



McGill University Partners with Xebec to Develop Power-to-Gas Process for Renewable Energy Storage

*NSERC-funded project is the first of its kind in Canada, as industry targets
increasing distribution of Renewable Natural Gas*



MONTREAL, (QC), September 20, 2018 – Xebec Adsorption Inc. (TSXV: XBC) (“Xebec”), a global provider of clean energy solutions announced today that it will co-develop a prototype reactor to produce Renewable Natural Gas (RNG) using a Power-to-Gas (P2G) process with McGill University. This process combines electricity generated from renewable sources with carbon dioxide (CO₂) generated from waste. The project is being funded by Xebec as the Industrial sponsor and by the Natural Sciences and Engineering Research Council of Canada (NSERC) through a Collaborative Research and Development grant of \$360,000 over a period of three years.

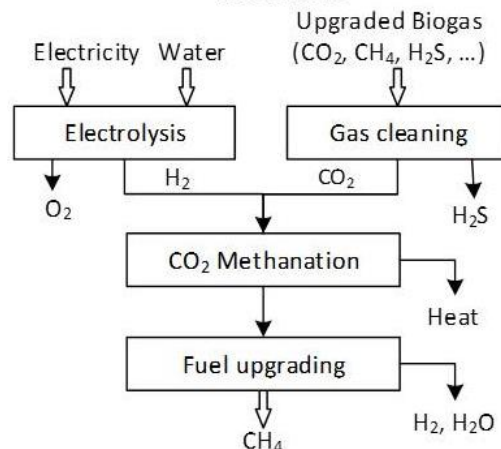
Electricity generated from renewable energy sources (e.g., wind and solar) is increasing worldwide. In 2016, the installed wind power in Canada was ~12,000 MW (6% of the electricity demand), with the highest share¹ provided by Quebec and Ontario. But wind energy fluctuates and sunshine is intermittent, so energy storage becomes vitally important to bridge the gap between energy supply and demand.

The Power-to-Gas process combined with the existing national gas pipeline offers a larger storage capacity and longer discharge time than current technologies such as batteries and pump storage systems. The P2G process uses renewable electricity to produce hydrogen by electrolysis of water which is then converted into RNG (i.e. methane), using the carbon dioxide recovered from municipal waste. Existing gas distribution infrastructure and mature end-use technology can then be fully utilized, overcoming the current challenges of energy storage. The prototype reactor will have an output range of 0.3 to 0.5 kW, with plans to scale up the project in a second phase.

¹ <http://canwea.ca/wind-Energy/installed-Capacity/2017>

Power-to-Gas P2G process

Methane



The Canadian Gas Association has set a target of 5% RNG-blended natural gas in the pipeline distribution system by 2025 and 10% by 2030 across Canada. Nationally, the increased RNG content would result in 14 megatonnes (MT) of greenhouse gas (GHG) emission reductions per year by 2030, equivalent to removing 3 million passenger cars from the road. The Régie de l'énergie in Quebec has proposed a target of 1% RNG to be distributed by 2020 and 5% by 2025.

Quotes:

"The Power-to-Gas process has been proven extensively in other markets but there is a real lack of this technology here in Canada that must be filled. We are looking forward to a successful partnership with Xebec for the realization of this project which has the potential to have a dramatic impact on greenhouse gas reduction in Quebec and Canada.

- *Professor Jan Kopyscinski, Department of Chemical Engineering and Principal Investigator on the project.*

"Collaboration with industry is a key strategic goal for our Faculty and this project exemplifies our approach. In so doing, we are positioning the Faculty to become an active player in the struggle to make our world a more sustainable one."

- *Professor Jim Nicell, Dean of the Faculty of Engineering*

"NSERC's Collaborative Research and Development Grants create and support partnerships that economically, socially and environmentally benefit Canadians. With the use of renewable energy on the rise, the continued collaboration between Dr. Kopyscinski and Xebec will generate fundamental knowledge and help develop technology that could significantly shape the energy storage market in Canada."

- *Dr. Marc Fortin, Vice-President, Research Partnerships at the Natural Sciences and Engineering Research Council of Canada*

“We are delighted to be working with Dr. Jan Kopyscinski on the development of a cost effective methanizing reactor. Methanization is one viable way of capturing carbon dioxide and converting it to renewable gas. This is especially relevant in Quebec where low cost renewable electric power is a great enabler for the generation of hydrogen needed for the methanization reaction. This research program will focus on achieving high performance while being sensitive to the commercial requirements of cost and size as Xebec continues to develop a portfolio of renewable fuel product offerings.”

- Dr. Prabhu Rao, Chief Operating Officer, Xebec Adsorption Inc.

About McGill University

Founded in Montreal, Quebec, in 1821, McGill is a leading Canadian post-secondary institution. It has two campuses, 10 faculties, 12 professional schools, 300 programs of study and almost 41,000 students, including more than 9,700 graduate students. McGill attracts students from over 150 countries around the world, its 12,000 international students making up 30% per cent of the student body. Over half of McGill students claim a first language other than English, including approximately 20% of our students who say French is their mother tongue. Find out more at www.mcgill.ca

About The Natural Sciences and Engineering Research Council of Canada (NSERC)

NSERC invests over \$1.2 billion each year in natural sciences and engineering research in Canada. Our investments deliver discoveries—valuable world-firsts in knowledge claimed by a brain trust of over 11,000 professors. Our investments enable partnerships and collaborations that connect industry with discoveries and the people behind them. Researcher-industry partnerships established by NSERC help inform research and development and solve scale-up challenges. NSERC also provides scholarships and hands-on training experience for more than 30,000 post-secondary students and post-doctoral fellows. These young researchers will be the next generation of science and engineering leaders in Canada. Find out more at <http://www.nserc-crsng.gc.ca>

About Xebec Adsorption Inc.

Xebec Adsorption Inc. is a global provider of gas generation, purification and filtration solutions for the industrial, energy and renewables marketplace. Its customers range from small to multi-national corporations and governments looking to reduce their carbon footprints. Headquartered in Montreal (QC), Xebec designs, engineers and manufactures innovative and transformative products, and has more than 1,500 customers worldwide. With two manufacturing facilities in Montreal and Shanghai, as well as a sales and distribution network in North America, Europe, and Asia, Xebec trades on the TSX Venture Exchange under the symbol XBC. For additional information on the company, its products and services, visit Xebec at xebecinc.com.

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