Nissan Motor’s Global Strategy & Two Vision ZERO

November 18, 2013
Toshiyuki Shiga
Representative Director & Vice Chairman
Nissan Motor Company Ltd.

www.nissan-global.com
NISSAN POWER 88

POWER

Brand & sales power

Global market share by FY16 (%)

Sustainable COP (%)

FY13 Outlook

6.4%

5.4%
Global Strategy

Offensive Strategy

Emerging markets
- China
- Russia
- Brazil
- India
- Mexico

Entry markets
- Datsun
- Venucia

Premium market
- Infiniti

Leadership Strategy

Zero Emission

Autonomous driving

Partnership Strategy

DAIMLER

DONG FENG

MITSUBISHI MOTORS

RENAULT NISSAN

ASHOK LEYLAND

AVTOVAZ
Emerging Countries Leading the Growth

- **2000**: 56 mil. units
- **2012**: 79 mil. units
- **2016**: 94 mil. units

- **BRIC**: 39%
- **US**: 19%
- **EUR**: 18%
- **JPN**: 5%
- **Others**: 19%

Source: Nissan Motor

www.nissan-global.com 4

(C) Copyright NISSAN MOTOR CO., LTD. 2013 All rights reserved.
# New plant investments

<table>
<thead>
<tr>
<th>FY13</th>
<th>FY14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under construction</td>
<td>India new plant (Powertrain) (From Sept.)</td>
</tr>
<tr>
<td>Under construction</td>
<td>Jatco Thailand new plant (From Sept.)</td>
</tr>
<tr>
<td>Under construction</td>
<td>Mexico new plant (From Nov.)</td>
</tr>
<tr>
<td>Under construction</td>
<td>Brazil new plant (Spring)</td>
</tr>
<tr>
<td>Under construction</td>
<td>Thailand new plant</td>
</tr>
<tr>
<td>Under construction</td>
<td>Indonesia new plant</td>
</tr>
<tr>
<td>Under construction</td>
<td>Russia St. Petersburg plant expansion</td>
</tr>
<tr>
<td>Under construction</td>
<td>China Dalian new plant</td>
</tr>
<tr>
<td>Under construction</td>
<td>Jatco Mexico new plant</td>
</tr>
</tbody>
</table>
New Car Source of Sales
(mature markets vs. growth markets)

Datsun brand offers new values

Require products / services that cater to the needs of first-time buyers

Typical scene in an emerging market

(C) Copyright NISSAN MOTOR CO., LTD.
2013 All rights reserved.
Introduction of Datsun

- India, Indonesia, Russia, & South Africa in 2014

Datsun’s target customers

Risers

400,000 rupee (approx. ¥660,000) or less

Dream

Access

Trust
Market Needs & Opportunities in India

50% of the market by 2016

Nissan’s share at 0% today

Demand by price range

1USD=45.7 INR
Progress & Goal of Infiniti Business

Premium Market Analysis

Premium brands account for 11% of total light-vehicle sales. But represent 50% of industry profits.
Building Stronger Infiniti Business

Relocation of HQ to Hong Kong

Grand opening ceremony held on May 2012

Currently IML
15 nationalities

NISSAN MOTOR COMPANY

(C) Copyright NISSAN MOTOR CO., LTD. 2013 All rights reserved.
Active Recruitment of Dedicated Personnel

Develop Asia’s first premium brand with a team of professionals and experts

- Johan
  - SVP of NML in charge of global Infiniti since last July.
  - Served as president of Audi’s American operation

- Michael
  - VP of Infiniti Americas since this September.
  - Served as COO of Porsche Cars North America

- Daniel
  - Managing Director of Infiniti China since this May.
  - Served as COO of Porsche Cars North America.
  - Previous vice president of BMW’s joint venture in China.
  - Speaks fluent Chinese.
Adapting to the changing environment alone is tough

- Investment
- Speed
- Human resources
- Technologies
- Customers needs
- Growth of emerging countries
- Diverse green technologies
- Shift toward smaller / cheaper cars
- IT changes to automobile society

(C) Copyright NISSAN MOTOR CO., LTD. 2013 All rights reserved.
Capitalize on partnerships and local resources

- Share investments
- Capitalize on local talents
- Capitalize on local insights
- Complement technologies

Options:
- Complementarity
- Synergy
- Alternative
- Offset
Partnerships created so far
Case①: Renault Nissan Alliance Common Module Family

Applied from Rogue / X-Trail in FY2013

Vehicle type: MPV, SUV, SED, H/B

Engine compartment: High hood, Low hood

FR under body: Heavy weight, Middle weight, Light weight

Cockpit: High Position, Middle Position, Low Position

RR under body: Heavy weight, Middle weight, Light weight

Electrical & Electronics architecture

Applied from Rogue / X-Trail in FY2013

Renault Nissan Alliance

Common Module Family

(C) Copyright NISSAN MOTOR CO., LTD. 2013 All rights reserved.
Case②: Partnership Strategy with Daimler

- Infiniti Q50
  Diesel engine essential for Europe and downsizing turbo


- Infiniti Q30
  adopt some components of Daimler
Leadership Strategy

Preparations to accomplish Nissan Power 88 hit the climax in FY2013, the end of the first half of the plan. Investments will bear fruits going forward.

At the same time, Nissan is pursuing sustainable mobility under the vision and leadership strategy.
Challenges by Nissan
Challenges by Nissan

Nissan aims to produce self-driving cars by '20

NISSAN MOTOR COMPANY  WWW.nissan-global.com
Challenges to Develop Sustainable Mobility

Energy
Global warming
Air pollution
Accidents

Fossil fuels
Emission
Safety
Vision : 2 ZERO

- Zero emission
- Zero fatality
2 Approaches of Leadership Strategy

<table>
<thead>
<tr>
<th>Energy</th>
<th>Global warming</th>
<th>Air pollution</th>
<th>Accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Electrification</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Vehicle Intelligence
**Electrification for Zero Emission**

<table>
<thead>
<tr>
<th>Energy</th>
<th>Global Warming</th>
<th>Air Pollution</th>
<th>Accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image of energy source" /></td>
<td><img src="image2.png" alt="Image of global warming" /></td>
<td><img src="image3.png" alt="Image of air pollution" /></td>
<td><img src="image4.png" alt="Image of accidents" /></td>
</tr>
</tbody>
</table>

(C) Copyright NISSAN MOTOR CO., LTD. 2013 All rights reserved.
Shift from fossil fuel-powered cars to cars powered by renewable energy.
100% EV Nissan LEAF

- Launched in December 2010
Nissan LEAF Users’ Voice
Compelling Attributes of EV

- Home charging
- Inexpensive electricity
- Ultimate quietness
- Around-the-clock connected services
- Zero emission
- Agility

(C) Copyright NISSAN MOTOR CO., LTD. 2013 All rights reserved.
Aggregate Global Sales of Approx. 87,000 units (as of October 2013)

History of Nissan LEAF Sales Volume

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY10</td>
<td>5,061</td>
</tr>
<tr>
<td>FY11</td>
<td>22,908</td>
</tr>
<tr>
<td>FY12</td>
<td>30,431</td>
</tr>
<tr>
<td>FY13 FCST</td>
<td></td>
</tr>
</tbody>
</table>

More than 50,000 units

Kanagawa Prefecture

Nissan LEAF Owners’ Event in San Francisco

Switch EV Project in U.K.
FAQ

No matter how much you boost the number of eco-friendly EV, wouldn’t the issue remain unsolved as long as the power is generated by fossil fuels such as oil and coal?
Adoption of renewable energy is key

However, power generated by natural energy is unstable. It is a challenge to supply at need.
Using EV as energy storage enables practical use of renewable energy.
Connect with power grid

IT network

Power grid

People
Power Storage Capacity

**EV Battery Capacity**
- 1 EV: 24 kWh
- 400 EVs: Approx. 10 MWh
- 22,000 EVs: Approx. 530 MWh

**Power Consumption**
- Average Household: 10 kWh/day
- Nissan GHQ: 10 MWh/day
- Nishi-ku, Yokohama (53,000 households): 530 MWh/day
Nissan LEAF’s Value as Storage Battery

Storage battery capacity (kWh) / price (¥)

LEAF has ¥7 million value as storage battery (excluding vehicle value)

Power supply capacity of a LEAF (24KWh)

Nissan LEAF 24kWh/2980K Yen

For about 160 Days

For about 29 Days

For about 10 Days

Storage battery for household use on the market
LEAF to HOME

- 2-way energy management by PCS*
- Sold about 2000 units (as of the end of October 2013)

*PCS : Power Control System
Power Saving Initiative with Nissan LEAF

- A trial in Osaka Prefecture delivered expected results.

- Annual driving distance 12,000km: ¥20,000
- Annual driving distance 7,000km: ¥48,000

(C) Copyright NISSAN MOTOR CO., LTD. 2013 All rights reserved.
Real-world Evaluation at NATC (Nissan Advanced Technical Center)

- Peak shaving by EV commuters
### V2B (Vehicle to Building)

- EVs parked at the office supply electricity and contribute to peak shaving.
- EVs are charged by the time when an employee leaves.

#### Peak shaving scheme (office building)

**Working hours**

<table>
<thead>
<tr>
<th>Time (o’clock)</th>
<th>Arrivals</th>
<th>Departures</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Charging</td>
<td>Discharging</td>
</tr>
<tr>
<td>12</td>
<td>Discharging</td>
<td>Charging</td>
</tr>
</tbody>
</table>

**EV battery status**

- **B**: Charging
- **V**: Discharging

*Charging* and *Discharging* respectively denote different battery statuses.

(C) Copyright NISSAN MOTOR CO., LTD. 2013 All rights reserved.
Leveling Power Consumption with EV

- If 10% of cars in Japan are replaced with EV, it results in 5% peak shaving.

Power (total of 10 utility companies around Japan)

[ GW ]

200

100

charging

discharging

5% reduction

Charging for driving

Time

Source: Nissan Motor
In Pursuit of Smart Community

- Big-scale real-world evaluation is underway around the world

Holland
- Amsterdam

Denmark

Japan
- Yokohama city, Toyota city, etc.

EDISON Project

Testing next-generation energy & social system

Colorado

Amsterdam city

Smart Grid City

England
- Low Carbon London

Spain
- Málaga

China

Korea

Hawaii
- Island project

Texas
- Pecan Street Project

ECO-CITY

Jeju Smart Grid
Proposal of New Mobility

Choimobi
Yokohama city

OAL × OAW × OAH : 2340 × 1230 × 1450 (mm)
Capacity : 2 persons (in the front & the rear)
Max speed : approx. 80km/h
Weight : 470kg(w/ doors)  500kg(w/out doors)
Output : rated power 8kW, max.15kW
Range : approx. 100km
Charging method/time : standard 200V, approx.4 hrs
Vehicle Intelligence for Zero Fatality

Traffic accident

NISSAN MOTOR COMPANY  WWW.nissan-global.com

(C) Copyright NISSAN MOTOR CO., LTD.  2013 All rights reserved.
Traffic Fatalities

More than 1.2 million people die in traffic accidents around the world.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Fatalities (1000 people)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>India</td>
<td>126</td>
</tr>
<tr>
<td>2</td>
<td>China</td>
<td>67</td>
</tr>
<tr>
<td>3</td>
<td>US</td>
<td>34</td>
</tr>
<tr>
<td>4</td>
<td>Russia</td>
<td>26</td>
</tr>
<tr>
<td>5</td>
<td>S. Africa</td>
<td>13</td>
</tr>
<tr>
<td>13</td>
<td>Japan</td>
<td>4</td>
</tr>
</tbody>
</table>

# of fatal accidents in Japan peaked in 1970 and is on the decline.

Yet over 4,000 people die every year.

History of traffic fatalities in Japan

<2009 WHO>
Economic loss inflicted by traffic accidents around the world

Approx. ¥60 tril. / year

※Estimated by Nissan Research Center
Economic costs of road traffic congestion

Approx. 44 tril. / year

※Estimated by Nissan Research Center
Economic opportunity of autonomous driving (per year)

Accident loss ¥60tril
Congestion loss ¥44tril

¥104tril.*

Equivalent to 2% of global GDP
(equivalent to GDP of South Korea)
Impediment to safety

- More than 90% of traffic accidents are caused by human errors

More than 90% of traffic accidents are caused by human errors.
3 Factors of Vehicle Intelligence

recognition → judgment → action
Application of State-of-the-art Technologies

- 100 times more capable than a human being in terms of “recognition,” “judgment,” and “action”
Better Recognition

High speed camera recognizes images in slow motion.
Affinity between EV and autonomous driving

- Motor generates maximum torque in low-speed revolution zone.
- Inverter control ensures quick acceleration and sharp response in whole speed range.

<table>
<thead>
<tr>
<th>Output torque [Nm]</th>
<th>Vehicle speed (km/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Motor

Inverter

Responsiveness

acceleration [G]

time [sec]
Value of Vehicle Intelligence (VTR)

- Safe mobility for everyone through autonomous driving
Silicon Valley Office, Nissan Research Center opened in 2013
Autonomous driving technologies will be applied to multiple models by 2020. The first proving ground specifically designed for autonomous driving vehicles is under construction in Japan.
Car becomes your partner