

Opportunities in Bioenergy and Waste-to-Energy with Carbon Capture Utilization and Storage in Canada

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Bioenergy and waste-to-energy with Carbon Capture Utilization and Storage (BECCUS) is the first viable net-negative emissions solution. BECCUS encompasses an extremely wide range of possible pathways in different scenarios, as there is a wide-range of possibilities for biogenic feedstocks, conversion technologies for energy production and subsequent options to sequester the carbon. Canada has significant opportunities for BECCUS due to the forestry and agriculture industries, as well as geological formations suitable for storage. In addition, Canada has a healthy R&D ecosystem for carbontech and utilization options are nearing commercialization.

This presentation will review a case study of BECCU in Canada. In this example, the Tundra Greenhouse, a 27.5 hectare greenhouse in Saint-Félicien, Quebec, captured waste heat and carbon emitted locally to grow vegetables. This is an example of how the circular bioeconomy can support carbon management. Government interventions to support adoption of BECCUS can advance the use of BECCUS further. Despite some early examples, there are many opportunities for BECCUS of which Canada is not currently taking advantage. These opportunities will be discussed, including the use of post-consumer waste, which contains a fraction of biogenic material, in cement and waste-to-energy facilities with CCUS, and the strengths, weaknesses and opportunities will be outlined.