

Lexus Presents its Vision of Future Electrification with the World Premiere of the LF-30 Electrified Concept

October 22, 2019

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TOKYO (October 23, 2019) – In its continued efforts to deliver innovative and amazing experiences, Lexus unveiled its “Lexus Electrified” vision for an upcoming generation of electrified vehicles. Headlining this moment was the debut of the Lexus LF-30 Electrified Concept, which made its world premiere at the 46th Tokyo Motor Show 2019.

Since the brand’s creation in 1989, Lexus has endeavored to deliver to its customers innovative and amazing product and brand experiences that stimulate the five senses. Since the launch of the RX 400h in 2005, Lexus has led the world as a pioneer in electrification technologies such as the two-stage reduction gear and the multi-stage hybrid system which leverage technology to offer excellent performance and the direct driving sensation characteristic of Lexus Hybrid vehicles.

The “Lexus Electrified” vision unveiled today targets a fundamental leap in vehicle performance, handling, control and driver enjoyment — even as mobility within our society continues to change with autonomous driving and vehicle electrification.

Evoking the original fun of driving, Lexus is developing new advanced posture control and other electrification technologies to further evolve driving pleasure, and to fundamentally transform the essence of luxury vehicles of the future. Towards this end, Lexus is drawing on the lessons learned developing the core technologies found in Lexus’ popular range of gasoline-electric hybrids, including battery management, power control modules, and electric motors. In particular, the technology of Lexus Electrified enables integrated control of powertrain, steering, suspension, and brakes, realizing the ultimate potential of the motor control technology cultivated in HV. With this technology, we can control the driving force to provide ideal vehicle posture according to each driving situation. Lexus endeavors to continue providing enjoyable and safer driving vehicles.

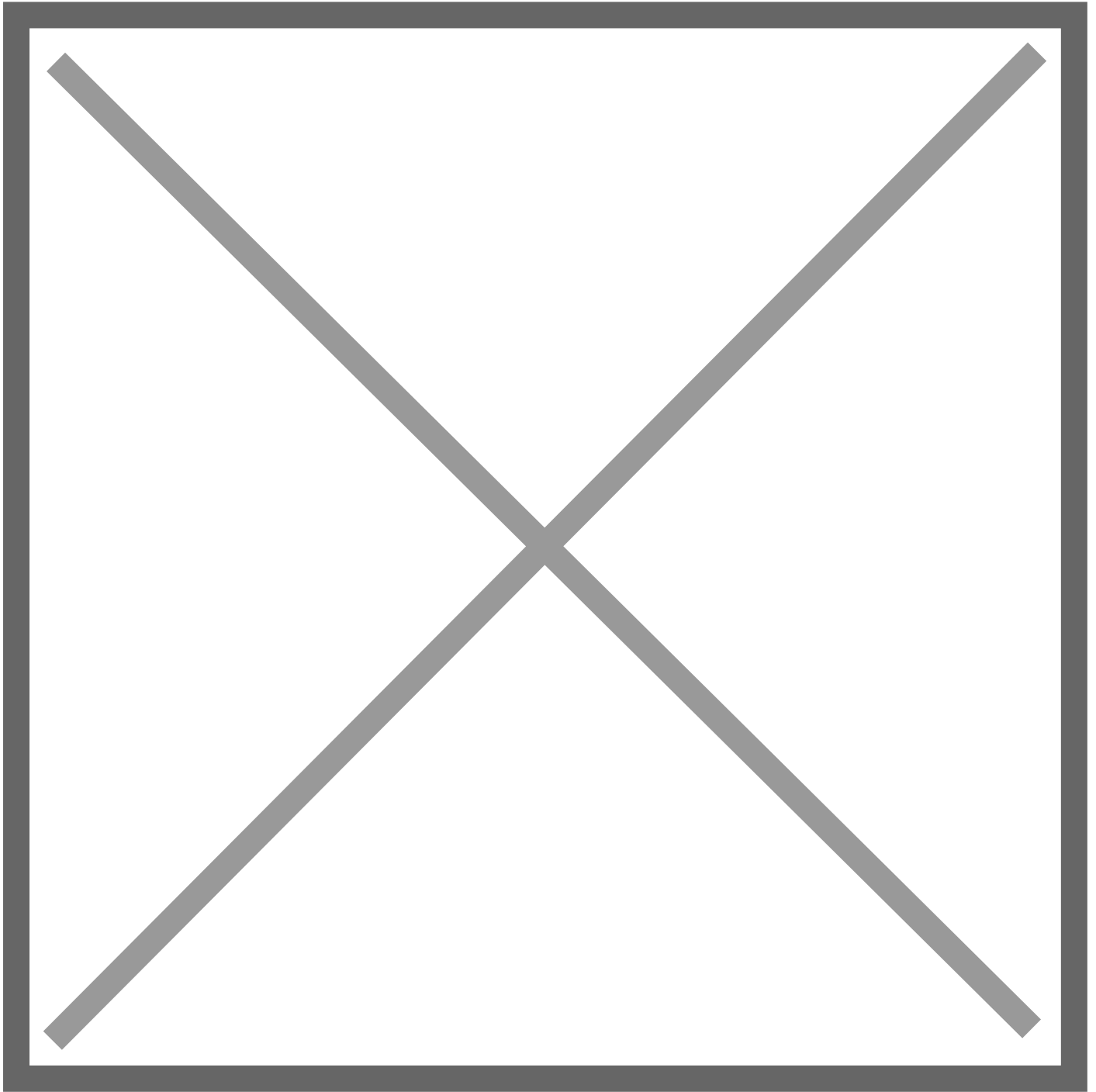
To advance this goal, Lexus plans to unveil its first BEV in November 2019 – broadening its response to the needs of various regions around the world, including the development of HEVs, PHEVs, BEVs, and FCEVs. Moving forward after that, Lexus plans to expand its electrified vehicle lineup – launching its first PHEV and a new dedicated BEV platform early in the coming decade. By 2025, Lexus will have available electrified versions of all Lexus vehicle models, and we are aiming for the sales of electrified vehicle models to outpace those of conventional internal combustion engine vehicle models.



Lexus LF-30 Electrified Highlights

The LF-30 Electrified concept vehicle embodies the “Lexus Electrified” vision. For its exterior styling the advanced image expected of a BEV has been channeled into artistic qualities that result in a futuristic form, and an interior that assertively weaves in autonomous driving and other new technologies aims to manifest Lexus’ distinctive worldview. Performance is rooted in Lexus Electrified components, adding Lexus’ latest technology to its leadership in development of HEV systems. Precise electric motor control enables instantaneous adjustments to posture not possible with conventional vehicles. Furthermore, the LF-30 Electrified employs

numerous advanced technologies with a look ahead to the year 2030- such as a new-concept cockpit based on a human-centered design philosophy and a steer-by-wire system.



Futuristic exterior foreshadows the Lexus Electrified vehicles towards 2030

- In taking up the challenge of expressing a new design that could only be achieved with a BEV powered by in-wheel electric motors, Lexus visually articulated the LF-30 Electrified's unique energy flow. The vehicle form is meant to visually express the energy created by the wheels set at the corners of the vehicle

body streaming toward the vehicle cabin and past the driver to directly flow onto the road surface.

- Taking advantage of a hoodless vehicle shape made possible by being a BEV, Lexus' signature "spindle" form has been further evolved to span the entire vehicle architecture. The window glass, which continually stretches from the front to rear, the muscular fenders, and the wing-shaped headlights form the contours of the Lexus iconic spindle. The shape of the body is fashioned with an elegantly flowing front which transitions into a linear and sharp rear. In addition to the wing-shaped headlights, the sharpness of the rear lights and side air intakes combine to achieve both excellent aerodynamics and cooling performance, resulting in styling fused with function.

The opacity of the side windows can be freely adjusted, providing occupants with expansive views of the surrounding scenery and a high level of privacy at night and in other situations. The color of the front face of the vehicle and luminescence patterns help identify from the outside whether the vehicle is being operated in its normal mode or in its autonomous driving mode, reflecting Lexus' pursuit of both a high level of styling and functionality. The exterior color 'voltaic sky' employs a leading-edge metal-infused coating to achieve a unique quality tinted by a touch of blue-green.



Innovative interior that leverages autonomous driving technologies, a newly designed cockpit, and more

To manifest in a higher dimension Lexus' fundamental human-centered philosophy, the cockpit was designed based on the new Lexus concept of "Tazuna." Inspired by how a single rein can be used to achieve mutual understanding between horse and rider, the steering controller-mounted switches and head-up display have been coordinated to a high degree, creating a space that enables the driver to focus on driving while controlling various functions, such as the navigation and audio system and driving-mode selection, without having to shift one's vision or operate manual switches. As an indication of the future image of a Tazuna cockpit, the LF-30

Electrified employs next-generation interfaces, such as gesture control and enhanced presentation of vehicle information through AR (augmented reality). The resulting interior is one that provides comfort and convenience for both driver and passengers.

With the layout of the front passenger seat echoing that of a first-class seat on an airliner, the interior is one in which a sense of openness and a sense of envelopment coexist. All switches and other controls being comfortably within reach and a gesture-control large-screen display for the passenger seat add to the achievement of interior comfort and convenience.

The rear seats use artificial muscle technology to mold to their occupant, and can support various modes such as reclining, relaxation, and alert functions. A Mark Levinson[®] audio system creates a next-generation listening environment, in which minute speaker control establishes ideal acoustic spaces for music listening pleasure for the driver and each passenger, and speakers built into the headrests not only provide an optimal audio environment but also have a noise-cancelling feature that contributes to enhanced quietness.

A glass roof above the rear seats features voice control and a gesture controlled “SkyGate” display window that uses AR to display various types of information, such as a realistic star-filled sky, user-favorite videos, and even navigation.

In addition to its unique design, the interior also indicates the direction of next-generation luxury by using sustainable materials to reduce environmental burden. Yakisugi (charred cedar), a traditional Japanese material, is used in the floor and steering controller while recycled metal was processed into fibers for use in creating the pleated door trim. This approach expresses Lexus’ distinctiveness and innovative spirit.



With in-wheel electric motors, steering by wire, and Lexus Advanced Posture Control, the LF30 can offer a dynamic experience unlike any currently available

To achieve a fundamental leap in vehicle performance, handling, control and driver enjoyment, the LF-30 employs numerous state-of-the-art technologies even beyond advanced posture control. In-wheel electric motors for each of the vehicle's four wheels and low positioning of the battery enable better handling of inertia and high-level driving performance. Autonomous driving technologies and drone support vehicle technologies look ahead to the year 2030 and the widely expanded value that vehicles can offer.

Lexus Advanced Posture Control technology regulates the drive-power output from high-torque electric motors to adjust vehicle posture in tune with human sensibilities. Completely independent control of front and rear drive wheels allows appropriate provision of front-wheel drive, rear-wheel drive, and all-wheel drive, depending on the driving situation. Compact and lightweight drive-power units expand freedom in vehicle packaging and are used to enable the driver to enjoy ideal driving, regardless of the road surface or driving conditions.

Positioning Lexus Advanced Posture Control technology as a core element of the 'Lexus Electrified' vision, Lexus intends to widely apply this technology throughout its lineup of electrified vehicles.

The steer-by-wire system eliminates a mechanical connection to allow more flexible turning control depending on driving conditions, and a more precise steering feel aligned with the driver's intention. It also contributes to a greater sense of openness by allowing the steering controller can be shifted forward and out of the way during autonomous driving.

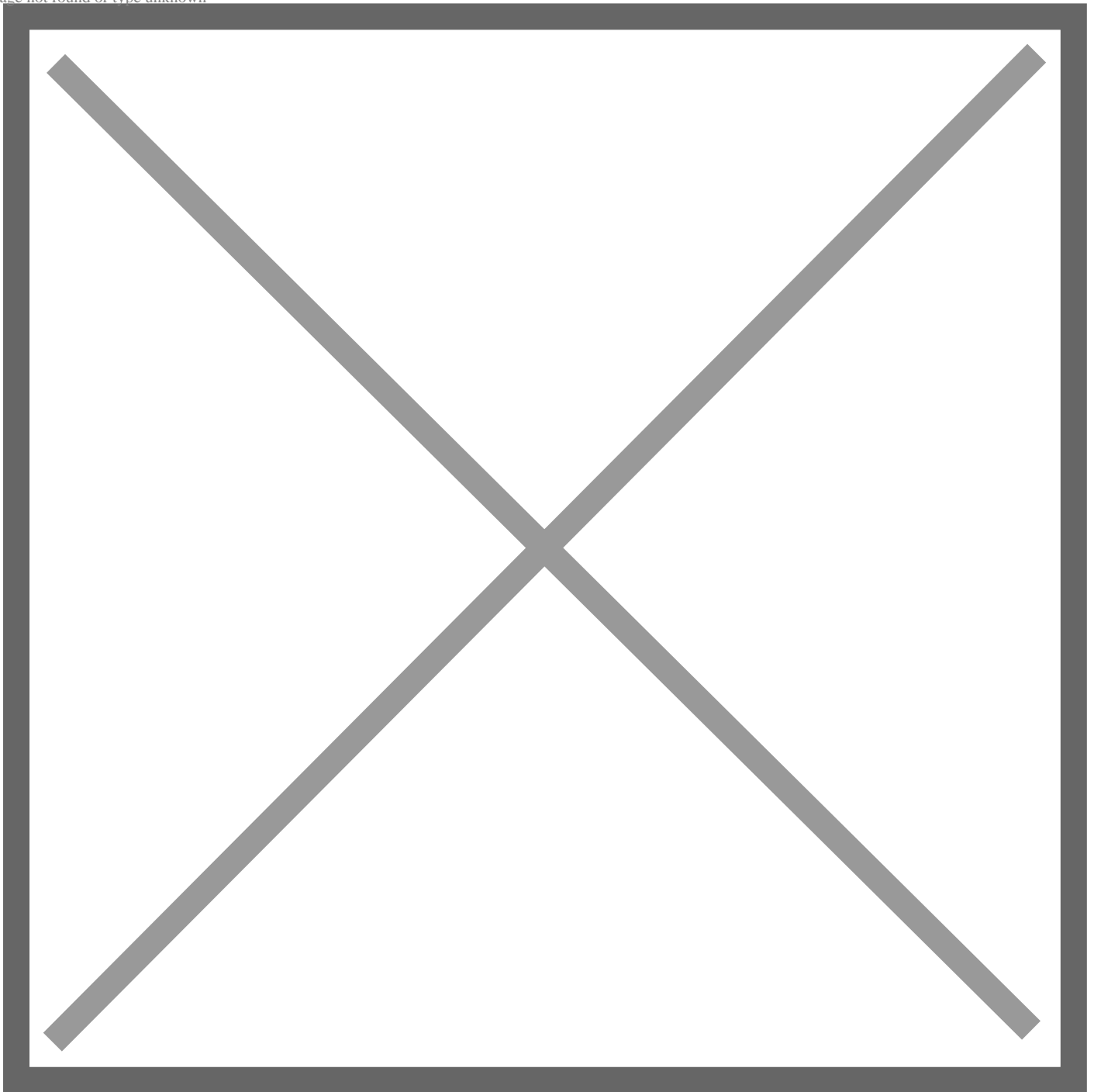
As a next-generation BEV, LF-30 uses wireless charging technology to simplify daily charging, and AI-based energy management to enable optimal distribution of electric power to both the vehicle and the home, and charging control coordinated with the user's daily schedule.

Onboard AI distinguishes the voices of vehicle occupants, and uses personalized information stored on the driver's control key to serve as a partner. It facilitates the adjustment of elements of the interior environment, such as air temperature and audio, and the setting of navigation routes and destinations, while also making proposals for activities after arrival. It also understands the driver's preferences and helps them control the suspension and powertrain settings in real-time according to the driving scene.

The LF-30 Electrified also carries the 'Lexus Airporter' drone-technology support vehicle. Using autonomous control, the Lexus Airporter is capable of such tasks as independently transporting baggage from a household doorstep to the vehicle's luggage area.

Based on the latest autonomous driving technology concept of 'Lexus Teammate', the LF-30 Electrified features advanced driving support functions in the form of a Chauffeur mode and a Guardian mode. Occupants can enjoy both comfort and peace of mind during autonomous driving with advanced posture control technology being employed. Furthermore, a self-parking function and a front-door pickup function in which the LF-30 Electrified autonomously moves from driveway to doorstep provide an especially high level of convenience.

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In addition to the LF-30 Electrified exhibition, the Lexus booth at Tokyo Motor Show will contain “Lexus Senses theatre,” a space where people can experience the “stimulation of the five senses.” It consists of two experience spaces, audio and visual. In Theater 1, the sensual engine sound of Lexus LFA stimulates hearing with 360° 3D sound.

Theater 2 offers a visually stimulating experience with the Lexus LC model by projection mapping – which changes its appearance according to the time of day and the viewing angle. In this booth layout you can appreciate the Lexus philosophy, while enjoying sensory stimulation through “real experience.”

