Belgium

Opportunities for Electric Vehicles, Parts and Systems

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Country Overview

Belgium is a relatively small (roughly the size of Maryland), highly developed, and technologically advanced nation. At the heart of Western Europe, is populated by 10.5 million inhabitants at a growth rate of 0.082%; with 97% of its inhabitants living in major urban areas. In recent years Belgium has experienced positive economic growth. In 2008, Belgium's GDP increased by 0.8% (to $393.2 billion); however, in 2009 GDP decreased by 3% (to $381 billion), illustrating the negative impact of the global economic crisis. The overall European Union experienced a similar economic trend with a 2008 GDP increase of 0.8% (to $15.12 trillion), while decreasing 4% (to $14.51 trillion) in 2009. According to the Organization for Economic Cooperation and Development (OECD), the Belgian economy is expected to grow by 1.4% (GDP) in 2010.

Belgium has a highly developed road and rail network system providing various modes of transport for travelers within Belgian national territory and to neighboring European countries. While public transportation is highly popular 70% of Belgians travel by car to work. Belgians spend on average 57 minutes a day traveling to and from work, with an average distance of 23 miles. Commute times differ in various parts of the country, however, times are more likely to increase in major urban areas.

Motor travel is common amongst travelers who live outside of Belgium's public transport network. SNCB/NMBS (Société Nationale des Chemins de fer Belges) is Belgium's premier transportation system with a 206 million annual ridership. It services 108 Belgian stations, 39 of which are international. In addition, STIB/MVIB (Société des Transports Intercommunaux de Bruxelles) is the regional transportation network providing metro, tram, and bus service to travelers in the city of Brussels; with a 290 million annual ridership supporting 1.1 million Brussels inhabitants. It services the 19 communes of Brussels, in addition to 11 other outlying regions (241.5 km surface area). The transport infrastructure in Belgium is one of the best transportation systems in the world supporting 20% of intra-community road traffic.

Energy Consumption

Fossil fuel consumption has not only become a critical issue for the greater European Union, but also a major issue for Belgium; a country that imports all of its petroleum, coal, and natural gas needs. Rising fuel costs and environmental degradation have been met by an intense move towards renewable and clean energy solutions. Belgium's current gross energy dependence resides at 77.9% (42,000 kilo-ton oil equivalent), with a 79.3% reliance on foreign oil. It is estimated that Belgians consume 716,800 bbl/day of oil bringing net imports of oil to 568,500 bbl/day. Furthermore, in 2008 Belgium consumed 7.2 million tons of coal and 612 billion cubic feet of natural gas.

According to Europe's Energy Portal, Belgium is currently meeting its 2012 Kyoto carbon emissions target (of 135.9 Mt CO2-eq) by 3.38% (at 131.3 Mt CO2-eq). This accomplishment is attributed to Belgium's progressive movement towards renewable and clean energy products. Belgium's renewable energy sources (RES) consists of photovoltaic, wind energy, and hydropower, among many others, contributing 49.6 MWh, 105 MWh, and 57 MWh respectively to its gross power production. Of the national electricity production, 54% comes from nuclear energy, 39% from fossil fuel power plants, 5.4% from renewable energy sources and 1.5% from hydraulic pumping stations. In 2007, the country generated 82.2 billion KWh of electricity while consuming 84.9 billion KWh, resulting in a net generation of 92.8 billion KWh. Although progressive, its renewable energy solutions account for a small proportion of its energy production capabilities. Below lists Belgium's targeted renewable energy goals:

Table 1: Targeted Renewable Energy Sources, 2020

	Net Power Capacity (MW) 2020	Net Electricity Generation (GWh) 2020
Hydro	108	362
Wind	2,228	5,334
Biomass and Waste	1,547	7,403
Solar and PV	93	71

Source: Federal Planning Bureau, Belgium (November 2008)

Transportation Overview:

Table 2: Number of Registered Motor Vehicles, Coaches, and Lorries

Passenger car, motor energy (all petroleum/diesel)	5,049,000
Passenger car, alternative motor energy (LPG, natural gas, electric, liquefied petroleum gas)	
Motor coaches, buses, trolley buses (all petroleum/diesel)	15,479
Motor coaches, buses, trolley buses, alternative motor energy (LPG, natural gas, electric, liquefied petroleum gas)	128
Lorries (all petroleum/diesel)	642,687

Source: Eurostat (2007)

Historically, the automotive industry has played a major role in the Belgian economy. It is a major player in the industrial sector encompassing various sub-sectors to include: motor vehicle manufacturing and assembly, suppliers, cycles, parts, and support services. In 2009, new vehicle revenues grossed $13.3 billion dollars, while used vehicles grossed 5.5 billion dollars. Belgium is home to four major automotive manufacturing plants: Opel in Antwerp, Ford in Genk, Volkswagen/Audi in Brussels, and Volvo in Ghent; making it the largest producer of vehicles per capita (474 per 1,000) with a 90% export rate. Furthermore, Belgium has over 300 companies supplying metal, chemical products, plastics, rubber, glass, electronics, ICT, and logistics directly or indirectly to the automotive industry.

The market for hybrid electric vehicles in Belgium is still in development. In spite of its environmental contributions, HEV sales represent roughly 1% of the overall Belgian automotive market; with the most popular vehicle being the Toyota Hybrid (parallel hybrid electric vehicle). Other automotive manufacturers market HEVs in Belgium to include: Lexus, REVA, Honda, and BMW. Sales of such vehicles are very minimal due to high costs. It is expected that annual HEV sales will gradually increase from a few hundred to a few thousand over the next five years reaching 10,000 units by 2015. Volvo (C30), Peugeot (3008 Hybrid4), Mitsubishi (i-Miev), and Ford (Focus) have announced plans to market HEVs in Belgium within the next three years.

In an effort to boost HEV sales and create awareness the federal and regional governments have attempted to incentivize HEVs to include: a 30% federal tax credit (max 9,000) when individuals purchase a HEV. In the Flemish region, the government gives a 30% subsidy for the purchase of an electric cars and a 50% subsidy for the purchase of an electric motorcycle. In the Walloon region, the government was offering a 75% subsidy (up to 25,000) if individuals purchased an electric vehicle before July 1, 2010. Furthermore, various automotive trade associations have played a major role in creating awareness of HEVs. Currently, ASBE, the Belgian representation of the European Association for Battery, Hybrid, and Fuel Cell Electric Vehicles, is marketing the WATT Roadshow Initiative, which aims to promote the use of alternative engine vehicles in Belgium. The purpose of the initiative is to increase awareness of HEVs amongst Belgian consumers.

In Belgium, development of the HEV market cannot be achieved without addressing a few challenges:

- **Research and Development:** The University of Brussels (Vrije Universiteit Brussel) is a major leader in electric engine vehicle research. The Electric Engineering and Energy Technology department has conducted various research projects in engine technologies and vehicle development; however, one of the major issues facing the market is the lack of investment in R/D. Industry leaders believe once industry standards, rules, and regulations are in place investment will increase.
- **Infrastructure:** Belgium currently does not have the proper infrastructure to support plug-in electric vehicles. There are 19 charging stations throughout Belgium, many of which are located in the Flanders region. ElectraSun N.V., Elecktrobay, and Krautli are the major developers of recharging stations in Belgium. In addition to developing charging stations, Belgium must address the issue of integrating the recharging stations into the electricity grid (increase in electricity use) as well as integration into its road and traffic infrastructure.
- **Automotive Manufacturers and Suppliers:** Manufacturers may face difficulties in restructuring operations in order to mass produce electric vehicles, in addition to, securing efficient supply chains. Many Belgian automotive supply companies do not carry the parts and system components to support automotive manufacturers' production lines, forcing manufacturers to imports these items from other countries. Bosch Group-Belgium, Triphase, and Punch Powertrain currently are in developments to supply engine systems, components, and parts to Belgian automotive manufacturers.

Furthermore, a highly successful diesel market (80%), high purchase cost, accessible infrastructure, and public awareness continue to impede the commercial development of the HEV market.

It is likely that there are more opportunities than challenges to market hybrid electric vehicles, parts, and systems in Belgium. Industry trends suggest the initial target market for HEVs will be for urban use (short trips) and light commercial truck use. The urban market will target short distance and frequent drivers, especially in the Brussels-Capital region. Because of the geographic size of Belgium, HEVs have the potential to suit the needs of the average commuter. The light commercial truck market will target companies that have frequent delivery points throughout Belgium. For example, Coca-Cola Belgium-Luxembourg currently has a fleet of 39 hybrid delivery trucks. The company has plans with Iveco, an Australian truck company and Renault to increase its fleet to 70 more hybrid delivery trucks by 2011. It is also likely that there exist opportunities to market to Belgian companies who provide company vehicles to its employees. 1 out 5 vehicles on the road are company vehicles. As companies seek to reduce costs they will likely add HEVs to its fleet of company vehicles.

Conclusion

The Belgian government strongly supports the development of the HEV market. Although Belgium is behind compared to other European countries, its policies showcase a progressive move towards the development of the market. Furthermore, the development of its renewable energy program, in support of EU climate policy, illustrates a strong commitment to HEV market. Within the next five years it is expected that the Belgian automotive market will experience an upsurge in the number of vehicles being manufactured and sold in Belgium. In addition, investment will likely increase once the general public perception of HEVs changes.

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Sources

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