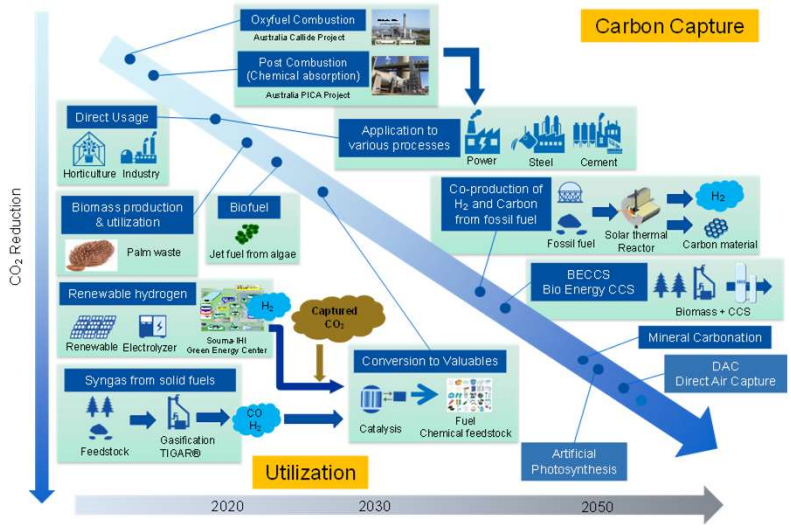
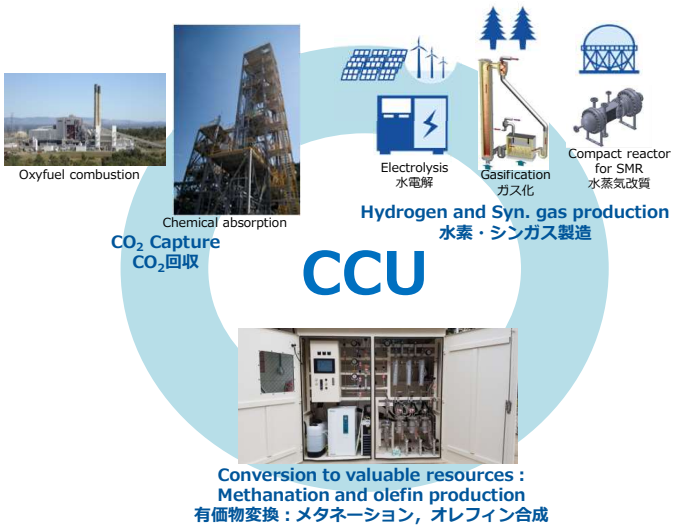
Realize CO_2-free Energy Value Chain by Carbon Recycling
カーボンリサイクリングによる脱CO_2エネルギーチェーンの実現

IHI's roadmap for Carbon Recycling
IHIのカーボンリサイクリングロードマップ



IHI's CCU technology
IHIのCCU技術



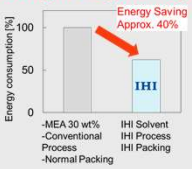
CO_2 Capture
CO_2回収

CO_2 capture by chemical absorption has been developed.

化学吸収法によるCO_2回収技術を開発・実証。

20 ton-CO_2/d Pilot Plant ➢ *Achieved approximately 40% higher energy efficiency*

Location	IHI's AIOI Works in Japan
Source Gas	Flue Gas of Coal-Fired Boiler or Propane Gas Boiler
Captured CO_2	20 ton-CO_2/d
CO_2 Capture Ratio	90%
Flue Gas Flow Rate	Max 4,000m³N/h-wet



PICA Pilot Plant ➢ *The 10,000-hour operation successfully completed*

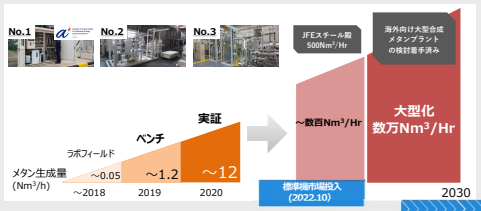
Location	Loy Yang A Power plant in Australia
Source Gas	Flue Gas of Coal-Fired Boiler
Captured CO_2	0.5 t-CO_2/d
CO_2 Capture Ratio	90%
Flue Gas Flow Rate	100 m³N/h-wet

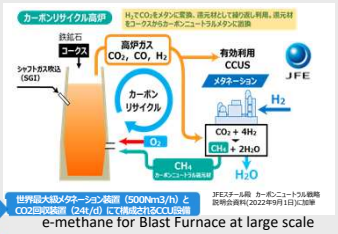
Demonstration of chemical absorption system

CO2 utilization - methanation
CO2活用技術 - メタネーション

Carbon neuralization of gaseous fuel - methanation technologies –

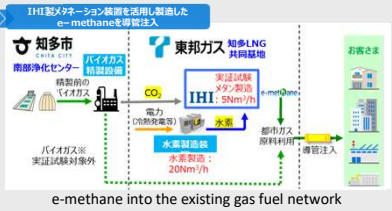
CO2と再エネ水素を用い，e-methaneを製造し，燃料（熱）のカーボンニュートラル化を目指す。





e-methane for Blast Furnace at large scale

Compact methanation system (12.5 Nm³/hr) producing fuel for methane bus in Soma city

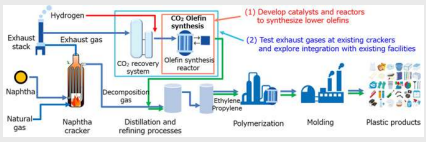


e-methane into the existing gas fuel network

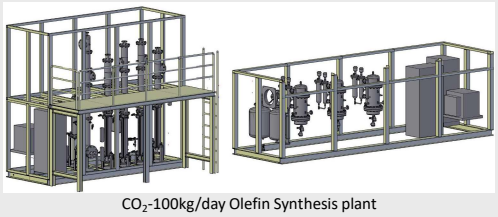
CO2 Utilization - Olefin synthesis
CO2活用技術 - オレフィン合成

IHI is now conducting proof-of-concept tests at a petrochemicals plant in Thailand (SCG Chemicals Public Company Ltd., SCGC) for sustainable lower olefin synthesis technology from CO_2 feedstock

タイSCGCの石油化学プラントで，CO_2を原料として持続可能な低級オレフィン合成技術の実証試験を実施中。



Production of sustainable plastic raw materials with carbon neutral olefins



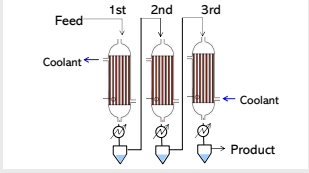
CO_2-100kg/day Olefin Synthesis plant

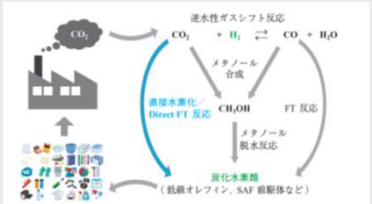
*This project（JPNP16002） is subsidized by the New Energy and Industrial Technology Development Organization (NEDO)

Directly Synthesize Sustainable Aviation Fuel
SAFの直接合成

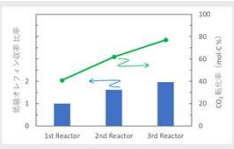
IHI is developing the direct Fischer–Tropsch process to synthesize CO_2 and H_2 into low olefins and Sustainable Aviation Fuel(SAF), which are able to decarbonize for the aviation sector.

CO2を原料とする直接Fischer-Tropschプロセスで炭化水素を合成する技術を開発中。低級オレフィン類および持続可能な航空燃料(SAF)を合成する技術によって，航空セクターのカーボンニュートラル化に貢献する。





Schematic picture of hydrocarbon synthesis from CO2 and hydrogen



The Multi-stage reactor and the performance of yield hydrocarbon using the Fe based catalyst

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