Toyota's Fuel Cell Electric Vehicle

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Toyota's Portfolio Of Electric Drive

Hydrogen Fuel Cell EV

Battery EV

Plug-in Hybrid EV

Technology → Evolution

13 Hybrid Models

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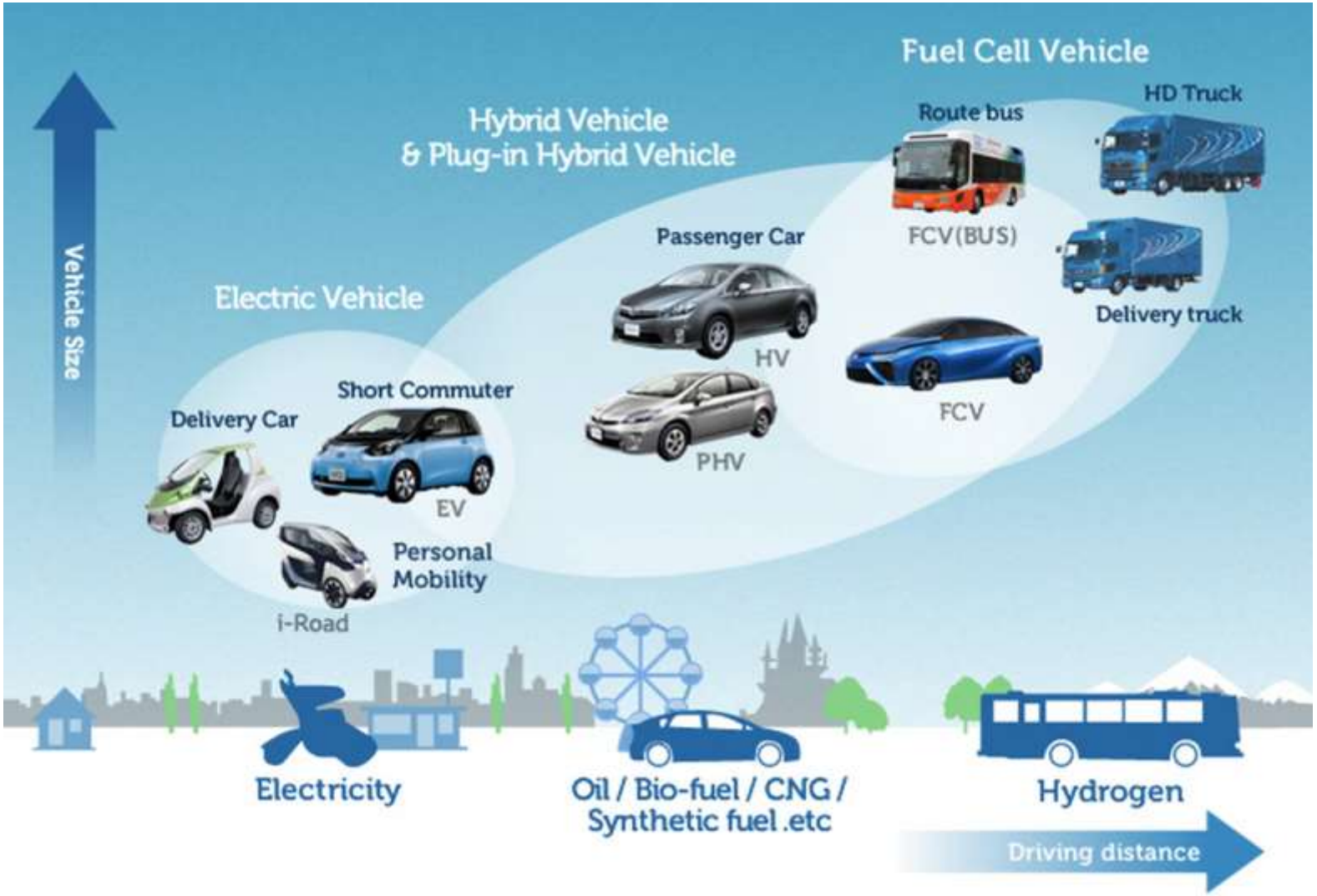
One Size / Technology Does Not Fit All



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Why Fuel Cell?

Energy Security

Sustainability

Zero Emissions

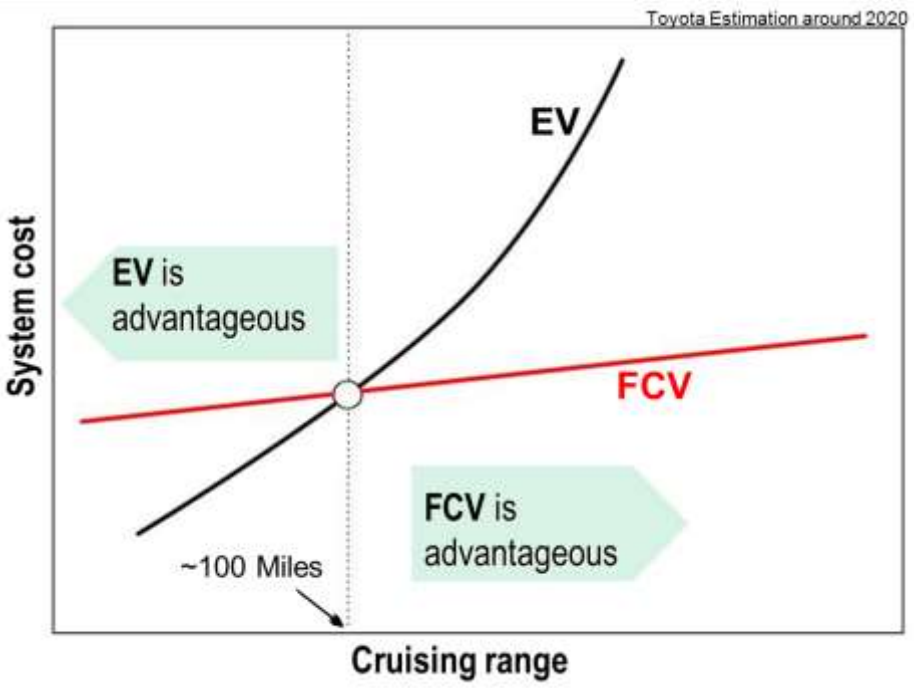
Durability

Cold Weather

Range

Fueling Time

Long-Term Cost



2016 Mirai

- On sale in Japan today
- Coming to US this October
- $499/mo 36 month lease or $57,500 – before incentives
  - Free fuel for 36 months
  - 8yr/100,000mi powertrain warranty
  - 24 hour roadside assistance
  - 24/7 concierge

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Power Takeoff for Emergencies and Tailgating

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Toyota's 3 Part Commercialization Strategy

- 3000 Fuel Cell Vehicles by 2017
- Support Infrastructure Expansion
- Royalty Free Patents

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Vehicles

Global Deployment

3000 to US
by 2017

5700 globally
by 2017

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Infrastructure Partnerships

19 Stations
California
First Element

12 Stations
Northeast, US
Air Liquide

TOYOTA

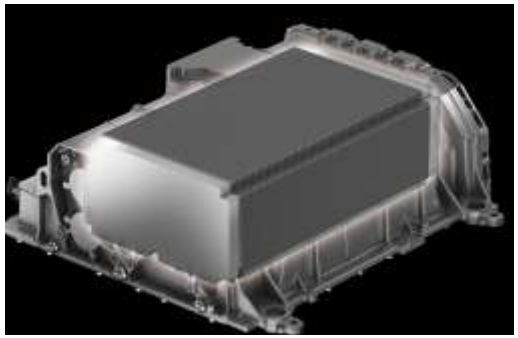
Royalty Free Patents

+5600 available to other OEMs

FC System Control

Carbon Fiber Tanks

Infrastructure



FC Stack

Tank Manufacturing

THE POWER CONTROL UNIT

The PCU decides when to use stored energy from the battery or to draw energy directly from the fuel cell stack. This is part of what makes the Mirai so energy efficient, and is based on the Toyota hybrid PCU found in the Prius.

THE MOTOR

For the electric motor, we chose an existing motor from one of our Lexus hybrid vehicles, providing a history of reliability and reducing overall cost.

THE BOOST CONVERTER

Our four-phase boost converter brings voltage to 650 volts. Driving at a higher voltage makes more efficient use of the motor, matching the Mirai's power output to Toyota's other hybrids. This is a key factor in allowing Toyota to use the battery, PCU and motor from other Toyota and Lexus vehicles.

THE FUEL CELL STACK

The stack generates power by combining hydrogen with oxygen from the outside air. Currently, Toyota leads the industry in this technology, achieving the highest power output while dramatically reducing the system's price and size from its previous fuel cell vehicles.

THE HYDROGEN TANKS

All of our hydrogen tanks are produced in-house and specially designed for the Mirai. Toyota's origins as a loom-weaving business helped our engineers design the carbon fiber weaving on our tanks, significantly reducing production time and improving the weight-to-storage ratio.

Toyota Mirai

Toyota Mirai

Overview	
Manufacturer	Toyota
Production	Scheduled for 2015
Assembly	Japan: Toyota, Aichi (Motomachi plant)[1]
Body and chassis	
Class	Mid-size
Body style	4-door sedan
Layout	Front-engine, front-wheel-drive layout
Related	Toyota FCV concept
Powertrain	
Electric motor	Fuel cell-powered 113 kW (152 hp) 335 N·m (247 lbf·ft)[2]
Battery	1.6 kWh Nickel-metal hydride[3][4]
Range	502 km (312 mi) (EPA)[5]
Dimensions	
Wheelbase	2,780 mm (109.4 in)[2]
Length	4,890 mm (192.5 in)[2]
Width	1,815 mm (71.5 in)[2]
Height	1,535 mm (60.4 in)[2]
Curb weight	1,850 kg (4,078.6 lb)[2]