



# BioCatProject

POWER-TO-GAS VIA BIOLOGICAL CATALYSIS

## Press Release

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Electrochaea.dk ApS  
Hydrogenics Europe N.V.  
AUDI AG  
NEAS Energy A/S  
HMN Gashandel A/S  
BIOFOS A/S  
Insero Business Services A/S

### **Energy storage leaders launch commercial scale power-to-gas project using highly innovative technology**

**The pan-European BioCat Consortium is excited to announce the launch of its commercial scale power-to-gas demonstration project in Denmark. The 1-MW facility will use excess wind energy to produce pipeline-grade renewable gas for storage in the Danish natural gas grid. Located at the wastewater treatment plant Avedøre in Copenhagen, the BioCat Project has an overall budget of DKK 49.9 million (€6.7 million). Once operational, it will be the largest power-to-gas facility based on biological methanation in the world. Regular updates will be available on <http://www.BioCat-Project.com>.**

Power-to-Gas is an innovative energy storage technology capable of storing large amounts of excess electricity produced in energy systems with high penetration of intermittent renewables (mainly wind and solar energy). By converting electrical energy to chemical energy in the form of methane, energy can be injected into the existing natural gas infrastructure to a practically unlimited extent.

“Once in the grid, the renewable gas can be stored for long periods of time, transported geographically via existing pipelines, and used for power production, in transportation, or for heating applications in households and industry. As such, power-to-gas represents a powerful solution, not only for the energy storage challenge but also for decarbonizing the transportation sector”, explains Mich Hein, CEO of Electrochaea.

#### **Scope and objectives of the project**

The main objective of the project “Power-to-Gas via Biological Catalysis (P2G-BioCat)” is to design, engineer, construct, and test a 1-MW power-to-gas facility at the wastewater treatment plant Avedøre in Copenhagen, Denmark. During 3,000 hours of operation, the facility will use wind energy produced in times

of low power demand to produce hydrogen by means of water electrolysis. This hydrogen is then combined with CO<sub>2</sub> and converted by microorganisms to methane, the principal component of natural gas. After this methanation step, the renewable gas will be injected into a low-pressure gas distribution grid supplying the greater Copenhagen area.

“The facility will be operated according to an optimized trading strategy developed with a view toward maximizing value capture and mimicking the intermittent nature of wind and solar energy”, explains Dominic Hofstetter, BioCat Project Manager and VP of Business Development at Electrochaea. Additional project objectives include the delivery of frequency regulation services to the Danish power grid and the recycling of heat and oxygen in the on-site wastewater treatment processes.

The project has an overall budget of DKK 49.9 million (€6.7 million) and is generously supported by ForskEL, a technology demonstration support scheme administered by Energinet.dk, the operator of the Danish power and gas transmission grids. Kim Behnke, Head of Environment, Research and Development at Energinet.dk, remarks: “We finally have the ability to link Denmark’s abundant wind resource with its modern gas infrastructure by producing eco-friendly gas from wind energy. This integration is quite necessary for transforming our energy system and phasing out coal, oil and natural gas in the long term.”

Gas production is expected to begin by the middle of 2015 and the project is anticipated to conclude by December 2015. If successful, the BioCat Project will lift the technology to market readiness and allow for market introduction by the beginning of 2016.

### **Strong, pan-European consortium**

The BioCat Project is led by a high-profile, pan-European consortium covering the entire value chain of power-to-gas energy storage:

- **Electrochaea.dk ApS** is a leading technology developer in the field of biological methanation and is acting as the project supervisor;
- **Hydrogenics Europe N.V.** is the world’s leading manufacturer of hydrogen systems for industry, energy storage, and transportation;
- **AUDI AG** is one of the world’s leading manufacturers and distributors of premium cars and has a long-term strategic interest in developing mobility solutions based on renewable gas;
- **NEAS Energy A/S** is a Danish energy trader and balance responsible party (BRP) with a strong track record in managing flexible demand assets;
- **HMN Gashandel A/S** is a Danish energy service and gas distribution company managing gas grids, biogas upgrading plants, and grid injection facilities;
- **BIOFOS A/S** is a publicly owned wastewater treatment facility and biogas producer located in

Copenhagen;

- **Insero Business Services A/S** is a consulting firm dedicated to start-up companies and specialized in project development, administration, information dissemination, and controlling.

In addition, **Energinet.dk** will provide technical and administrative advice to support the execution of the project.

Media outlets, energy professionals, the greater public, and other stakeholders are invited to follow the project's progress on [www.BioCat-Project.com](http://www.BioCat-Project.com).

### **Press Contact**

Dominic Hofstetter

BioCat Project Manager

Electrochaea.dk ApS

Chr. M. Østergaards Vej 4A

8700 Horsens

Denmark

[www.biocat-project.com](http://www.biocat-project.com)

[biocat@electrochaea.com](mailto:biocat@electrochaea.com)