



# Strategies and Challenges of Unconventional Gas Developments

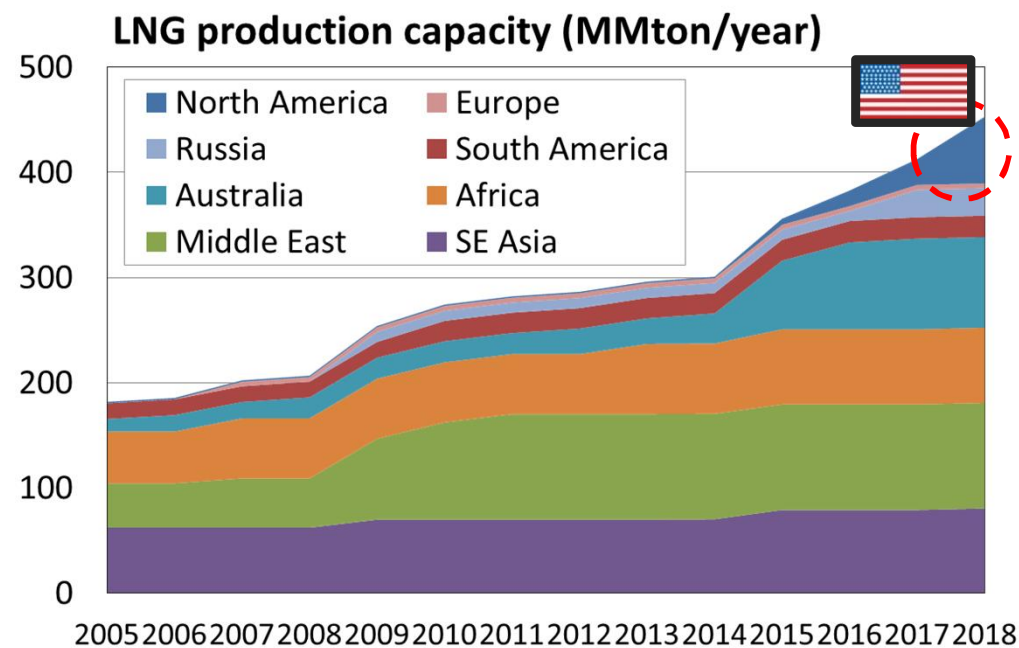
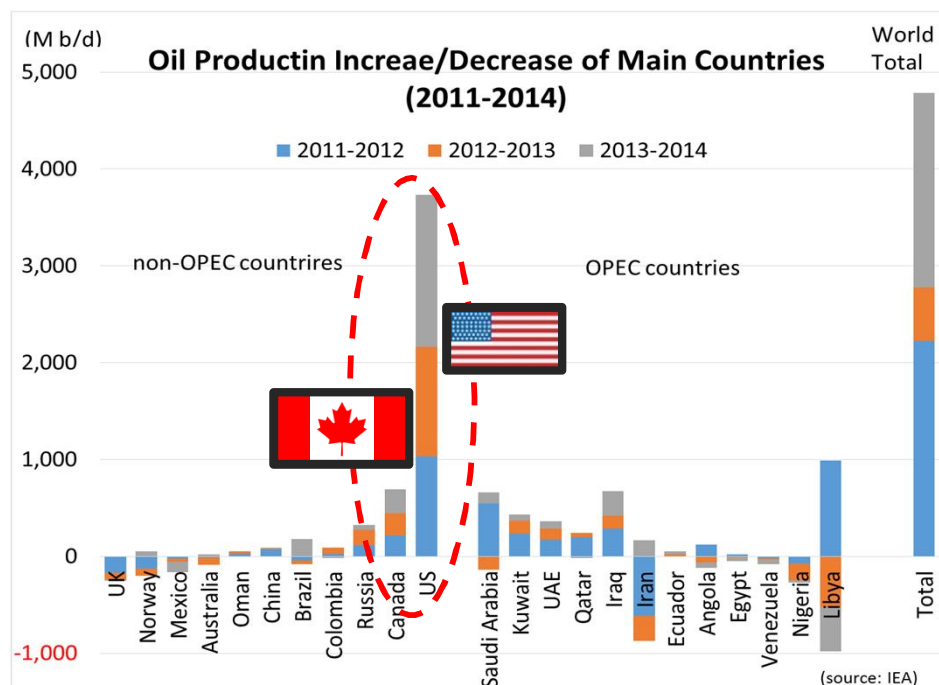
Session 5 : Unconventional Gas Development  
The LNG Producer-Consumer Conference 2015  
Tokyo, JAPAN – September 16<sup>th</sup>, 2015

Hirobumi Kawano  
President of Japan Oil, Gas and Metals National Corporation

# Shale Gas Market Trend

U.S. accounted for 80% of the world's increase in total oil production.

LNG projects under construction in the U.S. is more than 60 million tons/year, 3rd largest capacity in the world.

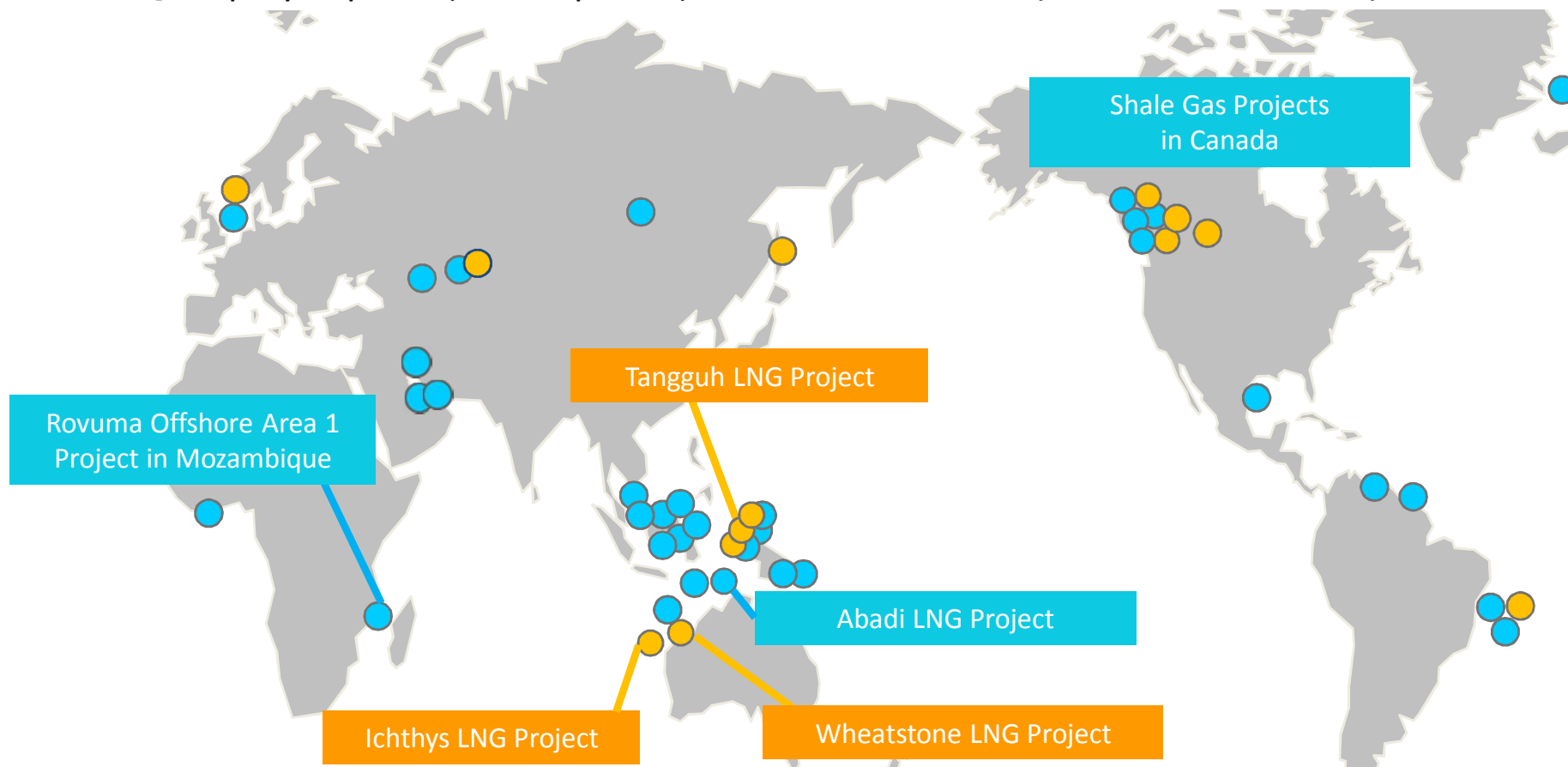


# Oil & Gas Exploration & Production Projects supported by JOGMEC



● Equity Capital (34 companies)

● Liability Guarantee (13 companies)



JOGMEC and JNOC (predecessor of JOGMEC) have

- invested in 347 project companies.
- provided liability guarantees for 74 companies.

As of the end of August, 2015

## Further efforts to develop new technologies

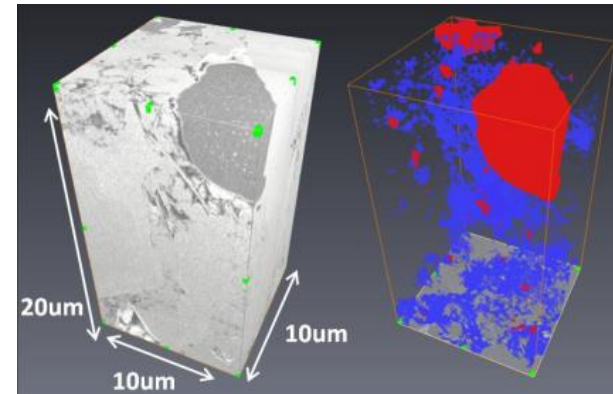
- Enhance productivity
- Reduce costs
- Optimize project development

## By...

- Petrophysical shale core analysis
- Fracture design optimization
- Sweet spot detection
- etc...

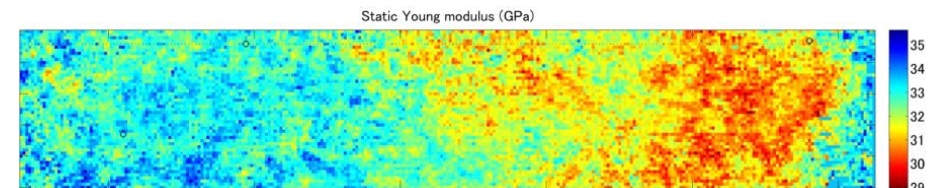
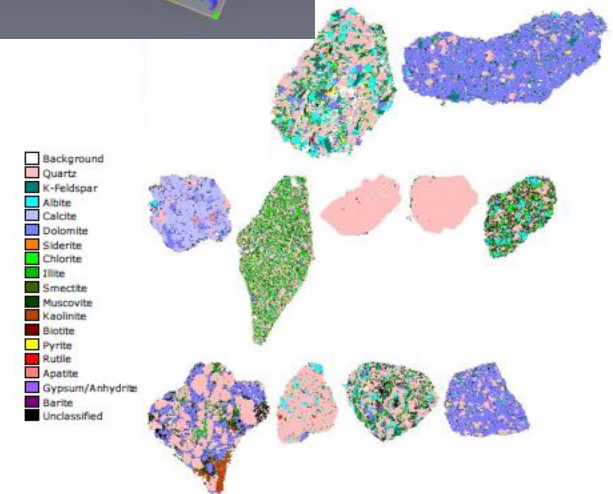
## JOGMEC is...

- Collaborating with private companies
- Enhancing cooperation with gas producing countries



3D Modeling of shale in nano scale

Mineralogy analysis for fracturing optimization



Sweet spot detection

Methane Hydrate production tests, including the world's first onshore and offshore tests, have been conducted.



2<sup>nd</sup> Onshore test, 2008, Canada



1<sup>st</sup> Offshore production test, 2013,  
The Nankai Trough Offshore Japan

Next Methane Hydrate production tests are planned.

- Offshore; Approx. 1 month flow test in the latter half of FY2016, operated by Japanese private company
- Onshore; Working with NETL on selection of test location in Alaska

The situation surrounding LNG has changed drastically.

The continuous investments and technology developments in shale gas production play a significant role for LNG market.

JOGMEC continue to invest in and cooperate with gas producing countries and private sector, striving to overcome the challenges to develop new resources.