Unlocking the Potential of Canada's Wood Waste

1 November 2023

In Canada, we're just scratching the surface of the environmental and economic value hidden within wood waste. According to the National Waste Characterization Report by Environment & Climate Change Canada, an estimated 64% of the waste disposed in landfills each year is potentially degradable, and capable of producing methane, a powerful greenhouse gas. Food, paper and wood are the three largest degradable materials sent to landfill.[i]

Focusing on wood waste, Canadian provinces are increasingly recognizing the potential of bioenergy, particularly in renewable natural gas (RNG) development. Quebec set the precedent in 2019 by mandating RNG inclusion in the natural gas grid[ii], and strong provincial policies are propelling the biomass-to-energy potential. Deloitte's 2018 report forecasts a substantial rise in RNG production potential, growing the potential from 35.4 million GJ to 188.5 million GJ by 2030, largely thanks to biomass opportunities, including processing residue, harvesting residuals, non-merchantable wood, and residual biomass from construction and demolition.[iii]

Furthermore, wood waste management isn't just about decarbonization and renewable energy; it also plays a vital role in reducing the risk of wildfires in forestry regions. Without proper maintenance, neglected wood waste and dry brush can escalate forest fires. A 2021 simulation study from the University of California, Berkeley, emphasized that more than a quarter of California's 4.9 million hectares of forests could face the threat of wildfires without effective forest waste management. The study also highlights the importance of innovative use cases for wood waste to increase net climate benefits generated.[iv]

Introducing High-Temperature Pyrolysis (HTP): One promising solution harnessing the power of wood waste is High-Temperature Pyrolysis (HTP) technology. HTP is not just a buzzword; it's a groundbreaking process that transforms forestry waste products into two invaluable outputs: renewable gas and biocarbon. Operating at temperatures exceeding 800°C without oxygen (no combustion), the HTP process is carbon negative and generates excess energy. This surplus energy finds application in heat, electricity, green and low carbon intensity hydrogen, or renewable natural gas (RNG) generation. HTP also produces high-quality biocarbon, sequestering carbon and serving as a biochar soil amendment, alongside carbon credits or as a biocoal alternative to traditional metallurgical coal in steelmaking.

CHAR Technologies' Commitment: Since 2011, CHAR Technologies has been on a mission to harness the incredible potential of HTP to decarbonize for a circular economy. We've recently teamed up with ArcelorMittal, who not only invested in our technology but also committed to purchasing our high-quality biocoal. This collaboration is just the beginning of our journey.

A Call for Partnerships: At CHAR Technologies, we're seeking more than partners; we aim to build lasting relationships to provide sustainable wood waste solutions. Our vision involves collaboration with logging and wood processing companies, forest management organizations, and First Nations communities with access to wood waste. These sources range from trees unsuitable for lumber to harvest residues, trees

affected by fire, diseases, or insects, and by-products of industrial forest processes, including wood and pulp residues.

With our commitment to innovation and collaboration, we're advancing towards a future where biomass plays a central role in our energy, waste management, and environmental preservation. Join us in shaping a cleaner, sustainable future.

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[i] https://publications.gc.ca/collections/collection_2020/eccc/en14/En14-405-2020-eng.pdf

[ii] https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/market-snapshots/2023/market-snapshot-two-decades-growth-renewable-natural-gas-canada.html

[iii] https://energir.com/files/energir_common/181120_Potentiel-GNR_Rapport-synthA%CC%83%C2%A8se_ANG.pdf

[iv] https://www.pnas.org/doi/10.1073/pnas.2019073118