BMW Group Plant Regensburg pilots thermal oil system for heat generation in paint shop

- **Faster, more efficient transition from gas to alternative energy sources possible**
- **Pilot project will save around 480 tons of CO2e per year**

Regensburg. As it transitions from natural gas to renewable energy, the BMW Group is gradually electrifying its paint shops as part of its efforts to decarbonise vehicle production. A recently concluded pilot project at Plant Regensburg demonstrates how this transition can be simplified and accelerated. The key lies in the installation of a thermal oil system. Using thermal oil as a heat transfer medium enables heat generation to be decoupled from the rest of the system's components. This allows the energy supply to the coating lines to be adapted flexibly at any time.

"One advantage of switching to thermal oil is the flexibility to choose the energy source for heat generation in our paint shops. For example, thermal oil can be heated using electricity, geothermal energy, solar thermal energy – or even a hydrogen-powered heating system. The ability to change fuels quickly at any time makes our paint shops more resilient. If an energy source becomes scarce or unavailable, we can respond at short notice," explains Samuel Flieger, project manager for technical planning in the Regensburg paint shop.
This means paint shops can already be set up to run on renewable energy – even if gas-free heating is not yet an option. The power grid is not currently equipped at all locations to handle the high energy demands of a fully electrified paint shop, largely due to its extremely energy-intensive drying processes. A thermal oil-based system can also be operated with gas as an interim solution.

Testing successfully concluded in Regensburg
The Regensburg pilot project team took advantage of the production downtime over the New Year period to install the thermal oil technology. Within just a few days, they replaced the gas-powered drying equipment used for one of the three top coat lines with an electrically heated thermal oil system – complete with an innovative electric-powered eRTO exhaust air unit.
The key innovation lies in using the new electric heating unit to transfer heat to the thermal oil, instead of directly heating the air around the car bodies in the drying chamber after paint application. The heated oil circulates in a closed loop and, in a second step, heats the air in the drying chamber via heat exchangers. The circulating thermal oil reaches temperatures of several hundred degrees Celsius. Unlike water, it remains stable even at these high temperatures.

Retrofitting boosts energy efficiency
Wherever waste heat is generated, it is recovered and reused as process heat. This reduces the temperature of the exhaust air released through the hall's roof. As a result of these retrofitting measures, the drying equipment's total energy consumption has been reduced by approximately 40 percent. Switching to thermal oil heating, combined with the system's improved energy efficiency, will reduce the carbon footprint of BMW Group Plant Regensburg's paint shop by approximately 480 tons of CO_2e per year.

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The BMW Group

With its four brands BMW, MINI, Rolls-Royce and BMW Motorrad, the BMW Group is the world's leading premium manufacturer of automobiles and motorcycles and also provides premium financial services. The BMW Group production network comprises over 30 production sites worldwide; the company has a global sales network in more than 140 countries.

In 2024, the BMW Group sold over 2.45 million passenger vehicles and more than 210,000 motorcycles worldwide. The profit before tax in the financial year 2024 was € 11.0 billion on revenues amounting to € 142.4 billion. As of 31 December 2024, the BMW Group had a workforce of 159,104 employees.

The economic success of the BMW Group has always been based on long-term thinking and responsible action. Sustainability is a key element of the BMW Group's corporate strategy and covers all products from the supply chain and production to the end of their useful life.

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BMW Group Latin America

BMW Group is a leader in premium individual mobility technology products and services in Latin America, where it markets its three brands: BMW, MINI, and BMW Motorrad. BMW is the top-selling premium automotive brand in Latin America, with more than one in three vehicles sold in the region. In 2024, the brand has sold 42,886 units. MINI has sold 6,383 units in the same period. BMW Motorrad has sold 27,742 motorcycles in the region, setting a sales record. BMW is the best-selling premium brand in Brazil, Mexico, and Importer Markets. BMW Motorrad has achieved record sales and now has three of its 15 main global markets in Latin America: Brazil, Mexico, and Importer Markets. BMW Group's Open Technology Approach enables a gradual transition to electromobility, offering customers the choice between battery-electric, plug-in hybrid, or combustion powertrains. More than 20% of BMW Group's sales in Latin America consist of electric or plug-in hybrid vehicles. BMW Group has delivered approximately 80,000 personal or corporate charging units across the region.

The Group has 5,000 employees in the Latin American region. Its sales offices are located in Argentina, Brazil, and Mexico (where the regional office is based). BMW Group's production plants in the region are located in Brazil and Mexico. Brazil operates two plants: one in Araquari, Santa Catarina, focused on automobile production, where BMW X5 PHEV production began in 2024. The other plant in Manaus, Amazonas, is the first facility to manufacture motorcycles outside of Germany. In Mexico, a one-billion-dollar investment was announced in July 2014 for the construction and operation of a BMW Group plant in San Luis Potosí. This production site began operations in 2019 with the production of the BMW 3 Series; in 2021, an expansion was announced to include the manufacturing of the BMW 2 Series Coupé, and in 2022, the BMW M2, both exported worldwide. Starting in 2027, the San Luis Potosí Plant will incorporate electric vehicle and battery production with an $800 million investment.

As additional information, Brazil has an engineering team to support global developments, regional challenges, and customer support organization, providing consumer assistance.

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