Mayfield, KY, and tracked for over 165 miles. The region is also impacted by the remnants of hurricanes, such as Hurricane Ike in 2008 and Hurricane Helene in 2024, which brought wind gusts exceeding 60 mph and widespread power outages. Local outreach confirms that tornadoes can be catastrophic to forest resources, citing an F4 event that destroyed a mile-wide swath of timber across 30 miles. Risk is assessed as medium due to the increasing trend for high-wind events in southeastern Kentucky.
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**
RRL Mitigation (Notch) **NN**
No adjustment.
RRI Mitigation (Notch)
No adjustment.
The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score **Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100. **36**

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: Extreme low temperatures periodically disrupt operations and infrastructure, with local loggers reporting shutdowns due to freezing conditions and the 1994 North American cold wave setting a state record of -37°F. Historic winters like those in 1977 and 1978 saw the Ohio River freeze completely, halting barge transport and causing fuel shortages. Trends suggest that extreme cold events are becoming less frequent and shorter in duration, and therefore 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**
RRL Mitigation (Notch) **NN**
No adjustment.
RRI Mitigation (Notch)
No adjustment.
The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score **Score**

The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

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: Historical fuel price data for the Midwest region (PADD 2) indicates significant volatility in biomass supply chain operating costs. Midwest No 2 Diesel retail prices averaged $2.426 per gallon in 2020, spiked to a peak annual average of $4.898 per gallon in 2022 due to global market instability, and have since moderated to an average of $3.696 per gallon in 2024. This fluctuation directly impacts delivered feedstock costs, as local trucking rates are highly sensitive to fuel prices, cited around $6 per ton for short hauls but rising with distance. The volatility in diesel prices correlates with broader inflationary pressures, creating year-to-year uncertainty in the marginal cost of delivering biomass from the forest to the facility.

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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**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: N/A

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**
The Total Notch (RRL Notch) X (RRI Notch) is not rated (NR).	**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: N/A

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**
The Total Notch (RRL Notch) X (RRI Notch) is not rated (NR).	**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: Direct government subsidies for the logging and transportation of biomass feedstock are currently limited. Current support relevant to feedstock supply is largely confined to training initiatives such as Forestry Works rather than direct production subsidies. Risk is assessed as very low due to the reliance of suppliers on private market dynamics.

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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**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 forest residues, allowable cut limits, 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: Kentucky is distinct in its regulatory framework for forestry, being one of the few states where the use of Best Management Practices (BMPs) for water quality is mandatory rather than voluntary. Logging operations must be attended by at least one certified Kentucky Master Logger. This regulatory rigor ensures environmental compliance but imposes specific operational standards on the workforce. Additionally, timber theft remains a noted issue in central parts of the state despite laws introduced two decades ago, which are described by local consultants as largely ineffective. Future regulatory challenges may include tighter air-quality restrictions on prescribed burning, which could constrain forest management activities necessary for maintaining forest health and reducing wildfire risk. This could also increase the likelihood of forest residue supply, reducing risk. Risk is assessed as low due to the environmental supply assurances conferred through the Kentucky Master Logger requirement and the possibility of stricter controls on prescribed burning.

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

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: Public sentiment regarding forestry and biomass development in the region is generally described as neutral or favorable. While environmental organizations like the Southern Environmental Law Center track wood pellet plant expansions and export activities in the broader US South, identifying them as a potential source of scrutiny regarding the conversion of forests for bioenergy, there are no documented sources of specific instances of localized backlash in the Laurel County area. The region's economic context, characterized by a decline in the coal industry and

a need for new markets for low-grade wood, suggests a generally receptive environment for forest product industries rather than organized opposition.

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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**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 decreases Issuer risk.

Risk Information: According to local forestry experts consulted during outreach, there are no federally recognized Indigenous communities or First Nations with specific land claims or consultation requirements currently active in the immediate forestry sector of Kentucky. Risk is therefore 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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

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: Competition with food product markets appears minimal, with current land use trends suggesting distinct separation between timber and agricultural operations. In fact, some local dynamics show a conversion of timberland to agriculture, as evidenced by a logger buying "chipwood" acreage to convert into farmland for growing corn. Overall, it is extremely unlikely that new demand for the rated quantity of feedstock will lead to significant conversion of cropland into forest plantations and result in associated public opposition.

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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**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: Kentucky enforces a rigorous regulatory framework for feedstock sustainability, distinguishing itself as one of the few states where Best Management Practices (BMPs) for water quality are mandatory rather than voluntary, requiring a certified Kentucky Master Logger to be onsite for all commercial logging operations. While third-party certification is present, it is not ubiquitous; approximately 10% of landowners participate in SFI programs via the state's SFI Implementation Committee, and less than 500,000 acres state-wide hold certification, though some local mills like Kentucky Forest Products (formerly BPM) have maintained FSC certification. Compliance is monitored by the Kentucky Division of Forestry, which maintains a "bad actor" list to enforce standards and ensure environmental compliance. Recent experiences with timber theft in the northern part of the Supply Zone slightly increase risk but outreach indicates that this is not prevalent in most areas.

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**
RRL Mitigation (Notch)	**NN**

No adjustment.

RRI Mitigation (Notch)
No adjustment.

The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).

Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	**16**

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 forest 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: The risk to soil quality in the region is heavily influenced by the steep, mountainous terrain of eastern Kentucky, which necessitates the use of manual hand-felling and cable skidders for up to 90% of operations to minimize soil disturbance that heavy mechanization might cause. The region is susceptible to landslides, with over 2,300 historical events recorded, particularly in areas with steep drainage hollows, concave slopes, and moderate to thick soils, making slope stability a critical factor in harvest planning. To mitigate these risks, the state mandates strict adherence to Best Management Practices (BMPs) to prevent erosion and protect water quality, limiting harvesting on sites where soil stability cannot be maintained.

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

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: Kentucky's rigorous regulatory framework for water protection provides assurances that surface and ground waters will not be adversely impacted by logging activities. Further, the Division of Forestry maintains a "bad actor" list to track and penalize BMP infractions, ensuring accountability within the supply chain. While third-party certifications like SFI are present, covering approximately 10% of landowners, the primary mechanism for reducing surface water contamination remains the state's mandatory regulatory oversight which mitigates risks associated with harvest runoff and soil erosion.

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

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 availability in the region faces pressure from the interaction of climate change, population growth, and potential land-use changes, which are projected to increase water stress. While individuals contacted during outreach did not highlight immediate industrial water shortages, regional assessments indicate that intensified forest management—specifically the conversion of natural forests to fast-growing pine plantations for bioenergy—could increase evapotranspiration rates and reduce streamflow in local watersheds. Additionally, the region is susceptible to "flash droughts," which can rapidly stress water supplies during summer months, potentially creating competition for water resources during periods of high demand. The rated quantity of biomass will not lead to a significant increase in the acreage of pine plantations in the region and therefore 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**
RRL Mitigation (Notch) No adjustment.	**NN**

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

1.10.5 Pesticide Risk to Human and Ecosystem Health

Rationale: Application of pesticides (i.e., herbicides, fungicides, and insecticides) on forest 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: The use of pesticides in the region's forestry sector is not expected to increase in the near future as a result of climate change or increased biomass demand. 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** *RRL Mitigation (Notch)* **NN** No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
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 Appalachian-Cumberland subregion, where Laurel County is located, is a biodiversity hotspot supporting high concentrations of salamanders, bats, and sensitive plant species that are vulnerable to habitat alteration. Risks to this landscape include the potential conversion of natural hardwood forests to pine plantations. The rated quantity of biomass is not expected to come from new pine plantations and therefore 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** *RRL Mitigation (Notch)* **NN** No adjustment.

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

CATEGORY 2.0: INFRASTRUCTURE RISKS

2.1 Risk Factor: Physical Infrastructure

2.1.1 Land Parcel/Industrial District

Risk Information: The McDaniel Industrial Park comprises approximately 200 acres across two adjacent tracts in London, Kentucky. The London-Laurel County Economic Development Authority (LLCEDA) recently purchased this land with the goal of developing a multi-tenant industrial park. Primarily consisting of active farmland, open grassy fields, and rolling hills, the developable areas are free of critical habitats, with wooded perimeter areas intended to remain undisturbed. The site is considered suitable for development, accommodating shallow spread footings and conventional slab-on-grade floors. Local geotechnical issues like shallow bedrock and minor swelling/silty soils will require standard construction practices. The property is being affordably priced at $18,000 per acre, with potential negotiation based on parcel size and site work.

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

2.1.2 Ownership of Land

Risk Information: The McDaniel Industrial Park is publicly owned by the London-Laurel County Economic Development Authority (LLCEDA). As the property has already been acquired by a public entity, the initial title transfer process is complete, mitigating the risk typically associated with lengthy municipal transfer procedures. The LLCEDA has designated the property as industrial. The property is listed for sale on the LLCEDA website and Zoom Prospector, showing readiness for further subdivision and transfer to private landowners.

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

2.1.3 Permitting Description

Risk Information: Permitting for the McDaniel Industrial Park is a low-risk factor, primarily because the property is situated outside the city limits of London, Kentucky. Laurel County does not impose local zoning or rezoning requirements beyond the city limits. The LLCEDA formally designated the property as industrial and implemented restrictive covenants to ensure compliance with industrial-type operations, removing the need for a city-level zoning process. Consequently, no local permits or rezoning from the city, county, or state are required. All necessary permits for projects will be obtained exclusively through the Kentucky Department of Housing, Building and Construction in Frankfort, KY. The estimated timeline for receiving approval from this state department for a 70,000 square foot speculative building is 42 days (approximately 1.5 months) indicating a low-risk threshold for permit acquisition.

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

2.1.4 Environmental Issues

Risk Information: The McDaniel Industrial Park presents a low environmental risk for development. A Phase I Environmental Site Assessment (ESA) conducted in June 2023 identified no evidence of recognized environmental conditions (RECs), historical RECs, or de minimis conditions, concluding a low potential for soil or groundwater contamination. The site is not located within a 100-year floodplain according to FEMA maps, and no wetlands are present, although there are farm ponds. An IPaC report (June 2023) determined "No Effect" or "Not Likely to Adversely Affect" for various federally listed threatened or endangered species, as developable areas are clear of critical habitat and wooded perimeters will remain undisturbed. While historical coal mining occurred in the vicinity, no active mining or permits are associated with the site itself. Future clearing near wooded boundaries might necessitate mitigation fees

for endangered bats, but overall, no major environmental liabilities or costly mitigation measures are anticipated, making the site attractive for industrial use.

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

2.2 Risk Factor: Utilities

2.2.1 Natural Gas Availability

Risk Information: Natural gas service for the McDaniel Industrial Park is provided by Delta Natural Gas, with an existing 4-inch line located 60 feet from the site. Map E-1 indicates that natural gas utilities are currently "Under Construction" (UC Gas) to the site. This active development of gas infrastructure directly to the property signifies a proactive effort to ensure availability for future industrial tenants. While there are plans to extend the gas line to the site, the lack of current access results in a medium risk assessment.

Additional notes:

- The distribution line is located along sinking creek and a new unnamed road
- The pressure of the line is 25 psi
- The nearest natural gas transmission line is 2 miles away
- The nearest CGT transmission line is 40 miles away
- There is currently no user, and future upgrade of regulator stations is required

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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**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: Electricity for the McDaniel Industrial Park is supplied by Jackson Energy Cooperative, which is affiliated with East Kentucky Power's Touchstone Energy groups. The property currently has existing electric service, and crucially, 3-Phase power is available. Map E-1 also indicates "PROPOSED UC 3 PHASE ELECTRIC" (Under Construction 3-Phase Electric), suggesting ongoing enhancements to the electrical infrastructure. The presence of existing 3-Phase electric service directly at the site, combined with continuous upgrades, categorizes electric availability as a low-risk factor for industrial development.

Additional notes:

- The electric distribution line is located directly on site, with 12.47 kV voltage
- The nearest transmission line is 0.09 miles away, with 69 kV
- The transmission line is located adjacent on the north side of the site, 400 feet away
- The substation is located 0.2 miles away
- The current electric capacity is 2 MW
- To provide 10 MW, service system improvements are required to be installed at the nearby substation – This would cost approximately $0.58M and take 12 to 18 months

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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**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 for the McDaniel Industrial Park is provided by the Wood Creek Water District, which holds the service territory for the property. An 8-inch line located 3,500 feet from the site on the south side of Highway 80 has a total water capacity of 0.5 MGD and an excess water line capacity of 0.15 MGD. The site is served by the Wood Creek Water District's treatment plant, with a total permitted capacity of 12.0 MGD. Map E-1 shows both "EXISTING WATER" and "UC WATER" (Under Construction Water), confirming continuous development and expansion of the water system. This combination of existing infrastructure, substantial excess capacity, and ongoing improvements positions water availability as a low-risk factor for the industrial park.

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

2.2.4 Drainage, Stormwater Management, and Sewage

Risk Information: Currently, the McDaniel Industrial Park properties are served by septic tank systems for sewage. However, significant infrastructure improvements are underway; the London Utility Commission operates a six-inch wastewater force main located on the property, which runs parallel to Sinking Creek Road. For stormwater management and drainage, the property is not within a 100-year floodplain and contains no wetlands, with site observations indicating good natural drainage even after rainy periods. Recommendations for future development include standard site preparation, ensuring positive surface drainage, and properly channeling roof and pavement runoff into storm drains to prevent ponding and erosion.

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

2.2.5 Waste Disposal

Risk Information: The nearest landfill is Laurel Ridge Landfill, located 15 miles away. The landfill is operated by Waste Connections. This is a relatively large landfill, with >380,000 tons per year intake (>1,000 tons per day). The remaining capacity of the landfill is ~20 years. Additionally, the City of London Transfer Station is located 8 miles away. The risk related to waste disposal 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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	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: Information and Communication Technology (ICT) services for the McDaniel Industrial Park are supported by broadband providers like Windstream or Spectrum, with Windstream Kinetic specifically offering fiber optic services. Map E-1 indicates that "UC FIBER OPTIC" (Under Construction Fiber Optic) is being developed, signifying active efforts to bring high-speed internet directly to the site.
Additional Information:

- Nearest telecommunications infrastructure: 4100 feet
- Timeline to serve: 3 months
- Fiber and Dark Fiber are available to the property

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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	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 McDaniel Industrial Park has excellent road and highway access, leading to a very low risk assessment for this indicator. The property is directly accessible via Sinking Creek Road (KY 1535), which traverses portions of the site and includes an internal paved road. A key advantage is its convenient location just 4.1 miles from Interstate 75 (I-75), near Exit 41, accessible via West 80, a four-lane divided highway. Additionally, a 24-foot-wide industrial access road is being constructed on the property, which will further enhance internal circulation and logistics. The site's adjacency to existing industrial properties and parks suggests a well-developed local transportation network

accustomed to industrial traffic. This direct access to both local and major state highways ensure efficient connectivity for both passenger and freight vehicles, minimizing the need for extensive external road improvements.

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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**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: There is access to rail in close proximity to the industrial site, approximately 10 miles away. Rail carrier is CSX Transportation (CSXT). However, currently there is no rail spur at the site. Due to this fact, the risk is deemed 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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**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: The McDaniel Industrial Park benefits from very convenient airport access, making this indicator a very low risk. The London-Corbin Airport is located about 9 miles from the property, and the Blue Grass Airport (nearest commercial airport) is located 80 miles from the property.

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

2.3.4 Water Freight Access

Risk Information: There is no ocean or river freight access to the site. However, the impact of the lack of access to water freight is deemed medium.

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 medium, therefore the RRI is 6 out of 10.	**Score** **6**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 60 out of 100.	**Score** **60**
Mitigation/Notching *RRL Mitigation (Notch)* No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 60 out of 100.	**Score** **60**

2.4 Risk Factor: Social Infrastructure

2.4.1 Healthcare (Local)

Risk Information: The London-Laurel County area provides a robust local healthcare infrastructure, presenting a low risk for new projects. Comprehensive hospital services are available at the Saint Joseph London Hospital (located 6 miles away) and the Baptist Health Corbin Hospital (located 21 miles away), encompassing emergency, surgical, diagnostic, and specialized care. Additionally, there is convenient access to urgent care facilities for non-critical medical needs. The area also benefits from reliable Emergency Medical Services (EMS) coverage, staffed by trained professionals who are readily available. This proximity to a range of medical and emergency services ensures quick access, which is critical for both emergency situations and regular healthcare maintenance for employees.

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

2.4.2 Education (Schools)

Risk Information: The London-Laurel County area demonstrates a robust and highly accessible educational infrastructure, leading to an overall low risk assessment. The Laurel County School District operates 19 public schools (11 elementary, 4 middle, 4 high), serving approximately 8,700 students. Higher Education and Adult Education are provided by Somerset Community College (SCC) (located 8 miles from the site).

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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	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: Local transportation options for the McDaniel Industrial Park's workforce present a mixed picture, leading to an overall moderate risk assessment. Public transportation is offered through RTEC (Rural Transit Enterprises Coordinated), which provides demand-response services across 15 Southeast Kentucky counties, including Laurel. However, RTEC requires advance booking (at least 24 hours, or 72 hours for Medicaid-related trips), with same-day requests potentially incurring surcharges or being unavailable. Fares are $1 per mile or a minimum of $4, with higher rates for after-hours or late bookings. Additionally, ride-sharing services like Uber are available in London, KY, offering 24/7 ride scheduling with options for advance reservations to account for slower pickups common in smaller cities. Lyft also has estimated pricing in the area, though driver availability is unclear and generally limited in smaller markets. Taxis are considered a more reliable backup for on-demand transport. The reliance on personal vehicles as the most flexible option keeps the overall risk at medium. Recommendations include expanding RTEC service awareness, exploring

funding for same-day or fixed-route pilot programs, partnering with ride-share platforms to incentivize driver presence, and promoting carpooling for industrial zones to enhance accessibility and support a wider workforce pool.
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** *RRL Mitigation (Notch)* **NN** No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
Loaded RI Score **Score** The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100. **36**

2.4.4 Public Safety (Local)

Risk Information: Public safety for the McDaniel Industrial Park and Laurel County is identified as a low-risk factor, supported by robust law enforcement and emergency services. Laurel County benefits from multiple overlapping law enforcement agencies, including the Laurel County Sheriff's Office, the London Police Department, and the North Corbin Police Department, with additional support from the Kentucky State Police for specialized services. A new, modern sheriff's office facility opened in August 2025, funded at approximately $2.5 million, enhancing service capacity. While violent crime rates are well below the national average (low risk), property crime is categorized as a medium risk due to being significantly above average. Overall, law enforcement capacity, fire, and EMS services are rated low risk due to adequate staffing, equipment, quick response capabilities, and effective interagency coordination.
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** *RRL Mitigation (Notch)* **NN** No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).
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 London-Laurel County area presents a mixed and somewhat nuanced picture regarding housing and cost of living. Laurel County's overall cost of living is approximately 25.9% below the U.S and 10% lower than the Kentucky average, which suggests a generally more affordable environment compared to many other regions. Therefore, this risk indicator 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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

2.5 Risk Factor: Labor

2.5.1 Workforce

Risk Information: The London-Laurel County area demonstrates a proactive, yet complex, workforce environment for the McDaniel Industrial Park. While the explicit goal of the park is to create "good jobs for our region" and stimulate the county's economy, the existing labor market presents a mixed picture. There is a 6% unemployment rate, 1.47x higher than the US unemployment rate. ~85% of individuals above 25 years old in Laurel county have high school education or higher; and ~18% have bachelor's degree or higher. This compares to national statistics of 90% and 35 – 40%, respectively. Therefore, the labor force is significantly less educated than national averages. However, the impact of this risk indicator is less significant, as most jobs created by a new bio project are likely to be trade-oriented.

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**
RRL Mitigation (Notch) No adjustment. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is NN (No Notch).	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 24 out of 100.	**24**

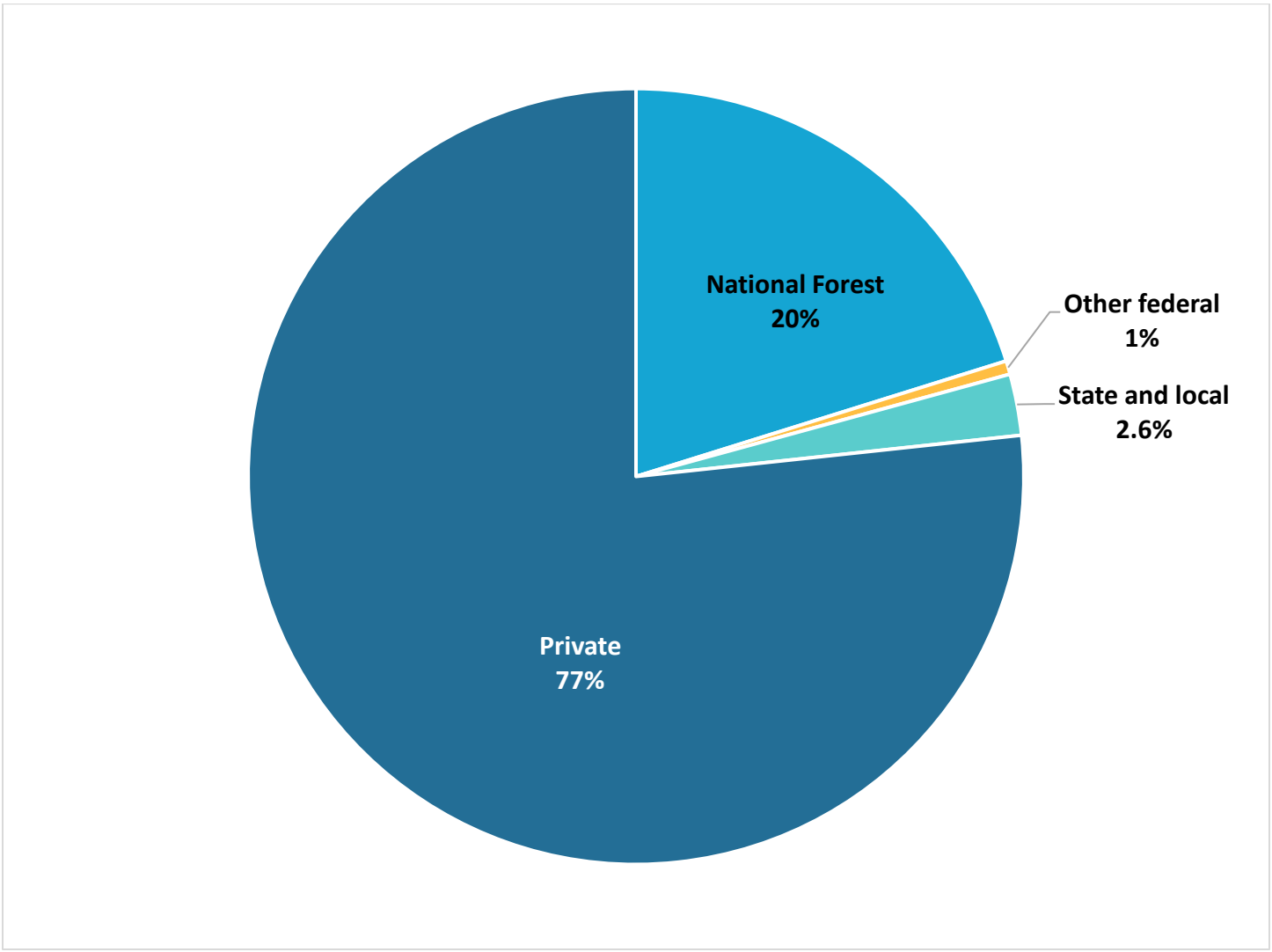
2.5.2 Labor Costs

Risk Information: Kentucky's minimum wage, which applies to Laurel County, is $7.25/hour, mirroring the federal minimum wage and remaining unchanged for many years. Laurel County's average weekly wage for Q4 2024 was $978, which is substantially below the U.S. average of $1,507/week and even below Kentucky's larger counties. The median household income in Laurel County (approximately $56,999 in 2023) is 90% of the Kentucky state median and 73% of the national median, with a higher poverty rate of 21.3% compared to state and national averages. From an employer standpoint, these notably lower labor costs reduce financial strain and operating risk, making the area competitive, particularly for labor-cost-sensitive industries.

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

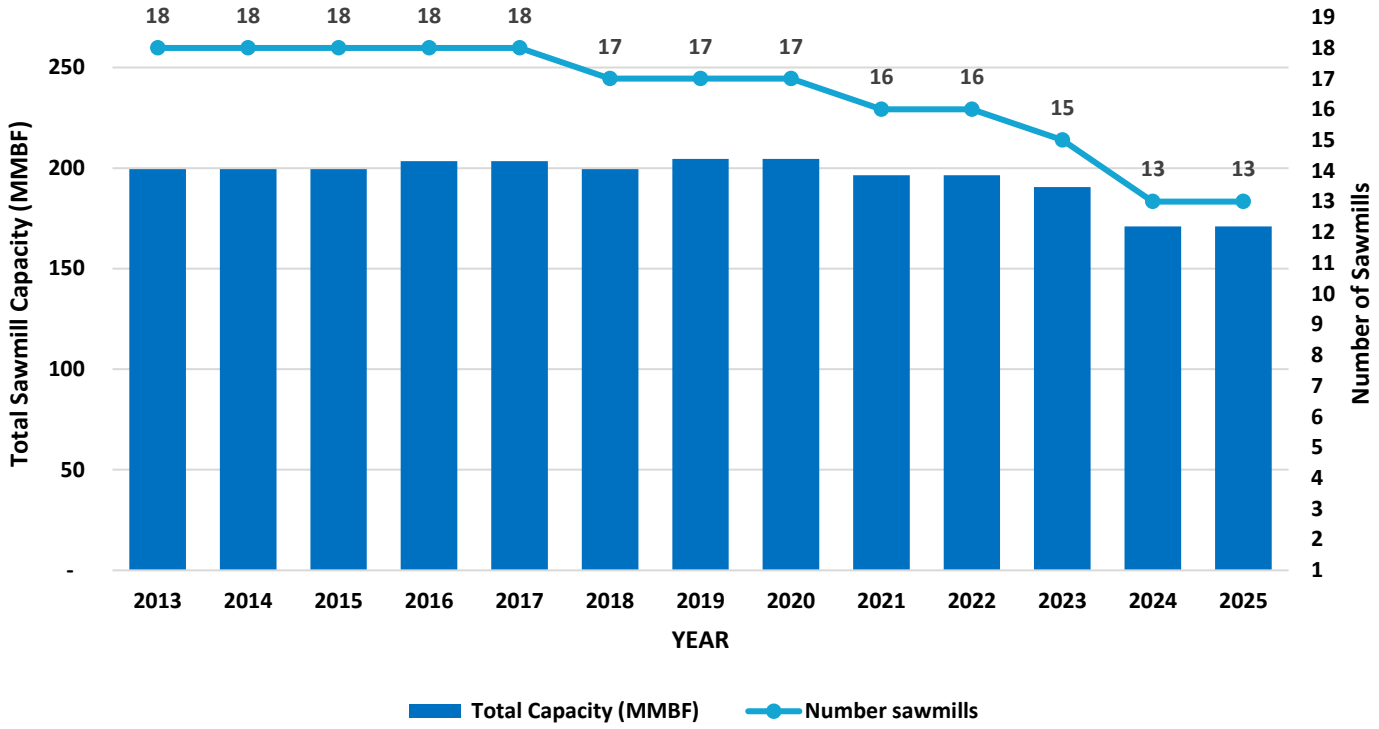
SECTION E: TABLES AND FIGURES

Figure E-1. Percent Merchantable Biomass of Standing Live Trees by Ownership[11]



[11] Ibid.

Figure E-2. Historical Sawmill Capacity and Number of Sawmills in the Supply Zone.[12]



[12] forisk.com/product/north-american-forest-industry-capacity-database/

Figure E-3. Merchantable Biomass of All Live Trees in the Supply Zone (2012-2021)[13]

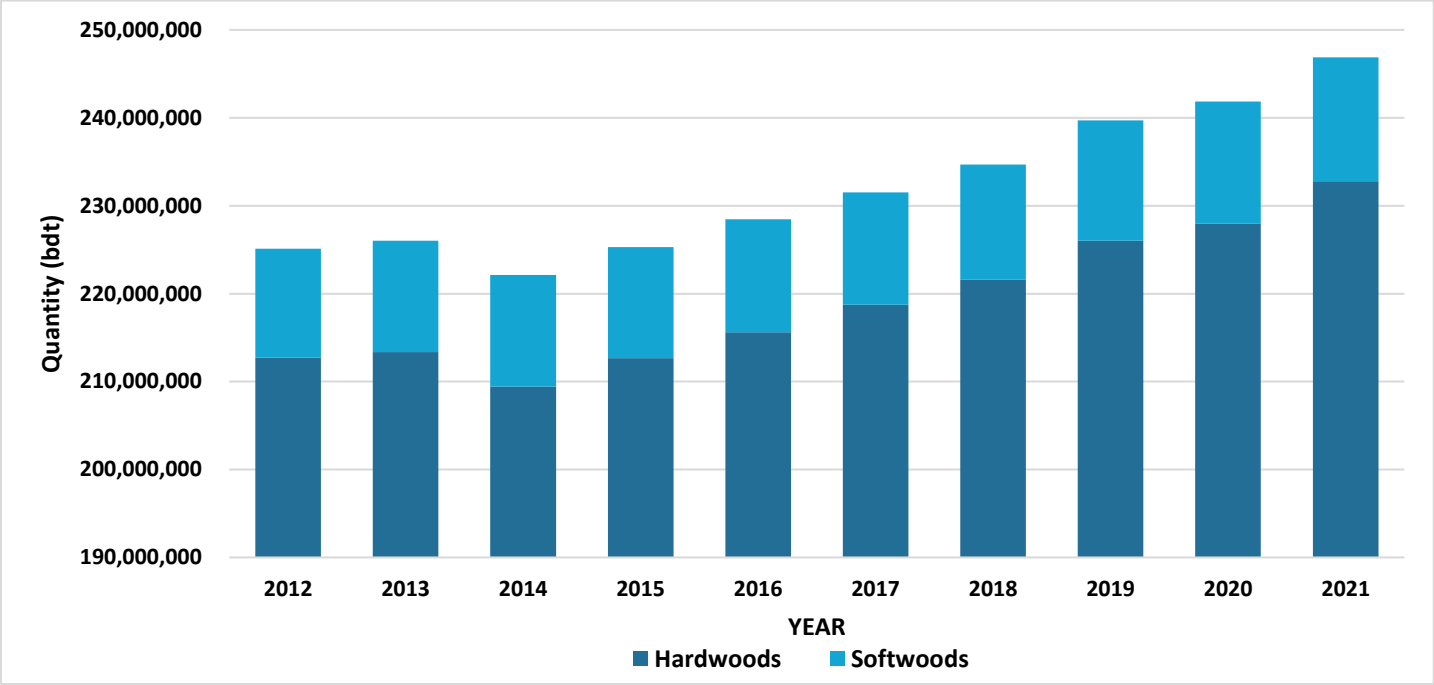
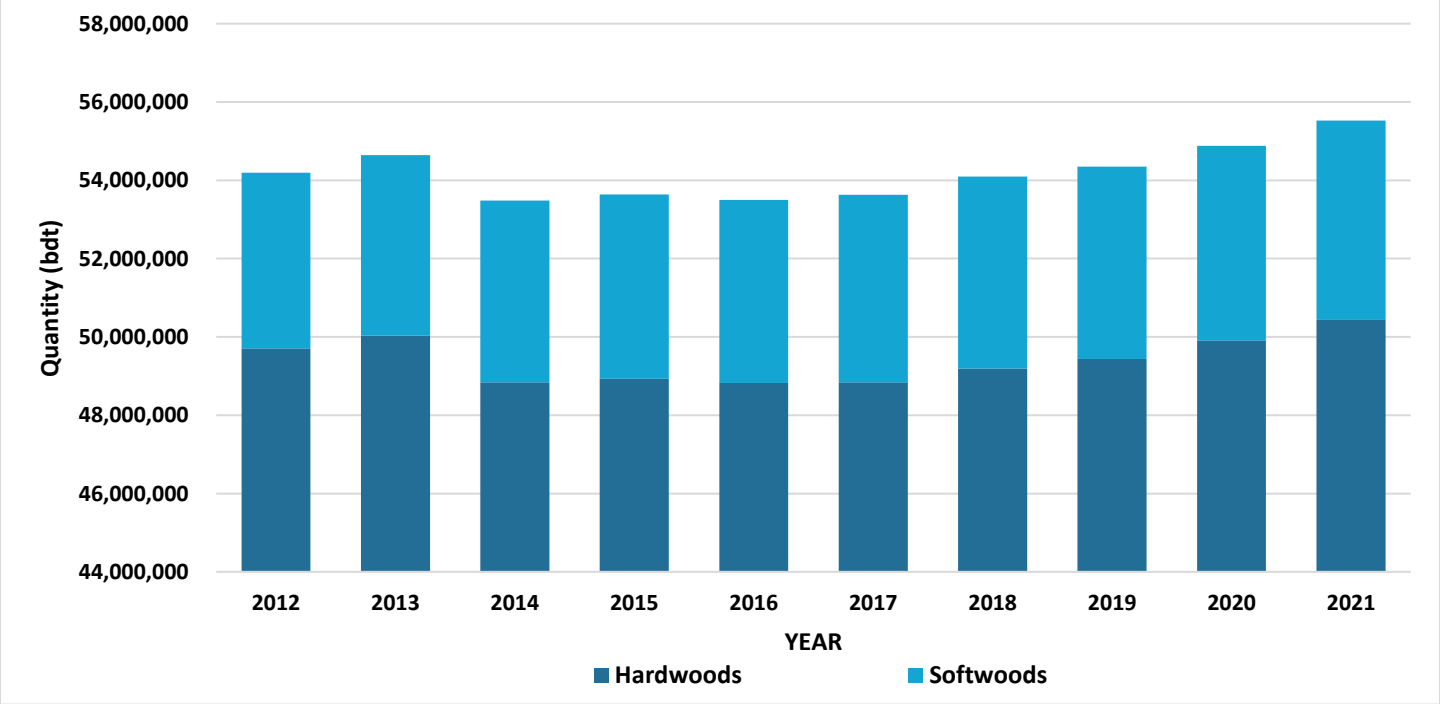
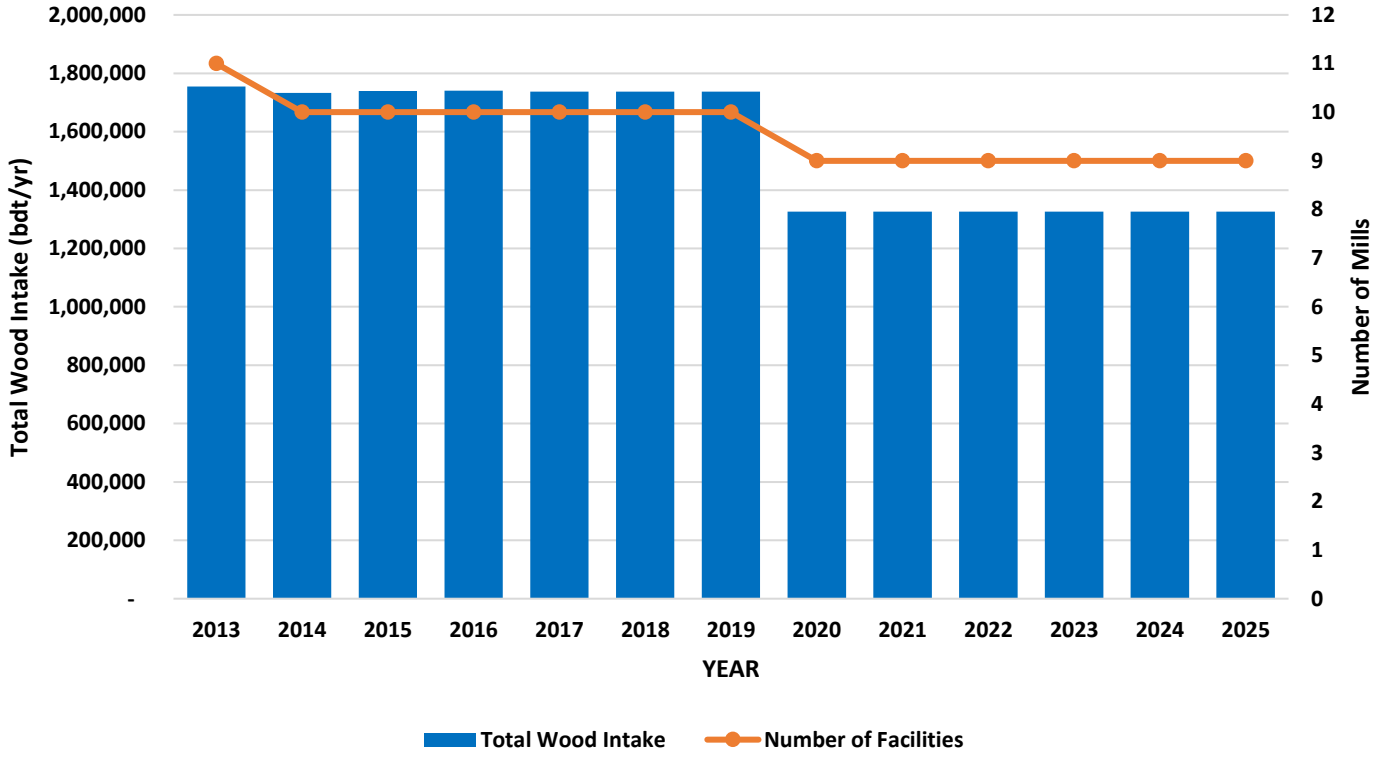


Figure E-4: Merchantable Biomass of Live Pulpwood Size Trees in the Supply Zone (2012-2021)[14]



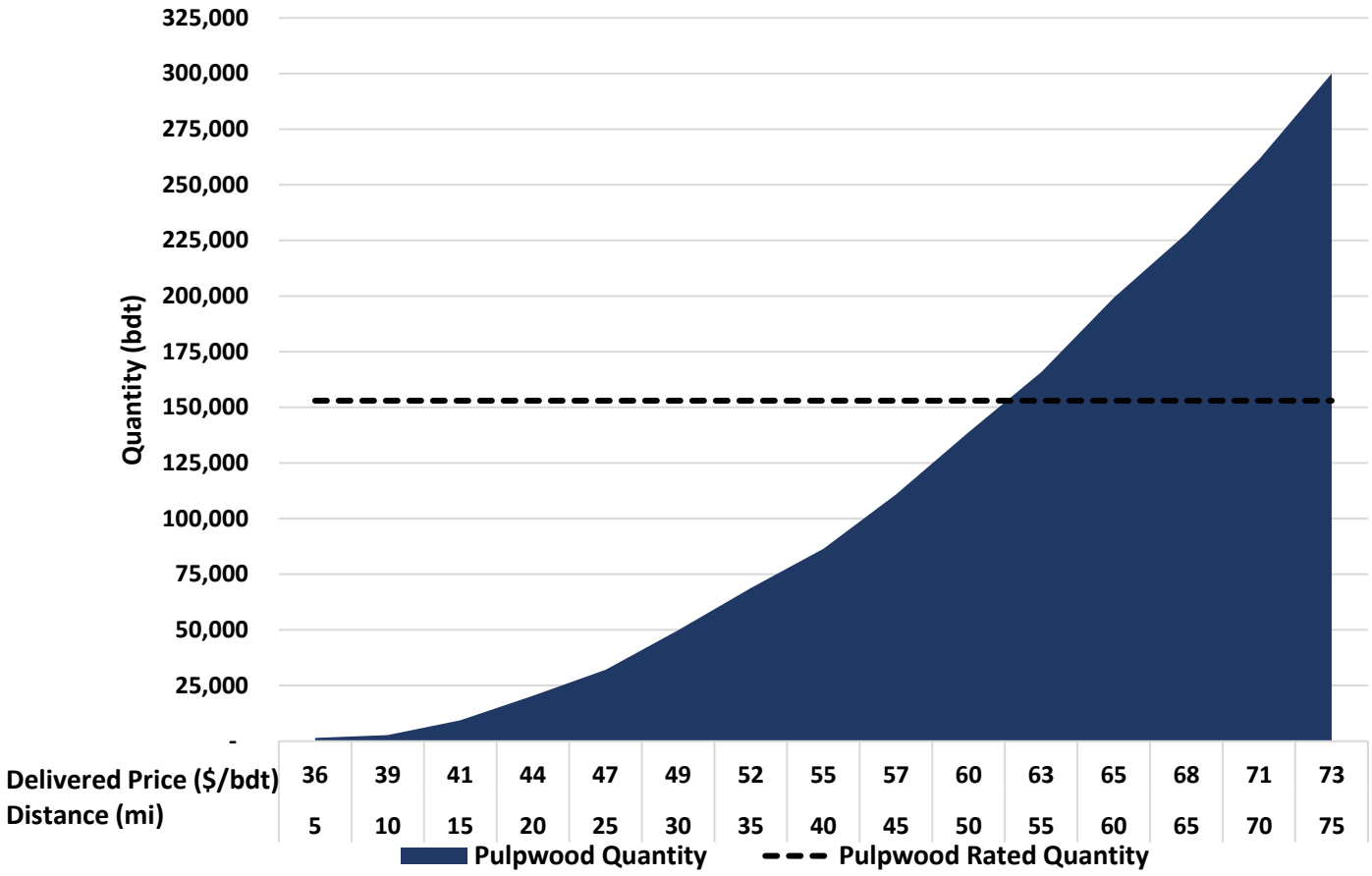
[13] apps.fs.usda.gov/fiadb-api/evalidator
[14] Ibid.

Figure E-5. Historical Total Wood Intake and Number of Facilities in the Competition Zone[15]



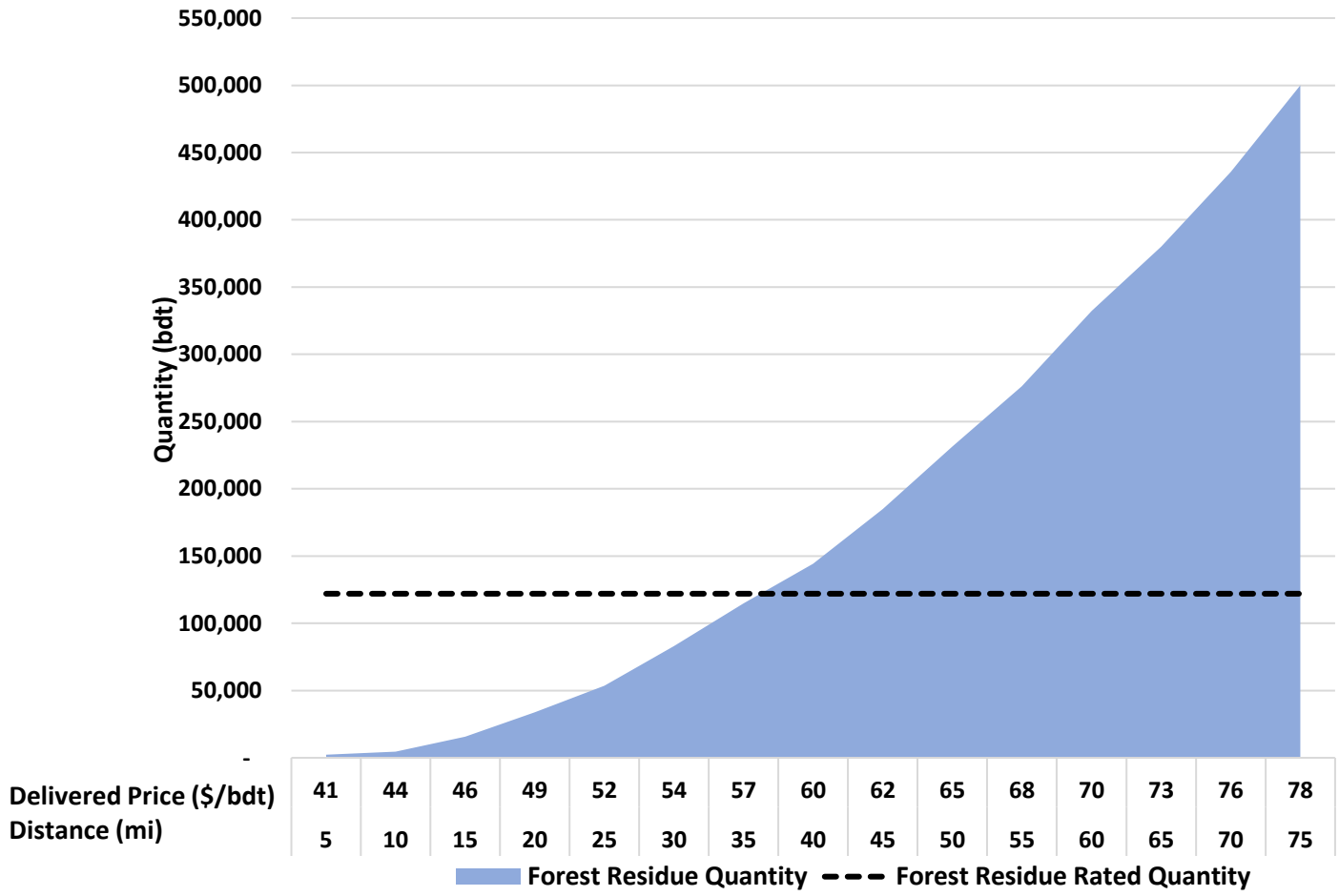
[15] Forisk Database

Figure E-6. Supply/Marginal Cost Curve for Pulpwood Generated in the Supply Zone[16]



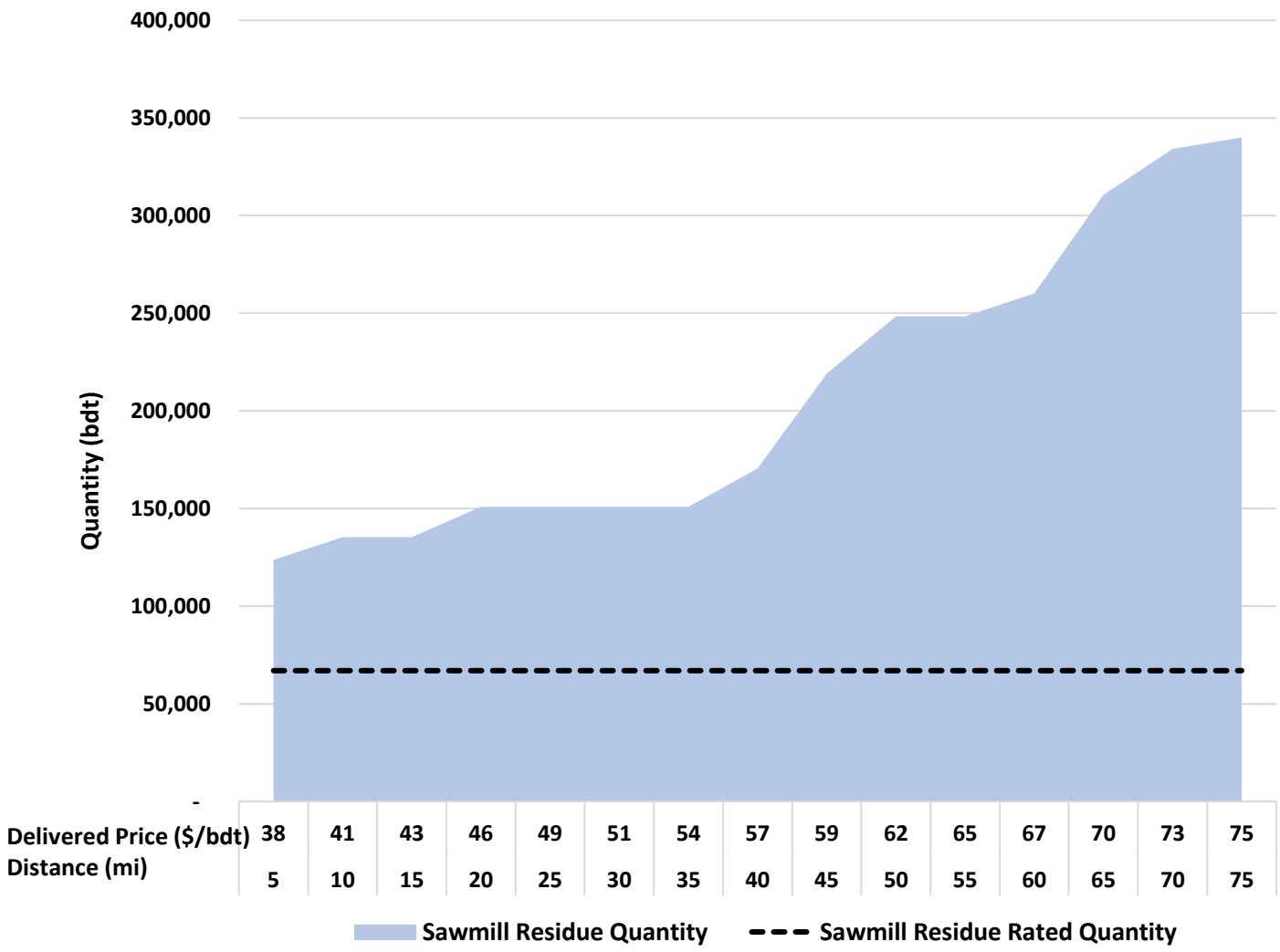
[16] Ibid.

Figure E-7. Supply/Marginal Cost Curve for Forest Residues Generated in the Supply Zone[17]



[17] Ibid.

Figure E-8. Supply/Marginal Cost Curve for Sawmill Residuals Generated in the Supply Zone[18]



[18] Ibid.

Figure E-9. Transportation Costs ($/bdt) by Distance from London KY

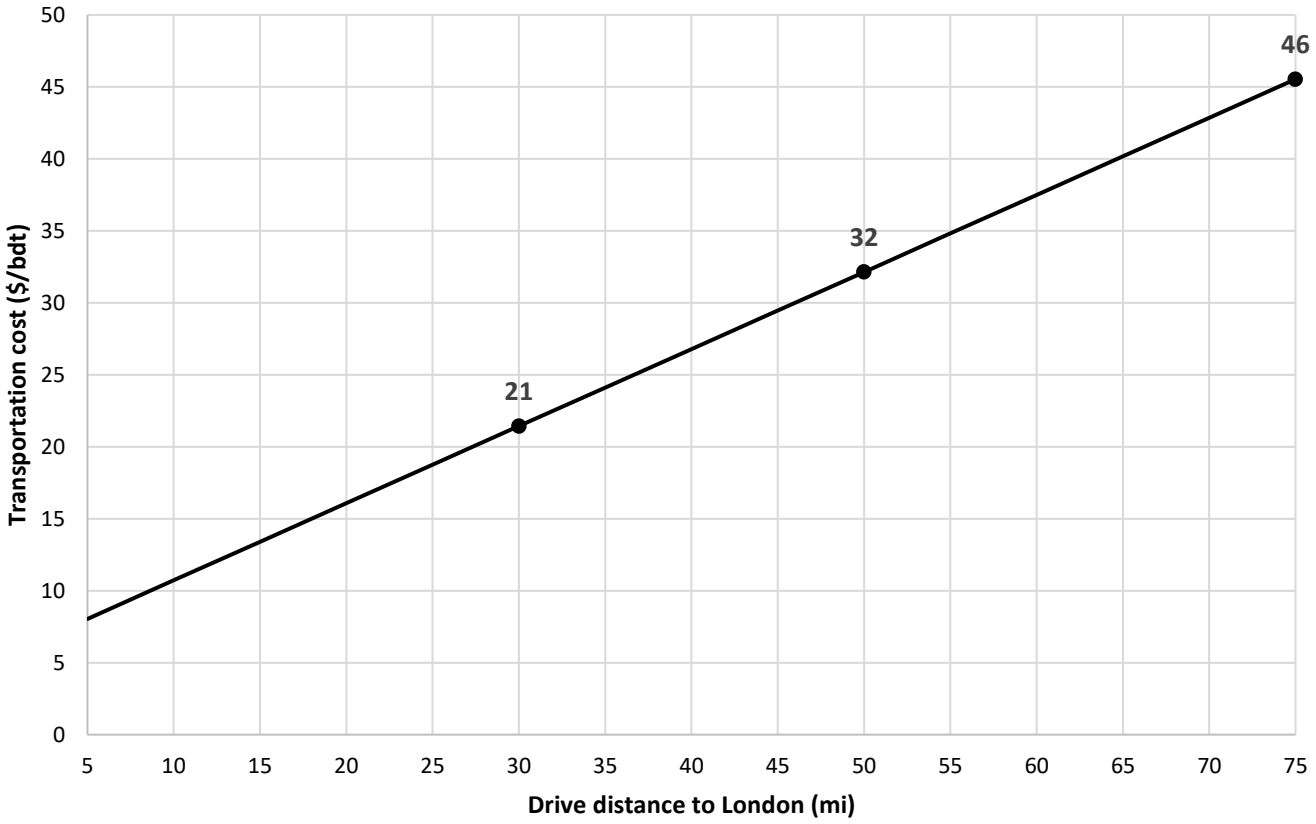
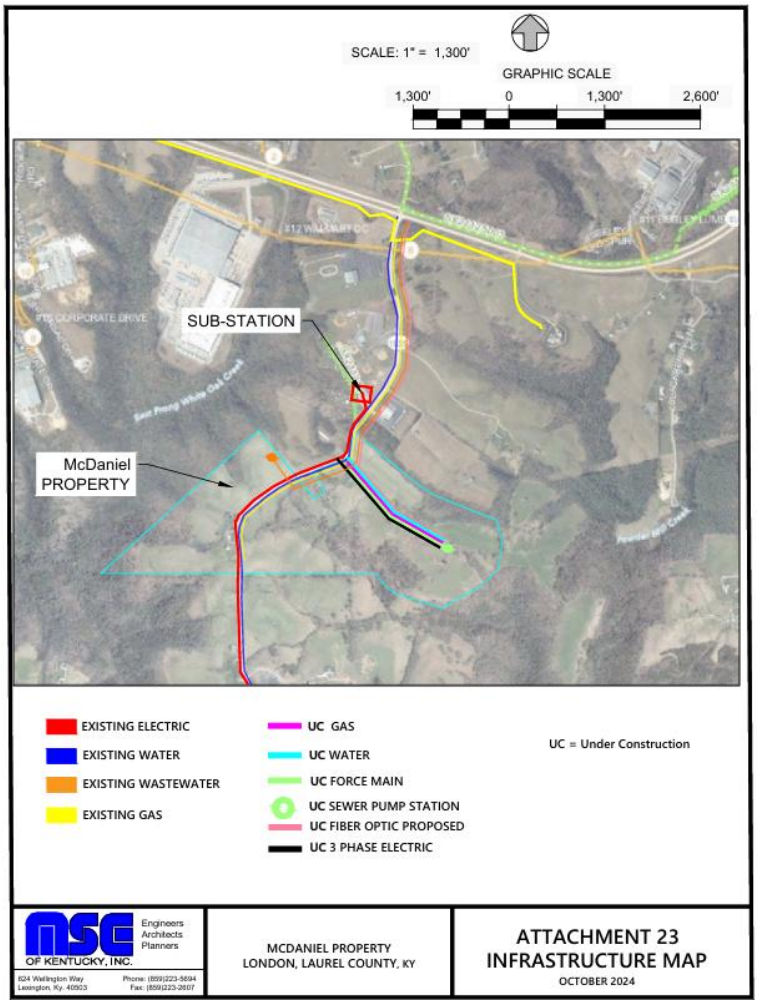


Table E-1. TimberMart-South Pulpwood Price Data for Tennessee 2 Region

Year	Hardwood ($/gt)	Softwood ($/gt)
2015	29.05	28.75
2016	27.88	27.17
2017	28.88	25.48
2018	33.76	25.39
2019	36.74	25.77
2020	34.50	25.67
2021	35.78	25.62
2022	45.14	31.15
2023	35.16	31.68
2024	33.22	30.49

Map E-1. Infrastructure Map



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