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TESTIMONY BEFORE THE ENERGY, UTILITIES AND TECHNOLOGY COMMITTEE

"An Act To Promote Renewable Energy by Authorizing a Power-to-Fuel Pilot Program"
L.D. 9

GOVERNOR'S ENERGY OFFICE
February 11, 2021

Senator Lawrence, Representative Berry, and Members of the Joint Standing Committee on Energy, Utilities and Technology (EUT): My name is Dan Burgess and I am the Director of the Governor's Energy Office (GEO).

The GEO submits this testimony in support of the concepts in L.D. 9 and looks forward to working with the sponsor, the Committee and stakeholders on the development of this pilot program.

Generally defined, power-to-gas is the process of converting electricity into a gas fuel, namely hydrogen through the process of electrolysis. This hydrogen, called 'green hydrogen' when produced using renewable electricity, can then be used in several different end uses including in industrial processes, and can also be stored or combined with CO_2 for conversion into methane gas. The pilot program presented in this bill provides the opportunity to test this technology utilizing only renewable electricity generation in the electrolysis process.

The first power-to-gas pilot project in the United States has been launched through a partnership between the National Renewable Energy Laboratory (NREL) and Southern California Gas. As described by NREL, "the technology takes excess electricity and converts it to hydrogen, which can be used, stored, or combined with carbon dioxide and fed to a bioreactor to produce renewable natural gas. This innovative technology could provide North America with a large-scale, cost-effective solution for storing excess energy produced from renewable sources. The pilot project will be used to determine the commercial viability of this power-to-gas approach to energy storage and provide insights into megawatt-scale system designs."[1] Additionally, there are a number of examples of green hydrogen and power-to-gas pilot projects in other countries, of various sizes and utilization.

[1] National Renewable Energy Laboratory (NREL). *NREL and Southern California Gas Launch First U.S. Power-to-Gas Project.* Retrieved from https://www.nrel.gov/workingwithus/partners/partnerships-southern-california-gas.html

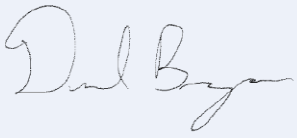
L.D. 9 would provide an avenue for pilot projects to demonstrate the potential of green hydrogen and other power-to-fuel technology production in Maine and end-use markets with oversight and reporting by the Maine Public Utilities Commission.

The GEO recognizes this as an opportunity for Maine to be at the forefront of research and development of an exciting emerging technology. According to recent reporting, the European Union 'is targeting 40 gigawatts (GW) of electrolyzer deployment by 2030. France is eyeing 6.5 GW, and both the U.K. and Germany have set their own 5 GW goals.'[2] Additionally, Governor Mills recently signed a Memorandum of Understanding with the United Kingdom to advance partnerships which includes collaboration and sharing resources on green hydrogen.[3]

The GEO urges careful consideration of costs as well as emissions accounting of a pilot project. The proposed legislation includes language to prioritize power-to-fuel projects with lower greenhouse gas emissions. The GEO supports this language and recommends including in the application for a pilot project a requirement to provide the estimated greenhouse gas emissions that are then confirmed by a third party, or in a method supported by the Maine Public Utilities Commission through a public process. There are a number of variables that can have a potential impact on emissions from utilizing fuels produced by these facilities and associated processes and it is vital to ensure the lowest carbon emitting option is being pursued.

The GEO looks forward to continuing to refine this program, including considering what we understand is a proposed amendment, to help the state reach its greenhouse gas emission reduction and clean energy goals, and support Maine as a leader in developing this innovative energy technology.

Thank you for your consideration.



Dan Burgess, Director
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[2] https://www.greentechmedia.com/articles/read/woodmac-on-green-hydrogen-its-going-to-happen-faster-than-anyone-expects

[3] https://www.maine.gov/governor/mills/news/maine-and-united-kingdom-sign-agreement-advance-partnership-clean-energy-climate-change-2020