HIA of Biomass Energy Facility in Placer County

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*This HIA was made possible through a grant from the Health Impact Project*
Presentation Outline

- Background-
  - Governor’s Bioenergy Action Plan
  - Why do an HIA on a BEF?
- HIA of Biomass Energy Facility Steps
- Health Impacts and Recommendations
- Evaluation or Project Process and Impact
- HIA Team
- Questions
Governor’s Bioenergy Action Plan

- 2012 Bioenergy Action Plan (Builds on plans from 2011, 2006)
- The 2012 *Bioenergy Action Plan* outlines strategies, goals, objectives, and actions that California state agencies will take to increase bioenergy development in California.
Current bioenergy production in California includes: 33 biomass plants that generate a combined 600 megawatts of electricity, nearly 2 percent of California’s total electricity supply.
The US Forest Service, California Department of Forestry and Fire, Sierra Nevada Conservancy, California Energy Commission, Placer County and others are working together to identify and promote community-scale biomass facilities in high fire hazard areas to reduce fire risks while providing local energy and other benefits.
Strategies to Increase Bioenergy Production and Reduce Waste

- Develop policies and programs to increase sustainable use of biomass residues from the forestry, agricultural, and urban sectors

- Increase research, development and demonstration of bioenergy

- Identify and create solutions or remedies to address regulatory, statutory, and utility interconnection challenges

- Monetize the benefits that bioenergy provides to local communities and California more broadly.
Goals of the 2012 Bioenergy Action Plan

- Increase environmentally and economically sustainable energy production from biomass residues, including but not limited to forest-derived wood waste, agricultural and food processing waste, wastewater, and urban-derived biomass.
- Increase the use of biomass for local distributed generation, combined heat and power facilities, fuel cells, and renewable transportation fuels.
- Undertake research and demonstration projects and develop funding mechanisms to stimulate deployment of cost-effective and sustainable bioenergy technologies.
- Stimulate economic development in rural and economically disadvantaged regions of the state.
- Reduce the risks and impacts of wildfires in forested regions.
- Improve air and water quality.
- Increase diversion of biomass from landfills.
- Streamline the permitting process through collaboration with stakeholders and local, regional, state, and federal agencies.
- Reduce emissions of potent GHG emissions such as methane that would otherwise be released into the atmosphere from animal waste and decomposing organic material.
Why an HIA

- The green waste composting experience
- Add a broader health perspective to decision-making context
- Decision-makers (Planning Commission/Board of Supervisors) open to analysis
- History of community unease with proposed facility
- Potentially able to insert HIA into EIA/R process
- Strong partners in place
- CDPH wanted the experience
HIA Steps

- Screening
- Scoping
- Assessment
- Recommendations
- Reporting
- Monitoring
## Health Pathways for the Operational Phase of the Project

### OP 000: OPERATION
- 40-yr lifespan
- Fuel from 30-mile radius

### Proximal Impact
- **Fire hazard**
  - ↓ open pile burns
  - ↓ on-site fire risks (and best practice mitigations)

- **Air quality**
  - ↓ open pile burns
  - ↓ # of vehicles
  - ↓ on-site equipment operations

- **Water quality**
  - ↓ water contamination risks (and best practice mitigations)

- **Traffic**
  - ↑ # of vehicles
  - ↓ vehicle schedules
  - ↓ vehicle routes

- **Community mental health**
  - ↓ fire risks
  - ↓ insurance cancelled
  - ↑ anxiety re: facility

- **Noise**
  - ↑ facility operation / traffic

- **Economic**
  - ↑ Unknown # of jobs
  - ↑ Taxes
  - ↑ Revenue
  - ↓ firefighting costs

- **Energy security**
  - ↑ infrastructure reliability
  - Stabilize home energy
  - Stabilize tourism

- **Ecology / wildlife**
  - ↑ forest ecology / environment
  - ↑ watershed

### Intermediate Outcome
- **Fire hazard**
  - ↑ fire risks
  - ↓ air quality
  - ↓ GHG emissions

- **Air quality**
  - ↑ air quality
  - ↑ GHG emissions

- **Water quality**
  - Water quality risks

- **Traffic**
  - ↑ noise
  - ↑ VMT
  - ↓ air quality
  - ↑ GHG emissions

- **Community mental health**
  - ↑ community anxiety

- **Noise**
  - ↑ community anxiety

### Health Outcomes
- **Fire hazard**
  - Community mental health
  - Insurance cancellations
  - Respiratory diseases
  - Injuries/death
  - Displacement

- **Air quality**
  - Respiratory diseases
  - Injuries/death
  - Discuss best practice mitigations & impacts

- **Water quality**
  - Water security/quality
  - Wildlife impact
  - Discuss best practice mitigations & impacts

- **Traffic**
  - Respiratory diseases
  - Injuries/death
  - Discuss best practice mitigations & impacts

- **Community mental health**
  - Stress; mental health

- **Noise**
  - Stress; mental health

- **Economic**
  - Increased medical access
  - Positive community health benefits

- **Energy security**
  - Positive household impacts
  - Positive economic impacts

- **Ecology / wildlife**
  - Stress; mental health
  - Economic impacts

### Data Sources
- USFS
- NOP / EIR
- Air district
- Pilot biomass studies
- Lit review

- NOP / EIR
- Air district
- Pilot biomass studies
- Lit review

- NOP / EIR
- Air district
- Community maps
- Lit review

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Regional View of the Project Site
Closer Views of the Project Site
Wildfire Risks in the Lake Tahoe and Truckee Areas

Map 2A

Fuel Rank
- Little or no hazard
- Moderate
- High
- Very high

Map 2B

Threat to people
- Low to none
- Moderate
- High
- Very high
- Extreme
Effect Characterization

- **Certainty**

| Unlikely | There is little evidence that impacts will occur as a result of the project, or limited plausibility given existing conditions |
| Possible | Health effects are logically plausible, but limited data and/or consensus exist to suggest a substantial risk for positive or negative impacts above existing baseline conditions |
| Likely | Health effects are logically plausible, and there is strong evidence to suggest that a change in health risks or health effects will occur |
| Very likely / certain | Adequate evidence exists that a health effect will occur, and that the impact will directly and causally impact health |
| Insufficient evidence / not evaluated | Evidence is inadequate to judge the certainty of a project impact/health effect |

- **Magnitude**

| Low | Positive or negative health effects would not be perceptible, and any changes would impact few people |
| Medium | Positive or negative health effects could result in minor changes in health for some households, and these changes would be reversible |
| High | Positive or negative health effects would accrue across the entire impacted community and would result in permanent changes in health |
| Insufficient evidence / not evaluated | Evidence is inadequate to judge the magnitude of a project impact/health effect |

- **Direction & Distribution**
## Determination of Health Effects

<table>
<thead>
<tr>
<th>Magnitude of Impact</th>
<th>Certainty of Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unlikely</td>
</tr>
<tr>
<td>Low</td>
<td><img src="image1" alt="Illustration" /></td>
</tr>
<tr>
<td>Medium</td>
<td><img src="image5" alt="Illustration" /></td>
</tr>
<tr>
<td>High</td>
<td><img src="image9" alt="Illustration" /></td>
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</table>
## Summary of Health Effects Assessment

<table>
<thead>
<tr>
<th>Potential Health Effect</th>
<th>Certainty</th>
<th>Magnitude</th>
<th>Summary Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AIR QUALITY &amp; HEALTH</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory irritation from fugitive dust</td>
<td>Unlikely</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Health impacts from construction and operations</td>
<td>Unlikely</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Health impacts from biomass facility emissions</td>
<td>Possible</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Health impacts from reduction in open-pile burns</td>
<td>Very likely</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Stress and anxiety from biomass facility emissions</td>
<td>Insufficient Evidence</td>
<td>Insufficient Evidence</td>
<td>Insufficient Evidence</td>
</tr>
<tr>
<td><strong>WILDFIRES &amp; HEALTH</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improvements in air quality and reductions in air-related respiratory illnesses.</td>
<td>Likely</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Reductions in physical injuries and home displacement</td>
<td>Possible</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Impacts to community mental health</td>
<td>Possible</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Community anxiety related to on-site wood storage &amp; fire risks</td>
<td>Possible</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td><strong>GREENHOUSE GAS EMISSIONS &amp; HEALTH</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitigation of climate change and related health effects related to greenhouse gas emission reductions from the proposed biomass facility</td>
<td>Unlikely</td>
<td>Low</td>
<td></td>
</tr>
</tbody>
</table>
### Summary of Health Effects Assessment

<table>
<thead>
<tr>
<th>Category</th>
<th>Assessment</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TRAFFIC AND TRANSPORTATION &amp; HEALTH</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Injuries and deaths due to traffic accidents</td>
<td>Unlikely</td>
<td>Low</td>
</tr>
<tr>
<td>Reductions in physical activity due to increases in traffic</td>
<td>Unlikely</td>
<td>Low</td>
</tr>
<tr>
<td><strong>WATER QUALITY &amp; HEALTH</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health effects from storm water contamination</td>
<td>Unlikely</td>
<td>Low</td>
</tr>
<tr>
<td>Health effects from increased sediment load and overflow of storm water</td>
<td>Unlikely</td>
<td>Low</td>
</tr>
<tr>
<td>Health effects related to improved water quality resulting from reduced open pile burns and wildfire risks</td>
<td>Insufficient evidence</td>
<td>Insufficient evidence</td>
</tr>
<tr>
<td><strong>NOISE &amp; HEALTH</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annoyance caused by daytime onsite construction noise</td>
<td>Unlikely</td>
<td>Low</td>
</tr>
<tr>
<td>Annoyance caused by daytime onsite operations noise</td>
<td>Unlikely</td>
<td>Low</td>
</tr>
<tr>
<td>Annoyance or sleep disturbance caused by nighttime operations</td>
<td>Unlikely</td>
<td>Low</td>
</tr>
<tr>
<td>Annoyance caused by daytime vehicle traffic</td>
<td>Unlikely</td>
<td>Low</td>
</tr>
<tr>
<td><strong>ECONOMIC and ENERGY SECURITY &amp; HEALTH</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health effects related to increased energy security</td>
<td>Unlikely</td>
<td>Low</td>
</tr>
<tr>
<td>Health effects related to increased income</td>
<td>Unlikely</td>
<td>Low</td>
</tr>
<tr>
<td>Health effects related to increased medical access</td>
<td>Unlikely</td>
<td>Low</td>
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Health Impacts and Recommendations

GREENHOUSE GAS (GHG) EMISSIONS - The project can benefit GHG reduction strategies when considering its broader impact on energy production and wildfire reduction. Health effects due to GHG emission reductions will not occur from this project alone.

- No Recommendations

TRAFFIC AND TRANSPORTATION - The relative increase in traffic and its associated risk to health is very small.

- Improve signage on SR 89 near Cabin Creek Road warning cyclists of project-related vehicles, and warning vehicles of the presence of a cyclist/pedestrian pathway.

WATER QUALITY - The proposed biomass facility will pose minimal health risk in terms of water security given mitigation measures in place.

- No Recommendations
Health Impacts and Recommendations

AIR QUALITY - Regional air quality will improve from the reduction of open pile burning. Low levels of emissions will be concentrated at the proposed project site; there is little evidence to suggest that these emissions will negatively impact health in surrounding communities.

- Develop a communications plan between residents and facility operators. Clear communication from facility operators and/or County staff could ease community anxieties regarding the facility.

- More frequent on-site inspections—for example, once during summer months and once during winter months—could ease community anxieties regarding emissions during winter months when an inversion layer is often present.

WILDFIRES - The project will reduce health effects related to wildfires and wildfire risk.

- Explore the feasibility of using residential wood waste as biomass fuel for the facility, including materials from wildfire defensible space clearance around homes.
Health Impacts and Recommendations

NOISE - Noise is not expected to impact health given the small impact the additional traffic will have on existing noise levels, and the remoteness of the project facility from the nearest households.

- Develop strong communication channels between nearby community residents and the Project Manager of the biomass facility to ensure that any noise complaints are quickly and expediently resolved.

ECONOMIC AND ENERGY SECURITY - The project may have small and limited positive health effects related to energy and economic security.

- Prioritize the hiring of local contractors for both facility construction and operations, as feasible.
Health Impact Assessment (HIA) - Placer County Biomass Facility

Goal: To assess the potential impacts of a biomass energy facility on human health following Health Impact Assessment standard practices and produce a report for decision makers.

**Inputs**
- Funding: PEW/RWJF grant
- Human Resources:
  - Sequoia Foundation staff
  - Placer Co staff
  - CDPH staff
  - TA Providers
  - Community members
- Tools:
  - HIA guidance tools and best practices
  - Health and air quality data

**Activities**
- Screening: HIA screening done
- Community stakeholders are trained on HIA process and involved in HIA
- Scoping: identify health issues and pathways of concern
- Assessment: health effects are studied
- Recommendations are drafted for stakeholders
- Report is created for Planning Commission

**Outputs**
- Project meets screening criteria and HIA initiated
- Staff and community are trained and actively involved
- Relevant health issues and health pathways are identified
- Assessment is completed
- Recommendations are shared with stakeholders and validated
- Report is shared with Planning Commission

**Outcomes**

**Short Term 0-6 mos**
- Involve stakeholders in HIA process
- Provide useful information to decision makers

**Medium Term 6-12 mos**
- Stakeholders feel engaged and are contributors
- HIA affects decision making re: facility
- Reports reflect stakeholder input
- Health protective policy in place regarding biomass facility

**Long Term 12+ mos.**
- Recommendations are shared with stakeholders and validated
- Reports reflect stakeholder input
- Health protective policy in place regarding biomass facility
- Disseminate findings across state to other agencies and communities considering similar facilities
- Improved health of population

**External Factors:**
Funding for facility, changes in proposed project plan, legal issues, political environment

**Policy makers consider Health impacts for future decisions**

**Public policy includes health considerations**

**Goal:** To assess the potential impacts of a biomass energy facility on human health following Health Impact Assessment standard practices and produce a report for decision makers.
The HIA Team

- Sequoia Foundation
  - Bindi Gandhi - HIA Project Manager
  - Max Richardson - HIA Technical Assistance
- California Department of Public Health
  - Environmental and Occupational Disease Control - Dr. Rick Kreutzer, Division Chief
- Placer County
  - Health Department - Dr. Rich Burton, Health Officer
  - Planning Department - Brett Storey, Project Manager

Additional Support provided by Health Impact Project (Katie Hirono & Aaron Wernham) and Habitat Health Impact Consulting (Ame-Lia Tamburrini)