

LEXUS ACCELERATES ITS ELECTRIFIED FUTURE WITH LF-Z ELECTRIFIED CONCEPT DEBUT

March 30, 2021



TOYOTA CITY, Japan (March 30, 2021) – Lexus announced today (19:00 Japan time) initiatives for the transformation of the Lexus brand through its “Lexus Concept Reveal Show”.

With an unyielding spirit of innovation and support from buyers around the world, Lexus has continued to evolve as a luxury lifestyle brand. Lexus has delivered amazing product and brand experiences with new technologies and value since 1989. Now, the automotive industry has entered a period of once-in-a-century transformation. In addition to the growing social mission of carbon neutrality and compliance with the Sustainable Development Goals (SDGs) of the United Nations, customers’ lifestyles and values are changing and diversifying at a speed previously beyond imagination. The social environment, mobility needs, and customer lifestyle demands have evolved as part of the evolving luxury landscape. Throughout it all, Lexus continues to innovate for the benefit of society at large, as well as for our customers. Lexus will continue to respond swiftly and with careful consideration to the changing times and needs of our customers, and will strive to transform itself into a brand that exceeds customer expectations.

Since the launch of the RX 400h – the world’s first luxury electrified model – in 2005, Lexus customers have purchased nearly two million electrified vehicles, as of the end of 2020 and currently, offers nine models of hybrid electric vehicles(HEVs) and battery electric vehicles (BEVs) in approximately 90 countries and regions around the world. Lexus has always pursued both performance and environmental friendliness. Through its “Lexus Electrified” vision that Lexus announced in 2019, Lexus aims to realize a fundamental leap in vehicle performance by employing electrification technology, and to continue to provide its customers with the enjoyment and pleasure that cars have to offer.

Today Lexus held the world premiere of “LF-Z Electrified”, a conceptual BEV that incorporates driving performance, styling, and technologies envisioned for realization by 2025. It features ideal dynamic balance achieved through the optimal placement of the battery and electric motors, as well as, among others, a new four-wheel driving force control technology known as “DIRECT4” that generates a superior and highly flexible driving performance, setting the LF-Z Electrified apart from conventional vehicles. Also, in the near future, Lexus plans to incorporate technologies and advanced infotainment functions that will further enrich our customers’ mobility experience.

By 2025, Lexus plans to introduce 20 new or improved models, including more than 10 electrified models such as BEVs, plug-in hybrid electric vehicles(PHEVs), HEVs, in line with the needs of each country and region around the world and based on the concept of offering the right products in the right place at the right time.

In addition to strengthening and expanding its core sedan models and SUV lineup, Lexus will pursue the possibility of rolling out models such as sports models that continue to provide the fun of driving, a car that redefines the concept of having a chauffeur, and new genres that have never before existed. In doing so, it will take on the challenge of providing new value that exceeds the expectations of its diverse customers.

Lexus aims to offer electric variants of all its models by 2025, with the sales ratio of electric vehicles exceeding that of gasoline-engine vehicles. By 2050, Lexus aims to achieve carbon neutrality throughout the lifecycle of its entire model lineup – from the manufacturing of materials, parts and vehicles, to vehicle logistics, to the final disposal and recycling of older vehicles. In this perspective, and with a clear mission to achieve carbon neutrality, Lexus will reduce the environmental impact of materials’ manufacturing processes.

In March 2024, to accelerate the planning and development of diverse and attractive products that are close to its customers, Lexus is scheduled to open a new business and technical center at which members involved in Lexus-brand development, design, production technology, and planning are to unite in creating the next-generation of cars and where the environment will be one for open collaboration that encourages co-creation with external partners.

KOJI SATO

President and Chief Branding Officer, Lexus International

“I would like to express my heartfelt respect to all the people around the world who are working so hard in the face of various difficulties.

While fulfilling our social mission of realizing a carbon-neutral society, we will continue to provide the fun and joy that cars bring, and we will contribute to the happiness and smiles of our customers and everyone involved with Lexus.

Starting with two new models to be released this year, we will continue to develop innovative products that will add color to the diversifying lifestyles of our customers.

We hope you will look forward to the future of Lexus with its strong will to create the future toward the realization of a hopeful mobility society.”

LF-Z ELECTRIFIED

The LF-Z Electrified is a BEV concept vehicle that is symbolic of Lexus’s brand transformation and incorporates driving performance, styling, and advanced technology set to be realized by 2025.

To realize the significant evolution of basic vehicle performance using electrification technology, which is the aim of Lexus’s “Lexus Electrified” electrification vision, the LF-Z Electrified adopts a BEV-dedicated platform. It features a new four-wheel driving force control technology known as “DIRECT4”, which uses the instant responsiveness of an electric motor’s driving force to freely control a vehicle’s four wheels for superior and highly flexible driving performance that sets it apart from conventional vehicles. By fusing the electrification technologies and vehicle motion control technologies it has long cultivated, Lexus aims to evolve driving performance in a way that better connects the driver with their vehicle.

The LF-Z Electrified’s sculpted and emotional exterior strongly accentuates the uniqueness of Lexus design and expresses the dynamic and agile driving sensation delivered by high-output electric motors.

To provide a uniquely BEV driving experience, the interior is equipped with a “Tazuna” cockpit and features an open and minimalist design. The interior embodies an elevated level of Lexus’s human centered approach, an ethos that has been a foundation of the Lexus-brand since 1989.

Also, through dialogue with the driver and based on having learned the driver’s preferences and behavioral traits, AI, acting as a lifestyle concierge, proposes routes and restaurant reservations, among others. By enhancing safety and security along the way, AI enriches the mobility experience.

AN ENHANCED HUMAN-MACHINE CONNECTION

- The LF-Z Electrified evolves the “Lexus Driving Signature,” a unique Lexus driving experience that aims for a linear response that is faithful to the driver’s intentions, including the feeling of seamlessly connecting deceleration, steering and acceleration in all driving situations. The LF-Z Electrified achieves an ideal balance and inertia by optimally positioning the battery and motors. The electrification technology allows for innovative packaging and design, and raises the Lexus Driving Signature to an even higher level by significantly evolving the basic performance of the vehicle.
- By orienting the battery assembly longitudinally under the floor of the vehicle, the chassis becomes more rigid and the vehicle’s center of gravity is lowered for improved dynamics. In addition, this design helps mitigate vibrations and unpleasant noises from penetrating the passenger cabin. The Lexus DNA of quietness and ride comfort has evolved dramatically yet remains.
- The new four-wheel drive force control technology, DIRECT4, allows the drive force of the high-torque motors to be controlled freely, enabling the vehicle’s posture to be finely controlled according to human senses and inputs. In addition, by controlling the front and rear drive wheels independently, the system can provide the appropriate drive system – e.g. front-wheel drive, rear-wheel drive, or all-wheel drive – for each driving situation. The system controls the distribution of driving force through the seamless orchestration and calculation of accelerator pedal application and steering wheel operation, resulting in powerful acceleration and exhilarating cornering performance that aligns near-perfectly to the driver’s

will.

- The use of steer-by-wire eliminates the need for a mechanical connection through the steering shaft, resulting in a more direct response between steering operation and driving force. This enables the vehicle to turn with less steering angle – and more precision – in response to driving conditions.

AN ADVANCED EXTERIOR THAT SUGGESTS THE DIRECTION OF THE EVOLUTION OF LEXUS STYLING

- The LF-Z Electrified, as a study model that suggests the direction of the evolution of Lexus styling, aims for a simple and captivating shape rooted in strong proportions and a distinctive appearance. Specifically, the overall form, which starts low in the front and peaks toward the rear, as suggestive of a BEV, is composed of a continuous silhouette centered on a smooth cabin. Large-diameter wheels that transmit the power of the high-power electric motors to the road surface are situated as much as possible at the vehicle's four corners for a wide stance with a low center of gravity.
- Lexus has taken up the challenge of evolving the Lexus design icon of the spindle shape into a spindle body as the overall body architecture in a new form of expression. The aim was to create a three-dimensional design that transforms the form of the vehicle body itself into the icon of the Lexus brand and to continuously develop functional expressions and styling that keep abreast with the evolution of technology.
- The use of DIRECT4, which freely controls the driving force of the four wheels, enabled styling that evokes the image of dynamic driving in which the distribution of driving force is linearly shifted. The accentuation of the doors fluently transitions from the front wheels to the rear wheels, which are surrounded by shiny, projecting, flare-shaped molding.
- In the rear, a clean and simple horizontal design combines with the molding that emphasizes the projecting wheels to express a powerful stance in support of a torque-strong driving force. Also, horizontally displaying “LEXUS” in the continuous slender rear combination lamp contributes to styling that, along with the front of the vehicle, symbolizes the next generation of Lexus.

A COCKPIT BASED ON THE NEW CONCEPT OF “TAZUNA” AND AN INTERIOR WITH A SENSE OF OPENNESS

- To embody to an even higher degree Lexus's human-centered approach, which has been the foundation of the Lexus-brand since its birth, the cockpit was designed based on the new concept of “Tazuna” (“tazuna” is Japanese for “rein”). Inspired by the relationship between horse and rider, who communicate through a single rein, steering wheel-mounted switches and the vehicle's head-up display have been highly coordinated to create a space in which various functions, such as the navigation system, audio system, and driving mode selection, can be performed while concentrating on driving and without movement of the driver's line of sight or need to operate complicated switches.
- While the cockpit is a key focal point, the low positioning of the instrument panel relative to the vehicle occupants and other measures are used to express a refreshing minimalism and a space that offers true *Omotenashi*.
- The entire interior has been made a clean and high-quality space by a form that seamlessly connects the cowl to the front doors and on to the rear doors. Also, a panoramic roof uses long plates of glass that bring about a feeling of openness, emphasizing the minimalist environment.
- While the augmented reality head-up display, gauges, touch display, and other information-provision functions are grouped into a single module, driving system functions are concentrated around the steering wheel. This suggests the direction of next-generation Lexus interior styling, with expanded forward visibility and the driver being naturally invited to look forward.

ADVANCED FEATURES TO ENRICH YOUR MOBILITY EXPERIENCE

- In the LF-Z Electrified, Artificial Intelligence (AI), which learns the driver's preferences and behavioral characteristics, provides constant support to the driver. Voice communication contributes to improved operability while driving. The voice recognition system uses the latest AI to recognize, learn, and adapt to a driver's habits and preferences, supporting with tasks such as determining driving routes and making restaurant reservations. Such interactivity between AI and driver leads to a fruitful dialogue, thus improving the overall ownership and driving experience, adding color to the customer's life as a lifestyle concierge.
- The use of a digital key allows family and friends to access the car without having to hand over a conventional key, in addition to operating the vehicle with a smartphone, such as opening and closing the door locks. Also, by enabling service providers to access the car via the digital key, it will be possible to provide vehicle-linked services such as package delivery to the car or car sharing, making life with a car even richer.
- The E-Latch system makes door opening and closing smoother and safer. When boarding, the retractable door handle automatically appears above the vehicle's surface when a driver or passenger approaches with key in hand. The door can be unlocked and opened smoothly by touching the sensor inside the handle. When exiting the vehicle, the door can be opened by pressing the door-opening switch. An added benefit: LF-Z Electrified's sensors scan the surrounding environment for oncoming and adjacent traffic prior to passenger egress to provide an additional layer of passenger safety.
- The panoramic roof, which gives a sense of openness, uses electrochromic glass and is equipped with entertainment functions such as dimming for privacy and shade, or illumination to reflect the passing night sky. In the center of the roof is a touch panel that connects the front and rear seats and is used for communication between passengers. The reclining rear seats are equipped with a massage function, bringing a soothing and peaceful time to all passengers when traveling.
- The next generation Mark Levinson¹ audio system can reproduce a concert hall-like audio experience. With the next-generation sound management function, active noise cancellation facilitates interaction or privacy amongst passengers, providing a quiet and comfortable interior space.

SHIMOYAMA TECHNICAL CENTER

- In March 2024, Lexus will open a new business and technical center at Toyota Technical Center Shimoyama (TTCS). Here members involved in the development, design, production technology, and planning of the Lexus brand will gather to promote "Building Ever Better Cars" that can bring smiles to customers' faces during the period of great automotive change, which is said to occur once in a century.
- In addition to continuing with development tests at locations around the world, at Shimoyama Lexus will develop the cars and the people who make the cars. It will do this by repeatedly "driving and fixing" vehicles on test courses that reproduce a wide variety of harsh driving environments from around the world. This kind of vehicle and human resource development is possible because of Shimoyama's vast land and natural terrain with its many undulations.
- As for the offices, the Lexus building will be the center of development, and the Messe building will be used for co-creation with external business partners. These two facilities will be sites where members from inside and outside the company share the same purpose and challenge, utilizing an open and agile work style to push car manufacturing beyond existing boundaries.
- The cornerstone of new vehicle development will be a new three-story Lexus Building. The first floor – emulating the look and feel of a pit at the Nürburgring where members from all functions gather for each project with a strong will to promote agile development by integrating real car manufacturing on site with cutting-edge digital equipment.

- The design area on the third floor will prominently feature clay design models, and along with further enhancements to the environment to maximize creativity, will ensure that designers, production engineers, aerodynamicists and other members of the experimental department can closely collaborate and work on new ideas together at the very center of Lexus design development.
- The second floor will house an office area with an open layout for various work functions to improve collaboration and maximize the creativity of each individual. To accelerate car-centered development, all members will be able to move freely between floors as needed and utilize telework, according to their working style at any given time.
- The open environments at the Shimoyama Technical Center will also foster co-creation with suppliers and business partners to support the ongoing evolution of the brand in line with our customers' lives. The Messe Building will be a place for close collaboration and in addition to a multipurpose hall, will include an additional garage for Lexus business partners to view, measure, work with, and directly interact with vehicles.
- The Shimoyama Technical Center covers and encompasses several test courses engineered for meticulous vehicle evaluation. The first of three test courses was opened in 2019 – a 5.3-kilometer (3.3-mile) country road course that uses the natural terrain of Shimoyama to create vigorous driving, bespoke to Lexus vehicle evaluations, with numerous curves of different radii and banking over a total elevation change of 75 meters (250 feet). Around 10 different test courses are now under construction include a high-speed evaluation loop and a test course that recreates specific road surfaces from around the world.
- The Shimoyama Technical Center is built under the philosophy of “technical center in harmony with nature and local communities” With regard to coexistence with the local community, we will value the ties we have built with the local people and listen to their opinions as we proceed with the construction.
- In terms of environmental conservation, we are striving to properly maintain and manage the natural environment, with nearly 70 percent of the total site area consisting of preserved topography and original plants and wildlife.
- Lexus are working to support the regeneration and conservation of the nearby forests and rice fields, also referred to as satoyama (neighboring ecosystems linked closely to the nearby human life), restoring dry and degraded rice paddies into wetland biotopes, and installing year-round water channels in the surrounding valley paddies to provide refuge for the aquatic eco-system.
- In addition, tunnels and bridges have been engineered to maintain the natural topography as much as possible, and to provide habitats and migration routes for animals and plant growth.