



IEA Bioenergy
Technology Collaboration Programme

Gasification news

Highlights from the IEA Bioenergy Task 33 meeting in Edmonton (CA), April 18-20

Newsletter I

IEA Bioenergy: Task 33: May 2023

INTRODUCTION

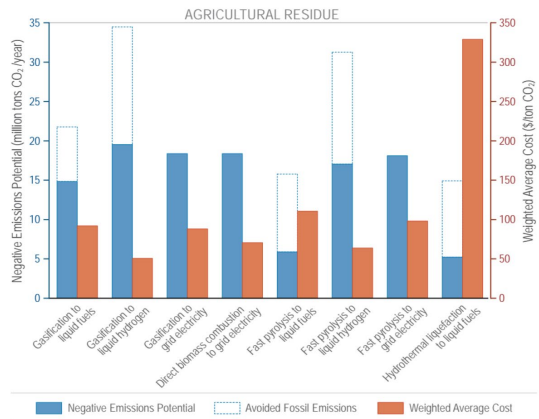
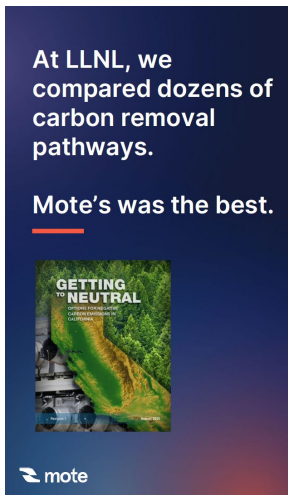
IEA Bioenergy Task 33 organised the first bi-annual meeting of 2023 in Edmonton, Canada. The program consisted of an overview of the gasification status in all participating countries, followed by a workshop on hydrogen production from gasification or utilization in gasification processes. The third day, we had a very interesting site visit to the Enerkem waste gasification facility in Edmonton, see Figure 1.



Figure 1. Photo from the site visit at Enerkem, Edmonton

WORKSHOP ON HYDROGEN PRODUCTION AND UTILIZATION

The workshop gave an [overview](#) of activities related to hydrogen produced from gasification happening world-wide. Companies such as Mote (US) and H2Naturally (CA) presented their visions and approaches to the production of hydrogen. The presentations can be found [online](#). Mote presented on their biomass gasification concept with CCS. An important message was that if the goal is to obtain negative emissions from a given amount of agricultural residue, gasification results in the largest potential, see Figure 2 (obtained from an [LLNL report](#)).



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Figure 2. Potential for negative carbon emissions

SHORT HIGHLIGHTS FROM THE COUNTRY REPORTS

Below are some of the highlights from the country reports, for more information please reach out to your national contact point (see <http://task33.ieabioenergy.com/>)

Austria

Since the beginning of 2023 a new CHP plant is in operation in Perg, Austria. The technology is based on a unique floating fixed bed gasification offered by company SynCraft. The output of 1 MWel. / 1.5 MWth covers the electricity demand of 1.750 households, heat is used for district heating. Annually, 1 000 tons of biochar is produced, which corresponds to CO₂ savings of 10 000 tons. For more information, see <https://en.syncraft.at/references/wood-power-plants>

Belgium

Xylergy, the Belgian gasifier manufacturer is currently installing one of its NOTAR® gasifier in Matsumoto, Japan. The commissioning is expected for the third quarter of 2023. The plant will deliver 180 kWe on 0.45 MW of syngas on LHV. The plant will use wood chips and briquettes.

India

India presented some activities on hydrogen production from gasification as well. The Indian Institute of Science together with the Indian Oil company worked on a development for a downdraft gasifier to produce hydrogen, see Figure 3. With this setup they reach an average hydrogen yield of 100-105 gram/kg of dry biomass.

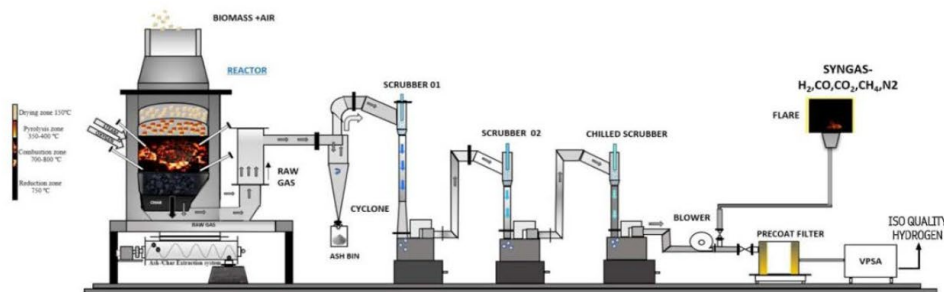


Figure 3. Schematic of a downdraft biomass gasifier developed in India.

Italy

The Italian company and the developer of the ECO20x combined heat and power (CHP) micro system CMD SpA, is coordinating the three-year EMERA project. Through a 6-member national partnership, the project aims to develop an off-grid, decentralized hybrid platform to be supplied with residual biomass and solar energy. Equipped with a high-density energy storage

system, the unit will allow flexible and efficient operation to achieve optimal integration of the energy sources while ensuring continuous availability of power at the installation site. (see <https://www.cmdengine.com/>)

United Kingdom

Advanced Biofuels Solutions Ltd. (ABSL), in Swidon, UK has completed their plant construction which is aiming at converting household waste into grid-quality BioSNG (bio-methane). It uses a oxy-steam fluidised bed gasifier to produce syngas which is further upgraded to bioSNG; the plant will be fully operational this year (2023). [Swindon Plant | Advanced Biofuel Solutions Ltd \(absl.tech\)](#)

ABSL and University College London (UCL) have been awarded a £4.8m grant from the DAC and Greenhouse Gas Removal Innovation Programme, Phase 2 of the competition launched by the UK Department for Business, Energy & Industrial Strategy (BEIS) for developing pilot plants for hydrogen production and carbon capture and storage (CCS).

USA

Fulcrum's Sierra Biofuels project has reached full operational status and produced the first volumes of product in December of 2022. Work is now continuing to ramp up production. Fulcrum's technology produces Fischer-Tropsch liquids and waxes from gasification of municipal solid waste. For more information please see this link: <https://www.fulcrum-bioenergy.com/sierra-biofuels>. Figure 4 shows a photograph of the plant.



Figure 4. Photo of the Fulcrum's Sierra Biofuels plant

Sweden

The Swedish gasification company MEVA Energy is currently constructing a gasification plant for production of renewable gas replacing fossil LPG for tissue drying at Sofidel mill in Kisa, Sweden. The plant will gasify 1300 kg per hour of wood-pellets in an entrained flow cyclone gasifier. The first gas deliveries are planned in May 2023. For more information, see <http://mevaenergy.com>

The Netherlands

In the Netherlands, more and more activities are observed related to the production of hydrogen. Besides the development of Torrgas with Brigh2 and RWE with FUREC, both in the south of the Netherlands. Another Dutch company, NettEnergy, recently started and is piloting a facility to convert roadside gras into biochar and hydrogen.

The company HoSt is re-entering the gasification market. After several years of focussing their business on biogas, combustion, CO₂ capture and gas upgrading and showing tremendous growth, they now see opportunities with gasification and are acting on this. Their recent acquisition of HyGear allows them to offer a turn-key solution involving gasification.