





MAKING MODERN LIFE POSSIBLE



Originating in 1907, Lummus Technology boasts over a century of technological innovation within the process industries. We catch up with President and CEO, Leon de Bruyn, as the business marks its first year as a standalone company

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“If we develop new technologies that are more efficient and more sustainable, then our customers can deliver products that are cleaner, cheaper, with less waste and emissions, while taking their inherent by-products and putting them into circulation for further use.

“The energy transition is a challenge to our industry, and we are excited to meet it head on,” opens Leon de Bruyn, President and CEO of Lummus Technology (Lummus).

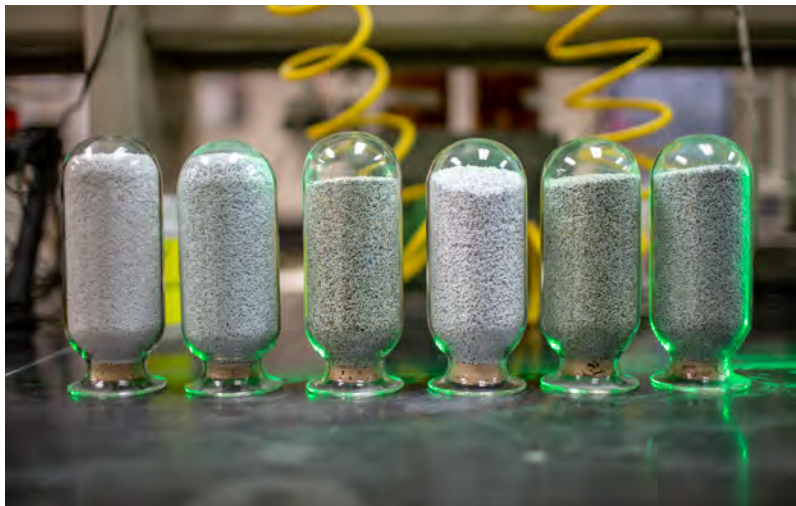
Today, Lummus occupies the

vanguard of driving the energy transition, with de Bruyn himself fully alert to the dynamic paradigm shift that is overtaking the North American, and indeed global, energy sector. The events of the past two years have been a true catalyst in accelerating the need for change.

“The recent pandemic, significant shifts in work and travel as well as consumption patterns and regulatory changes have given way to strategies of what cleaner and consolidated energy generation and transmission look like.



Ethylene plant



“INNOVATION AND TECHNOLOGY COMMERCIALIZATION IS IN OUR DNA”

- LEON DE BRUYN, PRESIDENT AND CEO,
LUMMUS TECHNOLOGY

“The language around clean energy, greenhouse gas, renewables and recyclables has been around for many years, but there is more urgency now and companies are altering their business models,” he explains.

At Lummus, the proposition of meeting and adapting to modern challenges is nothing new – indeed, the company has been designing innovations for the process industry for well over a century, resulting in over 130 technologies and 3,400 patents and patent applications.

Although a global enterprise, Lummus benefits from a particularly strong North American market presence, bolstered by a well-equipped workforce and years of experience and business.

The company boasts world-class R&D centers in both the US and Germany, where a team of over 650 highly-qualified scientists, product experts and technicians are dedicated to transforming innovative ideas into tangible solutions. As a

business centered on the concept of innovation, these facilities are the true crux of the company’s operations.

“Our engineers and R&D environment support a “concept-to-completion” mentality that has established a long track record of creating and commercializing new technologies,” de Bruyn adds.

For de Bruyn, it has been a rich and varied journey to his position today.

“I am proud to see how we have become an innovative technology leader, with a passionate workforce ready to develop solutions to overcome some of society’s greatest challenges and propel our industry forward,” he tells us.

Indeed, our discussion takes place as Lummus marks its first year in operation as a standalone company. Lummus embarked on this chapter in 2020, when the business was purchased by Rhône Capital and The Chatterjee Group, heralding an exciting new iteration of the company’s trajectory.

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INNOVATE, CREATE, IMPROVE

"The energy transition is the lens through which we view everything now. What I mean by that is, everything we do can be more efficient. That is the mentality we have had throughout our existence — Innovate. Create. Improve," states de Bruyn.

With technology commercialization and innovation intrinsically woven into the company's DNA, this is evidenced at Lummus by decades of delivering breakthrough technologies for a range of customers within refining and petrochemicals.

"We put the technology into our customers' plants through design, catalysts and proprietary equipment, and continue our support during the plant's life cycle through services, digital products and plant optimization," de Bruyn continues.

Today, these traditional technologies have expanded as Lummus' heritage of innovation thrives in alignment with the urgent global need for cleaner energy and sustainable by-products.



"WE HAVE SUCCEEDED IN PARTNERSHIPS BECAUSE WE ARE ALL MOVING IN THE SAME DIRECTION TOWARDS A COMMON GOAL. THIS HAS HELPED GROW OUR BUSINESSES AND DEVELOP TECHNOLOGY

BREAKTHROUGHS TO OVERCOME SOME OF THE INDUSTRY'S MOST COMPLEX CHALLENGES"

- LEON DE BRUYN, PRESIDENT AND CEO, LUMMUS TECHNOLOGY

As the energy transition represents a key growth area for Lummus, the company's Green Circle business stands at the forefront of industry innovation.

"Through Green Circle, we are rapidly developing solutions for the circular economy, producing cleaner and renewable fuels, hydrogen technology and decarbonization of refinery and petrochemicals assets," he tells us.

Green Circle strengthens Lummus' in-house capabilities by developing energy transition technologies.

Additionally, de Bruyn identifies Green Circle as the "launchpad" through which Lummus' partners can bring sustainable solutions to market.

Lummus is continually developing innovations to reduce carbon footprint, improve efficiency, and reduce energy intensity. For instance, the company's ethylene plants are equipped with a product separation system that is unparalleled in terms of efficiency. Another example is Lummus' collaboration with Applied Research Associates to develop a capital efficient biofuels technology.





Through this method, Lummus was able to produce more petrochemicals through fluid catalytic cracking (FCC).

Another key branch of innovation is encompassed by Lummus Digital – a partnership with TCG Digital whereby the collective strength of both companies is fully leveraged to drive digitalization throughout the energy footprint.

“At Lummus Digital, we consider the benefits to the downstream energy industry by more effectively managing assets, troubleshooting operations and forecasting critical maintenance needs.

“We work with our existing customer base as well as new customers to implement a digital platform and solutions for their assets across the hydrocarbon processing value chain,” de Bruyn explains.

Elsewhere in the company, innovation acts as the cornerstone of Lummus’ technological prowess. On the ground, this is put in place by the company’s esteemed team of engineers, scientists, and “technology visionaries” who do not shy away from a challenge.

“We have an in-house technology engineering community comprising nearly 75 percent of our workforce. Moreover, we have three world-class R&D centers where we can collaborate, experiment and drive innovation to create and improve our technologies,” de Bruyn explains.

Indeed, Lummus recently commissioned a range of pilot plants in order to test new technologies for Green Circle, polypropylene, Chevron Lummus Global, CDTech and FCC.

Ultimately, the company’s perpetual pursuit of innovation results in a range of technologies that offer customers solutions that are reliable and economic due to lower energy intensity, while facilitating better product yields and improved quality.

Lummus thrives amidst the highly dynamic backdrop of the North American energy industry.



“Innovation and technology commercialization is in our DNA.”

PIONEERING THE ECOSYSTEM

Steeped in over 110 years of operation, the company’s heritage provides a rich backing of experience and business on which to capitalize. Nowhere is this more prevalent than in Lummus’ ability to attract and retain robust long-term partnerships.

“We have been successful in developing and strengthening effective partnerships throughout our history,” de Bruyn affirms.

This ability to cultivate mutually beneficial partnerships is proven by Lummus’ history of partnering with some of the most forward-thinking organizations in the world.

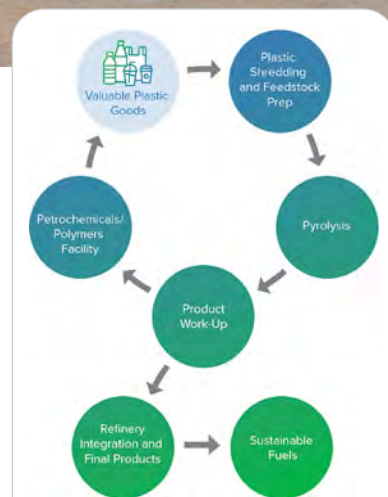
“Digitalization, Green Circle, the energy transition, circular economy efforts, carbon capture technology,



TC2C™ crude-to-chemicals, and more, are just a few of the areas in which we are finding opportunities,” explains de Bruyn.

In order to implement the visionary ecosystem of innovation that Lummus aspires to, as embodied by the Lummus ‘Green Circle’ business, the company is reliant on establishing a stable and wide-reaching network of partners and suppliers. After all, strength lies in collaboration.

“Lummus and our partners realize that technology breakthroughs, adapting to and accelerating digitalization, addressing the energy transition, among many other issues we face, cannot be done alone.



A key piece of the energy transition is the circular economy. In the circular economy of our industry, Lummus licenses a leading plastic waste conversion technology based on thermal pyrolysis that will help reduce plastic waste through integrated processing solutions for turning end-of-life plastics into pyrolysis oil. This pyrolysis oil can then be processed back into plastics or blended into fuels.



“This mutual understanding has helped Lummus and our partners work together to provide new, innovative world-class solutions that make modern life possible,” he surmises.

One such partnership that aptly demonstrates this marriage in working towards a common goal is Lummus’ recent joint venture with New Hope Technologies, a Texas-based company with a leading plastic waste conversion technology.

“Together, Lummus and New Hope are bringing this technology to market to address the nonstop flow of plastics waste created daily. We intend to be the largest supplier of technology to convert plastic waste to circular products in the world.”

A PROMISING FUTURE

Looking to the years ahead, de Bruyn



hints at the exciting future potential of Lummus as a newly independent enterprise with an ambitious growth agenda.

“The next year is one of growth in all dimensions — new technologies, new partnerships, a growing global footprint and delivering more value to the energy industry by diversification into products and

technologies that matter for the future,” de Bruyn tells us.

“We are very excited to look at a bold and rapid expansion of our business. With that in mind, we say for this year, ‘here comes the future!’ — let us get ready for it now.”

With Lummus’ newfound independence having been tried and tested in the crucible of the COVID-19 pandemic, de Bruyn has full confidence in his company’s ability.

“We just completed our first year as a standalone company, and we managed to do so stably despite an obviously very turbulent year.” 🌱



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