OFFICE OF TRANSPORTATION AND AIR QUALITY
WASHINGTON, D.C. 20460

December 20, 2024

SUBJECT: Practical Guide to Forestry Feedstock Under the Renewable Fuel Standard

Dear Stakeholder:

Under a cooperative agreement with the U.S. Department of Agriculture's Forest Service (U.S. Forest Service or USFS), Strategic Biofuels LLC authored and published in September 2024 a document entitled, *Practical Guide to Forestry Feedstock Under the Renewable Fuel Standard* (Practical Guide).[1] In developing the document, Strategic Biofuels sought and received input from the U.S. Environmental Protection Agency (EPA), USDA Forest Service, Weaver & Tidwell (Weaver), other project developers, foresters, loggers, and related industry stakeholders.

The Practical Guide describes industry practices that EPA has accepted as demonstrating compliance with the Renewable Fuel Standard (RFS) program requirements.[2] Due to the heterogeneity of forestland, forestry practices, and forest management plans, what the EPA has found meets the applicable requirements in one context may or may not satisfy those requirements in another. For this reason, many of the regulatory requirements that these practices have been used to satisfy were written in a generalized manner, describing the purpose for each requirement so that parties operating in different forest management settings with different practices (for example, recordkeeping practices) can nevertheless demonstrate regulatory compliance. Although the Practical Guide contains examples using phrases like "must include," it does not represent the exact requirements because the underlying regulations could be met using other management practices as appropriate to a specific project. Instead, the Practical Guide's examples can be used as a starting point: understanding what has been successful for other parties can help you identify the practices at your specific site which may be similar, and which may also satisfy the RFS regulations.[3]

We are issuing this letter and, including as an enclosure, excerpts from the document issued by Strategic Biofuels, after coordination with Strategic Biofuels, as we believe it provides useful insights,

[1] https://strategicbiofuels.com/wp-content/uploads/2024/09/Practical-Guide-to-Forestry-Feedstock-under-the-Renewable-Fuel-Standard-Sept-2024.pdf.

[2] The statutory authority for the RFS program is found within the Clean Air Act, Section 211(o), which was established through the Energy Policy Act of 2005 and further expanded by the Energy Independence and Security Act of 2007.

[3] For example, see 40 CFR §§ 80.2 (Definitions); 80.1450 (What are the registration requirements under the RFS program?); 80.1451 (What are the reporting requirements under the RFS program?); 80.1454 (What are the recordkeeping requirements under the RFS program?).

consistent with its intent as a practical guide. Parties should not view the Practical Guide as an EPA-issued interpretation of the RFS regulations, but rather as a means through which industry can share examples of how compliance with the RFS regulations has been previously demonstrated and that uses language that may be more familiar to foresters and related industry stakeholders. This document is not an EPA product and does not constitute EPA guidance. This letter and enclosure are not final agency actions and do not constitute the EPA's interpretation of the statutory and regulatory provisions of the RFS program. Again, the EPA is providing this document to improve its visibility because the information therein may prove useful to parties who are interested in or are planning to use forestry feedstocks to produce renewable fuels under the RFS program.

Parties are encouraged to contact the EPA directly via the EPA Fuels Program Support Line at FuelsProgramSupport@epa.gov or 1-800-385-6164 to evaluate specific situations and plans.

Sincerely,

Byron Bunker, Director
Implementation, Analysis and Compliance Division
Office of Transportation and Air Quality

Enclosure

Excerpts from Strategic Biofuels document, *A Practical Guide to Forestry Feedstock under the Renewable Fuel Standard*.

Summary

Project developers are encouraged to work directly with the EPA and third-party compliance auditors regarding qualification and documentation of their specific intended feedstock.

- **Management plan or timber harvest plan.** For virtually all feedstock coming out of the forest, a management plan or timber harvest plan is a requirement to clearly document the intent for removal of the material from the tract. EPA expects and assumes that the removal of feedstock from the forest is incidental to normal forestry management and does not change or drive forest management practices.
- **Logging.** Currently, for materials to be considered qualified feedstock, they must be generated from logging operations or from downstream lumber processing / wood product manufacturing. These materials could be whole trees ("pre-commercial thinnings") or slash generated from logging. Slash that has accumulated in a forest as a result of a storm, wildfire, or similar disturbance is not currently usable as EPA is having internal discussions related to this material.
- **Qualified feedstock.** Per the RFS regulations, qualified feedstock can take the form of slash, thinnings, or milling or manufacturing residues. Slash and thinnings are relatively straightforward in terms of qualification, however milling or manufacturing residue, particularly sawmill waste — as a significant subset of residue — has unique challenges to use due to the potential for incoming RFS-qualified raw material to be mixed with non-RFS-qualified material during the storage and/or milling processes, and traceability concerns.
- **Areas at risk of wildfire.** Wood from federal and non-federal lands is allowable under the "areas at risk of wildfire" renewable biomass category; however, this wood cannot practically be used at this time because it is not included in the existing RFS pathways. A new facility-specific pathway petition would have to be filed with and approved by EPA prior to being able to use this material.
- **Tribal lands**. Based on a recent EPA ruling, wood from tribal lands may be usable under the RFS program.
- **Decision Matrix.** A high-level decision matrix/flowchart regarding qualification of feedstock is located in Appendix A.

Definitions

- **Slash**. As currently defined in the RFS, "**Slash is the residue, including treetops, branches, and bark, left on the ground after logging or accumulating as a result of a storm, fire, delimbing, or other similar disturbance"**[4]. It should be noted that slash can be described from a general forestry perspective and from an RFS perspective. A general forestry perspective is that tops, limbs, branches, and bark typically make up what is referred to as slash. In the case of harvesting RFS-qualified pre-commercial thinnings, EPA's current interpretation allows materials that would otherwise be considered slash (tops/limbs/branches/bark) to be considered pre-commercial thinnings (along with the stemwood or roundwood) for purposes of the RFS. This applies to both natural forests and plantation forests. On that basis the typical material from an RFS perspective that is identified as slash in both plantation forests and natural forests are the tops/limbs/branches/bark from a final harvest
    - *Qualified slash.* The following materials may qualify under the RFS:
        - Slash produced from logging operations in non-federal, RFS land history — compliant, managed plantation forests. RFS qualification requirements for tree plantations are discussed in the definition of "Plantation Forest" below.
        - Slash produced from logging operations in non-federal, RFS-compliant natural stands. To be considered RFS-compliant, natural stands must not be in an old-growth or late successional growth stage (defined as >200 years old) or be in certain imperiled or rare ecological communities. The natural stands do not need to be previously cleared/managed as of a specific date to be RFS-compliant.
    - *Non-qualified slash.* The following materials are likely not qualified to be considered as "slash" under the RFS at this time:
        - *Slash containing whole trees.* Although logging practices often include whole trees (volunteer trees, crooked trees, etc.), slash piles containing only parts of trees (not whole trees) generally can be used. No tree parts or whole trees can be cut or cleared solely for the purpose of qualifying as slash to meet RFS regulations.
        - *Storm debris.* The ability to use material that is accumulated as a result of a storm, fire, delimbing, or other disturbance is currently being reviewed by EPA. Until this review is completed this material is not eligible for use.
        - *Slash from non-RFS-compliant forests.* Slash from federal forests, or slash from plantation or natural forests that do not meet the qualification requirements under the RFS regulations are not usable under the RFS.

[4] 40 CFR §80.2 RFS Definitions.

- *Pre-commercial thinnings*. "**Pre-commercial thinnings are trees, including unhealthy or diseased trees, removed to reduce stocking to concentrate growth on (existing[5],) more desirable, healthy trees, or other vegetative material that is removed to promote tree growth"[6].** Thinning is defined by the Society of American Foresters as "a cultural treatment made to reduce stand density of trees primarily to improve growth (of residual trees), enhance forest health, or recover potential mortality"[7]. All thinnings are designed to promote the production of commercial dimensional lumber, veneers, poles, or other wood products - hereafter referred to as sawtimber products — at the final harvest. Thinning activity must provide a surety that substantial stock remains in the tract, which might require third-party auditing confirmation or other documentation that demonstrates that the residual stand is within the normal range for being adequately stocked. While it is recognized that thinning may have multiple results or outcomes, pre-commercial thinnings are only usable under the RFS if at least one of the specifically stated objectives of the thinning is to concentrate growth on existing, more desirable healthy trees in a stand. A consideration for inclusion in thinning contracts and silvicultural plans is to attach thinning specifications and a description of the desired residual stand as well as the desired future condition of the stand to produce sawtimber products. A key to harvesting qualified pre-commercial thinnings from any tract is having a silvicultural prescription, forest management plan (although a management plan is not required to make a natural forest eligible to source from), or timber harvest plan in place. As noted previously in "Slash", in the case of harvesting RFS-qualified pre-commercial thinnings, the EPA's current interpretation results in the materials that would otherwise be considered slash (tops/limbs/branches/bark) be considered pre-commercial thinnings (along with the stemwood or roundwood) for purposes of the RFS. This applies to both natural forests and plantation forests.
    - *Qualified thinnings.* The following materials may be qualified under the RFS:

      Thinning from below (low thinning), thinning from above (crown thinning), and free thinning are the most common silviculture operations utilized to manage stand density and improve stand health and vigor in natural or other stand types, and are all designed to result in stands that are within the normal range of stocking to promote tree diameter growth (concentrate growth on desirable trees) as well as stand growth (adequate stocking).
        - *Thinning from below.* Thinning from below refers to the removal of trees in the lower crown classes (smaller trees) while favoring for retention trees in the upper crown classes (larger trees).
        - *Thinning from above.* Thinning from above refers to the removal of trees in the upper crown classes in order to favor the retention of the best trees (most capable of producing sawtimber products) in the same crown classes.

[5] Clarification added by EPA representatives of Core team.
[6] 40 CFR §80.2 RFS Definitions.
[7] Society of American Foresters, The Dictionary of Forestry.

- *Free thinning.* Free thinning refers to utilizing a combination of all thinning criteria to control stand density and stand composition of desirable trees.
- *Underbrush.* Underbrush and other vegetative materials can also be removed from the tract to promote tree growth as part of the qualified thinning activity.

Multiple thinnings may be performed within an individual timber stand in a combination of thinning from below, thinning from above, or free thinning. In tree plantations, thinning typically involves a combination of row thinning (removing every 3rd or 5th rows or cutting corridors) and free thinning that focuses on further reducing stand density to the prescribed level with a focus on removal of less desirable trees. All thinnings may qualify under the RFS as long as a stated purpose of the thinning process is to reduce the number of trees to concentrate growth on the existing remaining stock. Thinning activity must provide a surety that substantial stock remains in the tract, which might require third-party auditing confirmation or other documentation that the residual stand is within the normal range for being adequately stocked.

- *Non-qualified thinnings.* The following materials are not qualified under the RFS at this time. Developers intending to use these materials should review their specific materials with the EPA and third-party auditors to ensure that the specific materials to be used actually qualify.
  - *Thinnings during final harvest.* By definition, pre-commercial thinning cannot occur concurrently with a final harvest within the same tract.
  - *Thinnings to promote growth of future plantings.* Qualified thinnings must be for the purpose of concentrating growth on the remaining, existing trees. Therefore, enhancing the growth of trees which have not yet been planted or of seeds to be planted cannot qualify.
  - *Thinnings from non-RFS compliant natural forests or plantation forests.* Thinnings from stands that do not meet the qualification requirements under the RFS cannot qualify regardless of whether the thinning was performed to concentrate growth on the remaining trees.

- *Tree residue.* **"Tree residue is slash and any woody residue generated during the processing of planted trees from tree plantations for use in lumber, paper, furniture, or other applications, provided that such woody residue is not mixed with similar residue from trees that do not originate in tree plantations"**[8].
  - *Residues from sawmills or other woody biomass processing facilities.* Mills or biomass processing facilities must process 100% RFS-qualifying tree plantation residue for the resulting sawdust or chips to qualify as an RFS feedstock. Any commingling with non-qualified residues is not allowed and would disqualify all of the sawdust or chips. It may be feasible for a facility to process segregated batches of only RFS-qualifying trees, but

[8] 40 CFR §80.2 RFS Definitions; underlining added here for emphasis.

the resulting sawdust or chips must remain segregated from residues of non-qualifying tree plantations.

- *Materials that derive from the non-cellulosic portions of woody biomass.* The RFS regulations make it clear that oil that is physically separated from any woody or herbaceous biomass and is used to produce renewable fuel shall not generate cellulosic (D-code 3 or 7) RINs.

- *Natural Forest.* A natural forest is defined as a forest composed of primarily indigenous or naturalized trees and not classified as plantation forest.
  - *Qualified natural forest.* A natural forest timber stand may be eligible under the RFS but will likely need to be reviewed with the EPA and third-party auditors to ensure that the specific materials to be used actually qualify. A stand which may qualify will have the following attributes:
    - *Ownership type*
      - Privately-owned land or
      - Land owned by government entities other than the federal government (i.e. state-owned forests)
    - *Clear geographical identification.* Must have the name and geographic boundaries of the land (see Practical Guide APPENDIX C, RFS0801 renewable biomass reporting requirements, page 37, for reference)
  - *Non-qualified natural forests.* The following attributes are disqualifiers under the RFS at this time. These include:
    - *Ecologically sensitive land.* Ecologically sensitive lands are identified and can be found on NatureServe. These are stands that contain ecological communities with Natural Heritage Programs global ranking of G1 or G2 or with a State ranking of S1, S2, or S3; or old growth or late successional forest land (which EPA has characterized as having trees at least 200 years old).
    - *Federal land.* Woody biomass cannot be used from federal forests. Pre-commercial thinnings, slash, and tree residue must all be derived from non-federal land.
      - *Possible exception:* Areas at risk of wildfire within 200 ft of existing buildings and other areas regularly occupied by people, or of public infrastructure. However, until EPA interprets more definitively what areas at risk of wildfire include or don't include, feedstocks from these areas should be regarded as not qualified under the RFS. It should also be noted that an EPA-approved RFS fuel pathway for use of this material does not currently exist.
    - *Tribal land.* A recent communication (Feb 2024) from EPA clarified that the use of feedstock from non-federal forestlands and tree plantations on non-federal

land belonging to an Indian tribe, Indian business, or an Indian individual that is held in trust by the U.S. or subject to a restriction against alienation imposed by the U.S. may qualify under the RFS provided it meets the other requirements.

- *Plantation Forest*. A plantation forest is a forest established by planting and/or seeding in the process of afforestation or reforestation. It may consist of native, naturalized, non-native, or introduced species.
    - *Qualified plantation forest.* Even if a plantation forest qualifies under the RFS, feedstock generated from the forests will likely need to be reviewed with the EPA and perhaps third-party auditors to ensure that the specific materials to be used actually qualify. A stand which may qualify will have the following attributes:
        - A stand of no less than 1 acre composed primarily of trees established by hand- or machine-planting of a seed or sapling, or by coppice growth from the stump or root of a tree that was hand- or machine-planted
        - Must have been cleared prior to December 19, 2007.
        - Must have been actively managed on December 19, 2007.
        - Separate documentation must exist for the clearing and the active management above. This could include certification by the Sustainable Forestry Initiative (SFI), the Forest Stewardship Council (FSC), or similar other certifications on or prior to December 19, 2007. Current stands that are certified under SFI or FSC (or similar certifications) may not meet the requirements depending on other available documentation.
        - Clear geographical identification. Must have the name and geographic boundaries of the land (see Practical Guide APPENDIX C, RFS0801 renewable biomass reporting requirements, page 37, for reference).
- *Logging*
    - Logging is the removal of forest products as part of forest management activities or to achieve silvicultural or other commercial objectives and includes land clearing for development or conversion to non-forest, right-of-way maintenance, or maintenance of a non-forested condition, and also includes (among others):
        - Traditional timberland harvesting which include thinnings and final harvests (including clearcuts).
        - Salvage harvesting after storms, wildfires and insect infestations.
        - Wood chipping of trees located in forest stands.
        - All species and merchantable products such as stems, and all traditionally nonmerchantable products such as tops, limbs, and stumps.
    - Logging *is not* work done by arborists, residential or commercial tree care professionals, or landscape service professionals.

Documentation

Developers should collaborate with the EPA and third-party auditors to ensure that the collected compliance documents meet their requirements.

- *Slash*
    - A silvicultural prescription, management plan, or timber harvest plan should be in place and provided by the forestry feedstock sector. These will likely be reviewed by the third-party auditor hired by the renewable fuel producer as a part of the compliance documentation requirements. The plan will also be reviewed to ensure that the harvest was not deliberately performed solely for use of the material under the RFS.
    - In a final harvest, the tops and limbs may qualify as slash under the RFS. However, whole trees — i.e. small trees that are harvested during the final harvest of large trees — are not considered slash and would not be qualified feedstock material. It is recommended that developers collaborate with the EPA and third-party auditors to confirm that the specific materials to be used actually qualify.
    - If slash is removed from the forest, there should be an accompanying mass balance of the slash/roundwood mix that was extracted during the operation. This is a primary consideration particularly if both materials are removed from the forest in chip form.
    - Truck weight records for each load.
    - Separate trip tickets delineating slash and roundwood. Trip tickets should include identification that ties the truckload to the source documentation of the tract and specific point of origin identification. Trip tickets should also be generated reflecting any intermediate feedstock handling/preparation and transportation to/from offsite locations prior to delivery to the final processing facility.
    - Slash and pre-commercial thinnings have separate feedstock reporting codes and must be identified individually for each batch of renewable fuel. On that basis they likely need to be kept separated prior to delivery to the final destination. If it is desired to commingle them in the field, a plan to account for the individual feedstocks should be presented to EPA for approval.
    - Other documentation — any additional information or documentation that could provide evidence that the material removed is slash.
- *Pre-commercial thinnings*
    - A silvicultural prescription, management plan, or timber harvest plan should be in place and provided by the forestry feedstock sector. The plan should include a current inventory of trees on the land, and the type and quantity of trees to be harvested. The plan will be reviewed to ensure that the harvest was not deliberately done solely for use of the material under the RFS (e.g., to promote growth and health in remaining trees). It

is recommended that developers collaborate with EPA and third-party auditors to ensure that the plan or treatment meets their requirements.

- A timber contract or agreement should list products and volumes of material. The contract or agreement will be reviewed to ensure that the harvest was not deliberately done solely for use of the material under the RFS (e.g., to promote growth and health of remaining trees).
- Certifications, like SFI or FSC, possessed by members of the forestry feedstock sector will likely be reviewed by the third-party auditor hired by the renewable fuel producer as a part of the compliance documentation requirements.
- Land history records: for tree plantations, records showing dates of planting and any prior thinnings; for natural forests, records providing dates of any prior thinnings.
- For tree plantations: From 40 CFR 80.1454(d)(2), domestic producers of renewable fuel made from planted trees or tree residue from actively managed tree plantations must keep records that serve as evidence that the land from which the feedstock was obtained was cleared prior to December 19, 2007 **and** actively managed on December 19, 2007. The records must be provided by the feedstock producer and **must include at least one** of the following documents, which must be traceable to the land in question (for clarity, generally one would need at least one document each to prove the clearing qualification and the actively managed qualification):
    - Sales records for planted trees or tree residue.
    - Purchasing records for fertilizer, weed control, or replanting, including seeds, seedlings, or other nursery stock.
    - A written management plan for silvicultural purposes.
    - Documentation of participation in a silvicultural program sponsored by a federal, state, or local government agency.
    - Documentation of land management in accordance with a silvicultural product certification program.
    - An agreement for land management consultation with a professional forester.
    - Evidence of the existence and ongoing maintenance of a road system or other physical infrastructure designed and maintained for logging use, together with one of the aforementioned documents.
    - Note: Satellite data is NOT acceptable as sole documentation, although it may be acceptable to confirm evidence of a road system to be used for logging.
- A tree plantation must be a stand of no less than 1 acre composed primarily of trees established by hand- or machine-planting of a seed or sapling, or by coppice growth from the stump or root of a tree that was hand- or machine-planted.
- Not ecologically sensitive forestland — see Practical Guide ***Ecologically sensitive forestland*** under **40 CFR §80.2 RFS Definitions** in Appendix A, page 17.

- Professional foresters report post-thinning — an inventory of trees remaining on the tract, both types and quantities. This will aid confirmation of substantial stock remaining in the tract following the thinning operation.
- Truck weight records for each load. It should be noted that for reporting and auditing purposes the feedstock volume records should also be kept on a bone dry ton basis. A consistent conversion process from wet tons to bone dry tons should be identified and documented.
- Trip tickets should include identification that ties the truckload to the source documentation of the tract and specific point of origin identification. Trip tickets should also be generated reflecting any intermediate feedstock handling/preparation and transportation to/from offsite locations prior to delivery to the final processing facility.
- Documentation to identify and verify ownership of the land to be thinned. County or Parish Records Offices have information available to help. Harvester and/or landowner records related to historical management of tree plantations are also helpful.
- Slash and pre-commercial thinnings have separate feedstock reporting codes and must be identified individually for each batch of renewable fuel. On that basis they likely need to be kept separated prior to delivery to the final destination. If it is desired to commingle them in the field, a plan to account for the individual feedstocks should be presented to EPA for approval.

- *Additional requirements*. In addition to the specific details listed above for slash and pre-commercial thinnings, there are general requirements for each load of material removed from the forest that validate the exact *point of origin.* It is recommended that developers collaborate with EPA and third-party auditors to ensure that these requirements and information meet their expectations:
  - GPS coordinates are a good source of validation, while others prefer to use tract maps or GIS files alone or to augment GPS coordinates.
  - Plantation names, as appropriate
  - Plantation boundaries, as appropriate
  - Quantity (typically weight) removed from each tract

Chain of Custody

- Full documentation of the chain of custody of the qualified feedstock from the forest to the processing plant site must be secured and retained for auditing purposes. This should include information regarding any intermediate storage of the feedstock along with efforts to ensure that it has not been commingled with non-qualifying material. It is recommended that developers collaborate with EPA and third-party auditors to ensure that this information meets their requirements:

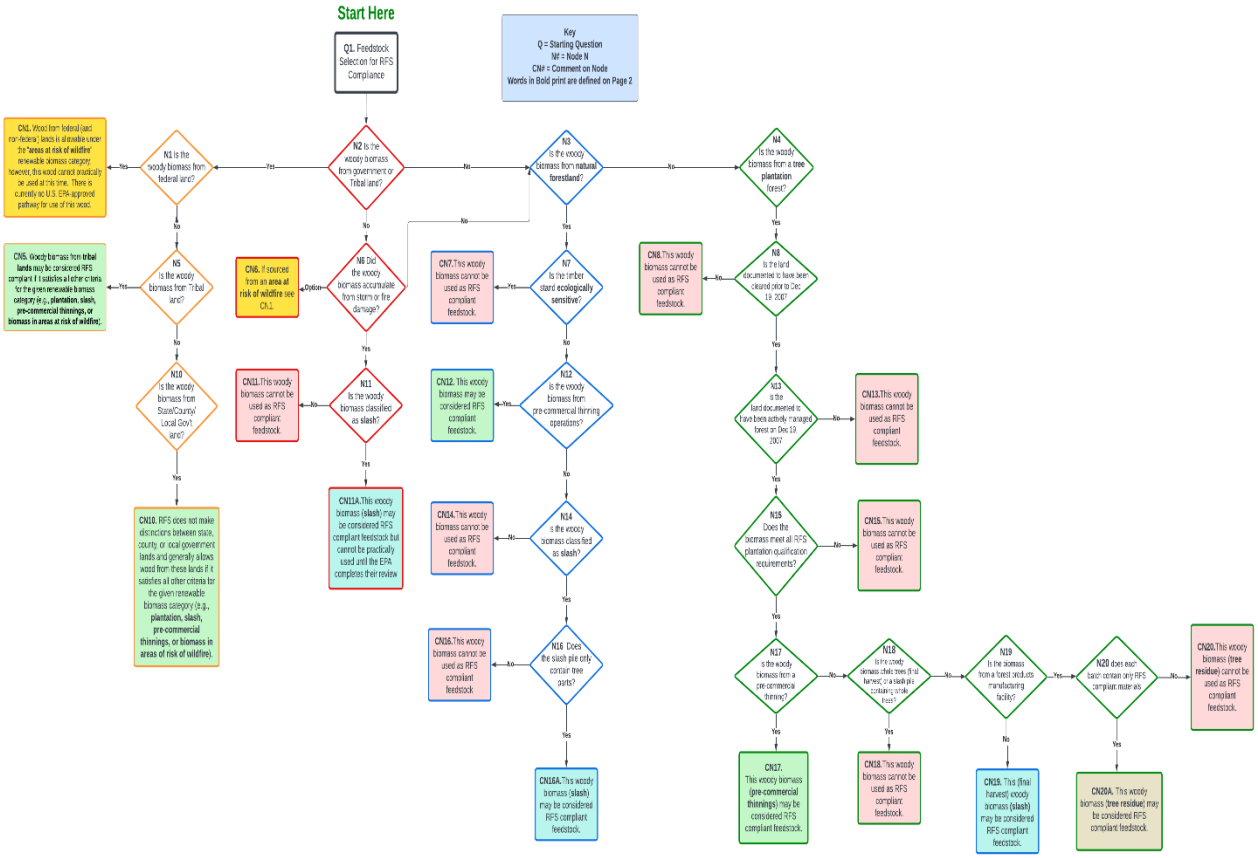
- Tickets, either paper or electronic, should be generated at the harvest source. Tickets could include a specific and unique load number, a GPS tag representing the coordinates of the load location, an identifying code, information representing the specific tract and tract owner, transport truck ID, or a picture of the truck.
- The storage of feedstock at intermediate, likely offsite, locations should be guided by establishment of a written protocol which includes means of maintaining segregation from non-qualified materials, methods to account for inbound and outbound materials, and the release of intermediate inventory to refinery/facility inventory.
- SFI, FSC, or other similar certifications may have imbedded requirements for Chain of Custody documentation and handling of information, which may inform this process.
- Chain of Custody documentation may also be usable under certification systems other than the RFS, such as Low Carbon Fuel Standard programs or European systems such as The International Sustainability and Carbon Certification (ISSC) or The Roundtable on Sustainable Biomaterials (RSB).

Reporting and Recordkeeping Requirements for All Renewable Fuel Producers

§ 80.2 Definitions.
§ 80.1450 What are the registration requirements under the RFS program?
§ 80.1451 What are the reporting requirements under the RFS program?
§ 80.1454 What are the recordkeeping requirements under the RFS program?

APPENDIX A
RFS Compliant Feedstock Flowchart

RFS Woody Biomass Compliant Feedstock Flowchart



Disclaimer

This document is for general guidance only and is not exhaustive or comprehensive. Those planning on using forestry feedstocks for fuel production under the Renewable Fuel Standard are encouraged in the early stages of project development to work directly with the U.S. EPA and third-party compliance auditors to assess qualification and required documentation of their specific intended feedstock. Neither Strategic Biofuels nor the U.S. Forest Service is responsible for decisions made by any organization based on the information presented in this document, which represents a perspective as of December 1, 2023. Note: Biomass from areas at risk of wildfire could become more readily eligible in the future if there is legislative action and/or U.S. EPA issues a rulemaking to clarify and/or expand the acceptability of this renewable biomass category.