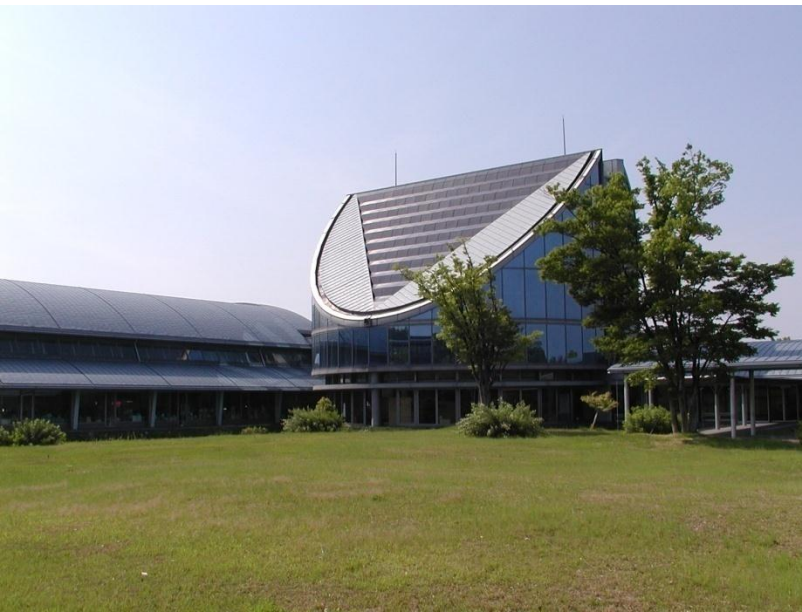


# Significance of Indonesia-Japan Collaboration for Reducing Emissions

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# Outline

- 1. Importance of CCS**
- 2. Barriers for CCS**
- 3. CCS Activities in Japan**
- 4. Importance of Indonesia-Japan CCS Cooperation**
- 5. GHGT-11**
- 6. Conclusion**

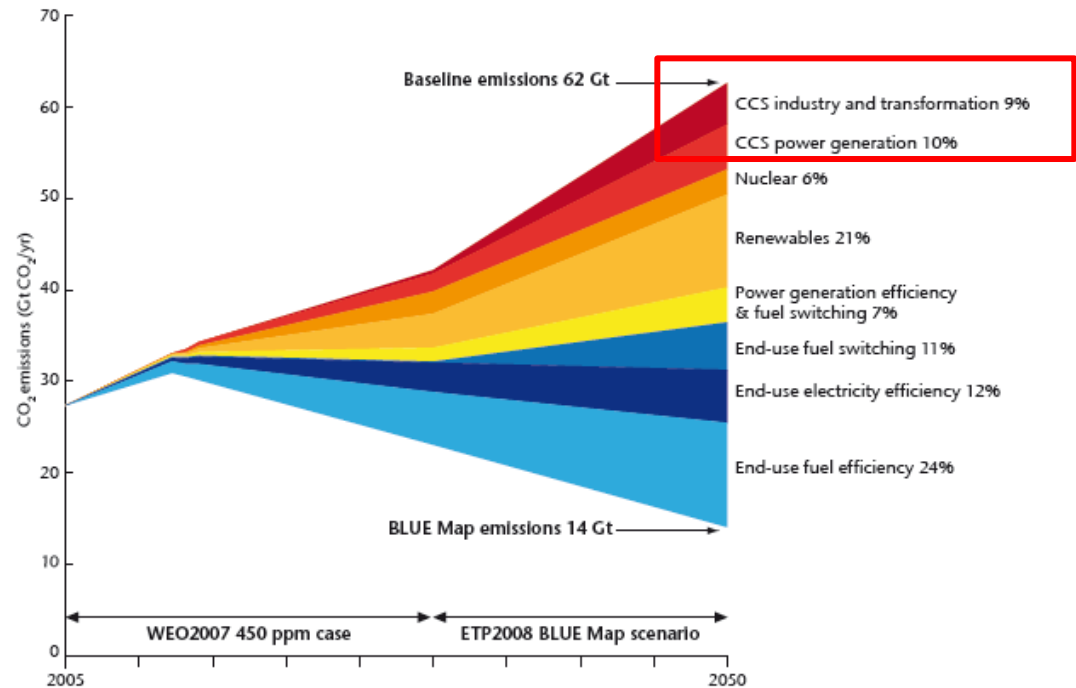
# 1. Importance of CCS

## (1) International Commitment for CCS

- CCS in the leaders declaration of G8 Hokkaido Toyako Summit (2008.7)
  - **We strongly support the launching of 20 large-scale CCS demonstration projects globally by 2010, taking into account various national circumstances, with a view to beginning broad deployment of CCS by 2020.**
  
- Communiqué of Third Carbon Sequestration Leadership Forum (CSLF) Ministerial meeting (2009.10)
  - **That the 20 industrial-scale demonstration projects by 2010 endorsed by the G8 are vital, and that more such projects could be required by 2020 both in developed and developing countries.**
  - **Co-operation and knowledge sharing on CCS needs to be increased between developed and developing countries.**

## (2) Perspective of IEA

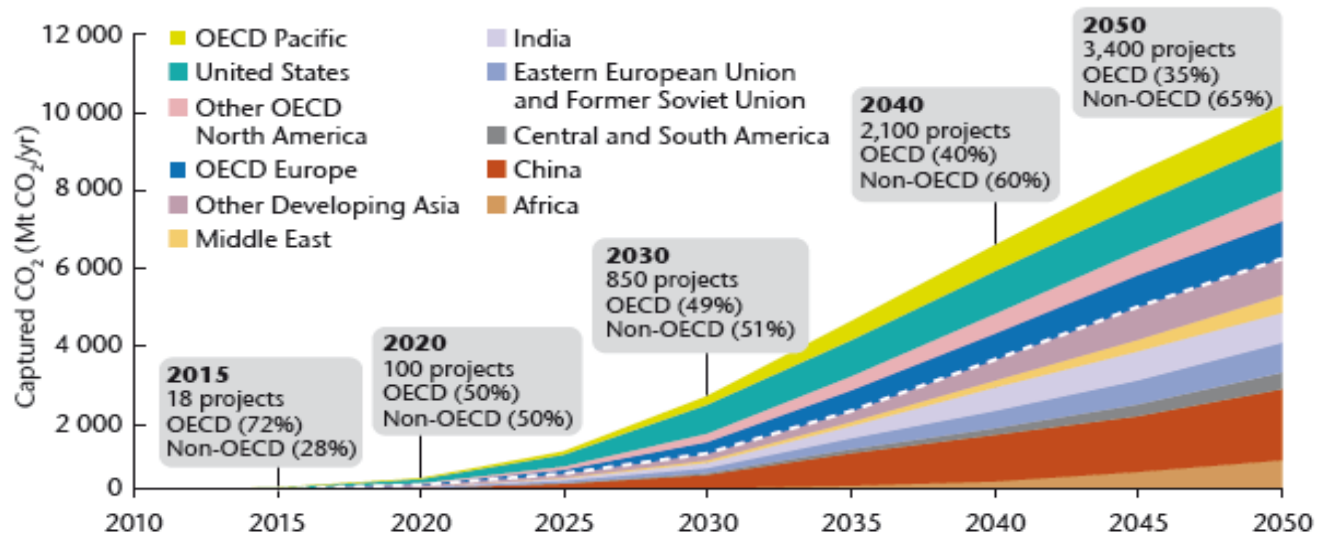
**IEA (International Energy Agency) considers that CCS delivers one-fifth of the lowest-cost GHG reduction solution in 2050**



Source: IEA, *Energy Technology Perspectives* (2008a).

IEA, *Technology Roadmap Carbon Capture and Storage* (2009)

**IEA suggests that OECD regions must lead in the demonstration phase of CCS ,but then CCS technology must be spread rapidly to the rest of the world.**



Note: The dashed line indicates separation of OECD/non-OECD groupings.

## 2. Barriers for CCS

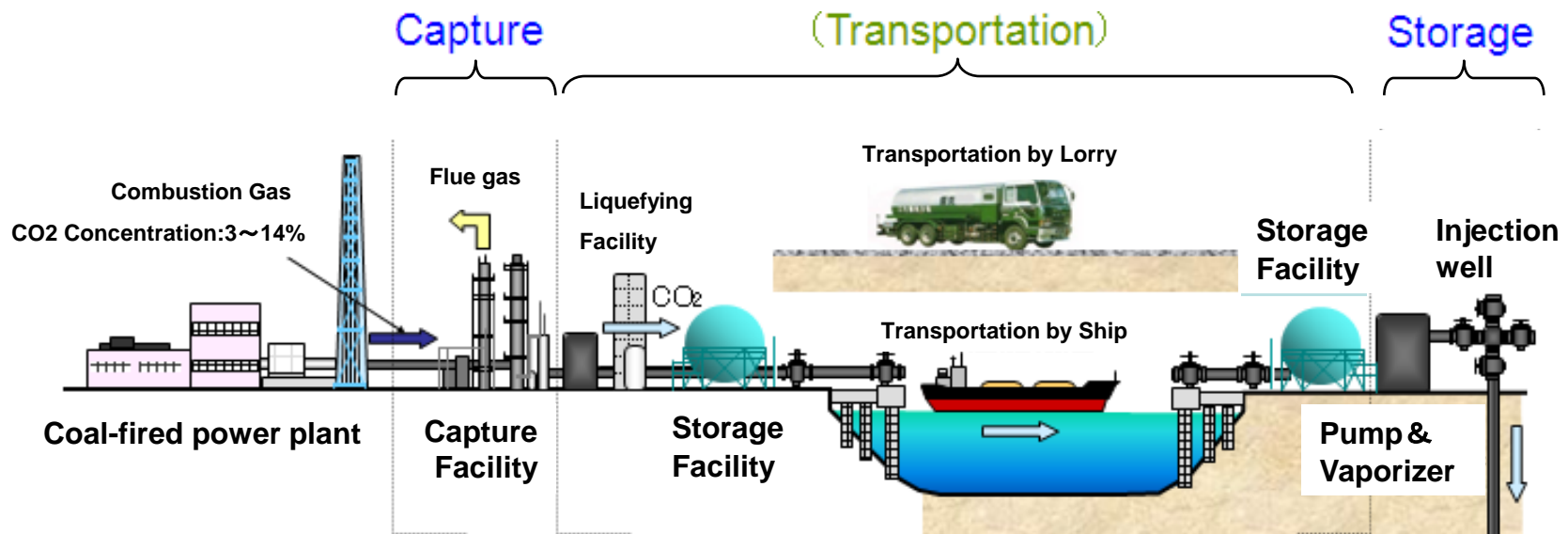
- (1) Lack of Policy Support : No Rules & Regulations**
- (2) High Cost : Financial Problem**
- (3) Public Acceptance :**
  - Lack of Public Awareness on Climate Change Issues**
  - Not in my backyard (NIMBY)**
- (4) Immaturity of Technology**

**(based upon the discussion at GHGT-10)**

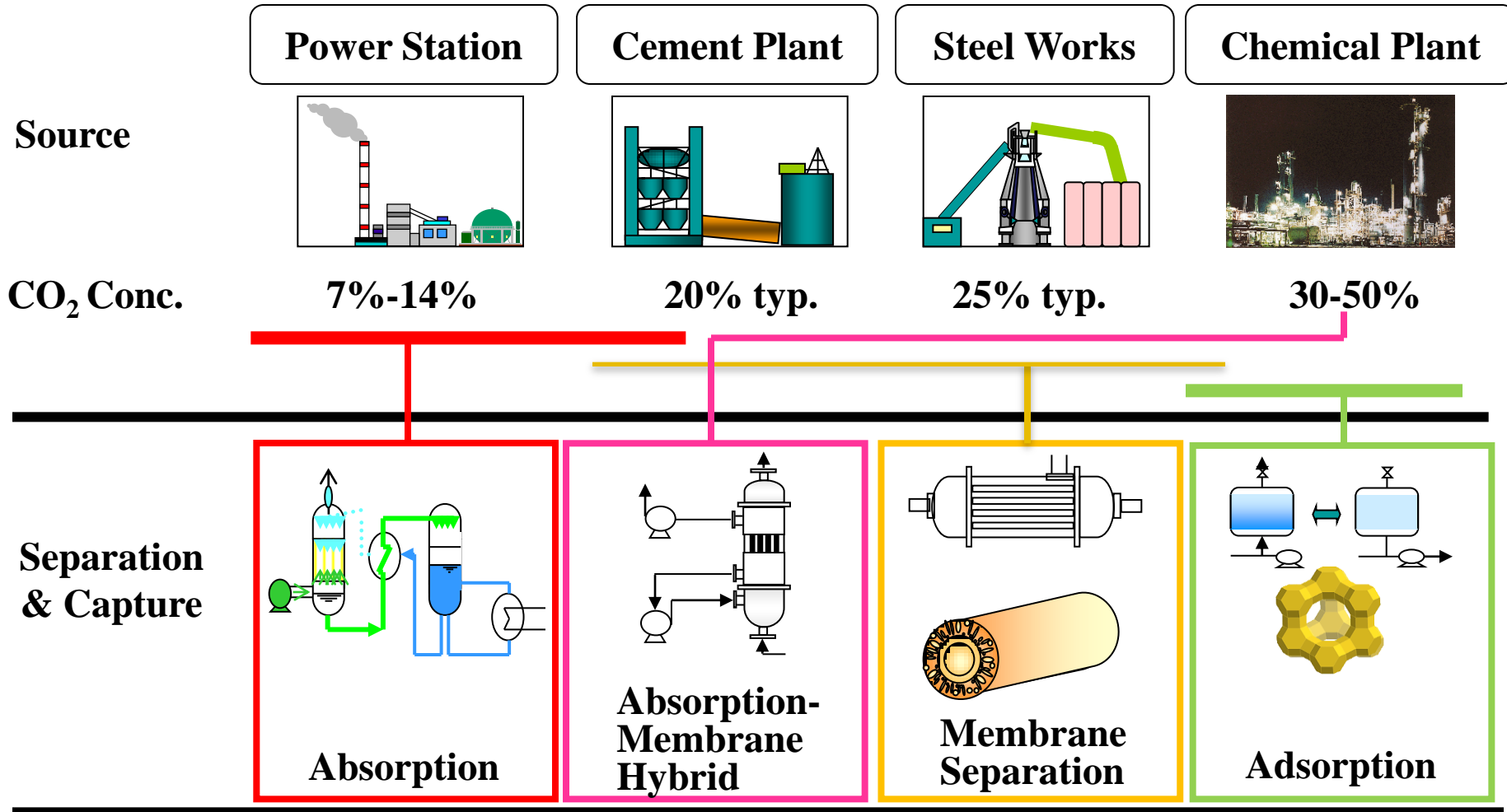
# 3. CCS Activities in Japan

## (1) RITE (Research Institute of Innovative Technology for the Earth)

- Established July 1990
- COE for research on CCS in Japan
  - CO<sub>2</sub> Separation and Capture Technologies
  - CO<sub>2</sub> Geological Storage Technologies

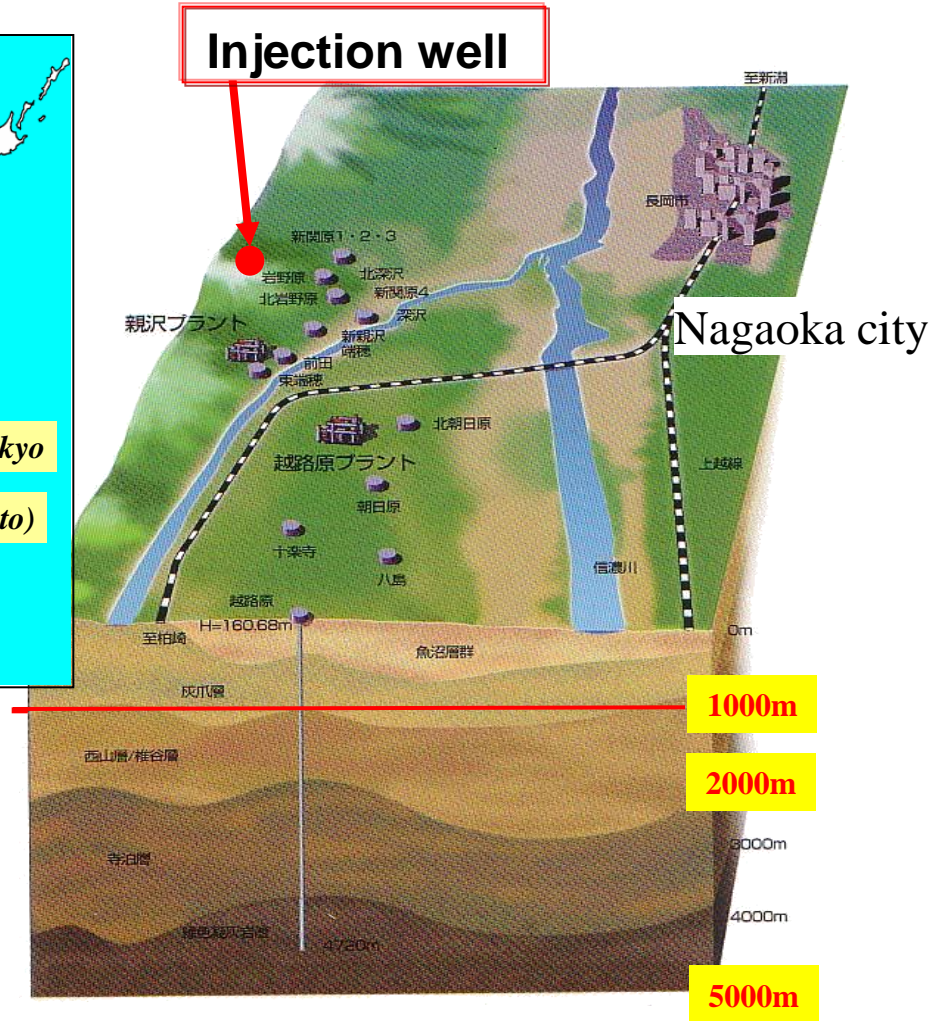
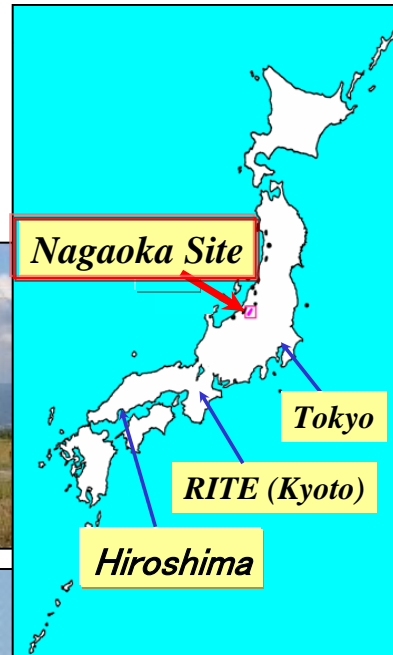


# CO<sub>2</sub> separation and capture



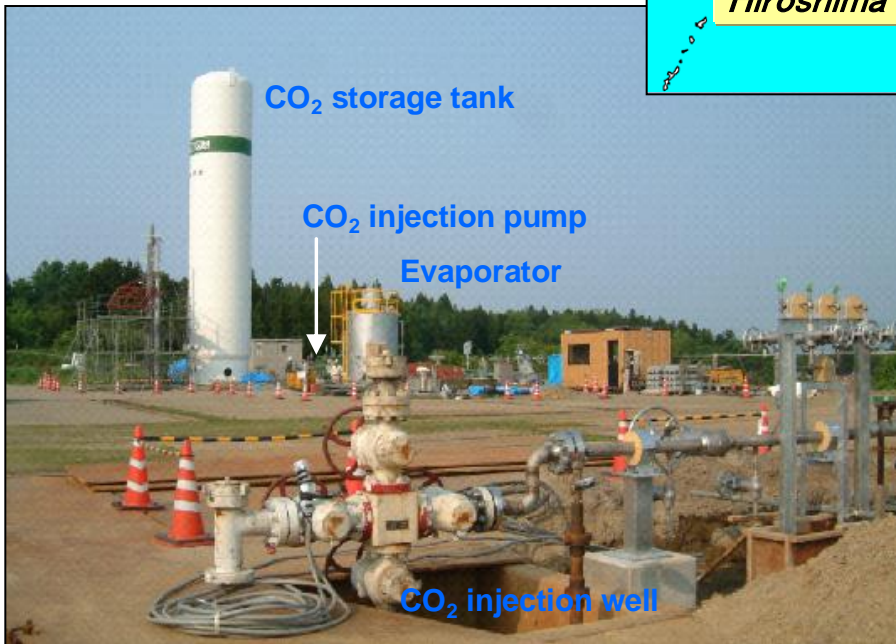


# CO<sub>2</sub> Geological Storage -Nagaoka Project-



Target depth 1100 m

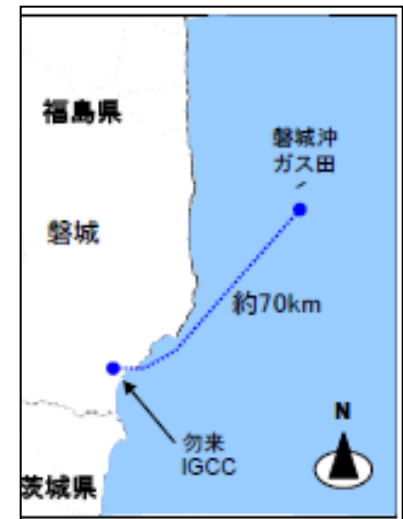
Gas production from 4500 m depth



## (2) Large-Scale Demonstration Projects

### ▪ JCCS (Japan CCS Co., Ltd.)

- Japan CCS Co., Ltd. was established by investments from power, steel and oil exploration companies etc. to realize a large-scale demonstration project in Japan. It carried out feasibility studies of large-scale demonstration projects with support from Japan's government. For now, 39 companies are listed as shareholders.
- As coal-gasification project with innovative zero-emission technologies, Japan CCS is conducting feasibility studies of the process of transporting CO<sub>2</sub> exhausted from Nakotsu IGCC plant through sea bottom pipelines to a gas-fired off Iwaki coast for storage. (see right fig.)



- 3D Tomography Survey is scheduled to be carried out off Tomakomai coast in Hokkaido, in October to November this year. (see left fig.)

# (3) Safety and Environmental Guideline for CCS Demonstration Projects (Released on Aug.7.2009)

- ① Things to be assessed for CO<sub>2</sub> storage from geological aspects
- ② Transportation Standard
- ③ Safety consideration for placing CCS-related facilities
- ④ Environmental Impact Assessment
- ⑤ Safety consideration for the drilling, completion and P&A(plugging and abandonment ) for CO<sub>2</sub> injection and storage wells
- ⑥ Safety consideration for CO<sub>2</sub> injection and operation
- ⑦ Concentration standard of CO<sub>2</sub> to be injected
- ⑧ Monitoring
- ⑨ Measures to be taken when abnormalities occur

# 4. Importance of Indonesia-Japan CCS Cooperation

(1) Discussion for CCS cooperation between the two countries on March 25.2010

## Indonesia side

- Ministry of Energy and Mineral Resources
- LEMIGAS

## Companies in CCS

- Pertamina
- PT Indonesian Power

## Academia

- Institute of Technology Bandung etc.

## Japan side

- Ministry of Economy, Trade and Industry (METI)

## Experts on CCS

- RITE (Research Institute of Innovative Technology for the Earth)
- JCCS(Japan CCS Co., Ltd.)
- JAPEX(Japan Petroleum Exploration Co., Ltd.)
- INPEX Corporation
- Mitsubishi Corporation

## Academia

- Kyoto University

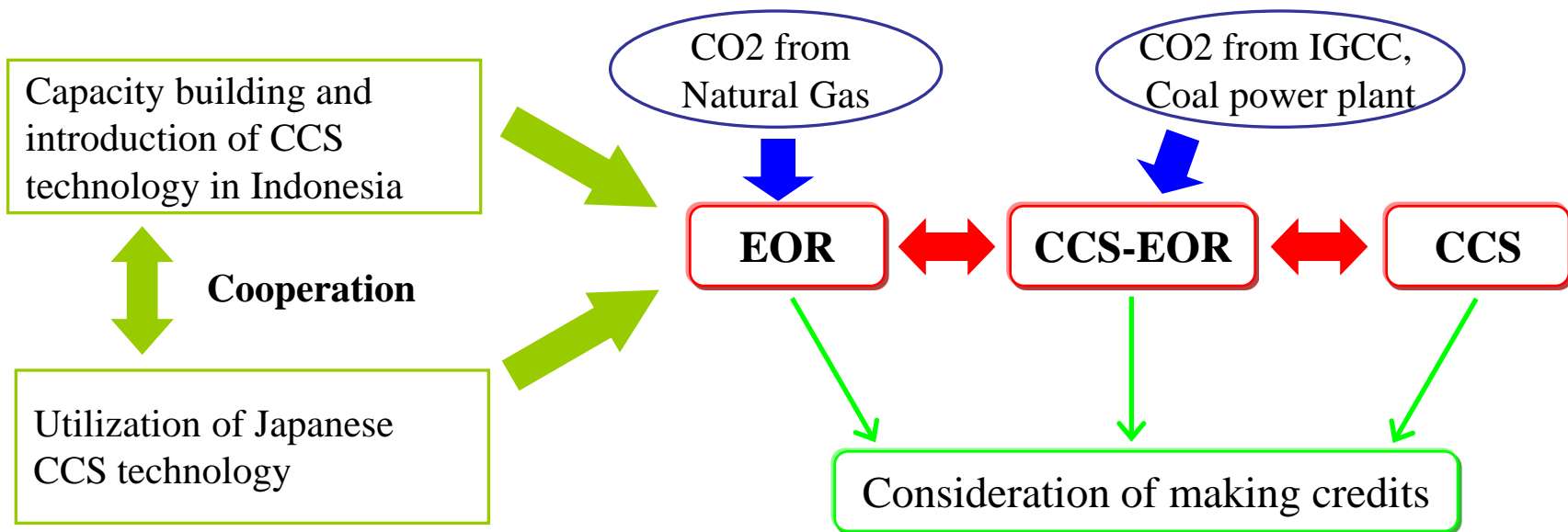
## CCS Cooperation Mission

### Objective

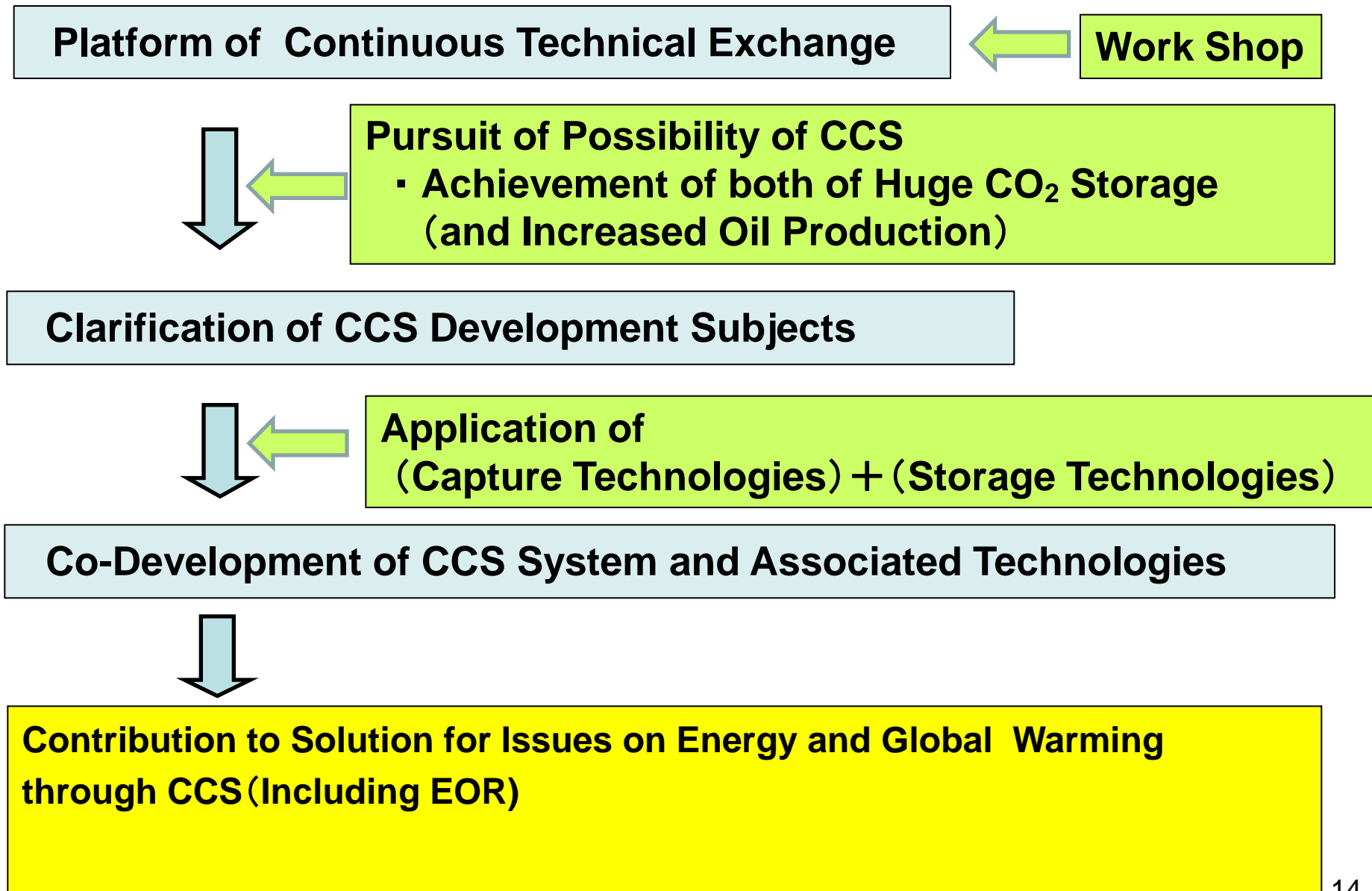
- Giving shape to the proposal of technology cooperation and Information exchange
- Identification of areas of concern

## (2) Image of Cooperation

	EOR	CCS-EOR	CCS
Topic	EOR of associated CO <sub>2</sub> in petroleum and gas fields	Utilization of CO <sub>2</sub> from IGCC, coal power plants, and so on	Demonstration of storage



### (3) Steps for Cooperation



# 5. GHGT-11



- 11<sup>th</sup> International Conference on Greenhouse Gas Control Technologies -

November 2012 - Kyoto will welcome experts in greenhouse gas control technologies from across the world!

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1. Dates : Sun. 18 – Thur. 22 November, 2012
2. Venue : Kyoto International Conference Center, Japan
3. Organizers : RITE & IEAGHG
4. Estimated Number of Attendees: 1,600



GHGT-10 : Poster session

## 5. Themes of Technical Sessions

(at GHGT-10, Sep. 2010, Amsterdam, the Netherlands)

Capture, Utilisation, Storage,  
Integrated, Demonstrations,  
Policy, Negative Emissions, Legal,  
Public Perception



GHGT-10 : Closing session



GHGT-10 : Plenary session

# Conclusion

- **CCS should play important role for GHG Reduction**
- **There are several barriers ( lack of policy support, high cost, public acceptance, immaturity of technologies)**
- **RITE has been developing CCS technologies since 1990**
- **Japan is accelerating development of CCS demonstration projects and setting the safety and environmental guideline**
- **Japan will be able to contribute to promotion of CCS ( including CCS-EOR) in Indonesia through its experience and technologies**
- **Indonesia-Japan CCS Workshop is good start for the cooperation ( Technical exchange leads to future cooperation projects)**



**Terima kasih banyak !**

**URL: <http://www.rite.or.jp/>**