

**NEWS RELEASE**

**Teijin and Applied EV Develop  
Polycarbonate Solar Roof for Future Mobility**

**Tokyo, Japan, March 2, 2021** --- [Teijin Limited](#) announced today that the company and its joint development partner Applied Electric Vehicles ([Applied EV](#)) have developed a polycarbonate solar roof for future mobility applications. The green solution marks another major step toward the companies' shared vision of zero-emission mobility.



Left: New solar roof deployed in LS-EV prototype    Right: Solar roof

The new solar roof uses Teijin's *Panlite*<sup>®</sup> polycarbonate resin glazing for its surface. Teijin used its proprietary know-how in polycarbonate resin glazing and technologies to integrally mold the roof's curved surface into an ideal shape, an extremely challenging process in the case of using glass. Not only is the *Panlite*<sup>®</sup> glazing roof ideally shaped, it achieves the strength and rigidity required for the vehicle roof.

Conventional polycarbonate resin offers excellent impact resistance, but it must be specially processed to realize the level of weather resistance needed for long-term outdoor use. Teijin's *Panlite*<sup>®</sup> glazing, however, can easily be given a proprietary hard coating to achieve the 10-year weather durability required for automobiles.

Teijin and Applied EV deployed the solar roof on a prototype EV passenger pod, that was installed on the [Blanc Robot](#) - a zero-emission robotic vehicle platform developed by Applied EV using materials and technical support from Teijin. In testing conducted by Applied EV in Australia, the solar cells mounted on the *Panlite*<sup>®</sup> roof achieved output of about 330W, which is equivalent a conventional solar panel housed under glass.

Because the vehicle is light and very energy efficient, the benefits of solar charging the *Blanc Robot* are much greater than the results that can be achieved on a typical EV. Applied EV tests suggest that the solar array can contribute up to 30% of the vehicle's energy budget in ideal conditions and around 15-20% on a typical day. Under the right conditions this could extend vehicle range for the *Blanc Robot* by between 30 and 55 kilometres, compared to the same vehicle without a *Panlite*<sup>®</sup> roof.

Teijin and Applied EV continue to collaborate on the use Teijin's various material technologies in the development of further EV components, including structural elements, glazing and exterior body panels, with the intention of commencing high volume production in the latter half of 2022. These initiatives, together with ongoing efforts to further enhance the new solar roof, are expected to contribute to the ultimate goal of achieving Japan's Well-to-Wheel Zero Emission policy, which calls for a 90% reduction in 2010-level greenhouse gas emissions per passenger car by 2050.

The field of mobility is undergoing a significant transformation propelled by new concepts such as connected, autonomous, shared and electric (CASE) vehicles and Mobility as a Service (MaaS). Electrification and autonomous technologies are rapidly being developed for next-generation mobilities that will reduce environmental impact and address new needs in society, such as transportation for aging societies.

The shift to electric mobility is focusing attention on the benefit of the Well-to-Wheel Zero-Emission approach, which considers the total energy efficiency of vehicles, including how their electricity is sourced as well as how efficiently it is used during driving. Teijin and Applied EV, who commenced their joint-development in 2019, are committed to establishing a technological foundation to support practical multipurpose zero-emission vehicles for future society.

"Carbon reduction and energy efficiency is central to our design philosophy" said Julian Broadbent, CEO of Applied EV. "Businesses around the world are seeking ways to reduce their carbon footprint from transport. Our collaboration with Teijin is helping Applied EV to reduce the energy used per transport mile and also increase the proportion of energy that is sourced from renewables, which is good for business and good for the environment. Now that we have proven the technology on a passenger EV, it is easy for us to roll out solar charging for a range of other vehicle types."

"Through our collaboration with Applied EV, we are addressing strong demands in society by applying our advanced materials and structural-design knowhow in innovative solutions for next-generation EVs," said Toshiaki Hotaka, General Manager, Mobility Division of Teijin Limited. "Aiming to become a company that supports the society of the

future, we have positioned environmental-value solutions as priority field in which Teijin can contribute to circular economies and sustainability.”

### **About the Teijin Group**

Teijin (TSE: 3401) is a technology-driven global group offering advanced solutions in the fields of environmental value; safety, security and disaster mitigation; and demographic change and increased health consciousness. Originally established as Japan's first rayon manufacturer in 1918, Teijin has evolved into a unique enterprise encompassing three core business domains: high-performance materials including aramid, carbon fibers and composites, and also resin and plastic processing, films, polyester fibers and products converting; healthcare including pharmaceuticals and home healthcare equipment for bone/joint, respiratory and cardiovascular/metabolic diseases, nursing care and pre-symptomatic healthcare; and IT including B2B solutions for medical, corporate and public systems as well as packaged software and B2C online services for digital entertainment. Deeply committed to its stakeholders, as expressed in the brand statement “Human Chemistry, Human Solutions,” Teijin aims to be a company that supports the society of the future. The group comprises more than 170 companies and employs some 20,000 people across 20 countries worldwide. Teijin posted consolidated sales of JPY 853.7 billion (USD 8.0 billion) and total assets of JPY 1,004.2 billion (USD 9.4 billion) in the fiscal year that ended on March 31, 2020.

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