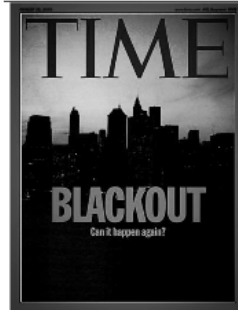


# Phu My Hung

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## An insight to what our lives would be in the future Thecasesolutions.com



We depend on electricity and all the new technologies. Without electricity, many things would be no longer there. The impact is massive. We have to be ready for the future. We should be prepared for a world where we have to live with different energy sources to keep us going in the future.

There is a growing concern that in the future, we will not have enough energy to power our lives. We need to find ways to generate energy that are sustainable and do not harm the environment.

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### Climate and Health

Climate change is a global concern that affects everyone. It is caused by the greenhouse effect, which traps heat in the atmosphere. This leads to rising temperatures, sea level rise, and more frequent extreme weather events.

Two scientists, James Hansen and Paul Scherrer, have been instrumental in raising awareness about climate change. Hansen's 1988 testimony to the US Senate is a landmark event in the history of climate science.

### Agriculture

The world's population is growing rapidly, and we need to find ways to produce more food. Agriculture is a key sector in this regard. However, it is also a major source of greenhouse gas emissions.

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### What Happened?

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### Bibliography

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2. International Energy Agency (IEA), *World Energy Outlook 2015*, Paris, 2015. <http://www.iea.org/weo2015/>

3. International Energy Agency (IEA), *World Energy Outlook 2015*, Paris, 2015. <http://www.iea.org/weo2015/>

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## What Happened?

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### Fossil Fuel Dependency

- Oil accounted for 95% of energy used for transportation in the U.S. (cars, trucks, and oil use)
- with usage remaining constantly, fossil fuels lasted until the end of the century (Pareto 1)
- without new alternatives, major changes would reshape society.

### Economy

- Prices for declining fossil fuel supply increased
- Food and retail prices rose as well
- Recession ensued along with a world-wide fuel shortage (Pareto 2)

### Urbanization

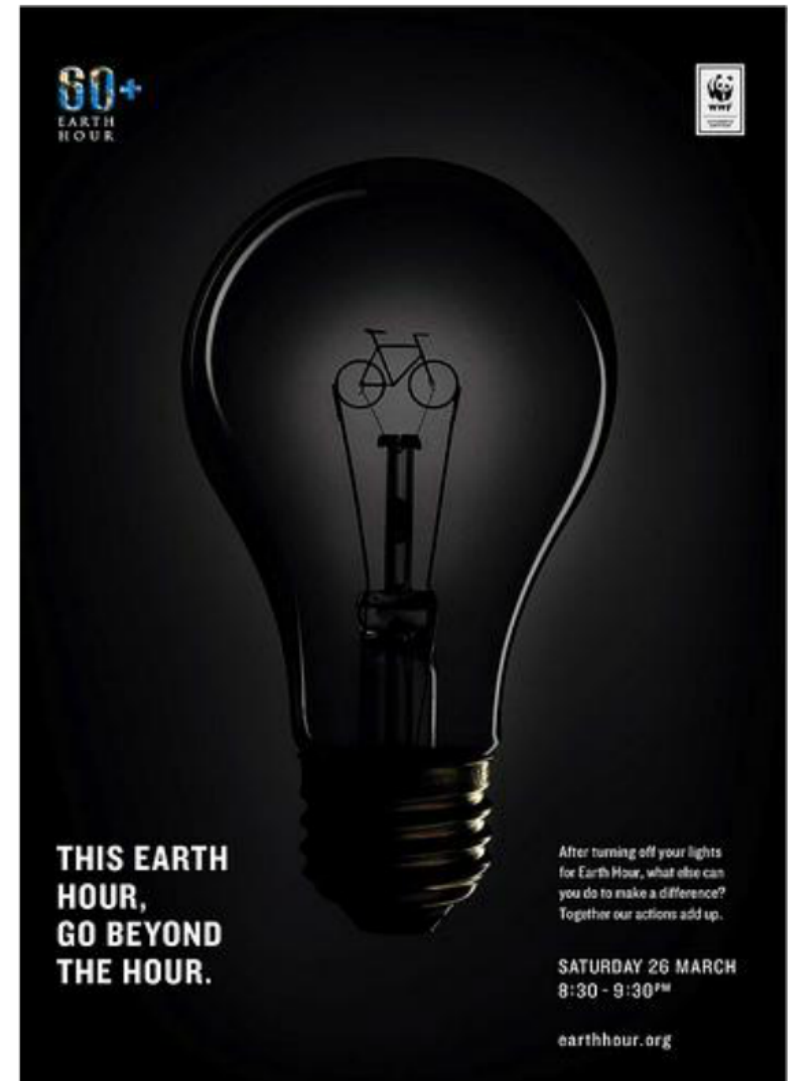
- Fuel shortages limited transportation

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### Did the Recession Last?

- Technological improvement introduced price efficient energy alternatives
- Many jobs were created to handle demand for new energy source devices and machinery
- The need for local manufacturing and farming also increased jobs.

### Transportation

- Mass transit methods are popular and energy efficient; used more often than personal vehicles
- Electric cars have taken the place of fuel driven automobiles; they are now more affordable as a result of technological breakthroughs

### Local Farming

- With international and long distance trade scare, food has to be produced at a local level
- Certain foods only found in native areas
- Abandoned suburbs turned into much needed armland
- Urban High-Rise Farms

### Economy

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### Urbanization

- Fuel shortages limited transportation
- People began to move into cities, leaving suburbs loosely populated.

### Personal Rapid Transit

- Public transit method of pod cars that transfer small groups along a fixed path nonstop
- Fast and most convenient form of public transportation
- Environmentally friendly (electric powered) and well received by the public



Running out of Non-Renewable energy would cause a chaos especially with technological advancements. We've become so dependent on technology that the technology that runs on non-renewable energy would be a problem.

We depend on fossil fuels to heat up our homes, run our vehicles, power our manufacturing, and provide us with electricity.

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Vehicles: Companies like Toyota have begun to look into cars run by water, solar energy, electricity, and even air. For example the Toyota Mirai which is a new car by Toyota which runs on hydrogen.



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Facts:

The United States gets 84% of its total energy from oil, coal, and natural gas, all of which are fossil fuels.

In 2008, 49% of U.S. electricity came from coal, more than twice the contribution of either nuclear power or natural gas.

Almost two-thirds of the oil America uses is imported from a handful of nations.

The United States imports less than 2% of its natural gas from outside North America.



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How it works: First the hydrogen tank stores the fuel. Then the front grille channels oxygen to the fuel cell where it reacts with hydrogen. After that the fuel cell produces electricity and also water which is expelled by exhaust. Then the battery stores excess electricity, which is then expelled by exhaust. Then the battery stores excess electricity, which is then used during ignition and acceleration.

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### HOW THE HYDROGEN CAR WORKS

- 1 Hydrogen tank stores fuel which is fed to
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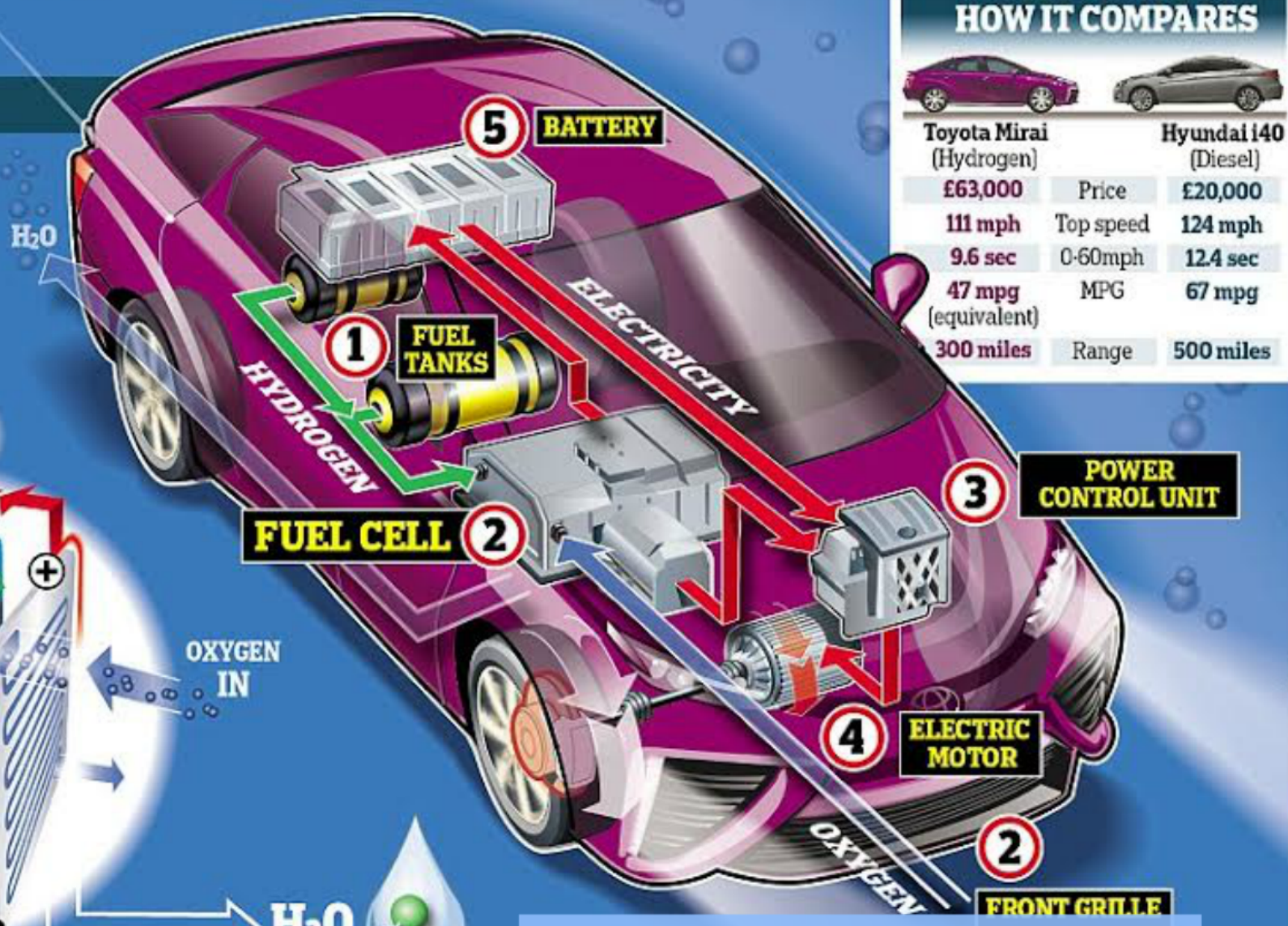
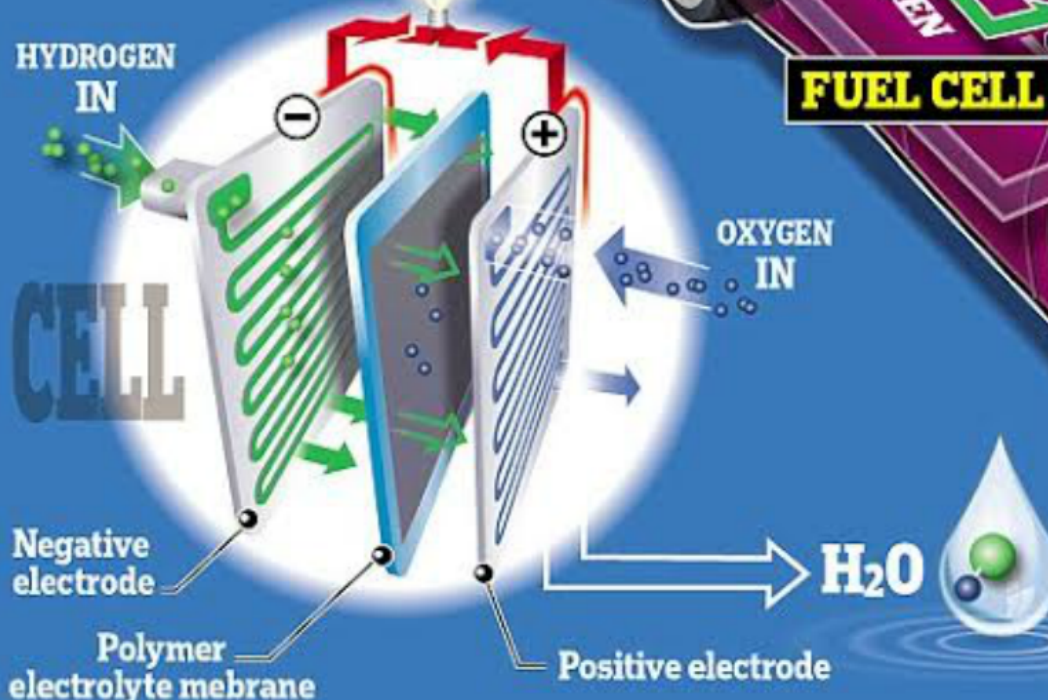
# HOW THE HYDROGEN CAR WORKS

- 1 Hydrogen tank stores fuel which is fed to fuel cell when needed
- 2 Front grille channels oxygen to the fuel cell, where it reacts with hydrogen
- 3 Fuel cell produces electricity and also water, which is expelled via exhaust
- 4 Control unit draws electricity from the fuel cell when driver presses accelerator and sends it to the motor, which powers the wheels
- 5 Battery stores excess electricity, which is then used during ignition and acceleration

## THE FUEL CELL

Inside the cell: there are two electrodes, one positive, one negative. They allow the hydrogen to react with oxygen from the air intake, creating electricity and water

## ELECTRICITY

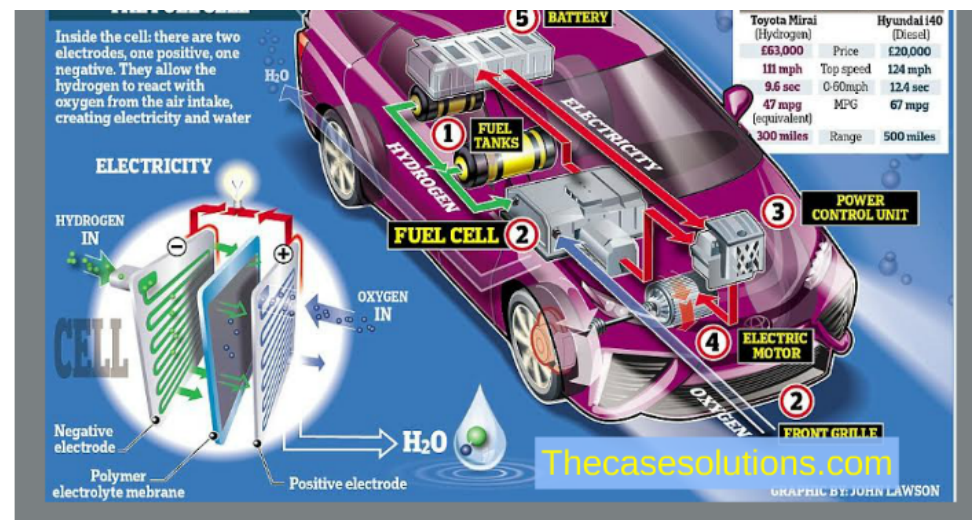


## HOW IT COMPARES

Toyota Mirai (Hydrogen)		Hyundai i40 (Diesel)
£63,000	Price	£20,000
111 mph	Top speed	124 mph
9.6 sec	0-60mph	12.4 sec
47 mpg (equivalent)	MPG	67 mpg
300 miles	Range	500 miles

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Electricity: We currently have more than one ways to get electricity, our most popular way is fossil fuels. We also have wind energy which can produce electricity where steady winds blow. Giant wind turbines capture the wind's energy and power generators. Another thing is biomass, which is a material that is formed from living organisms such as wood. Biomass can be burned to produce electricity. Geothermal energy uses hot water or steam from deep beneath the earth's surface to produce electricity. Hydroelectric power plants use the energy of falling water to spine turbines. Solar energy can also be used to produce electricity, solar cells change the radiant energy or the sun in to electric energy.