



# **Regulatory Expectations for Biofuel Sustainability Schemes: California, Brazil, Australia and Japan**

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# Global Organization & Services

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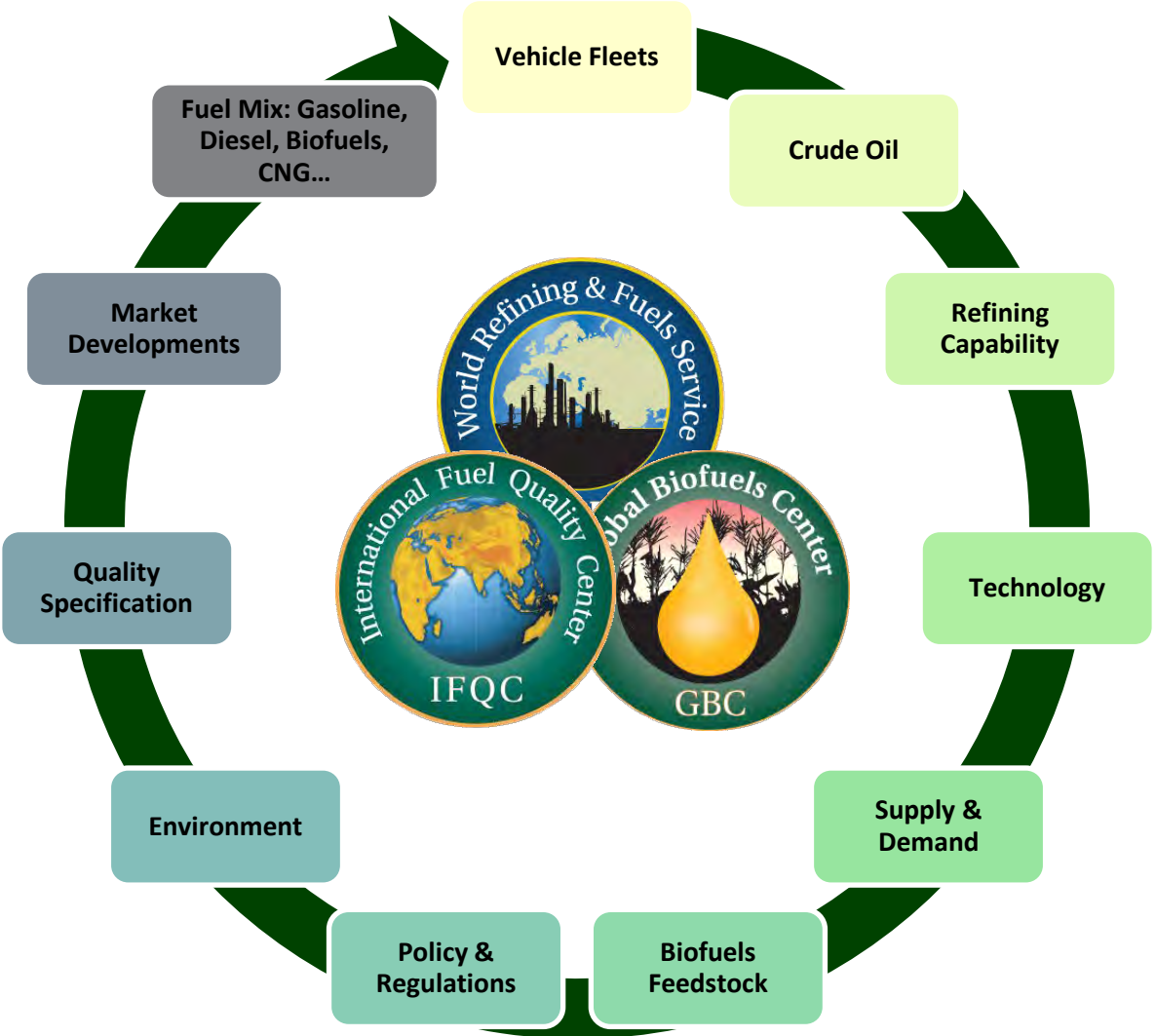
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# Hart Energy Knows the Global Fuels Market

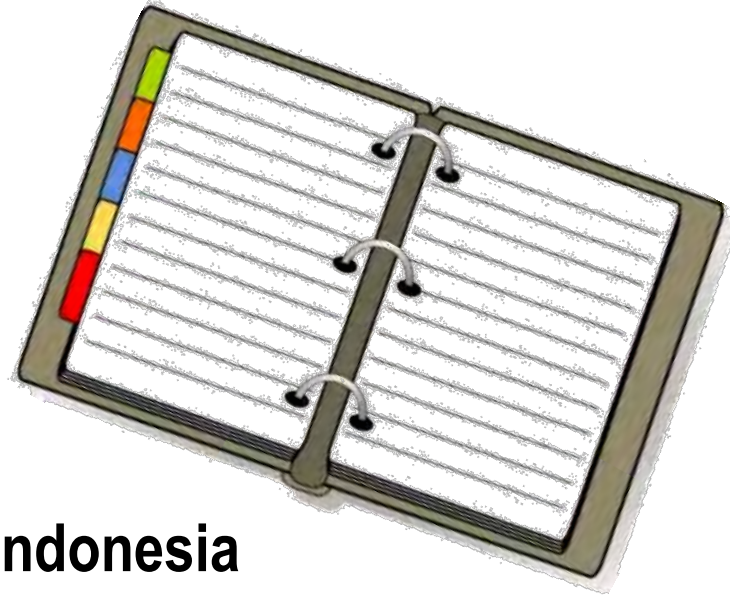


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# Agenda

- ✓ **California, Canada**
- ✓ **Brazil, Argentina**
- ✓ **Australia**
- ✓ **Japan, China, Malaysia, Indonesia**



# California

- The California Air Resources Board adopted the **Low Carbon Fuel Standard** regulation (LCFS) on April 23, 2009.
- LCFS applies to all **refiners, blenders, producers or importers of transportation fuels** in California.
- The LCFS aims to **reduce GHG emissions** by reducing the carbon intensity (CI) of transportation fuels by an average of 10% by 2020.
- **Carbon intensity** is a measure of the direct and indirect GHG emissions associated with each step in the full fuel-cycle of a transportation fuel.
- **GHG emissions** can include CO<sub>2</sub>, methane, N<sub>2</sub>O and other GHG contributors. Carbon intensity is typically expressed in grams of CO<sub>2</sub> equivalent per mega-Joule (g CO<sub>2</sub>e/MJ).



# California

- In addition to the LCFS, certain biofuel blends have separate specifications established by the California Department of Food and Agriculture. These include:
  - **E85** blends must meet ASTM D5798;
  - **M85** blends must meet ASTM D5797;
  - Biodiesel fuel (as **B100**) must meet ASTM D6751;
  - Biodiesel fuel blends **up to B5** must meet ASTM D975;
  - Biodiesel fuel blends of **B6 to B20** must meet ASTM D7467; and
  - **Non-ester renewable diesel fuel** must meet ASTM D975.
- LCFS reduction requirements became effective on Jan. 2, 2011.
- Target date for developing “sustainability provisions” was December 2011. a law suit makes it unlikely that discussions pertaining to sustainability criteria will be concluded by the end of 2012.



# California

- Expert working group recommends:
  - Adjustments to LCA modeling to **accommodate ILUC**;
  - Definition changes to reflect more **consistency**;
  - Additions to the look-up tables for **approved fuel pathways**;
  - Modifications to make **credit trading provisions system** more transparent;
  - Clarifications to the **fuel pathway submission and review** process;
  - Adjustments to **compliance reporting mechanism** for regulated parties; and
  - Clarifications on **electricity regulated parties**.
- The state is not considering other future biofuels-related policies.



# Canada

- Environment Canada published the final federal Renewable Fuel Standard (RFS) regulations on Sept. 1, 2010. They took effect on Dec. 15, 2010.
- Requires an average 5 vol% renewable fuel content in gasoline across Canada.
- The provisions requiring an average 2 vol% renewable fuel content in diesel fuel and heating distillate oil were scheduled to take effect in 2011. The full mandate has not been implemented.
- The eastern part of Canada is exempted from implementation until Dec. 31, 2012, to allow blending infrastructure to be put into place.
- A permanent exemption is provided for renewable content in diesel fuel and heating distillate sold in Newfoundland and Labrador to address blending issues.
- Renewable fuels are not required to meet environmental sustainability criteria





# Brazil

- Social Fuel Seal for Biodiesel production.
- Brazil has a set of measures to ensure sustainable production of ethanol:
  - Strict labor standards ;
  - Since 2009, rules to guide the expansion of sugarcane production:
    - Exclusion of areas with native vegetation;
    - Exclusion of areas in Amazon, Pantanal biomes; upper Paraguay River Basin;
    - Identification of areas with potential without need of full irrigation;
    - Identification of areas with slope below **12%**;
  - Respect for food security;
  - Prioritization of degraded areas or pasture;
  - Best practices such as no-till production, crop rotation and “green” fertilization.
  - Minimum water use.
  - Reduced use of pesticides, fungicides, fertilizers;
- Federal decree prohibits pre-harvest sugarcane burning as of 2018 (on large mechanized farms).



# Brazil

- São Paulo's Green Protocol: 168 signatory mills and 29 associations of sugarcane suppliers have committed to protect and recover 260,000 hectares of land alongside streams and river banks.
- Increased use of voluntary certification schemes for sustainable production such as BONSUCRO



# Brazil

## FEDERAL AND SÃO PAULO STATE LEGISLATION

Date	Legislation	Topic	Application
Sept 15, 1965	Law Nº 4771	Forest code	Federal
May 31, 1976	Law Nº 997	Environmental Pollution control	São Paulo State
Nov 29, 1978	Decision Nº 323 of the Home Department	Prohibition of vinasse discharge in water	Federal
Nov 3, 1980	Decision Nº 158 of the Home Department	Regulation on effluents from sugar and ethanol factories	Federal
Aug 31, 1981	Law Nº 6938	Environmental National Policy	Federal
Jan 23, 1986	CONAMA resolution Nº 001/1986	General guidelines for the evaluation of environmental impact	Federal
July 4, 1988	Law Nº 6171	Regulation on the use, conservation and preservation of agricultural soil	São Paulo State
July 8, 1998	Decree Nº 2661	Gradual elimination of sugarcane fields burning	Federal
Sept 19, 2002	Law Nº 11241	Gradual elimination of sugarcane fields burning	São Paulo State
Dec 29, 2005	Law Nº 12183	Regulation on water use and charges	São Paulo State
June 16, 2006	Law Nº 50889	Legal reserve in rural estates	São Paulo State
Oct 14, 2006	SMA resolution 42	Preauthorization licensing for sugar and ethanol mills	São Paulo State
Dec 26, 2006	CONAMA resolution 382	Regulation on maximum emissions of atmospheric pollutants by fixed sources.	Federal
Dec 19, 2008	SMA resolution Nº 88	São Paulo sugarcane agro-environmental Zoning and licensing provisions for sugar and ethanol mills	São Paulo State
Sept 17, 2009	Decree Nº 6961	Sugarcane agro-ecological Zoning	Federal

CONAMA: Conselho Nacional do Meio Ambiente (National Counsel for the Environment)

SMA: Secretaria de Meio Ambiente do Estado de São Paulo (São Paulo State Department of environment)

Source: SugarCane.org



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# Argentina

- Biofuels mandatory from the beginning of 2010;
- Argentine government has not legislated environmental or social sustainability criteria;
- Biofuels for export must meet criteria of importing country; and
- Roundtable for Responsible Soy voluntary scheme is particularly relevant for exports to EU.



# Australia

- Sustainability criteria for biofuels in place:
  - Government working with the Biofuels Association of Australia and ISO;
  - The NSW Biofuel (Ethanol Content) Amendment Regulation 2009 prescribes a **biofuel sustainability standard** with which ethanol and biodiesel must comply to be counted toward minimum content requirements;
  - The Biofuels Act has **not been** amended to include version 2 of the RSB's principles and criteria.



# Japan

- Current targets under the global warming Countermeasures Basic Bill are:
  - Reduce GHG emissions by more than 25% below 1990 levels by 2020;
  - Reduce over 60% below 1990 by earliest possible date before 2050; and
  - Increase renewable energy to 10% of total primary energy supply by 2020.
- Biomass Nippon Strategy promote biomass energy in transportation fuel.
- METI released New National Energy Strategy focusing on energy security in May 2006; aims to achieve following targets:
  - Increase renewable energy ratio in primary energy to 10% by 2020;
  - Increase biofuel consumption to 3% of gasoline by 2020;
  - Introduce sustainable standards for biofuels, i.e., GHG reduction over 50%;
  - Establish next-generation biofuel technology and extend by 2030; and
  - Promote domestic biofuel production and import biofuels in Asian countries.



# Japan

- Biofuel Sustainability Study Group to conduct studies and discussions to address biofuel-related issues. Results released in March 2010:
  - **Contribution to CO2 emission reductions identified by an LCA: 50%.**
  - **Supply stability as source of energy:** Self-sufficiency rate is 3% in Japan, one future direction for Japan is to meet at least 50% of biofuel requirements through domestic production, as well as development and import from Asia
  - **Competition with food:** monitor effects of biofuel introduction, push development, dissemination of technologies for biofuel from grass, wood cellulose.



# China

- No scheme per se, but China discourages use of grain-based feedstocks.
  - According to the Ministry of Agriculture, biofuels should neither impact edible grain consumption nor compete with grain crops for cultivated land. Government encouraging farmers to produce fuel ethanol from cellulose or non-grain crops such as sugarcane, sweet sorghum, cassava, sweet potatoes;
- Government has established two biofuel research centers;
- Renewable Energy Law sets stage for widespread development of renewable sources





# Malaysia

- Malaysian Palm Oil Board has put in place practices to encourage sustainability:
  - Zero burning during replanting
  - Cover crops, terraces, mulching with empty fruit bunches.
  - Reduction of fertilizers and pesticides
  - Developed systems for POME treatment
  - By-products of milling
- The Roundtable on Sustainable Palm Oil has devised criteria to promote sustainable palm oil.
- Membership of other sustainability schemes gain importance for export market.
- The Ministry of Plantation, Industries and Commodities noted that a policy has been put in place to ensure a balance in the supply of sustainable palm oil to the food sector while meeting demand in the biofuel sector.



# Indonesia

- Indonesia has not implemented any sustainability criteria to produce palm oil.
- The Roundtable on Sustainable Palm Oil has devised Principles & Criteria to promote use of sustainable palm oil.
- Membership of other sustainability schemes of growing importance for export market.



# Questions/Discussion

**Thank You!**

[www.globalbiofuelscenter.com](http://www.globalbiofuelscenter.com)



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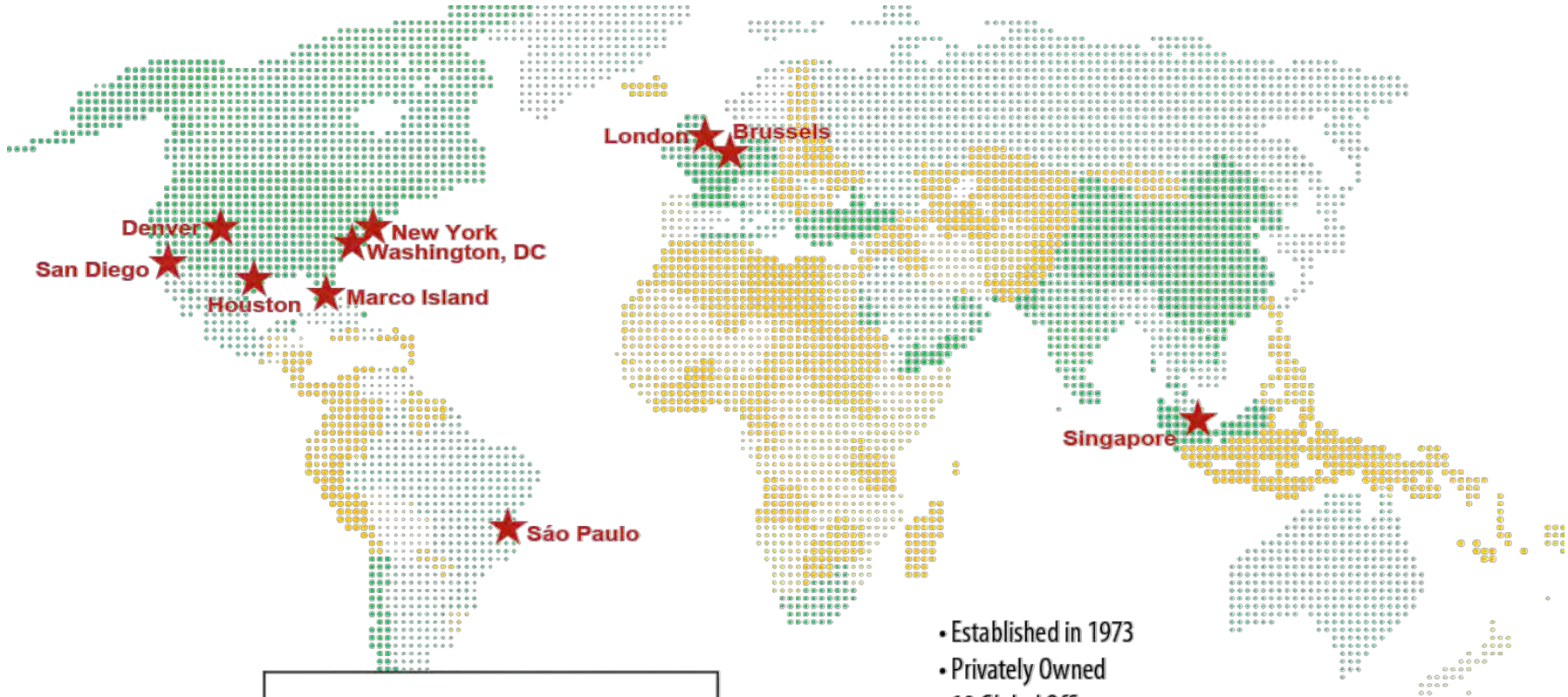
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