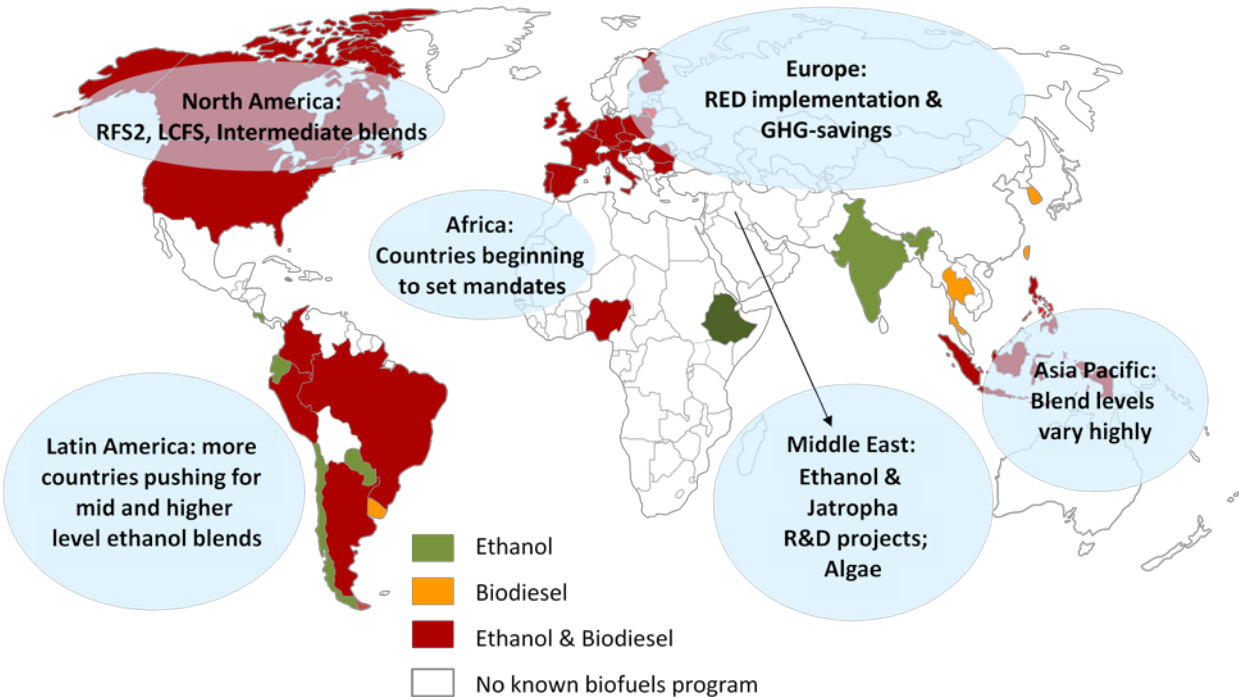




Hart Energy's Global Biofuels Center (GBC) recently completed its annual supply and demand outlook for biofuels, focusing on the 2010, 2015 and 2020 time periods and covering more than 35 countries in four regions, including North America, Latin America, Europe (EU 27) and Asia Pacific. A special focus on the Commonwealth of Independent States (CIS) and Africa regions is included as well.

What we find is that while we expect growth in biofuels supply and demand to continue, it will be tempered by increased feedstock costs, fiscal challenges faced by governments which may force a reevaluation of biofuels-related incentives and a cooling of capital lending in the finance sector. Policies in place to support biofuels continue to be aggressive and progressive, particularly in the U.S. and Europe. The figure below shows biofuels mandates that either are implemented or will be this year.

Figure 1: Biofuels Mandates in 2011

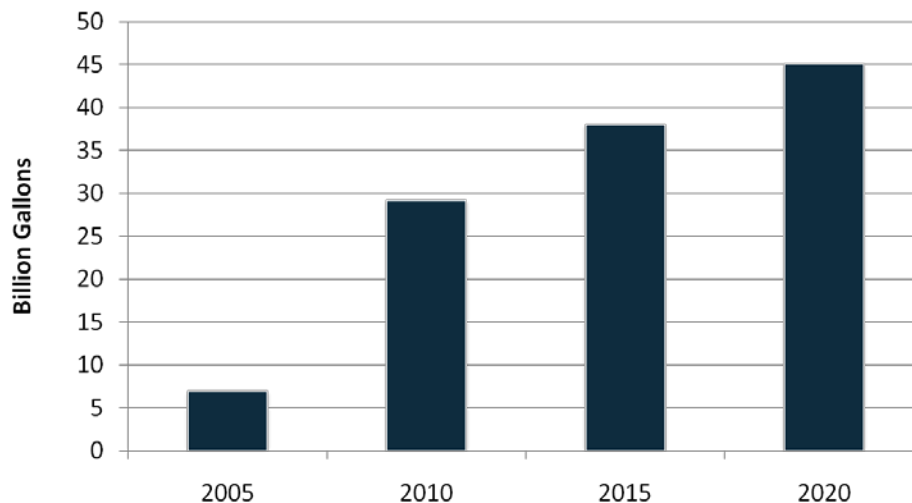


Source: Hart Energy's Global Biofuels Outlook, July 2011

Longer-term, however, Hart Energy expects biofuels supply and demand to grow driven by governments' need to diversify energy sources. For example, our analysis shows that crude oil demand will grow by 30% over the 2010-2030 period. Moreover, middle distillate demand will nearly double in this same time period. Population growth and the rapid transition of developing economies such as China and India to personal mobility will put new strain on global energy supplies.

Thus, despite the challenges in the sector, biofuels are more relevant than ever and governments still view biofuels as a tool and a means toward energy diversification. It may take governments a bit longer to implement targets, especially those that require increasing blends of ethanol and biodiesel beyond traditional limits (e.g. beyond 10 vol% for ethanol and 5 vol% for biodiesel). Figure 2 shows public policy-driven demand for biofuels by 2020. Hart Energy estimates there could be a 60% growth in demand for biofuels over the 2010-2020 timeframe. Supply to meet these mandates could be a challenge in certain areas around the globe; for example, meeting the cellulosic biofuels targets under the Renewable Fuels Standard (RFS2) program in the U.S.

Figure 2: Public Policy Driven Demand for Biofuels



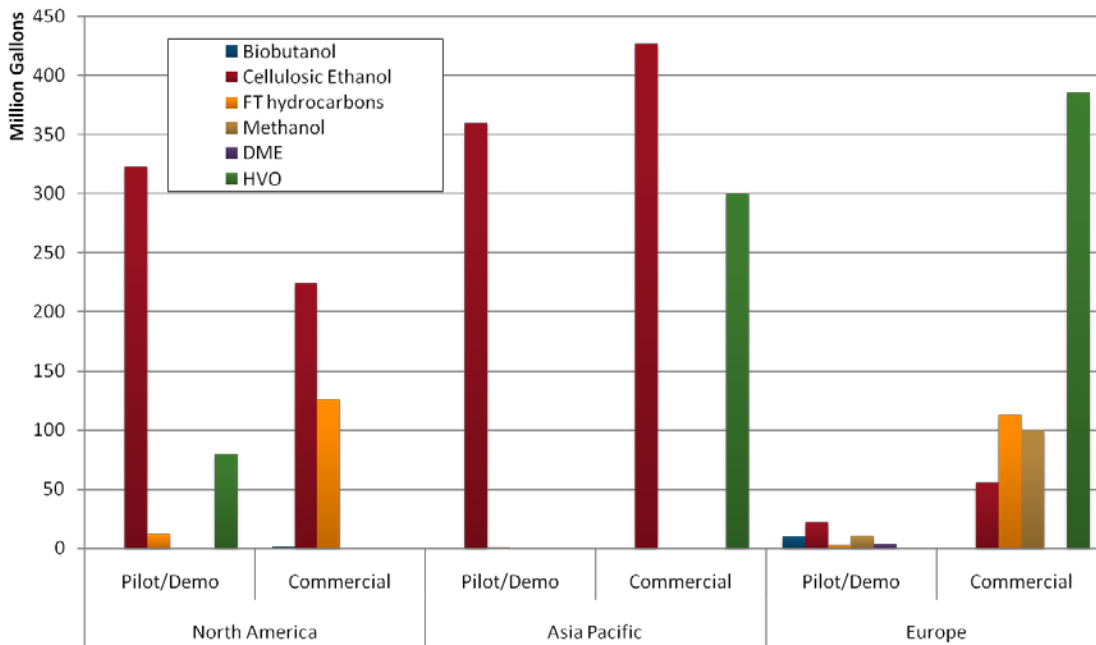
Source: Hart Energy's Global Biofuels Outlook, July 2011

Certain mandates will produce dramatic demand shifts to regions and provide unique requirements on biofuels producers to achieve compliance. Hart Energy has analyzed the global mandates and details the country-by-country impact. In the short term for the U.S., Hart's analysis of tax policy combined with RFS2 and California LCFS produced unusual results for demand for certain foreign biofuels, despite existing domestic capacity. In the EU, unique and complex Renewable Energy Directive (RED) standards will favor particular fuels and feedstocks. New trading routes may emerge, and the shifting patterns may have long term impacts on storage facilities, infrastructure demands, feedstocks, shipping, and domestic biofuels production.

In the US, Hart Energy expects shifting tax and tariff policy will have a drastic change on the economics of domestic and, consequently foreign biofuels production. As detailed in the analysis, this will also affect the journey to ethanol blend levels above the current 10%, a brewing controversy among auto and small engine manufactures, fuel producers, fuel retailers and the Environmental Protection Agency.

As for next-generation biofuels, technology to achieve the mandated production has finally started to show commercial promise (Figure 3). As discussed at length in the larger report, supplies of chemicals from low carbon feedstock will finally be available to the fuels and chemicals markets in the near future. Hart Energy has analyzed the impact of all upcoming and planned operations into the larger projected supply and demand picture.

Figure 3: Overall Next-Generation Facilities Capacities: Evolution between 2010 and 2011 (millions of gallons)



Source: Hart Energy's Global Biofuels Center, April 2011

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All the topics above are discussed in Hart Energy's *Global Biofuels Outlook to 2020*. The 400+ page analysis captures the current and near-term biofuels picture in the top biofuels countries in the five key regions of the globe, covering ethanol, biodiesel, and also ETBE (ethyl tertiary butyl ether), cellulosic ethanol and renewable diesel (also known as non-ester biodiesel) where applicable. The study reviews local and global drivers, public and fiscal policy developments, current and projected production capacity, and supply and demand projections for 2011, 2015 and 2020. This year, a special section is dedicated to next-generation biofuels and algae.

For more details on the study including price and ordering, please contact:

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