



Global Hydrogen Energy Unit (GHEU)

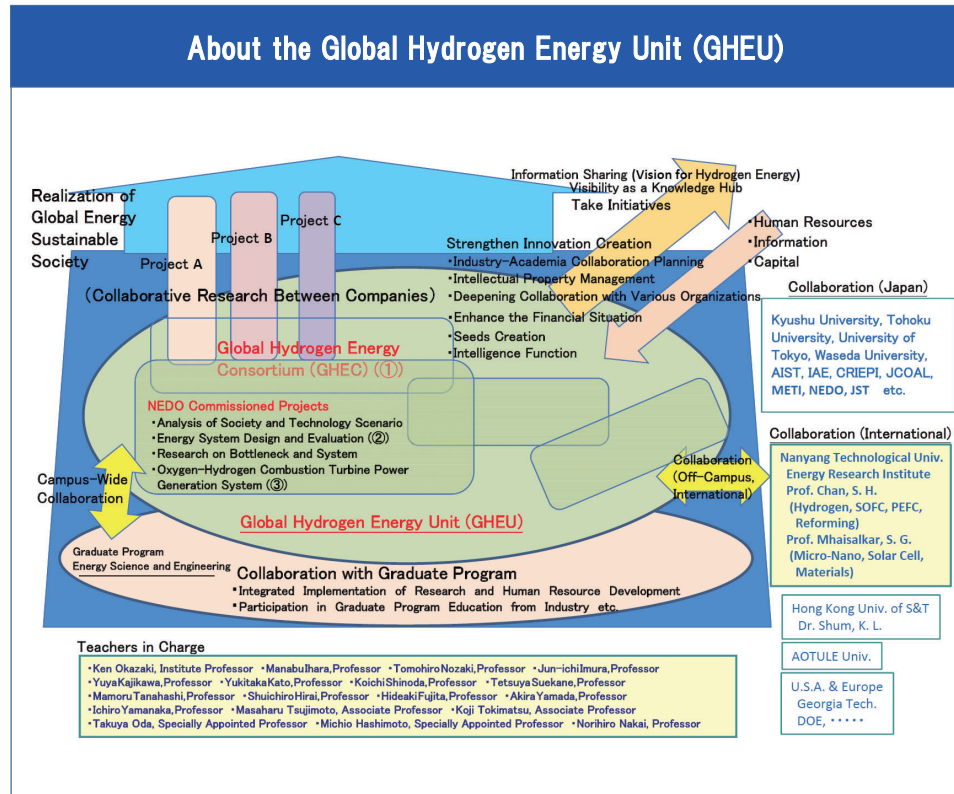
Towards a Hydrogen Society

Comprehensive Energy System Research, Establishment of Hydrogen Supply Chain, Solution for the Hydrogen Related Technology Issues

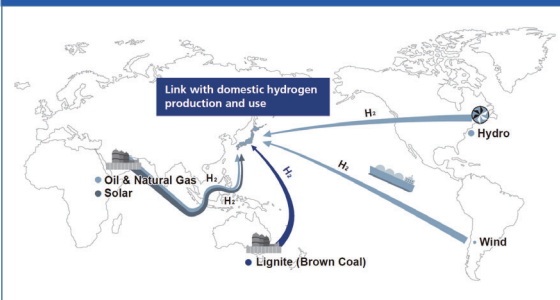
<http://www.ghe.iir.titech.ac.jp/index-e.html>

GHEU Unit Leader
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Hydrogen is a secondary energy source with high potential to contribute to the goal of realizing a low-carbon society and bringing about a change in energy structure. The goal of the GHEU is to establish a global-scale hydrogen supply chain which converts unused overseas energy to hydrogen and transports it to Japan. The GHEU conducts research on the organization of accurate and subjective information, creates new value, designs and evaluates systems, and identifies and solves technical development problems.



Global Hydrogen Supply Chain Concept



The Global Hydrogen Energy Unit promotes three projects to realize a hydrogen society.

① Global Hydrogen Energy Consortium (GHEC)

Global Hydrogen Energy Consortium

- Specialy appointed professor, Professor, Associate professor
- Specialy approved visiting professor
- Corporate member (Corporations, etc.)
- Personal member (Internal and external members)
- Cooperative member (Public institutions)

Multi-client contracted research

Company A, Company B, Company C, Company D, Company E

The Global Hydrogen Energy Consortium (abbreviated as GHEC) has been established as a platform of industrial-academic-government cooperation. With an intention to share information of participating corporations and researchers aiming at establishing a hydrogen supply chain and resolving technological problems relevant thereto, activities to realize hydrogen energy society are developed.

② Hydrogen Use System Assessment Study

General outline of "Total system introduction scenario survey research"

System analysis for full-scale introduction <ul style="list-style-type: none"> National Institute of Advanced Industrial Science and Technology Institute of Applied Energy 	Future prediction and assessment of technology based on theories <ul style="list-style-type: none"> Tokyo Institute of Technology
Technological scenario analysis based on macro analysis	Technological innovation Granting of social organizational rationality
Preparation and refinement of technological development scenario	

The GHEU promoted "Total system introduction scenario survey research" (NEDO commissioned project from 2016 to 2017) and conducted analysis and evaluation including the entire supply chain by full scale introduction of hydrogen, as well as forecasting based on academic background and analysis of social and industrial trends. By integrating these results, we presented a technology development scenario. To further develop this technological development scenario, we continue to extend the scope of this study.

③ Oxygen-Hydrogen Combustion Turbine Power Generation System

The GHEU promotes the study of hydrogen power generation as a commissioned project of NEDO to lead the research and development projects such as hydrogen utilization (since 2018). We are engaged in the research and development of a closed-cycle gas turbine system that is expected as an ultrahigh-efficiency power generation system beyond the existing open-cycle gas turbine and its implementation is expected.