

A circular economy has many obvious benefits for businesses, and some are moving the agenda forward

Entering into a new paradigm

According to the Ellen MacArthur Foundation, the circular economy is “one that is restorative and regenerative by design, and which aims to keep products, components and materials at their highest utility and value at all times, distinguishing between technical and biological cycles.” It is turning the conventional linear value chain model—make, use, dispose—on its head and intentionally and systematically pushing the concept of resource, product and materials reuse for the greatest value. Driving

maximal use, reducing waste throughout the product and system lifecycle while (re)generating value and

entering lucrative new markets and building smarter cities. This rings similar to what biofuels brings to the

is a smart way forward for business, government and civil society in our resource-limited reality.

The biofuels sector has a great deal to gain from the circular economy

wealth systematically.

This new paradigm delivers win-win closed loop solutions that yield attractive environmental and financial outcomes throughout the value system all the while creating jobs,

economy. No longer thought of as a buzzword, the circular economy has the potential to unleash a three trillion dollar global economy, according to McKinsey & Co. and the Ellen MacArthur Foundation. Creating value from waste

A new way forward

Today, more and more cities and companies across sectors are ‘going circular’ and shifting their mindsets and operations to retain as much as possible from all points along the value chain. From Unilever and Nike to Philips Lighting, London and Hong Kong, as well as global economics shape-makers like the World Economic Forum, there is resounding recognition of the need for and long-term business benefit of adopting these new operating principles. A new way forward.

Houston-based trash hauler Waste Management, for example, is leading the pack in its sector by leveraging the valuable role garbage – the very problem for which the company exists – can play in the transition to a circular economy. The company provides both sustainability solutions (via reusing and recycling) and smart business alternatives to a marketplace in need of innovation to drive clean, renewable energy and a healthy bottom line.

Enerkem is a biofuels and clean chemicals producer whose business was founded on the premise of harnessing waste for its greatest value. The company enters the market where, in the non-circular, linear business context, products and services reach the end-of-life stage:



Enerkem's biofuels facility in Alberta, Canada

at the point of disposal and waste, when goods and by-products are either dumped into landfills or incinerated. It's a circular economy business model at its core.

Closed-loop

In Enerkem's system, the carbon still contained in non-recyclable and non-compostable municipal solid waste (MSW) otherwise destined to landfill is recycled and converted into methanol, ethanol or other renewable chemicals. In less than five minutes, waste materials that are chemically and structurally heterogeneous are broken down and converted into a pure, stable and homogeneous synthesis gas (also called syngas). This syngas is then converted into renewable fuels and chemicals which, when produced using Enerkem's

technology, can help reduce carbon dioxide emissions, aid in extended producer responsibility and meet the growing world demand for renewable chemicals.

Diverting waste away from landfill

As part of a comprehensive municipal waste-to-biofuels initiative in partnership with the City of Edmonton and Alberta Innovates – Energy and Environment Solutions, in 2013 the company built Enerkem Alberta Biofuels, a full-scale commercial facility that produces methanol – and eventually ethanol – from MSW. The facility generates revenues both from the sale of its methanol and from tipping fees received by the City of Edmonton for garbage processing. This facility is supporting the city in reaching its goal of

boosting a waste diversion rate from 50% to 90%.

Our full-scale commercial facility is the first collaboration between a waste-to-biofuels producer and a municipality to address waste disposal challenges. In 2016, Enerkem obtained certification from the International Sustainability and Carbon Certification system for the Alberta facility, making it the first ISCC-certified plant in the world to convert MSW into biomethanol. ISCC certification opens the door to exporting biofuels to European markets.

Enerkem Alberta Biofuels has become a model for communities and other municipalities, urban and rural, around the world that are considering smarter ways to manage waste and create value. Enerkem's technology, in partnership with the City of Edmonton and Alberta Innovates, is taking tangible

steps toward closing the loop of the circular economy.

The biofuels sector has a great deal to offer and gain from the shift to a circular economy, as evidenced by Enerkem's work with the City of Edmonton and its chief innovation champion, Mayor Don Iveson. Sustainable strategies in forward-thinking cities, smart business solutions by biofuels and waste management leaders, as well as the confidence we see from the investor community, are palpable and exciting. We look forward to playing a role in this shift and continuing to be inspired by the leaders at the forefront of this new, circular way forward. ●

For more information:

This story was written by Marie-Hélène Labrie, senior VP of Government Affairs and Communications at Enerkem. Visit: www.enerkem.com

