Shell Hydrogen – The Evolving Story

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THE SHELL HYDROGEN JOURNEY
Hydrogen can be produced by

**Natural gas reforming**
Methane can be converted into hydrogen.

**Gasification**
Hydrogen can be made from organic materials like agricultural waste.

**Electrolysis**
Splitting water with electricity releases hydrogen and oxygen.

+ **Methane from biogas**
+ **Electricity from renewable sources**
COLLABORATION IS KEY FOR H2 SUCCESS
COLLABORATION IS KEY FOR H₂ SUCCESS

The future success of hydrogen as a sustainable transport option will require actions by all players

**Car manufacturers**
to continue developing hydrogen fuel cell vehicles and reduce costs

**Governments**
to support the choice for hydrogen fuel cell vehicles

**Customers**
will require greater hydrogen infrastructure and more hydrogen car models to choose from

**Energy industry**
to invest in infrastructure and offer fuel at competitive price
THE NEAR FUTURE FOR HYDROGEN AT SHELL
REFHYNE
BUILDING A 10MW PEM ELECTROLYSER

At present, ITM are building a 10-megawatt PEM (polymer electrolyte membrane) electrolyser, the largest of its kind, to produce hydrogen at the Rhineland refinery in Germany.

This project is supported by the European Union.
**Hydrogen as an Energy Carrier**

**CO₂ reduction**
Hydrogen can be made with electricity from renewable sources or using biogas.

**Hydrogen can help balancing the electricity grid**
The production of hydrogen can enable the use of electricity which would otherwise be lost to be stored and used either in mobility, industrial or domestic applications.

This helps to optimise the power markets and balance the intermittencies brought about by the introduction of more electricity from renewable sources.
THE NEAR FUTURE FOR HYDROGEN AT SHELL
TESTING DIFFERENT SUPPLY OPTIONS
THE NEAR FUTURE FOR HYDROGEN AT SHELL
HYDROGEN RESEARCH & DEVELOPMENT

Developing other aspects of the value chain, e.g. wind to hydrogen + Leader in establishing standards for safe dispensing