

## Strategy Report 3.4: Emerging Markets for Forest and Rangelands Products and Services

*Assessments should identify forest landscape areas where there is a real, near term potential to access and supply traditional, non-timber, or emerging markets such as those for biomass or ecosystem services. These might be areas where necessary infrastructure currently exists, is planned or developing, where group certification of landowners has created market supply aggregation potential, or where retention and management of forest cover presents a money saving alternative to an engineered fix – such as a water filtration facility. Strengthening and developing new market opportunities for forest products and benefits provide incentives for forest stewardship and conservation (excerpted from the [US Forest Service State and Private Forestry Farm Bill Requirement and Redesign Strategies](#)).*

**GOALS:** The goals of these strategies are to facilitate the sustainable development of a biomass industry and to develop carbon and other ecosystem service markets as a way to achieve hazard reduction, improved ecosystem health and services, and lowered greenhouse gas emissions in California.

**National Goals Supported:** Enhance Public Benefits from Trees and Forests, Conserve Working Forest Lands, protect Forests from Harm

**Montreal Process/BOF Policy Goal Supported:**

MPC-6: Maintenance and Enhancement of Long-Term Multiple Socio-economic Benefits to Meet the Needs of Societies

MPC-2: Maintenance of Productive Capacity of Forest Ecosystems

MPC-3: Maintenance of Forest Ecosystem Health and Vitality

MPC-5: Maintenance of Forest Contribution to Global Carbon Cycles

**State Assessment Theme:** Emerging Markets for Forest and Rangeland Products and Services.

### Defined Landscape Areas

**Priority Landscapes:**

Primary – Biomass potential for ecosystem health, biomass potential for community safety.

Secondary – Wildfire threat to ecosystem health, restoring wildfire impacted areas, forest pest threat to ecosystem health, restoring forest pest impacted areas, wildfire threat to community safety, forest pest threat to community safety, restoring forest pest impacted communities, sustainable working landscapes.

**Priority Areas:**

All bioregions except the Mojave and Colorado Desert. The Sacramento and San Joaquin Valley bioregions are lower priority than the more heavily forested bioregions.

## Strategies Overview

### Purpose of Strategies

Biomass energy is an underutilized resource and an expanded biomass energy industry would provide numerous public benefits including facilitating treatments to reduce wildfire and forest pest threat, restore areas impacted by wildfire and forest pests, and improve productivity of forestlands to sustain working landscapes. Biomass energy is also an important component for meeting the Renewable Portfolio Standard and reducing greenhouse gas emissions.

Ecosystem service markets are emerging in a number of areas including carbon, water, and habitat. Development of these markets provides a means to accomplish both societal and landowner objectives with efficient allocation of resources.

### Statement of Need

Biomass energy provides at least a partial economic compensation for treatments that reduce wildfire or forest pest threat, or restore areas impacted by previous events. This is contingent on a biomass facility being within a reasonable distance such that the economic returns are not consumed by transportation costs. Currently, a majority of priority landscapes and priority communities for threat reduction and restoration are too far from existing biomass facilities to make biomass removal a viable option.

Sustainable supply, access to markets and technology, as well as additional research, education and policies will be needed to guide development of the emerging biomass industry in California.

Carbon is the most developed ecosystem market and it is still in an early stage. A number of carbon registries and protocols have developed for the voluntary market, but California still lacks a mandatory compliance market where forest and range may participate. Voluntary carbon markets in California for forestry offsets thus far have used the Climate Action Reserve (CAR) forestry protocols, forest management project type. Compliance markets that use sequestration as an offset are in various stages of development at the local, state, regional, national and international levels. Additional experience with other project types such as avoided conversion, reforestation and urban forestry are needed. Soil sequestration and fuels reduction protocols may also be useful.

Other ecosystem services besides carbon can be market driven, such as water quality. Power producers have long recognized that energy conservation is much less costly than new plants. The same logic applies to water management versus costly new treatment options. For example, New York City spends billions of dollars on watershed improvement programs to avoid costly infrastructure improvements. Also, increased private market prices for water quality could encourage landowners to supply more of these public benefits.

Current market conditions offer virtually no incentives to land owners to adopt biodiversity and conservation related ecosystem services. Conservation benefits society

as a whole, but will not be adopted by landowners unless these markets are sufficiently high to make ecosystem services provisions financially competitive. Examples of conservation practices that benefit ecosystem services where private costs exceed private benefits include enhancing wildlife habitat and species conservation, maintaining or improving aesthetics and riparian habitat, forest and range land restoration, including oak woodland re-establishment and afforestation. Conservation banking and green tourism are examples of ecosystem services that have existing markets, but have room for growth. Both payment programs and markets for conservation practices that enhance ecosystem services are needed to achieve forest and range land conservation and the preservation of habitat to increase the flow of ecosystem services.

### Cross-Cutting Issues

Priority landscapes identify areas for expanding the current biomass industry or maintaining current facilities. This includes all bioregions with areas of high wildfire or forest pest threat as well as areas already impacted. Carbon production depends on healthy forests for long-term production. There are a number of cross-cutting issues that include:

- Wildfire and Forest Pests Threats to Ecosystem Health – Forest management activities that improve stand health and increases tree growth also promotes wood fiber production and increases wood product flow for biomass facilities.
- Wildfire and Forest Pests Threats to Community Safety – Removal of dead, dying and diseased trees and thinning operations to address forest pests and to improve wildfire protection can also generate additional biomass.
- Sustainable Working Forests – The development of biomass and carbon markets could enhance long-term socio-economic benefits from working forests.
- Urban Forests – Maintenance of urban forests improves urban forest health and sustainability while simultaneously providing potential biomass feedstock to emerging markets.

### Existing Supporting Plans and Programs

Supporting plans include:

- *A Preliminary Roadmap for the Future Development of Biomass in California* (CEC, 2006), California Fire Plan – California's strategic plan for reducing wildfire threats, National Fire Plan
- Executive Order S-06-06 (2006): Established a biomass target of 20 percent within the established RPS goals for 2010 and 2020.
- Executive Order S-14-08 (2008): Established accelerated RPS targets (33 percent by 2020) as recommended in the Energy Action Plan II. The order also called for the formation of the Renewable Energy Action Team, comprised of the Energy Commission, Department of Fish and Game, Bureau of Land Management, and U.S. Fish and Wildlife Service. Through the team, the Energy Commission and the Department of Fish and Game are to prepare a plan for renewable development in sensitive desert habitat.
- Executive Order S-21-09 (2009): establishes a target that all retail sellers of electricity shall serve 33 percent of their load with renewable energy by 2020

- and directs the ARB to work with the CPUC, the California ISO, and the Energy Commission to adopt regulations by July 31, 2010.
- Global Warming Solutions Act of 2006, Scoping Plan, which identifies five strategies for forest carbon management and includes forest carbon as an offset under a cap-and-trade program; managed by California Air Resources Board.

Existing programs that support the emerging markets strategies include:

- The Sustainable Agriculture Research and Education Program(SAREP) provides leadership and support for scientific research and education in agricultural and food systems that are economically viable, conserve natural resources and biodiversity, and enhance the quality of life in the state's communities.
- California Forest Practices Rules – provides rules and procedures to avoid or lessen adverse effects on the environment from timber harvesting on local, state and privately owned timberlands.
- CAL FIRE Pest Management Program - forest pest specialists help protect the state's forest resources from native and introduced pests, conduct surveys and provide technical assistance to private forest landowners and promote forest health on all forest lands throughout the state
- California Forest Improvement Program (CFIP) – improve productivity of non-industrial private timberlands and includes the improvement of other forest resources, including fish and wildlife habitat, soil, and water quality.
- California Forest Stewardship Program – Designed to promote long-term stewardship of private forest lands.
- University of California Cooperative Extension (UCCE) – Serves forest and range land owners through outreach efforts and technical assistance.
- California Safe Harbor – Encourages land owners to conserve and manage land for endangered species and biodiversity conservation by removing the threat of financial penalties and violations.
- NRCS – Emergency Watershed Protection (EWP), Conservation Stewardship program (CSP), Environmental Quality Incentives Program (EQUIP), Wildlife Habitat Incentives Program (WHIP), Conservation Reserve Enhancement Program (CREP), Wetlands Reserve Program (WRP).
- Healthy Forests Restoration Act – To build-up the capacity to conduct hazardous fuels reduction projects on National Forest System lands and Bureau of Land Management lands aimed at protecting communities, watersheds, and certain other at-risk lands from catastrophic wildfire.
- Existing carbon protocols and registries - Climate Action Reserve (CAR), American Carbon Registry (ACR), Chicago Climate Exchange (CCX), Voluntary Carbon Standard (VCS), and others.
- Developing cap-and-trade systems that incorporate forest offsets: AB32 for California, Western Climate Initiative for regional program, and bills introduced in Congress.

### Current Constraints

Relative to fossil fuels, biomass energy provides a wide variety of public benefits for which biomass energy investors are not economically and equitably compensated. Under current economic and policy conditions it is very difficult for biomass energy to compete with fossil fuels (e.g. natural gas).

Markets require adequate supply and demand. They also require transparency as to the quality of the goods for sale. Participation in a new market carries risk for both the producer and consumer of new commodities.

### Key Stakeholders and Partners

California Energy Commission, California Biomass Collaborative, California Biomass Energy Alliance, California Air Resources Board, California Forestry Association (CFA), regional air quality districts, timber industry, landowners, local government and NGOs.

## **Strategies and Supporting Actions**

The overall biomass strategy presented here is to support implementation of the California Energy Commission's roadmap for future biomass development (<http://www.energy.ca.gov/2006publications/CEC-500-2006-095/CEC-500-2006-095-D.PDF>). The first five strategies identified roughly outline steps detailed by this report. Additional details on strategies and actions can be found in the complete report entitled "A preliminary Roadmap for the Development of Biomass in California" (Jenkins, 2006). A strategy for developing carbon markets and a strategy for developing other markets is presented.

### Strategy: 3.4.1. Facilitate development of sustainable biomass harvest practices to grow, collect and store forest, range and urban biomass resources and deliver it as feedstock to biomass markets.

Action A – Develop and apply best management practices for resource development, production, and extraction allowing both industry and state enforcement of standards. Where standards do not yet exist, new standards should be developed.

Action B – Determine the long-term biomass supply, if any, that is available from federal lands in or near to California. This will take collaborative processes, planning and long-term stewardship contracts/agreements (Heinz and Pinchot, 2010).

Action C – Establish a process for independent certification of sustainable practices.

Action D – Establish a biomass commodity market and commodity board or commission to facilitate biomass marketing, development of infrastructure, and coordination.

Action E – Develop production, collection, transportation, storage, and processing infrastructure.

Action F – Establish sustainable business certifications.

Action G – Credit sustainable suppliers of feedstock through tax incentives or subsidies in recognition of other costs avoided.

Action H – Provide initial state assistance in funding collection and processing efforts.

Action I – Provide access to extensive biomass resource and market information.

Strategy: 3.4.2. Facilitate the expansion of biomass markets through improved infrastructure (e.g., transmission lines), monetization of external benefits (e.g., hazard reduction), feedstock collection, and generation capacity.

Action A – Ensure adequate feedstock collection, separation, and harvesting equipment Infrastructure is available to all landowners.

Action B – Ensure adequate physical infrastructure is available, such as electricity transmission lines, interconnection, feedstock storage, transportation, and processing capacity.

Action C – Establish policies and enact necessary laws to monetize external benefits and stimulate needed investment through tax credits, price supports and loan guarantees, carbon markets, environmental credits, and other financial incentives.

Action D – Add new power generation capacity including distributed generation.

Action E – Encourage replacement of existing power facilities with more advanced systems such as biomass integrated combined cycles (BIGCC) and increasing use of combined heat and power (CHP) technologies.

Action F – Ensure that new and existing facilities utilize state of the science and technology to provide effective controls on smokestack emissions and other pollutants from biomass burning and conversion facilities.

Strategy: 3.4.3. Support and conduct biomass research and development including life cycle analysis, best management practices, monitoring and sustainability.

Action A – Conduct comprehensive life cycle assessments and health risk assessments systematically comparing waste and resource utilization alternatives.

Action B – Determine and maintain best management practices and conduct monitoring of environmental, health, and safety impacts from feedstock production, handling, processing, conversion, manufacturing, and utilization.

Action C – Conduct basic research to improve sustainability of biomass production systems, increase yields, reduce water and other agronomic inputs, increase resistance of biomass crops to disease and pests, and improve the conversion processes and product quality.

Action D – Conduct applied research and demonstrate commercial scale biomass conversion and biorefinery techniques.

Action E – Conduct market studies and other research to assess the effect of emerging carbon markets (LCFS and cap-and-trade) as drivers to utilize biomass for bioenergy/fuel production and the interplay between biomass, timber, and carbon markets and their impacts on supply and sustainability of forest and range land resources (including carbon sequestration) in California.

Action F – Develop or improve modeling, remote sensing, systems analyses, and systems optimization for land use monitoring, climate change impacts, economic impacts, feedstock production, acquisition logistics, and power plant siting and design.

Strategy: 3.4.4. Support education and training and the development of curricula to inform citizens, consumers, and decision makers and develop well trained biomass industry professionals in California.

Action A – Conduct outreach to local, state and federal government decision makers, schools, non-governmental organizations (NGOs), sustainability groups, and other public interest groups.

Action B – Provide outreach on biomass utilization and establish early dialog with affected communities where facilities are proposed to ensure environmental justice and direct public involvement, and to communicate the benefits of biomass to local communities.

Action C – Provide technical training by and for industry and expanding university curricula and programs to ensure the availability of adequate numbers of skilled professionals and technicians.

Action D – Augment existing cooperative extension programs to inform and educate farmers, producers, operators, investors, and others of results emerging from research and development efforts.

Strategy: 3.4.5. Address existing constraints and develop new policies, laws and regulations that promote and facilitate the expanded use of biomass while protecting the state's environment.

Action A – Align State and Federal energy and resource policies in the area of bioenergy so they compliment each other and enhance support for this emerging market, while maintaining and enhancing environmental and consumer protections.

Action B – Establish or augment financial incentives, including carbon markets, tax credits, production incentives, and access to capitol.

Action C – Revise waste management policies (e.g., alternative daily cover diversion credits), and practices.

Action D – Revise permitting requirements to enhance interagency communication and create a clear permitting pathway for applicants.

Action E – Establish new or invest in existing enterprise zones with responsibilities and opportunities to support biomass development including assistance identifying biomass power plant locations, local support, and environmental review.

Action F – Implement environmental justice review.

Action G – Enhance access to transmission lines, pipelines, and other infrastructure; and provide equitable policies for net metering, opening direct access, and other incentives intended to stimulate markets.

Strategy: 3.4.6. Support the development of voluntary and compliance carbon markets.

Action A – Encourage the use of registries to track both voluntary and compliance carbon credits. Use registry figures to track market progress.

Action B – Monitor the development of protocols related to forest and range lands to ensure quality and compatibility with laws and regulations.

Action C – Provide technical assistance to landowners, registries and buyers to encourage open and fair markets.

Action D – Facilitate landowner aggregation mechanisms to widen participation.

Action E – Promote funding mechanisms such as low interest loans for project development of high-yielding projects with co-benefits. Reforestation projects often fit this category.

Strategy: 3.4.7. Support the development of other emerging voluntary markets including water, habitat and green tourism.

Action A – Promote an understanding of the costs and benefits of watershed and other management.

Action B – Develop watershed approaches to permits and restoration activities that reward landowners for attaining socially desired future conditions.

Action C – Identify the need for government stimulus of registries, protocols or markets for non-carbon commodities.

Action D – Encourage trade credit systems for habitat provisions and pollution reductions.

Action E – Promote market incentives to encourage landowners to conserve forest and range working landscapes.

Action F – Promote local community and government efforts to acquire and manage additional open space and recreation lands.

Action G – Encourage relevant ecosystem services capabilities expansion on private land.

Action H – Focus on long-term plans and conservation easement conditions that clarify land tenure questions, are approved as alternatives under Forest Practice Rules and reduce compliance costs to landowners.

Action I – Examine use of systems of environmental management that depends on certified, insured and guaranteed operations rather than a permit with civil enforcement.

Strategy: 3.4.8. Support expansion of transmission infrastructure for emerging renewable energy generation from sources such as biomass, wind, hydro and solar in a way that minimizes environmental impact to forest and rangelands.

Action A – Avoid developing in areas that are environmentally sensitive or are prohibited from development by law or policy.

Action B – Support the findings and recommendations of the Renewable Energy Transmission Initiative (RETI) stakeholder steering committee to adopted energy policies that increases generation of electricity from renewable resources.

Action C – Support improvements needed for California's electric transmission infrastructure to get the electricity generated by new renewable power facilities to consumers with minimum impact to forest and rangelands.

Action D – Encourage a transparent, stakeholder based planning process that includes environmental organizations, regulatory and permitting agencies, major transmission providers and renewable energy generators.

Action E – Coordinate corridor designation in accordance with appropriate environmental protections by working with state and federal agencies, environmental groups, BLM Solar Energy Zones, Desert Renewable Energy Conservation Plan, NCCPs and Competitive Renewable Energy Zones (CREZ) defined by RETI.

## **Recommended Performance Measures**

*Note: Where appropriate, use one or more of the measures listed below to report on effectiveness. Extent of reporting is contingent on funding.*

- Numbers of operational biomass facilities that utilize forest biomass.
- Acres treated to protect from wildfire/forest pest threat or restore impacted areas.
- Percent of total electrical generation obtained from biomass energy.
- Green tons from small diameter and low value trees removed from NFS lands and made available for bio-energy production.
- Carbon tonnes traded annually in the voluntary and compliance markets.
- Annual revenues to forest and range landowners from ecosystem markets.
- Number of rural jobs created.

## Strategy Matrix

Strategy: 3.4.1. Facilitate development of sustainable biomass harvest practices to grow, collect and store forest and range biomass resources and deliver it as feedstock to biomass markets.

Long-term Strategy	Priority Landscape Area(s)	Secondary Issues Addressed	Existing Programs	Partners / Stakeholders	Resources Available	Measures of Success	National Objectives Supported
Facilitate development of sustainable biomass harvest practices to grow, collect and store forest and range biomass resources and deliver it as feedstock to biomass markets.	Primarily Klamath/North Coast, Modoc, and Sierra bioregions. Secondly Sacramento and San Joaquin.	Wildfire Threats  Forest Pest threats  Sustainable working landscapes  Rural economic development.	CFIP, CFSP, UCCD, CFLP, HFRA, NFP, EWP, CSP, EQUIP, WHIP	USDA-APHIS; State; USFS; CFA; CDFA; NGO's; landowners; Other Forest industry	Bond Funding; Grants; State and Federal Programs	Number of facilities; Acres of Forestland Restored; Reduced wildfire/pest damages; total energy produced	Protect Forests From Harm Primary: T2.2, Secondary: Enhance Benefits; T3.4, T3

Strategy: 3.4.2. Facilitate the expansion of biomass markets through improved infrastructure (e.g. transmission lines), monetization of external benefits (e.g. hazard reduction), feedstock collection, and generation capacity.

Long-term Strategy	Priority Landscape Area(s)	Secondary Issues Addressed	Existing Programs	Partners / Stakeholders	Resources Available	Measures of Success	National Objectives Supported
Facilitate the expansion of biomass markets through improved infrastructure, monetization of external benefits, feedstock collection, and generation capacity	Primarily Klamath/North Coast, Modoc, and Sierra bioregions. Secondly Sacramento and San Joaquin.	Wildfire Threats  Forest Pest threats  Sustainable working landscapes  Rural economic development.	CFIP, CFSP, UCCD, CFLP, HFRA, NFP, EWP, CSP, EQUIP, WHIP	USDA-APHIS; State; USFS; CFA; CDFA; NGO's; landowners; Other Forest industry	Bond Funding; Grants; State and Federal Programs	Number of facilities; Acres of Forestland Restored; Reduced wildfire/pest damages; total energy produced; rural jobs created	Protect Forests From Harm Primary: T2.2, Secondary: Enhance Benefits; T3.4, T3

Strategy: 3.4.3. Support and conduct biomass research and development including life cycle analysis, best management practices, monitoring and sustainability.

<b>Long-term Strategy</b>	<b>Priority Landscape Area(s)</b>	<b>Secondary Issues Addressed</b>	<b>Existing Programs</b>	<b>Partners / Stakeholders</b>	<b>Resources Available</b>	<b>Measures of Success</b>	<b>National Objectives Supported</b>
Support and conduct biomass research and development including life cycle analysis, best management practices, monitoring and sustainability	Primarily Klamath/North Coast, Modoc, and Sierra bioregions. Secondly Sacramento and San Joaquin.	Wildfire Threats  Forest Pest threats  Sustainable working landscapes  Rural economic development.	CFIP, CFSP, UCCD, CFLP, HFRA, NFP, EWP, CSP, EQUIP, WHIP	USDA-APHIS; State; USFS; CFA; CDFA; NGO's; landowners; Other Forest industry	Bond Funding; Grants; State and Federal Programs	Number of facilities; Acres of Forestland Restored; Reduced wildfire/pest damages; total energy produced; rural jobs created	Protect Forests From Harm Primary: T2.2, Secondary: Enhance Benefits; T3.4, T3

Strategy: 3.4.4. Support education and training and the development of curricula to inform citizens, consumers, and decision makers and develop well trained biomass industry professionals in California.

<b>Long-term Strategy</b>	<b>Priority Landscape Area(s)</b>	<b>Secondary Issues Addressed</b>	<b>Existing Programs</b>	<b>Partners / Stakeholders</b>	<b>Resources Available</b>	<b>Measures of Success</b>	<b>National Objectives Supported</b>
Support education and training and the development of curricula to inform citizens, consumers, and decision makers and develop well trained biomass industry professionals in California	Primarily Klamath/North Coast, Modoc, and Sierra bioregions. Secondly Sacramento and San Joaquin.	Wildfire Threats  Forest Pest threats  Sustainable working landscapes  Rural economic development.	CFIP, CFSP, UCCD, CFLP, HFRA, NFP, EWP, CSP, EQUIP, WHIP	USDA-APHIS; State; USFS; CFA; CDFA; NGO's; landowners; Other Forest industry	Bond Funding; Grants; State and Federal Programs	Number of facilities; Acres of Forestland Restored; Reduced wildfire/pest damages; total energy produced; rural jobs created	Protect Forests From Harm Primary: T2.2, Secondary: Enhance Benefits; T3.4, T3

Strategy: 3.4.5. Address existing constraints and develop new policies, laws and regulations that promote and facilitate the expanded use of biomass while protecting the state’s environment.

<b>Long-term Strategy</b>	<b>Priority Landscape Area(s)</b>	<b>Secondary Issues Addressed</b>	<b>Existing Programs</b>	<b>Partners / Stakeholders</b>	<b>Resources Available</b>	<b>Measures of Success</b>	<b>National Objectives Supported</b>
Address existing constraints and develop new policies, laws and regulations that promote and facilitate the expanded use of biomass while protecting the state’s environment	Primarily Klamath/North Coast, Modoc, and Sierra bioregions. Secondary Sacramento and San Joaquin.	Wildfire Threats  Forest Pest threats  Sustainable working landscapes  Rural economic development.	CFIP, CFSP, UCCD, CFLP, HFRA, NFP, EWP, CSP, EQUIP, WHIP	USDA-APHIS; State; USFS; CFA; CDFA; NGO’s; landowners; Other Forest industry	Bond Funding; Grants; State and Federal Programs	Number of facilities; Acres of Forestland Restored; Reduced wildfire/pest damages; total energy produced; rural jobs created	Protect Forests From Harm Primary: T2.2, Secondary: Enhance Benefits; T3.4, T3

Strategy: 3.4.6. Support the development of voluntary and compliance carbon markets.

<b>Long-term Strategy</b>	<b>Priority Landscape Area(s)</b>	<b>Secondary Issues Addressed</b>	<b>Existing Programs</b>	<b>Partners / Stakeholders</b>	<b>Resources Available</b>	<b>Measures of Success</b>	<b>National Objectives Supported</b>
Support the development of voluntary and compliance carbon markets	Primarily Klamath/North Coast, Modoc, and Sierra bioregions. Secondary Sacramento and San Joaquin.	Climate Change	CFIP, CFSP, UCCD, CFLP, HFRA, NFP, EWP, CSP, EQUIP, WHIP	USDA-APHIS; State; USFS; CFA; CDFA; NGO’s; landowners; Other Forest industry	Bond Funding; Grants; State and Federal Programs	Carbon tonnes traded annually in the voluntary and compliance markets.	Protect Forests From Harm Primary: T2.2, Secondary: Enhance Benefits; T3.4, T3

Strategy: 3.4.7. Support the development of other emerging voluntary markets including water, habitat and green tourism.

<b>Long-term Strategy</b>	<b>Priority Landscape Area(s)</b>	<b>Secondary Issues Addressed</b>	<b>Existing Programs</b>	<b>Partners / Stakeholders</b>	<b>Resources Available</b>	<b>Measures of Success</b>	<b>National Objectives Supported</b>
Support the development of other emerging voluntary markets including water, habitat and green tourism	Primarily Klamath/North Coast, Modoc, and Sierra bioregions. Secondary Sacramento and San Joaquin.	Rural Economic Development	CFIP, CFSP, UCCD, CFLP, HFRA, NFP, EWP, CSP, EQUIP, WHIP	USDA-APHIS; State; USFS; CFA; CDFA ;NGO's; landowners; Other Forest industry	Bond Funding; Grants; State and Federal Programs	Annual revenues to forest and range landowners from ecosystem markets.	Protect Forests From Harm Primary: T2.2, Secondary: Enhance Benefits; T3.4, T3

Strategy: 3.4.8. Support expansion of transmission infrastructure for emerging renewable energy generation from sources such as biomass, wind, hydro and solar in a way that minimizes environmental impact to forest and rangelands.

<b>Long-term Strategy</b>	<b>Priority Landscape Area(s)</b>	<b>Secondary Issues Addressed</b>	<b>Existing Programs</b>	<b>Partners / Stakeholders</b>	<b>Resources Available</b>	<b>Measures of Success</b>	<b>National Objectives Supported</b>
Support expansion of transmission infrastructure for emerging renewable energy in a way that minimizes environmental impact to forest and rangelands.	Entire state	Wildfire Threats  Sustainable working landscapes  Rural economic development.	BLM Solar Energy Zones, Desert Renewable Energy Conservation Plan, NCCPs, RETI	State, federal, NGO's, landowners	Bond Funding; Grants; State and Federal Programs	total energy produced, rural jobs created	Protect Forests From Harm Primary: T2.2, Secondary: Enhance Benefits; T3.4, T3