

New Forest Planning Rule and Access to Woody Biomass

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Introduction

Access to biomass in national forests for conversion to energy, fuels and other commodities has long been governed by federal forest planning laws and overseen by the US Forest Service; that process is undergoing dramatic revision. Since passage in 1976 of the National Forest Management Act (NFMA) and implementation of the 1982 Forest Planning Rule¹, the regulations that dictate how each regional national forest develops a Forest Plan have remained rather static and consistently contentious, pitting disparate views of resource utilization, forest health management and environmental protection in battles frequently taken to court. This inherently antagonistic framework seldom engendered collaboration and rarely found consensus.

Four sweeping and quite inter-related actions are changing forest management and improving long-term access to woody biomass: (1) based on pioneering work of forest stewardship efforts nation-wide, a highly collaborative Forest Planning Rule² has been proposed. The new template is accompanied by the appropriate National Environmental Policy Act (NEPA) analysis and is currently being tested in a number of states; (2) the principles of collaborative, adaptive forest management for restoration are being tested in over twenty Collaborative Forest Landscape Restoration³ projects, accounting for over 10 million acres; (3) the United States Department of Agriculture (USDA) and the White House have initiated a "jobs" based drive to speed project development through formation of public private partnerships and (4) the basic framework of the impact assessment and planning approval process under NEPA is being significantly altered, tested, and (hopefully) streamlined to expedite forest resource based jobs while maintaining environmental sanity, in accord with recent presidential mandates to "modernize and reinvigorate NEPA" through the auspices of the White House Council on Environmental Quality (CEQ).⁴ Forest Service land managers are now queuing up to modify their respective Plans under the new Forest Planning Rule.

In the preamble to the Final Programmatic Environmental Impact Study⁵, Secretary of Agriculture Tom Vilsack is quoted: "The Forest Service planning process provides an important venue to integrate forest restoration, climate resilience, watershed protection, wildlife conservation, the need for vibrant local economies, and the collaboration necessary to manage our national forests. Our best opportunity to accomplish this is in the developing of a new forest planning rule for our national forests."

This article is designed as a roadmap through the process as the new Forest Planning Rule goes into effect. Wherever possible, references and hyperlinks are provided to source documents and web pages, taking care to maintain the context of how everything fits together. For those interested in acquiring sustainably-certified woody biomass, this massive regulatory overhaul can be seen as opening the door to a great number of projects that will extract biomass from densely overstocked, fire-prone forest lands. Much of the tonnage of biomass now designated for extraction is destined for existing bioenergy projects and is serving to "reinvigorate" this struggling industry. Yet very significant amounts of this potential feedstock remain unclaimed, and the overall program can only be improved by increasing the biomass feedstock market demand. Since the entire effort has been directed, and appropriately, toward restoration and reduced risk of catastrophic wildfire, beneficial use of the resulting biomass generated has been

¹ National Forest Management Act of 1976. 16 U.S.C. 1600. See: <http://www.fs.fed.us/emc/nfma/index.htm>

² Proposed Rules, National Forest System Land Management Planning. Department of Agriculture, Forest Service: 36 CFR Part 219, RIN 0596-AC94. Federal Register. Vol. 76, No. 30; Monday, February 14, 2011. Notice of proposed rulemaking; request for comment. http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5270250.pdf

³ Collaborative Forest Landscape Restoration Program, US Forest Service. See: <http://www.fs.fed.us/restoration/CFLR/index.shtml>

⁴ "White House Council on Environmental Quality Announces Steps to Modernize and Reinvigorate National Environmental Policy Act." Press release, 2-18-2010. See: http://www.whitehouse.gov/administration/eop/ceq/Press_Releases/February_18_2010 and <http://www.whitehouse.gov/administration/eop/ceq/initiatives/nepa>

⁵ Final Programmatic Environmental Impact Statement, National Forest System Land Management Planning, January 2012. US Forest Service. See: http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5349141.pdf

relegated to a lesser priority. Management of that biomass is not coordinated between projects and varies dramatically in all metrics. This report can aid in a more concerted approach to the ancillary need for a robust biomass market to meet the supply flow being initiated.

The broad view is impressive; after decades of bitter conflict, grand regionally-dedicated coalitions of local, state and federal agencies, tribal representatives, environmental and industrial organizations, every form of foundation, and large numbers of "citizen stakeholders" are proving ultimately successful in consensus-based planning of our national resources. This collaborative force is based on the concept of regional "stewardship", where those that live in an area and are most impacted by local change become part of the decision-making, resource use planning, and impact monitoring process. The result is a consensus-based ability to direct the care and the use of the land that surrounds us, to determine both the general direction and the intimate details of its care and use, and to take some degree of personal responsibility (and pride) in the results obtained. From the perspective of those seeking access to the resulting resource, this equates to "front-end" identification of and criteria for sustainable utilization.

Because broad public/private collaboration is the underlying theme, application of principals developed for the national forest lands can now extend into the state, tribal, and privately held surrounding lands. The patchwork pattern of ownership need not be the barrier to coordinated resource planning experienced in our recent past. Any assessment of a proposed project outside of the National Forest can at a minimum, tier off of previous environmental assessment and certification provided under the NEPA for the federal lands. Indeed, a critical element of the overall program is concurrent White House mandated "modernization" of that NEPA process, in concert with the sweeping changes to the Forest Planning Rule.

The New Forest Planning Rule

Change is best understood in context and a short review of national forest planning oversight is helpful. After years of wrangling, Congress passed the NEPA in 1970 and followed this closely with the Endangered Species Act (ESA) in 1973. All national forests and rangelands fell within these dictums; timber management and all national forest planning rules were revised and consolidated to conform to the over-arching NEPA regulations with NFMA in 1976, then substantially revised in 1982 to encompass procedures for development of individual forest plans. Abortive attempts to revamp the 1982 NFMA occurred in 2000 and again after years of reassessment in 2008.

In 2009, the Secretary of Agriculture again proposed Planning Rule revision, proposed a new Planning Rule and released a Draft Environmental Impact Statement initiating lengthy public and agency review and revision. On February 14, 2011, the USDA published the full text of the proposed Planning Rule⁶ in the Federal Register (this document includes a preamble providing an excellent, detailed discussion of each section of the proposed rule). The Forest Service released the Final Programmatic Environmental Impact Statement (PEIS) including what is referred to as the "Preferred Alternative"⁷, as PEIS Appendix I - Modified Alternative A. The PEIS was formally announced⁸ in the Federal Register on February 3, 2012, starting the clock on the formal comment period to end March 5, 2012. A final decision will soon be issued whether to accept the PEIS and certify the preferred alternative as the new Forest Planning Rule, amending Title 36 of the Code of Federal Regulations at Section 219.

The new Planning Rule, if adopted as expected, becomes the core guidance for land management and forest resource utilization planning and approval for the National Forest System (NFS), which consists of 193 million acres in 155 national forests, 20 grasslands, and one prairie. It establishes an adaptive

⁶ Notice of proposed rulemaking; request for comment. Federal Register, Vol. 76, No. 30, Monday, February 14, 2011: Proposed Rules. USDA Forest Service, 6 CFR Part 219, RIN 0596-AC94. See:

http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5270250.pdf

⁷ Final Programmatic Environmental Impact Statement, APPENDIX I – MODIFIED ALTERNATIVE A. See:

http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5349156.pdf

⁸ Federal Register, Volume 77, No. 23, Friday, February 3, 2012, page 5513. EIS No. 20120025, Final EIS, USFS, 00, Programmatic—National Forest System Land Management Planning, Proposing a New Rule at 36 CFR Part 219 Guide Development, Revision, and Amendment of Land Management Plans for Unit of the National Forest System, Review Period Ends: 03/05/2012, Contact: Brenda Halter-Glenn (202) 260-9400. See:

http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5351505.pdf

management strategy over this expanse, an iterative process that assesses each proposed action, and revises the impacted forest plans to reflect and implement the approved action, and then monitors those actions to inform the on-going management. The entire process is designed to engage public stakeholders in each phase of planning to avoid the devastating and costly log-jams of court action that had become the only way those stakeholders could have any effectively impact on the proceedings.

Following are highlights of the changes that the new Planning Rule brings to prior practice:

Definitions:

- Individual Forest Plans will be developed at the Unit level (the Forest, the Grassland or Prairie). The term Landscape Scale is used to indicate a level of assessment in context of the broader ecological and geographical landscape beyond Unit boundaries. The goal is to ensure assessments are based on the surrounding ecological, social and economic factors rather than observing strict adherence to administrative boundaries.
- A Collaborative Approach is to be employed in all stages of planning, involving as many interests as possible and including but not restricted to the scientific and land management community. Planning would be collaborative and science-based with the responsible official required to take the best available scientific information into account and provide opportunities for public participation throughout the planning process.
- The rules refer to Sustainability in the context of "resilient ecosystems and watersheds, diverse plant and animal communities, and the capacity to provide people and communities with a range of social, economic, and ecological benefits now and for future generations." Sustainability is assessed as ecological, social, and economic systems that are interdependent, and which cannot be ranked in order of importance.

Purpose and Levels of Applicability

- The primary responsibility for planning shifts from the Region to the Unit, placing the rulemaking authority in the hands of the Forest Supervisor most likely to be sitting at the table in collaborative community meetings;
- The new framework consists of a three-part cycle: (1) Assessment, (2) Development-Revision-Amendment, and (3) Monitoring "to understand what is happening on the land, revise management plans to respond to existing and predicted conditions and needs, and monitor changing conditions and the effectiveness of management actions to provide a continuous feedback loop for adaptive management."
- The Forest Planning Rule has requirements in each phase for working with the public, partners, landowners, other government agencies, and tribes, and would require the responsible official to identify each unit's unique roles and contributions to the local area, region, and nation.
- Planning will consider the full suite of multiple uses, including ecosystem services, energy, minerals, outdoor recreation, range, timber, watershed, wildlife and fish, and wilderness, to the extent relevant to the plan area.

The Role of Science in Planning:

- Planning must take into account social, economic and ecological science, but also recognize that "science is just one source of information for the responsible official and only one aspect of decision-making."
- Forest unit planning is no longer required to continually seek new studies or develop new information, but rather allows Forest Plans to be based on best available information.
- There is an important difference in the wording between the ecological and the social/economic sustainability requirements. Planning for ecological sustainability would require responsible officials to ensure maintenance or restoration, while planning matters of social sustainability would require plan components to guide the unit's contribution to social and economic sustainability.

Multiple Use and Timber Management:

- The Forest Planning Rule continues compliance with the Multiple Use - Sustainable Yield Act (MUSYA) of 19609, and expands prior definitions of Timber Harvesting to be a process the Forest Service can use to reach many different goals, including restoration of ecological resilience, community protection in wildland urban interfaces, habitat restoration, and protection of municipal water supplies.

Monitoring:

- As the third element to the new planning framework, Monitoring is now designed as a two-level process, the first scale being at the Unit level (for example, a National Forest), with overview monitoring to occur at the broader Regional Plan level "to test assumptions underpinning management decisions, track conditions relevant to management of resources on the unit, and measure management effectiveness and progress toward achieving desired conditions and objectives."

Collaborative Forest Restoration

Parallel with revision of the Forest Planning Rule, the USDA has funded the Forest Service to encourage, organize, and directly engage in the rapidly-growing forest lands collaborative planning process and to ensure that "landscape-scale" Collaborative Forest Restoration Plan¹⁰ (CFLR) development is led by regional national forest management. The passage of the Omnibus Public Land Management Act of 2009 included Title IV - Forest Landscape Restoration¹¹; the first suite of ten projects were funded in late 2010 under the CFLR program. Thirty-one proposals¹² were received from all ten National Forest Service Regions; a November 2011 report¹³ of projects provides a summary of this on-going work. The Four Forests Restoration Initiative (4FRI) was among the first ten restoration projects funded in 2010, the first year of the CFLR, and will continue to receive funding through 2012 along with the nine other initial restoration projects. Over twenty CFLRs have now been funded over two competitive grant cycles. These stand as the needed field laboratories for the emerging collaborative forest planning process, involving public and private stakeholders surrounding and within the national forest lands in an unprecedented way.

Although the long-term strategic plans submitted toward the CFLR grants are usually of ten years duration, the supportive grant funding must find new appropriations within each national budget, so there is no guarantee these good ideas will extend through the anticipated project life. In a program ostensibly designed to direct landscape scale restoration efforts in ten-year increments, the reality remains that such efforts are largely dependent upon funding availability that must be continually re-authorized at the Congressional level. The prevalent concern and expectation among program participants is that such funding will not continue to be forthcoming. To counter this, the projects are generally designed to progress in increments, front-loaded for importance. This is well stated in the Frontrange Collaborative's 2011 Monitoring Update: "Uncertainties are inherent in most natural resource management systems and associated projects and the use of collaborative learning is an important tool to reduce uncertainty. This group's collaborative agreement on how to reduce uncertainty, as well as the use of adaptive management, have become important and explicit features of these multi-party monitoring efforts."¹⁴

Table 1 addresses projects initially funded in 2010 that have now completed the first year of treatment and have received support for a second year of activity.

⁹ NFMA at 16 U.S.C. 1604 requires the Agency to have a planning rule developed "under the principles of the Multiple-Use Sustained-Yield Act of 1960" (16 U.S.C. 1604), see: www.fs.fed.us/emc/nfma/includes/musya60.pdf

¹⁰ Collaborative Forest Landscape Restoration Program, US Forest Service. See: <http://www.fs.fed.us/restoration/CFLR/index.shtml>

¹¹ PL 111-11, Omnibus Public Land Management Act of 2009. TITLE IV--FOREST LANDSCAPE RESTORATION. See: <http://www.fs.fed.us/restoration/CFLR/documents/titleIV.pdf>

¹² 2010 Regional CFLRP Project Proposals, US Forest Service. See: <http://www.fs.fed.us/restoration/CFLR/2010proposals.shtml>

¹³ People Restoring America's Forests: A Report on the Collaborative Forest Landscape Restoration Progra. Collaboratively developed by the CFLRP Coalition Steering Committee and the USDA Forest Service. November 2011. See: <http://www.fs.fed.us/restoration/CFLR/index.shtml> and

<http://www.fs.fed.us/restoration/CFLR/documents/CFLRPAnnualReportNov2011.pdf>

¹⁴ 2011 CFLRP Monitoring Plan, see:

http://www.frontrangeroundtable.org/uploads/Roundtable_CFLRP_Monitoring_Plan_062511.pdf

Table 1: CFLR Projects funded in 2010

Project	Landscape	% Treatment	Use
4FRI Collaborative , Arizona	2.4 million acres	>40%	The restoration will include an increased use of fire, yet also focuses on increased engagement of industry, to the degree feasible support the restoration upon the value of the extracted biomass.
Selway-Middle Fork Clearwater Project , Idaho	1.4 million acres	40%	2,000 acres treated 2011 plus 125 miles of roads. Usage is noted as for existing sawmill infrastructure, and yet to be identified bioenergy / bioproducts projects.
Southwestern Crown of the Continent , Northwest Montana	1.5 million acres	<30%	Initial 332,520 board ft of timber harvested. ¹⁵ 131,000 green tons of woody biomass extracted Much of the removed biomass will supply existing regional lumber and pellet mills; programs are under consideration for bioenergy on campuses.
Colorado Front Range , Colorado	1.5 million acres	<10%	2010 funding facilitated treatment last year of about 4,300 total acres, resulting in the removal of about 160,000 cubic feet of timber for sale
Uncompahgre Plateau , Colorado	Over 500,000 acres	40%	2011 of an initial 3,550 acres including the decommissioning of 30 miles of roads in and around the Grand Mesa, Uncompahgre and Gunnison National Forests
Southwest Jemez Mountains , New Mexico	Over 200,000 acres	80-90%	2010 actions provided 1,600 acres of fuels removed near communities, 1,900 acres of habitat improved and 3,000 green tons of woody biomass generated.
Dinky Landscape Restoration Project , California	Over 150,000 acres	80-90%	3,150 acres treated in 2011, extracting 3,600 green tons of biomass. Bulk of extracted biomass to go to local bioenergy facility
Deschutes Skyline , Oregon	130,000 acres	70%	About 34,000 acres initially earmarked for treatment between 2012 and 2016, around 18,800 acres of hazardous fuels have so far been treated, and 8,800 green tons of woody biomass was generated.
Tapash Sustainable Forest Collaborative , Washington	1.6 million acres	40-50%	2011: about 5,100 acres of hazardous fuels were reduced near communities and 600 acres of forest habitat were improved
Accelerating Longleaf Pine Restoration , Florida	About 600,000 acres	80-90%	2010 funding resulted in 13,100 acres of hazardous fuels treated, 3,600 acres of forest habitat established and 1,500 acres of forest habitat improved. Part of the biomass removed is expected to be sold to the ADAGE Company, a joint venture between Duke Energy and ARVEA, as fuel for a 50 megawatt bioenergy plant to be operational in 2013.
Totals:	Almost 10 million acres	Over 50%	2011 Acres treated: About 100,000 acres

¹⁵ Southwest Crown Collaborative, 2011 Annual Update; see: <http://www.swcrown.org/wp-content/uploads/2012/02/2011-Annual-Update-FINAL.pdf>

New CFRL Project Details (2011 New Funding)

Close scrutiny of restoration projects proposed in February 2011 and newly funded for 2012 can provide both near-term clarity and a forecast of future biomass access. Of the 26 proposals submitted toward CFRL funding, ten received dedicated CFRL funds, and three additional projects were considered of high enough national priority to also be awarded support. It is important to note that the collaborative process encourages an integration of activities both outside of and within national forests, resulting in stewardship-based treatment of private, state and federal property.

Table 2: New CFLR Projects funded in 2011

Project	Landscape	% Treatment	Use
Burney-Hat Creek Basins Project California	400,000 acres	<20%	Multiple mills and bioenergy facilities in region ¹⁶
Amador-Calaveras Consensus Group Cornerstone Project , California	400,000 acres	10%	Existing bioenergy plant
Southern Blues Restoration Coalition , Oregon	700,000 acres	>35%	Mills, bioenergy, composting, landscape supplies
Lakeview Stewardship Project , Oregon	660,000 acres	<30%	Mills, bioenergy, composting, landscape supplies
Northeast Washington Forest Vision 2020 , Washington	900,000 acres	<15%	An existing bioenergy facility will receive most of the biomass extracted.
Weiser-Little Salmon Headwaters Project , Idaho	800,000 acres	25%	To fuel a new bioenergy facility under construction and an existing lumber mill's cogeneration plant.
Kootenai Valley Resource Initiative , Idaho	800,000 acres	5%	Small-diameter timber use is emphasized; non-saw log biomass will be chipped and sold.
Zuni Mountain Project , New Mexico	200,000 acres	>25%	Collection and processing business infrastructure in place; market questionable.
Pine-Oak Woodlands Restoration Project , Missouri	350,000 acres	>40%	Feedstock market not yet designated.
Ozark Highlands Ecosystem Restoration , Arkansas	350,000 acres	>50%	Feedstock market not yet designated.
Shortleaf-Bluestem Community Project , Arkansas and Oklahoma	350,000 acres	80-90%	Chip to aid fuel switching at regional coal plant; timber quality goes to 24 regional mills
Longleaf Pine Ecosystem Restoration and Hazardous Fuels Reduction , Mississippi	380,000 acres	80-90%	Timber to local mills; residue market not ID'd.
Grandfather Restoration Project , North Carolina	300,000 acres	< 15%	Use of extracted biomass noted as for regional mills and possibly for bioenergy if a facility is identified.
Totals:	Almost 5 million acres	About 35%	Mixed use of timber and residuals

Increasing the Pace

In mid-February 2012, Agricultural Secretary Vilsack announced release of a new report, "Increasing the Pace of Restoration and Job Creation on our National Forests"¹⁷ and concurrently established funding for

¹⁶ See: <http://www.sierrainstitute.us/index.php/forests-and-watersheds/burney-hat-creek> for Sierra Institute for Community and Environment.

the forest-based projects under the CFLR program. During the same period, the Forest Service created the Watershed Condition Framework¹⁸ (WCF) with an initial assessment of 15,000 watersheds, a sweeping effort of assessment, mapping and plan development designed to improve forest and rangeland watersheds through better watershed restoration treatments. Vilsack said, "Through our partnerships with states, communities, tribes and others, we are committed to restoring our forests and bringing jobs to rural America. Whether the threat comes from wildfire, bark beetles or a changing climate, it is vital that we step up our efforts to safeguard our country's natural resources."

Nine specific actions have been outlined to "increase the pace of restoration":

1. Expand Collaborative Landscape Partnerships;
2. Finalize and Implement the Proposed Planning Rule;
3. Implement the Watershed Condition Framework (WCF);
4. Implement Integrated Resource Restoration Budgeting;
5. Improve the Efficiency of the NEPA Process for Restoration;
6. Implement the Forest Service Bark Beetle Strategy;
7. Expand Stewardship Contracting;
8. Ensuring Improved Implementation and Efficiency of Timber and Stewardship Contracts;
9. Expand Markets for Forest Products, Including Woody Biomass Utilization and Green-Building Materials.

To "increase the pace" over the next three years, the Forest Service intends to raise the number of acres being mechanically treated by 20 percent, supporting jobs and increasing annual forest products sales to 3 billion board feet. In large part, the increased treatment is a management response to the impacts of a rapidly changing climate compounding errors of past policy. As forested landscapes have dried from extended annual reductions in precipitation, conditions have favored destructive invasion of various beetles whose larvae consume soft wood and kill evergreen trees. Coupled with decades of fire control, entire overgrown and overstocked forested regions are now experiencing die-backs of great numbers of mature trees.

Of the 65-82 million acres of NFS lands in need of treatment, approximately 12.5 million require mechanical treatment. In 2012, the Forest Service anticipates restoration treatments to cover approximately 4 million additional acres of NFS lands, where projects will mechanically treat over 200,000 acres to accomplish restoration objectives, and extract around 3 billion board feet of forest products. The 10 CFLR projects (along with three additional high-priority efforts outside of the CFRL) will each receive funds for biomass treatments to reduce wildfire risk, enhance fish and wildlife habitats, maintain and improve water quality, use woody biomass, and harvest timber. The vast swaths of tinder-dry dead trees represent both an extreme hazard for catastrophic fire where management is insufficient, and a burgeoning resource for increased economic development where timely action can remove and convert that biomass to useful, value-added commodities. Those treatments will extract what amounts to pre-approved, sustainably produced biomass that can and should be used, not simply discarded by burning. Yet if no feasible means and/or ready demand presents itself, the priority is the restoration treatment, not the resource recovery for beneficial use.

Clearly, opportunities exist for increased industrial utilization of woody biomass; just as clearly, entities seeking sustainably extracted forest-sourced feedstock need to become part and parcel of the new collaborative Forest Planning process. Knowing what restoration activities are scheduled and the probable scale of biomass extraction will become increasingly important with increased competition for that feedstock.

¹⁷ Increasing the Pace of Restoration and Job Creation on Our National Forests. US Department of Agriculture, Forest Service. February, 2012. See: <http://www.fs.fed.us/publications/restoration/restoration.pdf>

¹⁸ Watershed Condition Framework and Watershed Condition Classification Technical Guide. US Forest Service. See: <http://www.fs.fed.us/publications/watershed/>

NEPA Modernization

The "modernization and reinvigoration" of NEPA and the first phase of the new forest planning rule implementation are concurrent, integrated actions; CEQ and the Forest Service have agreed to conduct a pilot program¹⁹ trialing the proposed forest planning process as outlined in the preferred alternative. The landscape-scale planning effort of the 4FRI and the much smaller community engagement embodied in the Bell Landscape Management Plan will serve as proving ground for the new approach. The Forest Service will now seek public involvement to develop and implement directives for specific forests, and again look for collaboration as existing Forest Plans are revised to meet the new rules.

Eight national forests have been selected to be the first to implement the new Forest Planning Rule after it has been finalized and certified. The Nez Perce-Clearwater National Forest in Idaho, the Chugach National Forest in Alaska, the Cibola National Forest in New Mexico, the El Yunque National Forest in Puerto Rico and California's Inyo, Sequoia and Sierra National Forests will begin revising their plans shortly after the final rule is confirmed.

Conclusions

Resource utilization comes down to a simple conundrum of extraction economics. The cost of the transport heuristics must be justified by the value of the extracted biomass and the results of that extraction. The contract mechanisms must provide "bankable" risk reduction, which usually equates to contract assurances of a specific tonnage over a minimum ten-year contract duration.

Forest restoration work always costs more than can be recovered on sale of removed biomass, and has historically had to rely on integral timber sales. This interdependence in turn has created a long-standing tension: timber economics are usually marginal and can little stand the additional burden of non-timber efforts based forest restoration work, especially when not directly related to harvest site clean-up. Much of the difficulty in landscape scale forest management comes from lack of up-front revenues for needed vegetation management, compounded by the inevitable costs associated with fighting wildfires, and repairing the resulting damage. Yet sale of the biomass removed during restoration work can at least reduce the cost of removal on a per-acre basis. When the reduction in societal and environmental cost of fire prevention, management, loss and recovery are factored in, the overall economics justify the funds expended for the restoration effort. As a stand-alone concern, the basic economics of biomass removal improve as the scale, frequency and duration of operations is increased and stabilized. At the "landscape scale" of the Collaborative Forest Restoration Program (CFRL) activities that form the core of on-the-ground testing for the proposed Planning Rule, opportunities are being recognized to establish sustainable integrated biomass supply chains of sufficient duration to justify bio-economy project financing, stable supplies that are "bankable".

Seen again from a supply chain viewpoint, the cost per ton of woody biomass generated that can be beneficially used as feedstock is supported by the restoration activities, while an increasing market demand for that feedstock provides an often crucial revenue source not solely dependent on government subsidization.

Forest health vegetation management at landscape scale clearly results in substantial biomass handling; some of that change simply means cutting, chipping and spreading in place or in the immediate vicinity. In general, the Forest Service will continue contracting processes as have been done for decades, awarding biomass aggregation, processing, and export to bidders associated with and secondary to timbering and/or as strict vegetation / watershed management actions. Such contracts most frequently are short term, often for projects that can be completed within months up to about two years; further work is then separately put out for bid and award. Short-duration contracting suits the management of the Forest Service under the older Forest Planning Rule, but perhaps not as well under the proposed Preferred Alternative as described in the final PEIS.

¹⁹ CEQ NEPA Pilot Program, US Forest Service. 2-9-2012. See: <http://www.fs.usda.gov/detail/4fri/newsroom/?cid=stelprdb5351998> and <http://www.terutalk.com/February-2012.html#0212-1>

Short duration biomass extraction contracts have never been optimal when viewed as the front-end of a regional supply chain for forest-sourced biomass. This constant contractual uncertainty especially does not lend itself to the rigors of project development financing where risks must be minimized over the project life and the availability of a secure long-term feedstock supply is often the lynch-pin to all other decisions. For the national forest restoration efforts to be ultimately successful, there must be financial backing other than tax-based federal and state support that comes through the mechanism of stable, long-term feedstock supply contracts.

Every CLFR project proposal provided an estimate of the reduction in cost per acre of operations to be realized through implementation of a ten-year restoration program. Longer term restoration based contracts are being written, and in some cases cycles of longer term contracts will progressively expand the biomass access during the proposed ten year framework of the CLFR effort.

Some of the CLFR proposals address utilization in detail; some have most of the material designated for existing projects, while others have begun the process with the hope of attracting projects for beneficial use of the material. All recognize that federal funding is surprising when it comes, and is never to be counted on for the long term. From the Deschutes Skyline²⁰ proposal: "Assuming that thinning with biomass removal will be implemented on 20,000 acres and that current markets will continue to be available, we anticipate that at least 45 MMBF of small saw logs and 240,000 green tons of non-saw material will be produced and utilized from these treatments over the ten year period of this project. The amount of non-saw material utilized from this project could be significantly higher if either (a) existing facilities get closer to full operational capacity or (b) some of the proposed facilities described above come on line within the ten year period of this project. Development of a significant local market for hogg fuel material could result in at least a 25% increase in non-saw material utilization from the landscape within the project period.

"Of the 20,000 acres of proposed thinning with biomass removal within the landscape, approximately 10,000 acres will be implemented using stewardship contracting authority. These acres are expected to yield roughly 20 MMBF of merchantable and sub-merchantable material valued at \$30+ per MBF. This would produce \$636,500 of value that can be applied to services such as mowing and ladder fuel reduction (non-commercial thinning) within the landscape. While the 240,000 green tons of biomass provided to local businesses for utilization does not produce significant stumpage value, the service provided by local contractors who remove and market the material is extremely valuable to the Deschutes NF. We estimate that the 240,000 green tons represents the by-product of 20,000 acres of restoration treatments and that the removal service provided by contractors is worth \$150 per acre of avoided piling and burning costs. Thus biomass utilization represents a \$3,000,000 investment by industry partners in restoration of the Deschutes Skyline landscape."

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²⁰ Ibid., Deschutes Skyline CFLR Proposal: UTILIZATION pg. 13