Bioenergy Project Site Development Preliminary Review Matrix

Introduction

The California Statewide Wood Energy Team (SWET) has retained TSS consultants to create a bioenergy site development review matrix. Consistent with SWET's commitment to fund pre-feasibility scans in support of small scale forest bioenergy project development, TSS has been asked to provide a review matrix that project proponents can utilize as an initial site review tool.

SWET is supported by a three-year cooperative agreement with the USDA Forest Service, and is administered by the Watershed Research and Training Center. For more information, here is a link to the SWET website: http://www.cawoodenergy.org.

Intent

The preliminary site review matrix is intended to focus a high-level site analysis on critical site development and use criteria. The tool can be used to compare site locations and to evaluate the advantages and challenges of any specific site. This matrix is designed so that users can complete some of the review; however, the services of a capable and experienced contractor in bioenergy facility siting may be needed to complete the entire site review process. Data collection results should be interpreted by a professional well-versed in project siting.

Findings from completing this exercise will shape a project development plan and provide a clear path to compare sites. Note that a guideline for scoring the project attributes is not provided as each project development team will have a unique structure and composition; therefore could weight each criterion differently.

Matrix Components

The matrix focuses on several different project components, specifically: site properties, interconnection, CEQA-related concerns, water use, availability and strategic partnership, and financial incentives.

Site Properties

Site properties include current land use zoning, environmental cleanup status, road infrastructure, and other observations. Land use zoning is an important aspect as zoning changes, general plan modifications, and even conditional or special use permits can be time and cost intensive depending on the scope of the required land use entitlement.

Environmental cleanup status is important due to the potential for high remediation costs and financing risk. For parcels with prior industrial use, the potential for environmental contamination should be addressed to reduce project liability.

Road infrastructure and site access is critically important to the delivery of feedstock for bioenergy projects. Ensuring that the road can handle chip truck traffic is critical as road improvement can be prohibitively expensive.

Other site conditions, including known soil and geotechnical information, grading, and other relevant site features can provide valuable information for early-stage site comparisons.

Interconnection

Interconnection to the electric grid is critical for biomass-to-electricity projects and can be a significant expense. Identifying the existing conditions and capabilities of the local utility lines can help develop an understanding of relative costs. Note that a full interconnection study will be needed to determine actual costs; however, preliminary information about the peak load, minimum loads, and renewable queue can provide valuable information.

California Environmental Quality Act (CEQA) Related Concerns

While this matrix does not address all of the components of a full CEQA evaluation, community support and an understanding of the neighboring parcels can provide critical information into the potential for challenges to the project. Nearby residences and schools are particularly important as the development of an industrial project in the area can cause concern to local stakeholders, particularly as it relates to potential air quality, noise, and traffic impacts.

Water Supply and Wastewater Discharge

While water demands will vary significantly by technology, a water supply will always be necessary for fire suppression (required for biomass feedstock storage) and typically governs the need for supply water at the site. As with supply water, wastewater discharge also varies significantly by technology and understanding disposal options is important for selecting an appropriate technology for the site.

Availability and Strategic Partnerships

Land purchase and land lease offer distinct advantages and disadvantages to potential development. Ensuring that the site is available for purchase and/or lease is critical for early-stage project development.

Neighboring facilities can provide important strategic partners as they may provide a source of feedstock, an outlet for waste heat sales, or the potential for electricity offtake. Understanding the potential synergy between a bioenergy facility and neighboring facilities is important to establishing a financial plan and for selecting appropriate technologies.

Financial Incentives

New Market Tax Credits (NMTC), Enterprise Zones, and Recycling Market Development Zones (RMDZ) can provide preferential incentives for potential investors. Understanding the opportunities offered at each site will help drive the project timeline and financing structure.

Information Collection and Matrix Interpretation

The site review matrix addresses 13 key site criteria for consideration and is attached.

The last two columns in the matrix provide direction for gathering the appropriate information. In gathering the necessary data, the development team will interface with many of the key organizations that the project will need to work with over time. Early engagement is beneficial, particularly for bioenergy project development where outreach and education can be critical.

The time required to complete the matrix will vary greatly depending of the available resources at each agency's online portal. Gathering this information will help guide conversations with bioenergy development experts and will begin the process of developing personal relationships within the community.

Site Status	Site 1: _____	Site 2: _____	Site 3: _____	Information Sources	Comments
Current Land Use Zoning				County Planning Department	Preferred Zoning: Industrial although others may be pertinent (e.g., agricultural, heavy commercial, special use, etc.)
Environmental Cleanup Status				California EPA Geotracker (http://geotracker.waterboards.ca.gov/)	Environmental remediation can be very expensive and could greatly hinder a project. Ideal site has already been cleaned and had the appropriate studies performed. Note: The use of Geotracker will only identify sites where environmental work overseen by regulatory agencies has been conducted . Some sites may contain contamination that has not yet been determined.
Road Infrastructure / Site Access				County Department of Transportation	Can tractor trailers access the site? Would there be any turning issues? Is there sufficient line of site for truck traffic to safely enter and exit the site?
Other Site Conditions				Site Visit	Is the site graded? Are there any known soil conditions? Other relevant site feature?
Grid Stability / Infrastructure				PG&E, SCE, or SDG&E Solar RAM Map Site	Looking for a high Projected Peak Load and a high Total Distributed Generation number.
Proximity to Neighbors				Google Maps (http://maps.google.com)	This is important aspect of community support and can be factored into CEQA and Air Permitting. Noise, dust, and traffic may be issues of concern.

Site Status	Site 1: _____	Site 2: _____	Site 3: _____	Information Sources	Comments
Community Support				Fire Safe Council. Biomass Work Group, Local Knowledge of Communities	This is an important local perspective as some communities may be more open to this type of development than others.
Water Supply / Discharge				Local Water Utility District & Local Wastewater Treatment Facility	While water demand for bioenergy processes may vary significantly by technology, water demand for fire safety is significant for these developments.
Site Availability				Contact Current Ownership regarding the status of the property	Is the site available for purchase or lease?
Potential Value Added Operations				Local Knowledge of Contractors and Local Entrepreneurs	Collocation of heat or electricity offtakers can be helpful. Collocation of value-added products manufacturing (e.g., post/poles, compost/mulch, firewood).
Potential for New Market Tax Credits (NMTC)				NMTC Maps (http://www.cohnreznick.com/nmtc-mapping-tool)	Search by address or Zip Code. New Market Tax Credits can provide addition funding opportunities.
Enterprise Zones				Enterprise Zone Maps (http://ajed.assembly.ca.gov/californiaenterprisezoneprogram1)	Search by address or Zip Code. Enterprise zones can provide tax incentives.
Recycling Market Development Zone (RMDZ)				RMDZ Zone Map (http://www.calrecycle.ca.gov/RMDZ/Reports/Zones/)	Can facilitate low-interest loans, technical assistance and free product marketing.

Bioenergy Project Site Review for Select Sites in Mendocino County

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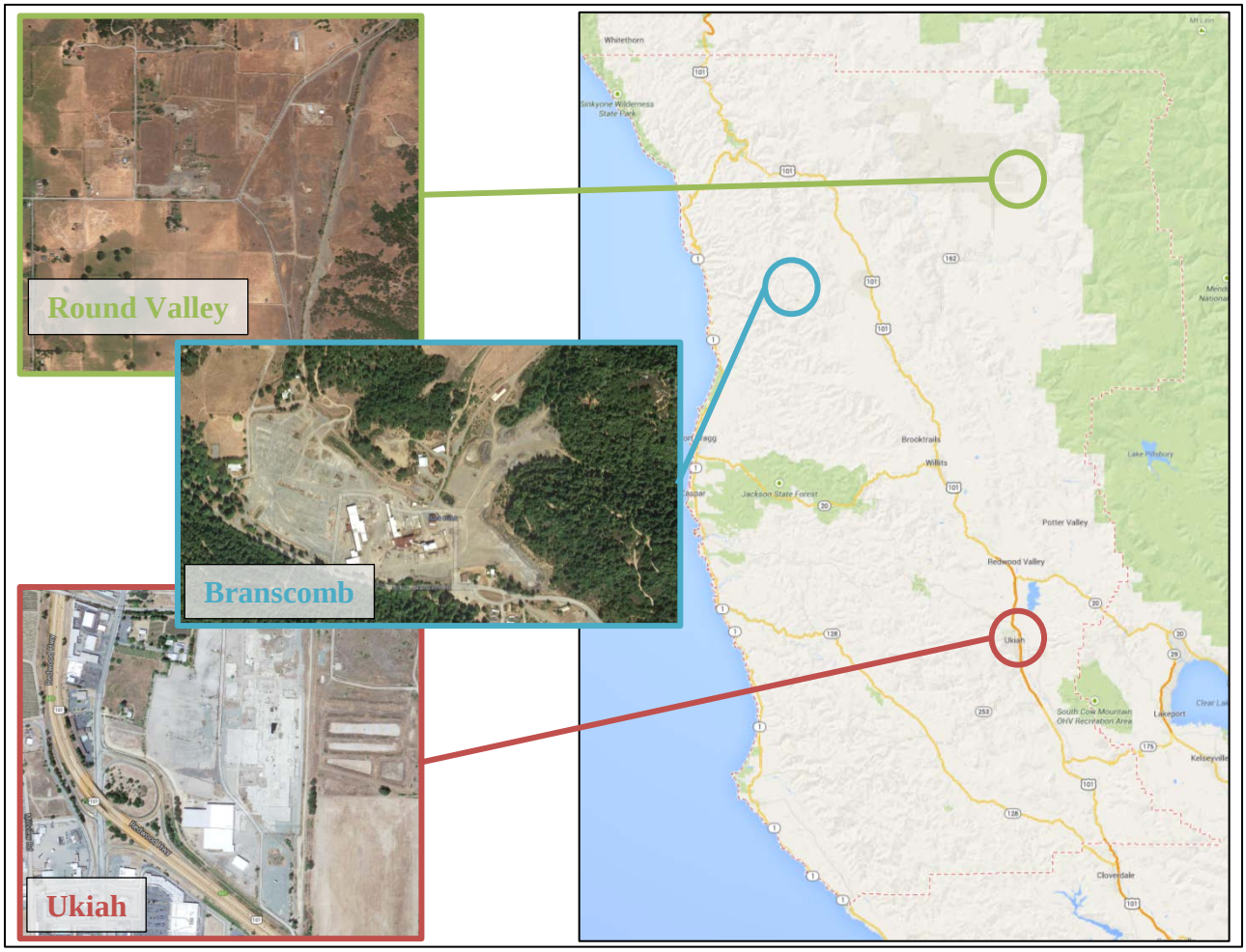
Introduction

The Mendocino County Woody Biomass Work Group (MCWBWG), funded by the Watershed Resource and Training Center, is pursuing bioenergy project siting options for excess forest biomass generated as a result of forest restoration and hazardous fuels removal projects within Mendocino County. TSS Consultants (TSS) conducted a countywide forest biomass utilization feasibility study in 2006 and found forest feedstock sustainably available to support approximately 20 MW of baseload power generation. In addition to renewable power generation, there are other value-added options, including but not limited to thermal energy, soil amendment, post and poles, firewood, and biochar.

The MCWBWG has selected three sites for review (Figure 1): Round Valley (Covelo), Branscomb, and Ukiah. TSS and the MCWBWG have worked in partnership to review key site attributes at each of the three sites to better understand where to focus for more detailed assessment.

Figure 1. Site Locations



Site Review Process

TSS developed a site review matrix to assist the MCWBWG in identifying key attributes of the potential project sites (Table 1). The findings from the completion of the matrix will be the basis for understanding where to focus continued efforts.

Table 1. Site Review Matrix

SITE STATUS	INFORMATION SOURCES	COMMENTS
Current Land Use Zoning	Mendocino Planning Department Mendocino Parcel Zoning Lookup	Preferred Zoning: Any of the 4 Industrial Use Types. Mendocino Zoning Code
Environmental Clean Up	Cal EPA / Mendocino County GeoTracker - Branscomb, GeoTracker - Ukiah, GeoTracker – Round Valley	Environmental remediation can be very expensive and could greatly hinder project development efforts. Ideal site has already been remediated and had the appropriate studies performed.
Proximity to Residences	Google Maps Google Maps	This is an important aspect of community support and can be factored into CEQA and air permitting. Noise, dust, and traffic may be issues of concern.
Community Support	Fire Safe Council. Biomass Work Group, Local Knowledge of Communities Mendocino Fire Safe Council, Mendocino Biomass Work Group	This is an important local perspective, as some communities may be more open to this type of development than others.
Road Infrastructure/ Site Access	Mendocino Department of Transportation	Can tractor trailers access the site? Would there be any turning issues? Is there sufficient line of site for truck traffic to safely enter and exit the site?
Grid Stability/ Infrastructure	PG&E Solar RAM Map Site (scroll down for the link over the "FAQ" heading, must sign in with a free account)	Looking for a high Projected Peak Load and a high Total Distributed Generation number.
Water Supply/ Discharge	Local Water Utility District & Local Wastewater Treatment Facility	While water demand for bioenergy processes may vary significantly by technology, water demand for fire safety is significant for these developments.
Site Conditions	Site Visit	Is the site graded? Are there any known soil conditions? Are there any adjacent uses (school, community buildings, etc.)?
Potential Value-Added Operations	Local Knowledge of Contractors and Local Entrepreneurs	Collocation of heat or electricity off-takers provides additional revenue, thus improving project financial performance. Collocation of value-added products manufacturing (e.g., post/poles, compost/mulch, firewood).
Proximity to Biomass Feedstocks	National Forest Maps & County Land Ownership Maps	Is there a nearby transfer station? Orchard operations? Private/federal forest landownership under active management?
Site Availability	Contact Current Ownership regarding the status of the property	Is the site available for purchase or lease?
New Market Tax Credits (NMTC)	NMTC Maps	Search by address or zip code. New Market Tax Credits can provide additional funding opportunities.
Enterprise Zones	Enterprise Zone Maps	Search by address or zip code. Enterprise Zones can provide tax incentives.
Recycling Market Development Zone (RMDZ)	RMDZ Zone Map	Can facilitate low-interest loans, technical assistance and free product marketing.

Categories shown in Table 1 fall into three main groups: permitting, infrastructure, and financing. The information from these three categories will develop an understanding of the additional pre-development work that may have to occur to prepare a potential site for bioenergy development.

- Permitting
    - Current Land Use Zoning
    - Environmental Clean Up Status
    - Proximity to Residences
    - Community Support
- Infrastructure
    - Road Infrastructure/Site Access
    - Grid Stability/Infrastructure
    - Water Supply/Discharge
    - Site Conditions
    - Potential Value-Added Operations
- Financing
    - Proximity to Biomass Feedstock
    - Site Availability
    - New Market Tax Credits
    - Enterprise Zones
    - Recycling Market Development Zone

Site Review and Observations

The MCWBWG used the site review matrix framework to gather data about the three potential sites. TSS used the data provided by MCWBWG to develop Table 2. With the data, TSS ranked each of the attributes on a scale from 0 (least ideal) to 3 (most ideal). Each attribute was ranked independently of the other attributes and the other sites. Un-weighted scores were totaled, and the results indicated that the Round Valley site is preferred with a score of 29 out of 42. The Branscomb and Ukiah sites tied in second position with a score of 27 out of 42.

Advantages of the Round Valley site include completed environmental cleanup and collocated wood industry enterprises. Advantages of the Branscomb site include environmental cleanup status, the potential use of the fire pond, and site availability. Advantages of the Ukiah site include better interconnection opportunities and more conducive zoning of neighboring parcels.

Table 2. Completed Site Review Matrix

SITE STATUS	SITE 1: BRANSCOMB	SITE 2: UKIAH	SITE 3: ROUND VALLEY
Current Land Use Zoning	Industrial (2)	Industrial (2)	Industrial (2)
Environmental Clean Up	Remediation Complete, Monitoring in Process (2)	In Progress (1)	Complete (3)
Proximity to Residences	Low-Density Residential Contiguous (1)	Commercial, Ag, Industrial Contiguous (2)	Low-Density Residential Contiguous (1)
Community Support	Supportive Community (3)	Majority Supporting (2)	Concerned but Receptive Community (2)
Road Infrastructure/ Site Access	Easy Access (3)	Easy Access (3)	Easy Access (3)
Grid Stability/ Infrastructure	Projected Peak Load: 2.6 MW (1)	2 Circuits – Projected Peak Load: 3.1 MW or 7.9 MW (2)	Projected Peak Load: 2.8 MW (1)
Water Supply/ Discharge	Fire Pond, Spring Box, and Eel River Access (2)	Wells, Access to Russian River, District Access (2)	Round Valley County Water District, Mill Ponds (2)
Site Conditions	60 Acres: Pavement, Rock, and Cement (3)	Mostly Concrete (3)	Pavement and Gravel (3)
Potential Value-Added Operations	Potential for Sawmill, Log Yard, Compost, Firewood, Greenhouse (0)	None onsite (0)	Neighboring Wood Products Businesses (2)
Proximity to Biomass Feedstocks	Surrounded by Forested Area (2)	On Haul Route from Forest Land (2)	Surrounded by Forested Area with Collocated Businesses (3)
Site Availability	Available for Lease or Purchase (2)	For sale, multiple parcels (1)	May be available for lease or purchase (1)
Potential for New Market Tax Credits (NMTC)	Qualifies (3)	Qualifies (3)	Qualifies (3)
Enterprise Zones	None (0)	None (0)	None (0)
Recycling Market Development Zone (RMDZ)	Yes (3)	Yes (3)	Yes (3)
TOTALS	27 of 42	27 of 42	29 of 42

Recommendations and Next Steps

In support of continued development of bioenergy project opportunities in Mendocino County, TSS recommends the following next steps for consideration.

- Identify potential project partners and realistic business plans, financing options, and community involvement in the new bioenergy enterprise;
- Continue discussions with the site owners to keep track of site availability;
- Select targeted project site based on resources, owner interest, community interest, and other opportunity factors;
- Conduct targeted feedstock availability analysis and prepare procurement plan to confirm the availability and price of woody biomass tributary to selected site;
- Prepare feasibility study reviewing the environmental permitting process, technology selection, and financial analysis compliant with relevant funding opportunities;
- Promote and encourage additional value-added wood products enterprises locating at the target site; and
- Develop a communications plan for targeted outreach to the community.

Funding opportunities for woody biomass projects include:[1]

Capacity Building, Collaboration, Outreach and Organizational Development

- USDA Rural Community Development Initiative (www.rurdev.usda.gov/had-rcdi_grants.html):

  Developing capacity of community organizations to undertake development projects, providing training and resource materials on planning, operations, management, financial systems, and information technology.

- NFF Community Capacity and Land Stewardship Program (www.nationalforests.org/conserve/grantprograms/capacitybuilding/ccls):

  Grant funds can be used for community outreach that helps support a collaborative group, including workshops, training, and contracting. Assist community-based nonprofit organizations and collaborative groups in project development, implementation, monitoring, organizational and staff supporting, including facilitation, technical assistance, and shared learning.

Pre-Feasibility Assessment, Feasibility Studies, and Other Planning

- USDA Rural Business Enterprise Grant Program (www.rurdev.usda.gov/bcp_rbeg.html):

  Technical assistance for private business enterprises, such as market research, product and/or service improvement, feasibility studies, etc.

[1] Courtesy of the Sierra Nevada Conservancy

- HUD Community Development Block Grant Planning (www.hcd.ca.gov/fa/cdbg/index.html):
  Studies and plans for economic development activities that meet CDBG national objectives and provide principal benefit to low-income persons.
- State Wood Energy Team Small Grants (http://ucanr.edu/sites/swet/Documents_728/):
  Pre-feasibility assessments and resources in support of community-scale bioenergy projects.
- USDA Development Value Added Producer Grants (www.rurdev.usda.gov/BCP_VAPG.html):
  Grant funds can be used for eligible economic planning activities, or for eligible working capital expenses. Economic planning activities include conducting feasibility studies and developing business plans for processing and marketing of the proposed value-added product. Eligible working capital expenses include processing costs, marketing and advertising expenses, and some inventory and salary expenses directly related to your value-added project. This is only available if applicant owns the agricultural inputs (the forest from which the biomass is derived.)

Pre-Development

- US Forest Service Woody Biomass Utilization Grants (http://ucanr.edu/sites/WoodyBiomass/Grants_2/Woody_Biomass_Utilization_Grant/):
  Funds must be used to further the planning of wood energy projects by funding the engineering services necessary for final design and cost analysis.

Research and Demonstration

- California Energy Commission Electric Program Investment Charge (EPIC) (www.energy.ca.gov/research/upcoming_funding.html):
  Still being determined; however, typically focuses on the demonstration and deployment of clean energy projects.

Implementation and Finance

- USDA Rural Development Renewable Energy and Efficiency Program (www.rurdev.usda.gov/BCP_Reap.html):
  Grant to purchase renewable energy systems and make energy efficiency improvements, renewable energy projects include those for which energy is derived from wind, solar, biomass, geothermal, or for which hydrogen is derived from biomass or water using the previously stated energy sources.
- USDA Rural Development Renewable Energy and Efficiency Loan Guarantee Program (www.rurdev.usda.gov/BCP_Reap.html):
  Loan to purchase renewable energy systems and make energy efficiency improvements, renewable energy projects include those for which energy is derived from wind, solar, biomass, geothermal, or for which hydrogen is derived from biomass or water using the previously stated energy sources.

- USDA Rural Development Business and Industry Guaranteed Loan Program (www.rurdev.udsa.gov/BCP_gar.html):

  To improve, develop, or finance business, industry, and employment and improve the economic and environmental climate in rural communities.

- California Public Utilities Commission Self-Generation Incentive Program (SGIP) (www.cpuc.ca.gov/PUC/energy/DistGen/sgip/):

  Provides financial incentives for the installation of new, qualifying self-generation equipment installed to meet all or a portion of the electric energy needs of a facility.

- California Treasurer's Office CAEATFA Advanced Transportation and Alternative Source Manufacturing Sales and Use Tax Exclusion Program (www.treasurer.ca.gov/caeatfa):

  Sales and use tax exclusions for eligible purchase of qualified property utilized for the design, manufacture, production or assembly of advanced transportation technologies or alternative source products, components, or systems.

- California Treasurer's Office California Pollution Control Financing Authority (www.treasurer.ca.gov/cpcfa/):

  Provides a reduction in interest costs for project components including land, equipment, and construction.

- New Market Tax Credits (www.cdfifund.gov/what_we_do/programs_id.asp?programID=5):

  Tax credits offered to eligible investors can provide financing up to 39% of a project's original investment amount.