

Minnova Announces Biomass Gasification Tests Achieve >50% H₂ Recovered to Syngas. Global Expansion as a Cleantech Company Well Underway

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Toronto, November 24, 2022 - [Minnova Corp.](#) (TSXV: MCI) (OTC Pink: AGRDF) ("Minnova" or the "Company") an evolving cleantech and gold mine development company is pleased to announce positive biomass gasification test results and other business development opportunities:

- Positive gasification test results for corn stover from Romania and Pineapple waste from Costa Rica.
- >50% H₂ content in syngas achieved.
- Opportunities identified to further increase H₂ content of syngas.
- Discussions with major equipment manufacturers (power generation) for direct syngas to power generation initiated.
- Gasification technology selected to participate in the Canadian Technology Accelerator program to address Southeast Asia's climate target of net-zero carbon emissions

Positive Biomass Gasification Test Results

Test work was conducted at the University of Teramo, Italy, Department of Biosciences and Agri-Food and Environmental Technologies under the supervision of Prof. Ing. Sergio Rapagnà. Corn and pineapple waste samples were dried and pelletized in a commercial pellet plant to approximate future industrial scale operations (see Figure 1).

Pelletized samples were fed into the DUMA designed fluidized bed reactor and gasified under controlled conditions. The resulting syngas flow rates and H₂ content exceeded expectations (minimum target of 50% H₂) for both corn and pineapple samples. See Table 1 for a summary of test results.

Concentration of tar in the syngas for both samples were in line with test results of comparable biomasses. Observations during testing suggests an opportunity exists to further improve the quality (% H₂ content) and volume (gas yield Nm³/kg daf) of the resulting syngas by adjusting some of the operating parameters.

With positive gasification results in hand we are now in a position to start detailed techno- economic studies on project initiatives in Costa Rica and Romania. In-country work will include soliciting biomass supply agreements, commercial offtake agreements for either green H₂, electrical power or byproduct thermal energy, and definitive commercial site selection.

Figure 1: Pineapple and corn samples before and after pelletization.

To view an enhanced version of Figure 1, please visit:
https://images.newsfilecorp.com/files/3654/145658_e361044a14f0b882_001full.jpg.

Table 1: Pineapple and Corn Gasification Test Results.

Biomass Test Sample Pineapple Corn

Pellet Characteristics

Humidity % dry wt	11.1	9.0
Ash % dry wt	5.8	7.0
C % dry wt	47.4	45.6
H % dry wt	7.6	7.5
N % dry wt	0.5	0.3
S % dry wt	0.8	0.8
O % dry wt	37.9	38.8

Test Results

Gas yield, Nm ³ /kg daf	1.59	1.67
H ₂ (% vol. dry, N ₂ free)	>50	>50
CO ₂ (% vol. dry, N ₂ free)	15	16
CO (% vol. dry, N ₂ free)	30	28
CH ₄ (% vol. dry, N ₂ free)	5	6

The results demonstrate continued progress towards the goal of producing a high H₂ content syngas from biomass gasification that can be; i) purified to a green H₂, ii) utilized for direct power generation, or iii) further processed to produce other valuable biofuels.

Southeast Asia: Decarbonizing the energy sector - CTA Program 2022-2023

The Company is also pleased to announce it has been selected to participate in the Canadian Technology Accelerator (CTA) program with a specific goal of addressing Southeast Asia's climate target of net-zero carbon emissions between 2050 and 2065. Selected companies have demonstrated marketable, innovative technologies at a Technical Readiness Level (TRL) of 6 or higher. The selection of our 3rd generation biomass gasification technology presents an opportunity to take a leading role in decarbonizing Southeast Asia's power generation infrastructure by incorporating our technology which can produce green H₂, electrical power and a variety of other valuable biofuels. The CTA program of Global Affairs Canada assists high-potential, technology focused, Canadian SMEs to accelerate their growth.

Southeast Asia's carbon emission reduction target is ambitious, with current energy supply dominated by fossil fuels (coal, oil, and natural gas). Biomass may represent the only viable, carbon neutral, sustainable, and secure replacement for current base load electrical power production. The regions diverse supply of biomass waste (e.g., agricultural residues, woody biomass, animal wastes, and municipal solid waste) combined with its high growth, industrialized economy, and commitment to reducing carbon emissions meet our general site selection criteria.

Gorden Glenn, President and CEO of [Minnova Corp.](#) commented: "These are impressive test results that affirm our belief in our technology, and that gasification of biomass can be a technically viable and economical route for large scale green hydrogen production. The results not only exceeded our expectations, but there is also potential to further increase hydrogen content in the syngas. On our selection to participate in the Southeast Asia CTA program it is another confirmation that our 3rd generation biomass gasification technology is a marketable technology that offers a real carbon neutral solution to produce green hydrogen and power from locally available waste biomass around the world. The market opportunity that Southeast Asia represents is extremely attractive and adds to our existing global business development pipeline consisting of Canada, Europe, Central America, and Africa. Our transition to an operating, cleantech company is accelerating and we will continue to innovate and acquire or develop intellectual property associated with green hydrogen, renewable power generation and other carbon emission reduction technologies worldwide."

About Minnova Corp.

[Minnova Corp.](#) is an evolving cleantech company building a worldwide pipeline of green energy projects. Our subsidiary, Minnova Renewable Energy, is focused on innovative carbon reduction technologies such as the

3rd generation biomass gasification technology developed by DUMA Engineering (2018) Inc. As of September 30, 2022 Minnova owns 50% interest in DUMA. Acquisition of the remaining 50% interest will consist of a combination of cash payments and shares and will be dependent on several conditions, including; a) long run test performance of the demonstration plant to produce a 50% hydrogen content syngas, b) other techno-economic and environmental considerations, and c) filing of patent applications. In addition to receipt of all regulatory approvals.

Prior to 2021 [Minnova Corp.](#) has focused on the restart of its PL Gold Mine, which included completion of a Positive Feasibility Study in 2018. The study concluded the restart of the PL Mine, at an average annual production rate of 46,493 ounces over a minimum 5-year mine life was economically robust. Importantly the global resource remains open to expansion, as does the reserve. The PL Gold Mine benefits from a short pre-production timeline forecast at 15 months, a valid underground mining permit (Environment Act 1207E), an existing 1,000 tpd processing plant, over 7,000 meters of developed underground ramp to -135 metres depth. The project is fully road accessible and close to existing mining infrastructure in the prolific Flin Flon Greenstone Belt of Central Manitoba.

For more information please contact:

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Visit our website at www.minnovacorp.ca and follow us on social media (twitter: @MinnovaCEO and Instagram: minnovacorp).

Forward Looking Statements

This news release contains "forward-looking information" within the meaning of applicable Canadian securities legislation. Forward-looking information includes, but is not limited to, information regarding the Company including management's assessment of future plans and operations, that may involve risks associated with mining exploration and development, volatility of prices, currency fluctuations, imprecision of resource estimates, environmental and permitting risks, access to labour and services, competition from other companies and ability to access sufficient capital. As a consequence, actual results may differ materially from those anticipated in the forward-looking statements. Although Minnova has attempted to identify important factors that could cause actual results to differ materially from those contained in forward-looking information, there may be other factors that cause results not to be as anticipated, estimated or intended. There can be no assurance that such information will prove to be accurate, as actual results and future events could differ materially from those anticipated in such information. Accordingly, readers should not place undue reliance on forward-looking information. Minnova does not undertake to update any forward-looking information, except in accordance with applicable securities laws.

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