



# Woody Biomass Sustainability Provisions for Transportation Fuels and Greenhouse Gas Reductions

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**Low Carbon Fuel Standard**

**Sustainability Kick-Off Workshop**



## Development of Sustainable Forest Biomass Provisions for Transportation Fuels and Greenhouse Gas Reductions

### Objective:

**In consultation with State and Federal Forestry Agencies,**

Identify or develop scientific, empirically-based sustainability provisions for 1) **energy projects** using forest woody biomass and 2) **forest sector greenhouse gas emissions reduction projects** - that can be used consistently by all state and federal agencies to:

- 1) Meet greenhouse gas reduction goals for the forest sector (AB 32 Cap and Trade, Inventory) and
- 2) Produce sustainable, low-carbon transportation fuels and electricity from forest biomass feedstocks (AB 118, LCFS, RPS, RES).



## Sustainability Objectives

- **Enhance Forest Resiliency and Reduce Fire Risk by Improving Forest Conditions**
  - Protect and enhance public trust attributes
    - Ecology
    - Streams and Watersheds
    - Fish and Wildlife
    - Scenic Beauty
  - Active fuels management will produce large volumes of woody biomass waste streams
- **Promote Advanced Biofuels Industry**
  - Use woody biomass waste streams from fuels management
  - Develop sustainability provisions prior to market development
  - Reduce GHG footprint of transportation sector
- **Create Sustainable Forests and Sustainable Rural Economies**

**WIN–WIN–WIN Approach**



# Woody Biomass and Energy

- **Alternative Fuel Production – Advanced Biofuels**
  - Process technologies approaching commercialization.
  - Active planning by Energy Commission, ARB LCFS, US DOE and Federal Renewable Fuel Standard (2007 Energy Independence and Security Act)
    - 10 of 19 recent DOE ARRA awards totaled \$340 million for woody biomass
  - California currently uses 1 billion gallons of ethanol as E6 blendstock.
    - Increasing to 1.5 billion gallons through 2010 at E10 level
    - Projected to increase to about 3 billion gallons by 2022
  - Nearly all California ethanol made from imported corn. Need to switch to lower carbon feedstocks and build California production capacity

## Available Woody Biomass Feedstocks:

- 14 MBDT Technically Available Per Year – Economics Uncertain  
(Source: California Biomass Collaborative)
  - 14 MBDT could equal 1 billion gallons of ethanol annually (@80 gal/BDT)



# AB 118 Basics

## Alternative and Renewable Fuel and Technology Program

- **Purpose**

To transform California's transportation market into a diverse collection of alternative fuels and technologies and reduce California's dependence on petroleum.

*“...develop and deploy innovative technologies that transform California’s fuel and vehicle types to help attain the state’s climate change policies.”*

(Health and Safety Code Section 44272(a))

- **\$1.5 Billion State Funding Program**

For the *Alternative & Renewable Fuel and Vehicle Technology Program*, the Energy Commission will receive **\$120 million/year for over 7 years**.

California Air Resources Board will receive **\$80 million/year for over 7 years** for *Enhanced Fleet Modernization and Air Quality Improvement*.



## AB 118 Sustainability Provisions

### *California Health and Safety Code*

#### *Section 44271(a)(2)*

“Establish sustainability goals to ensure that alternative and renewable fuel and vehicle deployment projects, on a full fuel-cycle basis, ***will not adversely impact natural resources, especially state and federal lands.***”



## Energy Commission AB 118 Rulemaking

- One year rulemaking process to interpret statutory direction and develop program regulations and sustainability provisions
- Worked through Sustainability Working Group to develop definitions, goals and project evaluation criteria
- Multi-Agency and Stakeholder Process



## Sustainability and Existing Regulatory Standards

- California has stringent regulatory standards:
  - CEQA                      Environmental Permits
  - Air quality                Water quality
  - Toxics                     Biodiversity Protection
  - Land Use                 Forestry
- Federal laws and regulations also stringent:
  - NEPA                      Clean Water Act
  - FLPMA                    Endangered Species Act

**How Do We Define Sustainability?**



## Energy Commission Staff Assumptions for Sustainability Definitions

- Sustainability likely means doing something better than is currently done
  - But how much better? At what cost? What is value gained?
- Sustainability goals and measures will generally require environmental performance and production practices that exceed extant regulatory standards
  - Is this true for forest sector on state and federal lands???
  - California State and Federal forestry agencies have robust regulatory programs
  - Role of IFWG Task 3 Working Group to Investigate Sustainability Issues
- **AB 118 Focus on best mgmt practices, technologies and certification programs rather than environmental regulation or performance standards**
  - Energy Commission not appropriate agency for setting performance standards across multiple technologies, fuel pathways and environmental media



## Sustainability and Renewable Biomass Definitions

- **AB 118:** Energy Commission needed to determine which definition to adopt in regulation:
  - 2007 EISA / RFS exclusion of woody biomass from federal lands?
  - Commission determined RFS definition did not meet state forestry and energy policy goals
    - Developed own regulatory language through Sustainability Working Group
- **Low Carbon Fuel Standard: Similar Issues**
- **RPS/RES: Biomass Electricity Generators**
  - No sustainability requirements or environmental criteria



## Energy Commission AB 118 Regulatory Language for Forest Biomass Sustainability

*Section 3101.5 (F)* Projects that use forest biomass resources as part of their feedstock, and that demonstrate the advancement of natural resource protection goals, are those that use forest biomass collection or harvesting practices that do not diminish the ecological values of forest stands, and that are consistent with forest restoration, fire risk management and ecosystem management goals.

*(February 2009)*

**Good general policy, but need technical component.**

**Joined IFWG for Collaborative Technical Support**



## IFWG Task 3 Sustainability Work Plan

### APPROACH

- Evaluate how existing State and Federal regulatory programs assure ecological sustainability in use of forest biomass
- Use scientific reviews, public workshops and other information to fill knowledge gaps
- Task 3 team may propose changes to existing regulatory programs
- Assess economic sustainability issues
- Build from IFWG Tasks 1 and 2



## IFWG Task 3 Proposed Work Plan

1. Organize multi-stakeholder IFWG Technical Team for Task 3 and finalize Work Plan.
2. Develop and implement a **Public Involvement Process** that ensures that IFWG goals are met, while **providing stakeholders with the meaningful opportunity to participate in achieving these goals.**



## IFWG Task 3 Proposed Work Plan

### 3. Build on Task 2 results to **review state and federal forest practice regulations for sustainable forest biomass utilization:** (Two Tracks—State and Federal).

- a) Confirm scope of existing environmental review and permitting processes used for forest biomass operations.
- b) Identify other applicable local, state and federal regulations
- c) Review and evaluate existing forest regulations and planning procedures with respect to sustainability needs, identifying knowledge gaps, needed amendments, and implementation issues.
- d) Benchmark state and federal regulations and planning procedures against 3<sup>rd</sup> party sustainable forestry certification programs and appropriate international programs.



## IFWG Task 3 Proposed Work Plan

4. Organize and conduct a public workshop that:
  - a) Examines the issues surrounding the sustainable use of woody biomass from California's public and private forests for energy production (transportation fuels and electricity), and
  - b) Examines how forest management, fuels management, and harvesting prescriptions affect forest carbon balances, public trust resources, fire risk, and energy feedstock supplies.

The workshop will consider a range of project objectives, locations, scale and timelines, management objectives, existing and target site conditions, and sustainability protocols.

**Question: Do USFS Fire Conference and Pinchot-Heinz Symposium Satisfy Need for Public Workshop?**



## IFWG Task 3 Proposed Work Plan

### **5. Identify working examples in the field**

on public and private lands in California to clarify issues with sustainable forest biomass.

- a) Select sites to illustrate a range of management goals, landscape characteristics, ownerships, prescriptions, and project objectives, and impacts of utilization.
- b) Use site visits to focus discussions of sustainability concerns:



## IFWG Task 3 Proposed Work Plan

6. **Provide funding opportunities** through the Energy Commission's AB 118 program for forest biomass projects that integrate sustainable forest biomass harvest prescriptions with the development of low carbon transportation fuels.



## IFWG Task 3 Proposed Work Plan

7. Fund research on economic, policy and forest science questions affecting sustainable biomass utilization.
  - a) Review Task 1 Inventory data with respect to measuring and accounting for sustained, cumulative carbon “benefits” and “losses”.
  - b) Review and assess emerging fuel production technologies from forest biomass
  - c) Identify risks to the State’s stored forest carbon stocks and ecological resources from catastrophic fire— carbon emissions and ecological impacts
  - d) Evaluate how alternative forest prescriptions affect carbon sequestration and storage potentials for California forests



## IFWG Task 3 Proposed Work Plan

### 7. Sustainability Research (continued)

- e) Evaluate public policy barriers and incentives for sustainable forest biomass utilization, including:
- f) Assess regional forest feedstock acquisition costs and cost factors:
  - Identify key economic factors for development of woody biomass energy projects
  - Site conditions, transportation factors, fuel treatment intensity, and management objectives.
- g) Economic analyses of:
  - a) landowner incentives and barriers.
  - b) Carbon credit value from LCFS and AB 32
- h) Identify those factors needed to foster sustainable communities with woody biomass-based energy production as element.



## IFWG Task 3 Proposed Work Plan

8. Summarize and evaluate the information developed in Tasks 3 through 7 in one or more public workshops or symposia.

field tours, site assessments, pilot projects, and scientific and economic research

9. Develop pilot-project case studies that would integrate new processing technologies, economic and ecological sustainability studies, and scientific and policy research, to demonstrate and evaluate forest biomass sustainability.



## IFWG Task 3 Proposed Work Plan

10. Based on information derived from the above-described research and pilot projects:

- a) Develop sustainability provisions for use in low carbon energy production projects and greenhouse gas reduction projects, and
- b) Provide possible recommendations to IFWG on monitoring, carbon accounting, changes to state and federal program implementation, policies and regulations, and other issues.



## IFWG Task 3

# Accomplishments and Next Steps

1. Released Public Review Draft Workplan on Nov. 23, 2009
  - Received written comments from numerous stakeholders
2. Presented Workplan at Jan. 6, 2010 Board of Forestry Meeting
3. Merge LCFS, AB 118 and IFWG Forest Sustainability Efforts
4. Begin Forest Biomass Sustainability Stakeholder Working Group Meetings in April
5. Allocate \$2 million in AB 118 forest biomass sustainability research funding
6. Begin field tours, site assessments and regulatory assessments



## IFWG Task 3 Proposed Work Plan

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