



# THE EVOLUTION OF THE ENERGY SECURITY CONCEPT: NEW THREATS TO SUPPLY SECURITY

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# OUTLINE

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# 1. Background

- Worked for energy security policies since mid-1980s at the Japanese Government
  - ⇒ Found the '**energy security**' concept had not been well established
- Wrote a doctoral dissertation on conceptualization of energy security at Kyoto University in 2002
  - ⇒ Methodology of conceptualization of 'national security' in international relations theory
    - ✓ **Subject** (Who protect?)
    - ✓ **Value** (What kind of value(s) to be protect?)
    - ✓ **Threat** (Against what kind of threat(s)?)
    - ✓ **Tool** (By what kind of tool(s) for protection?; or How to protect?)

# 1. Background

- Formalized the energy security concept
  - ✓ Subject: A state (or states)
  - ✓ Object: Energy customers' interest by **stable supply of energy**
  - ✓ Threat: **International political/military/economic threats**
  - ✓ Tool: non-military measures
  
- In reality, energy security was understood as:
  - ✓ Main object: **Oil** customers' interest by stable supply of **oil**
  - ✓ Main threat: **Foreign states'** hostile behavior

## 2. Classical Definition of Energy Security

- Classical meaning of energy security
  - =The most important target (or at least one of the most important targets) in energy policy for most countries
- Developed countries formed the International Energy Agency (IEA) in 1974
  - ⇒ Pledge to build oil stockpiles in order to countervail oil supply restrictions by petroleum producing countries

### 3. Changes in the 21<sup>st</sup> Century

- The core meaning of energy security (=the stability of energy supply) remains unchanged
- Since the beginning of the 21st Century, **three major incidents** have changed and expanded the definition of energy security
- Historical analysis of the concept of energy security since the beginning of the 21st Century, mainly referring to policy documents

### 3. Changes in the 21<sup>st</sup> Century: (1) The September 11 attacks

#### 1. The September 11 attacks in 2001

- Violent non-state actors (VNSA) or terrorists can be threat to national security
- As an integral part of national security, energy security has also had to cope with VNSA or terrorists
- In addition to oil trade, other energy supply systems such as the electricity supply system have come to be considered a potential target for terrorist attacks
- Nuclear power stations and related facilities have become the most important targets in need of protection.

⇒ The International Atomic Energy Agency (IAEA) has integrated various protective measures under the new concept of 'nuclear security'

### 3. Changes in the 21<sup>st</sup> Century: (1) The September 11 attacks

#### 1. The September 11 attacks in 2001

- Information and communication technology (ICT) has been well developed and widely employed in energy supply systems

⇒ Cyber attacks have become a threatening tool used by terrorists

⇒ A new concept of 'cyber security' was formed and used by energy policymakers

Cf. The Group of 7 (G7) at the Kitakyushu Energy Ministerial Meeting in 2016 has warned of cyber threats to more digitized energy networks

- A new type of actor, additional high-risk energy supply systems and a new means of threatening action were added

### 3. Changes in the 21<sup>st</sup> Century: (2) The Russia-Ukraine gas dispute

#### 2. The Russia-Ukraine gas dispute during 2005-2006

- The Russia-Ukraine gas dispute caused a supply shortage of natural gas in Europe
- **Natural gas** has become another major fuel for heating and power generation
- Natural gas is very difficult to stockpile and therefore has become a major concern to energy security

Cf. IEA, *Gas Emergency Policy: Where do IEA Countries Stand?* in 2011.

Cf. APEC/EMM instructions:

APEC Oil and Gas Emergency Exercise (OGSE) in 2012

APEC Oil and Gas Emergency Initiative (OGSI) in 2014

Cf. G7 at the Kitakyushu Energy Ministerial Meeting in 2016:

Advocated for enhancing gas supply security

## 3. Changes in the 21<sup>st</sup> Century: (3) Hurricane Katrina

### 3. Hurricane Katrina in 2005

- Hurricane Katrina severely damaged crude oil production and petroleum refining capacity in the Gulf of Mexico in the United States
- U.S. DOE released its strategic petroleum reserves
- IEA called for release of members' oil stockpiling based upon the Initial Contingency Response Plan (ICRP)
  - ⇒ **Natural disasters** such as Hurricane Katrina were recognized as a threat to energy security
- Natural disaster ≠ a geopolitical risk
  - ⇒ A completely new category of threat was added

# 3. Changes in the 21<sup>st</sup> Century: (3) Hurricane Katrina

## 3. Hurricane Katrina in 2005

➤ Natural disasters continue to threaten energy security in various countries

➤ The Great East Japan Earthquake in 2011

⇒ Seriously damaged energy infrastructure in Eastern Japan (including the Fukushima Daiichi nuclear disaster)

➤ The Super Typhoon Haiyan in 2013

⇒ Hit energy infrastructure in the Philippines

Cf. APEC EMM in 2015 in the Philippines: 'energy resiliency' as one of policy targets for APEC energy cooperation.

- Focusing on physical sturdiness of energy infrastructure against natural and man-made disasters
- Energy resiliency will be developed as a subordinate concept of energy security

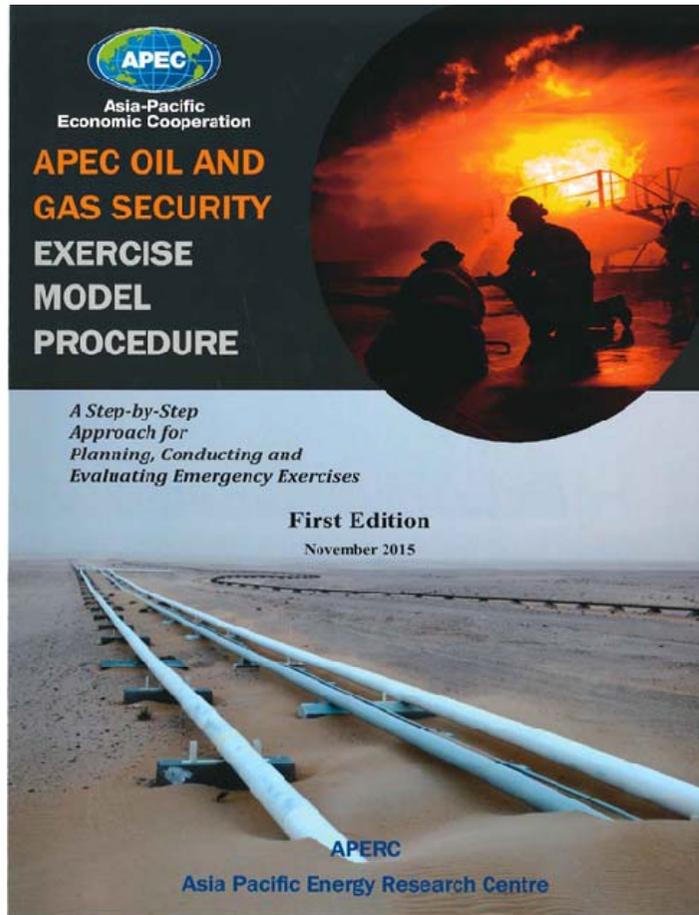
## 4. Conclusion

- Since the beginning of the 21st Century, **the concept of energy security** has expanded by the addition of **non-state actors** as a threatening actor and with the inclusion of **natural disasters, man-made disasters** and **cyber attacks** as threats
- The concept also now includes **natural gas, electricity** and **energy infrastructure** more generally as objects requiring enhanced protection
- In order to attain the current broader concept of energy security, energy experts (policymakers, business leaders and policy researchers) should familiarize themselves with newly emerging factors for energy security:
  - non-state actors,
  - natural and man-made disasters and
  - cyber attacks

## 4. Conclusion

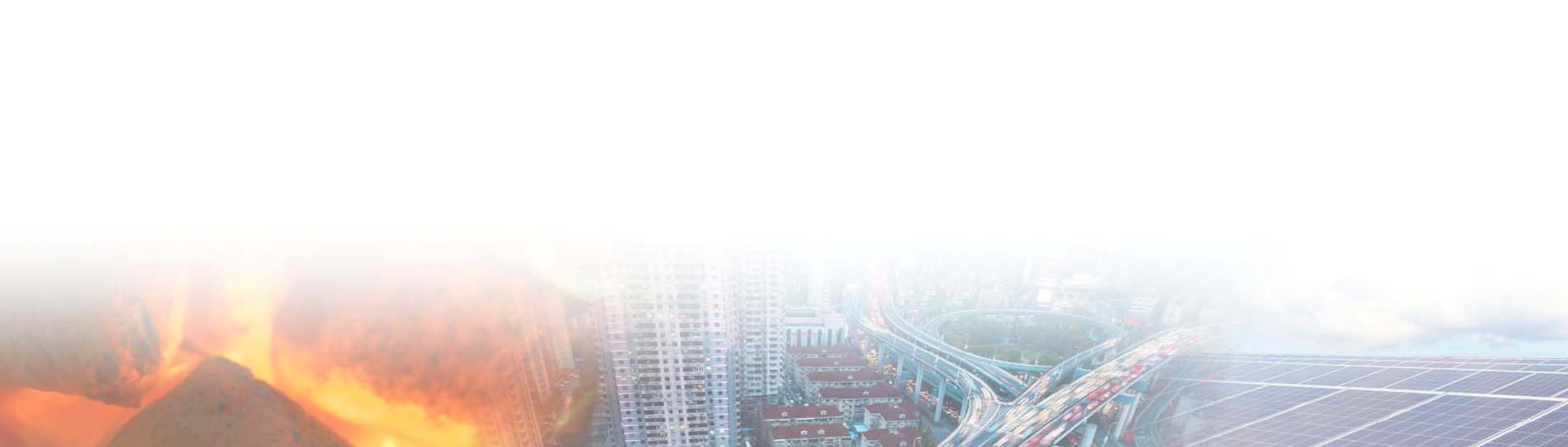
- This familiarity is necessary in order to secure the stable supply of natural gas and **electricity** as well as oil
- The related notions of '**nuclear security**', '**cyber security**' and '**energy resiliency**' should also be kept in mind
- As a part of such efforts, **APEC** has carried out emergency exercises that assumed **emergency scenarios** of
  - terrorist attacks including cyber attacks,
  - natural disasters such as earthquakes or typhoons and,
  - man-made disaster such as the collision of shipsin its **OGSE** and **OGSI** projects

# 4. Conclusion



## 5. References

- ◆ Asia-Pacific Economic Cooperation (APEC) (2012). 2012 APEC Energy Ministerial Meeting Declarations and Instructions.
- ◆ APEC (2014). 2014 APEC Energy Ministerial Meeting Declarations and Instructions.
- ◆ Asia Pacific Energy Research Centre (APERC) (2014). APEC Oil and Gas Security Exercises Final Report, pp.35-37, pp.96-97, pp.99-100, pp.102-104.
- ◆ APERC (2016). The Philippines Exercise: APEC Oil and Gas Security Exercises Final Report, pp.19-21, pp.24-26, pp.32-33.
- ◆ International Atomic Energy Agency (IAEA) (2006-). IAEA Nuclear Security Series.
- ◆ International Energy Agency (IEA) (2011). Gas Emergency Policy: Where do IEA Countries Stand?, pp.4-12.
- ◆ Irie, Kazutomo (2002) "Enerugi Anzenhosho Gainen no Kochiku ni kansuru Kenkyu (Trans: Study on the Conceptualization of Energy Security)" [in Japanese] , Enerugi Seisaku Kenkyu (Trans: Energy Policy Studies) 1(1):1-57, pp.5-9.
- ◆ Martin, W., Imai, R. and Steeg, H. (1996) Maintaining Energy Security In a Global Context, The Trilateral Commission, pp.6-22.
- ◆ Ministry of Economy, Trade and Industry, Japan (2016) G7 Kitakyushu Energy Ministerial Meeting Kitakyushu Initiative on Energy Security for Global Growth Joint Statement.



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