

# California Assessment of Wood Business Innovation Opportunities and Markets (CAWBIOM)

**RCDI Workshop**

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**Bill Carlson, Principal, Carlson Small Power Consultants**

**Roy Anderson, Vice President, The Beck Group**

# The Beck Group

- Forest Products Planning and Consulting Firm
- Located in Portland, OR

## Services:

- Competitive Assessments & Benchmarking
- Sawmill/Capital Project planning
- Merger and Acquisitions
- Timber/Fiber Supply
- Biomass – Pellets & Biomass CHP Planning/Feasibility

# Carlson Small Power Consultants

- Biomass Heat and Power Consulting Firm
- Located in Redding, CA
- **Services:**
  - Assistance with development of new power projects
  - Due diligence with sale/acquisition of existing power plant assets
  - Evaluation of operating assets from both a technical and economic perspective
  - Assistance with contractual issues between owners and host utilities and/or state regulatory agencies

# CAWBIOM - Overview

- National Forest Foundation is administering project
- Funding from U.S. Forest Service

## Objectives:

- Assess current status of CA forest products industry
- Identify legitimate business opportunities to help USFS increase pace and scale of restoration
- Identify gaps and weaknesses in policy that must be addressed
- Prepare business feasibility and business planning for the most promising opportunities
- Complete study by late fall 2015

# CAWBIOM - Methodology

- List of about 45 technologies for converting trees into forest products
- Screening process to identify most likely technologies/opportunities for detailed analysis
- Screens based on criteria such as:
  - Market attractiveness
  - Commercial readiness of technology
  - Scale of operation
  - Raw material supply
  - Policy/Regulatory constraints

# CAWBIOM – Preliminary Screening Results

“Top Ten” technologies:

- Cross Laminated Timber
- Veneer – Laminated Veneer Lumber
- Oriented Strand Board
- Veneer – Plywood
- I-joists, Finger-jointed Lumber, Glulam
- **Post and Pole**
- **Animal Bedding**
- **Small Biomass CHP**
- **Small Gasification/IC Engine CHP**
- **Small Gasification/IC Engine**

# Post and Pole

- Well proven, commercially deployed technology
- Typical plant consumes ~25,000 green tons of small diameter trees/year
- Ideal species is lodgepole pine, but ponderosa pine and white fir also used
- Treating posts and poles with preservative chemicals adds value, but higher CapEx and more complicated process; selling to a treater is an option
- Cap Ex ~\$2 to \$3 million
- Excellent market in California
- One plant would provide about 10 direct jobs



# Animal Bedding

- Convert small diameter roundwood directly to shavings
- Well proven, commercially deployed technology
- A variety of softwood species can be used
- Typical plant consumes ~25,000 green tons of small diameter trees per year
- One plant would provide about 3 to 4 direct jobs
- Large market in Southern California
- Few other producers in California
- Cap Ex ~\$2 to \$3 million





# Small Scale Gasification/IC Engine CHP

- Has potential to produce syngas, carbon products in addition to heat/power
- CHP can boost overall efficiency from 25% to 50 to 80%
- Size must remain within SB1122 limit of 3MW nameplate to be viable
- Various Gasification technologies available primarily proven in Europe

# Small Scale Gasification/IC Engine CHP

- If gas turbine could be used instead of IC engine, efficiency boost would be substantial
- Make sure that there are guarantees for:
  - Completion
  - Performance
  - Environmental
- Potential heat customers in CA forests:
  - Federal or state prisons
  - Military installations
  - UC and CSU campuses
  - Community colleges

# Small Scale Gasification/IC Engine CHP

- Inclusion of CHP can lower electric revenue requirement by \$25/MWH
- Best thermal host characteristics:
  - Current fossil fuel use
  - Fairly consistent need year round
  - Low grade heat requirement

# Small Scale Conventional CHP

- Must stay within 3MW limit of SB1122 program
- Must use forest derived fuels
- Several producers of conventional self cleaning grate boilers in this size range
- Project should easily meet guarantee requirements
- Properly designed, can automatically match any fluctuating thermal demand

# Influence of CA Greenhouse Gas Programs on Ranking/Technology Choice

- AB32 and follow on legislation have major impact on choices of technology
- If terminated in 2020, will have no impact on current projects
- If extended to 2050, with large further carbon reductions, will push projects toward carbon byproducts production
- CHP projects will now have potential for third revenue stream
- Path will likely be set by 2015/16 legislative session

# Large Scale Biomass Power

- CA built world's largest fleet of large (10-50 MW) biomass facilities in 1980s
- Plants relied on 20-30 year contracts with high initial energy rates, substantial capacity payments
- Most plants breaking even/losing money for last 12 to 15 years
- Continue running to avoid triggering capacity payment recapture
- Contracts now expiring and plants closing as no viable current contract options
- Further carbon legislation could save current fleet if carbon reductions valued
  - Likely best source of carbon capture & sequestration