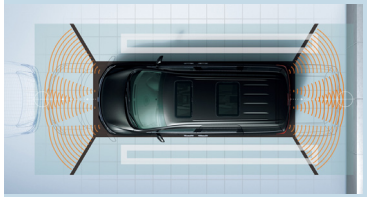
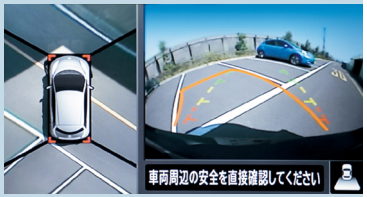
CONTENTS | INTRODUCTION | CEO MESSAGE | COO MESSAGE | BLUE CITIZENSHIP: NISSAN'S CSR | RENAULT-NISSAN ALLIANCE | CSR DATA | THIRD-PARTY COMMENT
ENVIRONMENT | SAFETY | PHILANTHROPY | QUALITY | VALUE CHAIN | EMPLOYEES | ECONOMIC CONTRIBUTION | CORPORATE GOVERNANCE & INTERNAL CONTROL

SAFETY

Nissan aims to create cars that embody the “pleasure and richness of driving” while prioritizing customers’ peace of mind through the pursuit of a high level of real-world safety. This means, of course, working to improve passenger safety in our vehicles. It also means researching and developing Intelligent Transport Systems (ITS) that help to reduce accidents and traffic congestion, as well as promoting educational activities to raise safety awareness among drivers, pedestrians and the community. Looking toward the realization of a safer society with more mobility, we are involved in a wide range of activities with other stakeholders.





OUR PRIORITIES

KEY FIGURES

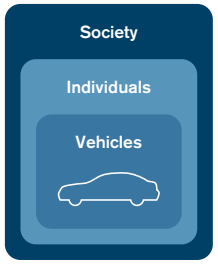
Fatal and serious injuries per 10,000 Nissan vehicles	(2011)
Japan	**6.33**
USA (fatalities only)	**1.45**
Europe (U.K.)	**8.09**

▸▸ GRI G3 Indicators
▸▸ PR1

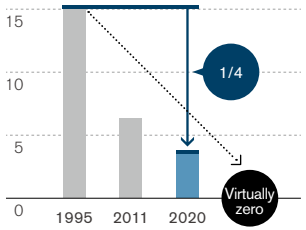
NISSAN'S APPROACH TO SAFETY

Helping to reduce traffic accidents requires a comprehensive approach addressing not just automobiles, but people and the traffic environment too. To help contribute to the realization of a truly safe society, Nissan uses a triple-layered approach, taking measures in the areas of vehicles, individuals and society.

In addition to this, Nissan takes the fundamental approach of pursuing "real-world safety." In 2012 there were 4,411 deaths resulting from traffic accidents in Japan. It was the 12th straight year for this figure to decline. The World Health Organization (WHO) notes that 1.24 million people lose their lives each year in automobile accidents around the globe and warns that if urgent steps are not taken, accidents could become the fifth leading cause of death worldwide by 2030. We set a target of reducing the number of fatalities and serious injuries involving Nissan vehicles to half of the 1995 level by 2015 in Japan, the United States and the United Kingdom, and this target was reached ahead of schedule. Today we are engaged in activities aimed at halving this once again in these markets by 2020. As an ultimate goal, we are seeking to progress toward a world with virtually no accidents leading to death or serious injury.

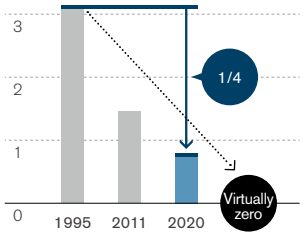


Japan Fatal and Serious Injuries per 10,000 Nissan Vehicles



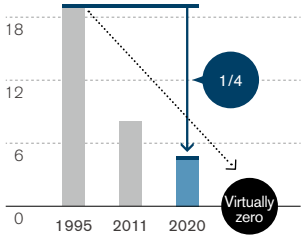
Source: Institute for Traffic Accident Research and Data Analysis

USA Fatalities per 10,000 Nissan Vehicles



Source: Fatality Analysis Reporting System

Europe (U.K.) Fatal and Serious Injuries per 10,000 Nissan Vehicles



Source: STATS19 data, U.K. Department for Transport

FISCAL 2012 PERFORMANCE

- Low-speed Collision Intervention developed, introduced on the Elgrand in December 2012
- Autonomous Emergency Steering System developed to offer collision-avoidance capability in future models via automatic steering in situations where it is difficult to avoid collision by autonomous brake only
- Nissan Safety Driving Forum held in India

FUTURE MEASURES

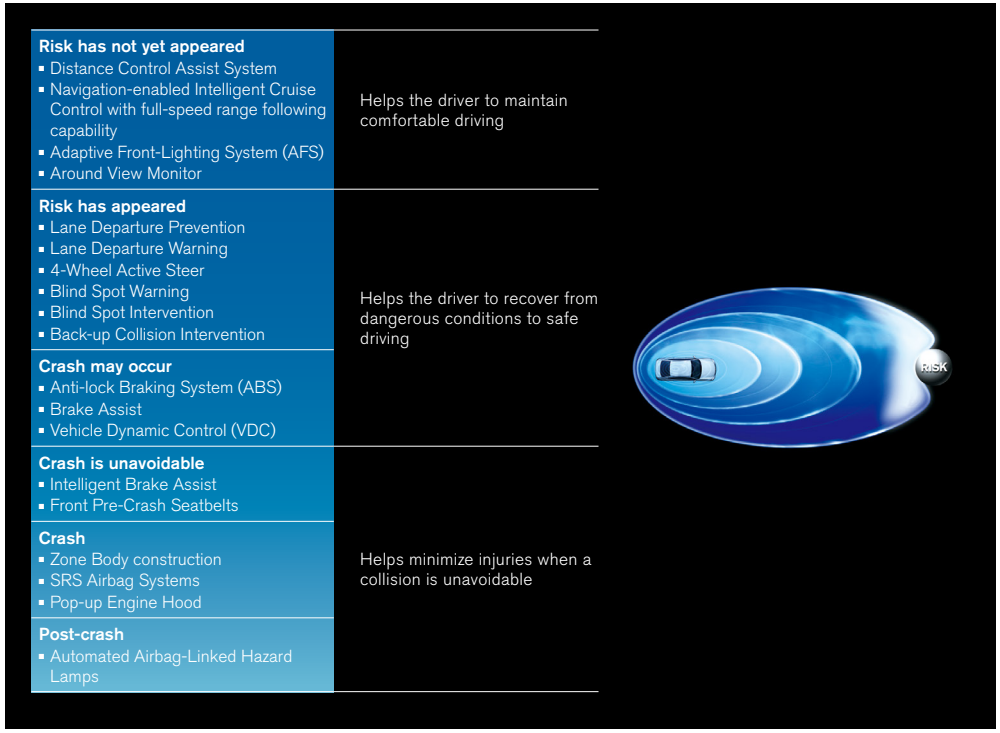
- Development of new, more effective safety technologies and broader application of them in the product lineup
- Expansion of traffic safety programs carried out in major Indian cities to Brazil and other regions

VEHICLES: DEVELOPING SAFETY TECHNOLOGIES

Based on our unique "Safety Shield" concept, we are working to develop automotive technologies from the perspective that people are at the center of the driving experience. We focus on solutions that help maintain distance from potentially dangerous conditions. We also provide technologies that aim to activate vehicle systems (for example, the brakes) when a collision is unavoidable, thereby helping to reduce injuries.

The "Safety Shield" Concept

Nissan bases its efforts to create safer automobiles on its original "Safety Shield" concept. This defines the conditions surrounding a vehicle in terms of six phases, from "risk has not yet appeared" through "post-crash," and guides our development of technologies to help address each phase, based on the idea that cars should help protect people.



Aiming for "Collision-Free Cars"

Even a careful driver may encounter some situations where blind spots occur, and even in zones that the driver can see, risks can arise to threaten the safety of the driver. Nissan is developing technologies to one day support the concept of "collision-free cars" as part of an all-around drive-support system that seeks to detect such risks in advance, warn the driver of them and, in emergency situations, intervene to help prevent accidents.

In our all-around drive-support system we have brought together various safety technologies, including our world-first Back-up Collision Intervention technology, which detects large objects in the path of the vehicle when the driver backs up. Other safety and convenience technologies found in some Nissan vehicles include the Distance Control Assist System, which helps the driver maintain distance between the car and the vehicle in front; Lane Departure Prevention, which helps the driver return the vehicle to its designated travel lane; and Blind Spot Intervention, which assists in lane changes by alerting the driver to the presence of a vehicle in the blind spot and helping him or her return the vehicle to its travel lane.

Distance Control Assist System

Nissan's Distance Control Assist System uses a sensor to calculate the distance between the car and the vehicle in front. Based on the gap and relative speed between the cars, the system then supports the driver's pedal operations when braking, thus helping to maintain an appropriate space between the vehicles. We first installed this system in the 2007 Fuga marketed in Japan.

We have also developed a world-first technology integrating the car's navigation system with these functions. Our new system can import data from the navigation system on upcoming curves in the road and help to apply the brakes gradually in preparation for them. If the driver continues depressing the accelerator pedal, the system provides support by lifting the pedal to assist the driver in switching to the brakes. The system also applies smooth deceleration when the accelerator pedal is lifted, helping make it easier to navigate curves. This upgraded system made its debut in the Fuga marketed in Japan in November 2009, and is available in the Infiniti M in the United States.

Lane Departure Prevention

This system helps the driver return the vehicle to its designated travel lane when the vehicle is drifting out of the lane. A camera unit installed behind the rear-view mirror detects lane markers in front of the vehicle and calculates its position relative to them. When the system judges that the car may unintentionally leave its lane, it alerts the driver with visual and audible warnings and briefly activates the brakes on one side of the vehicle to assist the driver's efforts to return to the lane center. We rolled out this system in the Skyline Crossover launched in July 2009 in Japan. In the United States, it is available in various Infiniti models.

Blind Spot Intervention

This system supports the driver's operations when initiating a lane change, helping to avoid a collision with another vehicle that may be traveling in the blind spot. Sensors installed in the rear of the car detect a vehicle in the adjacent lane and provide a visual indicator to the driver. If the driver activates the turn signal, the system alerts the driver with audible and visual warnings. Moreover, if a vehicle is detected in the blind-spot area and the vehicle is approaching the lane marker, the system applies the brakes on one side of the vehicle to generate part of the necessary yaw movement to help the driver keep the car away from the other vehicle. The Infiniti M launched in North America in March 2010 was the first to feature this technology.

Back-up Collision Intervention

When the vehicle is in reverse, such as backing out of a parking space, Back-up Collision Intervention goes to work. Sensors mounted on the rear and sides of the vehicle are used to detect approaching vehicles and other large obstacles in the car's path. If an object is detected, visual and audible warnings are provided, and then the brakes are activated momentarily to help the driver avoid a collision. This system is featured in the Infiniti JX that went on sale in the United States in March 2012.

Forward Emergency Braking

This system supports the driver by helping to avoid collisions at speeds of up to 60 km/h. It uses a highly sensitive radar sensor to monitor the distance from the vehicle in front and its relative speed and supports the driver's efforts to avoid a forward collision. When the system detects an object in the vehicle path that could pose a collision danger, it actively prompts the driver to perform avoidance maneuvers by providing visual and audible warnings. Additionally, it can further help the driver by pressing back on the accelerator pedal and applying the brakes. By helping the driver to reduce speed smoothly, it may also contribute to reduced occurrence of rear-end collisions following sudden braking.

Around View Monitor

This world-first technology uses images from four cameras installed at the front, back and sides of the vehicle, combining them in a composite, bird's-eye view on the car's navigation monitor. This allows the driver to easily grasp the position of the vehicle in relation to the parking space, simplifying tasks like parallel parking or entering a garage. The system made its debut in the Elgrand released in Japan in October 2007, while the first model to offer the system in North America was the Infiniti EX35 launched in December that year.

We later added the following three functions to the system, two of them world firsts, and incorporated this upgraded version in the Skyline Crossover launched in Japan in July 2009.

1 Front/Rear Wide-view Function

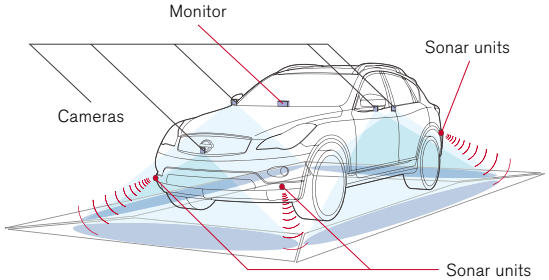
The monitor displays views covering approximately 180 degrees from both the front and rear cameras, helping the driver to check for other vehicles that may be approaching. This helps the driver navigate when the car travels through blind intersections or exits a parking space. The rear wide-view function in particular is a world first.

2 Front Wide-view Function Linked to the Navigation System

After the driver registers a location on the navigation system's map, the monitor will automatically switch to front wide-view mode when the vehicle arrives at that location and comes to a stop. This lets the driver check for approaching vehicles more smoothly, without the need to manually activate the front-view camera. We hope this world-first technology will help to enhance users' peace of mind at intersections with poor visibility.

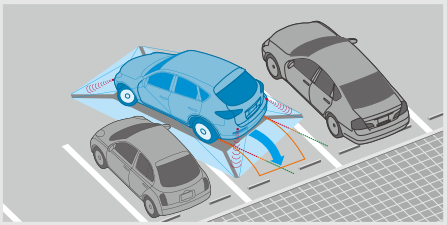
3 Parking Guide Function

This new function enhances our Around View Monitor, making it easier than ever to move the car in and out of garages or parking spaces. The driver can use the touch panel on the navigation screen to get an overhead view of the vehicle in relation to its surroundings, along with audio and visual guidance on parking maneuvers.

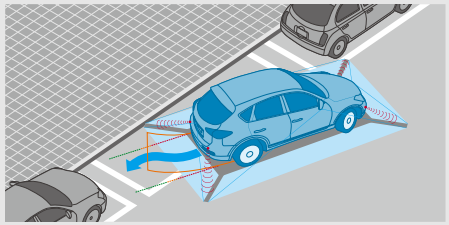


The system gives helpful views when backing into a space.

The Parking Guide system gives the driver an intuitive feel for the vehicle's position while parking.



When parallel parking, the driver can simultaneously check the car's rear, side and curbside front views.



New Safety Technologies in Fiscal 2012

Low-speed Collision Intervention

In October 2011 Nissan announced Low-speed Collision Intervention, a world-first technology aimed at helping to reduce accidents caused by misapplication of the brake and accelerator pedals. In December 2012 this system debuted on the Elgrand sold in Japan. During parking and other low-speed operations, this technology uses the four cameras in our Around View Monitor system and ultrasonic sonar to help detect mistaken driver operations, such as stepping on the accelerator instead of the brake pedal. This helps to reduce the risk of collisions with walls or other objects.

1 Accelerator pressed while parking in front of a wall or other obstacle:

Sonar detects objects around the vehicle, such as walls, storefront windows or cars in a parking lot. If the driver applies the accelerator instead of the brake, the system will try to control acceleration, and if contact is imminent, it will try to apply the brakes to help prevent or reduce the impact of the collision.

2 Accelerator pressed while parking in a marked space:

The cameras detect the lines around the parking space. If the driver accidentally accelerates instead of braking, the system will try to control the vehicle's speed and help prevent excessive acceleration.

3 Brake applied late while moving at low speed in congested traffic or while parking:

Sonar detects obstacles around the vehicle, such as other stationary cars in front. If the vehicle is about to collide with an object, the system tries to apply the brakes before the collision, helping to prevent or reduce the impact or damage of the collision.

Autonomous Emergency Steering System

Nissan's Autonomous Emergency Steering System is an advanced collision avoidance support system that provides steering assistance in addition to automated braking when the vehicle appears likely to collide with another object and braking alone may be insufficient to avoid the collision. The system uses a front-mounted radar and camera, two left and right rear radars and the five laser scanners attached around the vehicle to gather data on potential collision risks that cannot be avoided by braking alone. At the same time, it checks if there is a forward zone free of obstacles and that there are no vehicles approaching from the rear, displaying to the driver the direction to steer the vehicle. If the driver cannot immediately steer in that direction, the system automatically supports steering operations to help avoid a collision.

CONTENTS | INTRODUCTION | CEO MESSAGE | COO MESSAGE | BLUE CITIZENSHIP: NISSAN'S CSR | RENAULT-NISSAN ALLIANCE | CSR DATA | THIRD-PARTY COMMENT
ENVIRONMENT | SAFETY | PHILANTHROPY | QUALITY | VALUE CHAIN | EMPLOYEES | ECONOMIC CONTRIBUTION | CORPORATE GOVERNANCE & INTERNAL CONTROL

The Autonomous Emergency Steering System takes effect in situations where unpredictable risks arise, such as sudden intrusions onto the road in low speed zones or potential collisions at high speed due to the driver's delayed recognition of the tail end of a traffic jam.

Nissan has been engaged in developing and marketing brake-based control systems as one form of technology for supporting collision prevention. To increase the effectiveness of these solutions, we have worked on technology to deal with situations that cannot be mitigated through braking alone. For a driver to avoid a potential collision by steering away from it, there is a need to confirm that there are no obstacles in the area where the vehicle will move. This requires advanced technology to constantly scan and analyze the vehicle's surroundings. Our achievements to date in high-precision sensors and onboard processors have allowed us to develop technology to support the driver by automatically helping to steer the vehicle away from potential collisions when braking alone is insufficient.

Safety Technologies for Electric Vehicles

Nissan LEAF* uses high-strength body construction that helps protect its lithium-ion battery in the event of a collision. Nissan LEAF also features insulation around its high-voltage parts used in such areas as the battery and the motor. Moreover, the vehicle is designed so that the high-voltage electrical system automatically shuts down in the event of a collision. Nissan LEAF is further equipped with a lithium-ion battery controller system that continuously monitors battery conditions to help prevent overcharging, excessive discharging or overheating, which could lead to severely reduced capacity or malfunction.

Since EVs are extremely quiet when running at low speeds, Nissan LEAF is equipped with the Approaching Vehicle Sound for Pedestrians system. The car begins emitting a sound when the driver puts the car into drive gear and releases the brake. This sound fades out when the vehicle tops 30 km/h and starts up again when the vehicle decelerates, at speeds below 25 km/h. Another warning sound is generated when the car is put in reverse.

We have also prepared a special instruction manual for use in assistance and rescue operations in the case where a mechanical problem or accident does take place.

website

* Click here for more information on Nissan LEAF's safety features (Japanese only).

INDIVIDUALS: OUR TRAFFIC SAFETY ACTIVITIES

To help create a better mobility society, it is important for as many people as possible, including drivers and passengers in vehicles as well as pedestrians outside them, to share an understanding of road safety. We take part in educational activities to boost this safety awareness, measures to improve drivers' skills behind the wheel and a range of other safety promotions.

Educational Programs in Japan

Traffic accidents are statistically more likely to occur during the dusk hours from 4:00 to 6:00 p.m. each day. As part of its Hello Safety Campaign,*1 Nissan began urging drivers to turn on their headlights earlier in the evening in the Omoiyari Light Promotion,*2 launched in 2010.

In fiscal 2012, we expanded our programs of town-hall-style safety meetings and other public events. We are also actively engaged in educational efforts using social media and websites. These safety activities are spreading and growing deeper throughout Japan, with more partners taking part in the Omoiyari Light Promotion and more individuals, NPOs and industries getting involved.

The Omoiyari Light Promotion logo

website

*1 Click here for more information on the Hello Safety Campaign (Japanese only).

website

*2 Click here for more information on the Omoiyari Light Promotion (Japanese only).

Safety Education in Korea and the Middle East

Nissan Middle East FZE educates children about traffic safety through a dedicated website. Launched in October 2009, the site uses puzzles, pictures for coloring and other features to make learning online fun as well. The website shares easy-to-understand information with elementary school students in Arabic, English and French.

Nissan Korea Co., Ltd. launched its Nissan Kids Safety Campaign in April 2009. This campaign features similar content to that of the Middle East project and uses a website and booklets to educate children on traffic safety.

Promoting Traffic Safety in China and Indonesia

Traffic safety has become an increasingly important issue in China, which is seeing a rapid increase in the number of automobiles on the road. In 2005 Nissan (China) Investment Co. hosted its first safety program to improve drivers' skills and safety awareness in cooperation with the China Road Traffic Safety Association. In fiscal 2010 forums were held in September and October. Many customers, government officials and media representatives attended the forums, which featured programs for learning braking, cornering and other driving techniques from qualified instructors, contributing to deeper understanding of traffic safety. Programs for eco-driving skills were also included. Today these activities are implemented by the passenger automobile division of Dongfeng Motor Co., Ltd., as part of the Nissan Technology and Safety Driving Forum, a program of activities in which dealerships also participate.

The company also designed a contest to test Chinese high school students' knowledge of traffic safety and environmental protection issues. The year 2011 was the sixth for the event, which aims to increase interest and awareness of safety issues among young people, the drivers of tomorrow. In addition to taking simple quizzes on basic traffic rules, automotive safety devices and environmental issues, participating students made their own presentations on automotive and traffic safety.

In Indonesia, we started the Nissan Smart Driving program as a way to emphasize the importance of traffic safety. The program started out as a cooperative project with a lifestyle magazine designed to promote safe driving habits, but the scope of activities has since broadened to include hands-on safety workshops led by driving instructors for university students.

Nissan Safety Driving Forum in Emerging Markets

In early 2013 we launched the Nissan Safety Driving Forum program in emerging markets as part of our efforts to promote safer mobility. The aim is to enhance road safety awareness among as many of our customers as possible.

In February, the forum took place in three key Indian cities: New Delhi, Mumbai and Chennai. We used panel displays and interactive simulators to communicate the importance of wearing seatbelts and promote awareness among participants. Preparations are now underway to expand this program to Brazil and other regional markets.

CONTENTS | INTRODUCTION | CEO MESSAGE | COO MESSAGE | BLUE CITIZENSHIP: NISSAN'S CSR | RENAULT-NISSAN ALLIANCE | CSR DATA | THIRD-PARTY COMMENT
ENVIRONMENT | SAFETY | PHILANTHROPY | QUALITY | VALUE CHAIN | EMPLOYEES | ECONOMIC CONTRIBUTION | CORPORATE GOVERNANCE & INTERNAL CONTROL

SOCIETY: WORKING TOGETHER WITH SOCIETY

We believe it is possible to help create an even safer mobility society by using information from the traffic environment surrounding the vehicles on the road. Together with a wide range of governmental agencies, universities and companies, we are participating in various projects intended to promote the eventual achievement of a safer, more pleasant mobility society utilizing ITS.

Helping Reduce Accidents and Congestion with ITS

In 2006, Nissan launched the ITS Project in Japan's Kanagawa Prefecture. This project seeks to use Intelligent Transport Systems to create integrated networks of people, roads and vehicles, thereby helping to reduce traffic accidents and ease road congestion. The ITS Project gathers and uses information on nearby vehicles and the traffic environment in order to help reduce accidents involving other parties that can be difficult for a driver to see and react to.

We are building on the results of the ITS Project with our development of the Driving Safety Support System (DSSS). This will be an ongoing project promoted by Japan's National Police Agency and the UTMS Society of Japan, an organization operating under its aegis.

It uses the latest ITS technologies, such as optical-beacon communication tools to connect vehicles and the network of roads, with the aim of reducing traffic accidents. At intersections with reduced visibility, roadside infrastructure communicates with vehicles to deliver information to drivers via onboard navigation systems, warning them of potential dangers like crossing collisions and helping make sure they notice stop signs, signals and vehicles stopped at lights.

Helping Reduce Wrong-Way Accidents

Recently Japan has seen a number of serious accidents caused by vehicles traveling in the wrong direction on expressways. Working together with West Nippon Expressway Company (NEXCO), Nissan has developed a navigation program that uses GPS to notify drivers of vehicles driving the wrong way on an expressway. The system detects wrong-way vehicles based on GPS coordinates, maps, traveling speeds and other data. The driver of a vehicle going the wrong way receives audible and visual warnings. The Nissan Fuga Hybrid released in October 2010 is the first vehicle in the world to employ this system.

Combating Drunk Driving

Accidents involving driving under the influence of alcohol are a serious problem that blights society to this day. Nissan is actively engaged in a number of programs aimed at helping to eliminate drunk driving. In August 2007, working with the city of Kitakyushu, Fukuoka Prefecture, the Tochigi prefectural government, the town of Kaminokawa in Tochigi and the city of Atsugi in Kanagawa Prefecture, we began trials of a system to help prevent drunk driving.

Nissan has also carried out joint research with the University of Occupational and Environmental Health in Kitakyushu on the physiological, psychological and behavioral effects of alcohol on the human body. This research aided our development of technologies to quickly and accurately detect the errors and abnormalities in vehicle operation under the influence of alcohol. Other Nissan approaches to help reduce drunk driving include a function added to our Carwings navigation system in Japan that displays warnings against driving under the influence during the most common hours for such behavior, with the aim of increasing driver awareness of the danger of getting behind the wheel after consuming alcohol.