

Part III—Eastern Oregon Case Studies

Overview

We looked at two counties in Eastern Oregon—Grant and Wallowa (see Figure 3.1)—to evaluate factors important for encouraging the development of bioenergy as a market option for biomass removed by forest health treatments. Both counties are rural, with their forest economies dominated by National Forest lands. Recent cutbacks in federal timber harvests have significantly affected both counties.

The situation in Eastern Oregon is somewhat similar to that of the Lake Tahoe region discussed in Part II. In addition to similar forest types and conditions, the major factor in both regions is the importance of National Forest system management and the potential for harnessing biomass energy as an avenue through which to pursue more sustainable and healthy regional forests.

Plainly stated, the potential for an economically feasible biomass facility in either Grant or Wallowa counties will rest on whether a satisfactory, long-term forest health treatment plan can be implemented on the local National Forests. Forest biomass from other lands (mainly non-in-

dustrial private ownerships) would also be important to any future plan, but if an energy facility could be built and break-even prices established, that feedstock seems reasonably well assured. Without the biomass from the federal lands, however, feedstock supplies would be inadequate.

As noted below, the Forest Service faces many problems in establishing a viable forest treatment program, but the agency is actively working to address them. In addition, Congress has weighed in with new policy and program support. Formidable economic and political obstacles remain, however, and whether current efforts will succeed is yet to be seen.

The forests and forest-related communities of Eastern Oregon, like those in much of the rest of the West, are at great risk. As time passes, the problems get more severe and the risks increase; these situations are not, as some would hope, self-correcting. In Eastern Oregon, as throughout much of the West, time is of the essence and effective, well-designed action is the only hope for avoiding a continuing string of destructive wildfires.



Figure 3.1 Map of Oregon with counties highlighted.

Eastern Oregon Forest Conditions and Fuel Availability

From a forest health standpoint, the forests of Grant and Wallowa counties in Eastern Oregon are typical of forests elsewhere in the region. On the warm, dry sites dominated by ponderosa pine, years of fire suppression have resulted in dense undergrowths of pine and fir. On the cooler, wetter sites, the same has happened, with the seral species such as ponderosa pine and Western larch being surrounded by fir thickets that provide fuel ladders, assuring that any fire is at high risk of becoming a lethal crown fire. A significant proportion of both public and private forest land needs forest health treatment and stand shaping to become more resilient and sustainable.

It appears that there is an ample fuel supply to sustain an energy facility in each county, based on the small or uneconomic trees that need to be removed. It is also clear that an accurate quantification of the amount of fuel that is physically available, and the amount that is feasible to deliver to a facility, is impossible to do at this time. The forest inventory data available are simply not current or specific enough in terms of stand structure and condition to make informed estimates. In the following sections, general quantifications are made from acreage estimates, but a more accurate inventory would be preferable.

On the private lands, the physical supply numbers are largely unavailable because of the lack of current inventory data, and the information available from satellite imagery is too coarse in resolution to make an adequate evaluation of stand structure and condition. We did not assess private industry lands for this study. In general, they will have better inventory data but may be reluctant to publicize it. They may also have been thinning enough over the years that their lands are less characterized by the over-stocked, sickly stands that are the highest priority for forest health treatment.

To the extent that biomass fuels exist on non-industrial lands, their availability should be fairly good. Landowners have not undertaken stand treatments largely because the material can't be marketed. This has led here, as elsewhere, to logging operations that remove too many of the large trees (those that pay) and left too many of the small and deformed trees (those that cost more per unit of wood to harvest and haul than they are worth). Achieving a biomass market that could help close the economic gap would remove a significant barrier to increased forest treatment, and any program that could supplement the remaining below-cost gap would create still more activity. Because the land-

owners in Eastern Oregon have mostly mid- to large-size holdings, a few leading operators taking the initiative would both produce a significant amount of fuel and help spread the idea to others. State foresters are ready, willing and competent to help landowners plan and implement the needed practices, and they are prepared to move a program ahead. On the National Forest lands, a more complex situation emerges, as discussed below.

Using the general land ownership and land cover data available, we can make rough estimates of the amount of biomass that might be available for energy facilities in the region. Because of the limited nature of the data, these estimates are necessarily broad and make no attempt to address the desires of landowners or the capability of the federal lands to implement projects that produce biomass (a critical factor, as noted below). As with any other biomass facility proposal in the Western region, any local energy facility that depends heavily on using the excess biomass present in



Figure 3.2 Many of the ponderosa pine forests in Eastern Oregon have dry fuels from the ground up that will result in a lethal crown fire if an ignition occurs. (photo by Neil Sampson)

today's forests must face the fact that, once initial restoration treatment is complete, these forests will not continue to provide the same level of biomass on a sustainable basis. Our estimates are "clean-up" estimates, based on how fast people may be able to treat forests in serious need. Average annual yields after the initial clean-up will be lower. The enormous acreage involved in many of these areas, however, suggests that neither the "clean up" progress nor the evolution to increased use of prescribed fire will significantly reduce the availability of forest biomass from these forests for at least two-to-three decades.

The National Forests

Thousands of acres on the National Forests of Eastern Oregon urgently need forest health treatment. Forest Service technicians recognize the need and have developed treatment prescriptions they feel would be effective at achieving the desired results. Data on the type, amount and location of acres needing treatment are available and rapidly improving as Forest Service personnel continue to field-verify stand examinations and fuel model studies.

The problems on the National Forests are largely political and institutional. Even on areas that forest plans have identified as having no legal constraints or difficult assessment issues, such as stream buffers or National Recreation Area rules, any proposal for forest health treatment must go through intensive consultations on a variety of Endangered Species Act (ESA) issues and is subject to legal and procedural appeals. Nearly every project proposal will trigger such appeals, and, even where the appeal is not upheld, the time and cost involved drains the agency's resources and further limits the amount of land where treatment needs can be addressed.

Forest Service staff point out that the stand-shaping projects they now wish to do are much different from past timber sales. A different goal for stands and different constraints apply today. Some constraints (such as diameter limit cutting or wide no-cut buffers along streams) seem to many people to make little or no sense from an ecological standpoint. The staff is able to plan within these constraints, but even projects that fall within the constraints often run into a tangle of consultations and appeals that stops progress. Part of the present impasse may be because the language of Forest Service planners has not changed sufficiently, and outside observers reading proposals think they sound exactly like old-time timber sales. Some people who oppose stand treatments argue that they are not needed or justified. For

whatever combination of reasons, the institutional process is so viscous that producing any progress is agonizingly difficult and slow. In the face of the urgency felt by many land managers to treat the most vulnerable areas before they burn, the situation is doubly frustrating.

One impact of the current political situation is the increased chance that forest treatment projects on the National Forests, when they can finally be implemented, may not be fully appropriate. The time taken in the planning and appeals process can run 18 months to three years in length. By the time the appeals have been settled and the project launched, it is not uncommon for conditions on the land to have changed so much that the planned treatment needs to change. Modifying treatment plans is often avoided, however, because any significant change would trigger an entire new round of planning and appeals (Snyder 2000). In an attempt to guarantee good treatment, the procedural steps now in place can often have the opposite effect of preventing land managers from doing the type of adaptive management of which they are capable.

Forest Service contracting procedures raise other institutional issues. The ability to sign multiyear land treatment contracts may be essential to supporting an investor's willingness to build an energy facility. However, changes in policy or legislative approval may be required before the Forest Service can make such contracts. Flexibility is needed to combine all of the wood products into one contract, so that both merchantable timber and biomass can be harvested simultaneously. Support for such flexibility, as part of "stewardship contracts," appears to be developing within the Forest Service, but new contracting regulations to specifically allow it were not in final form in fall 2000, according to Forest Service employees.

A more recent issue has risen with the Forest Service policy to charge the cost of road construction and maintenance to each timber sale or road user. On some recent federal sales, the amount required for roads and slash disposal has exceeded the amount charged for the stumpage. In addition, private landowners who need to use Forest Service roads to haul their timber are being charged road use fees. The combined effect is that, on some private as well as public land, economically marginal forest health treatments are pushed even further outside marginal feasibility. In the case of biomass, where marginal values and high costs are already a problem and much of the cost is in hauling the material, adding the road costs may be particularly difficult to overcome.

Thus, even though the National Forests in Eastern Or-

egon have a significant need for fuel treatment that could result in a large, sustainable supply of biomass to an energy facility, the obstacles and uncertainty involved in realizing that supply remain to be overcome. New legislation, discussed below, may help address some of these issues, but its effects are yet to be realized.

Grant County

Grant County encompasses some 2.9 million acres in central Oregon, 79 percent of which are in the John Day River Basin. The main fork of the John Day River lies in a valley that runs East and West through the center of the county. Elevation ranges from about 2,000 feet in the southwest corner of the area to about 5,500 feet in the north and southcentral parts, and more than 9,000 feet on the highest peak. The climate of the county is continental with very dry, hot summers and cold winters. Precipitation ranges from a low of less than 10 inches annually to as high as 50 inches annually in the mountains, with an average for the county of 15.43 inches. More than half of the county is in federal ownership (Table 3.1). Almost 70,000 acres are private forestland.

Forest and Forest Management Conditions

Local experts note that many large private landowners are not active forest managers. Ownership of many of the ranches has changed recently, and the marketable timber was sometimes harvested to help pay for the sale transaction. As a result, many of the forests are not in good condition and could use stewardship treatment.

No detailed landowner statistics were found for Grant County. One problem facing local landowners is that Grant County locations are a 200 mile one-way haul from the Columbia River markets for pulpwood, so the price of pulp

has to be strong before it is feasible to harvest and haul anything but sawlogs. Often, pulpwood is below that price level, making forest treatment an economic loser that landowners are reluctant to undertake.

Some professionals disagree with the current expansion of prescribed fire on the federal lands in the area. Their basic contention is that the federal agencies are making spring underburns that will probably not mimic the ecological processes needed in the forest. Obviously, the historical fires were more concentrated in the summer and early fall, but the extreme risks posed during those dry periods will inhibit burning then. The idea that emerges from this disagreement, which would almost certainly raise local debate, is that many of these areas will need mechanical fuel removal prior to re-establishment of a fire regime that begins to approximate the historical regime.

Interviews with the staff of the Malheur National Forest at John Day revealed that ecosystem analyses exist that quantify the extent of the fuel management problem for both the Bear Valley and Long Creek areas. Among the findings: “approximately 51% of the area is highly susceptible to spotting, torching and crowning. Fires occurring on the lower slopes now present a significant risk of damage, large fire growth and extreme rates of spread” (USDA Forest Service 1999). Much of the land, particularly in the Bear Valley District, is less than 40 percent slope and can be mechanically harvested. This is also the lower, more rolling terrain largely composed of dry ponderosa pine forests that have been in-filling in recent decades and now need forest health treatment.

In an analysis of the Galena Watershed, which is in the Long Creek/Bear Valley District, it was noted that about 25 percent of the watershed area had burned in large wildfire events since 1994. The fires’ effects were severe, killing most conifer trees (USDA Forest Service 1999). About 77 per-

Table 3.1—Grant County land ownership and private land use

<i>Landowner class</i>	<i>Acres</i>	<i>Private Land Use</i>	<i>Acres</i>
Private	1,208,466	Rangeland	1,066,699
USDA Forest Service	1,508,500	Pasture & hay land	38,478
USDI Bureau of Land Management	176,650	Forest	69,883
		Cropland	20,720
State and municipal	6,864	Other	12,686
TOTAL	2,900,480	TOTAL	1,208,466

Source: Grant Soil and Water Conservation District

Table 3.2 Estimated ranges of biomass fuels currently available from Grant County forests

<i>Land Ownership</i>	<i>Estimated Area</i>	<i>Biomass Now Available</i>		<i>Estimated Annual Production for 10 years</i>	
		<i>Low</i> <i>(thousand bone-dry tons)</i>	<i>High</i>	<i>Low</i> <i>(thousand bone-dry tons)</i>	<i>High</i>
Private non-industrial	69,883	700	1,000	70	105
National Forest*	485,000	4,850	7,275	485	728
Total	554,883	5,550	8,275	555	833

* Source: Malheur National Forest statistics: General forest area in Grant County.

cent of the watershed is identified as high wildfire hazard, in large part because of the existing condition of timber stands. This watershed contains about 127,500 acres, and, although it is almost entirely within the National Forest, it also contains 10,000 acres of private lands, raising concerns about future fires in the wildland-urban interface areas.

The estimates in Table 3.2 indicate that solving the gridlock on Forest Service lands seems to be the only way to expand biomass energy production in Grant County. If the estimates are even remotely close, and something on the order of 87 percent of the forest resource in the county is on National Forest lands, any facility in this area will need to not only solve the local marketing problems (see below) but also be the beneficiary of a new and different approach to contracting and managing forest health treatment projects on the National Forests.

Energy Conditions and Outlook

Grant County holds considerable experience with wood-fired energy plants. Prairie Wood Products has two 8-megawatt cogeneration plants associated with its mills. At the time these facilities were installed, the mill waste was adequate to supply needed feedstock. The mills were running at full capacity, at times with double shifts, and sawing large trees with thick bark, resulting in large volumes of waste biomass for the energy plants. Today, those same mills are down to one shift, sawing small logs with thin bark, and the amount of waste for fuel has dropped dramatically.

As a result, both mills must buy hog fuel at times. They buy some by back-hauling from Western Oregon mills on their chip trucks, but they appear to be positioned to purchase some additional field-produced biomass if it were offered at competitive prices. At times in recent years, they have burned their own pulp chips to keep up with winter demand in the cogeneration plants. The market opportunity from these two small mills is, however, small. An 8-megawatt mill needs about 240 bone-dry tons of biomass fuel a

day, and they are probably 75 percent to 80 percent self-sufficient at this time. Even if they purchased the rest of the hog fuel they need from local woods operations, it would only amount to around 40-to-50 units a day. That would represent the production of about three-to-five acres (at an average biomass yield of around 10-to-15 bone-dry tons per acre), which is probably not enough to warrant the effort to grind and haul the material, even if the price were above break-even.

There is a concern in Grant County that the higher cost of electrical production in the local biomass plants has resulted in higher-cost power rates because of the nature of the long-term contracts involved, and local consumers thus pay higher power rates than those in surrounding areas. This is a 20-year-old artifact from the Public Utility Regulatory Policy Act of 1978 (PURPA), which required public utilities to purchase power from qualified local facilities at their avoided cost. Most of those contracts foresaw the price of energy rising sharply, but instead, generating costs fell significantly. That left utilities such as the Oregon Trail Electric Cooperative, which serves much of the region, with long-term contracts to purchase power at prices that did not change as other prices dropped. Those higher prices have been passed on to consumers through rates based on the utility's wholesale cost of power.²⁸

Local perception is that rates are higher specifically because biomass plants are the source of power, but the perception is somewhat inaccurate. At the time the PURPA contracts were signed, the purchasing utilities would have been under the same regulations whether the power was generated with biomass, gas or coal. The rate situation appears, therefore, to be related to the long-term contracts and

²⁸ At the date of publication, the West is facing steep increases in the wholesale price of power. These price increases may overshadow the effect of the long-term contract prices paid by the local utility, although this may not change public perceptions.

the unforeseen market shifts. The experience in the region may, nevertheless, require a potential biomass energy developer to address the PURPA issue directly with local consumers and officials to overcome reluctance about biomass energy. It would appear that any new market for power will need to be based on the anticipated demand and market in the area, not on an existing or future PURPA contract. Exactly what that may mean, as deregulation continues to change the energy industry, remains to be seen.

Wallowa County

Wallowa County lies in the far northeastern corner of Oregon in a beautiful, remote area of mountains that surround a green, grassy prairie. Its 7,500 residents have depended on the combination of forestry, agriculture and tourism for many years. About 70 percent of the county is federal land, and about 30 percent of the forestland available for harvest is publicly owned. Recent cutbacks in federal timber sales that have affected many Western communities have had a major impact on Wallowa County. From an estimated harvest of around 73 million board feet in 1985, the National Forest timber sales fell to around 1 million board feet in 1995, and they are anticipated to be zero in 2000 (Wallowa Resources News 2000).

Of an estimated 1.36 million acres of National Forest lands in the county, 56 percent are in wilderness areas, and 7 percent are either unsuited for forest production or are in riparian areas or other reserves. The Hell's Canyon National Recreation Area accounts for 29 percent of the National Forest land, and although it is legally available for timber management, the practical facts are that carrying out forest health restoration projects in it may be politically unacceptable. This leaves an estimated 115,000 acres, or 8 percent, of National Forest lands available for timber harvest and, we assume, available for forest health treatments as well (Wallowa Resources 2000).

Wallowa County has about 150,000 acres of private

industrial forestland and 130,000 acres of non-industrial private forestland. The largest industrial forestland owner is Boise Cascade Corporation. A partial list of private owners provided by Wallowa Resources (see Table 3.3) indicates that some 84 percent of the non-industrial forest acres are held in ownerships of 500 acres or larger and that this size category involves almost one-fourth of the owners in the county. This high proportion of large property owners is similar to what was reported by local observers in Grant County.

From a forest health standpoint, the forests of Wallowa County are fairly typical of elsewhere in the region. On the warm, dry sites dominated by ponderosa pine, years of fire suppression have resulted in dense undergrowth of pine and fir. On the cooler, wetter sites, the same has happened, with the seral species such as ponderosa pine and Western larch being surrounded by fir thickets. A significant proportion of both public and private forestland needs forest health treatment and stand shaping to become more resilient and sustainable. An analysis of current stand conditions in the Wallowa Valley and Eagle Cap Ranger Districts provided by the Forest Service indicates that on about half of the forested area, where one might historically expect to find multi-sized forests dominated by large trees, around one-third of the area is dominated by small trees with closed canopies typical of the in-filled stands described across the West (USDA Forest Service unpublished).

It seems clear that—based on the small or uneconomic trees that need to be removed for forest health treatment in Wallowa County—there is an ample fuel supply to sustain an energy facility. Compared to Grant County, the resource availability is more closely balanced between the private and public sectors. It is also clear that it is impossible to make an informed estimate of the amount of fuel that is physically available and the amount that is feasible to deliver to a facility. On private lands, as noted above, the physical supply numbers are largely unavailable. On National Forest lands, institutional issues raise significant barriers.

Table 3.3 Ownership size distribution of a partial list of Wallowa County forest landowners.

<i>Ownership size category</i>	<i>Owners (number)</i>	<i>Acres</i>	<i>Owners (percent)</i>	<i>Acres</i>
Less than 40 acres	25	433	17.4	0.5
40 to 99 acres	28	1614	19.4	1.7
100 to 499 acres	57	12,760	39.6	13.6
500 acres or more	34	79,181	23.6	84.2
Total	144	93,988		

Table 3.4 Estimated ranges of biomass fuels currently available from Wallowa County forests.

<i>Land Ownership</i>	<i>Estimated Area</i>	<i>Biomass Now Available</i>		<i>Estimated Annual Production for 10 years</i>	
		<i>Low (thousand bone-dry tons)</i>	<i>High (thousand bone-dry tons)</i>	<i>Low (thousand bone-dry tons)</i>	<i>High (thousand bone-dry tons)</i>
Private non-industrial	130,000	1,300	1,950	65	195
Private industrial*	150,000	1,500	2,250	75	225
National Forest	115,000	1,150	1,725	57	172
Total	395,000	3,950	5,925	395	593

*Private industrial forests may contain less surplus biomass per acre than either non-industrial or public ownerships because of a more intensive management strategy over past years. No data were available, however, so these estimates reflect the general ranges thought to exist in the forests of the region.

There is, however, a sense of urgency in Wallowa County about the need to resolve these issues, perform the needed assessments and launch a major forest health treatment program. The urgency is based on several concerns: The high wildfire risk facing untreated forests, the continued erosion of the institutional capacity to deal with forest health treatment, and the continued talent drain in the county that could make restoring institutional capacity even more difficult in the future.

The wildfire risk has been assessed above for the region (see General Forest Conditions and Wildfire Hazards in Part I), and Wallowa County's risks are typical. The summer of 2000 did nothing to ease the concern, as day after day saw the valley filled with smoke haze from wildfires across Hell's Canyon in Idaho and from nearby fire events. The wrong set of weather and moisture combinations could result in thousands of acres of public and private forest lost in a matter of hours or days.

The loss of institutional capacity is a continuing financial and human problem that increasingly concerns local leaders. As mills close and jobs are lost both in the industrial sector and in-woods operations, companies move out and so do skilled people. Young people leave the area and do not apprentice into the jobs that require skill and training. An example is the emergence of increasingly sophisticated machines like feller-bunchers and single-head processors that cut down selected trees and ready them for delivery to the landing. These machines are expensive and complicated and are costly to operate. Properly run by a skilled operator, they can shape a forest in desired ways rapidly and efficiently. As operators become more skillful, the need to mark trees for cutting or retention decreases, and many operators can go through an unmarked stand and produce a final result that meets all sustainability criteria.

Damage to remaining trees is so rare that it is often difficult to convince people after a few months that any activity has taken place in the forest. Where that is possible, the costs are minimized and the benefits of forest health treatment maximized. But the key is skill and experience. Where contractors are forced out of business, those skilled people may be lost, either to the community or the industry or both. That seems to be happening as a result of the federal timber program slowdown, and there is great concern in the community that, unless something can be done soon to restore some forestry work, there will be a total loss of forestry sector jobs.

Wallowa County has, like many of its rural counterparts, been exporting young talent for decades. Although the population has remained largely stable, the balance seems to consist largely of exporting high school graduates who go off to college and find jobs elsewhere and importing retirees who come back to enjoy the quality of life in the area. The net result is a community that is getting less and less capable of expanding its work force to meet a future need, no matter what the nature of that need.

The existence of a local market for small-diameter wood, perhaps supplemented by energy facilities, is seen as one of the cornerstones for moving the county's economy forward. A study by Wallowa Resources reports: "Extensive consultations with private forest owners, industrial forest managers, the local mills and both USDA Forest Service and Oregon Department of Forestry staff isolated small diameter wood processing (using timber less than 7 inches in dbh) as the single best opportunity for natural resource based business development in Wallowa County" (Wallowa Resources unpublished).

The "small-log" opportunities have recently been enhanced by the installation of capacity at the Joseph Timber

Company to process 20-foot logs with a 3-inch diameter at the small end. Such equipment opens up a significant opportunity in light of the resource conditions and could be complementary with a biomass facility. Particularly where trees of this small size are skidded whole to a landing for processing, the fact that all the small and large trees can be processed and sorted in one place creates enormous piles of woody material that can be run through a tub grinder and used for biomass fuel.

One such pile (shown in Figure 3.3) was estimated by the author to contain somewhere in the range of 4,500 cubic yards of material. Assuming a specific gravity of 0.30 for piled material, that would translate to around 1,000 bone-dry tons. Because it was estimated that the pile represented a landing for about 20-to-40 acres of timber harvest, the biomass yield would have been around 25-to-50 bone-dry tons per acre in a harvest operation that was not designed to capture biomass. It was also apparent, however, that there had been no pulp chipping at the site, so the fuel amounts would be significantly reduced if much of the pile had been sorted for pulpwood. Without either a pulp or fuel market, the likely fate will be a winter pile burn.

Summary and New Hope

As the above discussion indicates, a significant amount of woody biomass is available in Eastern Oregon, particularly biomass that is not merchantable in either traditional or new small-wood industries. The problems of capturing the resource, and, at the same time, improving the forests of the region, are political and economic. The political problems focus largely on the ability of the Forest Service to implement the kinds of forest health treatments its specialists want to implement, while the economic problems affect all landowners alike. Non-merchantable biomass is expensive to harvest and deliver, and it is of low-value at the point of delivery. Unless biomass harvesting can be combined into a forest health project that removes both merchantable and non-merchantable material at the same time, it is doubtful that it can ever be a financially profitable (or even break-even) activity. On the other hand, the ability of both public and private landowners to improve the health of their forests and make them less likely to succumb to epidemics or wildfires is a value that can encourage these harvests if the economic costs can at least be minimized or balanced.

As this report was being finalized, Congress reacted to growing pressure from Western interests and, spurred by the summer 2000 wildfires, enacted new wildland fire emergency appropriations as part of the 2001 appropriations bill



Figure 3.3 A huge pile of waste material that could have been converted into energy marks the landing of a recent forest harvest in Wallowa County, dwarfing Rick Wagner and Lance Clark, ODF foresters (photo by Neil Sampson).

(P.L. 106-291). Although it is still too early to tell exactly how the implementation of this bill will facilitate forest health treatment in the West, the legislative language itself is fairly straightforward.

The bill authorizes the secretaries of the Interior and Agriculture to conduct fuel reduction treatments on federal lands using all available contracting and hiring authorities. The focus is on urban-wildland communities that are at high risk of wildfire. The bill urges all federal agencies to implement expedited procedures for hazardous fuel reduction and post-burn treatments on federal lands.

The capacity of this new money and encouragement to galvanize action on the federal lands remains to be seen. What is clear, however, is that concern over forest health in the West is no longer limited to a handful of scientists, ecologists and land managers. Forest health is now a recognized

national issue, and finding a way to weave public land management, private land incentives and energy production together is perhaps one step closer to reality.

The current political concern is also informed by significant new studies on forest health and a new Forest Service proposal on the needed response. In October 2000, the Forest Service released a major study entitled "Protecting People and Sustaining Resources in Fire-Adapted Ecosystems: A Cohesive Strategy" as one response to the GAO Report of 1999 (USDA 2000). It contains the following passage:

Because understory biomass has little or no value, disposing of it becomes problematic. Small diameter material, however, may become more economically feasible if assessments for its utilization more comprehensively evaluate tradeoffs and risks to watershed and species values, public health and safety, and other factors that may benefit from reducing fuels in fire-adapted ecosystems. Projected wildland fire costs, resource losses, and environmental damage, all suggest that developing and supporting markets for using excess woody biomass are desirable (USDA 2000).

The Forest Service report also notes that, "Consistent with Executive Order 13134 'Developing and Promoting Biobased Products and Bioenergy,'" the Forest Service will "collaborate with other agencies and organizations to conduct economic feasibility analyses of increased biomass utilization (USDA 2000)."

These commitments have been supplemented by the passage of the Biomass Research and Development Act of 2000 (PL 106-224) and the inclusion within the FY 2001 appropriations bill of a major new \$250 million fund for the Forest Service and the Department of the Interior to carry out fuel management activities. P.L. 106-224 provides a legislative mandate for the USDA and the U.S. DOE to cooperate on policies and procedures that promote research and development leading to the production of biobased industrial products, such as fuels and chemicals. Under the act,

applicants can earn grants, contracts, and financial assistance for conducting research on improved biomass conversion technologies for the production of biobased products, for developing technologies that would result in cost-effective and sustainable industrial products, and for promoting the development and use of agricultural and energy crops for conversion into biobased fuels and chemicals.

The fruits of these measures may be improved methods for biomass-to-energy conversion and lower prices for biomass fuels, making them more competitive with fossil fuels. As additional markets for understory biomass develop, what was once both a valueless commodity and an expensive disposal problem may become an important part of building the transition from a fossil-based society to a renewable-based society during the twenty-first century. Aggressive use of these new policy authorities should provide the basis for a much more rigorous study of feasibility for new biomass energy facilities in Oregon, as well as in other affected areas in the West.

The development of a biomass energy industry in Eastern Oregon would almost certainly depend on the assurance of a predictable fuel supply from federal forests. That goal has been and may continue to be out of reach because of the variety of complex administrative and political obstacles. The new national recognition of the urgency involved in providing appropriate forest health treatment may, however, be the catalyst that helps push enough of these obstacles aside so that federal agencies can take the needed steps. These steps will almost certainly include policy and budget commitments for managing to improve forest health and administrative changes that allow for multi-year contracts based on stewardship contracting principles, which would allow a local energy facility investor to bank on having at least 10-to-15 years of fuel supply from the federal lands. This basic assurance, coupled with an aggressive partnership with the Oregon Department of Forestry for planning and implementing forest health projects on non-federal lands, would make the goal of a feasible biomass energy facility in Eastern Oregon much more achievable.