

# Sustainability in the construction sector: STRABAG and Liebherr test hydrogen- powered wheel loader in Gratkorn quarry

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- **Launch of pilot project in presence of Federal Minister Leonore Gewessler**
- **Alternative powertrain technologies as important building block in construction sector in order to reduce emissions**
- **Possibility to lower CO<sub>2</sub> emissions by up to 100 tonnes per year**

Vienna/Gratkorn, 9.9.2024

In the presence of Leonore Gewessler, the Federal Minister for Climate Action and Environment, STRABAG and its partners Liebherr and Energie Steiermark launched a pilot project for the use of a hydrogen-powered wheel loader at Gratkorn quarry. For the first time, green hydrogen will replace conventional diesel to power a large wheel loader in practical operation. The switch to hydrogen has the potential to save up to 37,500 litres of diesel or approximately 100 tonnes of CO<sub>2</sub> per year.

The construction sector is responsible for 38% of emissions worldwide. STRABAG is aware of its responsibility in this regard and is working to reduce greenhouse gas emissions along the entire value chain. “We want to become climate neutral by 2040. And we will only achieve this goal with a resolute commitment to lower carbon emissions across the board – in the operation of our construction machinery, for example. We are delighted to have Liebherr and Energie Steiermark at our side, two partners whose expertise is helping us to develop and test innovative powertrain solutions. Together, we are exploring the future potential of hydrogen powertrains here in Styria,” says STRABAG CEO Klemens Haselsteiner. Marco Xaver Bornschlegl, head of the central division STRABAG Innovation & Digitalisation, adds: “Fuels are the biggest source of carbon emissions in our company. And construction machinery accounts for a large part of our consumption. New, low-emission fuel solutions are therefore a key lever for effectively reducing emissions. The findings from the pilot project will also be used for other applications and to emphasise our pioneering role in this field.”

## **Ceremonial launch with Federal Minister Leonore Gewessler**

The pilot project was launched in the presence of Leonore Gewessler, the Federal Minister for Climate Action and Environment. During a tour of the quarry, she was given a demonstration of the wheel loader in operation. The minister sees innovation as a clear competitive advantage: “Green hydrogen is an indispensable part of our energy future. It enables parts of industry to switch to climate-friendly production, which secures and creates jobs. As an important and valuable energy source, it helps – especially in industry – to replace fossil natural gas from Russia and beyond. I am delighted that innovative companies are driving forward pilot projects such as this, particularly in the hard-to-electrify mobility and construction sectors,” she said.

## **Wheel loader powered by innovative hydrogen engine from Liebherr**

STRABAG is putting its trust in its experienced partner Liebherr to deliver the technology. The construction machinery manufacturer recently unveiled a wheel loader with a hydrogen engine. “Hydrogen engines make it possible to also operate large vehicles that are difficult to electrify due to their high energy requirements at completely zero-carbon conditions,” explains Herbert Pfab, technical managing director of Liebherr-Werk Bischofshofen GmbH. The hydrogen engines are manufactured at the engine production facility of Liebherr-Component Technologies in Bulle, Switzerland. The engines will enable zero-emission certification for the machinery with regard to CO<sub>2</sub> and will also fulfil the zero-emission limits for nitrogen oxides, currently in preparation. STRABAG and Liebherr will be testing the wheel loader in daily operation over a trial period lasting several years. STRABAG has already created the proper conditions for the test by setting up the necessary infrastructure at its Kanzelsteinbruch quarry in Gratkorn.

## **Energie Steiermark to supply quarry with green hydrogen**

The development of the hydrogen wheel loader was just one challenge; ensuring a reliable supply of green hydrogen to the quarry was another demanding task for those involved. In Energie Steiermark, STRABAG has found a partner with the necessary hydrogen expertise to set up the hydrogen supply for the refuelling infrastructure at the quarry. “Hydrogen is a key component of the energy transition. With our production plant for green hydrogen in Gabersdorf, we have established the basis for supplying regional industrial customers. Realising this pioneering project together with STRABAG and Liebherr not only strengthens our position as a local sustainability partner, but also helps to put Styria on the map in this respect,” says Martin Graf, member of the board of Energie Steiermark.

## A holistic approach to sustainable building material production

The climate-neutral sourcing of raw materials has many facets, and the low-emission operation of the construction machinery fleet is just one of them. On its way to sustainable quarry operations, STRABAG is implementing other measures as well. In Saalfelden, for example, several diesel-powered mobile machines have been gradually replaced by electric conveyor belts, one of which generates electricity for its own use through the weight of the transported stones. The mass of the material on the conveyor belt exerts a large downward force, driving a generator that brakes the conveyor belt and produces electricity as a result. At the Eigenrieden quarry in Thuringia, Germany, there are plans to use self-driving battery-operated electric tippers that would be the first of their kind in use in Germany. And in a disused part of the Gaaden quarry, STRABAG has given the land back to nature. Today the area is a diverse biotope and home to countless species of birds and insects.

*The planned hydrogen filling station is currently in the approval process.*

**Pictures:**  
(Copyright: STRABAG)



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(t.l.t.r.: Klemens Haselsteiner (CEO STRABAG), Leonore Gewessler Federal Minister for Climate Action, Environment, Energy, Mobility, Innovation and Technology), Jan Liebherr (President of the administrative board of Liebherr-International AG), Martin Graf (Managing Director Energie Steiermark)



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STRABAG CEO Klemens Haselsteiner sitting in the wheel loader.



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**STRABAG SE** is a European-based technology partner for construction services, a leader in innovation and financial strength. Our services span all areas of the construction industry and cover the entire construction value chain. We create added value for our clients by taking an end-to-end view of construction over the entire life cycle – from planning and design to construction, operation and facility management through to redevelopment or demolition. In all of our work, we accept responsibility for people and the environment: We are shaping the future of construction and are making significant investments in our portfolio of more than 250 innovation and 400 sustainability projects. Through the hard work and dedication of our approximately 86,000 employees, we generate an annual output volume of around € 19 billion.

Our dense network of subsidiaries in various European countries and on other continents extends our area of operation far beyond the borders of Austria and Germany. Working together with strong partners, we are pursuing a clear goal: to design, build and operate construction projects in a way that protects the climate and conserves resources. More information is available at [www.strabag.com](http://www.strabag.com).

The **Liebherr Group** is a family-run technology company with a highly diversified product programme. The company is one of the largest construction equipment manufacturers in the world. It also provides high-quality, user-oriented products and services in a wide range of other areas. The Liebherr Group includes over 140 companies across all continents. In 2022, it employed more than 50,000 staff and achieved combined revenues of over € 12.5 billion. Liebherr was founded in 1949 in the southern German town of Kirchdorf an der Iller. Since then, its employees have been pursuing the goal of achieving continuous technological innovation and bringing industry-leading solutions to their customers.

**Energie Steiermark**, one of Austria's largest service providers, focuses its activities on sustainable energy efficiency and innovative services in the fields of electricity, natural gas, heating and mobility. Its more than 2,000 employees dedicate their experience and skills to providing a fair partnership with around 600,000 customers in Austria and abroad. The company uses exclusively renewable energy from water, wind, sun and biomass. Majority shareholder of Energie Steiermark is the Austrian Federal State of Styria.