



Lexus Presents its Vision of Future Electrification: European Debut of the LF-30 Electrified Concept at the Geneva International Motor Show

18 February 2020

- Lexus Electrified vision promises unmatched driver fulfilment and enjoyment of cars
- New LF-30 Electrified concept embodies Lexus's vision of electrification
- Futuristic exterior design previews the introduction of Lexus Electrified vehicles towards 2030
- Innovative interior leverages autonomous driving technologies
- With four in-wheel electric motors, by-wire steering and Lexus Advanced Posture Control, the LF-30 offers a dynamic experience unlike any other vehicle currently available

Lexus Electrified is Lexus's vision for a future generation of electrified vehicles and the inspiration for Lexus LF-30 Electrified Concept, which makes its European debut at the Geneva International Motor Show on 3 March.

Since the brand's foundation in 1989, Lexus has endeavoured to provide its customers with innovative and amazing products and brand experiences. Following the launch of the RX 400h in 2005, it has led the world as a pioneer of electrification technologies, such as the two-stage reduction gear and the multi-stage hybrid system, which leverage technology for excellent performance and a direct driving feel that's characteristic of Lexus hybrid vehicles.

The Lexus Electrified vision targets a fundamental leap in vehicle performance, handling and control and driver enjoyment, even as mobility changes with the development of autonomous driving and electrification.

Lexus is developing advanced posture control and other electrification technologies to raise the level of driving pleasure and transform the essence of luxury vehicles. To this end, it is drawing on lessons learned in the development of core technologies for its popular range of petrol-electric hybrids, including battery management, power control modules and electric motors. In particular, Lexus Electrified technology enables integrated control of the powertrain, steering, suspension and brakes, realising the ultimate potential of the control technology Lexus has cultivated in its hybrid vehicles. With this technology, the driving force can be controlled to achieve an ideal vehicle posture in any driving situation.

Lexus endeavours to continue providing customers with vehicles that are safer and enjoyable

to drive. Moving towards this goal, it will bring its first battery electric vehicle (BEV), the UX 300e urban SUV, to the market in 2020. It will continue to broaden its response to the needs of different world regions, including the development of hybrid electric vehicles (HEVs), plug-in hybrid electric vehicles (PHEVs), BEVs and fuel cell electric vehicles (FCEVs). Further ahead, Lexus plans to expand its electrified vehicle line-up, launching its first PHEV and a new, dedicated BEV platform early in the current decade.

Lexus LF-30 Electrified highlights

Embodying Lexus's vision of electrification

The LF-30 Electrified concept embodies the Lexus Electrified vision. Its exterior projects the advanced, futuristic look expected of a BEV. The interior expresses Lexus's distinctive approach by accommodating autonomous driving and other new technologies. Lexus's electrified components provide the foundation for the vehicle's performance, with new technology adding to the company's established leadership in hybrid vehicle systems. Precise control of the electric motors enable instantaneous adjustments to be made to the vehicle's posture, something that isn't possible with conventional vehicles. Furthermore, the concept features many advanced technologies that look ahead to 2030, such as a new cockpit concept that is human-centred and deploys a steer-by-wire system.

Futuristic exterior

In taking up the challenge of a new design that could only be achieved with a BEV with in-wheel electric motors, Lexus articulated the LF-30 Electrified's energy flow in visual terms. The vehicle's form expresses the energy that streams from the wheels at each corner towards the cabin, past the driver and onto the road surface.

As a BEV, the LF-30 Electrified does not have a bonnet, so Lexus's signature spindle shape has been evolved to span the entire vehicle architecture. The window glass, which extends continuously from front to rear, the muscular wings and the wing-shaped headlights, form the contours of the Lexus spindle. The body has an elegant, flowing front that transitions into a linear, sharp rear. The wing-shaped headlights combine with the sharpness of the rear lights and side air intakes to achieve excellent aerodynamics and cooling performance, fusing style and function.

The opacity of the side windows can be adjusted, so occupants can enjoy the view out or opt for privacy as the occasion demands. The colour of the vehicle's front face and luminescent patterns signal whether the car is operating in normal or autonomous driving mode, again demonstrating Lexus's desire to combine a high level of styling with functionality. The "voltaic sky" exterior finish is created using a metal-infused coating, giving a unique quality with a touch of blue-green.

Innovative interior

Taking Lexus's human-centred philosophy to a higher level, the cockpit design is based on a new Lexus concept, *Tazuna*. This is inspired by the way use of a single rein can create mutual understanding between a horse and rider: there is a high degree of co-ordination between switches on the steering controller and the head-up display, so the driver can operate functions such as the navigation, audio system and driving mode selection without having to shift their vision or use manual switches. Giving an indication of what a future *Tazuna* cockpit might look like, the LF-30 Electrified uses next generation interfaces, such as gesture control

and the presentation of vehicle information using AR (augmented reality). The result is an interior that is comfortable and convenient for both driver and passengers.

The front passenger seat has a layout like that of a first class aeroplane seat, while the interior conveys a sense of being both open and enveloping. All switches and controls are within comfortable reach, and there is a large gesture control display for the passenger seat.

The rear seats use artificial muscle technology to mould their form to the occupant. They can adapt in different modes, including reclining, relaxation and alert. A Mark Levinson® audio system creates a next generation listening environment in which precise speaker control establishes ideal acoustic listening spaces for the driver and each passenger. Speakers are built into the headrests and have a noise-cancelling feature that contributes to enhanced cabin quietness.

A glass roof above the rear seats features voice control operation and a gesture-controlled SkyGate display window that uses AR to present media and information, such as a realistic star-filled sky, favourite videos and navigation information.

The interior also signals the future direction of luxury by using sustainable materials. *Yakisugi* (charred cedar), a traditional Japanese material, is used in the floor and steering controller, while recycled metal was processed into fibres to create the pleated door trim – another example of Lexus's distinctive and innovative spirit.

Vehicle dynamics

The LF-30 Electrified employs numerous state-of-the-art technologies beyond advanced posture control to achieve a fundamental leap in vehicle performance, handling and control and driver enjoyment. The in-wheel electric motors in each of the four wheels and positioning of the battery low in the vehicle help secure better inertia handling and high-level driving performance. Autonomous driving and drone support vehicle technologies look ahead to 2030 and the greatly expanded value vehicles will be able to offer.

Lexus Advanced Posture Control technology regulates drive power from the high-torque electric motors to adjust vehicle posture in line with human sensibilities. Fully independent control of the front and rear wheels allows for front, rear and all-wheel drive to be used according to the driving conditions. The compact and lightweight drive power units give greater freedom in vehicle packaging and help the driver enjoy time at the wheel regardless of the road surface or conditions.

Lexus positions its Advanced Posture Control as a core element in the Lexus Electrified vision. It intends to apply the technology widely throughout its electrified vehicle line-up.

The steer-by-wire system eliminates the need for a mechanical connection, allowing more flexible turning control, depending on driving conditions, and a steering feel that is more precise and aligned with the driver's intentions. The steering controller can be shifted forwards out of the way during autonomous driving, adding to the open feel of the interior.

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

Onboard AI distinguishes the voices of different vehicle occupants and uses personalised information stored on the driver's control key to serve as a partner. It can adjust functions such as air temperature, audio and navigation routes and destinations, and suggest activities when the journey is completed. It also recognises the driver's preferences, helping them control the suspension and powertrain settings, in real-time according to driving conditions.

The LF-30 Electrified carries the Lexus Airporter drone support vehicle. Using autonomous control, the Lexus Airporter can carry out tasks such as moving luggage from a household doorstep to the vehicle's load space.

The concept features advanced driving support functions – Chauffeur Mode and Guardian Mode – based on the Lexus Teammate latest autonomous driving technology. Occupants can enjoy comfort and peace of mind during autonomous driving with advanced posture control technology being employed. Self-parking and a front door pick-up function, in which the LF-30 Electrified autonomously moves from driveway to doorstep, provide an especially high level of convenience.

Lexus LF-30 principal specifications

Length (mm)	5,090
Width (mm)	1,995
Height (mm)	1,600
Wheelbase (mm)	3,200
Weight (kg)	2,400
Cruising distance – WLTP (miles)	approx. 310
Battery capacity (kW/h)	110
Charging speed (kW)	150
0-62mph acceleration (sec)	3.8
Max. speed (mph)	124
Max. power (kW)	400
Max. torque (Nm)	700

ENDS