Greenhouse Gas Analysis of the Cabin Creek Biomass Facility

Presented By:

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The Rundown

- Key CEQA Requirements
- GHG Emissions Estimates
- What does it all mean?
CEQA in a Nutshell

- Any discretionary action by a government agency triggers CEQA
- GHGs and Climate Change are one of many resource topics that must be analyzed
- Significant effects to the environment must be mitigated to the extent feasible
- Draft EIR ➔ Public Comments ➔ Final EIR
CEQA Statute and OPR Guidance

"Lead agencies should make a good-faith effort, based on available information, to calculate, model, or estimate the amount of CO2 and other GHG emissions from a project, including the emissions associated with vehicular traffic, energy consumption, water usage and construction activities."

CEQA Checklist Questions

► Climate change-related impacts are considered significant if implementation of the proposed project would do any of the following:
  ► Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
  ► Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.
## Mass Emissions of Biomass Facility

<table>
<thead>
<tr>
<th>Emissions Source</th>
<th>MT CO$_2$e/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syngas Combustion</td>
<td>26,526</td>
</tr>
<tr>
<td>Chipping of Biomass</td>
<td>301</td>
</tr>
<tr>
<td>Trucks Hauling Biomass and Biochar</td>
<td>96</td>
</tr>
<tr>
<td>Loader in Fuel Yard</td>
<td>197</td>
</tr>
<tr>
<td>Employee Commute Trips</td>
<td>35</td>
</tr>
<tr>
<td>Electricity Consumption from the Grid</td>
<td>1,134</td>
</tr>
<tr>
<td>Water Consumption</td>
<td>222</td>
</tr>
<tr>
<td>Wastewater Treatment</td>
<td>156</td>
</tr>
<tr>
<td>Construction Emissions (amortized)</td>
<td>5</td>
</tr>
<tr>
<td>Avoided Open Burning of Forest Thinning Slash and Hazardous Fuels</td>
<td>(24,858)</td>
</tr>
<tr>
<td><strong>Net Increase in Emissions</strong></td>
<td><strong>3,814</strong></td>
</tr>
</tbody>
</table>
Avoided Emissions
Project Design Considerations

- Location: Facility Design vs. Fuelshed Area
- Truck Size vs. Accessibility into Forests
- Truck Hauling Capacity vs. Number of Truck Trips
- Cost of Diesel Fuel
- Gate Fees
Considerations Not Accounted For

- Reduced Wildfire Risk
- Increased Timber Harvest Yield
- Future Potential Carbon Sequestration
- Potential displacement of fossil-fuel based electricity
Mass Emission Thresholds

- 25,000 MT CO$_2$e/year (EPA, CEQ)
- 10,000 MT CO$_2$e/year (BAAQMD, SDC)
- 1,150 MT CO$_2$e/year
- Carbon neutrality
Mass Emission Thresholds
GHG Efficiency

- Net increase in GHGs: 3,814 MT CO$_2$e
- Plant’s capacity: 2.0 MW
- Operations: 24/7, 330 days/year
- GHG efficiency: 0.22 MT CO$_2$e/MW-hr
GHG Efficiency of Electricity Production Serving California

- Project GHGs from Electricity Sector in 2020: 91.6 MMT CO2e
- Demand in 2020: 340,000 GW-hr/year
- Target GHG efficiency: 0.27 MT CO2e/MW-hr
Conditions Regarding Biomass Fuels

- Residuals form hazardous fuels reduction projects
- Forest thinning and harvest residuals
- WUI-sourced waste materials
- No urban wood (construction waste, demolition debris)
- Written documentation that all fuel would have been otherwise open burned
- Update Fuel Procurement Plan every 5 years
Thank You

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