# Reaction field separation type Turquoise hydrogen production process

PRODUCTION

## A new $CO_2$-free method of hydrogen production that can also immobilize carbon

## FEATURES

### What is turquoise hydrogen?

Turquoise hydrogen is a $CO_2$-free hydrogen manufactured in a method that simultaneously produces hydrogen and solid carbon through the pyrolysis of methane.

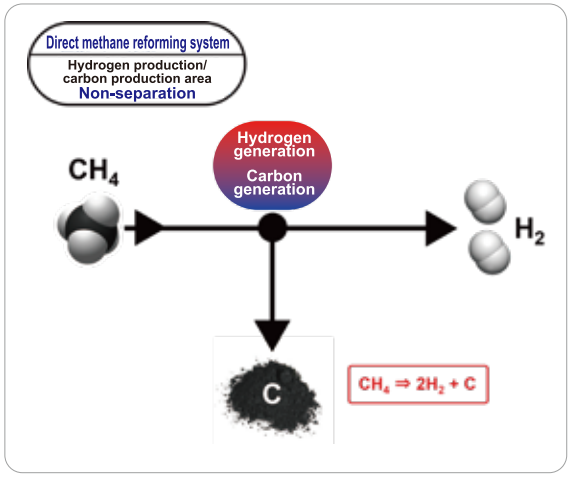
### A highly efficient process in which production is possible at low temperatures

A low temperature process is realized by creating a catalyst with low temperature activity and long life.

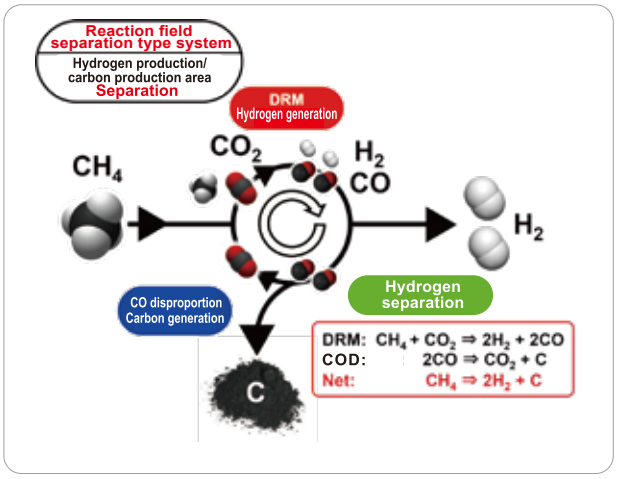
### It is possible to produce high value added carbon

In this reaction field separation type process, the reaction furnace for methane decomposition is separated from that for carbon deposition, and by controlling the optimum temperature and pressure, etc., carbon can be produced separately. In addition, the carbon caulking of the methane decomposition catalyst is suppressed, which contributes to a longer catalyst life.

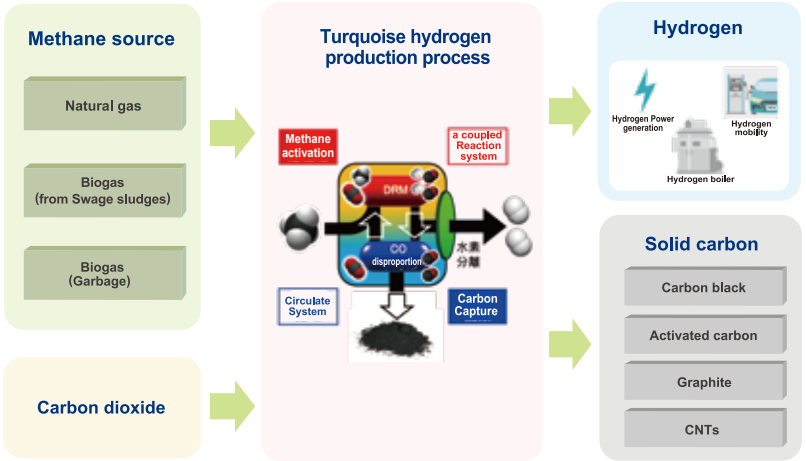
### Conventional process




### Reaction field separation type process




## System Deployment Concept




We have been developing in cooperation with other organizations (NIMS, etc.) in the NEDO "Feasibility Study Program on Energy and New Environmental Technology".

The aim is commercialization in 2026 based on a medium-scale demonstration and large-scale demonstration.

We are in contact with various companies regarding possible cooperation with methane sources (gas and electric power companies, etc.) and hydrogen and carbon manufacturers.

For Inquiry ▶▶▶▶