SBP

Sustainable Biomass Partnership

Supply Base Report for Enviva Ahoskie

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Version 1.2
June 2016

NOTE:

This template, v1.2, is effective as of the date of publication, that is, 23 June 2016. Template v1.1 may still be used for those audits undertaken prior to 23 June 2016 and where the certificate is issued to Certificate Holders before 1 October 2016.

For further information on the SBP Framework and to view the full set of documentation see www.sustainablebiomasspartnership.org

Document history

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Contents

1 Company Overview

Producer name: Enviva Holdings LP

Producer location: 7200 Wisconsin Ave Suite 1000 Bethesda, MD 20814

Geographic position: Enviva Pellets Ahoskie, NC
N 36.269712, W-76.964838

Primary contact: Don Grant
26570 Rose Valley Rd
Franklin, VA 23851
don.grant@envivabiomass.com
office: 757-304-5080

Company website: http://www.envivabiomass.com/

Date report finalised: 13/09/2016

Close of last CB audit: October 1, 2015, Chesapeake, Virginia, USA

Name of CB: PriceWaterhouseCoopers LLP

Translations from English: NA

SBP Standard(s) used: Standard 1 version 1.0, Standard 2 version 1.0, Standard 4 version 1.0 and Standard 5 version 1.0

Weblink to Standard(s) used: http://www.sustainablebiomasspartnership.org/documents

SBP Endorsed Regional Risk Assessment: NA

Weblink to Supply Base Evaluation (SBE) on Company website:
http://www.envivabiomass.com/sustainability

Indicate how the current evaluation fits within the cycle of Supply Base Evaluations				
Main (Initial) Evaluation	**First Surveillance**	**Second Surveillance**	**Third Surveillance**	**Fourth Surveillance**
☐	X	☐	☐	☐

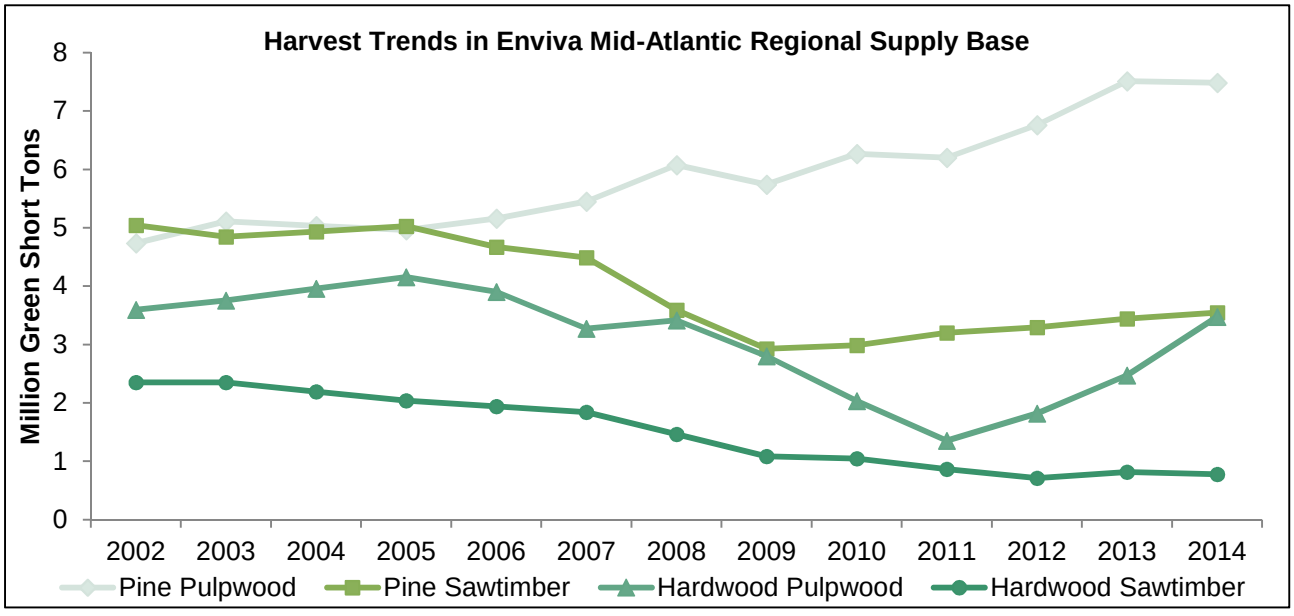
2 Description of the Supply Base

2.1 General Description

Enviva Holdings LP (Enviva) operates 3 mills in its mid-Atlantic region: Enviva Pellets Southampton, VA, Enviva Pellets Northampton, NC and Enviva Pellets Ahoskie, NC. Each mill has an average catchment area of 120 km, which overlap, as shown in Figure 2. As such, Enviva treats the supply regions for each mill as one large supply area, with the potential for each mill to obtain fiber from any portion of the area. The mid-Atlantic regional supply base includes portions of the states of North Carolina, Maryland, Pennsylvania, South Carolina, Virginia and West Virginia, for primary material and secondary feedstocks (sawmill and wood industry residues. Enviva made a strategic decision to establish in this area, based on shifts in regional market demand: two major consumers of hardwood pulpwood shut down and/or switched to pine consumption in the years immediately preceding Enviva's entry in the region.

Figure 1 displays historic harvest volumes by product in the supply base, according to Forest2Market's comprehensive delivered fiber database (Forest2Market Inc., 2015). The graph shows the decline in demand for hardwood pulpwood from 2006-2011, and then the subsequent demand recovery from 2011-2014 as Enviva established in the region. Hardwood pulpwood consumption has increased in recent years, but total 2014 demand was 0.7 million tons less than the high of 4.2 million tons removed in 2005; therefore total basin demand for hardwood pulpwood with Enviva operating in the region is below the recent historic highs. Moreover, the most recently available inventory data from the US Forest Service's Forest Inventory and Analysis program shows that the growth to demand ratio for hardwood in our Supply Base Area is 2.33:1, meaning that net hardwood inventories are increasing and current harvest levels for this product are sustainable. The growth to demand ratio for pine in the region is 1.73:1 (US Department of Agriculture Forest Service, 2016). Enviva's sourcing does not compete with other forest product industries: instead, it provides a market for low value forest products produced during harvests for high-value timber.

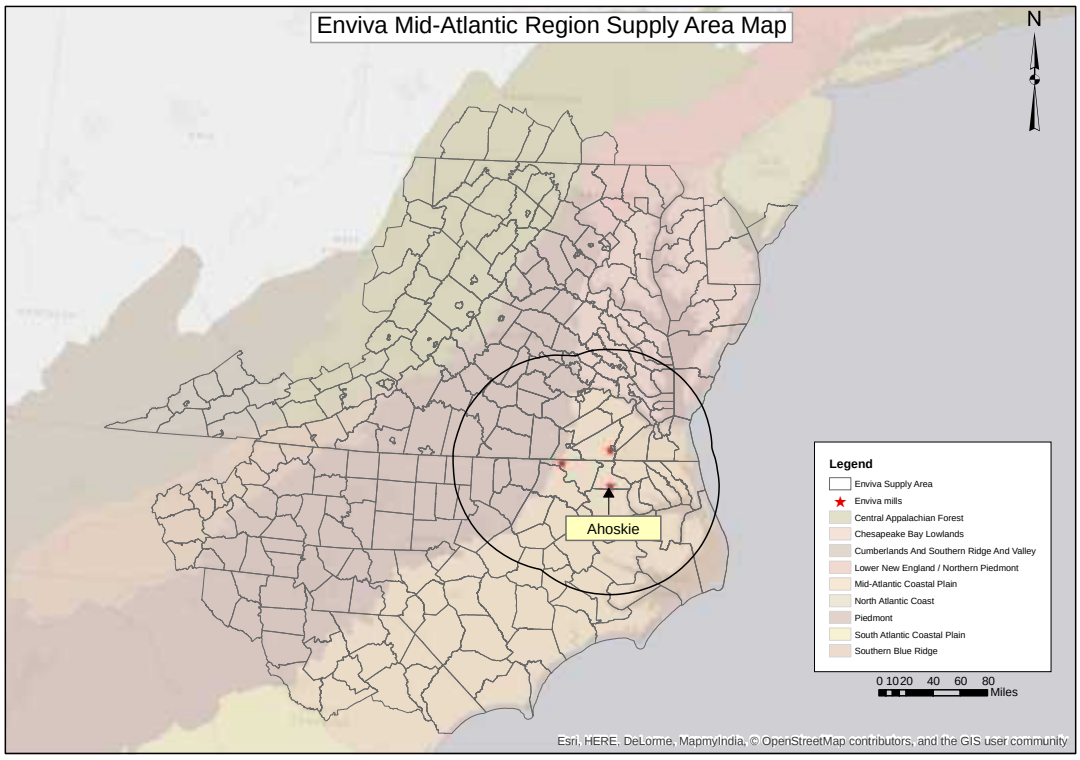
Figure 1. Harvest Trends by Product in the Mid-Atlantic Primary Regional Supply Base



Eco-regions

The catchment area reaches from the coastal plains to the central Appalachians and includes portions of the following The Nature Conservancy (TNC) eco-regions; Central Appalachian Forests, Chesapeake Bay Lowlands, Cumberland and Southern Ridge and Valley, Lower New England / Lower Piedmont, Mid-Atlantic Coastal Plains, North Atlantic Coast, Piedmont, South Atlantic Coastal Plain and the Southern Blue Ridge (The Nature Conservancy, 2015).

Figure 2. TNC Eco-regions in the Mid-Atlantic Supply Base

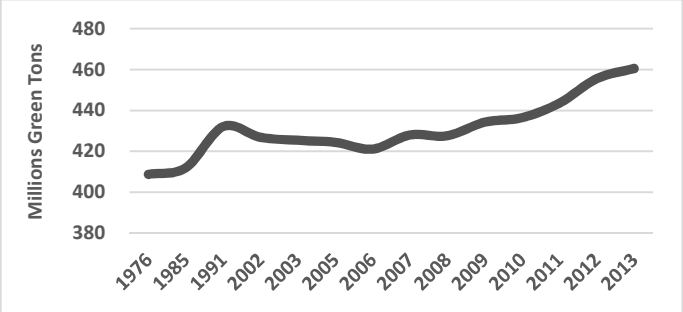


Forest cover-types acres and volumes

The supply region is very diverse, reaching from the coastal plains to the central Appalachians. In Figure 2 above the black conjoined rings show the procurement region for primary feedstock supply base, which contains approximately 5.3 million hectares total land area with 2.9 million hectares of timberland (US Department of Agriculture Forest Service, 2014). When the supply areas of Enviva's potential secondary suppliers are taken into account, the total forested area within the extended supply region is 18.2 million hectares (US Department of Agriculture Forest Service, 2014). The primary supply area contains approximately 410.3 million green metric tons of standing timber inventory and is approximately fifty-four percent mixed hardwoods with balance in conifer species. The forest standing stock in the primary

procurement area has increased steadily since 1976 at an annualized rate of 0.26% (see Figure 3) (US Department of Agriculture Forest Service, 2014).

Figure 3. Standing Inventory in the Primary Fiber Sourcing Area



Based on the most recently available inventory data from the US Forest Service's Forest Inventory and Analysis program, growth in the primary feedstock supply area exceeds removals by a ratio of 1.54:1. Due to the potential volume of sawtimber removals, the region also could generate up to 2.3 million green metric tons of forest residuals available for pellet production (US Department of Agriculture Forest Service, 2016). Further, sawtimber users in the area generate about 1.8 million dry tons of mill residuals per year (US Department of Agriculture Forest Service, 2014).

Operating Scale

Enviva is just one of several industries and entities sourcing fiber in its primary supply base area. According to Forest2Market's delivered fiber database and Enviva's fiber delivery database, Enviva sourced about 15% of the total fiber harvested in its supply base in 2014, all while regional annual inventory growth exceeded the volume harvested. In the region, pine pulpwood is the only product for which demand has increased (4.0% annually) (Forest2Market Inc., 2015). Only 16% of Enviva's pellet feedstock in this region is made up of pine, while 84% of fiber used is hardwood. At the Ahoskie mill specifically, 29% of the feedstock is made up of pine and 71% is made up of hardwood.

CITES, IUCN Species

The International Union for the Conservation of Nature (IUCN) Red List of Threatened Species includes *Pinus palustris* (Longleaf pine) which does occur in the supply base region (The IUCN Red List of Threatened Species, 2015). Longleaf pine is included in the IUCN list because its current extent is much reduced from its historical dominance in the southeast US. However, conservation groups, such as the Longleaf Alliance, agree that creating commercial viability of longleaf pine is crucial to its restoration. Enviva's use of material from longleaf stand thinnings or other harvest residuals supports its commercial viability and encourages landowners to restore longleaf stands. Enviva will not procure fiber from natural longleaf stands if they are going to be converted to non-forest or another forest type.

Further, Enviva maintains a third party audited Controlled Wood Risk Assessment which satisfies the Forest Stewardship Council™ (FSC), Programme for the Endorsement of Forest Certification ™ (PEFC) and Sustainable Forestry Initiative® (SFI®) Chain of Custody requirements. These certifications address the controls needed to avoid the use of CITES and/ or IUCN species concerns. None of the species used for

wood pellets appear in the Convention on International Trade in Endangered Species (CITES) Appendices (CITES, 2015).

General Forest Management Techniques

Forestry practices in the mid-Atlantic region can vary greatly due to landowner demographics and forest types. There are financial and tax incentives available to forest landowners to encourage management, replanting, and riparian zone buffer incentives (Virginia Department of Forestry, 2015) (North Carolina Department of Agriculture and Consumer Services, 2015). Typically, hardwood management relies on natural regeneration of stands where forest tracts are harvested and the natural processes of seedling establishment and sprout growth from the remaining stumps (called "coppice") produce the next forest.

Forest management in bottomland/ wetland hardwood systems

The majority of bottomland hardwood forest stands in the mid-Atlantic region have been harvested for sawtimber production for centuries. In terms of harvest techniques, as explained by the North Carolina Forest Service in its paper entitled *Managing and Regenerating Timber in Bottomland Swamps* (July 2012), "Implementing a carefully planned and executed swamp timber harvest in a manner that minimizes soil and water impacts has shown to be the practical and viable prescription for forest management in bottomland/cypress swamps." In some instances select cuts may be used for bottomland harvest, however clearcut harvest is the typical management method used in bottomland systems, as "nearly all swamp-adapted tree species require full sunlight to adequately regenerate, thus demanding a removal of the shading overstory" (North Carolina Forest Service, 2012). This harvest technique maximizes the likelihood of regeneration of desirable species post-harvest. Many of these existing bottomland hardwood stands have been poorly managed to date, such that appropriate silvicultural treatments such as clearcut embody restoration for these forests and are the best ecological outcome. For more information on bottomland hardwood forests and their silviculture, please see the excellent guide published by The Forest Guild, at http://www.forestguild.org/node/263.

Numerous state and Federal water quality regulations also govern forestry activities in swamps and wetlands, The North Carolina and Virginia Department of Forestry describes several forest management guidelines that should be followed when harvesting in bottomland systems. In addition to following best management practices (BMPs) for wetlands as described by the Department of Forestry in these forest types, streamside management zones (SMZs) are always established according to state guidelines. SMZ's are intended to protect water quality, to provide a visual screen, to enhance wildlife/ bird corridors and to provide an additional source of tree seed to enhance regeneration (North Carolina Forest Service, 2012). Enviva audits its suppliers' performance relative to state and Federal regulations and best management practices.

Forest management in pine systems

Pine plantations are managed under various regimes with the following typical management regime: planting, five years release spray, 15 year thinning and generally a final harvest between years 35 and 40. Other pine stands may be released after 5 years and left to grow as a mixed pine/ hardwood stand. Many pine stands are re-planted and are not intensively managed thereafter, which permits the growth of hardwood tree species within the stand, creating a mixed pine and hardwood forest.

Ownership, Land Use and Certification

The land ownership patterns in the Enviva mid-Atlantic supply base are typical for the southern United States: approximately ninety-three percent of the timberland is privately held (approximately 5 million hectares). In North Carolina, about 60% of the private landownership is non-industrial (North Carolina Forestry Association, March 2016); and in Virginia 66% is also non-industrial (Virginia Department of Forestry, March 2016). As listed in Table 2, an estimated 54% of the region is forested, 22% is in agriculture, 10% is developed and 8% is wetlands. These four categories comprise the 94% of the land cover (USGS, 2015).

Table 1. Land Cover in the Enviva Primary Fiber Sourcing Area

Cover/Land use	Hectares	%
Water	118,183	2.2%
Developed	541,148	10.1%
Mechanically disturbed	175,226	3.3%
Mining	7,850	0.1%
Naturally barren	1,161	0.0%
Forest	2,910,396	54.5%
Grassland/Shrubland	5,998	0.1%
Agriculture	1,165,277	21.8%
Wetlands	418,116	7.8%
Non-mechanically dist	0	0.0%

Major forest certification schemes such as the American Tree Farm System® (ATFS), SFI, FSC, have program participants in the supply area. A 2005 Society of American Foresters report noted that SFI member companies operating in North Carolina and Virginia have certified 722,0000 hectares, and FSC participants have certified 122,000 (Alvarez, 2007). A query of the ATFS proprietary database returns just over 58,000 hectares in the ATFS program in the mid-Atlantic supply area. Table 2 lists the firms active in either FSC or SFI forest management schemes (ATFS landowners are not listed and they are private individual landowners).

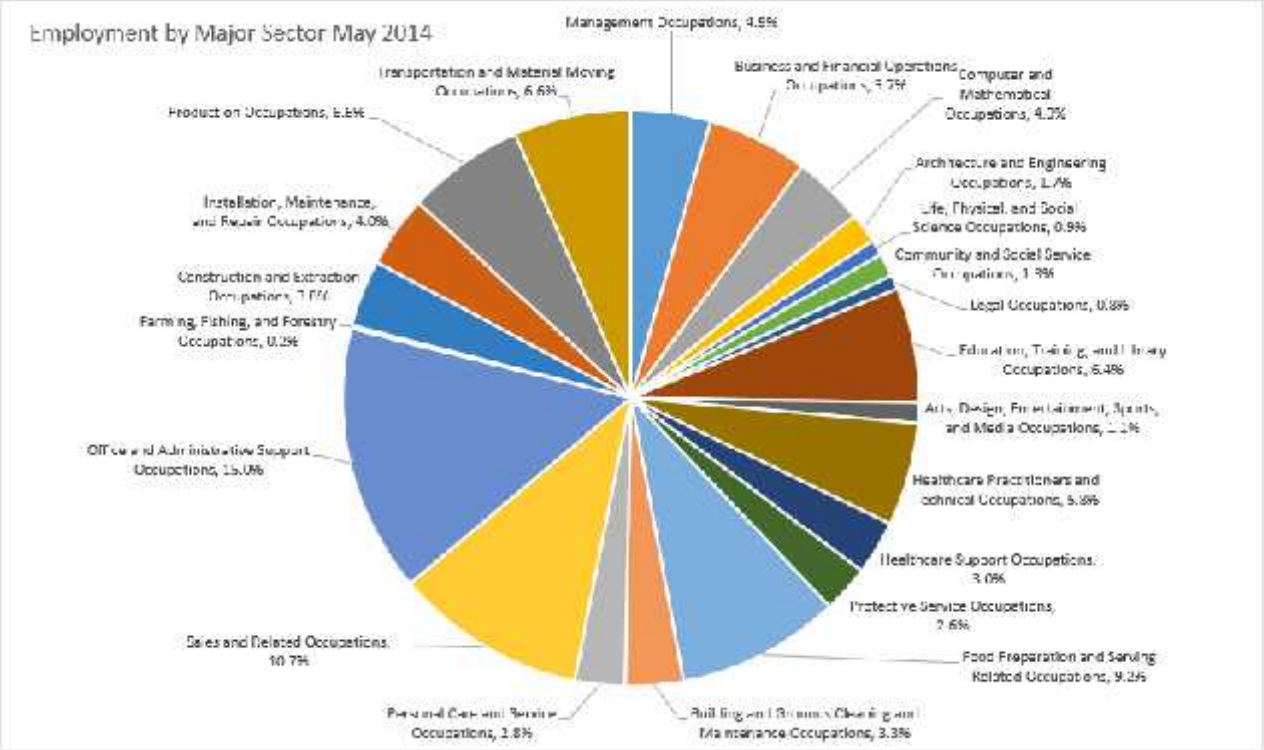
Table 2. Companies Active in SFI or FSC in the Enviva Supply Area

360 Forest Products, Inc.	Duke University	Mid Carolina Timber Company, Inc	Sonoco Products Company
Campbell Global, LLC - East & SE Regions	Forest Investment Associates	The Molpus Woodlands Group, LLC	South Carolina Forestry Commission
Certified Forest Management, LLC	GreenLink Forest Resources, LLC	Plum Creek Timber Company, Inc	Westervelt
Conservation Forestry, LLC	Hancock Natural Resource Group	Resource Management Services, LLC	Weyerhaeuser NR Company
The Conservation Fund	Johnson Company, Inc.	S & M Forest Management Group	Timberland Investment Resources, LLC
Crawley Timber Co	Kingstree Forest Products, Inc	SR Jones Jr Land & Timber	

Regional Socio-economic Conditions

Regional employment is graphed below and provides a snapshot of the social mixture of the region. Farming, fishing and forestry make up 0.2% of the total employment in the region. However, due to the nature of pellet production, it also supports other sectors such as transportation & material moving, production, installation, maintenance and repair, business and financial operations and office and administration occupations, which in total make up an additional 40% of the labor force. The mean income for the region is $51,174 and mean income for the employment sector including Forestry is $29,990 (United States Department of Labor, 2015). Mean income for an average mill worker in the region is $34,255 (United States Department of Labor, 2015). Enviva employs directly approximately 350 people in the region. Further, Enviva's operations supports an additional 170 various harvesting crews and saw mills, along with forest managers, feedstock and pellet transport. Local contractors are used in maintaining the mills, providing hundreds of spin-off jobs. Figure 4 illustrates employments by the major industrial groups for the two states included in the supply region (United States Department of Labor, 2015).

Figure 4. North Carolina and Virginia Employment by Major Sector



According to a report created for Enviva by Chmura Economics & Analytics, the total annual economic impact (direct, indirect, and induced impacts) of the ongoing operation of the Ahoskie wood pellet manufacturing plant in North Carolina is estimated to be $114.4 million (measured in 2013 dollars) which supports 222 state jobs. Aside from the direct impact, an additional indirect impact of $46.4 million and 115 jobs will benefit the North Carolina businesses that support the plant's operations, including local logging and trucking companies. The economic impact of the plant in Virginia is smaller, derived entirely from the indirect and induced impact. The indirect impact in Virginia is estimated to be $12.4 million, which can support 22 jobs per year, benefiting other Virginia businesses that support the plant's operations, including local logging and trucking companies (Chmura Economics & Analytics, 2013).

Pellet Feedstock Profile

Primary feedstock is sourced direct from the forest in the form of round wood or chips from 120+/- suppliers, all of whom are vetted and qualified prior to delivering. All suppliers must sign a contract with Enviva before fiber can be delivered to an Enviva mill. The contract requires suppliers to use trained loggers during harvest, to follow best management practices for water quality, and to avoid controversial sources of fiber, such as illegal logging. Enviva foresters confirm trained logger status and ensures that loggers delivering fiber maintain their continuing education as required. All suppliers and loggers must also adhere to posted safety requirements while on Enviva property.

Primary feedstock from forest residues, such as tree tops, limbs, deformed and low grade trees, and any other wood produced during harvest that is otherwise unacceptable to other wood users in the area is delivered to an Enviva mill as woodchips. A single load of roundwood from the same harvest can contain tops, limbs, and/or small diameter or malformed understory trees that cannot be distinguished from one another through visual inspection. Enviva does not use sawlogs in the production of pellets, nor do we use any construction debris, treated wood, or post-consumer material.

Enviva also sources secondary feedstock from a variety of sawmill and wood industry suppliers. Sawmills source high-quality logs from the forest and mill them into products like two-by-fours. Wood industry suppliers use the products created by sawmills to produce products such as furniture or other assembled wood products. These feedstocks are most commonly in the form of sawdust or shavings and may be green or kiln-dried.

At the Ahoskie plant, the pellet feedstocks have the following characteristics:

- Primary Feedstock (roundwood and forest residues direct from the forest) comprise 79.2% of the feedstock, all are SBP-compliant Primary Feedstock and 14.8% of the volume is from certified sources.
- Secondary Feedstock (Sawmill and wood industry residues) are 20.8% of the feedstock supplied by 28+/- mills, are a combination of SBP-Controlled Secondary Feedstock and SBP-Compliant Secondary Feedstock and 26.4% is from certified sources.
- Mixed Hardwoods make up 71% of the feedstock and softwood species are the remaining 29%.

As of June 2016, Enviva achieved 100% coverage of our primary feedstock through our Track & Trace monitoring program (see description of the program in the following “Track & Trace” section), meaning that we now have detailed information on the types of forests that provide our pellet feedstocks. During the first half of 2016, Enviva’s three mid-Atlantic mills received feedstocks from the following sources, by volume[1]:

- 13.3% was made up of residues supplied by sawmills and wood industries.
- 55.5% was made up of hardwood and pine chips and roundwood from mixed oak-pine forests. These forests are managed for the production of pine sawtimber at low-intensities and contain a

[1] During this time period, 15.3% of Enviva’s delivered fiber was not covered by the Track & Trace program. This material was applied proportionately to all primary fiber sources (i.e. fiber from landscaping/ urban management and oak-pine, southern yellow pine, upland hardwood, and bottomland hardwood forests).

mixture of hardwood and pine trees. These forests are either planted in pine or naturally seeded from adjacent stands or seed trees, and little to no fertilizers or herbicides are applied to them throughout their life cycle. This establishes an overstory of straight, large-diameter pine trees with an understory of crooked, small-diameter hardwood trees that cannot be made into solid wood products.

- 20.3% was made up of hardwood and pine chips and roundwood from southern yellow pine forests. These are forests that were planted in pine and either managed moderately with minimal effort to prevent hardwood trees from growing in the understory, or more intensively to suppress significant understory growth, thereby increasing the forest's growth rate and yield. These forests are generally thinned 1-2 times throughout their growth cycle, meaning that certain trees are removed to reduce density in the forest and create additional room for the remaining trees to grow to sawtimber size and quality. These thinned trees are sold to low-grade consumers like Enviva.
- 6.3% was made up of hardwood and pine chips and roundwood from upland hardwood forests. These are low-intensity managed hardwood forests that are naturally seeded with an overstory of large-diameter oak, poplar, and hickory hardwood trees and a significant understory of small-diameter maple, oak, and sweetgum hardwood trees.
- 4.6% was made up of hardwood and pine chips and roundwood from bottomland hardwood forests. These are very low-intensity managed hardwood forests that are located in lowland areas and floodplains along rivers or other water bodies and which have soils that are saturated or flooded for at least part of the year. These forests contain overstories of large-diameter oak, gum, and cypress trees that originate from seedlings and sprouts arising out of stumps from previously harvested trees and a significant understory of small-diameter hardwood trees. When the landowner decides to harvest, the forest is clearcut and the stems of the large-diameter hardwood trees are sold to hardwood sawmills or furniture manufacturers, while the small diameter understory hardwood trees and tops and branches of sawtimber trees are sent to lower grade consumers like Enviva.
- Less than 1% was made up of wood from landscaping and urban tree management activities.

Enviva's Commitment to Responsible Fiber Sourcing

Track & Trace

Enviva has implemented management systems to ensure that the wood used to make wood pellets meets our strict sustainability requirements. Specifically, Enviva maintains a robust tracking and monitoring program to ensure that all our suppliers deliver wood that is sourced according to our expectations. First, Enviva uses our SFI Fiber Sourcing verifiable monitoring program as a basis for monitoring tract harvests. In addition, we maintain a third-party audited Track & Trace database which includes information at the tract level, including data on the forest type, age, GPS coordinates, acreage, and the percent of volume from that tract being sold to Enviva. Before agreeing to accept material from a certain tract, Enviva's Fiber Procurement Foresters must obtain this tract-level data and enter it into our database, which generates a unique tract ID. Then, upon delivery to the Ahoskie mill, each load is linked to that tract's ID number. As a result, Enviva knows the tract-level attributes for all the primary fiber entering the mill.

The Track & Trace data collection is supported by tract audits performed by Enviva foresters. During tract audits, Enviva foresters validate data on the tract characteristics in addition to ensuring that best management practices (BMPs) for water quality are properly implemented, special sites are properly protected, and loggers are trained, along with other metrics for responsible harvesting. In the mid-Atlantic region, Enviva only accepts wood from tracts in which the logger has completed and maintains training through a SFI-approved trained logger program. Enviva's Track & Trace data collection process indicates that Enviva receives 42% of its incoming primary material from final fellings that are typically managed in rotations =/>40 years old. If any of these monitoring programs uncover issues with incoming raw material, Enviva will contact suppliers to notify them of the issue. If needed, Enviva will cease accepting deliveries from a supplier who does not perform to our sustainability standards. Enviva will not accept further deliveries from a poorly performing supplier until the supplier demonstrates the ability to adhere to Enviva's sustainability requirements.

Identifying and protecting High Conservation Value (HCV) Areas: Partnership with the US Endowment, Enviva's tract approval process, and the Enviva Forest Conservation Fund

Enviva worked with the US Endowment for Forestry and Communities to evaluate the mid-Atlantic catchment area to identify forest types with potentially high conservation value. After consulting with leading independent academics and environmental organizations, the Endowment identified four specific bottomland priority forest types; Cypress-tupelo swamps, Atlantic white cedar stands, Pocosins and Carolina bays. See the Enviva Forest Conservation Fund website (http://envivaforestfund.org/about-the-enviva-forest-conservation-fund/about-bottomland-forests/) for additional information about these bottomland forest types. Enviva has committed not to source from high conservation value areas that might fall into one of these four categories.

While gathering Track & Trace data on specific tracts prior to purchase, the Procurement Forester must evaluate whether there is a risk that the tract might be considered HCV. This assessment is conducted on a site-by-site basis in order to evaluate the condition of the stand and to maximize the likelihood of regeneration of desirable species post-harvest. In this region, the most common priority forest type is cypress tupelo. While all of these four priority types are bottomland hardwood systems, it is important to note that not all bottomland hardwoods have high conservation value, and in fact, the majority of them are working forests that have been managed as timberlands for centuries (North Carolina Forest Service, 2012). 93% of the forests in our mid-Atlantic fiber supply base are privately owned, meaning that their owners have considerable freedom in choosing how to manage these lands. Markets for timber from working bottomland hardwoods provide an important incentive for landowners to maintain their forests as forests.

There is no general consensus, at a site by site level, of what makes a bottomland hardwood stand also a HCV. For example, the Draft US FSC National Risk Assessment, which is the basis for Enviva's supply base evaluation, defines HCV bottomland hardwood stands as those that are 80 years or older and have the structure and composition of old-growth stands. However, FSC does not physically designate where those forests are found. Other groups may have their own descriptions of precisely what constitutes a HCV bottomland forest, based on their own organizational goals. Some are long-term focused and are interested in ensuring that bottomland hardwood forests are connected on the landscape and are still

thriving in light of climate change. Others feel that all bottomland hardwood forests are inherently HCV and should be protected. Because a general consensus does not exist and we do know that most of these forests are appropriately categorized as working forests, Enviva developed its own set of site specific characteristics that can help us to determine in a granular fashion, at the site by site level, whether certain stand is actually a HCV tract.
Overall, when deciding whether to purchase primary feedstock from a given tract, Enviva's goal is to determine whether that tract will, if harvested, produce a new tract with the same desirable species content that was present before harvest. Indicators that should be considered in this decision include forest type (i.e. whether it is likely one of the four priority forest types), location, species composition, hydrology and water flow, stand age and soil saturation. When assessing a tract for HCVs, Enviva evaluates all of these important characteristics. If there is evidence based on this first level of evaluation that the site may be an HCV bottomland, then the Forester must perform a second level review which includes an on-site assessment, data collection and documentation prior to purchase. At the landscape scale, we endeavor to contribute to a working forest landscape with a diversity of age classes representing bottomland hardwood assemblages which can, over the long and short term, provide wildlife habitat, recreation, buffers for climate change, and other ecosystem services, while still playing a pivotal role in conservation and working forests in the mid-Atlantic supply base area.

While Enviva does not source from areas that might be deemed too ecologically sensitive, because we work in landscapes that are nearly all privately owned with many forest products industry actors, we cannot guarantee that the areas that we do not source will remain intact. In order to ensure that these special places can remain so, Enviva created the Enviva Forest Conservation Fund (http://envivaforestfund.org/) to work toward protecting and conserving working forest landscapes in ecologically sensitive bottomland hardwood ecosystems. Enviva has committed five million dollars over a ten-year period to fund conservation efforts targeting these forest types. The fund is administered by the US Endowment for Forestry and Communities and the first round of grant awards, protecting more than 2000 acres of bottomland hardwood forests in NC and VA, were awarded in May 2016.

Stakeholder engagement on Bottomland/ Wetland Hardwood Forest Management

Recognizing that the stakeholder community overall has substantial work to do to identify what specifically constitutes HCV, and to understand best practices in bottomland/ wetland hardwood systems, Enviva and the US Endowment co-convened a Bottomland/ Wetland Blue Ribbon Panel stakeholder group in May 2016 to work toward developing a system of best management practices for these priority forest types. More than 45 stakeholders representing academic, NGO, government, and industry groups spent 2.5 days together discussing the state of the art around forest management in bottomland/ wetland hardwood ecosystems. Enviva plans to release the workshop report from this effort to the public, and will continue to engage this stakeholder group in review and evaluation of our sourcing practices going forward.

Minimizing risk from Secondary Feedstock

Enviva purchases sawmill and wood industry residues in the form of sawdust, shavings, or other waste products from the milling process (Figure 5). Secondary feedstock suppliers receive an initial visit prior to

beginning deliveries, to verify their operations and products. All sawmill and wood industry suppliers are required to complete a Residual Supplier Reporting Form, providing Enviva with information on the source of their fiber as well as any certifications and species used. Enviva includes their supply areas in our supply base evaluation and provides each supplier with feedback on their supply area, noting any areas of risk that may be present. Enviva may choose to cease deliveries from a supplier which refuses to provide the necessary data for us to properly include their supply area in our risk assessment. Enviva contacts each sawmill and wood industry supplier annually to ensure their data is accurate. An example of the reporting sheet is in Appendix I.

2.2 Actions taken to promote certification amongst feedstock supplier

Enviva is third party certified in the three major chain of custody systems (FSC, PEFC & SFI). Enviva also maintains certification under the SFI Fiber Sourcing Program. SFI Fiber Sourcing requires Enviva to promote responsible forestry activities and certification to our suppliers. Our staff are actively involved in the SFI Implementation Committees in Virginia and North Carolina which are groups of SFI companies that work together to elevate forestry operations on-the-ground.

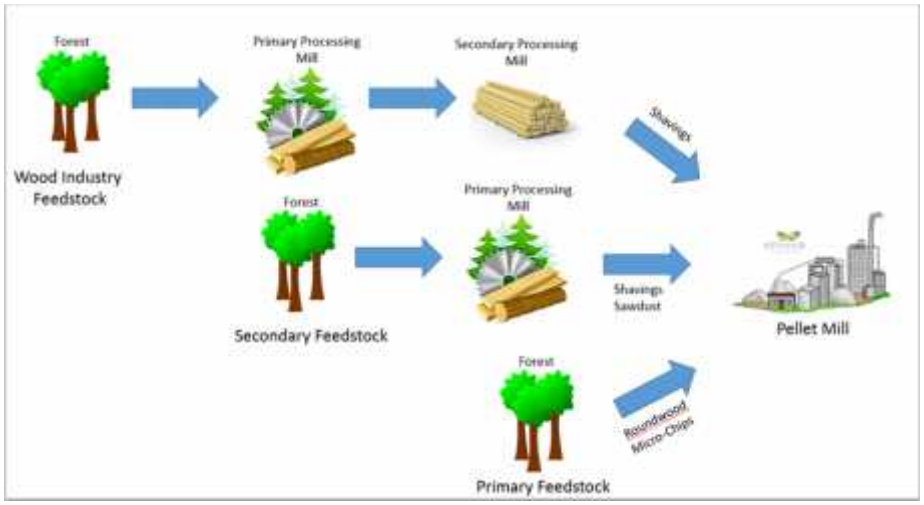
Enviva actively pursues feedstock from certified sources to encourage those landowners to maintain and expand their certified holdings. Enviva also financially supports the American Tree Farm System and has an Independent Management Group under ATFS which was created in 2015. We have staff devoted to working with landowners to recruit them either into our group or the state program, by assisting them with writing management plans and preparing for audits.

2.3 Final harvest sampling programme

Enviva's Track & Trace data show that currently about 42% of the volume purchased is from forest types that are typically managed on a 40 or longer rotation.

2.4 Flow diagram of feedstock inputs showing feedstock type

Figure 5. Typical Process Flow Chart



2.5 Quantification of the Supply Base

Supply Base (data sources; a, b & c (US Department of Agriculture Forest Service, 2014))

a. Total Supply Base area (ha): 18.2 million hectares of forestland in entire supply region (primary, secondary and tertiary fiber). Primary fiber sourcing region contains 2.9 million hectares.

b. Tenure by type in the entire supply region(ha):

Table 3. Tenure in millions ha

Ownership Type	Entire Supply Area	Primary Supply Area
Private	14.9	6.8
Federal	2.1	0.2
State/local	1.2	0.1

c. Forest by type in the entire supply region (ha):

Table 4. Area of Forestland by Major Forest-type Group

Major Forest Type Groups	ha
White / red / jack pine group (100)	132,865
Spruce / fir group (120)	27,916
Longleaf / slash pine group (140)	236,278
Loblolly / shortleaf pine group (160)	4,498,859
Other eastern softwoods group (170)	54,233
Exotic softwoods group (380)	6,990
Oak / pine group (400)	2,001,617
Oak / hickory group (500)	8,606,130
Oak / gum / cypress group (600)	1,233,537
Elm / ash / cottonwood group (700)	503,834
Maple / beech / birch group (800)	645,961
Aspen / birch group (900)	7,906
Other hardwoods group (960)	138,901
Exotic hardwoods group (990)	28,811
Nonstocked (999)	147,388
Total	18,271,226

d. Forest by management type in the entire supply region (ha):

- Hardwoods comprise 73% of the forested hectares. With the exception of the small amount (28,811 ha) of exotic hardwoods, these forests are typically naturally managed.
- The remaining 27% of forests are softwood. Overall, although many pine stands are “planted” they are not intensively managed plantations with little or no understory; instead, once established they are left to grow and routinely have a hardwood dominated understory. Therefore, it is difficult to determine the exact percentage of true plantations in the region.

e. Certified forest by scheme (ha): Primary supply area (e.g. hectares of FSC or PEFC-certified forest)

- SFI: 722,000 ha (Alvarez, 2007)
- FSC: 122,000 ha (Alvarez, 2007)
- ATFS: 58,000 ha (from proprietary ATFS database)

Feedstock

Enviva has chosen to use bands for items f and g since this in formation coupled with the percentage secondary feedstock could complicate feedstock pricing in a competitive secondary feedstock market.

f. Total volume of Feedstock: 600,000-800,000 metric tonnes
g. Volume of primary feedstock: 400,000-600,000 metric tonnes
h. List percentage of primary feedstock (g), by the following categories. Subdivide by SBP-approved Forest Management Schemes:
    - Forest Stewardship Council: 0.9%
    - Program for the Endorsement of Forest Certification: 14.0%
    - Not certified to an SBP-approved Forest Management Scheme: 85.1%
i. List all species in primary feedstock, including scientific name

Table 5. Primary Feedstock Species

Common name	Scientific name	Common name	Scientific name	Common name	Scientific name
American beech	Fagus grandifolia	Live oak	Quercus virginiana	Slash pine	Pinus elliottii
American elm	Ulmus americana	Loblolly pine	Pinus taeda	Southern red oak	Quercus falcata
Atlantic white cedar	Chamaecyparis thyoides	Longleaf pine	Pinus palustris	Sugar maple	Acer saccharum
Black cherry	Prunus serotina	Northern red oak	Quercus rubra	Swamp chestnut oak	Quercus michauxii
Black gum	nyssa sylvatica	Overcup oak	Quercus lyrata	Sweet gum	Liquidambar styraciflua
Black jack oak	Quercus marilandica	Pecan	Carya illinoensis	Sycamore	Platanus occidentalis
Black oak	Quercus velutina	Persimmon	Diospyros virginiana	Virginia pine	Pinus virginiana
Black walnut	Juglans nigra	Pond pine	Pinus serotina	Water oak	Quercus nigra
Cherry bark oak	Quercus pagoda	Post oak	Quercus stellata	Water tupelo	Nyssa aquatica
Chinkapin oak	Quercus muehlenbergii	Red maple	Acer rubrum	White ash	Fraxinus americana
Green ash	Fraxinus pennsylvanica	River birch	Betula nigra	White gum	Eucalyptus wandoo
Hackberry	Celtis occidentalis	River oak	Casuarina cunninghamiana	White oak	Quercus alba
Hickory	Carya spp	Shortleaf pine	Pinus echinata	Willow oak	Quercus phellos
Holly	Ilex opaca	Shumard oak	Quercus shumardii	Winged elm	Ulmus alata
Laurel oak	Quercus laurifolia			Yellow poplar	Liriodendron tulipifera

j. Volume of primary feedstock from primary forest: 0.0 metric tonnes
k. List percentage of primary feedstock from primary forest (j), by the following categories. Subdivide by SBP-approved Forest Management Schemes:
    - Primary feedstock from primary forest certified to an SBP-approved Forest Management Scheme: 0.0
    - Primary feedstock from primary forest not certified to an SBP-approved Forest Management Scheme: 0.0
l. Volume of secondary feedstock: 20.8% of the total sourced delivered as chips and dust or pine chips, dust or shavings. The feedstock is delivered from within the defined supply base as mapped in section 2.1.
m. Volume of tertiary feedstock: 0.0%

3 Requirement for a Supply Base Evaluation (SBE)

SBE completed	SBE not completed
X	☐

Enviva has chosen to complete an SBE because there currently is no SBP-endorsed Regional Risk Assessment (RRA) in the United States. Enviva's SBE was independently reviewed by RS Berg and Associates, expert consultant who has decades of experience in the forestry industry and provides services to numerous forest companies in meeting sustainability requirements.

4 Supply Base Evaluation

4.1 Scope

Enviva maintains a third party PEFC Chain of Custody including a Due Diligence System (DDS) and an FSC Controlled Wood Risk Assessment that provides the necessary level of confidence needed to claim all of its feedstock is SBP-controlled at a minimum. Enviva completed a SBE in order to establish the volume of material that is SBP-compliant and clarify the de minimus amount that is SBP-controlled. Enviva's SBE includes the sources of its primary and secondary feedstock.

Enviva has implemented policies and procedures appropriate to the size and scale of its operations and no indicators were excluded. The definitions of legal and sustainable as used in Standard 1 have been reviewed and met as substantiated in the supply base evaluations. Evidence to support is offered at the supply base level.

Because there is no SBP approved risk assessment in the US, Enviva developed a set of locally applicable verifiers (LAVs), which include a number of publically available sources, in addition to the internal monitoring already described. Details on LAVs are in the sections below.

4.2 Justification

Only a small proportion of feedstocks is sourced from SBP-approved certification programs, therefore Enviva completed a SBE to justify its rational for SBP-compliant feedstock. The SBE ensures Enviva has the ability to monitor its SBP-controlled sources and work to improve these sources to SBP-compliant. Enviva did not modify any indicators. For the indicators which are not already covered by our existing certifications, Enviva used a number of LAVs to support either risk determinations or mitigation measures, including:

- Draft FSC US National Risk Assessment
- All applicable Federal & state laws, including environmental laws, and occupational health and safety laws
- BMP implementation reports
- State Natural Heritage programs
- Maps and data regarding high conservation values
- Supplier contracts
- Residual Supplier Reporting Form

4.3 Results of Risk Assessment

Each criterion was evaluated and measured against Enviva's existing forest certification and chain of custody programs. The supply base evaluation was peer reviewed by RS Berg and Associates. Enviva identified four criteria which has "specified risk," however via associated mitigation measures Enviva can subsequently designate all indicators as "low risk."

4.4 Results of Supplier Verification Programme

No indicators were defined as unspecified risk so therefore a Supplier Verification Program is not required.

4.5 Conclusion

Enviva has completed a robust supply base evaluation and fully meets the SBP requirements. All criterion have been fully evaluated and appropriate procedures and controls are in place to ensure successful management. As described above, Enviva has an extremely sophisticated data collection and monitoring program which supports the conclusions and actions in the risk assessment. Senior management is fully engaged and involved in the success of SBP Standard conformance. Enviva has a well-qualified and knowledgeable staff whom are capable of maintaining process control to achieve conformance to the SBP Standards. Each criterion has specific controls (e.g. contractual, field verification, supplier data requests) to provide Enviva with the best level of confidence to ensure conformance to the criteria included in the SBP Standard.

5 Supply Base Evaluation Process

Enviva has a well-rounded competent staff of professionals with many years of experience in forest certification programs, policy and procedure development and natural resource management. These collective experiences and talents provided Enviva the ability to conduct its own supply base evaluation and risk assessment.

The mid-Atlantic region mills supply base area includes close to 300 counties in North Carolina, Maryland, Pennsylvania, South Carolina, Virginia and West Virginia. Data from Enviva's internal Track & Trace and other monitoring programs are reviewed annually to ensure the appropriate area is included in the risk assessment. When needed, Enviva will scope in additional counties based on information from its suppliers. Using all these data sources, Enviva has mapped its supply base for primary and secondary feedstock inputs for all facilities. According the USFS FIA database the total forested mid-Atlantic supply area is 18,271226ha and all are considered temperate forest.

Enviva used the Draft FSC US Controlled Wood National Risk Assessment (NRA) (v0.1) along with its third party certified PEFC/SFI Due Diligence System and FSC Controlled Wood Risk Assessment as the basis for the SBE. The FSC NRA is being developed as a collaborative process between conservation groups, forestry companies and scientific organizations. Enviva believes this is the best and most comprehensive source of information regarding where the most risk to high conservation values exist. Various third party data sources were also used for research in the region such as; FSC High Conservation Area Mapping tool, The Nature Conservancy, United States Geological Survey, United States Fish & Wildlife Service, United States Census Bureau and Databasin. Results from the stakeholder consultation were considered and incorporated if relevant to the supply area. The supply base evaluations were completed internally by qualified individuals and peer reviewed by RS Berg and Associates. These findings along with the corresponding mitigation measures were part of the risk assessment and evaluation process used by Enviva in completing the SBE.

Enviva uses a third party-audited Track & Trace Program to conduct field sampling to ensure on the ground conformance of the primary suppliers. Random suppliers and tracts are evaluated against a set standard of criteria, scored and ranked to help Enviva make decisions as to the effectiveness of its efforts to ensure conformance to the SBP Standards. As described earlier, Enviva used data supplied by its secondary suppliers to ensure their raw materials also were incorporated into the SBE and that it meets the SBP Feedstock Compliance Standard.

Lastly, as explained previously, Enviva engaged the US Endowment for Forestry and Communities to evaluate the mid-Atlantic catchment area to determine other areas of high conservation value. The Endowment consulted with leading independent academics and environmental organizations and identified four specific bottomland priority forest types; cypress-tupelo swamps, Atlantic white cedar stands, Pocosins and Carolina bays. These areas were considered, in addition to the areas identified in the FSC NRA, as areas where there is risk to high conservation values. Enviva's implementation of its HCV assessment process for potential priority forests types, as already discussed, guides Enviva's purchasing decisions in the mid-Atlantic supply base area.

Enviva's Due Diligence System identified the need to add additional counties in West Virginia, Pennsylvania and Maryland. Since Enviva did not conduct a new Stakeholder consultation, the fiber sourced from these counties will be SBP-controlled under Enviva's PEFC DDS.

6 Stakeholder Consultation

6.1 Response to Stakeholder comments

In 2015 & 2016, Enviva initiated two stakeholder consultations to receive input for its SBP certification process. Both were conducted via email, with emails sent to over 160 individuals representing state agencies, universities, ENGOs, forest product companies, local community groups, and more. Each consultation was open for 30 days. Enviva set up a separate email account to manage the consultations, and monitored it daily for questions or comments. Enviva also set up a separate webpage on its website for each consultation as well that contained all the same information as the email and had a downloadable comment form.
The first consultation was held from August 15th, 2015 – September 15, 2015 and was based on SBP Standard #1: Feedstock Compliance Standard. During Consultation 1, Enviva asked interested stakeholders to provide us with any data or resources they believed would help us properly complete our Supply Base evaluation based on the Indicators in Standard #1. We received two comments.

Enviva's second consultation was completed between January 8 and February 2, 2016. This consultation focused on the Locally Applicable Verifiers (LAVs) used to support the risk designations in our Supply Base Evaluation. Interested stakeholders were asked to comment on the LAVs Enviva chose and their applicability to certain indicators in Standard #1. We received one set of comments from one stakeholder.

Due to file size and space limitations, the full set of comments and responses are not included here. However, the procedures, comments received, and responses can be found in the publically available document ENV-SBP-07 Stakeholder Consultation, which can be found on the Enviva website, here: http://www.envivabiomass.com/sustainability/sustainable-biomass-partnership-public-consultation/.

7 Overview of Initial Assessment of Risk

Enviva maintains third party certified chain of custody systems in the three major schemes (FSC, PEFC & SFI), which sufficiently support most all of the SBP criterion. The company also maintains a third party certified SFI Fiber Sourcing Program that addresses many concerns such as conservation of biodiversity, contractual requirements for the use of forestry Best Management Practices (BMP's), logger training, legal and regulatory compliance, research support, community and landowner outreach, public communication and management review. Further, our proprietary Track & Trace program is third-party certified to ensure credibility in our data collection. The mid-Atlantic region is located in the United States where there is a strong legal system, with federal & state laws and regulations that are well enforced. Enviva also included additional LAV's described previously to ultimately lead to low risk designations on all legality aspects of the risk assessment. As described in section 5, Enviva used various credible third party data sources to determine the risk level for the criterion beyond the scope of its Chain of Custody (CoC) system such as the FSC US Controlled Wood Risk Assessment – DRAFT (v 0.1), FSC High Conservation Area Mapping tool, The Nature Conservancy, United States Geological Survey, United States Fish & Wildlife Service, United States Census Bureau and Databasin web mapping tool.

Enviva engaged the US Endowment for Forestry and Communities to evaluate its catchment areas to determine other areas of high conservation value. The Endowment consulted with leading independent academics and environmental organizations and identified four specific bottomland priority forest types; cypress-tupelo swamps, Atlantic white cedar stands, Pocosins and Carolina bays. The Enviva Forest Conservation Fund website contains information regards each bottomland forest type. Enviva has committed five million dollars over a ten year period to fund conservation efforts targeting these forest types. The fund is administered by the US Endowment for Forestry and Communities.

All tracts in sensitive bottomland areas are assessed using the Enviva Forest Conservation Program HCV Tract Approval process to ensure conformance to the bottomland forest type policy. The process requires Enviva foresters and our suppliers to work together to determine if a potential harvest site is within a HCV area by using the GPS coordinates to overlay harvest sites on maps containing HCV map data (e.g. aerial photos, HCV shapefiles and data sets, etc.). Tracts that could potentially fall within the four identified forest types require the completion of an internal Forest Conservation Program HCV Tract Approval form. This form and attached data are reviewed by Enviva leadership to ensure harvest sites do not contradict Enviva policies. If sites are determined to be too sensitive Enviva will not receive fiber from the location, educate the supplier as to why we feel the site is special and encourage the supplier to work with the forest owner to conserve the site.

Table 6. Overview of results from the risk assessment of all Indicators

Indicator	Initial Risk Rating		
	Specified	Low	Unspecified
1.1.1		X	
1.1.2		X	
1.1.3		X	
1.2.1		X	
1.3.1		X	
1.4.1		X	
1.5.1		X	
1.6.1		X	
2.1.1	X		
2.1.2	X		
2.1.3		X	
2.2.1		X	
2.2.2		X	
2.2.3	X		
2.2.4	X		
2.2.5		X	
2.2.6		X	
2.2.7		X	
2.2.8		X	
2.2.9		X	

Indicator	Initial Risk Rating		
	Specified	Low	Unspecified
2.3.1		X	
2.3.2		X	
2.3.3		X	
2.4.1		X	
2.4.2		X	
2.4.3		X	
2.5.1		X	
2.5.2		X	
2.6.1		X	
2.7.1		X	
2.7.2		X	
2.7.3		X	
2.7.4		X	
2.7.5		X	
2.8.1		X	
2.9.1		X	
2.9.2		X	
2.10.1		X	

8 Supplier Verification Programme

8.1 Description of the Supplier Verification Programme

Enviva has implemented a robust supply base evaluation including risk assessment and when necessary mitigation measures. Each criteria has been evaluated against the FSC US Controlled Wood Risk Assessment – DRAFT (v0.1) ("NRA") and other appropriate locally available verifiers. Enviva maintains third party certified SFI Fiber Sourcing Program and a PEFC Chain of Custody including a DDS which supplements the supply base evaluation findings. Given the depth of detail of these documents no indicators are considered to be unspecified risk and therefore a supplier verification program is not required.

8.2 Site visits

All indicators in the SBE can be categorized and low risk or specified risk, based on evidence from the NRA, Enviva's SFI Fiber Sourcing Program, PEFC Chain of Custody Due Diligence System, robust District of Origin processes for secondary feedstock and proprietary Track & trace Program for primary feedstock. . Therefore, there is no need for supplier site visits to determine risk levels for any indicator in the SBE.

8.3 Conclusions from the Supplier Verification Programme

NA

9 Mitigation Measures

Enviva identified four indicators that had specified risk and required mitigation measures. These are detailed below. Implementation of the following indicator specific mitigation measures permit Enviva to rate the risk of these indicators as 'low-risk'.

9.1 Mitigation measures

Indicator:

2.1.1 The Biomass Producer has implemented appropriate control systems and procedures for verifying that forests and other areas with high conservation value in the Supply Base are identified and mapped.

Risk Designation: Specified Risk

Reason for Risk Designation: The FSC NRA did not designate any HCV areas of concern in the primary sourcing area for the mid-Atlantic supply base. However, Enviva has knowledge that some bottomland hardwood areas in the supply could be HCV forests. The Endowment recommendations identified four specific bottomland priority forest types; Cypress-tupelo swamps, Atlantic white cedar stands, Pocosins and Carolina bays, so Enviva needs more due diligence to ensure that the procurement for pellet production does not negatively affect these forest types.

Mitigation Measure:
In the US, Federal and State legislation such as the Endangered Species Act and the Clean Water Act are policed effectively. Enviva and its third-party suppliers, require through contracts, that all suppliers of raw material adhere to all applicable laws and regulations and employ BMPs during harvest. Enviva also requires the use of trained loggers, which have completed training on BMPs, T&E species, identification of special sites, and more. Enviva and its third party suppliers will not contract with companies exhibiting poor performance. Enviva sends yearly correspondence to all suppliers with verbiage explaining our commitment to protect HCV areas and our expectation they will comply with our desires.

In addition, the US has a strong network of protected areas through its National Park System, National & State forests, designated wildlife refuges and the US Fish and Wildlife Service.

All of the Southeastern States have Forestry Assessments and Strategies, as well as Wildlife Action Plans. These agencies and others have publicly available mapping software to use in identifying HCV areas. Enviva also utilizes various web GIS data sources and web mapping tools to compile pertinent data for internal use.

Enviva engaged the US Endowment for Forestry and Communities to evaluate the mid-Atlantic catchment area to determine other areas of high conservation value. The Endowment consulted with leading independent academics and environmental organizations and identified four specific bottomland priority forest types; Cypress-tupelo swamps, Atlantic white cedar stands, Pocosins and Carolina bays. The Enviva Forest Conservation Fund website (http://envivaforestfund.org/about-the-enviva-forest-conservation-

fund/about-bottomland-forests/) contains information regarding each bottomland forest type. Enviva has committed five million dollars over a ten year period to fund conservation efforts targeting these forest types. The fund is administered by the US Endowment for Forestry and Communities.

Purchased stumpage tracts are assessed prior to bid to identify any areas of concern. Monitoring audits are performed on all purchased stumpage tracts. Enviva maintains maps developed using Natural Heritage databases, the Enviva Forest Conservation Fund data and other credible sources to identify any areas of potential concern. Where research indicates that a G-1 or G-2 species, community or sensitive bottomland forests is known to exist in close proximity to the tract, company foresters will assess whether the species or community is actually present on the tract and notify the landowner prior to harvesting. All stumpage and vendor/producer tracts in bottomland areas are assessed using the Enviva Forest Conservation Program HCV Tract Approval process to ensure conformance to the bottomland forest type policy.

Indicator

2.1.2 The Biomass Producer has implemented appropriate control systems and procedures to identify and address potential threats to forests and other areas with high conservation values from forest management activities.

Risk Designation: Specified Risk

Reason for Risk Designation: Enviva's PEFC Chain of Custody Due Diligence System establishes the entire supply area contains no controversial sources so all of the fiber supply is SBP-controlled at a minimum. However, Enviva has knowledge that some bottomland hardwood areas in the supply area could be HCV forests. Since Enviva is striving to achieve SBP-compliant feedstock is has implemented additional controls around certain forest types. The Endowment recommendations identified four specific bottomland priority forest types; Cypress-tupelo swamps, Atlantic white cedar stands, Pocosins and Carolina bays, so Enviva needs more due diligence to ensure that the procurement for pellet production does not negatively affect these forest types.

Enviva purchases primary feedstock through two means; supplier/vendor purchased tracts and Enviva stumpage purchase tracts. Supplier/vendor purchased tracts, where the supplier/vendor who has a harvesting agreement with the landowner, make up the majority of primary feedstock purchases. Enviva maintains a contract with the supplier/vendor which defines our expectations for how harvesting is to be conducted, as explained previously. Enviva purchases a de minimis amount of primary feedstock through a stumpage purchase program in which Enviva holds a harvest agreement with a landowner and employs a contractor to harvest the tract. Harvest contractors are contractually bound to support Enviva's HCV efforts on Enviva purchased stumpage sites. In both cases, harvesting contractors are trained in the use of state BMP's and harvest sites are monitored for BMP implementation, conformance to the harvest plan and any other tract-specific considerations.

Enviva partnered with the US Endowment for Forestry and Communities to determine if the mid-Atlantic supply region contains high conservation value bottomland forest types. This work identified four specific forest types of concern; Cypress tupelo swamps, Carolina bays, Pocosins and Atlantic white cedar stands.

Enviva evaluated these forest types and developed the Enviva Forest Conservation Program HCV Tract Approval process. Enviva's Track & Trace requires data collection such as species composition, stand age, harvest type, tract size, and GPS locations for all primary feedstock tracts prior to delivery. If the GPS location places the tract in one of three specific US Fish and Wildlife Wetlands Mapper water regime codes, meets the definition of a mature bottomland hardwood stand or contains a significant percentage of cypress the tract must be evaluated using the HCV Tract Approval process to determine if harvesting is the best outcome for the tract. If Enviva determines harvesting is not the best outcome for the tract then Enviva will not purchase fiber from that location.

Mitigation Measure:
Primary Feedstock
All stumpage and vendor/producer tracts in bottomland areas are assessed using the Enviva Forest Conservation Program High Conservation Value Tract Approval process to ensure Enviva's procurement is not negatively affecting potential HCV sites. This process requires a site visit to conduct a field assessment to any potential source tract that meets the criteria described above. After the site assessment, Enviva will only agree to accept fiber from that source tract if it is determined that harvesting is the best possible outcome for that tract. This policy exceeds the minimum requirements for any CoC or DDS certification Enviva operates.

Vendors/producers are contractually required to implement appropriate BMP's. Enviva utilizes a proprietary Track & Trace Program to monitor tract information such as; BMP implementation rates, age, forest type, remaining woody ground cover, forest direct district of origin compliance and other valuable information concerning its wood supply. North Carolina and Virginia have active Divisions of Forestry that inspect harvesting sites to assist operators in implementing proper controls as well. Logger training programs also educate in the identification and protection of certain HCV areas.

Secondary Feedstock
Enviva sources fiber from a number of sawmills and wood industry suppliers at all of their mills. In the mid-Atlantic region, there are both sawmill and wood industry suppliers which may supply either hardwood or pine residuals to Enviva. Enviva has gathered data from all its secondary suppliers and has mapped their supply base within Enviva's mid-Atlantic Supply Base Evaluation (SBE), through a rigorous district of origin process with all sawmill and wood industry suppliers that collects specific information such as; catchment radius, raw material species, certification information and other related information. This information is collected through the Residual Supplier Reporting Form (see example in Appendix I). The supplier's responses are mapped and compared to Enviva's mid-Atlantic Supply Base Evaluation to ensure Enviva has included the area with its supply base. Each supplier is provided a map depicting the counties within their catchment area that may contain high conservation value areas and information regarding each high conservation value type. Suppliers are encouraged to share this educational information with their suppliers.

With this information, in addition to our internal expertise and knowledge of the location of the mill and the products it produces, Enviva can evaluate each supplier's ability to provide fiber that meets the SBP Feedstock Standard. Enviva works with its secondary suppliers to ensure the data they have provided is

complete and accurate, and will regularly check to ensure they are providing the material they have reported. In addition to an initial visit before signing a contract with a secondary supplier to verify their operations and products are as-stated, Enviva can monitor the incoming products to ensure they are consistent with the data submitted annually in the Residual Supplier Data Sheet. Further, this data collection and monitoring process is now a part of Enviva's SBP implementation program, and thus is checked annually during audits. Currently, all of Enviva's secondary suppliers have returned completed Residual Supplier Data Forms, and so Enviva has all the data to properly assess each suppliers supply chain, and to incorporate their source area into its SBE. Enviva will work proactively with its suppliers that fall into the "Controlled" category to achieve SBP-Compliant status via outreach, our Enviva Forest Conservation Program, mitigation measures when appropriate, and other measures as identified. Further, if a supplier is unwilling to provide Enviva with the data required to properly assess the risk of their supply chain, then Enviva may cease to purchase fiber from those sawmills in the future.

In the mid-Atlantic region, the potential for specified risk that may affect our secondary feedstock comes from those suppliers who cannot provide data showing that they do not use material from bottomland forests Enviva has identified to be of high conservation value (HCV), based on our own internal policies. Thus Enviva must categorize some of the secondary supply as SBP-Controlled, instead of SBP-Compliant.

Enviva evaluates each supplier, based on our knowledge of their operations, our own internal HCV evaluation procedures, our PEFC due diligence system (DDS), and the data collected through the Residual Supplier Data Form to assess whether their fiber is SBP-Compliant or SBP-Controlled.

If Enviva identifies any sources of fiber that do not meet the SBP standards for controlled sources, Enviva will eliminate them from the fiber supply.

SBP-Compliant Sources are:

- The proportion of secondary and wood industry material received at Enviva with FSC/PEFC/SFI certified content claims (only the proportion of certified fiber is SBP-Compliant).
- Other areas deemed low risk as per the assessment of this SBE. Specifically, residues from sawmills that only use commercial pine species, or suppliers where it can be verified that they do not operate in or use species from bottomland forests

SBP-Controlled Sources are:

- Fiber delivered to Enviva with PEFC/FSC controlled claims
- Any other fiber delivered to Enviva that meets the requirements of our third-party certified PEFC due diligence system (DDS):
    - Enviva maintains a valid PEFC DDS that excludes controversial sources from the supply chain
    - The DDS assesses the risk of obtaining controversial sources, as defined by PEFC. As all indicators are "low risk" in our PEFC DDS, the fiber we procure is considered "controlled."
    - If Enviva identifies any sources of fiber that are out of compliance with the DDS Enviva will eliminate them from the supply chain.

Indicator

2.2.3 The Biomass Producer has implemented appropriate control systems and procedures to ensure that there are key ecosystems and habitats are conserved or set aside in their natural state (CPET S8b).

Risk Designation: Specified Risk

Reason for Risk Designation: The FSC NRA did not designate any HCV areas of concern in the primary sourcing area for the mid-Atlantic supply base. However, Enviva has knowledge that some bottomland hardwood areas in the supply could be HCV forests. The Endowment recommendations identified four specific bottomland priority forest types; Cypress-tupelo swamps, Atlantic white cedar stands, Pocosins and Carolina bays, so Enviva needs more due diligence to ensure that the procurement for pellet production does not negatively affect these forest types.

Mitigation Measure:

Four of the key eco-systems in the mid-Atlantic region catchment area are of concern to the wood supply system; Cypress-tupelo swamps, Atlantic white cedar stands, Pocosins and Carolina bays. Though many acres of these habitats are protected under various conservation easements, and federal or state ownership there is still a significant portions that are controlled by private landowners. There are significant water quality laws in place to address run off and sedimentation concerns. And the federal Threatened and Endangered Species Act provides significant protection for listed species. Conservation efforts and support for the conservation of these habitats is an area of concern.

In conjunction with the US Endowment for Forestry and Communities Enviva has created the Enviva Forest Conservation Fund (http://envivaforestfund.org/) that establishes a $5 million, 10 year program designed to protect tens of thousands of acres of bottomland forests in North Carolina and southeast Virginia. Further, Enviva has made the commitment to not purchase feedstock from these for habitat types.

Indicator

2.2.4 The Biomass Producer has implemented appropriate control systems and procedures to ensure that biodiversity is protected (CPET S5b).

Risk Designation: Specified Risk

Reason for Risk Designation: The FSC NRA did not designate any HCV areas of concern in the primary sourcing area for the mid-Atlantic supply base. However, Enviva has knowledge that some bottomland hardwood areas in the supply could be HCV forests. The Endowment recommendations identified four specific bottomland priority forest types; Cypress-tupelo swamps, Atlantic white cedar stands, Pocosins and Carolina bays, so Enviva needs more due diligence to ensure that the procurement for pellet production does not negatively affect these forest types.

Mitigation Measure:

According to the FSC US Controlled Wood National Risk Assessment – DRAFT (v0.1) the following biodiversity concerns exist in the supply region;

- Montane longleaf pine: Montane longleaf pine habitats occur in steep rolling topography historically maintained by fire, mostly outside of or on the edge of the Coastal Plain. Biodiversity values are driven in part by the understory plant community. Biodiversity values are potentially harmed via conversion of longleaf to other pine types, and the use of herbicides or other management techniques that inhibit native understory communities.
    - Specified risk: These habitat types are generally located on south and southwestern slopes and ridges up to about 2000 feet in elevation in northern Alabama and Georgia. These region are outside of the mid-Atlantic supply base and are of no risk to the Enviva regional supply chain.
    - Mitigation measures: There are no measures required.

- Karst Habitat: There are numerous areas of high aquatic and terrestrial biodiversity in the karst habitats of the Appalachians. The aquatic resources include fresh water mussels, fish and insects. The karst systems are rich with endemic and globally rare fishes, insects and cave invertebrates. The Clinch, Powell and Duck rivers are just a few of the nationally important river systems in the region. Sediment from poor logging practices and improperly constructed and maintained roads are the primary potential forestry related threats.
    - Specified risk: In the mid-Atlantic supply region these sites are largely controlled by national and state agencies and are on the fringe of the western fringe supply area and generally fall outside of an economic hauling radius. The potential impact of a poorly executed harvest could be high but the likelihood of a raw material delivery from a karst site reaching an Enviva mid-Atlantic facility is low.
    - Mitigation measures: Stands that are harvested under the control of Enviva will be managed to preserve diversity and structure. A portion will left protected to preserve late successional elements. Enviva will provide education and assistance to any supplier harvesting on a mesic site. In either case state forest BMP's will be followed. There are known Karst habitats outside of the Appalachian Eco region and in the Enviva mid-Atlantic supply base. Proper forestry BMP's are required by contract and these areas are considered low risk.
- Red cockaded woodpecker: These birds nest in cavities of living pine trees in the southeastern US. They are dependent on pine woodlands and savannahs that have pine trees large enough to provide nesting habitat. They will nest in all southern yellow pines but prefer longleaf pine. Foraging habitat requires open woodlands with herbaceous groundcover.
    - Specified risk: There are known sightings of red cockaded woodpeckers in the Enviva mid-Atlantic supply region. The potential raw material could be delivered to a mill is moderate given the preferred habitat description.
    - Mitigation measures: Enviva stumpage tracts are surveyed to identify the existence of protected species. Appropriate measures to protect a red cockaded habitat will be employed if the species is found on a tract including the maintenance of an open structure and mature nesting trees of at least 12" DBH.

- Gopher tortoise: A keystone species native to longleaf pine forests of the southeastern US and is listed as threatened in the western portion of its range generally due to development.
    - Specified risk: Though the gopher tortoise range is in the Appalachian Eco-region it is outside of the Enviva mid-Atlantic supply base.
    - Mitigation measures: None

9.2 Monitoring and outcomes

As described in section 9.1, Enviva is specifically monitoring indicators; 2.1.1, 2.1.2, 2.2.3 and 2.2.4 and progress is being made. In 2016 the Enviva Forest Conservation Fund provided monies to secure conservation easements on four high conservation forests. Implementation of the High Conservation Tract Approval Process is beginning to shape vendor tract selection decisions.

The Enviva Forest Conservation Fund is administered by the US Endowment for Forests and Communities. Success of the fund will be reported on a yearly basis. Enviva has released a policy statement to all suppliers and its proprietary Track & Trace Program will ensure that feedstock delivered to our mills meets our expectations with regards to sustainability and the SBP requirements. Enviva employs contractual mechanisms, an SFI Fiber Sourcing Program, FSC/PEFC/SFI Chains of Custody Programs and Track & Trace to ensure conformance and monitoring.

Enviva uses a rigorous district of origin process with all secondary suppliers that collects specific information such as; catchment radius, raw material species, certification information and other related information. The supplier's responses are mapped and compared to Enviva's mid-Atlantic Supply Base Evaluation to ensure Enviva has included the area with its supply base. Each supplier is provided a map depicting the counties within their catchment area that may contain high conservation value areas and information regarding each high conservation value type. Suppliers are encouraged to share this educational information with their suppliers.

10 Detailed Findings for Indicators

See Annex 1

11 Review of Report

11.1 Peer review

As stated previously, the mid-Atlantic SBE was independently peer-reviewed by RS Berg and Associates. R. S. Berg & Associates, Inc. has more than thirty five years of experience in the forest, paper and bio-energy industries and has worked with over 220 organizations in understanding their options and achieving certification to the Standard(s) of their choice. Scott Berg is a trained ISO 14001 EMS Lead Auditor and has over thirty five years in the forest and paper industry working for national and regional trade associations. As the data compiled for this report is generated by the SBE process, further peer review is not required.

11.2 Public or additional reviews

Enviva maintains a third party certified SFI Fiber Sourcing Program, a proprietary Track & Trace program, as well as third party certified FSC/PEFC/SFI chain of custodies. All of these programs are reviewed internally and by our third party certifying bodies on an annual basis. The Supply Base Evaluation was developed internally by qualified personnel using credible third party data sources such as; Forest Stewardship Council, The Nature Conservancy, United Stated Forest Service, United States Department of Labor, United Stated Department of Environmental Protection, State Forest Service Divisions, National Council for Air and Stream Improvement among others.

12 Approval of Report

Approval of Supply Base Report by senior management			
Report Prepared by:	**Don Grant**	**Mid-Atlantic Regional Sustainability & Certifications Manager**	**09/13/2016**
	Name	**Title**	**Date**
The undersigned persons confirm that I/we are members of the organisation's senior management and do hereby affirm that the contents of this evaluation report were duly acknowledged by senior management as being accurate prior to approval and finalisation of the report.			
Report approved by:	***Jennifer Jenkins, PhD***	***Vice President and Chief Sustainability Officer***	***09/15/2016***
	Name	**Title**	**Date**
Report approved by:	***Thomas Meth***	***Executive Vice President of Sales and Marketing***	***09/18/2016***
	Name	**Title**	**Date**
Report approved by:	***John Keppler***	***Chief Executive Officer***	***09/18/2016***
	Name	**Title**	**Date**

13 Updates

13.1 Significant changes to the Supply Base

The addition of Maryland, and specific counties in Pennsylvania and West Virginia was necessary due to information gathered by Enviva's through its District of Origin process.

13.2 Effectiveness of previous mitigation measures

2.1.1 Enviva has leveraged its partnership with the US Endowment for Forestry and Communities to develop a better understanding of cypress – tupelo swamps, pocosins, Carolina bays and Atlantic white cedar stands. This additional information and implementation of ArcMap shapefiles related to these forest types have helped Enviva develop a much more granular set of maps.

2.1.2 Enviva has fully implemented its High Conservation Tract Approval process and secondary feedstock procedures. These two processes are industry leading and are impacting vendor tract selection and create improvements in determining the de minimus amount of SBP-controlled secondary feedstock.

2.2.3 Enviva's Forest Conservation Fund has already helped conserve four high conservation forest tracts in the mid-Atlantic region

2.2.4 Along with the progress identified in 2.1.2, Enviva continues to conduct on the ground site inspection to ensure our suppliers are following BMP's and other required regulations to ensure bio-diversity is protected.

13.3 New risk ratings and mitigation measures

There is no change to the risk ratings for any indicator and no new mitigation measures

13.4 Actual figures for feedstock over the past 12 months

Enviva has to use bands for items f and g since this in formation coupled with the percentage secondary feedstock could complicate feedstock pricing in a competitive secondary feedstock market.

Feedstock

a. Total volume of Feedstock: 600,000-800,000 metric tonnes
b. Volume of primary feedstock: 400,000-600,000 metric tonnes
c. List percentage of primary feedstock (g), by the following categories. Subdivide by SBP-approved Forest Management Schemes:
    - Forest Stewardship Council: 0.9%
    - Program for the Endorsement of Forest Certification: 14.0%
    - Not certified to an SBP-approved Forest Management Scheme: 85.1%
d. List all species in primary feedstock, including scientific name

Table 5. Primary Feedstock Species

Common name	Scientific name
American beech	Fagus grandifolia
American elm	Ulmus americana
Atlantic white cedar	Chamaecyparis thyoides
Black cherry	Prunus serotina
Black gum	Nyssa sylvatica
Black jack oak	Quercus marilandica
Black oak	Quercus velutina
Black walnut	Juglans nigra
Cherry bark oak	Quercus pagoda
Chinkapin oak	Quercus muehlenbergii
Green ash	Fraxinus pennsylvanica
Hackberry	Celtis occidentalis
Hickory	Carya spp.
Holly	Ilex opaca
Laurel oak	Quercus laurifolia

Common name	Scientific name
Live oak	Quercus virginiana
Loblolly pine	Pinus taeda
Longleaf pine	Pinus palustris
Northern red oak	Quercus rubra
Overcup oak	Quercus lyrata
Pecan	Carya illinoensis
Persimmon	Diospyros virginiana
Pond pine	Pinus serotina
Post oak	Quercus stellata
Red maple	Acer rubrum
River birch	Betula nigra
River oak	Casuarina cunninghamiana
Shortleaf pine	Pinus echinata
Shumard oak	Quercus shumardii

Common name	Scientific name
Slash pine	Pinus elliottii
Southern red oak	Quercus falcata
Sugar maple	Acer saccharum
Swamp chestnut oak	Quercus michauxii
Sweetgum	Liquidambar styraciflua
Sycamore	Platanus occidentalis
Virginia pine	Pinus virginiana
Water oak	Quercus nigra
Water tupelo	Nyssa aquatica
White ash	Fraxinus americana
White gum	Eucalyptus wandoo
White oak	Quercus alba
Willow oak	Quercus phellos
Winged elm	Ulmus alata
Yellow poplar	Liriodendron tulipifera

e. Volume of primary feedstock from primary forest: 0.0 metric tonnes

f. List percentage of primary feedstock from primary forest (j), by the following categories. Subdivide by SBP-approved Forest Management Schemes:
   - Primary feedstock from primary forest certified to an SBP-approved Forest Management Scheme: 0.0
   - Primary feedstock from primary forest not certified to an SBP-approved Forest Management Scheme: 0.0

g. Volume of secondary feedstock: 20.8% of the total sourced delivered as chips and dust or pine chips, dust or shavings. The feedstock is delivered from within the defined supply base as mapped in section 2.1.

h. Volume of tertiary feedstock: 0.0%.

13.5 Projected figures for feedstock over the next 12 months

Enviva Ahoskie has been in operation since November 2011 at its current operating levels. There are no expected significant changes in volume and species projected for the next year. Identifying specific consumption rates of various feedstock can create additional pricing pressures which would problematic for Enviva.

Enviva will continue to make efforts to increase the level of certified content in its fiber supply through expansion of our IMG and other fiber purchasing decisions. Enviva will also work with our secondary and tertiary suppliers to move “controlled” sources into “compliant” sources.

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Appendix I: Example Residual Supplier Letter and Reporting Form

Dear Valued Supplier:

As part of Enviva's continued commitment to the practice of sustainable forestry, and in conjunction with our existing forestry certifications, we are reaching out to you to request your assistance in ensuring we have the most accurate data available regarding the extent of our fiber supply.

Enviva maintains chain-of-custody (CoC) under the Forest Stewardship Council™ (FSC), the Programme for the Endorsement of Forest Certification (PEFC) program and the Sustainable Forestry Initiative® (SFI) program. Enviva is also seeking certification under the Sustainable Biomass Partnership (SBP) program.

All four programs require Enviva to know the "district of origin" of all its wood fiber, including those that come from secondary sources, such as sawmills, in order to complete a detailed risk assessment of our entire fiber supply region. Enviva defines the district of origin at the county level.

As part of this process, we are seeking general information on your catchment area and the district of origin for your raw materials. This information will be used as evidence of Enviva's knowledge of our existing supply base and the district of origin of our residual inputs. Therefore, we respectfully ask you to take a few minutes to complete the attached form, which will provide us with the information we need from your facility.

As a part of this process, we will use the data you provide us to fill in any gaps in our risk assessment. While you are not required to alter your operations at all, if we find your supply area may overlap with identified areas of risk (as defined by our certification programs), we will provide you with the outcomes of the risk assessment for your records. Should you wish to implement any mitigation measures suggested, please do let us know.

Further, we would like to make you aware that for as long as you supply material to Enviva, we will be contacting you annually to ensure we maintain accurate records of your supply area. If needed, a forester may also reach out to you by phone or email to verify the data you submitted.

Enviva assures you that the information you provide will be kept confidential and only shared with our contracted auditors, with whom we have confidentiality agreements. Your company name will never appear in connection with any conclusions in our risk assessment, nor in any public documents.

If you have any questions or concerns, please do not hesitate to contact me directly at the phone or email address below.

Thank You for your time and cooperation with this process.

Sincerely,

FORESTER

Phone:

Email:

Secondary Supplier District of Origin Data Request

Supplier Name: _____ Date: _____

Contact: _____

What is the catchment radius for your mill? (miles) _____

Do you source wood from outside the U.S.? Yes _____ No _____ If yes, please explain _____
_____

Do you maintain certification under any CoC or SFI Fiber Sourcing programs? Yes ____ No ____ If yes, please list the type and certificate number(s) below:

Note: If you have a valid FSC, PEFC or SFI CoC you do not have to complete the rest of this form.

What species do you accept at your mill? (Attach list if necessary) _____
_____
_____
_____

Are any non-native species accepted at your mill? Yes ____ No ____ If yes, please explain _____
_____

At what level is the location of harvest documented for your raw material receipts? (check all that apply)
County _____ Landowner _____ No Documentation _____

Other (Explain) _____
_____

Do you require producers delivering to your mill to have valid logger training? Yes _____ No_____

Is there evidence of illegal logging within your procurement area? Yes ___ No ____ Unknown _____

Is there evidence of significant land conversion within your procurement area? Yes _____ No_____
Unknown _____

Is any of your primary fiber sourced from areas where High Conservation Values are threatened by forestry activities? Yes ___ No ____ Unknown ____ If yes, please explain _____
_____
_____
_____

Do you have a Sustainability Policy? Yes ____ No ____ (Please provide a copy)