



SUSTAINABILITY GOALS AND EVALUATION CRITERIA FOR AB 118: The Alternative and Renewable Fuel and Technology Program

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SUSTAINABILITY WORKING GROUP MEETING

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Meeting Purpose

- Review and discuss staff proposal for interpreting and applying sustainability goals and evaluation criteria to AB 118 solicitations and project proposals
 - Applicability
 - Information requirements
 - Weighting factors
 - Definitions



Where We Are in AB 118 Process

- Fourth sustainability workshop
- Sustainability goals and evaluation criteria part of proposed regulations.
 - Adopted by Commission on Feb. 25
 - Office of Administrative Law review on Apr. 25
- Revised Draft Investment Plan released March 30. Considered for adoption at April 22 Business Meeting.
- \$ 4 million for sustainability research
 - Contractor work on sustainability underway



AB 118 and Federal Stimulus \$\$

- Energy Commission will use AB 118 funds as state matching grant for Federal Stimulus Funding in effort to at least double alternative fuel and vehicle project money available to California.
- Be prepared for rapid submittal of project proposals that can meet AB 118 program qualifications and Federal Stimulus Program qualifications.
- CEC will host bidder workshops in April – May timeframe.



Sustainability and Investment Plan Funding Categories

Fuel / Technology	2-Year Funding Allocation (million)
Electric Drive	\$46
Hydrogen	\$40
Ethanol (waste stream feedstocks)	\$12
Renewable Diesel / Biodiesel (waste stream)	\$6
Natural Gas (Includes \$10 M biomethane)	\$43
Propane	\$2
Non-GHG Support	\$27
Total	\$176
Sub-total Biofuels (ethanol, biodiesel, biomethane)	\$28



Ethanol / Biodiesel Funding

FUEL	PROJECTS	NO. PROJECTS	\$\$ (million)
Ethanol	Feedstock & Project Feasibility Studies	20	3
	New Pilot Plants Using Waste Stream Feedstocks	2	4
	E-85 Fueling Stations	50	5
Biodiesel	Production Plants Using Waste Feedstocks	5	2
	Fuel Terminal Storage and Blending Facilities	2	4
Total			18



Sustainability and AB 118

- “A rapid transition to alternative fuels has the potential to encourage environmentally destructive production practices
- We have developed sustainability goals and criteria for AB 118, and will consider sustainability in every funding decision we make”

Commissioner Karen Douglas

– January, 2009





Guiding Principal for Integrating Sustainability Into AB118

- **AB 118 is an Incentive Program Based on Public Money:**
 - Set High Standards for Sustainability
 - Identify and Promote Transportation-Related GHG-Reduction Projects that are Exemplary in Sustainability and Environmental Performance
 - Support Projects that Can Serve as National and International Models



Energy Commission Approach

- Initial focus on bioenergy crops and biomass resources due to controversy over natural resource impacts and land use effects
- Initial California focus
 - Assuming sustainability means environmental performance beyond regulatory standards, need to develop new concepts to implement
- National-Level Sustainability Definitions and Criteria
 - Track work from federal agencies and national working groups
- International Certification of Sustainable Production
 - Staff tracking main international programs
 - No assessment work yet
- Fund research for sustainability implementation



Staff Assumptions

- Sustainability means “lower impact” not “zero impact”
- Sustainability encompasses global environmental and social issues and cannot be limited to “state’s natural resources”
- Sustainability goals and measures will require environmental performance and production practices that exceed extant regulatory standards
- Infrastructure cannot be separated from fuel pathway



AB 118 Sustainability Goals and Evaluation Criteria:

Project Applicability and Information Requirements



AB 118 Sustainability Program is Work in Progress

- Applying Sustainability Goals and Criteria to AB 118 Projects is a Work in Progress
 - Living Document
- Likely first government application of sustainability criteria to a funding or regulatory program in U.S.
- Precursor to Sustainability Certification
- Continuous improvement through learning and stakeholder dialog
- We will begin simply in 2008-09 funding cycle



3 Sustainability Goals

1. **Substantially reduce the greenhouse gas emissions** associated with California's transportation system to help meet California's 2020 and 2050 climate goals
2. **Protect the environment** from the effects of alternative and renewable fuel development and to **promote the superior environmental performance** of alternative and renewable fuels, infrastructure and vehicle technologies
3. **Enhance market and public acceptance of sustainably produced alternative and renewable fuels** by developing, promoting, and creating incentives for the production of such fuels in **accordance with certified sustainable production practices and standards**



11 Evaluation Criteria

1. Greenhouse Gas Emissions
2. Superior Env. Performance / Natural Resource Protection
 - 2A. Waste Streams as Feedstocks
 - 2B. Use Existing BMPs
 - 2C. Purpose Grown Energy Crops
 - 2D. Water
 - 2E. Renewable Energy / Cogeneration
 - 2F. Forest Biomass
 - 2G. Co-Benefits
 - 2H. Infrastructure with Low Carbon Intensity Fuels
3. Certified Sustainable Production Practices



Applicability

- Goal 1 – GHG Reduction – applies to all physical projects
- Goals 2 and 3 apply to all biomass-related projects:
 - Infrastructure used to transport, distribute, and sell biofuels
 - Bio-refineries and bio-processing facilities for biofuels
 - Feedstocks for biofuel production, including waste streams, forest biomass, and purpose-grown energy crops
 - Renewable hydrogen
- Goals 2 and 3 may be applied to hydrogen



Applicability

- Goals 2 and 3 will not be applied to:
 - Vehicle projects
 - Battery projects
- No sustainability goals will be applied to Non-GHG categories specified in Investment Plan
 - Workforce training - Tech assistance
 - Public Outreach- Market analysis



Applicability

- As appropriate, sustainability criteria will be applied to:
 - Interagency Agreements
 - Federal stimulus program state matching grants
 - Biofuel project feasibility studies identified in Investment Plan
 - Opportunity to work with project developers to maximize sustainability elements of projects



Table 1 - Summary of Applicability

Criteria	Infra-structure	Bio-Refineries	Feed-stocks
<u>Criteria 1:</u> Strong preference for projects with substantial reductions in greenhouse gas emissions	x	x	x
<u>Criteria 2:</u> Strong preference to projects demonstrating environmental protection, natural resource preservation and superior environmental performance	x	x	x
<u>Criteria 2A:</u> Projects that maximize use of waste streams as feedstocks		x	x
<u>Criteria 2B:</u> Use of existing BMPs from natural resource and pollution control agencies	x	x	x
<u>Criteria 2C:</u> For purpose-grown energy crops:			x
<u>Criteria 2C(i)</u> Sustainability best management practices plan for specific bio-energy crops			x
<u>Criteria 2C(ii)</u> Use of lands historically used for agricultural purposes			x
<u>Criteria 2C(iii)</u> Use of marginal crop lands not used for food and that do not displace food crops			x
<u>Criteria 2C(iv)</u> Use of crops uniquely suited to climate, water and natural resource constraints in California			x
<u>Criteria 2D:</u> Projects that 1) use water efficiency and water use reduction measures, 2) use recycled or reclaimed water, and 3) reduce / eliminate point and nonpoint source wastewater discharge	x	x	x



Table 1 - Summary of Applicability

Criteria	Infra-structure	Bio-Refineries	Feed-stocks
<u>Criteria 2E:</u> Projects that use 1) renewable energy or 2) cogeneration in production, processing or distribution	x	x	x
<u>Criteria 2F:</u> Projects that use forest biomass resources collected or harvested in a manner that does not diminish ecological values and that is consistent with restoration, fire risk management and ecosystem management goals.		x	x
<u>Criteria 2G:</u> Projects that create benefits to state natural resources or ameliorate degraded resources		x	x
<u>Criteria 2H:</u> Alternative fuel infrastructure projects that 1) use low carbon intensity fuels, 2) fuels produced in accordance with natural resource and superior environmental performance goals, or 3) fuels produced in accordance with a certified sustainability protocol	x		
<u>Criteria 3:</u> Preference to projects which 1) produce certified sustainable feedstocks, or 2) produce or distribute alternative fuels, in accordance sustainability certification standards	x	x	x



Sustainability Information Requirements



Obligation to Provide Sustainability Information

- **All applicants expected to provide sustainability information**
 - Information should correspond to Table 2 descriptions and solicitation-specific requirements
 - Insufficient staff capacity to examine binders of CEQA or NEPA material
 - **Burden of Proof for good information is with applicants**
 - Applicants should be prepared to support sustainability claims
- Applicants may choose not to submit sustainability information
 - Would receive zero sustainability score in competitive bidding



Table 2: Criteria-Specific Information

Sustainability Goal	Evaluation Criteria	Applicability	Weight Factor	Metric	Information Requirement
<u>Goal No. 1</u> Substantial Reduction of Greenhouse Gas Emissions	<u>Criteria 1</u> Projects with lowest greenhouse gas emissions from LCFS petroleum baseline <i>(b)(1)(B)</i>	All project types and categories	Very High	Life-cycle scale greenhouse gas carbon intensity value (GHG number)	GREET 1.8(b) value, or LCFS methods 1 or 2, or approved CEC alternative method <i>(b)(1)(a)</i>



Table 2: Criteria-Specific Information

Sustainability Goal	Evaluation Criteria	Applicability	Weight Factor	Metric	Information Requirement
<p><u>Goal No. 2</u> Protect the environment and natural resources and promote superior environmental performance</p>	<p><u>Criteria 2</u> Strong preference to projects demonstrating environmental protection, natural resource preservation and superior environmental performance</p> <p>Compared to baseline practices</p>	<p>All Infrastructure Bio-refineries Bio-feedstocks</p>	<p>High</p>		<p>Natural resource inputs & impacts.</p> <p>Water, energy, chemical inputs.</p> <p>Energy balance. Process efficiency.</p> <p>Waste streams.</p> <p>Env. impact information. CEQA-type information.</p>

Refer to definition section for more information



Weighting Factors

Sustainability Scores

Project Examples



Weighting Factors

- All AB 118 applications will be assessed using:
 - general criteria (Section 3101)
 - sustainability criteria (Section 3101.5)
- Staff still determining relative weights of general and sustainability criteria
 - CEC staff experienced scoring proposals
- Qualitative sustainability weighting factors proposed in document



Sustainability Weighting Factors

3 Main Elements of Sustainability Score

1. Life cycle scale GHG score using GREET or other approved method
 - Expressed as GREET score or percent reduction from petroleum baseline
2. Tally of sustainability criteria and corresponding score
3. Qualitative “Sustainability Footprint” assessment based on Criteria 2
 - Impact mitigation v impact avoidance

We intend to start simply in initial years



Sustainability Weighting Factors

Criteria	Weighting Factor
<u>Criteria 1</u> Strong preference for projects with substantial reductions in greenhouse gas emissions	Very High
<u>Criteria 2</u> Strong preference to projects demonstrating environmental protection, natural resource preservation and superior environmental performance	High
<u>Criteria 2A</u> Projects that maximize use of waste streams as feedstocks	Very High
<u>Criteria 2B</u> Use of existing BMPs from natural resource and pollution control agencies	Med
<u>Criteria 2C</u> For purpose-grown energy crops:	
<u>Criteria 2C(i)</u> Sustainability best management practices plan for specific bio-energy crops	Med
<u>Criteria 2C(ii)</u> Use of lands historically used for agricultural purposes	Low
<u>Criteria 2C(iii)</u> Use of marginal crop lands not used for food and that do not displace food crops	High
<u>Criteria 2C(iv)</u> Use of crops uniquely suited to climate, water and natural resource constraints in California	High



Sustainability Weighting Factors

Criteria	Weighting Factor
<u>Criteria 2D</u> Projects that 1) use water efficiency and water use reduction measures, 2) use recycled or reclaimed water, and 3) reduce / eliminate point and nonpoint source wastewater discharge	Very High
<u>Criteria 2E</u> Projects that use 1) renewable energy or 2) cogeneration in production, processing or distribution	High
<u>Criteria 2F</u> Projects that use forest biomass resources collected or harvested in a manner that does not diminish ecological values and that is consistent with restoration, fire risk management and ecosystem management goals.	High
<u>Criteria 2G</u> Projects that create benefits to state natural resources or ameliorate degraded resources	Med
<u>Criteria 2H</u> Alternative fuel infrastructure projects that 1) use low carbon intensity fuels, 2) fuels produced in accordance with natural resource and superior environmental performance goals, or 3) fuels produced in accordance with a certified sustainability protocol	High
<u>Criteria 3</u> Preference to projects which 1) produce sustainable feedstocks, or 2) produce or distribute alternative fuels, in accordance with sustainability certification standards	Very High



Example 1 – GHG Score for Infrastructure Project Using Blend of Ethanol Products

	CaRFG Baseline* (gCO ₂ - e/MJ)	Cal GREET with iLUC* (gCO ₂ - e/MJ)	Difference from Baseline	Percent Fuel Blend	Weighted Difference from baseline
CA Dry Mill WDGS with 100 percent natural gas fuel	95.85	77.4	18.45	50	9.22
Mid-West Avg Corn	95.85	99.4	-3.55	40	-1.42
CA Sweet Sorghum	95.85	30**	65.85	10	6.58
Total weighted difference from baseline (Cal RFG = 95.8)	-	-	-	-	14.39

Weighted Carbon Intensity Score = 81.4



Example 2 – Sustainability Assessment for 10,000 Acre Sweet Sorghum Project

Criteria	Weight Factor	Sample Answer
<u>Criteria 1 - GHG</u>	Very High	Estimated carbon intensity of 30 gCO ₂ -e/MJ is 65 % lower than CaRFG baseline.
<u>Criteria 2</u> resource preservation and superior environmental performance	High	low water requirements, grows well on marginal soils
<u>Criteria 2A</u> waste streams	Very High	Not applicable
<u>Criteria 2B</u> Use existing BMPs from natural resource / pollution control agencies	Med	Precision Pest Control Application from USDA Natural Resources Conservation Service Electronic Field
<u>Criteria 2C(i)</u> Sustainability Best Management Practices plan for specific bio-energy crops	Med	Grower working with UC Davis to develop sweet sorghum specific BMPs to address soil, fertilizer application and water use.
<u>Criteria 2C(ii)</u> Use of lands historically used for agricultural purposes	Low	10,000 acres are all previously used agricultural land
<u>Criteria 2C(iii)</u> Use marginal crop lands & does not displace food crops	High	5,000 acres marginal land. 5,000 acres displaces cotton. Sorghum moderately tolerant to soil salinity.
<u>Criteria 2C(iv)</u> uniquely suited to climate, water and natural resource constraints	High	Sweet sorghum is drought resistant, low water requirements, grows well in Cal.



Example 2 – Sustainability Assessment for 10,000 Acre Sweet Sorghum Project

Criteria	Weight Factor	Sample Answer
<p><u>Criteria 2D</u> 1) use water efficiency and water use reduction measures, 2) use recycled or reclaimed water, and 3) reduce / eliminate point and nonpoint source wastewater discharge</p>	<p>Very High</p>	<p>Can be grown in semi-arid lands. Low water requirements & drought resistant: Uses 45% less water than extant cotton crop. Run off reduction measures in place.</p>
<p><u>Criteria 2E</u> Renewable energy / Cogeneration</p>	<p>High</p>	<p>Not applicable</p>
<p><u>Criteria 2F</u> forest biomass resources</p>	<p>High</p>	<p>Not applicable</p>
<p><u>Criteria 2G</u> Create co-benefits to natural resources</p>	<p>Med</p>	<p>Data not available</p>
<p><u>Criteria 2H</u> Infrastructure w/ low carbon intensity fuels</p>	<p>High</p>	<p>Not applicable</p>
<p><u>Criteria 3</u> Preference to projects which 1) produce sustainable feedstocks, or 2) produce or distribute alternative fuels, in accordance sustainability certification standards</p>	<p>High</p>	<p>Principles from the Roundtable on Sustainable Biofuels have been incorporated though certification is not yet available.</p>



Example 2 – Sustainability Assessment for 10,000 Acre Sweet Sorghum Project

Qualitative Sustainability Assessment

- Strong GHG score of 30 gCO₂-e/MJ
- Bioenergy crop:
 - Sustainability BMP
 - Grown on historic agricultural lands
 - 50% use of marginal lands
 - No displacement of food crops
 - “Uniquely suited” to California natural resources
- Low water requirement – 45% less than corn
- Incorporating RSB sustainability factors



Open Discussion