



World Biofuels

Industry Study with Forecasts for **2011 & 2016**

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Biofuel market expansion will come from a more than doubling of the world market for bioethanol through 2011, and even faster increases in global biodiesel demand.

Global demand to grow 20% yearly through 2011

World demand for biofuels will expand at a nearly 20 percent annual pace to 92 million metric tons in 2011, despite recent concerns about the impact of biofuels on the environment and world food supplies. Market expansion will come from a more than doubling of the world market for bioethanol, and even faster increases in global biodiesel demand. Other biofuels will also experience strong growth, though much slower than either biodiesel or bioethanol.

North American market to remain dominant

On a regional basis, growth will be driven by a rapid expansion of the biofuel market in North America, particularly for bioethanol. The Asia/Pacific region and Western Europe will experience even faster advances, although absolute gains will trail the larger North American market. Similarly, increases in the small Africa/Mideast and Eastern Europe markets will be well above average. Growth in Latin America will be modest, a consequence of Brazil's already sizable market for bioethanol.

Supportive laws, rising oil prices, global warming concerns driving demand

The world market for biofuels has expanded rapidly in recent years as a



combination of domestic politics, rising oil prices, increasing concerns about global warming, and potential economic opportunity have spurred a broad range of countries to pass laws that support biofuel industries. World bioethanol demand has benefitted from a powerful farm lobby in the United States that has succeeded in passing a renewable fuel mandate, as well as rising oil prices that have increased bioethanol demand in Brazil. Growing concerns about global warming have helped raise both bioethanol and biodiesel demand in the European Union, while several countries in the Asia/Pacific region have instituted biofuel programs as a means of boosting their local economies.

Biofuel negatives to have little short term impact

Despite, or perhaps even because of, the success of biofuels in recent years, questions have begun to arise about the wisdom of using biofuels as an alternative energy source going forward. While the impact of biofuels on world food supplies is expected to be a short term issue, the potential negative impact of biofuels on the environment could have longer term consequences. In spite of these concerns, though, countries' overarching needs for energy security and domestic economic development will continue to drive rapid increases in consumption, most notably in the large North American market.

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Sample Text, Table & Chart

NORTH AMERICA

Bioethanol -- Among the biofuels, bioethanol will account for the largest share and the greatest growth in Canadian output. Demand in Canada will expand to 1.5 million metric tons in 2011. Growth is supported at the federal and provincial level to the extent that the federal level, mandated bioethanol consumption to reduce global warming and meeting Canada's target for greenhouse gas emissions are a contributing factor. Over the longer term, growth will slow to about ten percent per year as supply limitations begin to put an upper limit on how much bioethanol the country can consume.

Both wheat and maize are used as feedstocks for bioethanol production in Canada. However, maize is likely to be targeted as the primary feedstock through 2011 due to the maturity of the technology, and the potential for expanded maize production in Canada's southern provinces. Much as in the US, the expanded government support has led to a substantial increase in investment in new capacity. GreenField Ethanol is the largest bioethanol producer in Canada, followed by Suncor Energy and Husky Energy. GreenField Ethanol and Suncor Energy both use maize as a feedstock, while Husky Energy uses wheat. In addition to being the largest bioethanol producer in Canada, GreenField Ethanol is also actively expanding by building two new plants that will more than double its capacity.

In the longer term, cellulosic ethanol production will become increasingly important as the technology becomes more commercially viable. One of the leading companies in cellulosic ethanol technologies is Iogen, which is based in Canada. Iogen's process uses straw, but Canada also has vast timber resources that

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SAMPLE TEXT

TABLE V-6

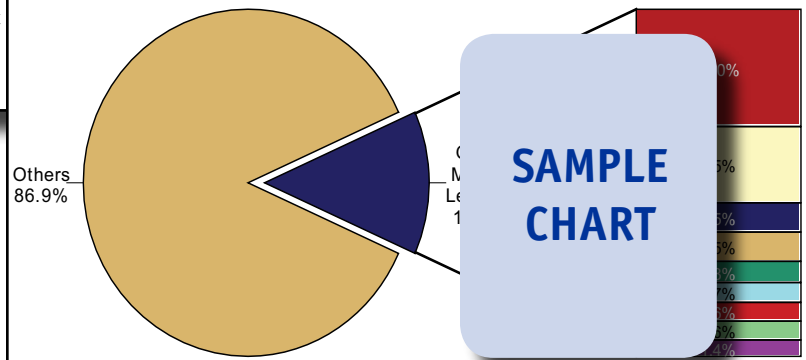
CANADA BIOFUEL SUPPLY & DEMAND
 (million metric tons)

Item	1996	2001	2006	2011	2016
Refined Petroleum Product Demand m ton biofuel/000 m ton refined prod					
Biofuel Demand Bioethanol Biodiesel & Other					
net exports					
Biofuel Production Bioethanol Biodiesel & Other					

SAMPLE TABLE

CHART IX-1

WORLD BIOFUEL MARKET SHARE, 2006
 (37.7 million metric tons)

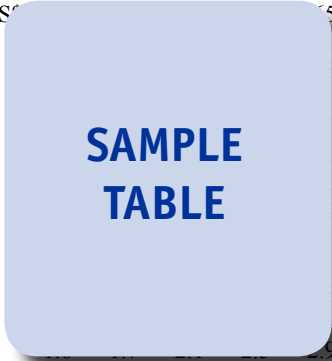


SAMPLE CHART

Sample Profile, Table & Forecast

TABLE V-5
CANADA INDICATORS
(million metric tons)

Item	1996	2001	2006	2011	2016
Gross Domestic Product (bil 2005 US\$)					
per capita GDP					
Population (mil persons)					
Motor Vehicle Park (mil units)					
m ton refined product/vehicle					
Refined Petroleum Product Demand					
Gasoline Demand					
Distillate Fuel Demand					
Maize Production					
Oilseed Production					
Fats & Oils Production					



COMPANY PROFILES

Cristal Union
 Route d'Arcis-sur-Aube
 10700 Villette-sur-Aube
 France
 33-1-42-99-01-57
<http://www.cristal-union.fr>

Annual Sales: (company)
 Employment:
 Key Products: at

Cristal Union represents a significant portion of the company's activities, with a focus on two main areas: the production of alcohol and... that represents its activities in the production...

The Company participates in the world biofuels industry through Cristanol (France), a joint venture with Champagne Cereales (France). This joint venture is dedicated to the production of ethanol, from both sugar beet and wheat feedstocks. Cristanol's operations include three ethanol plants, which had a combined annual ethanol capacity of 290 million liters as of late 2007.

Cristanol's facilities are located in Bezancourt, Arcis sur Aube and Duelep, France. Among these, the company's plant in Bezancourt, which includes fermentation, distillation and concentration units, began operations in June 2007. At the time of its opening, this facility, Cristanol's largest, had a production capacity of 150 million liters of ethanol per year based on sugar beets. As of late 2007, however, the company was involved in the construction of a second processing unit

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"Despite the federal biofuel mandate and increased government assistance, Canada will find it difficult to meet its targets for bioethanol and biodiesel by 2011. The culprit in this case will be the United States, which will likely face its own issues meeting the new biofuel mandates established by the US Congress in December 2007. The significantly higher levels of US biofuel demand will result in not only increased demand for Canadian bioethanol and biodiesel, but also ..."
 --Section V, pg. 127

OTHER STUDIES

Fuel Cells

This study analyzes the emerging US fuel cell industry. It presents historical data (2002, 2007) and forecasts for 2012, 2017 and 2025 by electrolyte chemistry (e.g., alkaline, methanol, molten carbonate, phosphoric acid, proton-exchange membrane, solid-oxide); fuel (e.g., hydrocarbon-based, pure hydrogen, renewable); device and application (e.g., electric power generation, military/aerospace, motor vehicles, portable electronics). The study also considers market environment factors and profiles major players.
 #2328 04/2008 \$4500

Battery & Fuel Cell Materials

US demand for battery and fuel cell materials will rise 4.4% per year through 2011. Growth will be driven by rising production of high-performance batteries (e.g., lithium, Ni-MH) and a nearly fivefold jump in fuel cell demand. Metals will stay the leading material while polymers and carbon/graphite lead gains. This study analyzes the US battery and fuel cell material industry, with forecasts for 2011 and 2016 by type, function and application. It also details company market share and profiles major players.
 #2244 10/2007 \$4400

World Fuel Cells

Global fuel cell spending (R&D, investment, sales) will grow 15% yearly through 2011. Portable electronics will be the fastest growing commercial use while electric power generation will stay the largest. Proton-exchange membrane fuel cells will remain dominant over other chemistries. This study analyzes the \$5.2 billion world fuel cell industry to 2011 and 2016 by product, chemistry, application, world region and for 14 countries. It also reviews technology, evaluates market share and profiles major players.
 #2194 05/2007 \$5500

Diesel Engines

US demand for diesel engines will grow 3.8% annually through 2011. Best opportunities in the dominant motor vehicle market will be found in light-duty trucks, with the much smaller passenger car segment also faring very well. Off-highway diesel engines will experience slowing but still robust demand as new emissions regulations phase in. This study analyzes the \$16.6 billion US diesel engine industry to 2011 and 2016 by product, material and market. It also details market share and profiles major firms.
 #2171 03/2007 \$4400

Solar Energy Products

US demand for photovoltaic modules will more than triple by 2010, driven by innovations, economies of scale and government subsidies. Crystalline silicon cells will remain dominant while thin films will post stronger growth. Thin films use little or no silicon and can integrate photovoltaics within roofing shingles and other building materials. This study forecasts US solar energy product demand for 2010 and 2015 by product, market and region. It also evaluates market share and profiles major producers.
 #2126 12/2006 \$4300

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