Governor's Wildfire Response Council

Wildfire & Bioenergy from Forests
Topics for Discussion

1. Introduction
   • Personal
   • Oregon Governor’s Wildfire Council

2. Bioenergy & Wildfire
   • Added Dimensions from Wildfire

3. Urgency Surrounding Wildfire

4. Additional Public Values

5. Additional Challenges

6. Conclusions
# Professional Background

| Bioenergy-to-Forests – Operations | • Forest Capital Partners (Co-President)  
                                | • Other TIMO, Industry |
|-----------------------------------|--------------------------------------------------------------------------------|
| Bioenergy-to-Forests – Policy    | • National Alliance of Forest Owners (founding chair)  
                                | • State Associations |
| Bioenergy-to-Forests – Innovation | • Yale Carbon Containment Lab (Senior Advisor)  
                                | • Energy Futures Initiative (Advisor) |
| Climate Change – Policy          | • Oregon Global Warming Commission (charter member) |
| Sustainability, Conservation Finance | • Sustainable Forestry Initiative (board member)  
                                | • The Nature Conservancy (collaborator, advisor)  
                                | • US Forest Capital (founder) |
| Wildfire                         | • Oregon Wildfire Council (founding chair)  
                                | • Oregon Department of Forestry (advisor) |
Governor’s Wildfire Response Council
# Oregon Governor’s Wildfire Response Council

<table>
<thead>
<tr>
<th>Timeline</th>
<th>2019-2021</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mission</strong></td>
<td>Modernize Systems Amid Unfolding Crisis</td>
</tr>
</tbody>
</table>
| **Premise**   | • Frontlines of Climate Change  
                • Societal Challenge, Social Justice |
| **Composition** | Highly Diverse |
| **Contributors** | 120-150 |
| **Best Available Science** | • National Cohesive Wildland Management Strategy  
                                • Comprehensive Costs of Wildfire  
                                • Quantitative Risk Assessment |
| **Key Finding** | • Systems Built for Another Era  
                          • Comprehensive Change Needed |
| **Deliverable** | • 37 Recommendations  
                          • Basis for First Comprehensive Wildfire Strategy |
Can Bioenergy Help Address the Wildfire Crisis?
### Key Takeaways: Wildfire & Bioenergy

| New Dimensions                          | • Core Biofuels Issues Still Apply to Wildfire  
<table>
<thead>
<tr>
<th></th>
<th>• Added Dimensions as Well</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Public Values</td>
<td><em>Probably</em> very significant</td>
</tr>
<tr>
<td>Additional Challenges</td>
<td><em>Definitely</em> very significant</td>
</tr>
<tr>
<td>Solutions Needed</td>
<td>Crisis Unfolding</td>
</tr>
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</table>
## Core Issues Still Apply

<table>
<thead>
<tr>
<th>Policy Thesis</th>
<th>Bioenergy General</th>
<th>Bioenergy &amp; Wildfire Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean Energy</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Land Use Economics</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Job Creation</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td><strong>Policy Concerns</strong></td>
<td><strong>Sustainability</strong></td>
<td><strong>✓</strong></td>
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<tr>
<td></td>
<td><strong>Social Justice</strong></td>
<td><strong>✓</strong></td>
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<tr>
<td>------------------</td>
<td>-------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td><strong>Policy Thesis</strong></td>
<td>Avoided Emissions (smoke, decay)</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>Broader Values Environment</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>Broader Values Social</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>Broader Values Economic</td>
<td>✔</td>
</tr>
<tr>
<td><strong>Policy Concerns</strong></td>
<td>Public-private-partnership</td>
<td>✔</td>
</tr>
<tr>
<td><strong>Context</strong></td>
<td>Urgency Wood Waste Funding</td>
<td>✔</td>
</tr>
</tbody>
</table>
Added Dimensions

1. Urgency surrounding wildfire, landscape treatments, wood waste
2. Thesis: expanded public values
3. Challenges
Added Dimensions

1. Urgency surrounding wildfire, landscape treatments, wood waste
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An Unfolding Crisis

- Wildfire is the Front Line of Climate Change
  - Drought, Heat, Forest Mortality
  - Extended Fire Seasons
  - Social Justice
- Record Fire Seasons
- Catastrophic Damage to Communities, Environment
- Contributing Factors Worsening

This Photo by Unknown Author is licensed under CC BY-NC-ND
## Oregon Wildfire Council

<table>
<thead>
<tr>
<th>Critical Backlog</th>
<th>5.6 million acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Estimate</td>
<td>$4 billion</td>
</tr>
<tr>
<td>Increase Required</td>
<td>2-3x (20-year completion)</td>
</tr>
<tr>
<td></td>
<td>4-6x (10-year completion)</td>
</tr>
</tbody>
</table>
### National Perspective

**Critical Backlog**: 50 million *additional* acres over baseline

<table>
<thead>
<tr>
<th>Cost Estimate</th>
<th>$50 billion <em>additional</em></th>
</tr>
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<tbody>
<tr>
<td>Time Horizon</td>
<td>10 years</td>
</tr>
</tbody>
</table>

*Confronting the Wildfire Crisis, USDA January 2022*
Fate of Wood Waste?

- **Stack & Burn**
  - Fire risk
  - Emissions from smoke, decomposition
  - Opportunity cost: job creation

- **Burial, Storage**
  - Temporary
  - Permanent

- **Innovative Wood Products**
  - Building Materials
  - Mass Timber
  - Electricity
  - Transportation Fuels
Sustainable Funding Model?

- **Public**
  - Federal, State, Other
- **Private**
  - Innovative Wood Products
  - Property Owners, Insurance
- “Conservation Finance” & Other Mitigation Buyers
  - Carbon
  - Water
  - Health
1. Urgency surrounding wildfire, landscape treatments, wood waste
2. Thesis: expanded public values
3. Challenges
Comprehensive Costs of Wildfire

- Short-Term Expenses
- Long-Term Damage
- Other Human Loss
Short-Term Expenses

- Firefighting
- Home & Property
- Aid & Evacuation Relief
- Road & Landscape Recovery
Long-Term Damage

- Climate
  - Carbon emissions
  - Forest fertility, carbon sequestration potential

- Environment
  - Unnatural Fire Impacts to Ecosystems, Habitat
  - Water

- Economy
  - Local Business Disruption
  - Natural Resources
  - Property Values
  - Tourism & Recreation
  - Insurance

- Social
  - Tribal Resources
  - Power Outages
  - Public Finances
  - Infrastructure
  - Social Justice
Other Human Loss

- Loss of Life

- Health
  - Respiratory
  - Mental

- Community Vitality
  - Access to Outdoors

- Disruption
  - Community Rebuilding
  - Family Dislocation
  - Job Loss
Comprehensive Costs of Wildfire

- Studies Suggest 2-50x, Average 11x
- Excludes “Other Human Loss”

California Single Fire Season $100+ billion

- Forecasted Damage?

Mitigation Potential?
- Landscape Treatments
- Bioenergy
1. Urgency surrounding wildfire, landscape treatments, wood waste
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3. Challenges
Challenges

Wood Waste Costs
- Production, Freight

Competing Markets for Wood Waste

Wood Waste Revenues
- Monetizing Avoided Costs of Wildfire ("Carbon-Plus")

Public-Private Partnership
Monetizing Avoided Costs of Wildfire

Forecasting Costs

Establishing Additionality from Landscape Treatments
- Wildfire Response from Treatments

Cultivating Buyers
- Carbon
- Water, Energy, Other Infrastructure
- Health

Targeted v General Public Funding?
Public-Private-Partnership

- Dominance of Public Ownership in Western US
- Federal Forests & Renewable Energy Standards
- Public Funding
- Organizational Systems
- Shared Governance
  - Consensus on Outcomes
  - Legal Authorities
- Leadership Role of Large Landowners in Cultivating Wood Markets
  - Including Public Agencies
CONCLUSIONS
A Crisis Demanding Action

• Unfolding Wildfire Policies will Generate Significant Wood Waste
  • Needs: Disposal, Funding

• Wildfire & Climate Policies Must be Integrated (e.g., CA “Getting to Neutral”)
  • Biofuels Should Be Prioritized as Potential Wood Waste Markets

• Potential Benefits and Challenges Create Significant Body of Work
  • Science, Economics, Policy, Investment, Public Awareness

• Urgency Demands Multi-Sector Leadership