Technology Development Plan

MAZDA PRODUCT DEVELOPMENT - FROM MILLENNIUM PLAN TO TODAY

- Introduced new “Zoom Zoom” models as well as environment/safety technologies.
- Introduced clean DE engines (EU cars/ JPN commercial cars with DPF)
- Introduced Tribute HEV to North America
- Introduced world’s first “RX-8 Hydrogen RE”
- SU-LEV ratio: 90% or above
- Introduced “MPV” with Mazda Pre-Crash safety
- Eco-products Excellent Prize (MPV 2.3L DISI Turbo)
FOR A SUSTAINABLE FUTURE OF THE GLOBAL ENVIRONMENT

Economic growth and environmental issues

Actions

- Use renewable energy
- Recycling
- Energy conservation
- Use new energy
- Hazardous substances reduction
- Emission reduction
- VOC reduction
- Pollutants reduction

ISSUES OF AUTOMOBILE INDUSTRY AND EFFORTS

Multi-solutions are required in the automobile industry.
The number of worldwide fatalities in road traffic accidents has been increasing year by year. We have to reduce accidents as well as human damage in accidents.

The automotive industry has been developing anti-collision vehicles through various technologies.
LONG-TERM VISION - SUSTAINABLE ZOOM-ZOOM ANNOUNCEMENT

Mazda is working towards a sustainable future that brings continued happiness and excitement to people in a global society, by developing vehicles that never fail to excite, visually capture the customer’s heart, and provide a fun driving experience that keeps bringing them back to Mazda.

MAZDA POWERTRAIN

Vision
Pursue the powertrain technology that never fail to excite, visually capture the customer’s heart, and provide a fun driving experience that keeps bringing them back to Mazda.

Policy
Mid/Long Term
✓ Combine strong dynamic performance and product appeals to repeat customers.
For the future
✓ Pursue the hydrogen combustion technology, evolving the combustion technology.
✓ Introduce practical technology in evolution process.
**MAZDA POWERTRAIN**

### Gasoline Engines

- **New Gasoline Engines (I4)**
  - Dynamic performance: Improve 15-25%
  - Fuel economy: Improve 20%

- **Flex Fuel Engines**
  - E85

- **Smart Idling Stop**
  - Fuel economy: Improve 10% (in JPN)
  - DISI + Combustion re-start system

#### Past Years
- 2000: DISI-Turbo 2.3L
- 2010: DISI 2.0L
- 2020: DISI Turbo 2.3L

### Diesel Engines

- **New Clean DE engines**
  - Fuel economy: Improve 10%
  - Emission: EU "Euro6"
  - US "Tier2 BIN5"
  - JPN "H12 standard"

#### Past Years
- 2000: Euro4
- 2010: Euro5
- 2020: Euro5
**MAZDA POWERTRAIN**

**Transmissions**

New Automatic Transmissions

- Driving performance: Realize “direct feel” comparable to MT
- Fuel performance: Comparable to MT

**MAZDA POWERTRAIN**

**Rotary Engine**

New Hydrogen Rotary Engine

New Rotary Engine

- Dramatically improve dynamic/fuel performances.
MAZDA POWERTRAIN

Future Technology

New Hydrogen Rotary Engine
- Dynamic performance: currently comparable to V6 3.0L gasoline engines
- Cruising distance: 400km

High-efficient hybrid system
- Fuel economy: Improve 100%

Premacy hydrogen RE hybrid
- Dynamic performance: Improve 40%
- Cruising distance: 200km
- Original hybrid system

RX-8 hydrogen RE

2000 2010 2030

MAZDA DESIGN

Vision
Pursue Mazda design that never fails to excite, visually captures the customer’s heart, and provides a fun driving experience that keeps bringing them back to Mazda.

Policy
- Establish family taste, which visually captures the customer’s heart.
- Propose new design cues.
- Innovate proportion.
MAZDA VEHICLE TECHNOLOGY

Vision
Pursue the platform technology that never fails to excite, visually captures the customer’s heart, and provides a fun driving experience that keeps bringing them back to Mazda.

Policy
✓ Support attractive styling
✓ Provide the driving-pleasure and safety
✓ Support fair driving skill and realize anti-collision technology.
✓ Realize CO2 reduction as well as driving performance enhancement through weight reduction.

MAZDA VEHICLE TECHNOLOGY

Design & Platforms

NEW Demio / Mazda2
Distinctive design & Excellent dynamic performance
CO2 reduction
About 100kg lighter than the previous models

2000 2010 2020

NEW Design & Platforms
✓ Distinctive design (New proportion)
✓ Excellent dynamic performance
✓ Safety & lightweight

2000 2010 2020
**MAZDA VEHICLE TECHNOLOGY**

**Safety**

HMI / Dynamic Safety
- HMI supports correct risk awareness & judgment
- Dynamic performance to drive easily and avoid risk

ITS Prevention of traffic jams and accidents
- Demonstration in Hiroshima
- Driving support system linked with infrastructure

Mazda pre-crash safety

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<th>2000</th>
<th>2010</th>
<th>2020</th>
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**MAZDA VEHICLE TECHNOLOGY**

**Material & Manufacturing technology**

Original Water Based Paint System
- VOC reduction

Bio-Plastic/ Bio-Seat Fabric
- Carbon-neutral materials made of plants

Bumper-to-Bumper Recycling

Three Layer Wet Paint System

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DISCLAIMER

The projections and future strategies shown in this presentation are based on various uncertainties including without limitation the conditions of the world economy in the future, the trend of the automotive industry and the risk of exchange-rate fluctuations. So, please be aware that Mazda's actual performance may differ substantially from the projections.

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