# **Electrification technologies**







Nissan Intelligent Mobility transforms your car into a more exciting partner by redefining how your car is driven, powered and integrated into society.

Intelligent Driving

More Confident

## NISSAN INTELLIGENT MOBILITY

Intelligent Power

Intelligent Integration

More **Excited** 

More Connected





Intelligent Driving

Confident

## NISSAN INTELLIGENT MOBILITY

Nissan Intelligent Mobility transforms your car into a more exciting partner by redefining how your car is driven, powered and integrated into society.





### Growing EV market



## 431k unit

(as of end of August, 2019)

### **Evolution of Nissan LEAF performance**

## driving





### NISSAN INTELLIGENT MOBILITY

• While enhancing convenience with longer cruising range, Nissan has added extra excitement to



### **Evolution of battery technology**

- **LEAF** in 2010
- Further improve energy density and accelerate development of all solid-state battery



### NISSAN INTELLIGENT MOBILITY

• Build on our lithium-ion battery marketing experience while securing safety since launch of Nissan



### **Nissan LEAF : Customer satisfaction**

#### Continue to enhance driving pleasure





#### **Customer Satisfaction: Excellent**

Satisfaction ratio (%)	
Current LEAF	1 <sup>st</sup> gen LEAF
95	80
94	87
92	92
90	70
88	70
88	60



### Strengths of Nissan's motor control technology

Ultra-high-precision motor control at 1/10,000th of a second for smoother acceleration





## **Benefit of e-Pedal technology**

Foot pedal controls three times the deceleration of engine braking Result: 70% less need to shift foot to brake pedal



#### e-Pedal

### NISSAN INTELLIGENT MOBILITY

Frequency of shifting foot to brake pedal for deceleration (Nissan data)



#### Conventional accelerator operation





### Newly developed **Electric All-Wheel-Control technology**

More exhilarating performance results from integration of Nissan's technologies for Electric motor control, 4WD control, and Chassis control



#### Electric All-Wheel-Control technology test car



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Benefit for Electric All-Wheel-Control technology test car



### Core technology of electrified vehicle

 Nissan's core competitive advantages in electric vehicle technology are its e-powertrain and battery





### **EV excitement transfers to e-POWER**

## ZOro Emission

#### **100%** Motor drive

### Sharing motor technology

#### NISSAN INTELLIGENT MOBILITY

### 

#### **100%** Motor drive





### **Potential of e-POWER**

- Excellent fuel efficiency and outstanding cabin quietness using e-POWER characteristics
- Enhance e-POWER benefit by leveraging information wisely





### **Excellent fuel efficiency**: **Potential of e-POWER**

- can be integrated sooner
- Raise thermal efficiency to 50% using VC-T\* expertise, supported by lean burn technology and exhaust heat recovery



#### NISSAN INTELLIGENT MOBILITY

#### The e-POWER engine operates within a narrow optimal rpm range, so advanced technologies

\* Variable Compression Turbo



### **Outstanding cabin quietness: Acoustic meta-material**

Outstanding quietness using lightweight high-isolation panels of periodic structure sandwiched between membranes

#### **Simple Periodic structure**





Membrane





### More intelligent: Intelligent Powertrain for Next-gen e-POWER

- Engine/generator ON/OFF timing is optimized for real-world fuel efficiency and quietness
- e-POWER will gain wisdom by the day, using machine learning & deep learning to optimize performance according to driver behavior



