# *State and Private Forestry*
# *FY 2010 Western Competitive Resource Allocation*
# *Multi-State Project Proposal*

| Filename | |
|---|---|
| Wood Energy - Multi State - 9 24 2k9 | |
| **Administration Information** | |
| Dollar Amount Requested: | **$299,590** |
| Matching Share: | **$301,739** |

| 1 | Lead Applicant Information | |
|---|---|---|
| | **State Forestry Agency:** | Kansas Forest Service |
| | **Contact Person:** | Larry Biles |
| | **Address:** | 2610 Claflin Road |
| | **City/State/Zip Code:** | Manhattan, KS 66502 |
| | **Phone (Work/Cell):** | 785-532-3309 |
| | **Email:** | lbiles@ksu.edu |
| | **Fax:** | 785-532-3305 |

| 2 | Lead Applicant - Project Information | | | |
|---|---|---|---|---|
| | **Descriptive Title of Project:** | Ecological Restoration of Forest & Range via Wood Energy Business Development | | |
| | **Names of Partnering Agencies / Organizations:** | KS Department of Commerce, KS Department of Energy, KS Small Business Development Center, KS State Energy Office, KS Dept. of Agriculture, KS Water Authority, KS State University, and USDA Rural Development | | |
| | **State(s):** | KS | **Congressional Districts:** | 1 - 4 |
| | **Counties:** | All | **Forest Service Regions:** | 2 |

| 3 | Lead Applicant – Total Leverage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Please specify each 3rd party contributor (partnering organizations and agencies, including other Federal) and the dollar value of each contribution. Please DO NOT show grant requested funds in this table.** | | | | | | | |
| | **Contributors: (Please specify by name)** | KS SMALL BUSINESS ADMIN. | KS DEPT OF COMMERCE | KS COMMUNITIES | | | | **TOTAL** |
| | **Value of Contributions:** | $6,000 | $10,400 | $102,940 | $0 | $0 | $0 | **$119,340** |

| 4 | Lead Applicant – Project Budget | | | | |
|---|---|---|---|---|---|
| | | **Grant Share ($ requested)** | **Applicant** | **Non-Federal Contributors** | **TOTAL** |
| | | | **Cash[1]** | **In-Kind[2]** | |
| | **Personnel / Labor:** | $120,000 | $0 | $7,800 | **$127,800** |
| | **Fringe Benefits:** | $36,000 | $0 | $2600 | **$38,600** |
| | **Travel:** | $18,000 | $0 | $0 | **$18,000** |
| | **Equipment:** | $9,000 | $0 | $0 | **$9,000** |
| | **Supplies:** | $6,000 | $0 | $0 | **$6,000** |
| | **Contractual:** | $0 | $0 | $0 | **$ 0** |
| | **Construction:** | $0 | $0 | $0 | **$ 0** |
| | **Other:** | $15,000 | $0 | $108,940 | **$123,940** |
| | **Indirect Costs:** | $0 | $84,660 | $0 | **$84,660** |
| | **TOTAL:** | **$204,000** | **$84,660** | **$119,340** | **$408,000** |

| 5 | Project Duration |
|---|---|
| | **What is the duration of this project?** ☐ **One Year** ☐ **Two Years** ☒ **Three Years** |

| 6 | National Relevance |
|---|---|
| | **Conserve Working Forest Landscapes** ☒ **Protect Forests From Harm** ☒ |
| | **Enhance Public Benefits From Trees and Forests** ☒ |

[1] 'Cash' is the value of *any qualifying match* the applicant pays for such as cash, staff time, supplies, or equipment.
[2] 'In-Kind' is the value of *any qualifying match* contributed by a nonfederal 3rd party contributor such as donated time, supplies, or equipment.

| 1.1 | Co - Applicant Information | |
|---|---|---|
| | **State ForestryAgency:** | Nebraska Forest Service |
| | **Contact Person:** | Dr. Scott Josiah |
| | **Address:** | Nebraska Forest Service, Room 103 Plant Industry Bldg. |
| | **City/Zip Code:** | Lincoln, NE 68583-0815 |
| | **Phone (Work/Cell):** | 402-472-2944 |
| | **Email:** | sjosiah2@unl.edu |
| | **Fax:** | 402-472-2964 |

| 2.1 | Co - Applicant Project Information | | | |
|---|---|---|---|---|
| | **Title of Project:** | Ecological Restoration of Forest and Range via Wood Energy Business Development | | |
| | **Partnering Agencies / Organizations:** | NE Energy Office, Resource Conservation & Development Districts, NRDs, NE Dept. of Agriculture, NE Game & Parks Commission, NRCS, FSA, NE Dept. of Natural Resources, Small Business Development Center, USDA-Rural Development, conservation groups (e.g. Pheasants Forever, Quails Forever), NE Dept. of Health | | |
| | **State(s):** | NE | **Congressional Districts:** | 1,2 & 3 |
| | **Counties:** | statewide | **Forest Service Regions:** | 2 |

| 3.1 | Co-Applicant – Total Leverage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **3rd Party Contributors: (Specify by name)** | USFS | NRCS | NRDS | NDNR | POTENTIAL BIOMASS FACILITIES | | **TOTAL** |
| | **Value of Contributions:** | $4,000 | $15,000 | $11,320 | $5,000 | $50,000 | $0 | **$85,320** |

| 4.1 | Co-Applicant – Project Budget | | | | |
|---|---|---|---|---|---|
| | | **Grant Share ($ requested)** | **Applicant** | **3rd Party Contributors** | **TOTAL** |
| | | | **Cash** | **In-Kind** | |
| | **Personnel / Labor:** | $37,000 | $7,000 | $0 | **$44,000** |
| | **Fringe Benefits:** | $2,590 | $2,030 | $0 | **$4,620** |
| | **Travel:** | $4,000 | $0 | $0 | **$4,000** |
| | **Equipment:** | $0 | $0 | $0 | **$ 0** |
| | **Supplies:** | $2,000 | $0 | $0 | **$2,000** |
| | **Contractual:** | $50,000 | $0 | $50,000 | **$100,000** |
| | **Construction:** | $0 | $0 | $0 | **$ 0** |
| | **Other:** | $0 | $0 | $0 | **$ 0** |
| | **Indirect Costs:** | $0 | $38,709 | $0 | **$38,709** |
| | **TOTAL:** | **$95,590** | **$47,739** | **$50,000** | **$193,329** |

| 1.2 | Co - Applicant Information | |
|---|---|---|
| | **State ForestryAgency:** | |
| | **Contact Person:** | |
| | **Address:** | |
| | **City/Zip Code:** | |
| | **Phone (Work/Cell):** | |
| | **Email:** | |
| | **Fax:** | |

| 2.2 | Co - Applicant Project Information | | | |
|---|---|---|---|---|
| | **Title of Project:** | | | |
| | **Partnering Agencies / Organizations:** | | | |
| | **State(s):** | | **Congressional Districts:** | |
| | **Counties:** | | **Forest Service Regions:** | |

| 3.2 | Co-Applicant – Total Leverage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **3rd Party Contributors: (Specify by name)** | | | | | | | **TOTAL** |
| | **Value of Contributions:** | $0 | $0 | $0 | $0 | $0 | $0 | **$ 0** |

| 4.2 | Co-Applicant – Project Budget | | | | |
|---|---|---|---|---|---|
| | | **Grant Share ($ requested)** | **Applicant** | **3rd Party Contributors** | **TOTAL** |
| | | | **Cash** | **In-Kind** | |
| | **Personnel / Labor:** | $0 | $0 | $0 | **$ 0** |
| | **Fringe Benefits:** | $0 | $0 | $0 | **$ 0** |
| | **Travel:** | $0 | $0 | $0 | **$ 0** |
| | **Equipment:** | $0 | $0 | $0 | **$ 0** |
| | **Supplies:** | $0 | $0 | $0 | **$ 0** |
| | **Contractual:** | $0 | $0 | $0 | **$ 0** |
| | **Construction:** | $0 | $0 | $0 | **$ 0** |
| | **Other:** | $0 | $0 | $0 | **$ 0** |
| | **Indirect Costs:** | $0 | $0 | $0 | **$ 0** |
| | **TOTAL:** | **$ 0** | **$ 0** | **$ 0** | **$ 0** |

| 1.3 | Co - Applicant Information | |
|---|---|---|
| | **State ForestryAgency:** | |
| | **Contact Person:** | |
| | **Address:** | |
| | **City/Zip Code:** | |
| | **Phone (Work/Cell):** | |
| | **Email:** | |
| | **Fax:** | |

| 2.3 | Co - Applicant Project Information | | | |
|---|---|---|---|---|
| | **Title of Project:** | | | |
| | **Partnering Agencies / Organizations:** | | | |
| | **State(s):** | | **Congressional Districts:** | |
| | **Counties:** | | **Forest Service Regions:** | |

| 3.3 | Co-Applicant – Total Leverage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **3rd Party Contributors: (Specify by name)** | | | | | | | **TOTAL** |
| | **Value of Contributions:** | $0 | $0 | $0 | $0 | $0 | $0 | **$ 0** |

| 4.3 | Co-Applicant – Project Budget | | | | |
|---|---|---|---|---|---|
| | | **Grant Share ($ requested)** | **Applicant** | **3rd Party Contributors** | **TOTAL** |
| | | | **Cash** | **In-Kind** | |
| | **Personnel / Labor:** | $0 | $0 | $0 | **$ 0** |
| | **Fringe Benefits:** | $0 | $0 | $0 | **$ 0** |
| | **Travel:** | $0 | $0 | $0 | **$ 0** |
| | **Equipment:** | $0 | $0 | $0 | **$ 0** |
| | **Supplies:** | $0 | $0 | $0 | **$ 0** |
| | **Contractual:** | $0 | $0 | $0 | **$ 0** |
| | **Construction:** | $0 | $0 | $0 | **$ 0** |
| | **Other:** | $0 | $0 | $0 | **$ 0** |
| | **Indirect Costs:** | $0 | $0 | $0 | **$ 0** |
| | **TOTAL:** | **$ 0** | **$ 0** | **$ 0** | **$ 0** |

| 1.4 | Co - Applicant Information | |
|---|---|---|
| | **State ForestryAgency:** | |
| | **Contact Person:** | |
| | **Address:** | |
| | **City/Zip Code:** | |
| | **Phone (Work/Cell):** | |
| | **Email:** | |
| | **Fax:** | |

| 2.4 | Co - Applicant Project Information | | | |
|---|---|---|---|---|
| | **Title of Project:** | | | |
| | **Partnering Agencies / Organizations:** | | | |
| | **State(s):** | | **Congressional Districts:** | |
| | **Counties:** | | **Forest Service Regions:** | |

| 3.4 | Co-Applicant – Total Leverage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **3rd Party Contributors: (Specify by name)** | | | | | | | **TOTAL** |
| | **Value of Contributions:** | $0 | $0 | $0 | $0 | $0 | $0 | **$ 0** |

| 4.4 | Co-Applicant – Project Budget | | | | |
|---|---|---|---|---|---|
| | | **Grant Share ($ requested)** | **Applicant** | **3rd Party Contributors** | **TOTAL** |
| | | | **Cash** | **In-Kind** | |
| | **Personnel / Labor:** | $0 | $0 | $0 | **$ 0** |
| | **Fringe Benefits:** | $0 | $0 | $0 | **$ 0** |
| | **Travel:** | $0 | $0 | $0 | **$ 0** |
| | **Equipment:** | $0 | $0 | $0 | **$ 0** |
| | **Supplies:** | $0 | $0 | $0 | **$ 0** |
| | **Contractual:** | $0 | $0 | $0 | **$ 0** |
| | **Construction:** | $0 | $0 | $0 | **$ 0** |
| | **Other:** | $0 | $0 | $0 | **$ 0** |
| | **Indirect Costs:** | $0 | $0 | $0 | **$ 0** |
| | **TOTAL:** | **$ 0** | **$ 0** | **$ 0** | **$ 0** |

| 1.5 | Co - Applicant Information | |
|---|---|---|
| | **State ForestryAgency:** | |
| | **Contact Person:** | |
| | **Address:** | |
| | **City/Zip Code:** | |
| | **Phone (Work/Cell):** | |
| | **Email:** | |
| | **Fax:** | |

| 2.5 | Co - Applicant Project Information | | | |
|---|---|---|---|---|
| | **Title of Project:** | | | |
| | **Partnering Agencies / Organizations:** | | | |
| | **State(s):** | | **Congressional Districts:** | |
| | **Counties:** | | **Forest Service Regions:** | |

| 3.5 | Co-Applicant – Total Leverage | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **3rd Party Contributors: (Specify by name)** | | | | | | | **TOTAL** |
| | **Value of Contributions:** | $0 | $0 | $0 | $0 | $0 | $0 | **$ 0** |

| 4.5 | Co-Applicant – Project Budget | | | | |
|---|---|---|---|---|---|
| | | **Grant Share ($ requested)** | **Applicant** | **3rd Party Contributors** | **TOTAL** |
| | | | **Cash** | **In-Kind** | |
| | **Personnel / Labor:** | $0 | $0 | $0 | **$ 0** |
| | **Fringe Benefits:** | $0 | $0 | $0 | **$ 0** |
| | **Travel:** | $0 | $0 | $0 | **$ 0** |
| | **Equipment:** | $0 | $0 | $0 | **$ 0** |
| | **Supplies:** | $0 | $0 | $0 | **$ 0** |
| | **Contractual:** | $0 | $0 | $0 | **$ 0** |
| | **Construction:** | $0 | $0 | $0 | **$ 0** |
| | **Other:** | $0 | $0 | $0 | **$ 0** |
| | **Indirect Costs:** | $0 | $0 | $0 | **$ 0** |
| | **TOTAL:** | **$ 0** | **$ 0** | **$ 0** | **$ 0** |

## Project Description

Maximum 10,000 Characters Including Spaces – Clearly summarize the proposed project, including goals, objectives, measurable outputs, outcomes, and how grant funds will be used towards successful completion of the project. – Please specify the components of the project that will occur in each state.

7

Rationale

This project will accelerate the utilization of woody biomass, substantially leverage private sector funds and generate long-term environmental, social and economic benefits across 2 states. It directly addresses both Conserving Working Forest Landscapes and Enhancing Public Benefits From Trees and Forests, as well as priorities laid out by the Secretary of Agriculture and Forest Service Chief, including restoring forest lands at a landscape level, revitalizing rural economies and protecting water quality.

Recently revised state energy plans for KS/NE specifically target developing woody biomass as a renewable energy source. KS/NE have more than 4 MM acres of urban and rural forests that have 100 MM standing dry tons of woody biomass and sustainably grow an additional 2.3 MM tons of biomass annually. Urban tree removals and wood processor waste generate 380,000 tons/year. Tens of thousands of additional tons are generated annually from fuels treatment and invasive woody species removal operations.

KS/NE also are facing a "perfect storm" of highly destructive invasive insects and diseases that could kill tens of millions of trees and generate huge amounts of additional biomass. More than 80 MM ash trees (7 MM tons of biomass) in KS/NE may die from emerald ash borer (EAB), now found in WI and MO. The emergence of the highly virulent and uniformly fatal 1,000 cankers disease is wiping out walnut trees as close as CO's Front Range and threatens millions of walnut trees (another 1.5 MM tons of biomass) in KS/NE. At least 300,000 acres of ponderosa pine forests in NE are now at high risk of mountain pine beetle (MPB) attack, discovered for the first time in Nebraska this past spring, and now spreading rapidly across western NE. Dead and dying pines and forest health thinning operations will generate large amounts of biomass. Finally, more than 1 MM acres of dense coniferous forest (pine and cedar) and cedar-dominated grasslands across both states are at high risk of catastrophic wildfire and could produce many thousands of tons of additional biomass.

Clearly, there is an ample, sustainable supply of renewable woody biomass in KS/NE, as well as a near certainty of enormous additional quantities due to invasives and fire. Yet markets for this wood are almost completely undeveloped, with less than 100,000 tons/year now being used. The other 2.2 MM tons/year is landfilled, piled and/or burned (creating waste management, air and water quality, human health and wildfire issues), or left to clog forests and grasslands with low quality and/or highly flammable trees.

Woody biomass utilization is clearly an innovative "keystone" solution to a range of environmental problems. With markets, trees that once were problems or waste products become a resource. Developing long-term markets for woody biomass will create powerful financial incentives to landowners and entreprenuers for removing excess trees from grasslands and forests, restoring ecological systems to improved health, stability, resiliancy and productivity, and stimulating rural economies over the long term. Indeed, we have an unparalled opportunity to develop and use this huge, renewable, increasingly valuable and environmentally friendly resource, as well as proactively create markets for biomass likely to be generated by the onslaught of invasives.

For example, converting 1 boiler to woody biomass creates at least a 30-year market for wood, creating opportunities for forest and rangeland improvement, invasive species removals and reducing wildfire risk. A facility burning 5,000 tons/year will restore 30,000 acres of grassland habitat or 12,000 acres of forest over the 30-year life of the boilers. The delivered chip value alone is at least $6 million over 30 years, without multipliers. The amount of new carbon released into the atmosphere each year would be reduced by 96,000 tons over 30 years. A network of 10 such facilities across both states operating for 30 years will improve at least 300,000 acres of grassland or 120,000 acres of forest and reduce carbon emissions by 960,000 tons, yet only use a fraction of available biomass.

Surveys and other reliable reports reveal that KS/NE could support at least 50 small- to-medium scale woody biomass users. The resulting markets would create approximately 100 year-round jobs in harvesting, processing and transport, most located in struggling rural areas. Additional job opportunities involve the construction of manufacturing, processing and utilization facilities, their maintenance and support, and associated economic multipliers.

We have an unparalled opportunity to develop and use this huge, renewable, increasingly valuable and environmentally friendly resource, as well as proactively create markets for biomass generated by the onslaught of these invasives. Developing long-term markets for woody biomass will create powerful financial incentives to landowners and entreprenuers for removing excess trees from grasslands and forests, restoring these ecological systems to improved health, resiliancy and productivity.

Nearly a decade of experience promoting woody biomass utilization in NE/KS reveals formidable financial and perceptual barriers to its adoption. While several facilities in NE have successfully used wood for thermal applications for nearly 20 years (Chadron State College, Lied Lodge in Nebraska City and 8 alfalfa pellet plants) many in our region are still unaware of the environmental and economic benefits of woody biomass energy, or of the sustainable quantities of wood available to support long-term biomass use. Sustained and intensive educational and facilitation efforts are critically needed to sucessfully develop new markets for woody biomass. Despite the enormous opportunities, woody biomass adoption in both states has been severely limited by a critical lack of personnel and the technical and financial resources that would provide intensive support to partners. This proposed project addresses this gap by focusing S&PF and institutional resources to significantly increase the long-term use of woody biomass.

Goals, Objectives, and Outputs:
The goal of this intensive project is to substantially accelerate large-scale environmental, economic and social improvements in critical landscapes across 2 states by increasing the use of woody biomass. Measurable objectives (and related outputs) are to:

- improve the health, resilience, sustainability and productivity of 120,000 forested acres or 300,000 grassland acres in critical landscapes over 30 years;
- significantly increase the local use of woody biomass by facilitating the conversion of 10 facilities to woody biomass during the project period;
- reduce or offset the costs for removing invasive woody species, and forest fuel reduction;
- efficiently use large quantities of waste wood and reduce landfilling, open burning and emissions;
- offset fossil fuel use and reduce net atmospheric contributions of new carbon by 960,000 tons over 30 years; and
- develop 10 new woody biomass-based businesses.

Outcomes
This project powerfully leverages the initial USFS investment, generating a stream of environmental, economic and social benefits in critical landscapes over 30 years. Outcomes include more extensive fuels reduction/forest health improvement operations, better management of destructive invasives, reduced risk of catastrophic wildfire, cleaner air and water, less wood waste, increased acreages of high-quality habitat and improved ecological health, reduced energy costs, and more vibrant local economies.

Project Design/Use of Grant Funds

- KFS will hire a woody biomass specialist to develop and implement a regional biomass development program and foster nontraditional partnerships that increase the use of biomass.
- Utilize existing and conduct new geospatial woody biomass inventories and analyses, wood waste analyses, and Forest Resource Assessments to strategically target specific facilities (e.g., college and school campuses, hospitals and mental health facilities, correctional institutions. large warehouses, pellet manufacturers, and alfalfa dehydration plants) to locate woody biomass users in critical landscapes that maximize improvements to forest and grassland ecosystems and stimulate rural economic growth and vitality.
- Cost-share (50% S&PF/50% facility) engineering feasibility studies to determine the technical and

economic viability of targeted facility conversion to woody biomass. Feasibility studies are an essential first step in converting any facility to woody biomass.

- Assist facilities with positive feasibility studies in securing capital for conversion and initial startup as well as biomass suppliers.
- Determine the potential supply of woody biomass locally and sustainably available to potential biomass users by utilizing a combination of geospatial data with 1-meter resolution imagery, advanced image-recognition software (Definiens) and LiDAR (Light Detection and Ranging), and on-the-ground inventories by summer inventory crews.

Evaluation

We will establish a set of intermediate milestones by which the project can conduct process evaluations, track its progress and make mid-course corrections to quickly change procedures and strategies necessary to achieve project objectives across both states. Outcome evaluations will be conducted to determine the overall success of the project, as defined by having met all objectives, as well as documenting the achieved and projected impacts of the project. Evaluation metrics include 1) the number of institutions converted or in the process of converting to woody biomass; 2) current and projected impacts on local native ecosystem health and productivity; 3) number of acres of forests and grasslands restored by removing woody biomass; 4) number of tons of woody biomass utilized; and 5) local economic impacts (e.g., number of businesses and jobs created, tax revenues, etc.).

| | Program Integration |
|---|---|
| 8 | Maximum 1250 Characters Including Spaces<br>Fostering greater use of woody biomass inherently demands an integrated, multidisciplinary, multisectoral approach. This project will involve the close cooperation and day-to-day coordination between 2 state forestry agencies, as well as the blending of forest stewardship and urban and community forestry programs on the supply side and marketing and utilization on the demand side. We also will work closely with wildland fire and forest health personnel to strategically target the locations of biomass facilities, fuels reduction and forest health improvement work. Using a strategic geospatial approach will specifically benefit critical forested landscapes through reduced fuel loads and pest mitigation, and generate a sustained local supply of woody biomass. |

| | Collaboration |
|---|---|
| 9 | Maximum 1250 Characters Including Spaces<br>Because of the integrated nature of woody biomass, numerous federal, state and local agencies, businesses, non-profits and private landowners in both states will also be involved in the initial conversion of facilities, and in supplying woody biomass, including the Departments of Commerce, state energy offices, Departments of Health and Environment, Departments of Agriculture, state water offices, game and parks agencies, Small Business Development Centers, USDA - Rural Development, engineering firms, RC&Ds, conservation districts, Pheasants and Quails Forever, etc. State Energy Offices promote energy conservation and efficiency and provide information on alternative energy. State Departments of Health and Environment conduct regulatory programs involving permitting, emissions monitoring, etc. The Departments of Agriculture monitor and implement mitigation programs for invasive species. Other agencies and possibly private sector companies will provide financial support for conversion (USDA Rural Development, Business Development Centers etc.) and for biomass business development. Finally, a host of other organizations will provide geospatial imagery and input on siting biomass plants and prioritizing harvest locations. |

| | Leverage |
|---|---|
| 10 | Maximum 1250 Characters Including Spaces<br>The collaborating partners will offer in-kind labor and donated professional and staff time to this project, as well as media exposure, legislative contacts and professional expertise. The partners will assist the state forestry staffs with business development of the wood energy industry, promotion of woody biomass products and long-term sustainability planning. The Kansas Small Business Development Center network will provide $6,000 of in-kind support by providing direct counseling services at no charge, training to established firms and start-up enterprises, and assistance in promoting woody biomass. The Kansas Department of Commerce will provide $8,000 of in-kind support in staff time for business recruitment and development and will partner with other state agenices to create a Woody Biomass Working Group. This multi-agency committee will review potential projects and assist in identifying additional funding streams, providing in-kind support of $2,400. The NRCS, NRDs, NDNR and FSA in Nebraska will provide geospatial imagery (2009 at 1 meter) and LIDAR to support biomass supply inventory and analysis, obtained at considerable cost by this consortium of agencies. |

| | Meaningful Scale |
|---|---|
| 11 | Maximum 1250 Characters Including Spaces<br>There are enormous opportunities to expand the use of woody biomass in KS/NE. This project will work to accelerate the use of woody biomass in specific areas identified as critical landscapes with an available supply of woody biomass causing environmental problems (excessive fuel loads, high mortality from invasives, existing invasion of woody invasives, etc.) matched with a potential user or users of the biomass. This very deliberate approach of linking supply to demand, set in the context of solving environmental and economic problems, will help narrow the project to a scale that is doable and will enable us to achieve the goals we have set to restore impaired ecosystems across critical landscapes and stimulate rural economies. Working across 2 states will be a challenge that we believe is very achievable, especially given the finely tuned project focus and the close relationship our agencies and staffs have already forged in other joint projects. |

| | Sphere of Influence |
|---|---|
| 12 | Maximum 1250 Characters Including Spaces<br>This project will "jump start" a rapid expansion in the number of facilities, replicating the concept in areas that maximize both the economic and environmental benefits and impacts. A "critical mass" of widely distributed highly visible woody biomass facilities initiated by this project will demonstrate the viability of woody biomass as a sustainable, renewable, environmentally-friendly and cheaper energy source, fostering the spontaneous and continued spread of this concept across both public and private sectors for many years. Multiple facilities utilizing woody biomass across 2 states perceived by most as being treeless prairie will be a powerful example of the possibilities generated by woody biomass to other states with more extensive forest resources. There is no better way to foster rapid spread of a technology such as biomass energy than by having successful, profitable, independently-run biomass-based facilities than through the use of biomass to solve common, but difficult and expensive, environmental problems plaguing many states.<br><br>All methods for achieving grant outcomes will be shared with other interested states. |

| | Sustainability of Outcomes |
|---|---|
| 13 | Maximum 1250 Characters Including Spaces<br>This innovative project will foster locally-based wood energy enterprises, including the institutional conversion of boilers from fossil fuel units to woody biomass units, and the creation of woody biomass businesses, such as pellet mills. With established markets and increased private sector capacity to harvest, process and transport woody biomass products, it will become feasible to thin larger areas of overstocked forests as well as those forests with a high percentage of cull or low-quality trees. This process will, in turn, lead to substantially improved forest health, productivity and value, reduced risk of catastrophic wildfire, preserved water quality , and greater resilience to insect, disease and invasive pests. Each boiler conversion to woody biomass creates at least a 30-year market for wood. This market will encourage entrepreneurs to make the necessary capital investments in woody biomass harvesting and processing capacity. Moreover, a wood energy industry will inspire private forest landowners to develop interest and subsequently increase conventional forest management activities. |