Canadian Bioenergy Landscape: Key Drivers and Future Potential

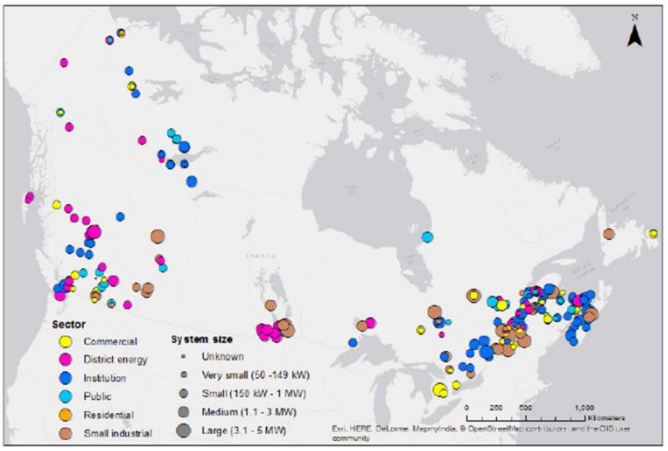
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Abstract (300 word limit)

Canada is endowed with abundant natural resources and has among the world's most productive agriculture and forestry sectors. Despite its abundance, biomass is not being utilized to its full potential due to lack of supply chain logistics and low fossil fuel prices. The Biomass Quality Network Canada (BQNC) was established in 2016 through funding from Agriculture Agri-Food Canada (AAFC) to support the advancement of the Canadian bio-products industry in four main sectors: Biochemicals, Bioenergy, Biofuels and Biomaterials. BQNC supports the Canada's bio-products industry by enabling the selection, creation, adoption and maintenance of a central database of internationally recognized quality control and assurance standards in coordination with other national and international standards organizations.

Bioenergy has been part of the Canadian energy scene for more than 25 years, ranging from heat and power cogeneration, wood pellets, to liquid biofuels. The recent federal and provincial government directives on fossil carbon emission reduction are likely going to be the key drivers for the development of bioenergy markets in Canada. The talk will highlight the key findings of the BQNC bioenergy sector sub-committee pertaining to biomass resource availability and bioenergy potential with the aim of bridging the gap between supply chain, fuel (quality) and equipment suitability with a focus on central / western Canada. Suitable recommendation on quality grading of common Canadian agricultural residues vis-a-vis ISO/TC238 classification will also be presented.

Image: Map of Canadian Bioheat Installations (2017)



Source: Updating and Expansion of the Canadian Bioheat Database, March 2017, NRCan.

Recent Publications

1. **Khan, A**. Savidov, N. Zhang, J. Yang, J. Anderson, T. Harfield, D. Anyia, AO. Biochar Substrate for Greenhouse Vegetable Production, in Biochar: Production, Characterization, and Applications, CRC Press 2015.
2. **Khan A**, Mirza M, Fahlman B, Rybchuk R, Yang J, Harfield D, Anyia AO, Mapping Biochar Characteristics for Greenhouse Produce Safety, J. Ag. Food Chem. 2015, 63, 1648-57.
3. MHSK Tushar, N. Mahinpey, A. Khan, H. Ibrahim, P. Kumar, R. Idem, Production, Characterization and Reactivity Studies on Chars produced by the Isothermal Pyrolysis of Flax Straw, Biomass Bioenergy 37 (2012) 97-105
4. B. Saha, **A. Khan**, H. Ibrahim, R. Idem Evaluating the performance of non-precious metal based catalysts for sulfur-tolerance during the dry reforming of biogas, Fuel 120 (2014) 202-217.
5. **Ataullah Khan Mohammed**, "Low Cost Biomass Derived Functionalized Carbons for Hg Capture" US Provisional Patent Application, 2017.
6. R. Idem, **Ataullah Khan Mohammed**, B. Saha, "Sulfur Tolerant Catalysts for H2 Production by CO2 Reforming of CH4 from Biogas", US Patent 9,339,797, 2016.
7. R. Idem, **Ataullah Khan Mohammed**, H. Ibrahim, P. Tontiwachwuthikul, et al., "Catalysts for Feedstock-Flexible and Process-Flexible Hydrogen Production", WIPO, WO/2011/106876.



Biography

Dr. Khan is the lead scientist for the Thermo Chemical Processing group at InnoTech Alberta and also an Adjunct Professor in the Process Systems Engineering, University of Regina. He is also the sector lead for bioenergy initiative at the BQNC (Biomass Quality Network Canada) and a technical committee member on Canadian Mirror Committee to ISO/TC 238:Solid Biofuels. At InnoTech Alberta, his research is focused on biomass thermochemical & thermocatalytic conversion pathways to bioenergy, biofuel, bio-chemical or bio-materials. He is a recipient of 2012 Paragon Award for Innovation for the development of innovative catalysts for feed- and process- flexible hydrogen production. He has 3 patents, 1 book chapter, 2 reviews and 30 research articles to his credit. He also served as a Guest Editor for Special Issue on "Metal Oxides in Catalysis" in Molecular Catalysis Journal, Elsevier, 2018 Issue. *Email: Ataullah.Mohammed@InnoTechAlberta.ca; akhan.akhan@gmail.com;

The Biomass Quality Network Canada (BQNC) consists of several organizations that are supporting the commercialization of agricultural biomass for industrial applications through the development and adoption of internationally recognized quality standards.