Biofuels Mandates around the World

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In Florida, the Digest released its annual review of biofuels mandates and targets around the world, looking at the state of biofuels mandates in 52 countries.

The bulk of mandates comes from the EU-27, where the Renewable Energy Directive (RED) specifies a 10 percent renewables content by 2020 across the entire membership — though 7 percent of that would come from biofuels, the balance from the electrification of the fleet. The other 21 countries are primarily in Asia.

Besides the EU, the major blending mandates that would drive global demand are those set in the U.S., China and Brazil — each of which has set targets — or in the case of Brazil, is already there — at levels in the 15 to 20 percent range between 2020 and 2022.

India’s fast-growing economy also has a 20 percent ethanol mandate in place for 2017, but the country has a shaky record of implementing mandates so far.

In today’s report, we look at the country-by-country situation in which there is recent action affecting mandates.

The major biofuels mandates, with some estimates of 2020 consumption, translate into the major drivers of the 60 billion gallons of global biofuels demand that are

widely discussed, without addressing the demand for aviation or the mandates in place in countries such as Canada, Australia or throughout Southeast Asia.

	2022 Fuel Demand	Biofuels Demand
India	34.0B	6.8B
Brazil	16.0B	8.0B
U.S.	180B	36.0B
EU-27	95.0B	6.7B
China	20.0B	3.0B

(Note: The figures above are intended to be illustrative, rather than definitive forward-looking projections of fuel demand, which depend on price, availability and GDP growth in the countries and geographies cited.)

One risk factor is the construction of capacity. In the U.S., somewhere between 300 and 600 biorefineries are required to meet mandates — another 300 in China. Overall, 35 billion gallons in new capacity or more is going to be required by 2022 to meet these mandates — most of it requiring cellulosic feedstocks or other advanced biofuels. That’s easily 1,000 refineries.

Mandates in the Americas

Argentina has a B7 biodiesel mandate in place (increased last year from B5) and is mulling moves to increase this to at least B10 by 2015. The country also has an E5 ethanol mandate in place.

Brazil mandates a minimum ethanol content of 18 to 20 percent — reduced from 25 percent last year when ethanol supplies tightened on rising global prices for sugar. The country also has a B2 biodiesel mandate, scheduled to increase to B5 in 2013

Canada has a Renewable Fuel Standard featuring E5 ethanol and B2 biodiesel. Canada introduced the 2 percent biodiesel mandate as of July 1, and the Canadian Renewable Fuels Association and the Canadian Truckers Alliance are locked in a tit-for-tat debate over it. The CTA is claiming that the mandate would push diesel prices higher and biodiesel is bad for some engines. On the other hand, the CRFA claims price increases would be unnoticeable over a 25-year period and engines have shown better performance under state testing than with fossil diesel. Four provinces have individual provincial mandates up to E8.5.

Also, the national government released its final regulations for its 5 percent ethanol

mandate. The Canadian Renewable Fuels Association said that an assessment conducted by econometric firm Doyletech Corp concluded, “The grand total of the annual positive economic impact of renewable fuels is $2.013 billion.”

Colombia has had an E8 ethanol mandate in place since 2008, with discussions underway to increase the mandate to 10 percent.

Chile has an E5 ethanol and B5 biodiesel target in place, yet no mandates.

Costa Rica has an E7 ethanol and B20 biodiesel mandate in place.

Jamaica has an E10 ethanol mandate that took effect last year.

Mexico has an E2 ethanol mandate in place in Guadalajara, and will expand the blending mandate next year to Mexico City and Monterrey.

Panama is preparing to introduce an ethanol mandate beginning with 2 percent in April 2013, rising to 5 percent from April 2014, hitting 7 percent in April 2015 and reaching 10 percent by April 2016.

Paraguay has an E24 ethanol mandate and a B1 biodiesel mandate in place.

Peru has an E7.8 ethanol and B2 biodiesel mandate in place. The country is expected to move towards B5 biodiesel some time this year.

Uruguay has a B2 biodiesel mandate in place, and is expected to move to E5 ethanol in 2015 and B5 biodiesel in 2012.

USA: The EPA proposes to mandate the blending of 15.2 billion gallons of renewable fuel into the U.S. fuel supply in 2012 and increased the proposed mandate for advanced biofuels by 48 percent to 2 billion gallons. The agency recently released its proposal for 2012 requirements under the Renewable Fuel Standard:

1. Biomass-based diesel (1.0 billion gallons; 0.91 percent).
2. Advanced biofuels (2.0 billion gallons; 1.21 percent).
3. Cellulosic biofuels (3.45 to 12.9 million gallons; 0.002 to 0.010 percent).
4. Total renewable fuels (15.2 billion gallons; 9.21 percent).

Overall, the U.S. is moving towards a 36 billion-gallon biofuels target by 2022.

Mandates in the EU

EU-27: The EU currently has a 5.75 percent mandate directive in place and plans to move to 10 percent by 2020, but 30 percent of the target would be met by electric cars or trains, with the remainder to come from biofuels.

The EU also says it would develop regulations to limit the impact of indirect land-

use change, while biofuels developed from non-food sources would receive preferred treatment under the agreement. Plus, the organization approved seven sustainability standards designed towards that end.

The RED requires the EU to have:

1. A 20 percent reduction in green house gas (GHG) emissions by 2020 compared to 1990.?
2. A 20 percent improvement in energy efficiency compared to forecasts for 2020.?
3. A 20 percent share for renewable energy in the EU total energy mix. (Part of this 20 percent share is a 10 percent minimum target for renewable energy consumed in transport to be achieved by all. [MS])

The goal for 20 percent renewable energy in total energy consumption is an overall EU goal. The RED sets different targets for different MS within this overall target. This means that some MS would have to reach much higher targets than the 20 percent renewable energy by 2020, whereas other MS would have much lower targets.

Mandates in Asia-Pacific

Australia’s states of Queensland and New South Wales have ethanol blending mandates set at 5 percent and 4 percent, respectively. New South Wales also has a B2 biodiesel mandate in place. The Queensland mandate takes effect in fall 2011, delayed after opposition from boat owners who formed the Against Ethanol Mandates Alliance.

China seeks to move to a 10 percent overall biofuels mandate by 2020, and currently has a 15 percent overall target for 2020. Nine Chinese provinces have required 10 percent ethanol blends to date, including Heilongjian, Jilin, Liaoning, Anhui and Henan.

Fiji’s government recently approved a voluntary blend of 5 percent biodiesel and 10 percent ethanol with an eye on a mandate within the next 12 months. Oil companies are pulling out of the country because they’re finding that supplying islands so far from oil sources isn’t profitable.

India’s sugar mills say they will produce 2.7 billion liters of ethanol next year, more than enough to supply ethanol for the current E5 program, but also for chemical and other industrial use. The country’s total demand for ethanol next year is 2.2 billion liters, with 1 billion liters expected for E5. India is scheduled to move to E10 as soon as production is in place, and ultimately has set a goal of 20 percent for all biofuels content by 2017 — it is highly doubtful that they will reach the target.

Indonesia has an on-and-off 2.5 percent biodiesel mandate and an E3 ethanol mandate.

Malaysia's B5 blending mandate kicked off in June. The program begins in Putrajaya and will be phased in over time throughout the rest of the country. Biodiesel will be price controlled, while the government recently removed the subsidy on fossil diesel.

New Zealand said it may scrap a $36 million biofuels subsidy program because, with only $700,000 paid out in tax credits, it is concerned that biofuels are uneconomic, according to Hekia Parata, the New Zealand energy minister. However, Gull New Zealand manager, Dave Bodger, said that there was public interest in biofuels, noting that there were 250,000 liters sold last December. The government previously had moved away from a biofuels mandate in 2008, and instead, offered tax credits on biofuels that lowered the price of the fuels.

The Philippines' National Biofuels Board regulators are going ahead with an E10 or 10 percent ethanol blend mandate, but are allowing ethanol producers and oil companies 6 months. The Philippine DOE is expected to release a circular stating that the E10 blend will be mandatory effective July 16, and for the following four years, ethanol may be imported. However, after July 2015, imports would be allowed only to make up for shortfalls in local production. Current ethanol production in the Philippines is about 80 million liters per year, but to meet the 5 percent blend, an estimated 200 million liters is required. Rosemarie S. Gomera of the Sugar Regulatory Administration planning department states that the thought is that if the blend is raised, more investors would be encouraged to build more ethanol plants.

South Korea currently has a B2 biodiesel mandate in place. This year's introduction of a B2.5 biodiesel mandate is expected to boost demand for imported Malaysian palm oil for use as fuel. Malaysian palm oil imports accounted for 32.2 percent of South Korea's oil imports during 2010. Palm oil is beginning to make in-roads in the Korean market for cooking as well.

Taiwan has had a B1 biodiesel mandate in place since 2008.

Thailand's energy ministry raised the mandatory biodiesel blend to 3 percent in April from the current 2 percent based on an increased supply of crude palm oil (CPO) available. The increased demand from the blending policy would require an additional 40,000 metric tons of CPO per day.

In **Vietnam**, Japan's Itochu will invest an undisclosed amount in PetroVietnam's ethanol production program. The cassava-based ethanol facility will produce 100,000 kiloliters of ethanol annually beginning in the spring of 2012. PetroVietnam's oil division will be in charge of marketing the ethanol for local consumption under the country's E5 blending mandate.

Mandates in Africa

Ethiopia's Metehara sugar factory is now producing ethanol, which will bring the country's ethanol production up to 18.5 million liters per year. The extra domestic supply will allow the capital city of Addis Ababa to boost its blending to 10 percent

on March 7 from the current 5 percent blend. Doing so also breaks the monopoly on ethanol-blended fuel currently held by Sudan's Nile Petroleum, as OilLibya will begin blending E10 as well.

Kenya has an E10 mandate in place in Kisumu, the country's third largest city.

Malawi has an E10 ethanol mandate in place, but it also depends on availability.

In **Mozambique**, a policy mandating the blending of both ethanol and biodiesel has been sent to the President's Cabinet for approval. It includes both blend levels and deadlines for implementation. Brazil's FGV Projetos is undergoing a sustainability feasibility study for the government with funding from Brazil's Vale mining company under a partnership with the European Union.

Nigeria has an E10 ethanol target in place, but no mandate.

South Africa backed away from implementing an E8 ethanol mandate and B2 biodiesel mandate (to date), both approved originally in 2007, for 2013.

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