Congress of the United States

Washington, DC 20510

May 16, 2019

Andrew Wheeler
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Dear Administrator Wheeler:

We, the Maine Congressional delegation, write in regards to an issue that effects the future of Maine's working forests, the economic development potential in our state, and the ability to further reduce carbon dioxide emissions by producing biofuels from low-grade wood. We ask for your attention to this matter in determining that Maine wood harvest residuals and pre-commercial thinnings qualify as renewable biomass under the Renewable Fuel Standard (RFS).

As you know, the RFS was drafted and signed into law as a way to reduce our country's reliance on fossil fuel and cut back on carbon dioxide emissions. Under the RFS, several tree, crops or biowaste uses are defined as "renewable biomass," including "(iv) Slash and pre-commercial thinnings that are from non-federal forestlands." Utilizing slash and pre-commercial thinnings from Maine in the development of biofuel – materials that are routinely produced in our standard forestry practices – will help meet this goal of carbon reduction as well as provide a market for these waste products.

Maine forestry experts agree that, as defined by EPA, most of the wood currently harvested in Maine qualify as slash or pre-commercial thinnings. In regards to pre-commercial thinnings, most low-grade wood harvested as part of forest management activities in Maine are trees removed to reduce stocking to concentrate growth on more desirable, healthy trees. This practice qualifies these materials as "pre-commercial thinnings" under EPA's rules and interpretations. Further, EPA defines slash as "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." This material is also prevalent in typical Maine forest practices. Our offices have raised these issues and provided a study detailing a clear analysis of Maine harvest practices to your staff to clarify these points. We have attached that study to this letter.

Without clarification of these definitions and their applicability to Maine wood feedstocks, potential biofuel producers are turning away from Maine and instead going to states with less

sustainable forest harvesting practices, yet whose plantation style management approach more easily fits the definition of "renewable biomass." We agree that wood residue from harvests, essentially functioning as wood waste, clearly meet the definition of "slash and pre-commercial thinnings," and that the production of biofuel from these renewable feedstocks would meet the goals of the RFS by producing alternative, low-carbon fuel with a biobased material already produced by standard harvesting practices.

We urge you to thoroughly consider this request and the attached study in helping your office determine that these forest products qualify as "renewable biomass" under the RFS, and offer clarity to a changing industry that is working with manufacturers to create sustainable biomass based fuel that will help reduce our country's fossil fuel dependence.

Thank you for your attention to this matter.

Sincerely,

Angus S. King, Jr.
UNITED STATES SENATOR

Susan M. Collins
UNITED STATES SENATOR

Jared Golden
MEMBER OF CONGRESS

Chellie Pingree
MEMBER OF CONGRESS

Attachment

Qualifying Feedstocks for RFS-2 Biofuels: Maine and New England

January 2019

Biofuel companies are evaluating opportunities in Maine and across New England, seeking to utilize low-grade wood from the region to manufacture biofuels and bioproducts. These facilities would utilize low-grade wood, including wood previously used at regional forest industries that have closed or reduced consumption.

One issue frequently comes up in these discussions:

> "What type of wood available in the region qualifies for participation in the EPA-administered national Renewable Fuel Standard as amended by the Energy Independence and Security Act of 2007 (RFS2)?"

This memo addresses the statute and rules, as well as the forests and forest practices prevalent in New England, to provide guidance on this question.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007[1] established the federal RFS2 program and provided key definitions for feedstocks eligible to be used for fuels participating in this program. For woody feedstocks, several definitions found under the heading "Renewable Biomass"[2] are important.

Plantations

Trees grown in a "tree plantation" established and cleared prior to December 2007 are eligible feedstocks.

> "Planted trees and tree residue from actively managed tree plantations on non-federal land cleared at any time prior to enactment of this sentence, including land belonging to an Indian tribe or an Indian individual, that is held in trust by the United States or subject to a restriction against alienation imposed by the United States"[3,4]

Maine and New England have *de minimis* timberland in 'tree plantations", as the forests of the region regenerate naturally. (Tree plantations are stands of trees that were man or machine planted.) In Maine, 98 percent of the timberland in the state is naturally regenerated[5]. Across New England, 99 percent of

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[1] https://www.gpo.gov/fdsys/pkg/PLAW-110publ140/pdf/PLAW-110publ140.pdf

[2] PUBLIC LAW 110–140—DEC. 19, 2007, TITLE II—ENERGY SECURITY THROUGH INCREASED PRODUCTION OF BIOFUELS Subtitle A—Renewable Fuel Standard, SEC. 201. DEFINITIONS. 1.I – definitions of "Renewable Biomass"

[3] PUBLIC LAW 110–140—DEC. 19, 2007, TITLE II—ENERGY SECURITY THROUGH INCREASED PRODUCTION OF BIOFUELS Subtitle A—Renewable Fuel Standard, SEC. 201. DEFINITIONS. 1.I.ii – definitions of "Renewable Biomass"

[4] "This day" refers to the date this Act became law; December 19, 2007.

[5] USDA Forest Service, Forest Inventory and Analysis Program, Tue Jun 05 14:14:04 GMT 2018. Forest Inventory EVALIDator web-application Version 1.7.0.01. St. Paul, MN: U.S. Department of Agriculture, Forest Service, Northern Research Station. [Available only on internet: http://fsxopsx1056.fdc.fs.usda.gov:9001/Evalidator/evalidator.jsp]

timberland is naturally regenerated[6]. Given the very low percentage of tree plantations in the region, and the fact that recently planted plantations are not defined as "renewable biomass", meaningful supply from such lands is not a realistic feedstock for facilities in New England.

Slash and Precommercial Thinnings

The statute defines "slash and precommercial thinnings" as "Renewable Biomass", using the following definition:

> "Slash and pre-commercial thinnings that are from non-federal forestlands, including forestlands belonging to an Indian tribe or an Indian individual, that are held in trust by the United States or subject to a restriction against alienation imposed by the United States, but not forests or forestlands that are ecological communities with a global or State ranking of critically imperiled, imperiled, or rare pursuant to a State Natural Heritage Program, old growth forest, or late successional forest."[7]

The eligibility of this feedstock, which presents significant opportunity for wood harvested in New England, is further refined as part of the rules implementing the statute and discussed below.

Rules Implementing RFS2

The Final Rule implementing RFS2 was published in the *Federal Register* on March 26, 2010[8]. The rules provide further detail and guidance not found in the statute, and the eligibility of New England feedstocks derived from forestry activities is discussed.

Slash and Precommercial Thinnings

As noted in the statute, only slash and pre-commercial thinnings (as defined in these rules) from non-federal forestland can be used for the production of RFS2-qualifying fuels. In Maine, more than 99% of all timberland is non-federally owned; across New England more than 96% of timberland is in non-federal ownership. For purposes of RFS2 qualification, the rules define "slash" as follows:

> "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."[9]

This definition of slash allows all tops and branches from non-federal timberland to be used in the production of RFS2-qualifying fuel; a significant volume of this material is available in Maine and across New England, including much of the material that is currently or has recently been used as biomass fuel for electric and large-scale combined heat and power projects.

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[6] USDA Forest Service, Forest Inventory and Analysis Program, Tue Jun 05 14:14:04 GMT 2018. Forest Inventory EVALIDator web-application Version 1.7.0.01. St. Paul, MN: U.S. Department of Agriculture, Forest Service, Northern Research Station. [Available only on internet: http://fsxopsx1056.fdc.fs.usda.gov:9001/Evalidator/evalidator.jsp]

[7] PUBLIC LAW 110–140—DEC. 19, 2007, TITLE II—ENERGY SECURITY THROUGH INCREASED PRODUCTION OF BIOFUELS Subtitle A—Renewable Fuel Standard, SEC. 201. DEFINITIONS. 1.I.iv – definitions of "renewable biomass"

[8] Federal Register / Vol. 75, No. 58 / Friday, March 26, 2010 / Rules and Regulations, https://www.gpo.gov/fdsys/pkg/FR-2010-03-26/pdf/2010-3851.pdf

[9] Federal Register. Vol. 75, No. 58. Friday, March 26, 2010. Page 14866

In addition to slash, the rule allows for the use of "pre-commercial thinnings" from non-federal forestland. Importantly, the definition for purposes of RFS2 qualification may not align with the definition used by some in the forestry profession. It is important to use the definition in rules, and not a perceived definition, when evaluating the eligibility of particular feedstocks for RFS2 qualification.

> "Pre-commercial thinnings are trees, including unhealthy or diseased trees, primarily removed to reduce stocking to concentrate growth on more desirable, healthy trees, or other vegetative material that is removed to promote tree growth."[10]

Of note, this definition states that trees removed "to reduce stocking to concentrate growth on more desirable, healthy trees" are included in the definition of "pre-commercial thinnings". This differs from the assumed definitions that many foresters have used. The discussion included in the rulemaking further explains what qualifies as feedstock, including a clear statement that there is no "financial return test" for what qualifies as pre-commercial thinnings for purposes of RFS2 eligibility:

> "As for ''pre-commercial thinnings,'' the Dictionary of Forestry defines the act of such thinning as ''the removal of trees not for immediate financial return but to reduce stocking to concentrate growth on the more desirable trees.'' Because what may now be considered pre-commercial may eventually be saleable as renewable fuel feedstock, we proposed not to include any reference to ''financial return'' in our definition, but rather to define pre-commercial thinnings as those trees removed from a stand of trees in order to reduce stocking to concentrate growth on more desirable trees."[11] [emphasis added]

Further, the discussion in the *Federal Register* makes clear that there is no "diameter test" for what qualifies as "pre-commercial thinnings for purposes of RFS2 qualification:

> "We sought comment on whether our definition of pre-commercial thinnings should include a maximum diameter and, if so, what the appropriate maximum diameter should be…Many commenters argued that EPA should not use a maximum tree diameter as a basis for defining pre-commercial thinning as tree diameter varies greatly by forest type and location, making any diameter limitation EPA might set arbitrary. EPA agrees with this assessment."[12]

In summary, for purposes of RFS2 qualification, pre-commercial thinnings are:

- Trees removed to reduce stocking to concentrate growth on more desirable, healthy trees;
- Not subject to any financial return test; and
- Not subject to any diameter test.

Given these criteria and as discussed below, almost all low-grade wood harvested as part of forest management activities in Maine and New England, except for clearcuts and wood from land use change harvests, would qualify as "pre-commercial thinnings". According to data from the Maine Forest Service, 6% of the timberland harvested in 2016 was clearcut, and 1% was a land use change harvest.[13]

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[10] *Federal Register*. Vol. 75, No. 58. Friday, March 26, 2010. Page 14865
[11] *Federal Register*. Vol. 75, No. 58. Friday, March 26, 2010. Page 14695
[12] *Federal Register*. Vol. 75, No. 58. Friday, March 26, 2010. Page 14695
[13] Maine Forest Service. *2016 Silvicultural Activities Report*. September 13, 2017.

Maine Timber Harvesting

In Maine and across New England, several forest management methods are used that allow harvested stems to meet the definition of "precommercial thinning", as described above. These forest management techniques are described and explained below.

Dense Overstocked Even-Age Stands

These stands, throughout Northern, Western and Downeast Maine – as well as Northern New Hampshire and Vermont - are the result of the spruce-budworm infestation of 1976-86 or other major disturbances. Stocking in these is typically >2,500 stems per acre. Approximately 25% of the stems attain a dominant position in the canopy at 45' to 50' height. The dominants range from 5" diameter at breast height (dbh) to 7" dbh. The understory trees range from 2" dbh to 4" dbh. The high density in these stands decreases per-stem growth, and thinning needs to occur in order for dominant stems to reach their commercial potential. Maine alone has 5.8 million acres of timberland that may fit this description[14].

Figure 1. Dense Spruce-Fir Stand[15].

One way to manage these severely overstocked stands is to conduct a thinning from below. The harvest is directed towards removing the suppressed understory to give the dominants more growth potential. Dominants are removed as necessary to provide room for crown expansion. Crowns will close after

[14] Cooperative Forestry Research Unit (CFRU) at the University of Maine, the Maine Forest Products Council and the Maine Forest Service. Coming Spruce Budworm Outbreak: Initial Risk Assessment and Preparation & Response Recommendations for Maine's Forestry Community. March 16, 2016. http://www.sprucebudwormmaine.org/docs/SBW_full_report_web.pdf

[15] Photos and drawings by John McNulty, Seven Islands Land Company unless otherwise noted.

five years or so. Regeneration can become established, but the management focus is on growing the dominant trees larger to sawtimber size. Stems removed as part of such a thinning should be considered pre-commercial thinnings and a qualifying feedstock for the Renewable Fuel Standard, as the stems are removed "to reduce stocking to concentrate growth on more desirable, healthy trees." Due to the small size of these stems, there are not alternative markets available for this material.

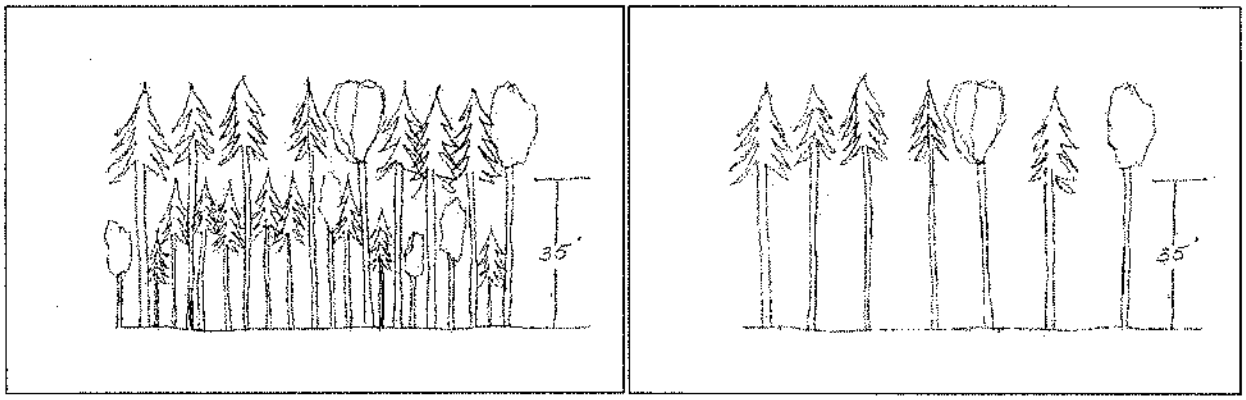

Figure 2. Schematic of Overstocked Stand Before and After a Thinning from Below

Following a thinning of these overstocked stands, threes have sufficient spacing to thrive and grow into higher value individual stems.

Figure 3. Spruce-Fir Stand After Thinning

Shelterwood Silviculture

In Maine and much of the northern tier states, the shelterwood system is used to grow sawtimber and regenerate the forest. Shelterwood is a harvest system "where the purpose of the timber harvest is to "reduce stocking to concentrate growth on more desirable, healthy trees." The overstory trees cast seed to regenerate the site, the seed germinates and becomes well established over the 5 to 15 years post-harvest. The overstory trees responded to release by expanding their crowns and growing to sawtimber size. The developing understory is comprised of species that reflect the overstory seed source, and shelterwood is a recommended silvicultural practice for spruce/fir, red oak, white pine and hemlock[16].

Figure 4. Overstory and Understory in Shelterwood Management

[16] Bennet, Karen P. (editor). *Good Forestry in the Granite State: Recommended Voluntary Forest Management Practices for New Hampshire.* 2010. https://extension.unh.edu/goodforestry/index.htm

Figure 5. Understory from Shelterwood Management After Overstory Removal

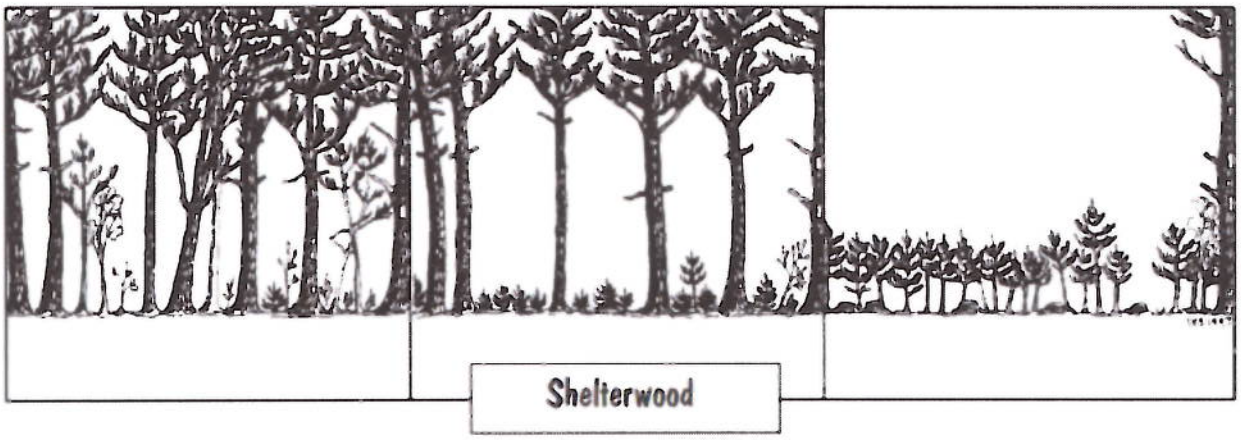

Figure 6. Schematic of Shelterwood Management Over Time[17]

[17] Bennet, Karen P. (editor). *Good Forestry in the Granite State: Recommended Voluntary Forest Management Practices for New Hampshire*. 2010. https://extension.unh.edu/goodforestry/index.htm

Non-sawlog stems removed as part of a shelterwood harvest should be considered pre-commercial thinnings and a qualifying feedstock for the Renewable Fuel Standard, as the stems are removed "to reduce stocking to concentrate growth on more desirable, healthy trees."

Multi-Aged/Uneven-Aged Silviculture

These stands are quite common in Maine and across New England because of past-harvest practices and the abundance of shade tolerant species – spruce, fir, hemlock, maples, beech and birches. Harvest entries every +/- 15 to 20 years result in regeneration of shade tolerant species in the understory.

Repeated entries release pockets of seedlings, saplings and poles. These stands tend to be perpetuated on good sites through repeated low-volume removals on a 15 to 20 year cutting cycle. The most common management techniques used in these stands are single tree selection and group selection.

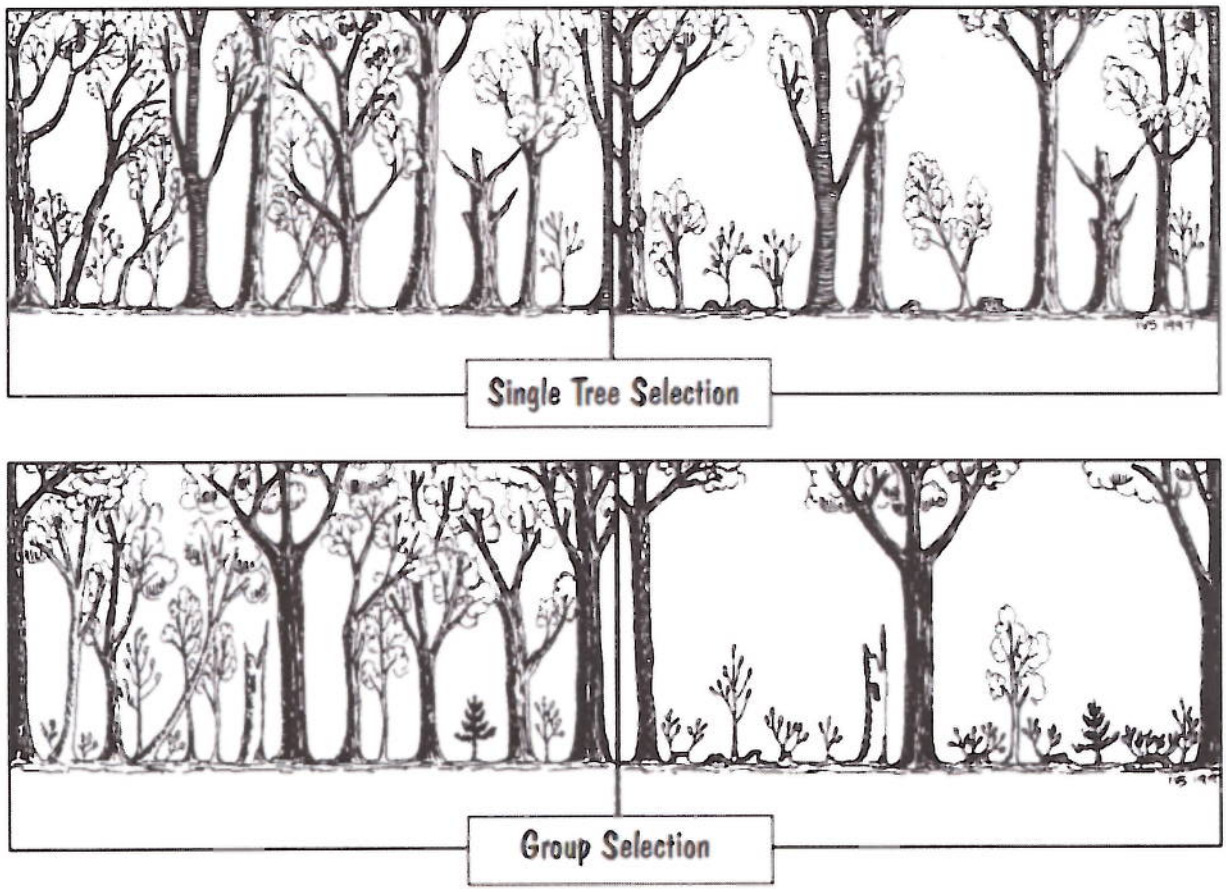

Figure 7. Schematic of Uneven Aged Forest Management Techniques.[18]

Both single tree selection and group selection are "Regeneration Harvest Methods"[19], where the purpose of the timber harvest is to "reduce stocking to concentrate growth on more desirable, healthy trees."

[18] Bennet, Karen P. (editor). *Good Forestry in the Granite State: Recommended Voluntary Forest Management Practices for New Hampshire.* 2010. https://extension.unh.edu/goodforestry/index.htm

- In a single-tree selection harvest, a quarter to a third of the volume of the stand is removed, either in single trees or in small groups. This method is used to encourage the growth of species such as beech, sugar maple, red maple, red spruce, balsam fir and hemlock.
- In group selection harvests, openings of roughly a quarter acre to two acres are made and are utilized to regenerate shade tolerant species such as white ash, yellow birch, red oak and white pine. Larger openings (>1 acre) can be utilized to encourage the regeneration of less shade tolerant aspen and paper birch.[20]

Non-sawlog stems removed as part of these of uneven aged management systems should be considered precommercial thinnings and a qualifying feedstock for the Renewable Fuel Standard, as the stems are removed "to reduce stocking to concentrate growth on more desirable, healthy trees."

Stand Rehabilitation (Seed Tree)

It is common in Maine to find diseased stands of nectria-infested beech, primarily in the understory where beech thrives as a very shade tolerant specie. The overstory often contains thrifty, vigorous maples, spruce and birch. The beech is occupying the understory and retarding regeneration and development of more desirable maples, birches and softwoods. The management objective is to rehabilitate the site and restore it to growing more valuable and productive species such as the maples and birches. The diseased and defective beech, culls and mature trees are harvested, and quality seed producing trees are retained to regenerate the site. All other stems are harvested, and the site is well-scarified from the harvest. The site will regenerate within 2 years following a good seed year.

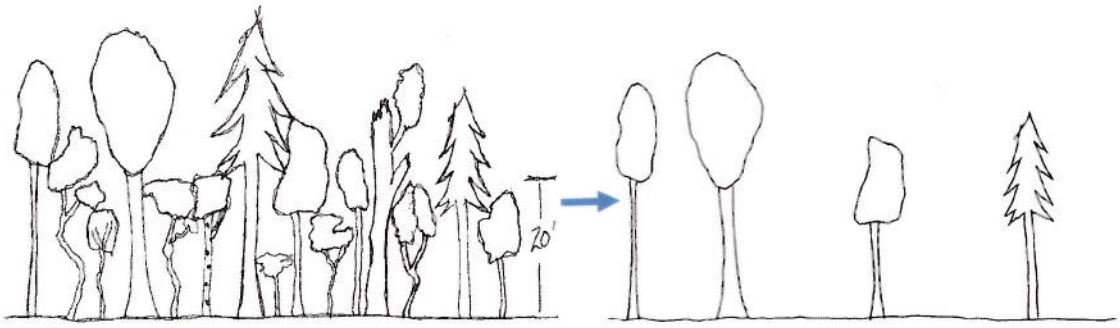

Figure 8. Schematic of Seed Tree Harvest for Stand Rehabilitation

The stems, tops, slash and rotten trees clearly qualify as eligible feedstock for the Renewable Fuel Standard, as they are either slash, or qualify as pre-commercial thinnings as defined in the rules.

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[19] Bennet, Karen P. (editor). *Good Forestry in the Granite State: Recommended Voluntary Forest Management Practices for New Hampshire.* 2010. https://extension.unh.edu/goodforestry/index.htm

[20] Bennet, Karen P. (editor). *Good Forestry in the Granite State: Recommended Voluntary Forest Management Practices for New Hampshire.* 2010. https://extension.unh.edu/goodforestry/index.htm

Mill Residue

Sawmills and other forest product manufacturing in the region produce a significant volume of mill residue annually. One recent assessment estimates that Maine saw mills produce in excess of 1.8 million green tons of residue – chips, bark and sawdust – annually.[21] However, this wood does not appear to be a Renewable Fuel Standard qualified feedstock, as the rules make clear that mill residues must come from plantation forests:

> "EPA is expanding the definition of ''tree residue'' to include residues from processing planted trees at lumber and paper mills, but is limiting it to the biogenically derived portion of the residues that can be traced back to feedstocks meeting the definition of renewable biomass (i.e. planted trees and tree residue from actively managed tree plantations on non-federal land cleared at any time prior to December 19, 2007)."[22]

As discussed above, Maine and New England do not have meaningful volumes of wood from plantations, and as such mill residue in this region is not a qualified feedstock.

Ecologically Sensitive Forestland

In addition to the tests above, RFS2 wood needs to come from land that is <u>not</u> considered "ecologically sensitive" at the state or federal level, defined as:

> "Ecologically sensitive forestland means forestland that meets either of the following criteria:
>
> (1) An ecological community with a global or state ranking of critically imperiled, imperiled or rare pursuant to a State Natural Heritage Program..., [or]
>
> (2) Old growth or late successional, characterized by trees at least 200 years in age."

For purposes of RFS2 qualification, these would be sites with a designation of G1, G2, G3, S1, S2, or S3.[23] These are natural communities that are rare or imperiled at the global or state level, and wood from such locations cannot be used as an RFS2 qualifying feedstock. These sites are, by definition, uncommon, and not expected to be present on many sites in Maine or New England.[24] It is anticipated that there will be very few instances where a harvest site is located at such a community, but it is necessary to be able to confirm – for each harvest site that feedstock comes from – that such an ecologically sensitive forestland is NOT impacted by the harvest.[25]

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[21] Innovative Natural Resource Solutions LLC and Meister Consultants Group. *Analysis of the Energy & Environmental Economics of Maine's Biomass Industry*. Prepared for the State of Maine – Governor's Energy Office. October 2017.

[22] *Federal Register*. Vol. 75, No. 58. Friday, March 26, 2010. Page 14695

[23] *Federal Register*. Vol. 75, No. 58. Friday, March 26, 2010. Page 14695

[24] According to staff at the Maine Natural Communities Program, in Maine these communities would be expected to be near mountain tops, in cedar bogs, or proximate to water bodies.

[25] Each state has a system where foresters and landowners can get information on the presence of such ecologically sensitive sites, either by accessing maps via the internet, or by providing state officials with a harvest map and receiving confirmation that the land in question is not considered ecologically sensitive, as defined above. See, for example, the Maine Natural Areas Program's Forest Management Plan Review, http://www.maine.gov/dacf/mnap/assistance/fmp.htm

Conclusion

Given the statute and rules, as discussed above, most of the wood currently harvested in Maine and New England is eligible for use as a feedstock for RFS2 qualified biofuels as it meets the definitions of either slash or pre-commercial thinnings under the regulations. Most Maine and New England sawmill residue will not qualify under the current regulations. Each renewable fuel production facility will need to carefully evaluate the available supply of feedstock in proximity to their particular location and design a woody biomass tracking system to ensure and document compliance with the RFS2 regulations.