



OVERVIEW OF MAZDA HYDROGEN VEHICLES

**DOE HYDROGEN AND FUEL CELL TECHNICAL
ADVISORY COMMITTEE (HTAC)
NOV. 4, 2009**

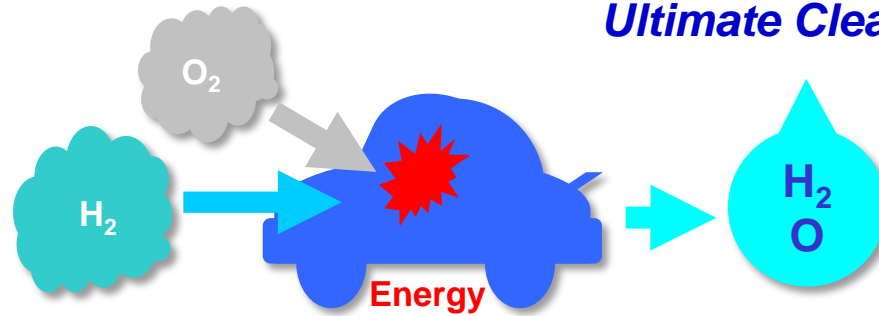
MNAO Washington, D.C. Public and Government Affairs

MAZDA HYDROGEN VEHICLES



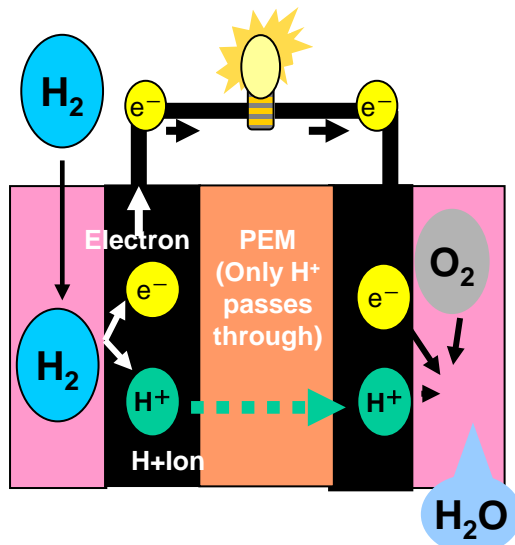
EXTRACTING ENERGY FROM HYDROGEN

Ultimate Clean Vehicle



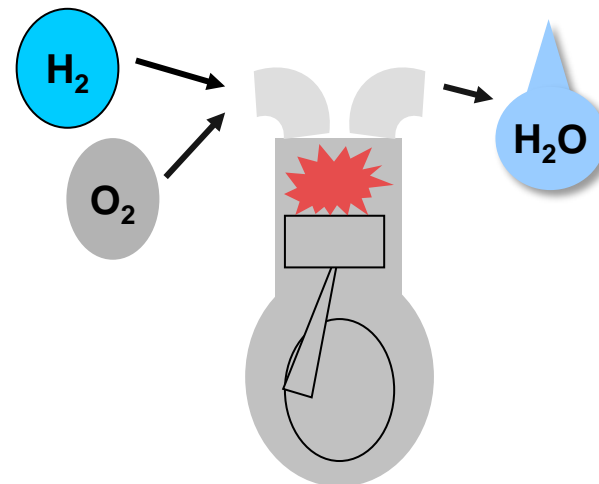
Electric Energy

Fuel Cell



Combustion Energy

Internal Combustion Engine



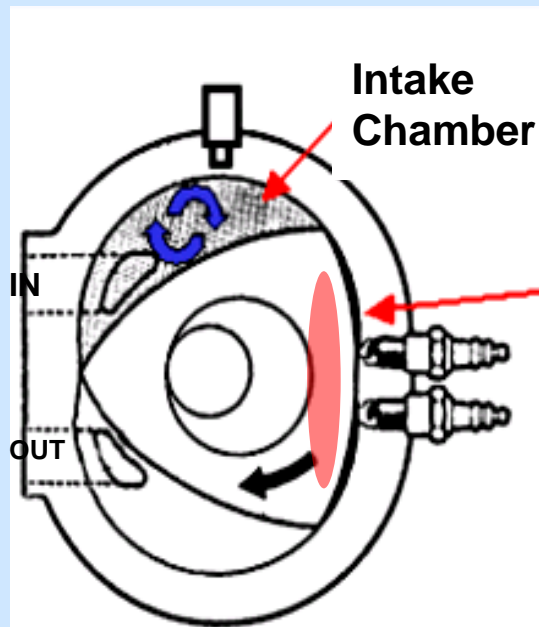
COMPARISON OF FCV & HYDROGEN ENGINE VEHICLE

	FCV	H ₂ Engine Vehicle
CO ₂	★★★★★	★★★★★
Emissions	★★★★★	★★★★
Energy Efficiency	★★★★★	★★★
Cost	★	★★★★★
Reliability	★★★	★★★★★
Use of Gasoline	★	★★★★★

WHY ROTARY?

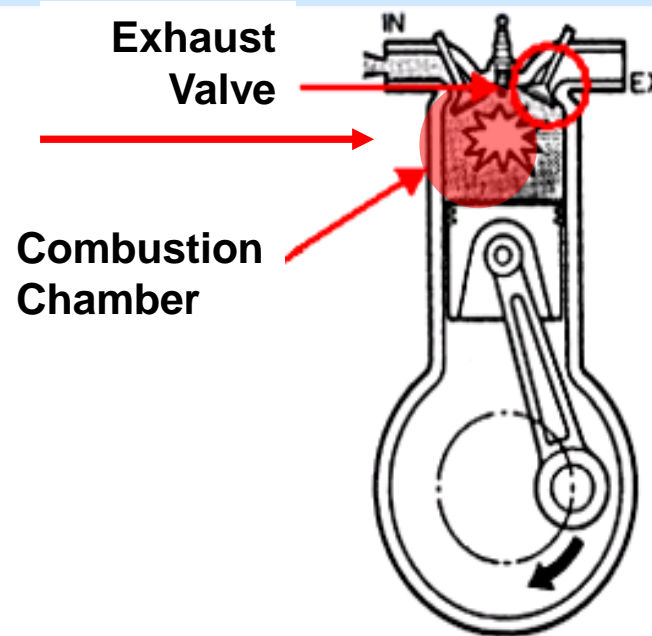
Hydrogen is very combustible → Abnormal combustion occurs

Rotary Engine



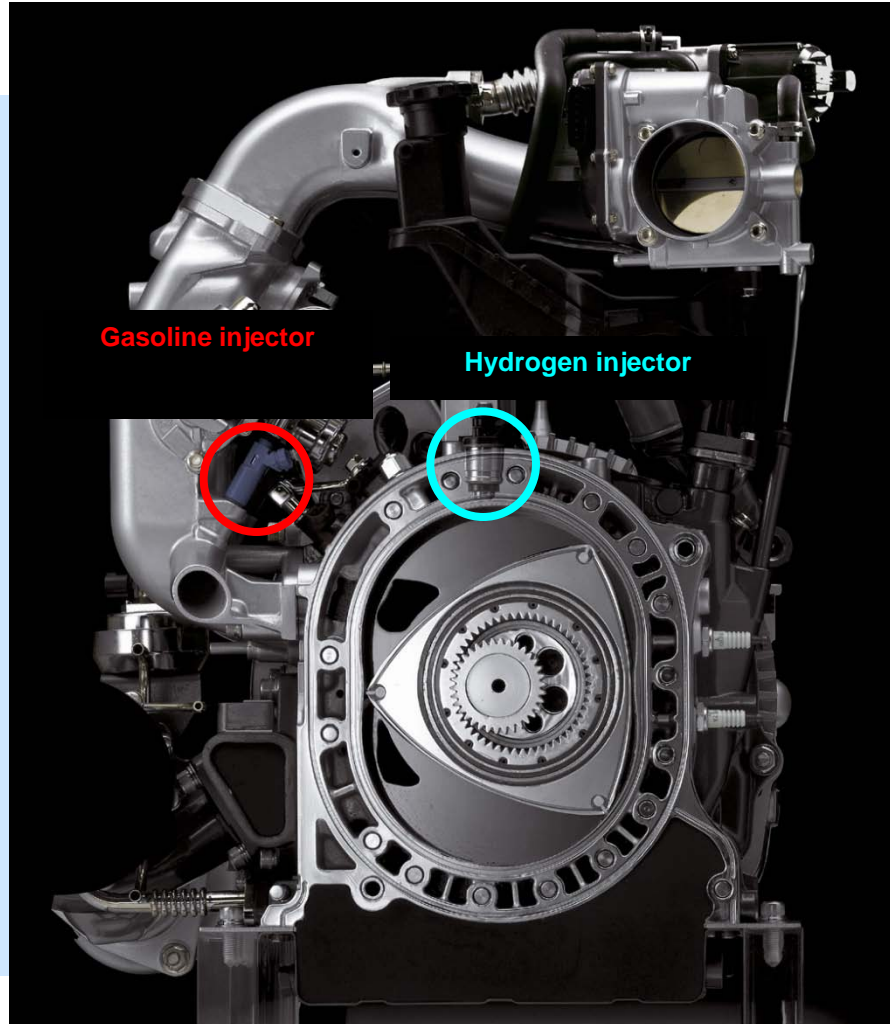
- Abnormal combustion doesn't occur easily

Reciprocating Engine



- Abnormal combustion occurs more easily

DUAL-FUEL SYSTEM



Hydrogen Rotary Engine



Fuel switch

HYDROGEN ENGINE VEHICLES



MAZDA HYDROGEN ROTARY RX-8



- Maximum power 80 kW
- H2 driving range 100 km (62 mi.)
- Dual-fuel system



HYNOR PROGRAM IN NORWAY - 2009



New Mazda RX-8 base model
Left-hand drive
Manual transmission
Engine heater, etc.



MAZDA PREMACY HYDROGEN RE HYBRID



Hydrogen
Engine

Hybrid
System

Biotechmaterial



MAZDA PREMACY HYDROGEN RE HYBRID

- Hydrogen driving range: 200 km (124 mi.)
- 40% more power: 110 kW
- 5 passengers, cargo space: 230 L
- Dual-fuel system

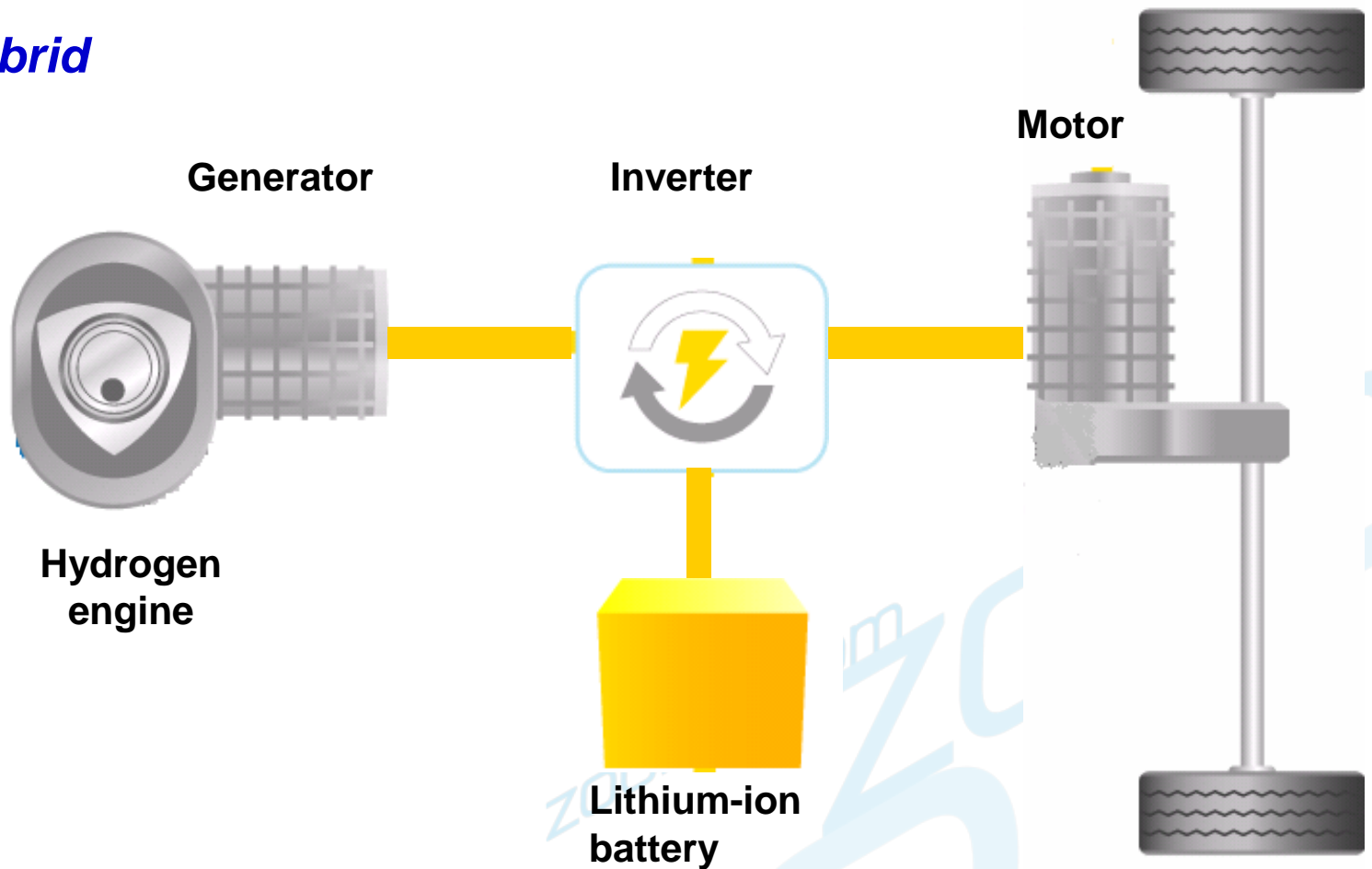


The first vehicle was leased in March 2009.

MAZDA PREMACY HYDROGEN RE HYBRID

Hybrid System Structure

Series Hybrid



MAZDA PREMACY HYDROGEN RE HYBRID

