



CALIFORNIA ENERGY COMMISSION

California Energy Commission's AB 118 SUSTAINABILITY PROGRAM

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Emerging Fuels and Technologies Office

California Biomass Collaborative Annual Conference

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California Nation-State Statistics

- Population: 36.8 million
- GDP: \$1.8 trillion - 8th largest global economy
- GHG Emissions: 440 MMT (2004)
 - 7.2% of U.S. Emissions (Pew Center)
 - 10th largest emitter on global scale
 - **Transportation accounts for 38 % of all GHG emissions**
- Vehicles: 26.3 million cars + 0.92 million trucks
- Annual Fuel Consumption: 20 billion gallons
 - 16 billion gallons gasoline (>1 billion gallons ethanol E10)
 - 4 billion gallons diesel
 - **3rd largest consumer of vehicle fuels after China and US**



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.”



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”

Energy Commission Chair

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
- Incentive program is different than regulatory programs like LCFS



What Sustainability Factors Will We Consider in Full Fuel-Cycle Analysis ?

Environmental and Ecological Factors

GHG Emissions	Energy Use	State & Federal Lands
Criteria & Toxic Emissions	Biodiversity	Land Use Changes
Water Use	Ecosystems & Habitats	
Waste Water Discharge	Forest Cover	

Economic Factors

Economic Development Benefits	Costs to Developers for Certification and AB 118 Application Preparation
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Social Factors

Public Health Effects	Environmental Justice / Disproportionate Effects to Disadvantaged Populations
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What Do We Mean By Sustainability?

“development that meets the needs of the present without compromising the ability of future generations to meet their own needs”

Brundladt Report, 1987 World Commission on Environment and Development



Does Sustainability Mean “Better Than What We Do Now?”

1. Better than what? – To what are we comparing alternative fuels and vehicle technologies?
 - Petroleum Baseline
 - Agricultural Production Baseline
 - Natural Resource Extraction Baseline
2. How much better?
3. What do we need to measure to know if we are doing things differently enough for them to be better?
4. At what scale do we measure these things?



Perspective

Compared to What?



Niger Delta



Oil Spill in Niger Delta



Sumatran Palm
Oil Plantation



Sustainability and Existing Regulatory Standards

- What is the relation between a Sustainable Practice and Existing Regulatory Standards?
- California has stringent standards:

CEQA

Environmental Permits

Air quality

Water quality

Toxics

Biodiversity Protection

Land Use Labor

Does This Equal Sustainability?

(Note: Compliance is cornerstone of international standards)



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 and fuel pathways interconnected
- Focus on practices, technologies and certification programs rather than performance standards
 - CEC not appropriate agency for setting performance standards across multiple technologies and environmental media
 - Performance standard essentially an environmental regulation



AB 118 Sustainability Goals and Evaluation Criteria



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**

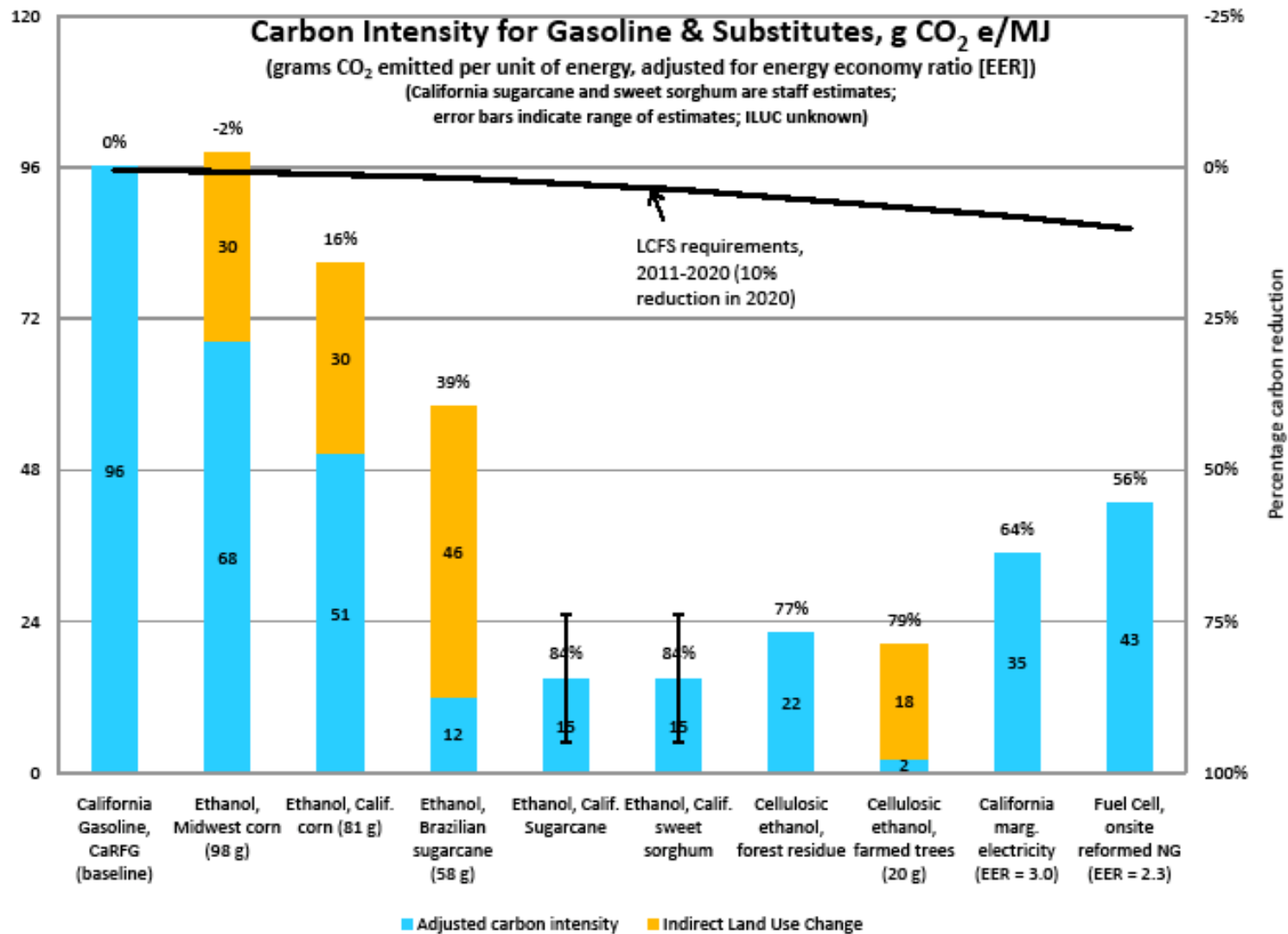


11 Evaluation Criteria

- **Goal 1– GHG Reductions**

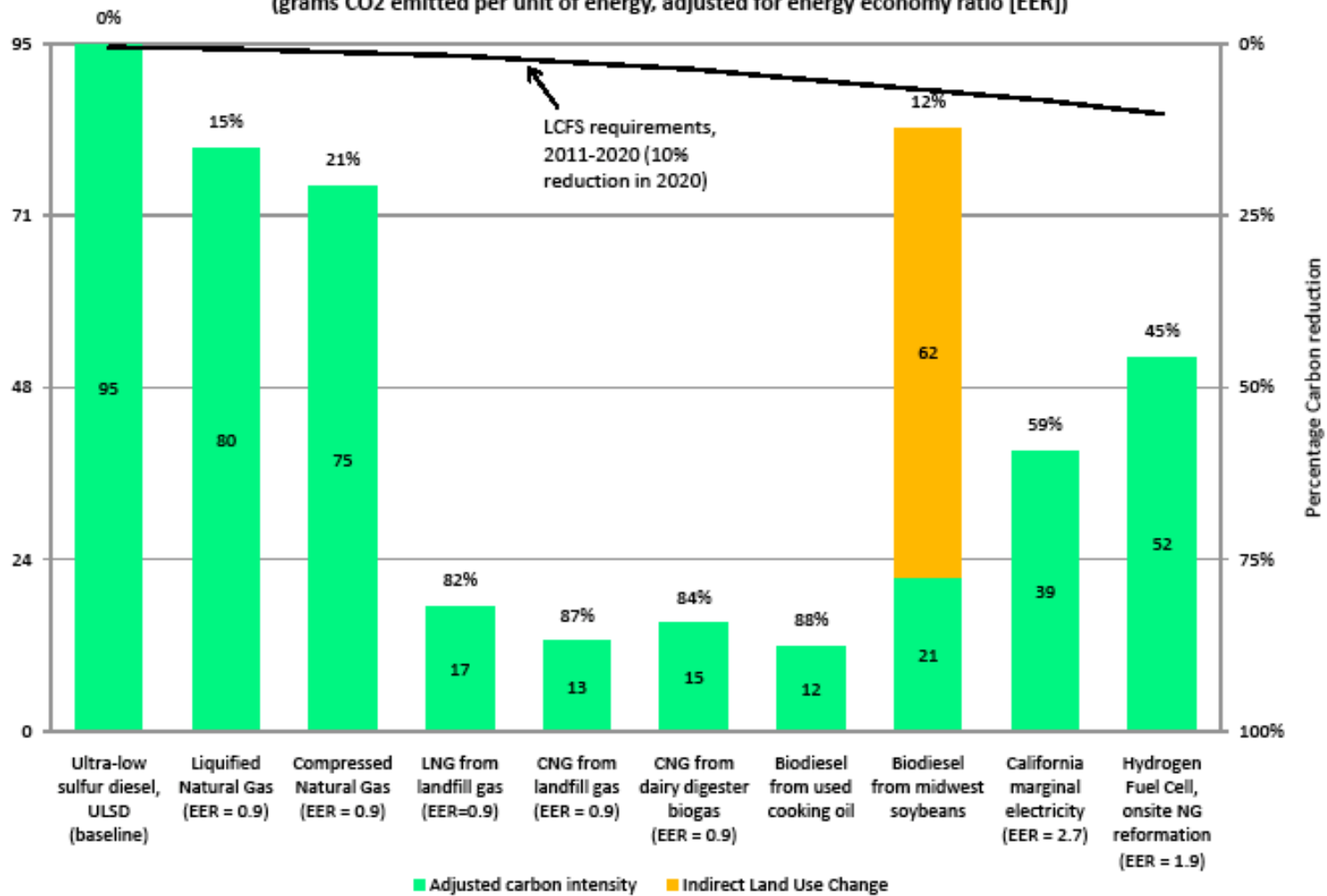
Fund projects with lowest greenhouse gas emissions from petroleum baseline using life-cycle analysis

- Greenhouse Gases, Regulated Emissions and Energy Use in Transportation (GREET) model
- Includes indirect land use estimates





Carbon Intensity for Diesel & Substitutes, g CO₂ e/MJ (grams CO₂ emitted per unit of energy, adjusted for energy economy ratio [EER])





Evaluation Criteria

Goal No. 2 – Protect natural resources and promote superior environmental performance

- **Maximize Use of Waste Streams in Feedstocks**
- **Recognize Use of Best Management Practices**
- **Purpose-Grown Energy Crops**
 - Use lands historically used for agricultural purposes
 - Use marginal crop lands not used for food and that do not displace food crops



Evaluation Criteria

- **Recognize Water Use Efficiency and Reduction of Wastewater Discharge**
- **Recognize use of Renewable Energy**
- **Forest Biomass**
 - “forest biomass collection practices that do not diminish ecological values ... consistent with forest restoration, fire risk mgmt, ecosystem mgmt”
- **Co-Benefits**
- **Link Alternative Fuel Infrastructure to Low Carbon Fuels**



Evaluation Criteria

- **Goal 3 – Promote certified sustainable production practices and standards**

Program Examples:

RSB

RSPO

UK RTFO

Council Sustainable Biomass Production

Sustainable Biodiesel Alliance

European Commission Sustainability Criteria and Certification

Forest Stewardship Council

Primary tool for driving sustainable practices in international arena



AB 118 Sustainability Program: Current Activities

- Develop forest biomass sustainability criteria through Interagency Forestry Working Group
- Determine if sustainability parameters are suitable for GREET-type models
 - TIAX sustainability consultant report
 - Water Supply
 - Soil Quality
 - Water Quality
 - Biodiversity
- Develop regional scale analyses to assess large scale bioenergy crop development
 - Develop alternative tools to project-scale assessments
 - Can sustainability certification programs constrain land use change more effectively than GTAP-type model runs for iLUC?



Application of Sustainability Criteria to AB 118 Funding Proposals

- **2009 ARRA Solicitations – \$36 million match from AB 118**
 - Criteria applied to about 20 of 136 proposals
 - Sustainability & GHGs = 50% weight factor
 - Issues with applicability, definitions and scoring criteria
 - Spurred creative project designs
- **2009-2010 AB 118 Solicitations – \$44.8 million**
 - 145 proposals for Biogas, Infrastructure, & MD-HD Vehicles
 - Sustainability & GHGs = 20% weight factor
 - Wide range of treatments in proposals
 - First carbon negative project – Argonne / Eurisko Anaerobic Digestion
 - Least Sustainable – megafloora tree farm in SJ Valley
- **Result: Sustainability Program Beginning to Shape Project Design**



Application of Sustainability Criteria to AB 118 Funding Proposals

- **Current 2010 Solicitations**
 - Advanced Biorefineries: \$14.9 - \$19 Million
 - All Sustainability Criteria Applicable
 - Sustainability / GHG Weight Factor = 33.3%
 - Alternative Vehicle & Component Manufacturing: \$19 - \$26M
 - Sustainability Focus on water, energy efficiency and criteria emissions
 - Sustainability / GHG Weight Factor = 20%
- **Forthcoming 2010 Solicitations**
 - Hydrogen Fueling Infrastructure and Propane Vehicles