

## Global technology pioneers Licella announce commissioning of world's largest operating hydrothermal liquefaction facility

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Licella Holdings Ltd (Licella) is delighted to announce the successful initial commissioning of its upgraded Cat-HTR™ commercial-demonstration plant. The state-of-the-art Commercial Stage 1 (CS-1) facility represents the culmination of over fourteen years of successful, steady technology development into the Cat-HTR™ (Catalytic Hydrothermal Reactor), the company's pioneering hydrothermal liquefaction (HTL) technology.

CS-1 is co-owned with Canadian Forest Products Ltd. (Canfor), a global leader in the manufacturing of sustainable forest products, through its joint venture, Arbios Biotech. It is built around the core of Licella's large pilot plant on the NSW Central Coast (Australia), utilising its commercial-scale Cat-HTR™ reactors.

The Cat-HTR™ is a powerful decarbonisation platform that produces high value, low-carbon products, such as renewable transportation fuels and biochemicals.

The CS-1 facility represents a universal HTL platform that has the ability to process the widest range of post-consumer biomass residues and plastics in the world.

Licella CEO, Dr Len Humphreys, said that the new CS-1 facility will be capable of producing up to 140 barrels of sustainable oil per day, a direct substitute for fossil crude, from post-consumer biomass and plastics.

*"We believe that our upgraded Cat-HTR™ facility is the largest operational plant of its kind in the world today.*

*The commissioning of CS-1 acts as the catalyst to support the growing commercial roll-out of our Cat-HTR™ technology globally. It is an exciting commercial milestone,"* said Dr Humphreys.

Whilst older thermal upgrading technologies, such as pyrolysis and gasification, were developed in a less carbon-constrained world, the Cat-HTR™ has been developed to retain as much carbon in its products as possible. This results in a higher efficiency process which produces a high quality, stable and energy dense oil.

By using water to control the thermo-chemical reactions, the Cat-HTR™ process operates at lower temperatures, using less energy, and retains more carbon in its products, compared to pyrolysis and gasification. This makes the platform well suited to our carbon-constrained world. By comparison, pyrolysis and gasification are uncontrolled reactions, resulting in a significant percentage of carbon from the feedstock ending up as either solid char or gas (CO<sub>2</sub>).

The Licella team, based on the NSW Central Coast, have continued successful trial programs alongside the commissioning of the CS-1 facility. By taking advantage of remote monitoring and video access, the team made significant technical progress in a COVID-19 constrained environment, enabling the company, and its global partners, to make significant commercial progress.

This progress included Arbios Biotech this year forming a global alliance with Shell Catalysts & Technologies, to utilise Shell's upgrader technology in its Cat-HTR™ commercial plants and create an end-to-end biorefinery solution. Some of the first biocrude produced from the new Cat-HTR™ CS-1 facility will be shipped to Shell's facilities in Amsterdam for upgrading. In addition, Cat-HTR™ renewable biocrude can be fed into existing refinery infrastructure, a direct substitute for fossil derived equivalents.

In parallel, Mura Technology (Mura) are building the first commercial HTL facility for waste plastic, with the Cat-HTR™ technology at its core, in the UK through subsidiary ReNew ELP. Mura, who have a global strategic alliance with KBR, recently announced an agreement with Mitsubishi Chemicals to build an advanced recycling plant in Japan, with Licella's Cat-HTR™ technology at its core.

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### About Licella

Licella is an Australia technology development company who invented the pioneering Catalytic Hydrothermal Reactor (Cat-HTR<sup>™</sup>) platform, the World's most commercially advanced hydrothermal liquefaction (HTL) technology. HTL is the next generation of advanced recycling, chemically transforming low value feedstocks into sustainable oil, a direct substitute for fossil crude. The platform is proven across a wide range of waste biomass and post-consumer plastics. With more than A\$100M invested over the past fourteen years, the Cat-HTR<sup>™</sup> technology is a commercial ready solution, with facilities being built around the world by Licella and its strategic partners.

For more information on Licella and its Cat-HTR<sup>™</sup> technology, visit [www.licella.com](http://www.licella.com)



**Image:** The supercritical fluid boiler that heats the water for CS-1 at Licella's Cat-HTR<sup>™</sup> commercial demonstration facility in NSW, Australia.