Hydro's Path to Decarbonisation

The world has moved to consider the sustainable and greener options available to reduce the effects of climate change and preserve for the future.
Heavy industries, such as the aluminium industry, have been put under pressure by the demands of consumers, governments, and their own company values to be carbon neutral by 2050.

Zahra Awan* spoke about Hydro's plans for greener initiatives in North America with **Mike Stier, Vice President of Strategy and Finance for Hydro Extrusion North America** and **Eivind Kallevik, Executive Vice President for Hydro Aluminium Metal**.

ONE KEY DEVELOPMENT OF HYDRO, SEEN IN 2021, WAS THE 'STATE OF THE ART RECYCLING PLANT IN MICHIGAN'. IS THERE ANYTHING YOU CAN INFORM US ABOUT?

Eivind Kallevik: "This plant is vital for Hydro and recycling of the future. It will be a leading state of the art recycling plant that will produce 120,000 tonnes output per year.

We chose Cassopolis, Michigan due to its ideal location. It is in close proximity to both scrap sources and to customers… the Midwest or the upper Midwest is a perfect location because it's close to a lot of the automotive OEM's and OEM suppliers. It is an exciting venture for Hydro, and we are looking forward to its launch as an investment to Hydro's greener values."

Eivind Kallevik

DOES HYDRO HAVE ANY OTHER PLANS BEYOND THE MICHIGAN PLANT INVESTMENT?

Eivind Kallevik: ""One of the things I find extremely exciting about this facility is that it will introduce Hydro CIRCAL to the US, a product that is 75% post-consumer scrap. This scrap comes from old buildings to high voltage cables or cars. We then process it to produce perfectly new high-quality billets.

A low carbon footprint is a very attractive characteristic of aluminium products. With this in mind, the Michigan plant is on track to being the leading plant for low carbon production. In addition, Hydro has and will have more Hydro CIRCAL capacity in the future, both in our Commerce, Texas and Henderson, Kentucky recycling facilities.

'The Commerce-based plant features state-of-the-art technology that converts scrap metal into extrusion billet. Its annual production capacity exceeds 90,000 metric tons.' – (https://www.hydro.com/en-BR/about-hydro/hydro-worldwide/north-america/united-states/west/hydro-commerce-tx/)

Mike Stier

WHERE DOES HYDRO SOURCE ITS POST-CONSUMER SCRAP FOR ITS RECYCLING FACILITIES AND CAN YOU PROVIDE MORE ON HYDRO'S RECYCLING FACILITIES?

Mike Stier: "We currently pull aluminium scrap from across the United States. In total Hydro has 11 recycling plants, we have nine in the Extrusion business unit and two in the Aluminum Metals business unit. With the addition of the Cassopolis plant, Hydro will have 12 recycling plants across the United States and Canada. So, we are pulling aluminium scrap from across the US and eastern Canada.

To add to the other recycling plants, we also have a major expansion at our recycling facility in The Dalles, Oregon. The investments are addressing multiple methods to reduce the carbon footprint and increase the sustainability of the billet produced in Oregon."

(For more on the developments of The Dalles Facility, visit the latest AIT March/April issue and keep an eye out on the latest press release regarding 'Hydro breaks ground on its state-of-the-art aluminum recycling plant in Cassopolis, MI)

ANOTHER METHOD TO INCREASE GREEN PRODUCTION AT HYDRO IS THE POWER PURCHASING AGREEMENT, WHICH WAS MADE WITH CPV'S MAPLE HILL SOLAR FACILITY. WOULD YOU BE ABLE TO ELABORATE ON HOW THIS AGREEMENT IS GOING, AND WHAT HYDRO HAS LEARNT FROM USING RENEWABLE ENERGY IN THE PRODUCTION OF ALUMINIUM?

Mike Stier: "The agreement between Hydro and CPV's Maple Hill Solar Facility is a 10-year agreement, which will begin in the middle of this year. There has been a delay due to some construction challenges, but I suspect that we will be using the solar electricity by November 2022. It will provide nearly 100% of the energy to the Cressona, Pennsylvania plant."

WHAT IS YOUR OPINION ON RENEWABLE ENERGY AND ITS FUTURE IN ALUMINIUM PRODUCTION?

Mike Stier: "We have been conducting trials with renewable energy supplies to plants across the U.S. The Cressona plant will be the first of its scale, but this agreement extends further as the power provider also has the ability to provide power to two other Hydro plants in the region.

Although, in this moment, we haven't fully committed to renewable energy, as we have implemented a flexible alternative which will kick in if, due to volume variations, they are needed. The agreement with the CPV facility is a 10-year agreement.

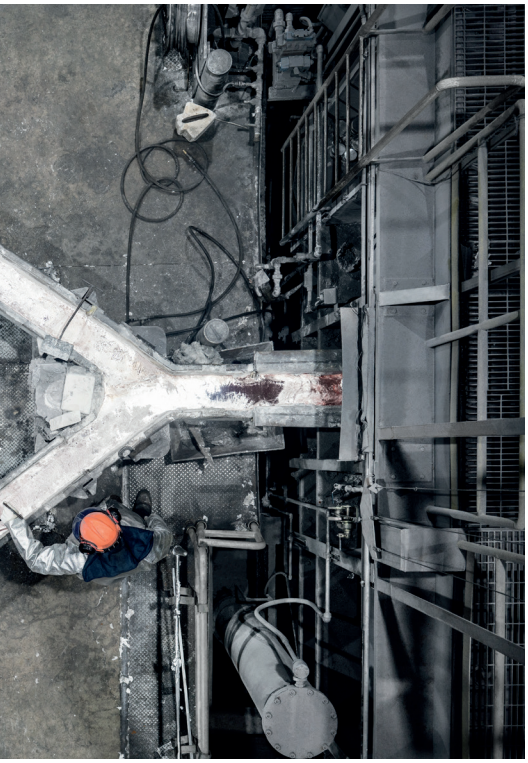
We also have other projects that are going on at our City of Industry, California, site such as a rooftop solar installation and a battery backup system. These are just a few examples. Our goal is to convert to 100% renewable energy."

HAVE YOU INTEGRATED ANY INDUSTRY 4.0 TECHNOLOGIES TO IMPROVE EFFICIENCY OF PRODUCTION, IF SO WHAT AND HOW ARE THEY BEING INTEGRATED?

Mike Stier: "We are working on the transition to industry 4.0 and the implementation of new technologies while also considering the environmental effects of these changes. Sourcing of renewable energy is somewhat independent from these technology changes, but complementary. In terms of industry 4.0, we are using new technology to improve our visibility into energy consumption at a granular level, using AI to improve maintenance work and reduce downtime, and ultimately increase operational efficiency so that we consume less energy and produce less CO_2 per tonne of aluminium.

For example: Energy consumption, efficiency, and the production efficiency. You invest in the latest state of the art technology, you target components and equipment that uses less electricity. From this you drive greater production and reduce consumption of CO_2.

As we make investments, we aim that with new technologies there is an improvement in the process productivity expectations and a significant increase in the suitability of production."



ARE THERE ANY OTHER POINTS YOU WOULD LIKE TO MENTION?

Mike Stier: An interesting challenge in the market, and for the aluminium industry specifically, is how to classify the carbon footprint of a product, throughout the value stream. There are two different methods, primarily, that are being used today: the cut-off method, and the co-product method. The aim is to be transparent to the market and the customers.

At Hydro we use the co-product method which means that the process scrap still has value and therefore still carries a carbon footprint with it.

"Hydro calculates carbon footprint of aluminium by modelling physical realities as closely as possible... we don't equalise process scrap and post-consumer scrap in our calculations, but regard process scrap as primary aluminium that has to be remelted once more. As a result, the carbon footprint of recycled process scrap is equal to or even higher than the carbon footprint of primary aluminium. Post-consumer scrap, on the other hand, has fulfilled its purpose in its first life cycle, is starting its second life cycle, and has thus no historical carbon footprint attached to it." – Carbon footprint of recycled aluminium (https://www.hydro.com/en/about-hydro/publications/white-papers/Carbon-footprint-of-recycled-aluminium-whitepaper/)

So this is an interesting challenge for the industry, to be transparent with regards to their products.

We believe in the transparency of plans and ideas and in the methods of production and calculations, so that customers and consumers can make educated decisions on what's important to them."