AGENDA

1. Orchard Concept
2. Environmental Technologies
3. Technologies for new Fuga
I. Harvest Plan
- Performance & functions which exceed customer expectations
- Timing of release

II. Seeding & Growth
- To specify technologies to be developed for Harvest
- To formulate development schemes Organizational Structure, Partnership, Continuous improvements after introduction

III. Soil Enrichment
- To cultivate continuously R&D competencies for Harvest Plan and Seeding & Growth
- To promote foundational research for future Harvest Plans
Orchard Concept: Purpose of Advanced Technology Briefing

Ⅰ. Harvest Plan
To introduce technologies for commercial distribution within the next 2-3 years
- 採用時期

Ⅱ. Seeding & Growth
To introduce fundamental technologies which support product commercialization, and the realization of Nissan’s mid- and long-term vision
- Harvest に向け重点開発する要素技術の特定
- 組織体制、外部連携、投入後の継続的な技術改良
- 将来の Harvest に向けた基礎研究の推進
Nissan’s Four Strategic Technology Fields

For each field, technology development will be based on a defined target (Vision 2015) and detailed roadmap.
Nissan’s Four Strategic Technology Fields

Nissan’s Core Technology Values:

*Trusted Driving Pleasure*

- Safety
- Life on Board
- Environment
- Dynamic Performance
- Quality/Cost
Featured Technologies

- EV
- Fuel efficient powertrain
- Technologies for new Fuga
2. Environmental Technologies
Nissan Green Program 2010

**CO2 Reduction**

*Long-term target: -90%*

Evolution of engine technologies including HEV, and expanding Zero-emission vehicles

**Cleaner Emissions**

Atmosphere-level emission

Expanding SU-LEVs

Cube (SU-LEV)

**Recycling resources**

Recycling rate: over 95%

Resource recovery rate: 100%

Environmental conscious vehicle design
Ultimate goal is Zero-emission vehicles

Long-term reduction target: 90%

Gasoline cars | Diesel cars | HEVs | FCVs | EVs
---|---|---|---|---
Use of electricity from recyclable energy | Use of hydrogen from recyclable energy | Use of electricity from recyclable energy | Use of hydrogen from recyclable energy | Use of electricity from recyclable energy

Environment: Electric powertrain for CO2 reduction
Energy : Use of electricity for powertrain

- Electric energy can be generated from various sources.
- Priority of electric energy is high, from security perspective as well.

- Oil
- Biomass
- Coal
- Natural gas
- Nuclear
- hydroelectric, wind, solar

Electric power
Technology development perspective on electric powertrain

- Three challenges for R&D:
  "Production and supply of energy," "Storage of energy," and "Effective usage of energy for vehicle"
2-1. Electric Vehicles
### EV Launch Plans

- To launch Nissan original EV for US and Japan in FY10
- Expand globally in 2012

#### Detailed specifications to be introduced on the individual presentation

<table>
<thead>
<tr>
<th>Size</th>
<th>Compact car class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seating</td>
<td>4-5</td>
</tr>
<tr>
<td>Battery</td>
<td>Laminated compact Li-ion battery</td>
</tr>
<tr>
<td>Motor</td>
<td>High-response AC synchronous motor</td>
</tr>
<tr>
<td>Cruising Range</td>
<td>160km (US-LA4 mode)</td>
</tr>
<tr>
<td>Major features</td>
<td>Dedicated IT system</td>
</tr>
<tr>
<td></td>
<td>Ample cabin space</td>
</tr>
<tr>
<td></td>
<td>Stimulating acceleration</td>
</tr>
<tr>
<td></td>
<td>Cruising range sufficient for daily use</td>
</tr>
<tr>
<td></td>
<td>Charging support gives secure feel</td>
</tr>
</tbody>
</table>
Various values provided by EVs

<table>
<thead>
<tr>
<th>ICE</th>
<th>EV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaust gas</td>
<td>Sustainable mobility society</td>
</tr>
<tr>
<td>Pump gas</td>
<td>Filled-up every morning</td>
</tr>
<tr>
<td>Noise</td>
<td>Quietness from the start up to high-speed</td>
</tr>
<tr>
<td>Gasoline cost 6,000yen/mth (20km/L, 1,000km/mth driving)</td>
<td>Electricity cost 1,200yen/mth (Charge using nighttime electricity, 1,000km/mth driving)</td>
</tr>
<tr>
<td></td>
<td>EV unique perform</td>
</tr>
</tbody>
</table>
Today’s demonstration: EV experience

- Experience the performance of 2010 EV as well as the EV lifestyle

at home
Normal charging

New EV unique
dynamic performance

Stimulating acceleration
Overwhelming quietness
Smooth start

away from home
Quick / non-contact charging

EV always supported by IT

Demonstration
Cruising range

Test drive
Charging stations

Demonstration
Cellphone alert when charging completed
Today’s demonstration: EV technologies

- Newly developed dedicated EV platform
  - High performance compact powertrain concentrated in front
  - Compact Li-ion batteries installed under floor
  - High rigidity chassis using Battery / Inverter Frame

- Ample cabin space
- Quiet and agile driving

Dedicated EV platform

- Motor
  - High-response synchronous: 80kW

- Inverter
  - High-output IGBT

- Battery pack
  - Laminated high energy density: 24kWh
EV is a mobile device moving freely on the electricity network

- EV runs through the "road/charging network" and "telecom network" on the "electricity network" available

**Charging supported by IT**
- SOC can be checked anytime
- Cruising range can be checked anytime
- Charging stand can be checked anytime

**Can be charged anywhere,**
- at or away from home
  - Normal charging: home, office, parking lots
  - Quick charging: mini-marts, service stations, shopping malls, parking lot
2-2. Fuel-efficient Power Train
## Featured Technologies

<table>
<thead>
<tr>
<th>Next-generation XTRONIC CVT</th>
<th>Next-generation combustion system (Dual injector system)</th>
<th>Clean Diesel AT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smaller, lighter, more efficient</td>
<td>High fuel efficiency and cleaner exhaust</td>
<td>AT added to the lineup</td>
</tr>
</tbody>
</table>

- Transmission range equivalent to a 7AT achieving fuel efficiency and quick acceleration
- Auxiliary transmission reduces size and weight

- Improved 4% fuel efficiency on more complete combustion
- Reduce rare-metal content in catalyst to 1/4

- Designed to meet "post new-long-term restrictions" and scheduled for sale in spring 2010

Test drive  | Display  | Test drive
3. Advanced Technologies on the new Fuga
Premium sedan starting-point of featuring advanced technologies

- Predecessors of premium sedan has always been the first to feature the advanced technologies
- Next generation Fuga will have 12 new technologies

8 new technologies


8 new technologies

Nissan's first AutoCompasslink

World's first XTROID-CVT

World's first Multi-AV system with optical fiber gyro

Japan's first car with turbocharger

World's first electronically controlled V6 turbo

World's first bird's-eye view navigation system

World's first ICC with low-speed tracking

World's first Distance Control Assist (Intelligent Pedal)

12 new technologies

6 will be introduced today
# Featured Technology: Safety and Dynamic Performance

- Synchronized control of navigation and chassis offers security and fun

<table>
<thead>
<tr>
<th>Smooth Start</th>
<th>Passionate acceleration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trusted high-speed cruise</td>
<td>Handling in total control</td>
</tr>
</tbody>
</table>

**Rear-seat comfort concept**

**Active Stability Assist**

**Four-wheel active steering**

**Navigation-cooperative Distance Control Assist**

**Safety: Safety Shield**

**DP: 4 core values**
Navigation-cooperative Distance Control Assist  
(World's first)

Reducing driver's stress when driving on curves

1-Receiving information on curves from the navigation system  
2-Support operation of acceleration pedal and braking when approaching the curve

Active Stability Assist  
(World's first)

Cornering with secure and smooth feel

Controlling four wheel brakes and engine torque, according to vehicle behaviour during cornering

Test drive
Evolution of 4-Wheel Active Steering

In-command driving for anyone, anytime

Smooth driving with fewer operations by increasing steering response

Test drive

Rear-seat comfort concept

Able to "read/write/sleep" comfortably

Developed 2 technology items restricting unpleasant motion of vehicle and passenger, for rear-seat comfort

- Double piston shock absorbers
- Low rebound resilience urethane seat cushion

Test drive
Featured Technologies : Life on Board

- Offering comfort cabin and premium interior finish supported by thoroughly measured and analyzed human senses

<table>
<thead>
<tr>
<th>Technologies Exceeding Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy to drive cockpit</td>
</tr>
<tr>
<td>Comfort cabin</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perceived Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>High quality interior finish</td>
</tr>
</tbody>
</table>

Forest Air

Premium touch interior concept
Forest Air (World's first)

Air-conditioning system recreating forest atmosphere

Offering refreshing air by integrated control of "breezy air," "aroma," "temperature," and "humidity"

- Aroma
- Breezy air
- New Plasmacluster
- Grapeseed polyphenol filter
- Automatic intake control

Actual experience

Premium soft-feel material

Premium semi-aniline leather seat

Actual experience

Premium touch interior concept

Comfortable feel you wouldn't want to put your hands off

Analyzed human "senses" and designed every material which will be touched by the passenger to be comfortable

- Premium soft instrument panel
- Soft-feel texturing

Actual experience
Today’s Featured Technologies: Summary

**EV**
- EV TEST Car
- EV platform
  (Battery, Motor, Inverter)
- EV-IT support
- Quick charging
- Non-contact charging
- EV lifestyle diorama

**Fuel-efficient Power Train**
- Next-generation XTRONIC CVT
- Dual injector system
- Clean Diesel AT

**Advanced Technologies on the new Fuga**
- Navigation-cooperative DCA
- Active Stability Assist
- 4WAS
- Rear-seat comfort concept
- Forest Air
- Premium touch interior concept
- CARWINGS navigation system

**Today’s Featured Technologies**

- Dynamic Performance
- Life on Board
- Environment
- Quality/Cost
- Safety
END