PRESTON COUNTY, WV

Bioeconomy Development Opportunity Zone

RATING GRADE: 'A'

Date of Issue: June 26, 2026

A
High Quality

Rating Parameters:

Category	Rated Quantity	Delivered Price	Supply Zone Size
Pulpwood	142,850 bdt/yr	$80-$100/bdt	75-mi drive distance
Forest Residue	300,350 bdt/yr	$80-$100/bdt	from Kingwood, WV

BDO ZONE ASSETS

- Approximately 443,200 bone-dry tons per year of pulpwood and forest residue are available for new biomass projects.
- Sustainable forestry practices ensure that the annual timber growth exceeds removals, leaving ample room for economic growth.
- The current competitor demand does not constrain access to the rated quantities of pulpwood and forest residues.

BDO ZONE LIABILITIES

- The biomass harvesting and transportation capacity is currently not sufficient to support a large project without additional investments.
- Constrained transportation efficiencies due to mountainous haul conditions and structurally deficient bridges.
- The weakening of traditional pulp and timber hardwood markets creates structural risk.
- The region faces an aging logging workforce, reduced logging capacity following market contraction, and competition for operators from other industries.

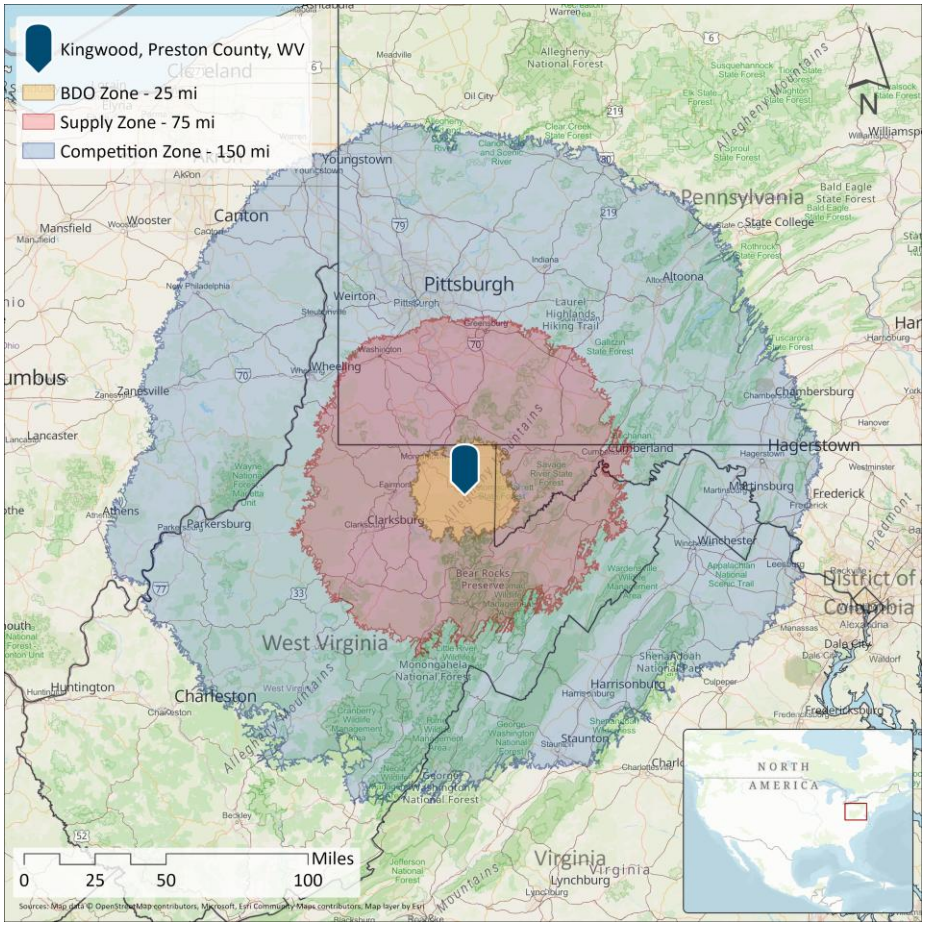
RATING GRADE

The Preston County, WV, Bioeconomy Development Opportunity Zone, is rated 'A', or 'low' risk.

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

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

PRESTON COUNTY, WV BDO ZONE



ANALYST NOTES

The Supply Zone is defined as the area within a 75-mile drive distance of Kingwood, West Virginia, with competitive demand assessed across a broader 150-mile Competition Zone. The Supply Zone extends across parts of Maryland, Pennsylvania, and West Virginia and covers twenty-eight counties. It contains approximately 6.2 million acres of land, of which about 4.6 million acres are timberland. The timber base is overwhelmingly hardwood (97% of standing volume), led by oaks, maples, yellow-poplar, and black cherry.

The feedstock assessment focuses on two forest biomass classes: pulpwood and forest residues. In this context, pulpwood consists mainly of underutilized small-diameter and upper-stem material generated during commercial sawtimber harvesting, while forest residues include tops, limbs, and other woody material left from harvest operations. Sawmill residues were excluded from the rating because they are already fully committed to existing downstream users in the broader market.

Forestry remains an important contributor to the local economy, with fifteen operating forest products facilities in the Supply Zone, including sawmills, pellet plants, an OSB mill, and a biochar facility. However, the industry has also undergone significant contraction in recent years, including mill closures, reduced pulp market, and declining processing capacity. This has left substantial low-grade hardwood and residue material underutilized, and has weakened parts of the harvesting, transportation, and equipment base that would be needed to support a new biomass project.

BDO ZONE ASSETS

The strongest asset is the size of the rated woody biomass resource after accounting for competing demand: 142,850 bdt per year of pulpwood and 300,350 bdt per year of forest residues, or 443,200 bdt per year in total.

A second major asset is the favorable growth-to-drain relationship across the timber resource. Average annual net growth is estimated at about 3.9 million bdt per year, while annual removals are about 1.4 million bdt per year, yielding a growth-to-drain ratio of 2.7. This indicates that removals remain well below annual net growth and that the broader timber base can support sustainable harvest levels with room for additional utilization.

Although eight competitors operate within the 150-mile Competition Zone, including pellet mills, an OSB mill, and a biochar facility, the current competitor demand does not constrain access to the rated quantities of pulpwood and forest residues. With sawmill residues fully committed, a new biomass project opportunity is based on lower-grade roundwood and harvest residues for which no market pressure exists, because the regional pulp sector has contracted.

The zone also benefits from an established forestry culture and operational familiarity with hardwood harvesting. Despite the recent industry contraction, the region still retains some experienced loggers, sawlog producers, and forest managers. In addition, the rated quantities can be sourced within economically practical haul distances, generally within about 50 miles, which supports procurement efficiency.

BDO ZONE LIABILITIES

The most significant liability is the condition of the harvesting and transport system needed to scale delivery of residues and low-grade wood. To supply the rated volumes, a new project would require three additional logging crews, eleven logging trucks, seven grinders, and twenty-seven chip vans. Outreach suggests that some of this capacity is present, but not sufficient to support a large project without additional investment.

A closely related liability is the cost and operability of recovering biomass from steep Appalachian terrain. Much of the available feedstock lies in settings with steep slopes, limited road access, tight landings, and a reliance on tandem or tri-axle trucks rather than more efficient long-haul configurations. Whole-tree chipping is constrained in many settings, and residue recovery can become expensive once sorting, handling, grinding, loading, and hauling are all included.

Road infrastructure is another liability. The risk analysis identifies medium-high exposure from aging roads, structurally deficient bridges, route-specific restrictions, and mountainous haul conditions, especially in Pennsylvania and West Virginia. While rated quantities can still be sourced within a reasonable radius, the

physical road network can increase delivered cost, slow movement, force detours, and reduce the reliability of year-round logistics.

The weakening of traditional pulp and lower-grade hardwood markets also creates a structural risk. On one hand, it leaves more pulpwood and residues available to a new project. On the other, it means those feedstocks are secondary products tied to primary sawtimber operations and may not be actively produced unless a new buyer offers reliable pricing and stays in the market.

The risk analysis also identified an aging logging workforce, reduced logging capacity following market contraction, limited recent investment in new equipment, and competition for operators from other industries. Supplier relationships are important because existing mills and loggers tend to prioritize long-standing buyers. A new biomass facility would therefore need to establish commercial credibility and likely support parts of the supply-chain buildout before consistent deliveries could be expected.

Feedstock quality and formats represent additional operational liabilities. Available material includes pulp logs, low-grade hardwood, tops, limbs, bark, chips, dirty chips, and other residual streams, each with different moisture profiles, contamination risk, handling characteristics, and sizing requirements. Because regional operations are oriented primarily toward conventional hardwood merchandising rather than uniform biomass supply, a new facility would need clear specifications and strong quality-control systems to avoid variability in delivered material.

Seasonal and climate-related risks appear manageable, but they are not negligible. Winter weather, wet conditions, freezes, severe storms, and flood events can periodically disrupt access and hauling, but the seasonal weather risk was deemed low because operations can shift geographically. Longer-term climate risk is assessed as medium, reflecting warming trends, heavier precipitation, and the possibility of increased insect and disease pressure affecting stand condition and access over time.

INFRASTRUCTURE PROFILE

The evaluated property is the Former TAZ Sawmill Site, a 42-acre flat, industrially-designated parcel in Bruceton Mills, WV, owned by the Preston County Economic Development Authority (PCEDA) and located just 1.4 miles from Interstate 68. Electric service is available at the site boundary, and both natural gas and sanitary sewer are being extended through funded infrastructure projects. A Phase II ESA confirmed no significant subsurface contamination, and the site's location outside the floodplain reduces permitting complexity. The primary infrastructure liabilities are the absence of rail access — with the nearest service 39 miles away — and no navigable waterway access, making the site entirely dependent on truck transport. Labor costs are competitive, and proximity to West Virginia University in Morgantown provides access to a technically qualified workforce.

SCORING & RATING METHODOLOGY

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

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

Feedstock quantities are expressed in bone-dry tons per year (bdt/yr), while feedstock costs are expressed in United States dollars (USD). Maximum transport distance is based on a 75-mile driving distance from the center point (Kingwood, WV).

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 Kingwood, WV is ***20.06 out of 100, resulting in an 'A' designation.***

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

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SECTION A: RISK INDICATOR SUMMARY

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

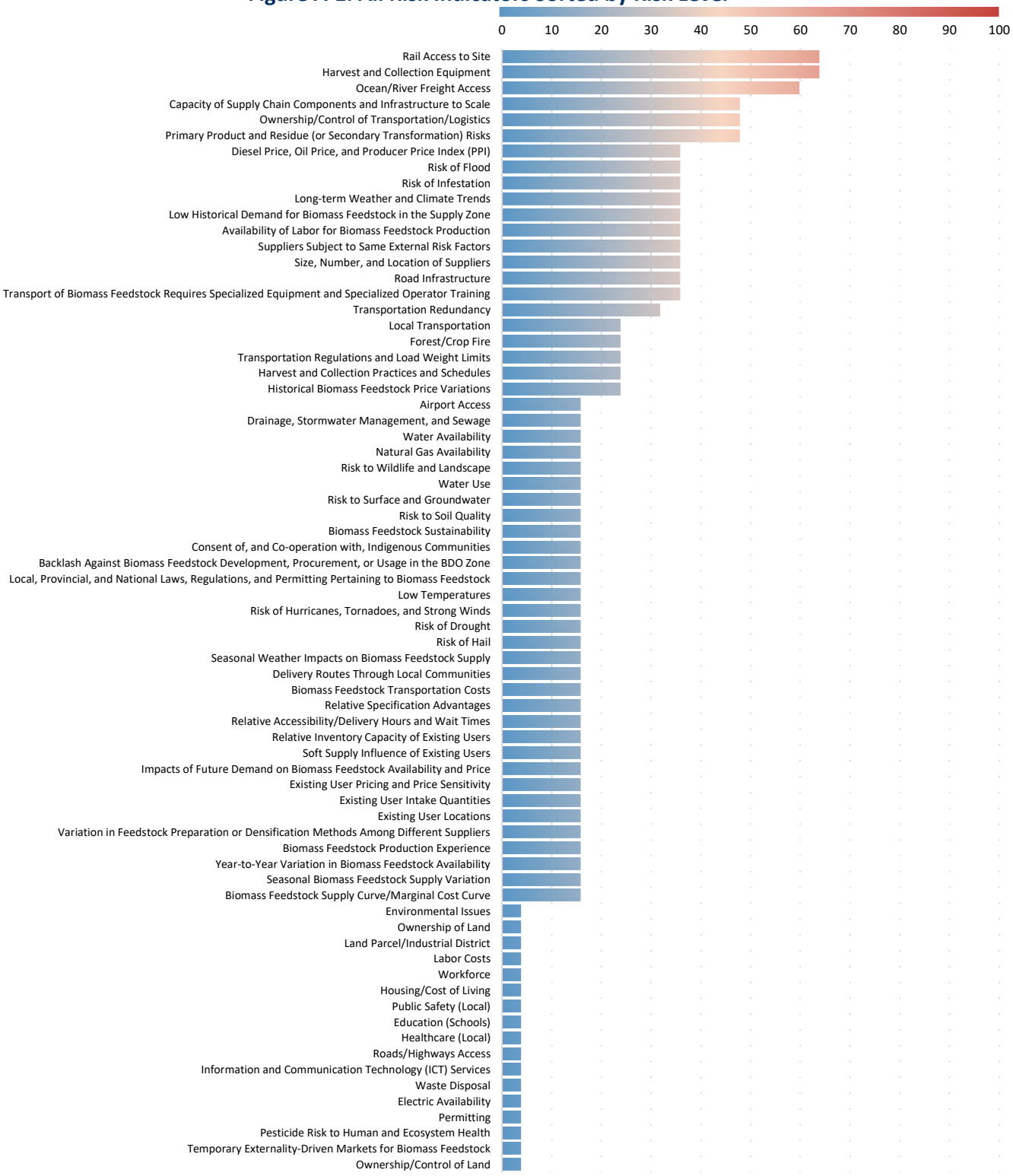


Table A-1. Risk Indicators and Associated Scores

Feedstock Supply Chain Risk Indicators	Raw Risk Likelihood	Raw Risk Impact	Gross Risk Indicator	Mitigation /Notching	Loaded RI Score
Category 1.0: Supply Chain Risk					
1.1 Risk Factor: Quantity and Delivered Cost of Available Biomass Feedstock					
1.1.1 Biomass Feedstock Supply Curve/Marginal Cost Curve	4	4	16	NN	16
1.1.2 Seasonal Biomass Feedstock Supply Variation	4	4	16	NN	16
1.1.3 Year-to-Year Variation in Biomass Feedstock Availability	4	4	16	NN	16
1.1.4 Historical Biomass Feedstock Price Variations	4	6	24	NN	24
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	4	6	24	NN	24
1.2.4 Harvest and Collection Equipment	8	8	64	NN	64
1.2.5 Ownership/Control of Land	2	2	4	NN	4
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	4	4	16	NN	16
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	4	16	NN	16
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	8	8	64	25%	48
1.4.3 Transport of Biomass Feedstock Requires Specialized Equipment and Specialized Operator Training	6	6	36	NN	36
1.4.4 Delivery Routes Through Local Communities	4	4	16	NN	16
1.4.5 Transportation Regulations and Local Weight Limits	4	6	24	NN	24
1.4.6 Road Infrastructure	6	6	36	NN	36
1.4.7 Transportation Redundancy	8	8	64	50%	32
1.5 Risk Factor: Risks Related to Supply Chain Resiliency					
1.5.1 Size, Number, and Location of Suppliers	6	6	36	NN	36
1.5.2 Suppliers Subject to Same External Risk Factors	6	6	36	NN	36
1.6 Risk Factor: Biomass Feedstock Scale-up					
1.6.1 Capacity of Supply Chain Components and Infrastructure to Scale	6	8	48	NN	48
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	6	6	36	NN	36
1.7 Risk Factor: Climate and Natural Risks					
1.7.1 Seasonal Weather Impacts on Biomass Feedstock Supply	4	4	16	NN	16
1.7.2 Long-term Weather and Climate Trends	6	6	36	NN	36
1.7.3 Forest/Crop Fire	4	6	24	NN	24
1.7.4 Risk of Infestation	6	8	48	25%	36
1.7.5 Risk of Hail	4	4	16	NN	16
1.7.6 Risk of Flood	6	6	36	NN	36
1.7.7 Risk of Drought	4	4	16	NN	16
1.7.8 Risk of Hurricanes, Tornadoes, and Strong Winds	4	4	16	NN	16
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	NR	NR	NR	NR	NR
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	4	4	16	NN	16
1.9.4 Consent of, and Cooperation with, Indigenous Communities	4	4	16	NN	16
1.9.5 Food Security Concerns	NR	NR	NR	NR	NR
1.10 Risk Factor: Sustainability and Environmental Concern					
1.10.1 Biomass Feedstock Sustainability	4	4	16	NN	16

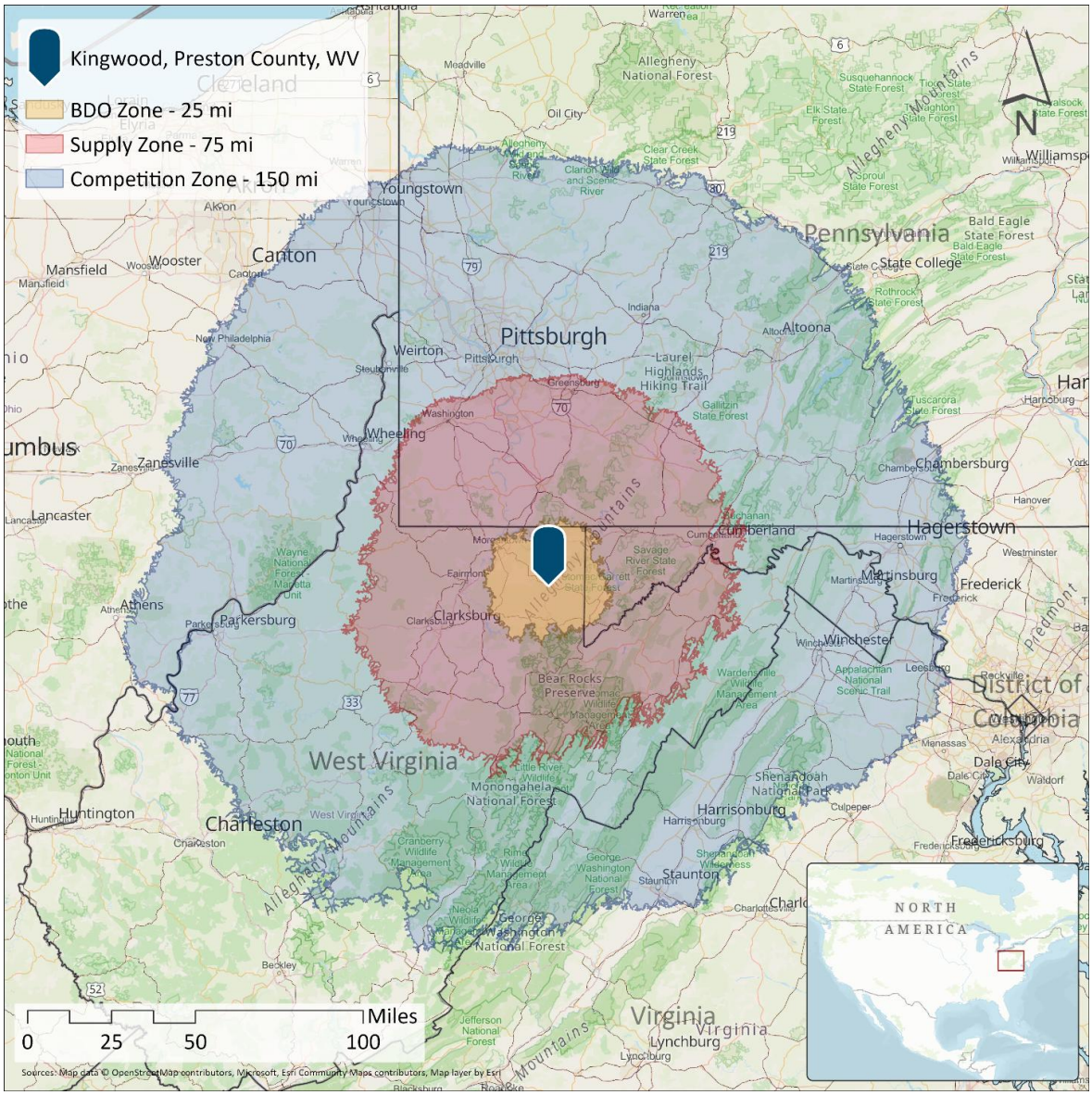
1.10.2 Risk to Soil Quality	4	4	16	NN	16
1.10.3 Risk to Surface and Groundwater	4	4	16	NN	16
1.10.4 Water Use	4	4	16	NN	16
1.10.5 Pesticide Risk to Human and Ecosystem Health	2	2	4	NN	4
1.10.6 Risk to Wildlife and Landscape	4	4	16	NN	16
Category 2.0: Infrastructure					
2.1 Risk Factor: Physical Infrastructure					
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	2	2	4	NN	4
2.2.3 Water Availability	4	4	16	NN	16
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	8	8	64	NN	64
2.3.3 Airport Access	4	4	16	NN	16
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	4	24	NN	24
2.4.4 Public Safety (Local)	2	2	4	NN	4
2.4.5 Housing/Cost of Living	2	2	4	NN	4
2.5 Risk Factor: Labor					
2.5.1 Workforce	2	2	4	NN	4
2.5.2 Labor Costs	2	2	4	NN	4
				Average	**20.06**

SECTION B: BIOMASS AVAILABILITY AND PRICING

OVERVIEW

The assessment of available forest biomass for a prospective project near Kingwood, WV incorporates three distinct zones (Map B-1). The BDO Zone represents the area defined by a 25-mile drive distance from Kingwood wherein a new biomass project could be positioned to access rated quantities of biomass. The Supply Zone encompasses the area within a 75-mile drive distance from Kingwood from where biomass will be sourced. The Competition Zone is defined by a 150-mile drive distance from Kingwood, where biomass consumers/competitors are situated that impact biomass availability within the BDO Zone.

Map B-1. BDO, Supply, Competition Zones, and Center Point (Kingwood, WV)



The Supply Zone spreads over the states of Maryland, Pennsylvania, and West Virginia and twenty-eight counties. Of the approximately 6.2 million acres of land within the Supply Zone, 4.6 million acres is comprised of timberland. Hardwood tree species constitute 97% of the standing tree volume in the Supply Zone. The predominant hardwood species include oaks (30%), maples (26%), yellow poplar (10%), and black cherry (9%). The remaining 3% of the standing tree volume consists mostly of pines.[1] The Supply Zone maintained a fairly stable standing merchantable timber inventory (Figure E-1). However, a decrease by approximately 8 million bdt (10%) in small-diameter/pulpwood standing timber was recorded between 2015 and 2024 (Figure E-2). The majority of standing timber volume (82%) is located on privately owned forests (Figure E-3) and almost all harvests (99%) occur on these privately owned forest lands (Figure E-4).[2]

Forestry represents an important economic contributor within the Supply Zone with fifteen main operational forest products facilities including seven sawmills, six pellet mills, an OSB mill, and a bio-char facility. However, the total production capacity in the region has decreased in the past decade quite significantly.

EVALUATED FEEDSTOCKS

The analysis focuses on two biomass resources in the Supply Zone: pulpwood and forest residues. Sawmill residues, including wood chips, sawdust, shavings, and bark were excluded from this rating as they are fully committed to other industries (see Competition section).

Pulpwood: Consists of underutilized roundwood logs processed from small diameter trees and the upper stem sections of larger diameter trees during conventional logging operations.[3]

Forest residues: Stem tops, branches, and other woody materials generated during timber harvesting operations. These materials are typically piled and burned, or scattered across harvest areas.

The rated feedstock quantities presented herein were determined through estimation of potentially harvestable amounts of each biomass type in the Supply Zone, with consideration of anticipated demand for biomass in the Competition Zone. A Biomass Availability Multiple (BAM) has been applied to account for the overarching assumptions, uncertainties in underlying data, models, and future operating conditions. The resulting rated quantities represent conservative estimates of biomass availability for new bio-projects. Once supply chains are developed, additional quantities of biomass are expected. Price ranges were established through market analysis and outreach in the Competition Zone and represent current expected delivered prices that a new project will need to pay to secure the rated quantities.

[1] apps.fs.usda.gov/fiadb-api/evalidator
[2] Ibid.
[3] Note that pulpwood is a feedstock category that may not be widely utilized in the region, especially due to the lack of pulp and paper mills. However, this terminology was utilized for consistency and comparability between different BDO Zone ratings.

SUPPLY ANALYSIS

The Supply Zone produces almost exclusively hardwood sawlogs which are transported to seven sawmills located within a 75-mile drive distance of Kingwood.

Figure B-1. Average Net Growth, Average Annual Removals, and Growth to Drain Ratios in the Supply Zone (2015-2024)[4]

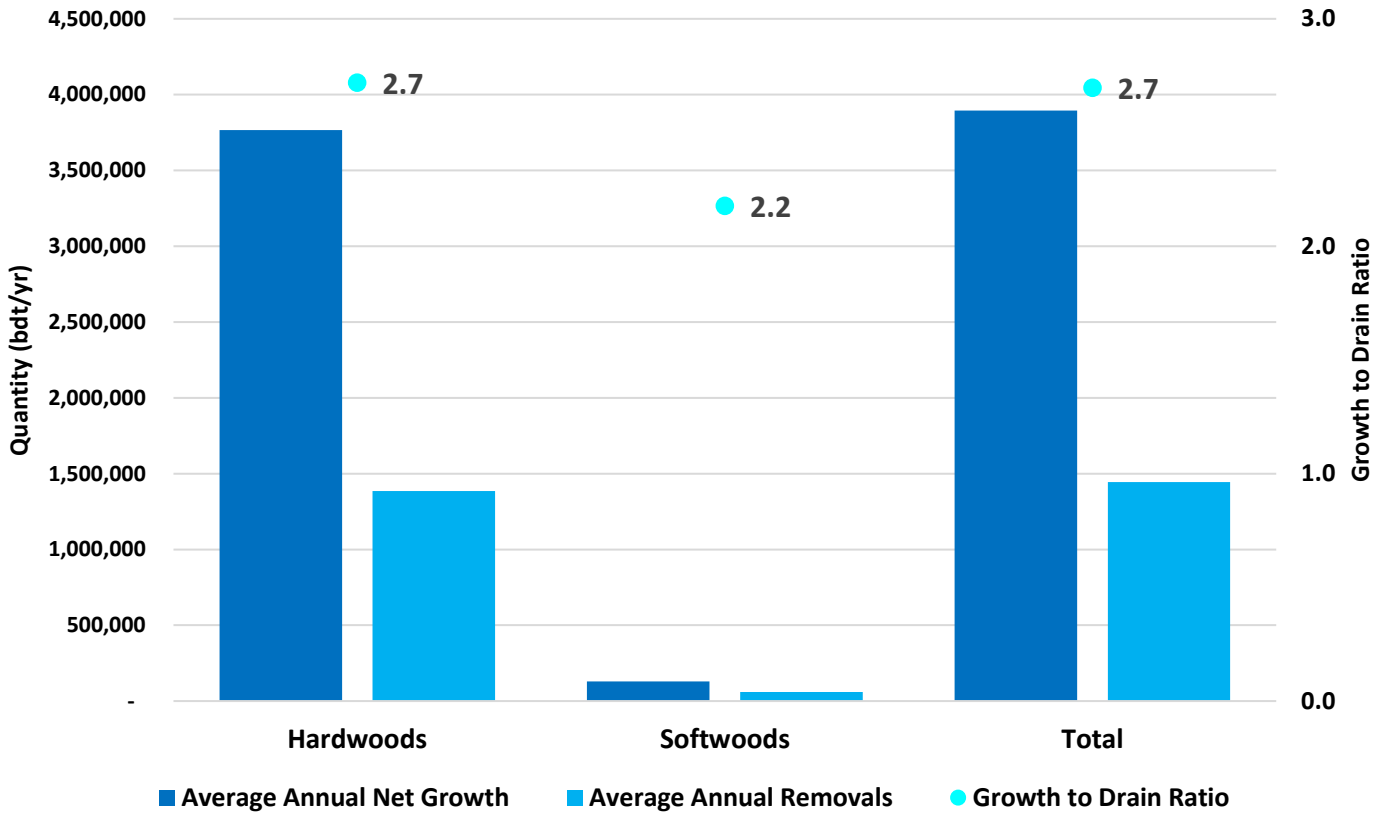


Figure B-1 illustrates the average annual net growth and removals per major species categories (hardwoods and softwoods). Overall, the forest stands in the Supply Zone exhibit substantial annual net growth (3.9 million bdt/yr), of which less than half (1.4 million bdt/yr) is harvested, resulting in a growth-to-drain (GTD) ratio[5] of 2.7. In other words, each year there is 2.7 times as much merchantable fiber added to the fiber basket in the Supply Zone as it is taken out, providing for sustainable harvesting levels and plenty of room for additional harvest. The FIA data estimated that approximately 186,000 bdt/year of pulpwood size trees and 139,000 bdt/yr of pulpwood logs[6] are harvested on average. In total, approximately 325,000 bdt/year of pulpwood are generated in the Supply Zone.

[4] apps.fs.usda.gov/fiadb-api/evalidator. Variables: 574007 Average annual net growth of merchantable bole bark and wood biomass of growing-stock trees (at least 5 inches d.b.h.), in dry short tons, on timberland; 574049: Average annual removals of merchantable bole bark and wood biomass of growing-stock trees (at least 5 inches d.b.h.), in dry short tons, on timberland.

[5] The ratio between the annual net growth and removals. A GTD > 1.1 indicates sustainable removals below the net growth measured in a forest area.

[6] A pulp log is a log that is sorted during log processing operations as unsuitable for sawmilling or veneer production due to its size, straightness, knots, rot, or other defects. apps.fs.usda.gov/fiadb-api/evalidator, Variable 574054: Average annual removals of merchantable bole bark and wood biomass above the sawlog of sawtimber trees, in dry short tons, on timberland

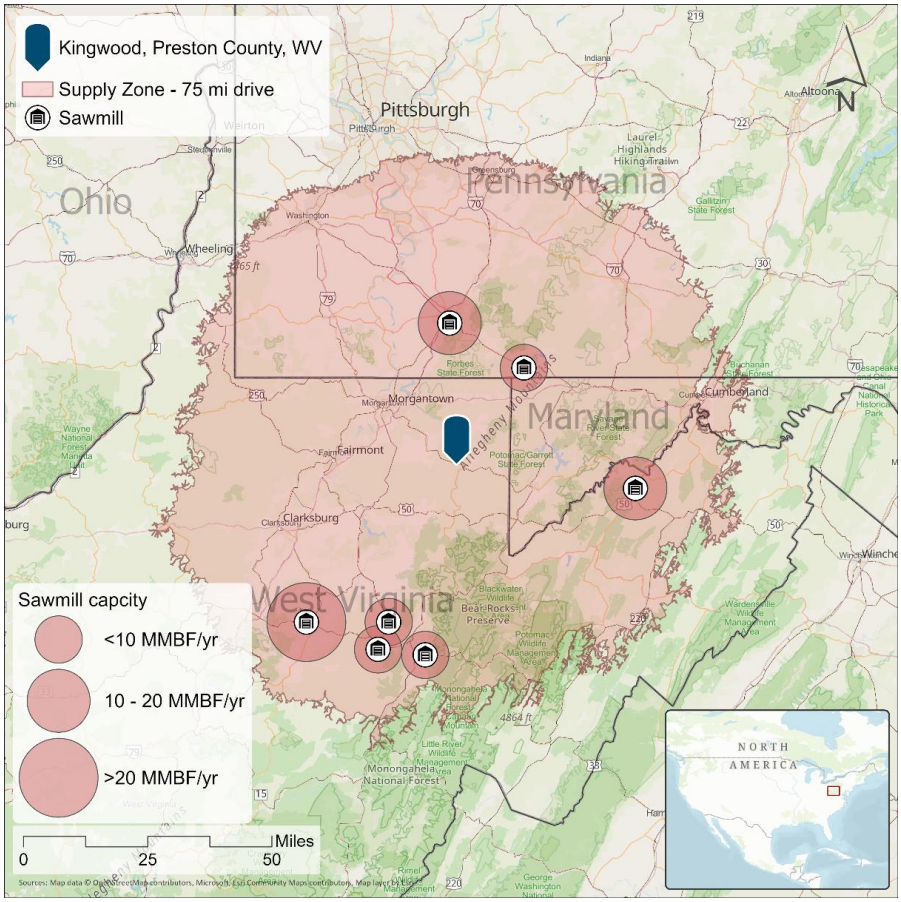
Forest residues

The FIA data estimates that, on average, approximately 600,700 bdt/yr of forest residues[7] are generated in the Supply Zone from harvesting operations. The outreach indicated that grinding equipment is locally available but the region is facing an aging logging workforce, reduced logging capacity following a market contraction, high equipment costs, and limited investment in new equipment. A biomass facility may need to support supply-chain investment in chippers, grapples, trucks, or dedicated residue-handling systems before expecting consistent feedstock deliveries.

Sawmill residues

Seven hardwood sawmills exist in the Supply Zone (Map B-2) that range in lumber capacity between 5 and 30 MMBF.

Map B-2. Map of operational sawmilling facilities in the Supply Zone.



Sawmill residues generated by the identified sawmills, including wood chips, sawdust, shavings, and bark, are widely utilized in the Competition Zone for wood pellets and biochar. Overall, the sawmills consume approximately 358,000 bdt of sawlogs each year to support their full-scale operations.[8] Table B-1 outlines the estimated quantity of sawmill residues generated annually. Our supply and demand analysis, vetted by our outreach to local mills and experts, indicated that the

[7] apps.fs.usda.gov/fiadb-api/evalidator, Variables: 574065 - Average annual removals of top and limb bark and wood biomass of growing-stock trees (at least 5 inches d.b.h.), in dry short tons, on timberland. 574040 - Average annual mortality of top and limb bark and wood biomass of growing-stock trees (at least 5 inches d.b.h.), in dry short tons, on forest land. Value rounded to the nearest 1,000 bdt

[8] www.foriskmilldata.com (Q1 2026).

entire quantity of sawmill residues produced in the Supply Zone is fully committed to existing competitors and thus was **not rated**.

Table B-1. Sawmill Residue Production and Availability Estimates in the Supply Zone

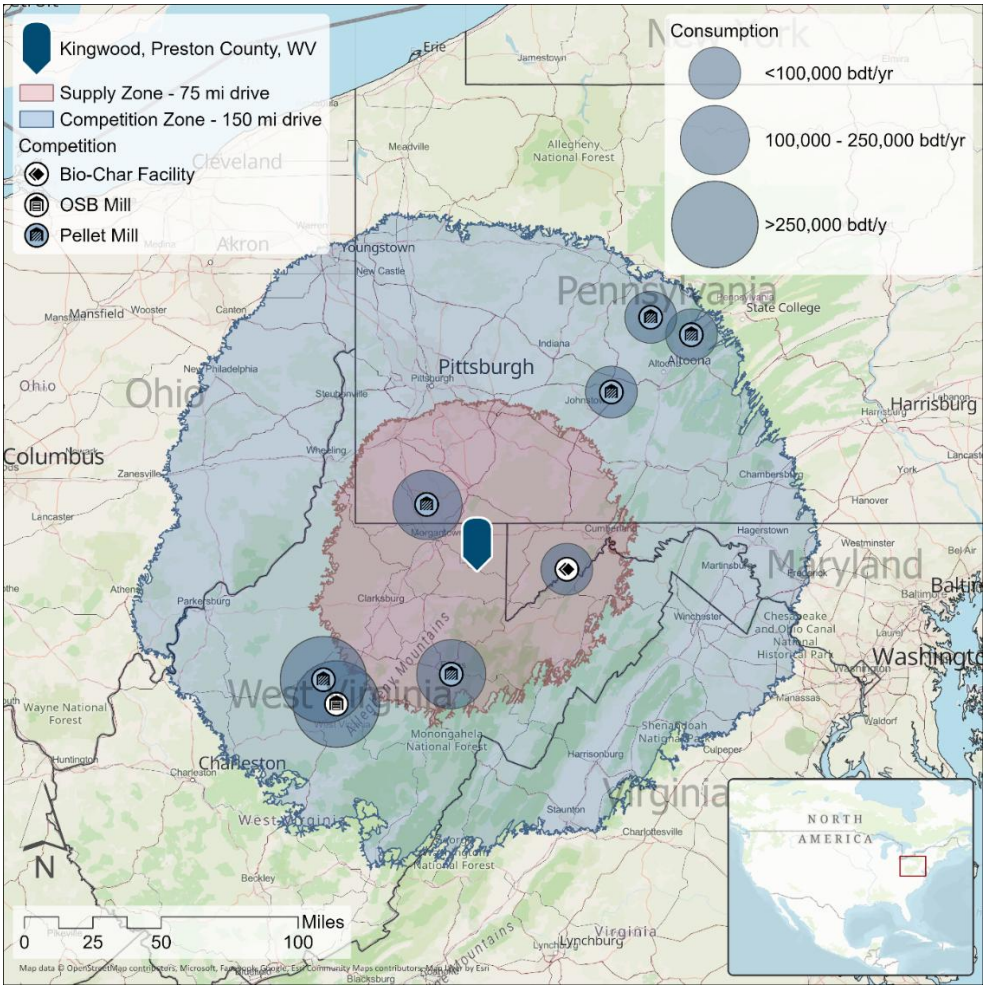
Sawmill Residue	Chips	Sawdust	Shavings	Bark	TOTAL
Generated Quantity (bdt/yr) *	118,000	18,000	25,000	41,000	**202,000**

*Estimated based on mill capacities

COMPETITION ANALYSIS

Eight competitors for biomass exist inside the Competition Zone (Map B-3): six pellet mills, one OSB mill, and one bio-char facility. Three pulp mills are also located in the Competition Zone, but they utilize 100% recycled materials and thus do not compete for the biomass generated in the Supply Zone. In the past decade, the number and total wood intake of competitors in the Competition Zone has been steadily decreasing (Figure B-2). These competitors currently consume an estimated 986,400 bdt of biomass per year (Table B-3), of which an estimated 241,000 bdt/yr, mostly sawmill residues, is potentially sourced from the Supply Zone.

Map B-3. Map of Biomass Competitors in the Competition Zone[9]



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

Figure B-2. Historical Total Wood Intake and Number of Facilities in the Competition Zone[10]

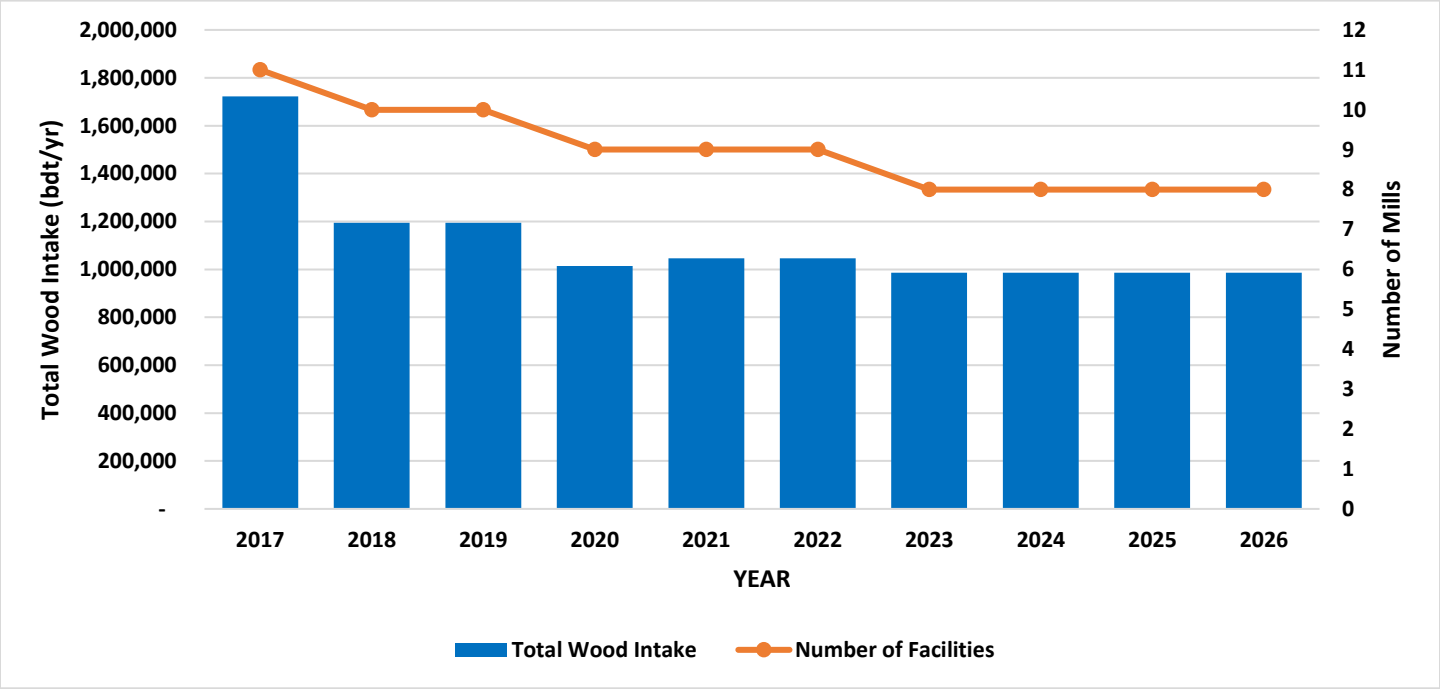


Table B-2. Biomass Demand by Competitor Category

Competitor Category	Biomass Demand (bdt/yr)	% Total Demand	Biomass Demand from Supply Zone* (bdt/yr)	Feedstock Type
OSB Mill	617,600	63%	39,000	Pulpwood
Pellet Mill	320,800	33%	154,000	Sawmill Residues
Bio-Char Facility	48,000	4%	48,000	Sawmill Residues
Total	**986,400**		**241,000**	

* Adjusted proportionally to the distance from Kingwood to each competitor and the estimated inputs of each feedstock type.

Table B-3 shows that, after considering the estimated demand of 202,000 bdt/yr of sawmill residues, and 39,000 bdt/yr of pulpwood, 600,700 bdt/yr of forest residues and 285,700 bdt/yr of pulpwood are potentially available for a project in Kingwood, WV.

Table B-3. Woody Biomass Production, Demand, and Availability by Feedstock Type

Feedstock Type	Production (bdt/yr)	Demand (bdt/yr)	Availability (bdt/yr)
Pulpwood	324,700	39,000	285,700
Forest residues	600,700		600,700
Sawmill residues	202,000	202,000	-
Total	**1,127,400**	**241,000**	**886,400**

[10] Forisk Database

RATED QUANTITIES AND PRICES

Table B-4 summarizes the technical, rated quantities, and price ranges of pulpwood and forest residues. The Biomass Availability Multiple (BAM) factor of 2.0 accounts for uncertainty in the accuracy of existing inventory, scale-up readiness, historical harvesting practices and volumes, and sudden changes in supply and demand. However, once supply chains for a new biomass project are established, additional volumes will likely become available. Price ranges were estimated based on outreach to local forestry professionals and corroborated with available literature. Pulpwood prices include stumpage, harvesting, and hauling costs. In addition, forest residue prices include chipping/grinding costs (Table B-5). These price ranges are slightly above the current market prices; however, they ensure a stable supply of biomass to a new project.

Table B-4. Rated Quantities and Delivered Price Ranges of Biomass in the Supply Zone

Biomass type	Available Quantity (bdt/yr)	Biomass Availability Multiple (BAM)	Rated Quantity (bdt/yr)	Delivered Price Range ($/bdt)
Pulpwood	285,700	2.0	142,850	80-100
Forest residues	600,700	2.0	300,350	80-100
TOTAL	**886,400**		**443,200**	

Table B-5. Price Range Components for Pulpwood and Forest Residues

Feedstock Type	Stumpage ($/bdt)	Collection ($/bdt)	Logging ($/bdt)	Chipping/Grinding ($/bdt)	Transport ($/bdt)	Av Delivered Price ($/bdt)
Pulpwood	8		50		32	**90**
Forest Residues		20		45	35	**100**

OPERATIONAL CONSIDERATIONS

To supply the rated quantity of pulpwood to Kingwood, three additional logging crews[11] and eleven logging trucks[12] would be necessary. Local foresters have communicated that this capacity should be available in the region, however, due to a depressed sawmilling industry loggers are currently searching for opportunities in other regions. In addition to the above considerations, which also apply to forest residue recovery, seven grinders[13] and twenty-seven chip vans[14] would be necessary to grind and transport the rated quantity of forest residues to Kingwood. Outreach to local foresters has indicated that some grinders or chip vans are available currently to transport the additional forest residues to a potential project located in Kingwood, but significant investment in both logging and grinding equipment may still be necessary.

Producing pulpwood and forest residues for a biomass project in Kingwood, WV would require careful attention to market access, harvesting economics, terrain, equipment, and supplier relationships.

Transportation distance is a major constraint. The terrain is steep and road access is limited, so many operations rely on tandem or tri-axle trucks rather than tractor trailers. A biomass facility would need to be close enough to harvest areas to

[11] Estimates assume an average of 14 truckloads/day/crew, 14 bdt/truckload, 9 work months/year (allowing for months and areas with heavy snow)
[12] Estimates assume an average of 4 roundtrips per day
[13] Estimates assume 20 bdt/hr grinder productivity, 9 work months/year (allowing for months and areas with heavy snow)
[14] Estimates assume 4 chip vans per grinder

keep trucking economical, with several local professionals emphasizing practical supply radii of roughly 50 to 75 miles for efficient wood movement.

Most regional logging is selective or diameter-limit harvesting rather than clearcutting, and logs are typically merchandised at roadside. Sawlogs are often topped at 10 to 12 inches, while pulpwood may be taken down to roughly 4 inches when a market exists. However, whole-tree chipping is limited because mountainous terrain and tight landings make chipper deployment difficult.

A biomass project should not assume that residues are "free." Although a large volume of tops, limbs, defective stems, and small-diameter wood exists, extracting it from steep Appalachian terrain can be costly. Loggers said that pulpwood often has little or no profit margin, and that new markets would need to pay enough to justify sorting, handling, chipping, loading, and hauling the material.

The logging workforce and equipment base are potential bottlenecks. The outreach indicated an aging logging workforce, reduced logging capacity following a market contraction, high equipment costs, and limited investment in new equipment. A biomass facility may need to support supply-chain investment in chippers, grapples, trucks, or dedicated residue-handling systems before expecting consistent feedstock deliveries.

Supplier relationships would be critical. Mills and loggers often prioritize long-standing buyers, especially those who stayed active through weak markets. A new biomass project would need to prove reliability, offer competitive pricing, and avoid being perceived as a speculative entrant that might disappear before suppliers recover their investment in equipment or logistics.

The project should also account for feedstock variability. Available material may include pulp logs, low-grade hardwood, tops, limbs, bark, sawdust, chips, dirty chips, and other residues, but each stream has different handling requirements, moisture content, contamination risk, sizing needs, and competing markets. Clear feedstock specifications would be needed before procurement begins.

Overall, the opportunity appears real because the region has plentiful hardwood biomass and strong local interest in new outlets. The main challenge is not the existence of biomass, but whether a project can pay enough, locate close enough, and invest enough in the harvesting and transportation system to make recovery of pulpwood and forest residues operationally reliable.

SECTION C: INFRASTRUCTURE



PROPERTY OVERVIEW

Site Name:	Former TAZ Sawmill Site
Address:	1321 Casteel Road
City:	Bruceton Mills
State:	West Virginia
County:	Preston
Acres:	42
Pricing Note:	$45,000/acre
Topography:	Flat
Zoning:	No zoning, Industrial-use

SITE CONTACTS

Economic Development Contact
Roberta Baylor
Preston County EDA
(304) 329-2299
robertabaylor@hotmail.com

ADDITIONAL NON-RATED SITES

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

TRANSPORTATION

The Former TAZ Sawmill Site is located directly on Casteel Road and is only 1.4 miles from Interstate 68 via Exit 29. There is currently no rail spur at the site boundary, and the closest rail service is located 39 miles away. The Morgantown Municipal Airport (Walter L. Bill Hart Field) is approximately 30 miles west and serves general aviation with limited commercial connections. Pittsburgh International Airport, a major commercial hub, is approximately 80 miles north via I-68 and I-79.

ELECTRIC SERVICE

Electric service is provided by First Energy with a 12-inch, 12.47 kV distribution circuit available on the Former TAZ Sawmill Site. **Contact:** Jacob Keeney, Economic Development Consultant, First Energy, (304) 479-4951, jkeeney@firstenergycorp.com

NATURAL GAS

Natural gas is not currently available to the site, however, a project to extend gas to the site is pending and funded. This will result in a 4-inch line with 75 psi with a capacity of 58 MCF/hr. This will be provided by WV Pipeline LLC (Enmark Energy). **Contact:** Connell Rader, President, Enmark Energy, (601) 898-2434 x17, crader@enmarkenergy.com

WATER

Water service is available at the Former TAZ Sawmill Site, provided by Preston County PSD #4. The site has a 6-inch line with a total excess capacity of 20,000 GPD. **Contact:** Richard Gaines, Engineer, Stantec, (304) 816-5190, Richard.gaines@stantec.com

WASTEWATER

There is no wastewater line available to the Former TAZ Sawmill Site, however, a project to extend sewer to the site is in design and funded. This will result in an 8-inch line, with a total excess capacity of 50,000 GPD. **Contact:** Travis Adams, Engineer, CEC, (304) 848-7163, twadams@cecinc.com

TELECOMMUNICATIONS

Telecommunication services are provided by Prodigi, with cellular service and fiber that runs directly to the site. The existing capacity is 10 gbps, but additional capacity may be available. **Contact:** Tim Wotring, President, Prodigi, (304) 777-4444, timw@digitalconnections.net

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: Supply and marginal cost curves (Figure E-6) indicate that the rated quantities of pulpwood and forest residue can be sourced within 50 miles from Kingwood. The curves also show that additional volumes are available within the rated price ranges of 80-100 $/bdt, providing redundancy if the normal supply was disrupted. Accordingly, feedstock accessibility within economically practical transport distances is considered low risk, with little expected impact on supply security.

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

1.1.2 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,[15] which can manifest in shortages and higher costs for Issuers.

Risk Information: Steep terrain, limited road access, and winter or wet-weather constraints can restrict harvesting, hauling, and residue recovery. NOAA disaster and climate data for MD, PA, and WV confirm exposure to severe storms, winter storms, flooding, drought, tropical cyclone remnants, and freeze events. Because logging contractors can shift operations geographically to manage these constraints, the risk of seasonal supply interruptions is considered low.

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

[15] Golecha & Gan, 2016.

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

1.1.3 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: Annual removals (Figure E-5), logging capacity, and sawtimber market activity can vary year to year. However, FIA data show substantial annual growth relative to removals, with a growth-to-drain ratio of 2.7, granting a low risk to 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**
No adjustment.	NN
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 16 out of 100.	16

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: Historical TimberMart South price data (Figure E-8) shows that price volatility exists, especially through fuel and transport exposure (Figure E-7). This variability can complicate cost forecasting, financial modeling, and contract structuring for projects in the BDO Zone. At the same time, the rated price ranges are significantly higher than the market prices as they cover all the costs that loggers in the Supply Zone will incur. They ensure that the rated quantities will be available to a new project. Overall, the risk to price predictability is low to medium.

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

1.2 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: The region has existing forestry and sawlog production experience. Maryland, Pennsylvania, and West Virginia all maintain forestry programs, BMPs, and forest action planning frameworks.[16] However, pulpwood markets have weakened and forest residue recovery is not a fully mature supply chain. Because the supply base is well established and operationally experienced, the risk associated with limited production experience is low.

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

1.2.2 Primary Product and Residue (or Secondary Transformation) Risks

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

Risk Information: Pulpwood and forest residues are secondary or lower-value streams tied to sawtimber harvest activity. Residues depend on primary logging operations and may not be prioritized by suppliers unless pricing is sufficient. Thus, the risk is elevated to medium-high.

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

[16] dnr.maryland.gov/forests/Pages/forest-action-plan.aspx, www.pa.gov/agencies/dcnr/conservation/forests-and-tree/state-forest-management/forest-action-plan, wvforestry.com/best-management-practices.

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: Regional harvesting is mostly selective or diameter-limit harvesting, with roadside merchandising. Whole-tree chipping is limited by mountainous terrain and tight landings. Differences in harvest timing, processing methods, and field conditions can affect moisture, contamination, and fiber characteristics, which in turn can influence conversion performance and handling costs. Feedstock consistency presents a low-to-medium risk and will require stronger quality-control and logistics management than project proponents sometimes anticipate.

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

1.2.4 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 project may require 3 additional logging crews, 11 logging trucks, 7 grinders, and 27 chip vans. Some equipment is currently available, but some investment will still be required. A biomass facility may need to support supply-chain investment in chippers, grapples, trucks, or dedicated residue-handling systems before expecting consistent feedstock deliveries. Thus, the risk was deemed high.

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

1.2.5 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: The majority of standing timber volume (82%) is located on private owned forests (Figure E-3) and almost all harvests (99%) occur on these privately owned forest lands (Figure E-4). Consequently, the risk is deemed very low.

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

1.2.6 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.[17]

Risk Information: Biomass could be processed into pulp logs, dirty chips, or grindings. Each stream has different sizing, moisture, contamination, and handling requirements. However, biomass in the Supply Zone is produced in formats commonly accepted by regional wood-processing facilities, and no special densification methods are currently required. Some variation remains, but reliance on conventional chipping and grinding supports consistency in handling and physical characteristics across suppliers, thus the risk is low.

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

[17] Huhnke, 2018.

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: Eight biomass competitors are located within the 150-mile Competition Zone: six pellet mills, one OSB mill, and one biochar facility. Existing users mainly influence procurement of sawmill residues. Existing demand levels therefore present a low risk to pulpwood and forest residue availability for a new project.

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

1.3.2 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: The current competitor consumption does not constrain access to the rated quantities of pulpwood and forest residue and presents a low risk to feedstock availability for a new project.

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

1.3.3 Existing User Pricing and Price Sensitivity

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

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

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

Risk Information: There are no pulp and paper mills in the Competition Zone, consequently, the market demand for pulpwood and forest residues is limited and these potential biomass feedstocks are often burned, masticated, or otherwise left in the harvest areas. In order to cover harvesting and processing costs and secure rated quantities, delivered pulp logs and chipped forest residues costs to a project were estimated at between $80 and $100 per bdt, above the current market prices. Consequently, the risk of market-driven price escalation from competing buyers is low.

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

1.3.4 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: Competitor facility count and total intake have declined over the past. Also, no major new biomass demand was identified. This indicator is therefore assessed as low risk.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**

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

1.3.5 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: While mills prioritize long-standing buyers, this applies mostly to sawmill residues, not rated in this analysis. However, this dynamic is less relevant to the rated pulpwood and forest residue volumes, which are presently often disposed of. The resulting risk is low.

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

1.3.6 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: No evidence was found of temporary or nontraditional markets that could create short-term competition for woody biomass in the Supply Zone. The risk of sudden supply shortages or price spikes is very low.

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

1.3.7 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: While the existing competitors have substantial storage capacity for wood chips, the large underlying availability of pulpwood and forest residues for a new project reduces the competitive effect of any existing storage advantage. This indicator is therefore considered low risk.

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

1.3.8 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: Outreach to local professionals did not identify delivery constraints, access limitations, or excessive wait times in the region. Therefore, this indicator presents a low risk to procurement.

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

1.3.9 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: Regional competitors maintain high feedstock quality specifications, which provides suppliers with a clear understanding of acceptable material characteristics. Assuming that a new project will need to continue to maintain and encourage clear specifications, the risk associated with this indicator is low.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**

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

1.4 Risk Factor: Transportation

1.4.1 Biomass Feedstock Transportation Costs

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

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

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

Risk Information: Transportation may account for 20% to 50% of delivered biomass cost, depending on feedstock type, haul distance, and local market conditions. The rated volumes can be sourced from within 50 miles (Figure E-6), which is consistent with forest sector transport ranges. Consequently transportation cost risk is considered low.

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

1.4.2 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: The project would require additional trucks and chip vans. Some capacity may be available, but significant equipment investment may still be required. The risk is deemed high.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed high, therefore the RRL is 8 out of 10.	8
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed high, therefore the RRI is 8 out of 10.	8
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 64 out of 100.	64
Mitigation/Notching	**Notch**
RRL Mitigation (Notch)	25%

A new biomass project in the BDO Zone is expected to increase the demand for pulpwood and forest residue, thus reducing equipment investment risk. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 25%.

Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 48 out of 100.	**48**

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: To supply the rated quantities of pulpwood and forest residues will require eleven logging trucks and twenty-seven trucks and chip vans, respectively. Local foresters have communicated that logging trucks should be available in the region, however, due to a depressed sawmilling industry loggers are currently searching for opportunities in other regions. While some chip vans are currently available to transport the forest residues to a potential project, investment may still be necessary to scale up to the required rated quantity. Thus the risk was assessed as medium.

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

1.4.4 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: Community nuisance risk depends on route selection, truck counts, school/residential exposure, and local road condition. However, communities located in the Supply Zone are mostly rural and familiar with forestry activities in the region. Outreach to locals has not raised any concerns of current or past public backlash. Consequently, the risk was deemed low.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed low, therefore the RRI is 4 out of 10.	**4**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 16 out of 100.	**16**
Mitigation/Notching	**Notch**

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

1.4.5 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: Pennsylvania is the only one of the three states with clearly documented seasonal restrictions that can directly affect logging trucks: posted and bonded road rules may limit hauling during the freeze/thaw period, generally around February 15–April 15, unless specific approval is granted, and some state timber-sale documents also restrict harvesting/hauling during that window. Maryland and West Virginia do not appear to have statewide seasonal restrictions specific to logging trucks; impacts in those states are more likely to come from forest-product hauling permits, posted roads or bridges, legal weight limits, local road restrictions, and route-specific permit conditions.[18] As most of the supply is generated in Maryland and West Virginia but could be impacted by these regulations, this indicator is assessed as low-medium risk.

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

1.4.6 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: Maryland's road infrastructure is comparatively stronger but still route-dependent, with roads rated C- and bridges B- in ASCE's 2025 state report card; Pennsylvania presents greater rural-haul risk due to aging roads and a high number of structurally deficient bridges; and West Virginia has the most challenging road-infrastructure profile, with roads rated C- and bridges D+, compounded by mountainous terrain and rural access constraints.[19] Overall, heavy hauling and logging logistics are most likely to face detours, bridge limits, slower travel, and maintenance-related costs in Pennsylvania and West Virginia, while Maryland's risks are more localized. The resulting impact on feedstock accessibility is characterized as medium risk.

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

[18] dnr.maryland.gov; www.pa.gov; elibrary.dcnr.pa.gov; transportation.wv.gov
[19] www.asce.org; www.ascemd.org; tristateinfrastructurenews.com.

Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is 36 out of 100.	**Score** **36**
Mitigation/Notching No adjustment.	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100.	**Score** **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: Outreach indicated that transport redundancy does not appear to be available for the rated quantities, especially for chip vans. This indicator is thus considered high risk.

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)* A new biomass project in the BDO Zone is expected to increase the demand for pulpwood and forest residue, thus attracting new or returning trucking operators in the region. *RRI Mitigation (Notch)* No adjustment. The Total Notch (RRL Notch) X (RRI Notch) is 50%.	**Notch** **50%**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 32 out of 100.	**Score** **32**

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: Local foresters and loggers have communicated that logging capacity to supply the rated quantities of pulpwood logs should be available in the region, however, due to a depressed sawmilling industry loggers are currently searching for opportunities in other regions. Likewise, due to a dwindling logging workforce, chipping/grinding capacity is limited. Consequently, the risk is assessed as medium.

Raw Risk Likelihood (RRL)	**Score**

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

1.5.2 Suppliers Subject to Same External Risk Factors

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

Risk Information: Loggers in the region are exposed to the same underlying market conditions, including significant housing and hardwood lumber market challenges. These drivers can affect multiple suppliers at the same time. Over a longer time horizon, this indicator represents a medium risk.

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

1.6 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: Section B – Operational Considerations indicates that logging capacity to supply the rated quantities of pulpwood logs should be available in the region, however, due to a depressed sawmilling industry loggers are currently searching for opportunities in other regions. Likewise, due to a dwindling logging workforce, chipping/grinding capacity is limited. Consequently, the scale-up risk is assessed as medium-high.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed high, therefore the RRI is 8 out of 10.	**8**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 48 out of 100.	**48**
Mitigation/Notching	**Notch**

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

1.6.2 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 outreach indicated an aging logging workforce, reduced logging capacity following a market contraction. Maryland's forest workforce support is mainly centered on Master Logger training and forestry scholarships, while Pennsylvania has a broader workforce pipeline through SFI timber-harvester training, forest-career promotion, and hardwoods industry development programs. West Virginia combines logger licensing/BMP training with industry recertification and hardwood-sector training in sawmill operations, lumber grading, CDL, OSHA, and wood manufacturing. Overall, Pennsylvania and West Virginia have the more developed forest-industry workforce systems, while Maryland's is more focused on logger education and certification.[20] While these workforce-development programs may help offset attrition over time, overall, this indicator is assessed as medium risk.

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

1.6.3 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: The Supply Zone used to have a strong experience of producing and delivering the rated quantities of pulpwood and forest residues, with relevant supply chains well established. However, in the past five years, traditional

[20] extension.umd.edu/programs/environment-natural-resources/program-areas/maryland-delaware-master-logger-program; sfiofpa.org/loggers/training-requirements/; paforestcareers.com/programs.html; www.pa.gov/agencies/pda/business-and-industry/hardwoods-development-council; wvforestry.com/best-management-practices/training-licensing-certification/; www.mgcc.edu/appalachian-hardwood-training-initiative-ahti.

pulp markets have weakened or disappeared, and much low-grade/value wood and forest residue are now left in the woods. A new biomass project in the BDO Zone most likely will reestablish this sector, which local forestry professionals are strongly committed to rejuvenating. As a result, until such project is established, the risk related to low historical demand 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**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100.	**36**

1.7 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: NOAA disaster summaries show MD, PA, and WV exposure to winter storms, severe storms, floods, droughts, freezes, and tropical cyclone remnants.[21]. Seasonal weather has only a limited effect on biomass harvesting in the Supply Zone as snowy weather is already built into the 9-month operating assumption. These issues are typically managed by shifting work to more accessible areas. Given the region's varied topography and complementary harvest windows, the risk from normal seasonal weather patterns is low.

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

[21] www.ncei.noaa.gov.

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: NOAA state climate summaries indicate warming and increasing or projected increases in extreme precipitation/flood risk in MD, PA, and WV.[22] Maryland also identifies rising drought-related water shortage risks under climate change.[23] These conditions can increase insect and disease pressure, raise fire hazard, and make some forest stands inaccessible to harvesting. However, considering the Supply Zone's geographical and ecological size and diversity the risk is set at medium.

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

1.7.3 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: NOAA state disaster summaries do not list wildfire as a billion-dollar event category for MD, PA, or WV, but drought and pest-related stress may in the future elevate the fire risk.[24] Consequently, the risk is deemed low-medium.

Raw Risk Likelihood (RRL)	**Score**
The risk likelihood is deemed low, therefore the RRL is 4 out of 10.	**4**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed medium, therefore the RRI is 6 out of 10.	**6**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 24 out of 100.	**24**

[22] Ibid.
[23] dnr.maryland.gov/climateresilience/Pages/DataGuide.aspx
[24] www.ncei.noaa.gov.

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

1.7.4 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: Forest infestation risk is material across Maryland, Pennsylvania, and West Virginia, with all three states exposed to invasive pests and diseases that can reduce timber availability, increase salvage/management costs, and affect species mix. Maryland faces established threats such as hemlock woolly adelgid and spotted lanternfly, which has spread widely across the state. Pennsylvania has the highest documented pest pressure, with current forest threats including emerald ash borer, spongy moth, hemlock woolly adelgid, beech bark disease, and oak wilt; and West Virginia faces similar risks from emerald ash borer, spotted lanternfly, hemlock woolly adelgid, and spongy moth. Overall, Pennsylvania and West Virginia present the greater regional infestation risk because of their large hardwood resource bases, while Maryland's risk is more localized, but still relevant for affected species and counties.[25] Given the increased frequency and severity of pest pressure, this indicator represents a medium-high risk.

Raw Risk Likelihood (RRL)	Score
The risk likelihood is deemed medium, therefore the RRL is 6 out of 10.	**6**
Raw Risk Impact (RRI)	**Score**
The risk impact is deemed high, therefore the RRI is 8 out of 10.	**8**
Gross Risk Indicator (GRI)	**Score**
The Gross Risk Indicator (RRL X RRI) is 48 out of 100.	**48**
Mitigation/Notching	**Notch**
RRL Mitigation (Notch) A new biomass project in the BDO Zone will most likely absorb biomass from forest restoration and salvage operations.	**25%**
RRI Mitigation (Notch) No adjustment.	
The Total Notch (RRL Notch) X (RRI Notch) is 25%.	
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100.	**36**

[25] mda.maryland.gov/plants-pests/pages/spotted-lantern-fly.aspx; www.pa.gov/agencies/dcnr/conservation/forests-and-tree/insects-and-diseases; wvdnr.gov/plants-animals/exotic-and-invasive-species/; wvforestry.com/invasive-species/

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 is present across Maryland, Pennsylvania, and West Virginia, with exposure tied to severe thunderstorms rather than a persistent, high-frequency hail belt. Maryland's risk is typically localized and more relevant to exposed vehicles, buildings, nurseries, and young stands. Pennsylvania has broader exposure because of its larger land base and frequent severe-thunderstorm activity, particularly across rural and agricultural/logging regions. West Virginia can experience damaging hail during Appalachian thunderstorm events, though risk is uneven and often terrain- and storm-track-dependent. Overall, hail is unlikely to be a primary feedstock-supply constraint, but it can create episodic damage to equipment, roofs, vehicles, seedlings, and access-road operations during severe storm events.[26]

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

1.7.6 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: Flood risk exists across Maryland, Pennsylvania, and West Virginia and can affect forestry operations through washed-out access roads, damaged culverts and bridges, saturated soils, delayed harvesting, and disrupted hauling. However, Maryland's risk is concentrated around coastal, tidal, riverine, and urban/flash-flood areas. Pennsylvania has broad exposure across river valleys, rural roads, and low-lying crossings, with the State mapping flood risk against infrastructure. West Virginia has the highest terrain-driven flash-flood risk, where steep watersheds, narrow valleys, and heavy rainfall can quickly damage roads and isolate logging areas. Overall, flood risk is most operationally acute in West Virginia and Pennsylvania, while Maryland's impacts are more localized but still important for routes near floodplains, streams, and low-capacity drainage infrastructure.[27] The risk is assessed at 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**

[26] www.ncei.noaa.gov; www.fema.gov; www.nssl.noaa.gov/research/hail/; www.weather.gov/rlx/2023-February-27-Large-Hail
[27] www.fema.gov/flood-maps/; pafloodrisk.psu.edu/home/; water.noaa.gov/; www.wpc.ncep.noaa.gov/qpf/excessive_rainfall_outlook_ero.php

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

1.7.7 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: Drought risk is operationally relevant across Maryland, Pennsylvania, and West Virginia because dry periods can stress forests, reduce regeneration success, increase pest and disease vulnerability, elevate wildfire risk, and limit water availability for operations. Maryland remains vulnerable to seasonal drought despite projected increases in annual precipitation. Pennsylvania has broad forest-health exposure because hotter, drier conditions can weaken trees and increase wildfire risk. West Virginia's mountainous forestlands can experience localized drought stress that compounds fire risk, access constraints, and stand vulnerability.[28] Overall, drought is unlikely to be a constant feedstock constraint, but extended dry periods can increase forest-management costs, affect harvest timing, and raise fire-related operating risk.

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

1.7.8 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: Hurricanes, tornadoes, and strong winds pose a recurring risk across Maryland, Pennsylvania, and West Virginia, mainly through tropical-storm remnants, severe thunderstorms, squall lines, and localized tornado events that can damage forest stands, down trees, block haul roads, disrupt power, and delay harvesting or trucking.

[28] www.drought.gov; mde.maryland.gov; extension.psu.edu/the-future-of-forests-under-a-changing-climate-opportunities-and-challenges/.

Maryland has the greatest direct tropical-storm and coastal wind exposure. Pennsylvania's larger land base creates broader exposure to severe thunderstorms, tornadoes, and inland tropical remnants. West Virginia has lower direct hurricane exposure but remains vulnerable to damaging winds, tornadoes, and storm remnants moving through Appalachian terrain. Overall, wind-related hazards are unlikely to be constant feedstock constraints, but they can create episodic salvage, cleanup, access, and logistics disruptions, especially in Pennsylvania and West Virginia's rural forest regions.[29]

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

1.7.9 Low Temperatures

Rationale: Low temperatures can have adverse impacts on the operations of feedstock processing equipment in Northern BDO Zones.

Risk Information: Low-temperature risk is moderate across Maryland, Pennsylvania, and West Virginia, with the greatest operational exposure in higher-elevation and inland areas where freezing temperatures, snow, ice, and cold waves can affect forest operations, trucking, equipment reliability, and road access. Maryland has the lowest overall exposure, though western Maryland can experience colder Appalachian conditions. Pennsylvania has broader winter-risk exposure across northern and upland regions. West Virginia's mountainous terrain creates localized cold, icing, and freeze–thaw challenges that can complicate logging-road access and hauling.[30] Overall, low temperatures are unlikely to be a sustained feedstock constraint, but winter cold can cause episodic delays, increase maintenance costs, and reduce operating efficiency, especially in Pennsylvania and West Virginia.

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

[29] www.fema.gov; www.ncei.noaa.gov; www.weather.gov.
[30] www.ncei.noaa.gov; www.fema.gov; mdsco.umd.edu/ClimateInfo/md_climate_narr.php.

1.8 Risk Factor: Non-Weather Based Externalities

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

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

Risk Information: Diesel, oil-price, and PPI risks are material across Maryland, Pennsylvania, and West Virginia because forest feedstock supply depends heavily on trucking, diesel-powered harvesting equipment, and contractor services. Diesel prices in Figure E-7 show substantial volatility over the past decade, ranging from $2.51 per gallon in 2016 to $5.73 in 2022, then falling to $3.60 in 2024 before rising again to $5.42 in early 2026. Because fuel is a major component of delivered feedstock cost, this volatility creates meaningful exposure for harvesting, collection, and transport economics, especially during broader supply-chain disruptions. CPI and PPI movements reinforce that exposure by affecting labor, fuel, equipment, and maintenance costs across the biomass supply chain. BLS reported that the April 2026 PPI increase was driven partly by higher prices for diesel fuel and truck transportation of freight, which can raise delivered biomass/logging costs. Overall, Pennsylvania and West Virginia may be more exposed because longer rural haul distances and terrain can increase fuel burn and trucking hours, while Maryland's exposure is somewhat lower but still tied to regional diesel and freight-cost movements.[31] Accordingly, the combined risk from diesel, oil-linked costs, and broader price indices is medium.

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 No adjustment.	**Notch** **NN**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is 36 out of 100.	**Score** **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: Feedstock is sourced within the United States from WV, MD, and PA. No cross-currency procurement is identified.

Raw Risk Likelihood (RRL) The risk likelihood is deemed not relevant, therefore the RRL is not rated (NR).	**Score** **NR**
Raw Risk Impact (RRI) The risk impact is deemed not relevant, therefore the RRI is not rated (NR).	**Score** **NR**
Gross Risk Indicator (GRI) The Gross Risk Indicator (RRL X RRI) is not rated (NR).	**Score** **NR**
Mitigation/Notching No adjustment.	**Notch** **NR**
Loaded RI Score The Loaded RI Score ((1-Total Notch) X GRI Score) is not rated (NR).	**Score** **NR**

[31] www.eia.gov; www.bls.gov.

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: Feedstock does not cross an international border.

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**
No adjustment.	**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: No direct feedstock subsidy dependence is identified or in state forestry sources reviewed.

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**
No adjustment.	**NR**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is not rated (NR).	**NR**

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: Biomass feedstock procurement in Maryland, Pennsylvania, and West Virginia is governed by overlapping federal, state, and local rules covering eligible biomass definitions, harvesting, water quality, erosion and sediment control, wetlands/stream crossings, trucking, and facility permitting. At the federal level, biomass projects may face Clean Air Act, Renewable Fuel Standard eligibility, NEPA/federal-land, wetlands, and stormwater requirements, while state rules drive most forest-harvest compliance. Maryland requires sediment and erosion controls for forest harvest and has the most stringent regulations related the Chesapeake basin watershed. Pennsylvania requires erosion and sedimentation planning for timber harvesting, with added local ordinances and posted/bonded road rules that can affect hauling; and West Virginia has the most explicit logging compliance structure, requiring timbering licenses, operation notification, certified loggers, BMPs, and reclamation under the Logging Sediment Control Act. Overall, permitting risk is manageable but should be treated as site- and route-specific, especially where feedstock comes from sensitive watersheds, wetlands, state/federal lands, or rural roads.[32] As currently logging companies are used to abiding by these policies, the risk is deemed low.

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

1.9.3 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 backlash risk for biomass feedstock development, procurement, or use is low to moderate across Maryland, Pennsylvania, and West Virginia, with opposition typically focused on forest carbon impacts, air emissions, community health, environmental justice, and concerns that biomass may increase pressure on forests rather than rely only on residues. Maryland has seen organized opposition to treating incineration, biogas, and biomass as clean energy. Pennsylvania has a longer-running debate over forest biomass energy and wood-pellet demand. West Virginia has experienced some direct community opposition to a wood/log-processing infrastructure.[33] Overall, projects that rely on clear forest-residue limits, transparent sourcing, local economic benefits, emissions controls, and early community engagement are likely to face lower backlash. The risk is deemed low.

Raw Risk Likelihood (RRL)	**Score**

[32] www.epa.gov/system/files/documents/2025-01/rfs-guide-forest-feedstk-stakeholder-ltr-2024-12-20.pdf; dnr.maryland.gov/forests/pages/landplanning/bmp.aspx; dnr.maryland.gov/forests/documents/bmpmanagingtosavethebay.pdf; extension.psu.edu/forest-management-and-timber-harvesting-in-pennsylvania/; www.pa.gov/agencies/penndot/programs-and-doing-business/posted-and-bonded-roadways; wvforestry.com/best-management-practices/; wvforestry.com/best-management-practices/training-licensing-certification/; code.wvlegislature.gov/pdf/19-1B/

[33] cleanwater.org/releases/environmental-community-advocates-call-governor-moore-mde-reject-polluters-and-embrace; www.pfpi.net/wp-content/uploads/2022/11/PFPI-PA-Biomass-Energy-Report_12_18_12.pdf; apnews.com/article/92d08bc04e86bbf7cce5f49fa9f0764b; www.selc.org/topic/biomass-energy-threatens-southern-forests-and-communities/

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

1.9.4 Consent of, and Cooperation with, Indigenous Communities

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

Risk Information: Consent and cooperation with Indigenous communities is a site-specific risk for biomass feedstock projects in Maryland, Pennsylvania, and West Virginia, especially where harvesting, roads, stream crossings, or facilities could affect archaeological sites, culturally significant landscapes, treaty-related interests, or federal/state permits. Maryland has no federally recognized Tribes in-state, but does have state-recognized Tribes and a Maryland Commission on Indian Affairs. Consequently, an early engagement is important where projects overlap Indigenous cultural interests. Pennsylvania has no federally recognized Tribes located in the state, but PennDOT identifies 16 federally recognized Tribes and Nations with ancestral ties that may require consultation for federally connected projects. West Virginia has no federally recognized Tribes or tribal lands, but consultation can still be triggered through federal permitting, Section 106 historic-preservation review, or projects affecting culturally sensitive resources.[34] Overall, the risk may be triggered by inadequate early consultation or community engagement where project infrastructure, harvesting, or transport routes intersect culturally important lands or resources. Assuming that a new project located in the BDO Zone will address the above concerns, the risk is deemed low.

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

1.9.5 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

[34] msa.maryland.gov/msa/mdmanual/01glance/native/html/00list.html; governor.maryland.gov/community-initiatives/ethnic-commissions/indian-affairs/commissioners; www.pa.gov/agencies/penndot/programs-and-doing-business/environment/cultural-resources-management-program/archaeology-tribes; www.pa.gov/content/dam/copapwp-pagov/en/penndot/documents/public/pubsforms/publications/pub%20591.pdf; www.wvencyclopedia.org/entries/805; firstnet.gov/network/environmental-compliance/tribal-consultation

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: Feedstock consists of forest biomass, pulpwood, and residues, not agricultural crops or food-producing land.

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**
No adjustment.	**NR**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is not rated (NR).	**NR**

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: The growth-to-drain ratio of 2.7 supports sustainable harvest potential, and rated quantities are reduced using a BAM factor of 2.0. State forest action plans and BMPs provide sustainability frameworks across MD, PA, and WV.[35] The risk is deemed low.

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

1.10.2 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

[35] dnr.maryland.gov/forests/Pages/forest-action-plan.aspx; www.pa.gov/agencies/dcnr/conservation/forests-and-tree/state-forest-management/forest-action-plan; wvforestry.com/best-management-practices/.

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: Forest residue removal from steep Appalachian terrain can increase erosion, nutrient depletion, and soil-carbon concerns if poorly managed. MD, PA, and WV forestry BMPs focus on limiting erosion, sedimentation, and soil movement into water resources. Loggers are familiar with these BMPs; thus, the risk is low.

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

1.10.3 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: Steep terrain, roads, stream crossings, harvesting, and residue extraction can increase erosion and runoff if BMPs are not followed. MD, PA, and WV BMP/regulatory sources emphasize sediment and water-quality protection in forestry operations. Loggers are familiar with these BMPs; thus, the risk is low.

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

1.10.4 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: Forest biomass procurement does not require irrigation or high direct water use. However, harvest and residue removal can affect infiltration, runoff, and local hydrology if poorly managed. MD, PA, and WV BMPs emphasize water-quality protection in forestry operations. Loggers are familiar with these BMPs; thus, the risk is low.

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

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

1.10.5 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: No pesticide application is identified as part of feedstock production. Pesticide use could occur in forest health response, such as spongy moth suppression, but the project feedstock itself is not a dedicated pesticide-intensive crop. The risk is very low.

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

1.10.6 Risk to Wildlife and Landscape

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

Risk Information: Harvesting, residue removal, road use, and increased truck traffic may affect wildlife habitat and landscape values, especially if residue removal is excessive or poorly timed. State forest action plans include biodiversity, forest values, and sustainable-management objectives. Loggers are familiar with these plans and regulations; thus, the risk is low.

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

CATEGORY 2.0: INFRASTRUCTURE RISKS

2.1 Risk Factor: Physical Infrastructure

2.1.1 Land Parcel/Industrial District

Risk Information: The Former Taz Sawmill Site encompasses approximately 42 acres of land located in Preston County, WV. The property is completely flat and was historically utilized as a strip mine, a sawmill, and a transfer facility for natural gas liquids. The site does not lie within a 100-year floodplain. There is no formal municipal zoning in this unincorporated area of the county; however, restrictive covenants limit the property's use strictly to industrial, warehousing, and distribution. The site's industrial classification, flat topography, and location outside the floodplain are favorable characteristics. The historical industrial use establishes precedent for continued industrial activity, and the restrictive covenants provide de facto zoning without requiring municipal approval. The risk is assessed as very low.

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

2.1.2 Ownership of Land

Risk Information: The subject property is currently owned by Preston County Economic Development Authority (PCEDA). The PCEDA is highly motivated to sell or develop the property for future industrial tenants and has priced the land at $45,000 per acre. All oil, natural gas, coal, and mineral rights are owned by the PCEDA. The inclusion of mineral rights eliminates subsurface rights conflicts that can complicate industrial development in West Virginia's mining regions. The risk is assessed as very low.

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

2.1.3 Permitting Description

Risk Information: The property is located in an unincorporated area; therefore, no local zoning or rezoning permits are required through a city municipality. The site has a history of maintaining active industrial permits, including two National Pollutant Discharge Elimination System (NPDES) permits and a RCRA hazardous waste ID (WVR000545384) from its time as a natural gas liquids transfer facility. Any required building or operational permits for future development would be coordinated directly through Preston County and the State of West Virginia. The absence of

municipal zoning requirements and the site's established permit history reduce permitting complexity. The risk is assessed as very low.

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

2.1.4 Environmental Issues

Risk Information: A Phase I and Phase II Environmental Site Assessment (ESA) were conducted in 2025. The Phase I ESA identified three Recognized Environmental Conditions (RECs): the site's historical use as a strip mine, an inactive 500-gallon off-road diesel aboveground storage tank (AST), and a former AST farm that previously held condensate and brine water. The Limited Phase II ESA concluded that subsurface soil contamination is not present, as detected polycyclic aromatic hydrocarbons (PAHs) and metals were generally below residential De Minimis standards, except for naturally occurring arsenic. Groundwater impacts were minimal, and it was recommended that the out-of-service 500-gallon AST be removed. Environmental reviews confirmed no active bald eagle nests or endangered species habitats within the project's area of impact. While three RECs were identified, the Phase II results demonstrating no subsurface contamination substantially reduce environmental risk. The recommended AST removal is a minor remediation item. The risk is assessed as very low.

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

2.2 Risk Factor: Utilities

2.2.1 Natural Gas Availability

Risk Information: Natural gas lines are currently not present at the site boundaries, lying approximately 4,340 feet away. However, the PCEDA has a funded project to extend the existing 4-inch natural gas line to the site. Gas service will be provided by Enmark Energy at an estimated pressure of 75 psi. The exact line size of the extension is being finalized through ongoing engineering work. However, until the extension is completed, the gas service is not yet available at the site boundary, resulting in a low rather than very low risk assessment.

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

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

2.2.2 Electric Availability

Risk Information: The site currently has a 12-inch electric line to its boundaries. Service is provided by FirstEnergy via a 12.47 kV distribution circuit. The existing service provides a solid foundation, positioning this as a very low risk factor.

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

2.2.3 Water Availability

Risk Information: Water service currently reaches the site boundaries and is provided by Preston County PSD #4. The site is serviced by a 6-inch water line with an existing total excess capacity of 20,000 GPD. While water service is available at the site boundary, the excess capacity of 20,000 GPD may be insufficient for water-intensive industrial operations such as biofuel production, which can require significantly higher volumes. Any project requiring substantial water volumes would need to evaluate whether the existing infrastructure and PSD capacity can accommodate industrial demand, or whether upgrades to the supply system would be necessary. The risk is assessed as low given that service is present, but the limited excess capacity introduces moderate uncertainty for large-scale industrial use.

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

2.2.4 Drainage, Stormwater Management, and Sewage

Risk Information: Currently, there is no sewer line at the site boundary, located 970 feet away. However, as part of the AMLER-funded site readiness project, sanitary sewer will be extended to the site concurrently with the natural gas line. This funded extension includes laying 3,200 linear feet of 8-inch gravity sewer line and installing 11 manholes, which

will provide a total capacity of 50,000 GPD through the Preston County Sewer PSD. Stormwater ponds, presenting iron coloration from historical mining, currently exist on the northern portion of the property. The fully funded sewer extension project is a significant positive, as it eliminates the cost burden on future tenants. The 50,000 GPD capacity is adequate for many industrial operations. The existing stormwater ponds, while showing mining-related iron coloration, provide on-site stormwater management infrastructure. The risk is assessed as low given the funded improvements, though completion timelines should be monitored.

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

2.2.5 Waste Disposal

Risk Information: Commercial and industrial waste disposal is well-served for the site. The Tucker County landfill (WV) (49 miles from the site) and Sunrise Sanitation Services are the primary waste disposal options serving the Bruceton Mills area. These regional facilities and haulers have ample capacity to handle industrial waste generation from a new biofuel or industrial tenant. The availability of multiple regional landfills with adequate capacity, combined with established private hauler service in the industrial corridor, ensures reliable waste disposal. The risk is assessed as very low.

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

2.2.6 Information and Communication Technology (ICT) Services

Risk Information: The site features modern ICT infrastructure, with existing fiber optic service at the site boundaries provided by Prodigi. The existing fiber capacity is 10 Gbps, and additional capacity may be available upon request. Cellular service is also actively available at the site. The presence of on-site 10 Gbps fiber optic service is exceptional for a rural industrial site and exceeds the connectivity available at many urban locations. This high-bandwidth infrastructure supports advanced industrial control systems, real-time data management, and enterprise communications. The risk is assessed as very low.

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

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

2.3 Risk Factor: Transportation/Logistics

2.3.1 Road/Highway Access

Risk Information: The site possesses excellent road infrastructure for heavy industrial transport. The property is located directly on Casteel Road and is only 1.4 miles from Interstate 68 via Exit 29 (Hazelton). I-68 connects westward to Morgantown (approximately 30 miles) and eastward to the I-79 interchange and Cumberland, Maryland. This interstate proximity enables efficient regional and national freight connectivity. The risk is assessed as very low.

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

2.3.2 Rail Access

Risk Information: There is currently no rail spur at the site boundary, and the closest rail service is located 39 miles away. Regional rail networks are operated by CSX and Norfolk Southern in nearby regional hubs such as Morgantown or Grafton. The 39-mile distance to the nearest rail service and the absence of any plans for rail development represent a significant gap for rail-dependent operations. All bulk material transport would need to rely exclusively on truck via the excellent interstate road access. For biofuel operations that typically benefit from rail access for feedstock or product transport, this limitation could increase logistics costs. The risk is assessed as high.

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

2.3.3 Airport Access

Risk Information: The closest commercial airport is Morgantown Municipal Airport (Walter L. Bill Hart Field), approximately 30 miles west, which provides commercial service and general aviation access. The closest international airport is Pittsburgh International Airport, a major commercial hub, approximately 80 miles north via I-68 and I-79 (confirmed by PCEDA, March 2026). North Central West Virginia Airport (CKB) in Bridgeport/Clarksburg is a secondary option approximately 60 miles southwest. While general aviation access is available through Morgantown, the 60+ mile distance to the nearest commercial airport and 80 miles to Pittsburgh International present moderate challenges for business travel. However, the I-68/I-79 corridor provides efficient road access to Pittsburgh. The risk is assessed as low.

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

2.3.4 Water Freight Access

Risk Information: Preston County is a landlocked, mountainous region in northeastern West Virginia with no navigable waterways for commercial freight. The nearest river freight access would be on the Monongahela River at Morgantown (approximately 30 miles west) or on the Ohio River further downstream. There is no direct water freight access from the site, and all bulk transportation must rely on truck and potentially rail networks. The absence of water freight access is typical for inland Appalachian industrial sites. The strong interstate road access (1.4 miles to I-68) partially mitigates this limitation. The risk likelihood is very high given the definitive absence, though the impact is medium given available truck alternatives.

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

2.4 Risk Factor: Social Infrastructure

2.4.1 Healthcare (Local)

Risk Information: Preston Memorial Hospital (PMH) in Kingwood, approximately 20 miles from the Bruceton Mills site, is a 25-bed Critical Access Hospital with a facility. PMH operates a 24/7 Emergency Department with a Level IV Trauma designation and has two nationally recognized Centers of Excellence in Bariatrics and Sleep Medicine. PMH also operates specialty facilities including a Reedsville Urgent Care and physical therapy locations in both Bruceton Mills and Kingwood. Additionally, Mountain Laurel Medical Center, a Federally Qualified Health Center (FQHC), is located directly

in Bruceton Mills, providing primary care, women's health, lab work, and counseling services. For higher-level care, Morgantown (approximately 30 miles) offers Mon Health Medical Center and WVU Medicine's J.W. Ruby Memorial Hospital, which has West Virginia's only Level I Trauma Center. The combination of local primary care in Bruceton Mills, a county hospital in Kingwood, and world-class tertiary care in Morgantown positions healthcare as a very low risk factor.

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

2.4.2 Education (Schools)

Risk Information: Preston County Schools operates the public school system serving the county, including a K-8 school in Bruceton Mills and the county's single high school in Kingwood. Preston High School also hosts a Community and Technical Education (CTE) program for high school students. The site benefits from regional higher education and workforce training ecosystem: West Virginia University (WVU) in Morgantown (approximately 30 miles), Pierpont Community and Technical College, Fairmont State University, Garrett College, Frostburg State University, West Virginia Wesleyan College, MTech Morgantown, and West Virginia Junior College — all within commuting distance. A dedicated adult education center operates in Kingwood, and a CDL training school operates in Morgantown. A feasibility study is currently underway for a new workforce training center in Preston County designed to serve Preston and surrounding counties, with scope and programming to be determined over the coming months. Pierpont Community and Technical College is also identified as the preferred partner for custom industry-specific training programs if a new industrial tenant requires tailored workforce development. WVU's proximity is a significant advantage, providing access to engineering, forestry, agriculture, and energy programs directly relevant to biofuel development. Pierpont Community and Technical College, also in the Morgantown area, offers vocational and technical training programs. The combination of local K-12 schools and proximate access to a major research university positions education as a very low risk factor.

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

2.4.3 Local Transportation

Risk Information: Personal vehicle travel is the primary mode of transportation in Preston County. The average commute time for Preston County residents is approximately 31.3 minutes, above the national average of

approximately 27 minutes, reflecting the rural geography and the significant number of residents who commute to Morgantown and other employment centers. Preston County is part of the Morgantown Metropolitan Statistical Area, which has a labor force averaging more than 70,000 persons. Preston County operates a public bus service known as the "Buckwheat Express," though it does not currently serve the immediate Taz site area. A park-and-ride lot is located in Bruceton Mills to facilitate carpooling and commuter connections. The heavy reliance on personal vehicles is typical for rural Appalachian communities but is partially offset by proximity to I-68. The risk is assessed as medium.

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

2.4.4 Public Safety (Local)

Risk Information: Public safety in Preston County is provided by the Preston County Sheriff's Office, headquartered in Kingwood, and the West Virginia State Police. The Bruceton-Brandonville Volunteer Fire Department provides fire protection and ambulance/EMS services for the Taz site area. The county benefits from its inclusion in the Morgantown MSA, which provides additional law enforcement and emergency response resources. Emergency services coordination is facilitated through the county's 911 system. Preston County is in the 93rd percentile for safety (meaning safer than 93% of counties in the US), with a crime rate of 16.63 per 1,000 residents. The risk is assessed as very low.

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

2.4.5 Housing/Cost of Living

Risk Information: The BDO Zone consists of eight counties, the most significant being Preston County, WV (64% of the BDO Zone), Garrett County, MD (14%), and Monongalia County, WV (13%). Preston County's overall cost of living is 17.5% lower than the national average, and 3.9% higher than the West Virginia average. The median property value for the three major counties is $221,933, with the median property value for Preston County at $162,800; significantly lower than the US median of $303,400. In Preston County, the homeowner vacancy rate is 1.6 and the rental vacancy rate is 3.9, which signifies good housing availability. Importantly, per PCEDA, the area immediately surrounding the Taz site is the fastest-growing area in Preston County, with newer home construction, greater apartment availability, and higher local income levels than the overall county average.

Raw Risk Likelihood (RRL)	**Score**

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

2.5 Risk Factor: Labor

2.5.1 Workforce

Risk Information: As of 2025, the population of the BDO Zone is approximately 159,700 people, with the majority of the population living in Morgantown (Monongalia County). In September 2025, the average unemployment rate for the three most significant counties in the BDO Zone was 3.6, which is lower than the national average of 4.2%. Approximately 90% of individuals over 25 years of age across the three major counties have a high school education or higher, and approximately 30% have a bachelor's degree or higher. This compares to national statistics of 89% and 35%, respectively. The proximity to WVU in Morgantown provides access to a pipeline of graduates in engineering, forestry, agriculture, and energy fields. While the local county workforce is modest in size, the Morgantown MSA connection substantially expands the available labor pool. Critically, per PCEDA, Preston County's 50-mile labor shed extends northward into the Pittsburgh metropolitan area — expanding the available workforce pool to more than 700,000 workers. While the BDO Zone framework uses a 25-mile labor shed as its default benchmark, the proximity to both Morgantown and Pittsburgh is an exceptional characteristic for a rural 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**
No adjustment.	**NN**
Loaded RI Score	**Score**
The Loaded RI Score ((1-Total Notch) X GRI Score) is 4 out of 100.	**4**

2.5.2 Labor Costs

Risk Information: As of 2026, the minimum wage in West Virginia is $8.75/hour, slightly above the federal minimum of $7.25/hour. The minimum wage in Maryland is $15/hour, which is significantly higher than the federal minimum wage. Preston County's average weekly wage in Q3 2025 was $1,097, Garrett $959, and Monongalia $1,260, which are all lower than the national average of $1,459. In 2024, the median household income in Preston County, WV was $61,880, in Garrett County, MD $67,688, and in Monongalia County, WV $65,346, compared to the West Virginia state average of $59,608, the Maryland state average of $103,678, and the national average $81,604. As of 2024, 14% of the population in Preston County is in poverty, in Garrett County 11%, and in Monongalia County 20%, compared to the national average of 13%. Per PCEDA, actual wages in the Bruceton Mills area of Preston County tend to run somewhat higher than the county-wide averages because a significant share of residents commute to higher-paying jobs in Morgantown — meaning county-aggregate wage statistics can understate the premium required to attract experienced

local workers. From an employer standpoint, the labor costs in Preston County remain significantly below national averages while benefiting from proximity to the Morgantown MSA's more educated and diverse labor pool. The state's moderate minimum wage and lower cost structure make the area competitive for manufacturing and industrial operations. The risk is assessed as very low.

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

SECTION E: TABLES AND FIGURES

Figure E-1. Above Ground Biomass of All Live Trees in the Supply Zone (2015-2024)[36]

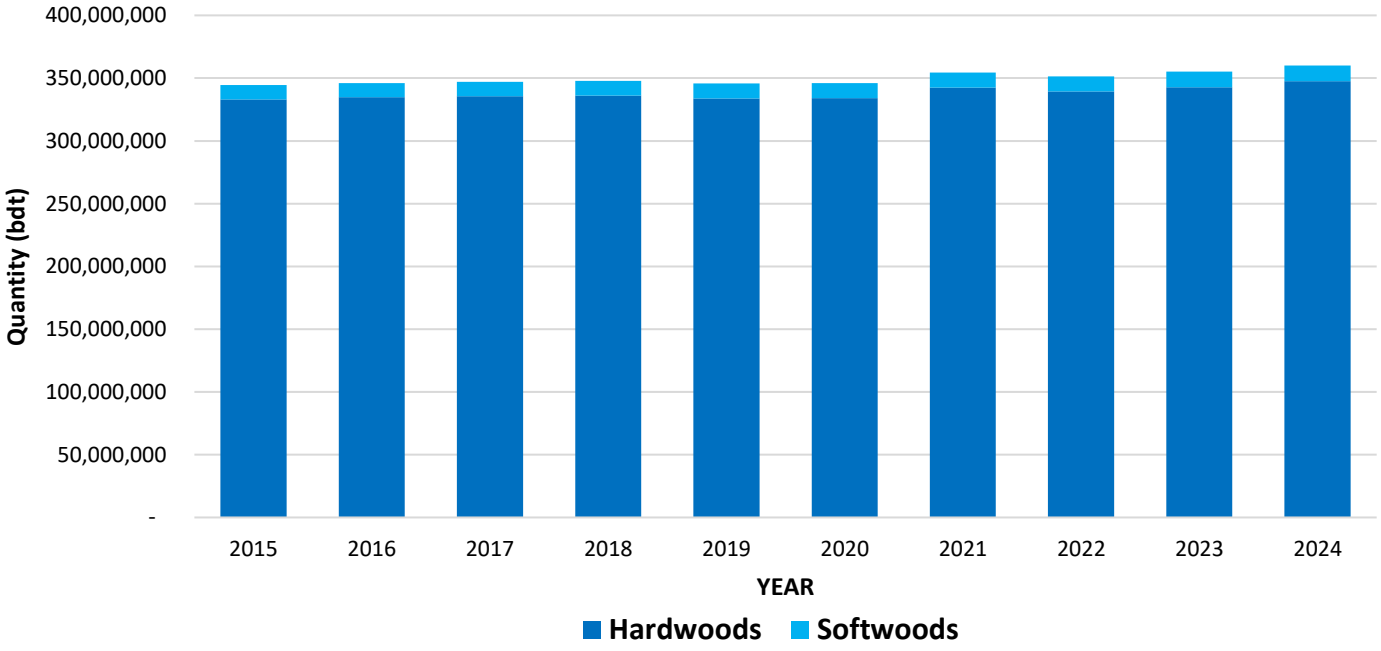
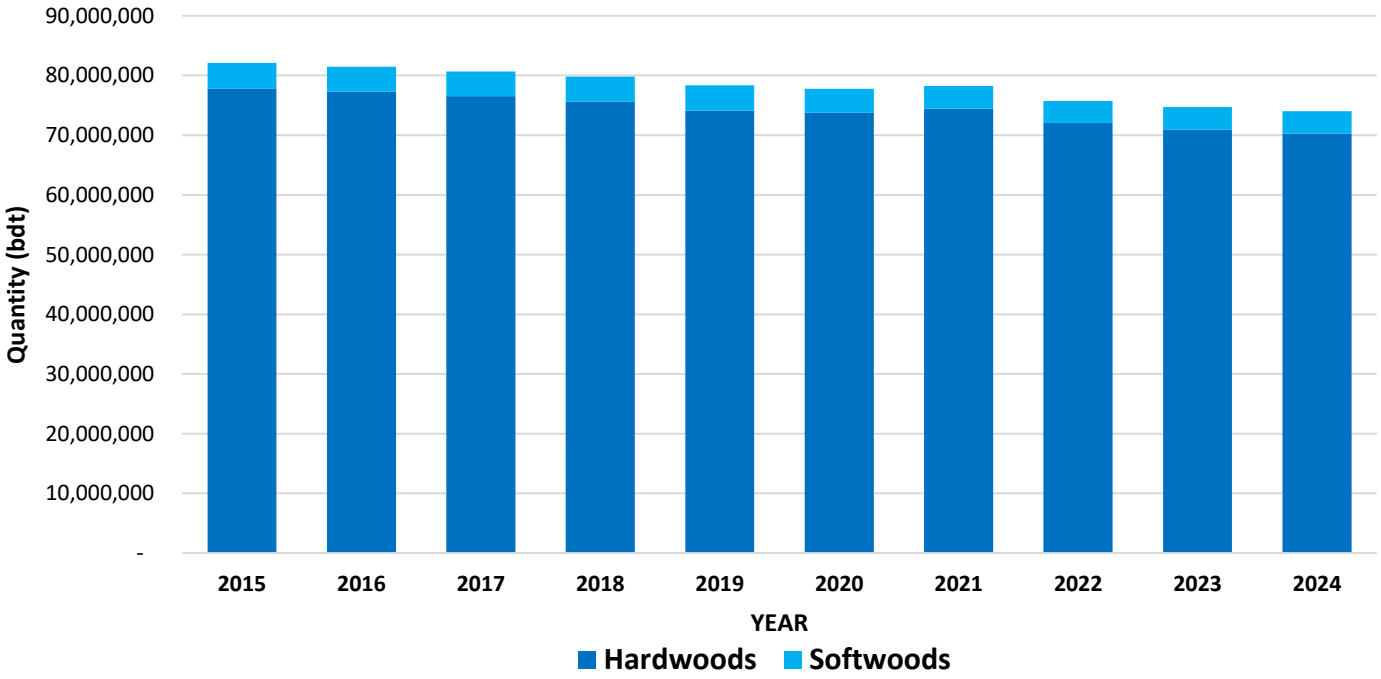


Figure E-2: Above Ground Biomass of Live Pulpwood Size Trees in the Supply Zone (2015-2024)[37]



[36] apps.fs.usda.gov/fiadb-api/evalidator
[37] Ibid.

Figure E-3. Percent Merchantable Biomass of Standing Live Trees by Ownership [38]

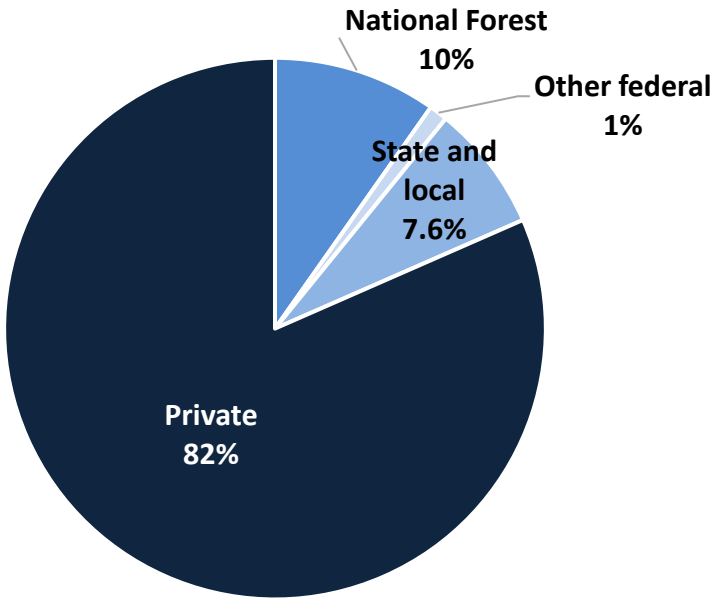
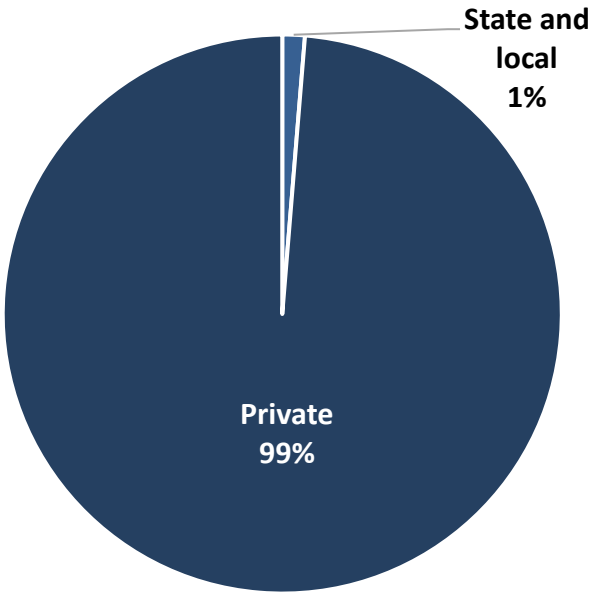
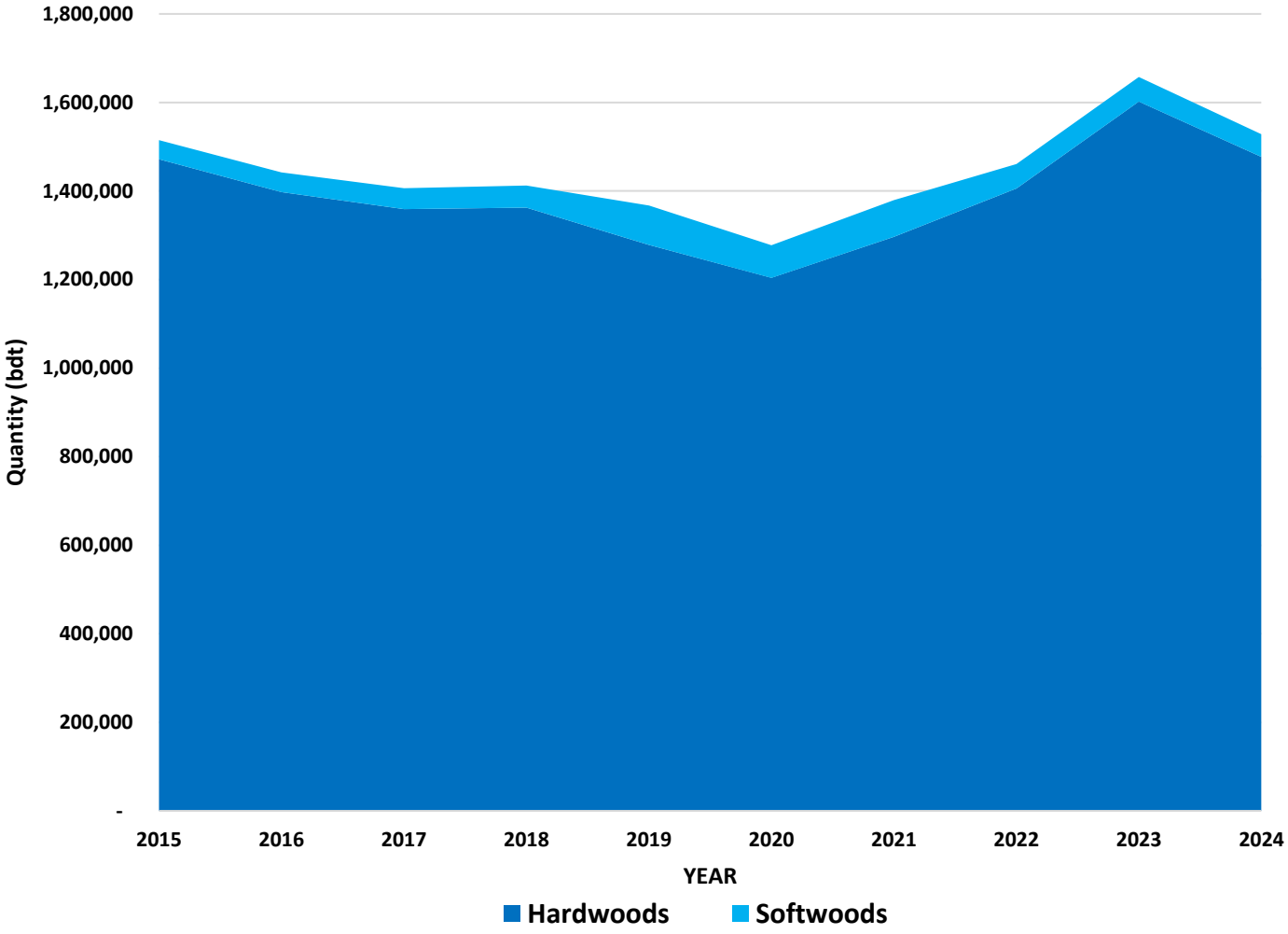


Figure E-4. Percent Timber Removal by Ownership[39]



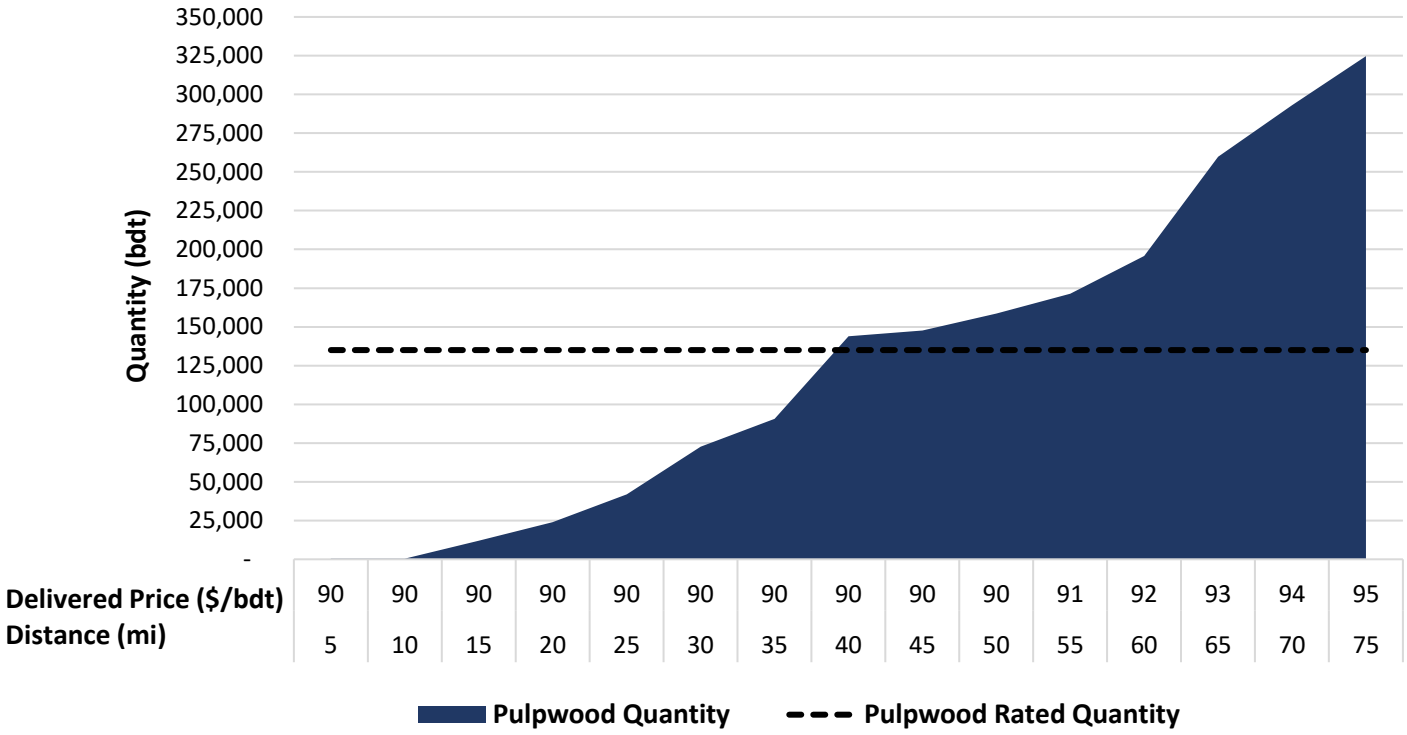
[38] Ibid.
[39] Ibid

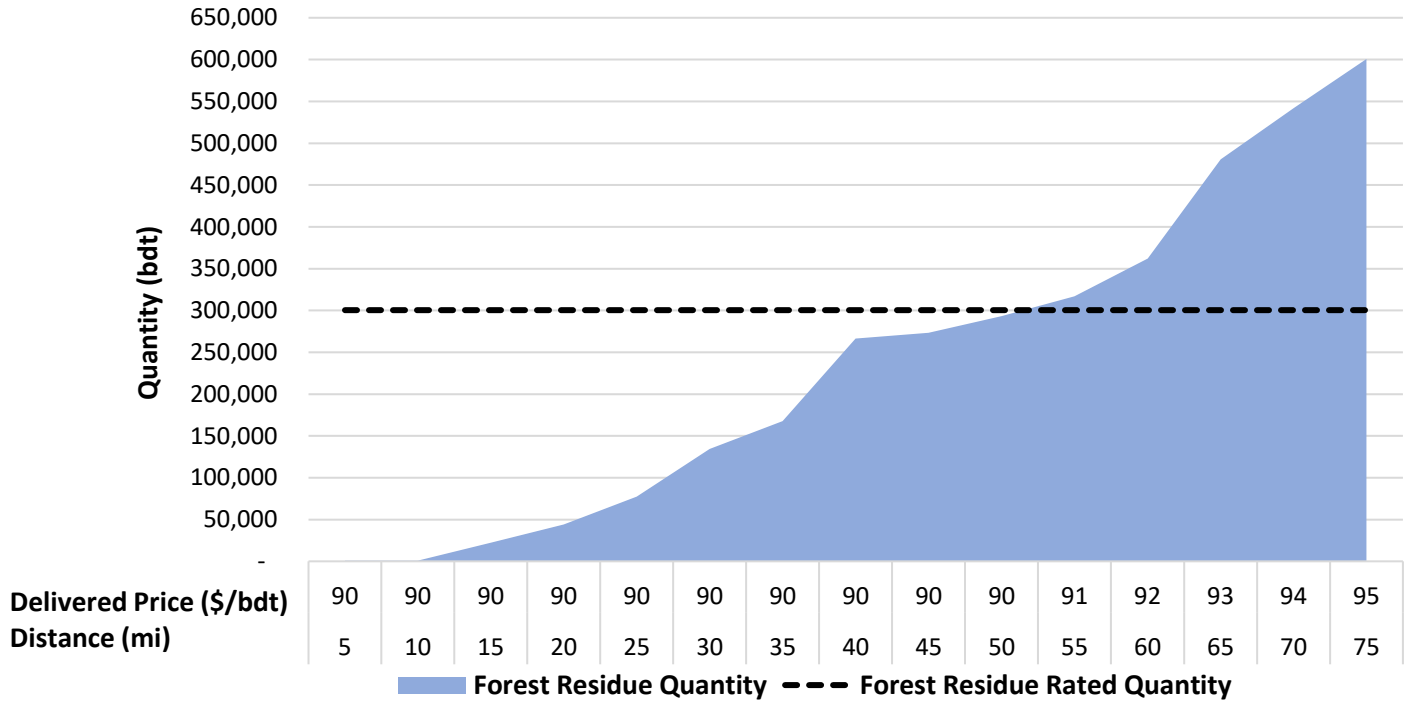
Figure E-5. Average Annual Removals in the Supply Zone [40]



[40] Ibid.

Figure E-6. Supply/Marginal Cost Curves for Pulpwood (top) and Forest Residues (bottom) in the Supply Zone [41]





[41] Ibid.

Figure E-7. Historical Diesel Prices ($/gal) and Trendline the Lower Atlantic Area - PADD 1C (2017-2026)

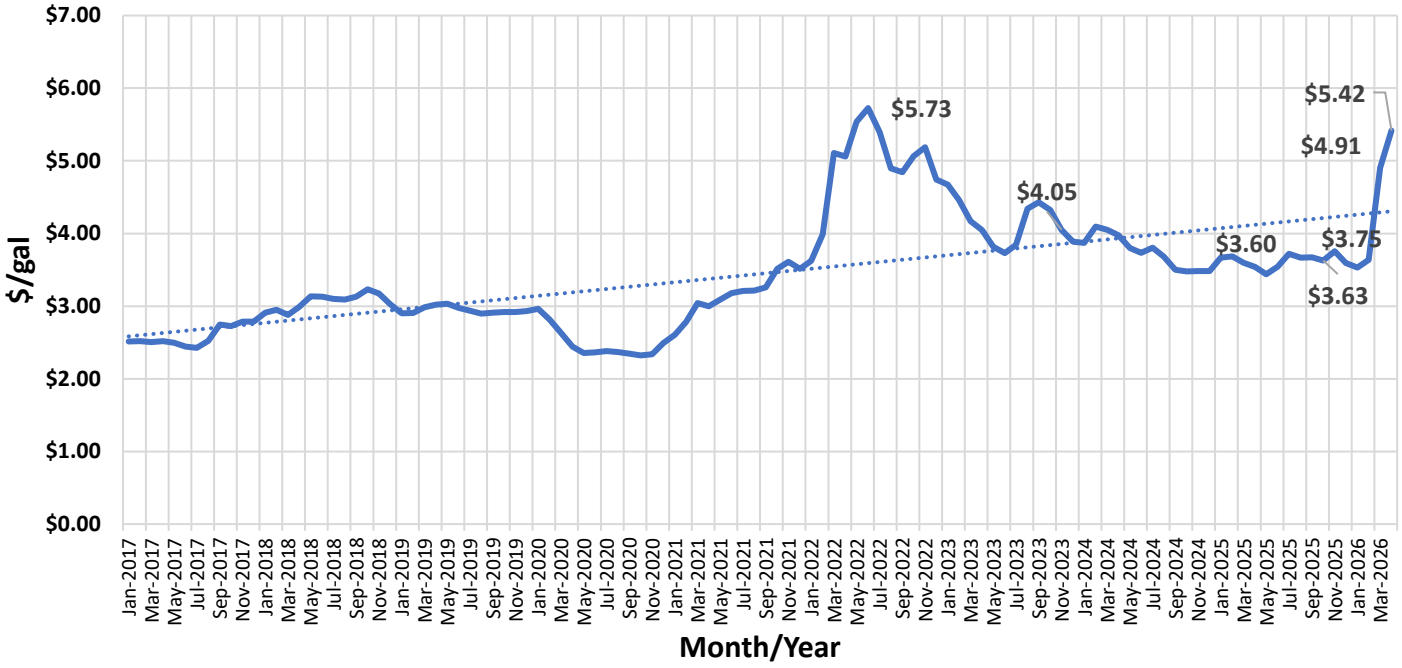
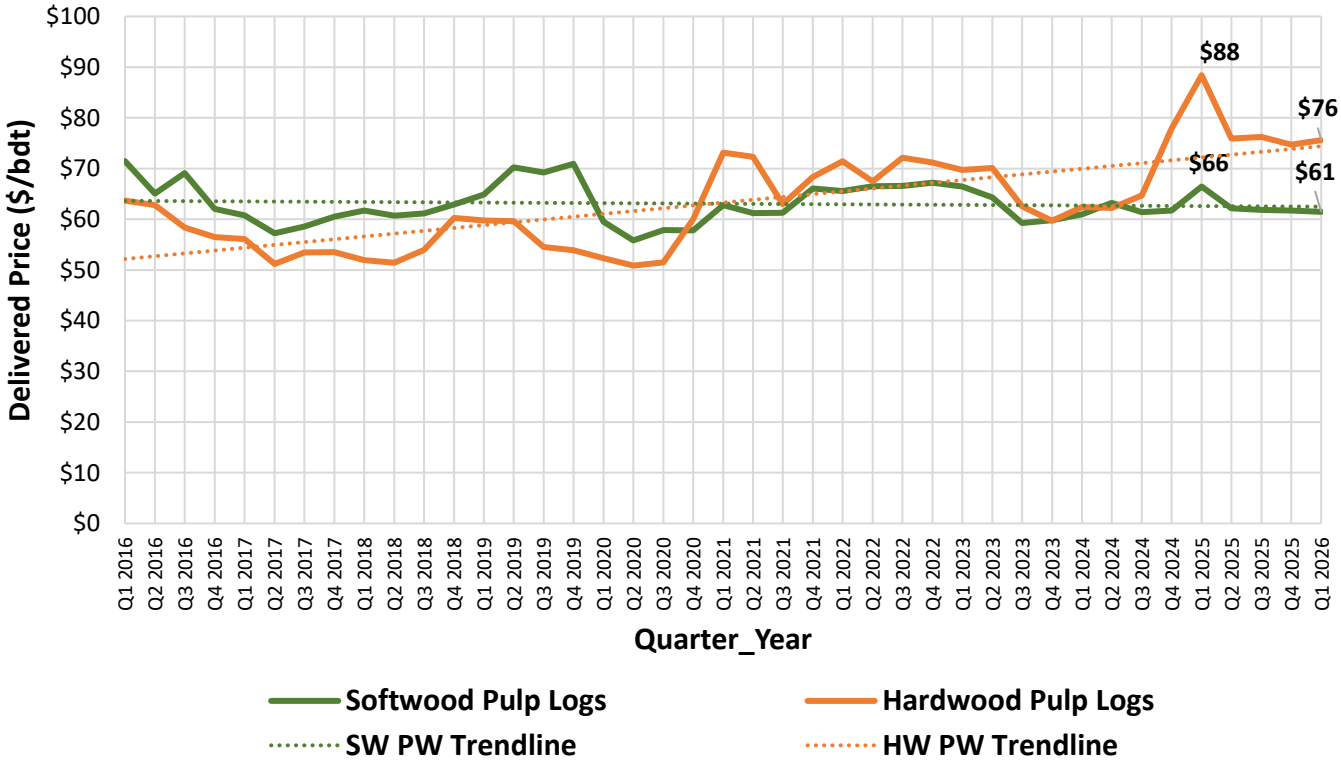


Figure E-8. Pulpwood Market Prices (Timber Mart South, Q1 2026 Data, Virginia 1 Area)



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