

Media Information
April 19th 2021

New cell technology for Neue Klasse: BMW Group strengthens battery expertise as part of the European Battery Innovation initiative.

**+++ Focus on the development of the next generation Li-ion cells for the Neue Klasse
+++ Technology leap: Further development in cell chemistry and format +++
automotive-compatible solid-state battery by the end of the decade – demonstrator
vehicle well before 2025 +++ clear claim: The greenest electric vehicle is a BMW +++**

Munich. The BMW Group is accelerating its development for the battery technology of the future, thereby supporting the ramp-up of a European cell and battery value chain. In this context, Oliver Zipse, Chairman of the Board of Management of BMW AG, today received a grant decision from the Federal Minister of Economics and Energy, Peter Altmaier, as well as from the Bavarian Minister of State for Economic Affairs, Regional Development and Energy, Hubert Aiwanger, in support of the BMW Group's battery projects within the framework of the battery IPCEI (Important Project of Common European Interest).

For the BMW Group, it is clear that high-performance and sustainable energy storage systems are the key success factor for the individual mobility of the future. The development of highly innovative and sustainable battery cells is therefore one key element of a high-performance European cell and battery value chain.

This aspiration is reflected in the Neue Klasse, which the BMW Group first presented at its annual conference in March. This new generation of vehicles, which will be launched by the middle of this decade, will be uncompromisingly electric, digital, circular – and clearly focused on all-electric drivetrains.

For the Neue Klasse, the BMW Group is developing the next generation of its battery technology – combined with a clear aspiration: "With the Neue Klasse, we will make a big leap in technology in electric drive," said Oliver Zipse, Chairman of the Board of Management of BMW AG, in Munich on Monday. "We want to significantly increase the energy density of the cells and reduce the costs of material use and production at the same time. We will also significantly reduce the use of primary material to ensure a truly 'green' battery."

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With the Neue Klasse, the BMW Group aims at the level of state-of-the-art internal combustion engines in terms of range and manufacturing costs. For example, electric mobility "engineered by BMW" is intended to appeal to and convince new groups of buyers worldwide. For this sixth generation of BMW e-drive technology, the company evaluates correspondingly different cell formats, cell chemistry and also cell modules in the current development phase. A key goal is to create truly green, low-carbon and recyclable batteries.

Solid-state battery for serial use – demonstrator vehicle well before 2025

However, the BMW Group is already planning further into the future beyond this next generation: By the end of the decade, the energy density of battery cells is expected to increase by at least a mid-double-digit percentage range – from an already high level today.

Frank Weber, Member of the Board of Management of BMW AG, Development: "The greenest electric car in the world will be a BMW – sustainable from the initial idea to recycling after its use phase. We are developing the battery cell of the future: it will be powerful, safe, cost-effective, and recyclable - from material selection to recyclability after the use in the vehicle. All of this will be created in a European value chain." Weber continues: "We are doing intensive research on solid-state battery technology. By the end of the decade, we will be implementing an automotive-compatible solid-state battery for series production. We plan to show a first demonstrator vehicle featuring this technology well before 2025."

The BMW Group has had extensive in-house expertise in the complete value chain of electric drive for years and has optimized its battery cell technology from generation to generation. Cell chemistry has also been consistently further developed: for example, the proportion of cobalt in cathode material in the transition from Gen3 from the BMW i3 to Gen5, which was introduced in 2020 with the BMW iX3, was significantly reduced from 33 percent to 10 percent – at the same time, the nickel content rose to around 80 percent. In order to minimize the consumption of primary resources, up to 50 percent recycled nickel is already used in the high-voltage battery pack of the new BMW iX.

Electric offensive in full swing

Thanks to intelligent vehicle architectures and a highly flexible production network, the BMW Group will have around a dozen all-electric models on the road as early as 2023. In addition to the BMW i3, MINI Cooper SE and BMW iX3, which are already on the market, two key innovation drivers, the BMW i4 and the BMW iX will be put on the road this year– the BMW i4 even three months earlier than originally planned.



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In the coming years, all-electric versions of the high-volume BMW 5 Series and the BMW X1 will follow. In addition, there will be an all-electric BMW 7 Series as well as the successor to the MINI Countryman and other models. As early as 2023, the BMW Group will have at least one all-electric model on the road in around 90 percent of its current market segments.

By 2025, the BMW Group will increase sales of all-electric models by an average of significantly more than 50 percent per year – more than ten times more than in 2020. In total, the company will have delivered around two million all-electric vehicles to customers by the end of 2025.

Based on current market expectations, the BMW Group is planning that by 2030 at least 50 percent of its global sales will consist of all-electric vehicles. In total, the company will bring about ten million all-electric vehicles onto the road over the approximately next ten years. This also means that the BMW Group is strategically on target of achieving the EU's ambitious CO2 reduction targets in 2025 and 2030.

The BMW Group commitment to IPCEI.

Within the framework of the two battery IPCEI (Important Projects of Common European Interest), the BMW Group is developing highly innovative, sustainable, function-optimized and cost-effective battery cells as a key element of a European cell and battery value chain.

The Federal Ministry of Economics and the Bavarian State Ministry for Economic Affairs, Regional Development and Energy, support the project within the framework of the European funding process IPCEI.

Federal Minister Altmaier: "With the joint European projects, we have successfully built up the battery value chain in Germany and Europe and secured sustainable jobs. We support BMW in two concrete projects in the field of battery technology. Both projects are central to the further expansion of electromobility in Germany."

Bavaria's Minister of Economic Affairs Hubert Aiwanger: "The development of battery cells is an ideal fit for Bavaria's automotive industry and tech-industry as a whole. Bavaria is supporting this IPCEI project from BMW with co-financing in order to secure added value in a central high-tech field with great future potential. Because electromobility is becoming increasingly important, we have to produce the battery cells needed here in Germany, preferably in Bavaria. Our aim must be to participate economically in this climate-friendly technology and to make Europe more independent of suppliers from third countries."



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Following the development of a next generation of lithium-ion cells as well as an innovative battery module and battery system concept in the first IPCEI, the focus of BMW's work in the second IPCEI is on the development of the next generation of lithium-ion cells, the development and optimization of process technologies as well as the construction of a prototype production plant for innovative battery modules and systems.

The BMW Group is also focusing on the recycling and the recyclability of battery materials, with the main aim of achieving a fully cyclable battery.

Through the research and validation of future technologies such as solid-state batteries (so-called "All-Solid-State-Battery", ASSB), the company not only strengthens its own competence, but also the industrial location Germany. The BMW Group sees ASSB technology as a game changer in the automotive field.

Following the holistic approach of a closed innovation and development cycle, BMW will develop innovative products from the areas of battery cell as well as battery modules and systems with a focus on improved functionality and a significantly improved cost structure. The recycling and the usability of the batteries after their automotive use are also taken into account.

The BMW Group is more involved in the research, development and industrialization of battery value chains in Germany than any other vehicle manufacturer. The research results achieved by the BMW Group and the partners involved in the IPCEI project strengthen the development of an integrated European battery value chain. In addition, various concepts for solid-state batteries are being researched together with European R&D partners and the most promising prototype is being implemented. In doing so, the company is paving the way for successful battery cell development and production in Europe.



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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 and mobility services. The BMW Group production network comprises 31 production and assembly facilities in 15 countries; the company has a global sales network in more than 140 countries.

In 2020, the BMW Group sold over 2.3 million passenger vehicles and more than 169,000 motorcycles worldwide. The profit before tax in the financial year 2020 was € 5.222 billion on revenues amounting to € 98.990 billion. As of 31 December 2020, the BMW Group had a workforce of 120,726 employees.

The success of the BMW Group has always been based on long-term thinking and responsible action. The company set the course for the future at an early stage and consistently makes sustainability and efficient resource management central to its strategic direction, from the supply chain through production to the end of the use phase of all products.

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