

# North Coast Summary of New Entity Formation for Woody Biomass Management

**Prepared for:**

North Coast Resource Partnership

**Prepared by:**

The Watershed Research and Training Center



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Lead author: Clarke Stevenson, the Watershed Research and Training Center

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# Executive Summary

Across California, the challenge of managing woody biomass from forest restoration and wildfire prevention efforts has highlighted a critical need for new governance and business structures. The effective management of woody biomass in California's forests presents both a challenge and an opportunity. California's forests generate vast amounts of biomass waste from wildfire prevention and fuel reduction treatments, yet the lack of a stable, long-term feedstock supply chain has hindered the growth of wood utilization businesses. A total of six (6) reports were developed across the state to assess the legal framework to address entity formation options to support long-term feedstock contract development<sup>1</sup>. Each report highlights the need for new organizational entities and consistently emphasizes the economic, administrative, and logistical barriers preventing effective biomass utilization.

To address these challenges, the reports propose various governance models which are categorized into four distinct frameworks:

- **Public governance entities**, such as Joint Powers Authorities (JPAs), Community Services Districts (CSDs), and Climate Resilience Districts (CRDs) offer large scale coordination among entities with public interest, but face bureaucratic and funding-related challenges.
- **Cooperative models**, including producer cooperatives and multi-stakeholder cooperatives, provide a decentralized and member-driven approach to biomass management but present operational and governance challenges.
- **Nonprofit organizations**, including 501(c)(3) entities and sole member LLCs under nonprofits, offer mission-driven approaches often tied to public interest for biomass utilization, but struggle with financial sustainability and operational flexibility
- **Private sector entities**, such as Social Benefit Corporations (SBCs) and Social Purpose Corporations (SPCs), aim to blend profitability with environmental and social responsibility but face investment and regulatory challenges.

This report synthesizes findings from all six (6) studies to provide a comparative analysis of **entity formation options** and their potential applications to enable sustainable biomass supply chains that support wildfire mitigation, forest restoration, and rural economic development.

## Key Challenges in Biomass Management

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<sup>1</sup> Tahoe Central Sierra (TCS) CalFRAME Pilot, (2) Mariposa RCD Pilot, (3) South Central Sierra Region, (4) Forest Reciprocity Group-Pole Aggregation Depot Business, (5) The Sonoma County Wood Recovery Feasibility Report, and (6) Dinsmore Woody Feedstock Aggregation Pilot Study

Despite an abundance of woody feedstock, market conditions prevent efficient biomass utilization. These challenges span supply chain coordination, financial feasibility, regulatory constraints, and market uncertainty, all of which hinder the development of a stable and scalable biomass economy.

## **Fragmented Supply Chains**

One of the most significant obstacles is the fragmentation of supply chains. Small landowners and regional processors often lack a centralized entity to coordinate biomass flow, leading to inefficiencies in both aggregation and transportation. As a result, large quantities of available feedstock never reach processing facilities or end users, creating waste and limiting the viability of biomass-based industries. Many forest thinning projects generate usable material, but without an organized logistics framework, this supply remains dispersed and inaccessible.

## **High Transportation and Processing Costs**

High transportation and processing costs further complicate biomass utilization. The expense of moving biomass from forests to processing facilities is a primary financial burden, often making biomass projects economically unfeasible. Factors such as poor road infrastructure, remote locations, and long travel distances add to the challenge, making it difficult to establish cost-effective feedstock aggregation. Without solutions to address transportation inefficiencies, the financial viability of large-scale biomass processing remains uncertain.

## **Regulatory and Permitting Barriers**

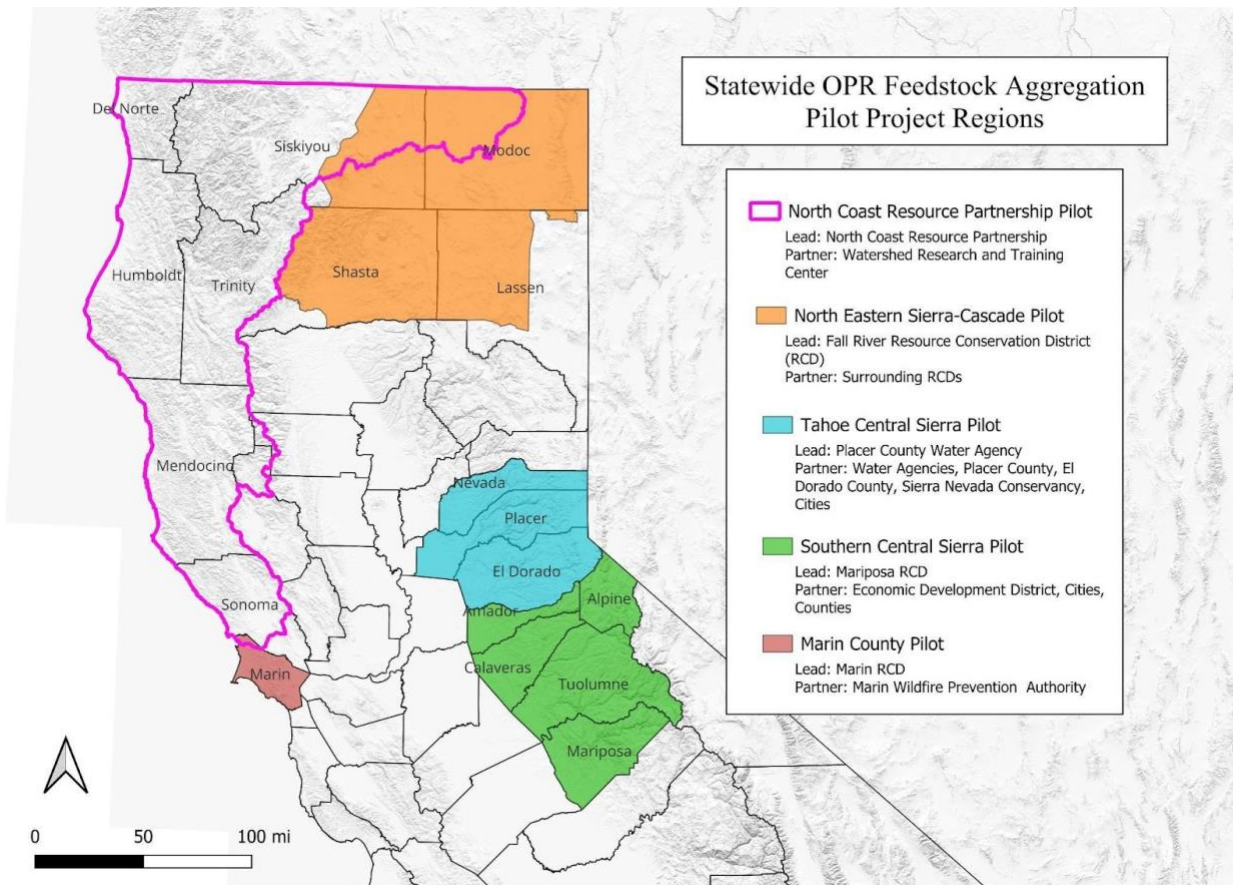
Regulatory and permitting barriers also pose significant challenges. California Environmental Quality Act (CEQA) requirements and local zoning laws create lengthy approval processes for new biomass aggregation and processing sites. Additionally, air quality restrictions on open-pile burning have increased the urgency for alternative biomass utilization methods, but compliance with state and federal environmental regulations can be costly and time-consuming. These regulatory hurdles discourage new entrants into the biomass market and slow the expansion of processing infrastructure.

## **Market Uncertainty and Investment Risks**

Market uncertainty and investment risks further limit the growth of biomass-related businesses. Investors remain hesitant to support biomass projects due to unstable revenue streams and price volatility. Without mechanisms such as long-term contracts, guaranteed feedstock availability, or financial incentives, businesses face significant risk when attempting to scale operations. The absence of structured financing models leaves many biomass initiatives dependent on short-term grants and pilot programs, which are insufficient for long-term sustainability.

# Overview of Concept

The LCI pilot project’s statewide intent is to aggregate raw fiber sales to existing or new markets through a centralized semi-public entity within a region. As a result, a dedicated entity to coordinate this service would do the following: (1) establish itself has a trusted resource on existing and new fiber markets for licensed professionals, (2) make progress towards offering long-term supply contracts for new fiber-consuming businesses to receive debt financing, (3) indirectly enable additional acres to be treated by supporting market-based solutions. The 5 pilot regions (Figure 1) selected to participate in this initiative embraced these sentiments while directing their focus on sources of material from mixed land forest management.



# Proposed Entity Formation Options

Each of the six (6) studies evaluated with this report offer different legal structures that could facilitate biomass supply chain coordination. Selecting the right entity for requires an understanding of the unique strengths each structure offers. While some models provide financial flexibility and strong governance, others emphasize community involvement, market adaptability, or public funding opportunities. The key is to align the entity’s strengths with the

long-term goals of biomass supply chain coordination, infrastructure development, and economic sustainability. Likewise, each entity comes with a range of challenges. Each entity type—whether a public governance model, cooperative, nonprofit, or private sector business—faces unique hurdles related to funding, administration, regulation, and stakeholder coordination.

## **Public governance entities**

**Types:** Joint Powers Authorities (JPAs), Community Services Districts (CSDs), Climate Resilience Districts (CRDs)

### Key advantages

Public governance entities offer strong financial backing and policy integration. JPAs are particularly valuable because they enable multiple government agencies to collaborate on large-scale infrastructure and biomass management efforts. They have the authority to issue bonds, secure grants, and pool public resources, making them one of the most financially stable models. Additionally, JPAs benefit from increased governmental legitimacy, which can attract long-term investment and regulatory support.

CSDs, though more localized, provide direct community control over biomass processing and wildfire mitigation efforts. They can establish special tax assessments to fund operations and are well-suited for ensuring that biomass processing aligns with local land use priorities. CRDs, on the other hand, are uniquely positioned to tap into state and federal climate adaptation funding. Given the increasing availability of grants for carbon sequestration, wildfire resilience, and sustainable forestry, a CRD can serve as an ideal vehicle for accessing these resources while maintaining a regional focus on ecological restoration.

Waste Management Authorities provide a structured and well-established governance model that can integrate biomass utilization into existing waste processing infrastructure. Because these authorities already handle green waste, organic material, and municipal waste streams, they have the operational expertise needed to scale biomass processing efficiently. Their ability to charge tipping fees and generate revenue from waste management contracts makes them financially resilient, reducing reliance on external funding.

### Key Challenges

JPAs require formal agreements between multiple government agencies, making them time-consuming and legally complex to establish. These entities also require significant administrative oversight, including compliance with public agency regulations, which can slow decision-making. While JPAs offer strong financial tools such as bonds and grants, they are highly dependent on shifting political priorities and government funding cycles. Similarly, CSDs, while effective for localized services, have a limited geographic scope and rely on special tax assessments or service fees, which require voter approval and can be difficult to implement.

CRDs, on the other hand, are largely restricted to climate adaptation projects, making them less flexible for broader biomass utilization. They also depend heavily on state and federal grants, which may not provide long-term financial stability.

Waste Management Authorities offer a structured pathway for integrating biomass into existing waste infrastructure but face significant regulatory and compliance challenges. Operating within stringent environmental guidelines, these entities must navigate permitting complexities, air quality regulations, and long approval processes before projects can move forward. Additionally, they often require large-scale capital investments in processing facilities, which can be difficult to secure without guaranteed long-term feedstock contracts.

## **Cooperative models**

**Type:** Producer cooperatives, Multi-stakeholder cooperatives

### Key advantages

Cooperative models excel at engaging local landowners, forestry operators, and businesses in a shared economic model. These entities offer democratic governance, ensuring that decisions are made collectively and in the interest of all members. By pooling resources, cooperatives can increase market access for small-scale biomass producers, improving profitability for individual members.

- Multi-stakeholder cooperatives bring together diverse stakeholders, such as landowners, processors, and consumers, allowing for greater coordination across the biomass supply chain.
- Producer cooperatives provide a more specialized approach, where biomass suppliers collectively negotiate contracts and improve pricing power in the market.

Because cooperatives prioritize member benefit over external profits, they are highly resilient during market downturns, as profits are reinvested into operations rather than distributed to external investors.

### Key Challenges

These models depend on strong member participation, which can be difficult to sustain over time. Decision-making in cooperatives often requires consensus or democratic voting, which, while inclusive, can slow strategic initiatives and make it difficult to respond quickly to market changes. Additionally, cooperatives must secure their own funding through member dues, service fees, or product sales, which can be unpredictable, especially in the early stages of development.



## **Nonprofit organizations**

**Type:** 501(c)(3) entities, Sole member LLCs under nonprofits

### Key advantages

Nonprofit arrangements offer strong alignment with environmental and social missions while maintaining access to tax-exempt funding sources. A 501(c)(3) nonprofit can secure grants, accept donations, and partner with public agencies to fund biomass-related projects, making it an attractive choice for mission-driven initiatives. Additionally, nonprofits benefit from public trust and credibility, which can enhance community engagement and attract philanthropic support.

A sole member LLC under a nonprofit structure provides additional financial flexibility by allowing the nonprofit to own a for-profit subsidiary that can engage in revenue-generating activities. This model is particularly useful for biomass processing operations that need to generate cash flow while maintaining a public-benefit mission.

### Key Challenges

Traditional nonprofits are restricted in their ability to engage in revenue-generating activities and rely heavily on grants and donations, which can fluctuate year to year. While a sole member LLC under a nonprofit structure provides more financial flexibility by allowing commercial activities, it must still align with the nonprofit's mission, potentially limiting its ability to scale in competitive markets.

## **Private sector entities**

**Type:** Social Benefit Corporations (SBCs), Social Purpose Corporations (SPCs)

### Key advantages

Private sector entities offer the ability to attract investors while maintaining a commitment to sustainability. Unlike nonprofits, these entities are not restricted in their ability to generate profits, allowing them to scale operations efficiently. SBCs and SPCs appeal to impact investors who prioritize long-term environmental benefits over short-term financial returns.

- SBCs are legally required to prioritize social and environmental impact alongside shareholder profits, ensuring that sustainability remains central to the business model.
- SPCs provide even more flexibility, allowing businesses to integrate sustainability goals without sacrificing operational efficiency.

These entities are particularly valuable in the biomass industry because they can develop commercially viable wood products, bioenergy solutions, and carbon sequestration projects, while still securing funding from mission-aligned investors and grant programs.

## Key Challenges

These entities must strike a delicate balance between generating returns for investors and maintaining their commitment to sustainability. Unlike traditional nonprofits, they do not qualify for tax-exempt status, meaning they must compete directly in the market while adhering to additional reporting and compliance requirements related to their social impact. Attracting investors who are willing to support long-term environmental goals rather than short-term profits can also be a hurdle.

Ultimately, while each entity type provides valuable tools for biomass management, selecting the right structure requires balancing financial sustainability, administrative complexity, stakeholder engagement, and regulatory constraints. Organizations looking to establish a new entity must carefully consider these challenges to ensure long-term viability and success in coordinating biomass feedstock supply chains.

## Summary Table of Entity Options

Entity Type	Key Functions	Funding Sources	Advantages	Challenges	Example / Precedent
<b>Joint Powers Authority (JPA)</b>	Biomass aggregation, contracting, financing	Grants, bonds, fees, taxes	Multi-agency collaboration, ability to issue bonds	Requires multi-agency coordination, complex setup	Upper Mokelumne River Watershed Authority
<b>Community Services District (CSD)</b>	Localized services (fire prevention, waste, water)	Service fees, special taxes	Local control, infrastructure management	Requires local funding, smaller regional scope	Tuolumne County CSD
<b>Climate Resilience District (CRD)</b>	Climate adaptation, carbon sequestration	State and federal grants, fees	Focuses on climate-related funding sources	Limited flexibility for non-climate activities	Bay Area Regional Climate Resilience District
<b>Waste Management Authority</b>	Biomass & green waste processing	Tipping fees, grants	Existing infrastructure for waste & biomass handling	High regulatory compliance	Western Placer Waste Management Authority

Entity Type	Key Functions	Funding Sources	Advantages	Challenges	Example / Precedent
<b>Cooperative Business</b>	Shared business operations, resource pooling	Member dues, revenue from sales	Democratic decision-making, adaptable model	Requires strong membership engagement	Mondragón Corporation (global model)
<b>Multi-Stakeholder Cooperative</b>	Combines consumer, producer, and worker ownership	Member dues, service fees, product sales	Inclusive governance, diverse stakeholder engagement	Complex decision-making structure	Organic Valley (agriculture model)
<b>Producer Cooperative</b>	Pooled resources for marketing/distribution	Member fees, product sales	Better market access, price negotiation power	Requires producer buy-in and coordination	Land O'Lakes (dairy model)
<b>Social Benefit Corporation (SBC)</b>	For-profit with environmental/social goals	Private investment, revenue, grants	Attracts investors while maintaining sustainability	Must balance profit and mission	Patagonia
<b>Social Purpose Corporation (SPC)</b>	Profit-driven with social/environmental goals	Private investment, revenue, grants	Flexible in profit-sharing and mission alignment	Compliance with dual goals, regulatory burdens	Newman's Own
<b>Mutual Benefit Corporation (MBC)</b>	Nonprofit serving members	Member dues, service fees	Nonprofit structure but provides private benefits	May not qualify for tax-exempt status	California Bar Association
<b>Nonprofit Organization (501c3)</b>	Public-benefit activities, education, conservation	Grants, donations, earned income	Tax-exempt, mission-driven, eligible for grants	Cannot distribute profits, limited business activity	Cloud Forest Institute

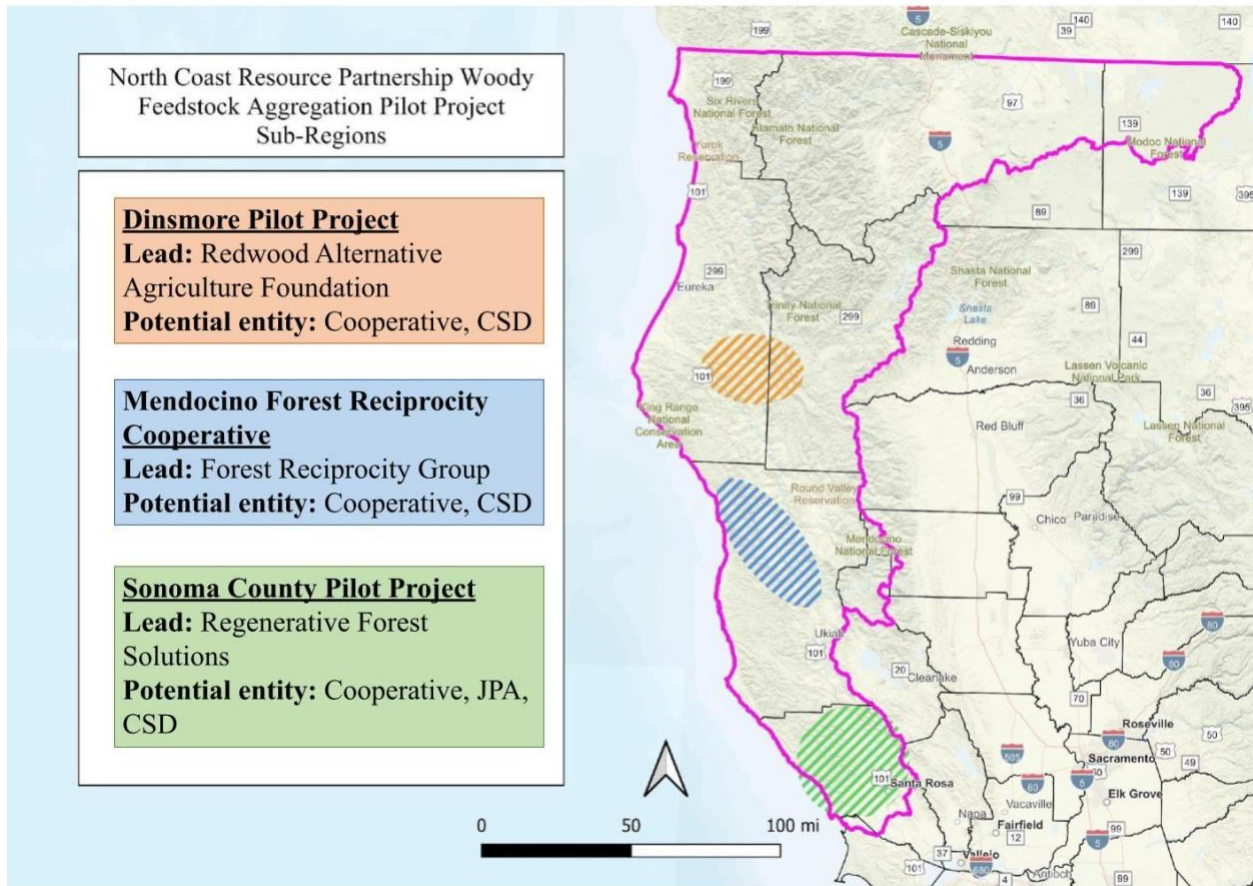
Entity Type	Key Functions	Funding Sources	Advantages	Challenges	Example / Precedent
<b>Sole Member LLC (SMLLC) under Nonprofit</b>	Nonprofit-owned LLC for business operations	Grants, sales, donations	Allows revenue-generating activities within nonprofit	Subject to some taxation, must align with mission	Redwood Forest Foundation Inc.

## Contextualizing the North Coast

In 2023, NCRP released their Vision for Resilience (“The Plan”)—a comprehensive plan intended to guide capacity investments and the implementation of projects, actions, and initiatives focused on community and watershed resilience in the North Coast region of California. A Forest Biomass Strategy integrated the fundamental goals of the OPR Wood Feedstock Aggregation Pilot Project and explored mechanisms to provide services for improving supply chain consistency and efficiency, and expanding the opportunity for new biomass markets to develop.

Due to the diversity in landscapes, cultures, and economies throughout the North Coast, NCRP in partnership with WRTC released a Request for Proposals which invited communities to investigate and develop a preliminary business plan that includes foundational elements of a successful organizational model for feedstock aggregation. Applicants were asked to propose an organizational structure to coordinate new and existing wood markets emerging from a growing need to implement fuel reduction and forest resilience activities. Business plan were requested to include a description of organizational arrangements that have the legal, financial, and operational capacity on the local level to aggregate woody biomass across private and public lands, and to act as a broker for long-term feedstock contracts. In the fall of 2023, NCRP announced the selection of 3 sub-regional pilot projects (Figure 2).

Each sub-region received an effective award totaling \$75,000 to begin research on new organizational structures to organize wood selling and procurement while developing funding strategies to achieve community visions for sustainable land management and community safety. Organization structures could include: Joint Powers Authorities, Community Service Districts, Climate Resilience Districts, Cooperatives, or additional legal arrangements that meet program goals. The local pilots will focus on achieving community and watershed resilience and ensuring that the proposed solutions reflect the needs and preferences of local communities in alignment with regional values.



## Administrative Capacity in the North Coast

Much of the research that is being explored across the state focuses on large administrative bodies coordinating the complexities of biomass utilization. However, the North Coast does not have the same administrative depth or breadth as the other regions operating under this pilot program. Additionally, with the focus on community-scale fuel reduction projects occurring on non-industrial lands, focusing on RCDs, nonprofits, Tribes, and Fire Districts will be the primary implementers, and thereby, the primary suppliers to any woody feedstock aggregation model.

In 2024 NCRP, in collaboration with the Humboldt Area Foundation (HAF) and Wild Rivers Community Foundation (WRCF), conducted a detailed assessment of the capacity needs of Tribal and rural fire departments and protection districts, titled "A Strategy for Enhancing Long-Term Capacity in Tribal and Rural Fire Agencies in the North Coast Region.". The report outlines the challenges and strategies for improving the capacity of fire response entities in the North Coast region and highlights the significant lack of administrative and workforce capacity, which hinders the ability of these entities to achieve their goals of enhancing community and ecosystem resilience, particularly in the face of increasing wildfire risks. 70 entities were contacted, and 32 were interviewed between July 2022 and April 2023.

The report reveals that many fire departments, particularly volunteer-based and rural ones, lack the administrative capacity to manage grants, contracts, and reporting. This limits their ability to secure and utilize funding effectively. Additionally, recruitment and retention of volunteers and staff are major issues, exacerbated by an aging population and limited access to training due to distance, cost, and time constraints. Many entities also struggle with outdated equipment and inadequate infrastructure, further hindering their ability to respond to emergencies and participate in regional fire prevention efforts. It is for this reason that the report recommends providing ongoing administrative support, such as grant writing and financial management assistance, to alleviate the burden on overstretched fire chiefs and volunteers, key players in the stewardship economy in the North Coast.

In other words, the capacity to implement projects is a key barrier to getting forest health objectives completed. Without the ability to get forest health treatments completed there is little room for a discussion around managing the wood that comes from non-industrial land management.

## Recommendations for Entity Formation

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Selecting an entity type must align with the scale of operations, funding mechanisms, and stakeholder collaboration requirements. Public entities such as JPAs and CRDs provide access to government-backed financing, regulatory oversight, and policy coordination, making them well-suited for large-scale infrastructure and long-term planning. However, these entities often face bureaucratic delays and administrative complexity.

Conversely, cooperatives and nonprofit-owned LLCs offer local control, member-driven decision-making, and revenue-generating flexibility, making them ideal for regional supply chain management and economic resilience. Private sector models, such as Social Benefit Corporations (SBCs) and Social Purpose Corporations (SPCs), enable investment attraction and scalability, but they require clear strategies for balancing profitability with sustainability goals.

The most effective approach may be a hybrid model, where public entities coordinate infrastructure, cooperatives handle supply chains, nonprofits drive education and funding access, and private businesses scale market-based solutions.

Purpose	Recommendation
<b>For Public Governance and Infrastructure Development</b>	A Joint Powers Authority (JPA) is the best option for long-term coordination, government-backed funding, and large-scale infrastructure projects. A Climate Resilience District

	(CRD) could be viable if state and federal climate adaptation funding is a priority
<b>For Local Business and Market Development</b>	A Multi-Stakeholder Cooperative provides an inclusive and adaptable structure for private-sector engagement in biomass processing. A Social Benefit Corporation (SBC) or Social Purpose Corporation (SPC) could attract mission-aligned investors while maintaining a public-benefit focus.
<b>For Community-Driven Initiatives</b>	A 501(c)(3) Nonprofit with a Sole Member LLC allows for mission-driven operations while enabling revenue-generating activities. A Community Services District (CSD) could be a low-cost governance model for smaller-scale biomass projects in rural communities.

## Financial Innovations for New Entities

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To ensure financial sustainability, all four reports stress the need for diverse and stable funding mechanisms. A blend of the following tools was identified as crucial for any new entity:

**Formula Rate Contract with Collar (FRCWC)** – a pricing model designed to stabilize biomass markets by setting structured price limits over an extended period. This model mitigates the volatility of biomass pricing, providing suppliers and buyers with a predictable revenue stream and reducing the financial risks associated with fluctuating market demand. Multiple mechanisms were reviewed to explore viability<sup>2</sup> within a landscape optimization context and through an inflation-based increment adjustment. The FRCWC aims to ensure that biomass producers receive a minimum price for their feedstock while preventing excessive costs for buyers by providing a predictable, transparent formula to determine prices, ultimately fostering a more reliable and attractive market for investors.

**Tax Increment Financing (TIF)** – enables municipalities and special districts to finance biomass infrastructure using projected future tax revenues. By capturing the increased property value and economic activity generated by biomass projects, TIF allows governments to fund processing facilities, transportation networks, and workforce development initiatives without placing an immediate burden on taxpayers. This financing tool is particularly advantageous in regions where biomass projects can contribute to economic revitalization, encouraging investment in rural communities while ensuring that newly created value is reinvested into local infrastructure.

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<sup>2</sup> Stevenson (2024)

**Public Bonds & Grants** – remain a vital funding source, especially for Joint Powers Authorities (JPAs) and special districts. JPAs have the unique ability to issue revenue and infrastructure bonds, providing an upfront capital injection that can be used to construct biomass processing plants, establish aggregation depots, or modernize existing facilities. Public grants, particularly those from state and federal agencies, offer additional financial support with fewer repayment obligations. These grants can be instrumental in launching pilot projects that later evolve into self-sustaining business models, reducing the initial financial burden on private investors and local governments.

**Service Fees & Assessments** – Biomass entities can charge for environmental reviews, contract facilitation, or equipment leasing. This model ensures that operational costs are distributed among stakeholders who directly benefit from biomass services, creating a more balanced and scalable funding strategy. Service-based revenue models also allow for flexibility in adjusting fees based on demand, ensuring that entities can adapt to changing economic conditions while maintaining financial stability.

**Member Contributions & Business Revenue** – Cooperatives and nonprofit-owned LLCs generate income through member dues, product sales, and contracts. provide a grassroots-driven funding mechanism that aligns with the interests of local stakeholders. Cooperatives generating income ensure that profits remain within the community rather than being extracted by external investors. Nonprofit-owned LLCs, meanwhile, offer a hybrid approach, allowing mission-driven organizations to engage in commercial activities such as wood product sales, carbon credit trading, *or biomass energy generation* while still benefiting from nonprofit tax exemptions and grant eligibility. This approach allows for long-term financial independence while ensuring that revenue is reinvested into sustainable forestry and biomass processing initiatives.

## Concluding thoughts

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A single-entity approach is unlikely to succeed given the complexity of biomass markets, regulatory requirements, and financial constraints. Instead, a multi-entity framework—where public, cooperative, nonprofit, and private-sector entities work together—offers the most promising path forward. The successful management of California’s biomass resources requires a new legal entity to coordinate supply chains, finance infrastructure, and stabilize biomass markets. Based on the six reports reviewed, the following recommendations are:

1. Form a Joint Powers Authority (JPA) or Climate Resilience District (CRD) for public infrastructure and supply chain coordination.



2. Develop a cooperative or nonprofit-owned LLC to engage local businesses and landowners in biomass utilization.
3. Secure diverse funding sources through grants, public bonds, member investments, and market-driven revenue models.

Without a centralized entity, biomass utilization remains inefficient, underfunded, and disconnected from larger climate and wildfire mitigation goals. A biomass entity must be directly integrated with end markets to avoid the pitfalls of unstable pricing and oversupply. Long-term contracts, regional processing infrastructure, and transportation coordination are essential to overcoming economic barriers.

- Feedstock Aggregation & Logistics: Small landowners and forestry operators need a centralized supply chain manager to pool resources and coordinate deliveries.
- Market Demand & Product Development: Without a strong demand for wood products, biochar, biomass energy, or engineered wood, feedstock processing will remain unprofitable.
- Public-Private Partnerships: Successful examples, such as the Western Placer Waste Management Authority, show how government and private industry collaboration can ensure consistent biomass utilization.

A biomass entity must be structured to reduce financial risk for participants, provide price stability, and secure long-term off-take agreements with industries such as bioenergy, sustainable building materials, and carbon credit markets. By integrating these approaches, California can learn from what has occurred in the North Coast and in California across the other pilot regions to develop a scalable, financially viable biomass industry that supports wildfire mitigation, rural economic development, and climate resilience.

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