

## **Germans Enjoy Fuel Cell-Brewed Beer**

*by Patrick Stelmach, PATH intern*

German Minister of Economics and Technology, Karl-Theodor zu Guttenberg, unveiled a new cogeneration fuel cell system from the Tognum brand MTU Onsite Energy at Erdinger Weißbräu brewery.

The HotModule HM300 distributed energy system generates electrical power and heat from biogas. The electrical power output is about 240 kW while the thermal output is more than 200 kW. The Erdinger Weißbräu brewery uses the thermal energy to heat the brewery buildings and to heat water for the brewing process.



The brewing industry is a very energy-intensive business, and for this reason, Erdinger is continuously looking for opportunities to be more energy efficient and less dependent on fossil fuels.

Erdinger uses vast quantities of water at various temperatures for the brewing process and to clean the brewing equipment. Before being flushed into the public sewage system, the waste water undergoes a treatment process, which creates a biogas by-product with 85% methane, making it an excellent energy source for the fuel cell, reducing CO<sub>2</sub> emissions by up to 1,200 tons a year. A gas cleansing system removes any possible sulphur residues from the biogas that could be detrimental to the fuel cell stack.

At about 650°C, the biogas is then converted into hydrogen which reacts electrochemically with oxygen. Almost 50% of the biogas energy content is converted into electrical power, while more than 40% translates into waste heat. Taken together, the result is an exceptionally streamlined overall efficiency of more than 90%.

Apart from its high degree of efficiency, the fuel cell's emission levels are negligibly low. Nitrous and sulphur oxides are nearly non-detectable, and carbon monoxide emissions are almost ten times lower than in engine-powered cogeneration systems.

Sources:

“German Minister of Economics unveils new Tognum fuel cell at Erdinger brewery”. FuelCellWorks. 9 June 2009. <http://fuelcellworks.com/news/2009/06/09/german-minister-of-economics-unveils-new-tognum-fuel-cell-at-erdinger-brewery/>

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