The 3rd APEC Oil and Gas Security Network Forum

Irkutsk, Russia, 29 June 2017

Oil and Gas Security Exercise (OGSE) in Australia

Michael Ochoada SINOCRUZ

Senior Researcher, APERC

APERC Asia Pacific Energy Research Centre

Asia-Pacific Economic Cooperation

Presentation Outline

- Oil and Gas Supply Emergency Scenario
- Emergency Response
  - Australia
  - Indonesia
  - Thailand
  - Philippines
- Recommendations from Experts

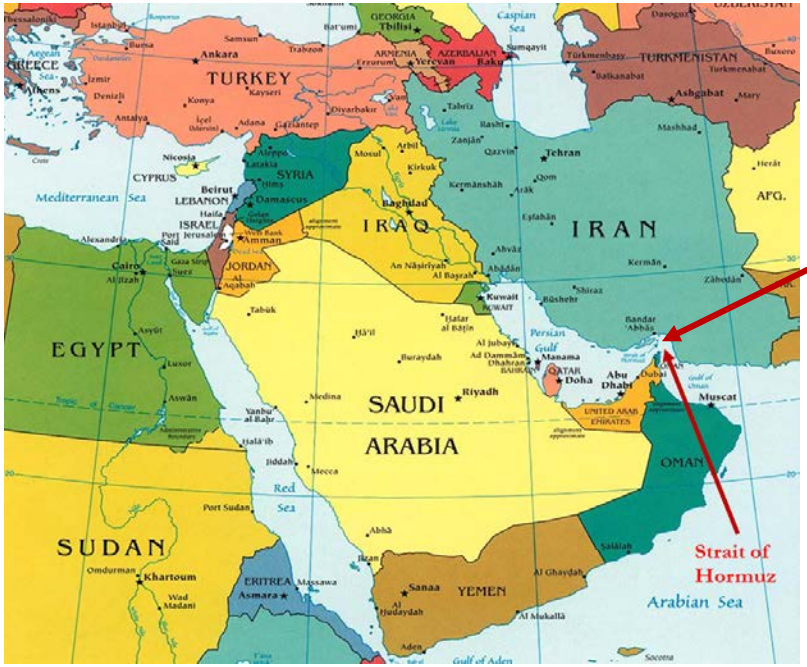
Background

- OGSE in Australia (a regional capacity building) was held in Melbourne on 29-31 March 2017 participated in by Australia, Indonesia, Philippines and Thailand.

- Seven experts were invited – IEA, ACE, ERIA, DoEE (Australia), METI (Japan), US-DOE, and IEEJ.

- For the 1st Day, presentations were made on the following:
  - Oil and Gas Global Market (Historical Overview)
  - Supply Chain Resilience in the APEC region
  - Australia's Oil and Gas Emergency Response Framework

Oil Scenario (Common Oil Emergency Situation)



Source: Perry-Castañeda Library Map Collection, University of Texas

Source: Ship Management International

The "Strait of Hormuz" has been closed due to collision of oil tankers, which prevented Middle East Crude, specifically from Saudi Arabia (KSA), United Arab Emirates (UAE), Kuwait, Qatar, Iran, and Iraq, to be transported.

Around 10 mbbl/d shortfall, equivalent to about 26% of global crude oil exports. The shortfall also triggered an increase in crude oil price by 100%, reaching around USD 100 per barrel (USD/bbl).

Impacts of Oil Scenario

- Australia: supply shortfall equivalent to 22% of domestic demand.
- Indonesia: equivalent to 20% of domestic demand.
- Philippines: equivalent to 44% of domestic demand.
- Thailand: equivalent to 26% of domestic demand.

Gas Scenario

Separate gas emergency situations for each economy:

- Australia: the operations of gas producing fields were stopped by an earthquake to examine the extent of the damage in gas wells and pipelines.
- Indonesia: a computer virus paralyzed the whole gas production system.
- Philippines: A fire broke out in the control room of the platform, which eventually paralyzed the whole operation.
- Thailand: an unexpected mechanical failure happened in the gas pipeline from Myanmar.

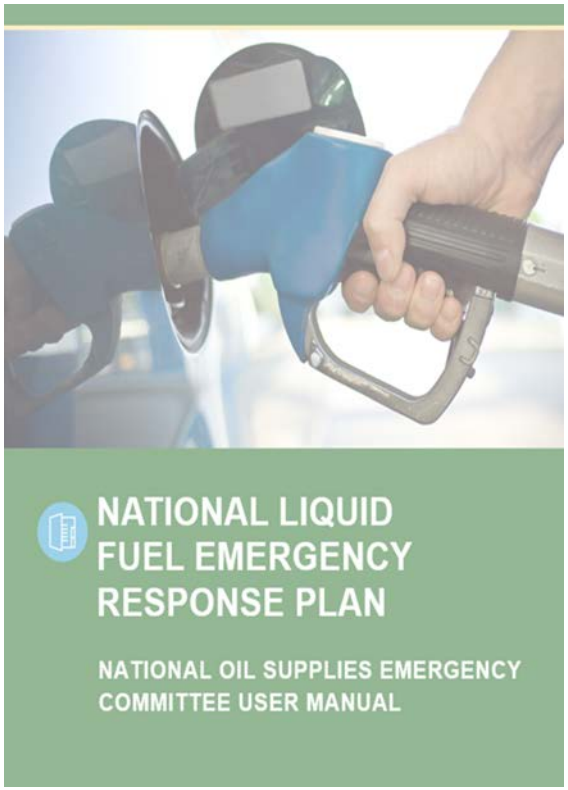
Impact of Gas Scenario

Separate gas emergency situations for each economy:

- Australia: a cut of 9.7 billion cubic meter (bcm) in domestic gas production (or about 15%).
- Indonesia: a shortfall in domestic gas production (equivalent to 42.6 Bcm)
- Philippines: lost of 24% in total power generation
- Thailand: supply shortfall of around 9.4 bcm, equivalent to 18% of domestic gas demand.

Australia's Oil Emergency Responses

- Initially, allow a market response to play out and the industry to manage the supply chain, which may involve the diversion of shipments of petroleum products.
- Convene the National Oil Supplies Emergency Committee (NOSEC) to assess likely impact of the disruption.
- Implement Liquid Fuel Emergency Act (1984) and the National Liquid Fuel Emergency Response Plan (NLFERP), which contains the the National Oil Emergency Demand Restraint Strategy (NOEDRS).
- Call for IEA Collective Action (purchase oil tickets.



Australia's Gas Emergency Responses

- States and territories are responsible for responding to gas emergencies in their own jurisdictions.
- Convene the National Gas Emergency Response Advisory Committee (NGERAC)
  - Provide coordinated and efficient management of multi-jurisdictional natural gas supply shortages
- Use the line pack (Tasmanian Gas Pipeline), equivalent to 5 days.
- Conduct assessment/modelling by the Australian Energy Market Operator (AEMO) on the available gas supplies from other areas (such as Moomba and QLD).
- Approve gas supply sharing from other jurisdictions.
- Use emergency power to ration gas supply.

State and Territory Level

- Jurisdictional legislation – Each State and Territory Government will respond in the first instance to an emergency within their boundaries

National Level

- Liquid Fuel Emergency Act (1984)
- Intergovernmental Agreement (2006)
- National Oil Supplies Emergency Committee (NOSEC)
- National Liquid Fuel Emergency Response Plan (NLFERP)

MEMORANDUM OF UNDERSTANDING

IN RELATION TO THE

NATIONAL GAS EMERGENCY RESPONSE PROTOCOL, INCLUDING USE OF EMERGENCY POWERS

Date: 4 November 2016

Parties: **The Commonwealth of Australia** ("Commonwealth")
The State of New South Wales ("New South Wales")
The State of Victoria ("Victoria")
The State of Queensland ("Queensland")
The State of Western Australia ("Western Australia")
The State of South Australia ("South Australia")
The State of Tasmania ("Tasmania")
The Northern Territory of Australia ("Northern Territory")
The Australian Capital Territory ("Australian Capital Territory")

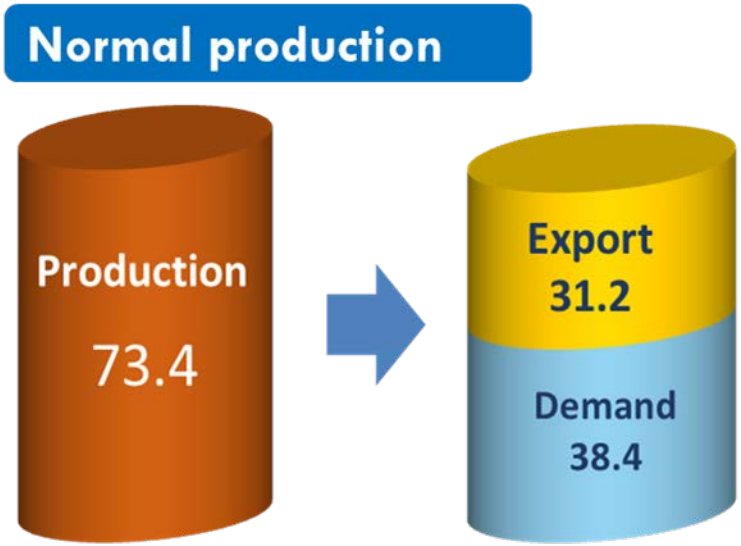
Indonesia's Oil Emergency Responses

- Convene the National Energy Council (NEC) to asses the severity of impact, and if necessary, propose the declaration of national energy crisis.
- Advise Governors and Local Governors to shorten the process of securing permit, procurement, and land clearing for implementation of emergency measures.

- Release of energy supply buffer reserves (operational stocks), increase imports and reduce exports (first right to buy).
- Source additional supply from state-owned (Pertamina) abroad with a total production of 87 kbbl/d - Algeria (60%), Iraq (30%) and Malaysia (10%).
- Implement demand restraint.

Indonesia's Gas Emergency Responses

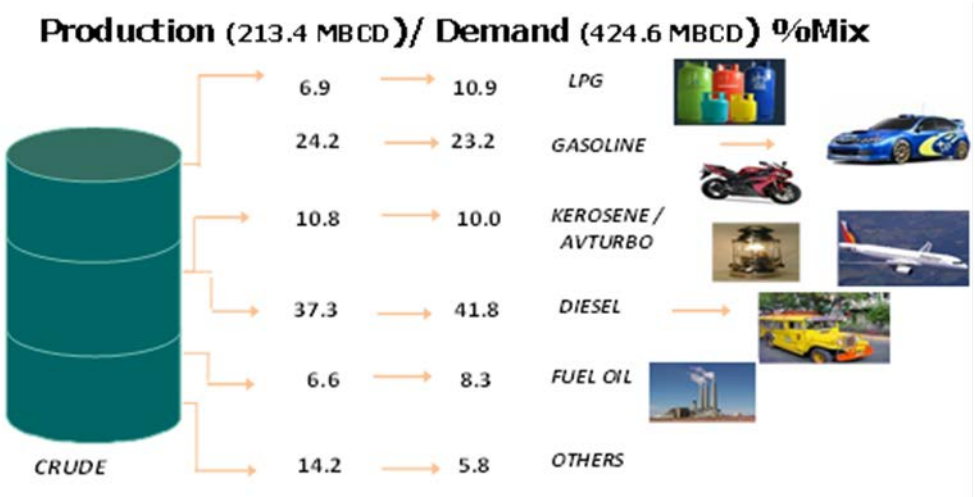
- Use line pack stock at gas transmission system equivalent to 1-2 days consumption
- Increase imports of LPG and LNG. Currently, Indonesia has regasification unit and landed storage tank in Arun with a capacity of 500,000 m^3 and a regasification capability up to 405 MMSCFD.
  - Utilize the FSRU to receive imports



- Maximize power generation from coal and hydro to offset the lost from natural gas-fired power plants.
- Prioritize gas to nobel industry

Philippines' Oil Emergency Responses

- Coordinate with the oil industry players to determine if they will be able to maintain healthy levels of inventories.
- Propose reduction of minimum inventory requirement held by oil companies.



- Advise oil companies to look for other supply sources and to increase their oil imports, if possible.
- Streamline oil import processing and documentation.
- Activate the Oil Contingency Plan (2002), specifically on rationing.
- Implement austerity measures in the use of oil products.

Philippines' Gas Emergency Responses

- Conduct inventory through National Grid Corporation of the Philippines (NGCP) by requiring all power plants to submit its respective capacity commitment to determine the dependable capacity profile.
- Switch to alternate fuels for gas-fired power plants.
- Increase plant generation from coal, geothermal and hydro
- kick off the importation of LNG to the country. The fastest source of LNG readily available will come from Malaysia, Australia and/or Russia.
- Implement demand restraint measures and energy conservation.

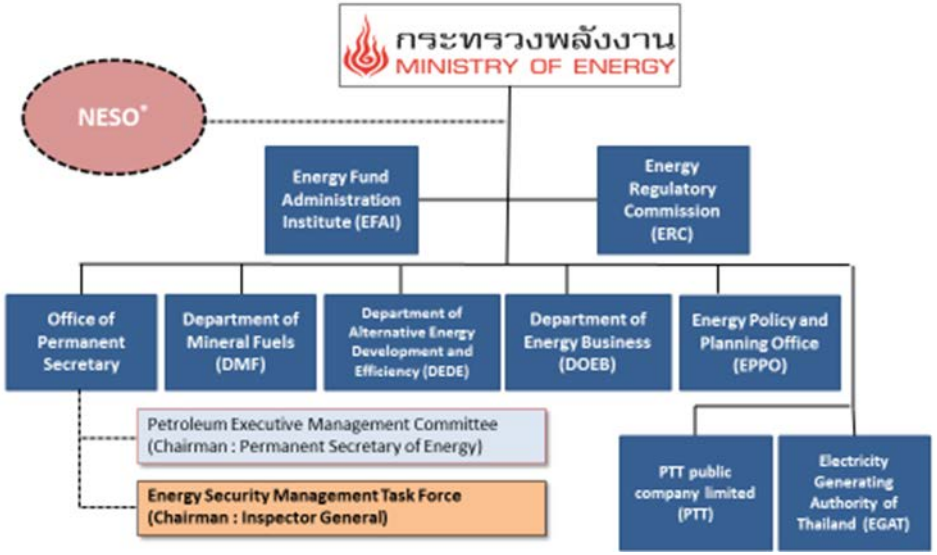
560 MW San Lorenzo
First Gen/ IPP

1,000 MW Sta. Rita
First Gen/ IPP

1,200 MW Ilijan Power Plant
NPC IPP(KEPCO)

Thailand's Oil Emergency Responses

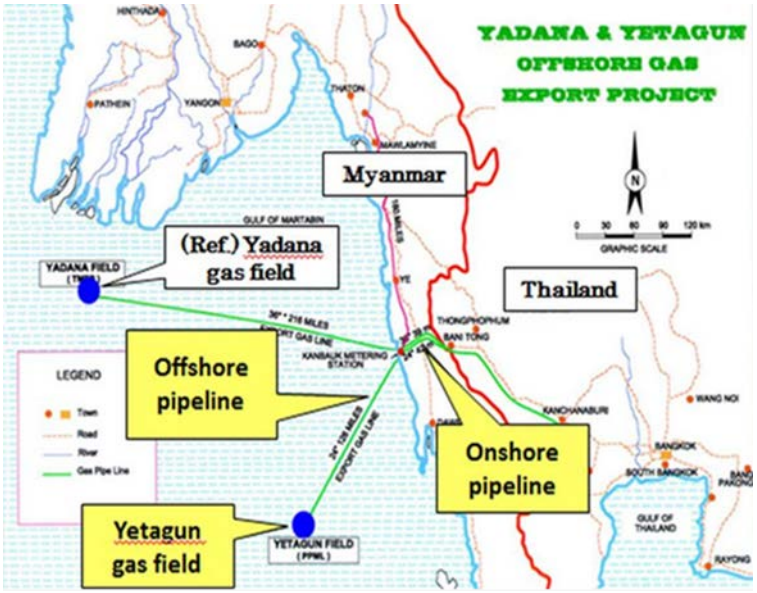
- Set up the National Emergency Strategy Organization (NESO) by the Ministry of Energy (MOEN) to manage energy emergency situation.



- Release oil stock (33 days).
- Implement pricing mechanism (via Oil Fund) to address the increase in oil price.
- Reduce export volume and thus making the refineries to run at minimum capacity.
- Allocate oil use and implement energy saving measures.

Thailand's Gas Emergency Responses

- Switch fuels to fuel oil and gas. Most power plants in the West of Thailand maintain their own oil stocks, equivalent to 14 days. Oil delivery to power plants in the West is approximately 1 million litres per day.
- Use of line pack, equivalent to 9-12 days.



Source: offshoreenergytoday.com

- Increase LNG imports from other sources in from Malaysia, Indonesia, Australia or from traders.
- Implement demand Side Management, particularly in electricity will be applied: power saving in household and industries or load shedding.

Experts' Recommendations

- Securing supplies from unaffected countries might not be so easy, given the magnitude of the disruption (oil).
- Some economies consider sourcing additional gas imports (LNG cargoes). However, domestic gas markets are not well integrated into the international gas market and sourcing spot cargos is difficult.
- Use of the "Oil Fund" to partially subsidize prices could become a costly policy, should the disruption last a long time. Any attempts to cap prices below market levels would likely divert needed supplies elsewhere.
- From an economic point, market pricing, taxation and the abolition of subsidies might be good starting points to asses demand elasticity and economic and financial cost of an emergency.

Experts' Recommendations

- In implementing supply side measures, economies must have full knowledge of the entire supply (both regional and domestic), such as domestic supply capacity "surging production", and other supply chain procedures.
- Use of line pack in a natural gas emergency has a positive, but limited, impact.
- Any fuel switching away from gas needs to consider the impact on emissions and should consider if any waivers are needed from a legal standpoint.
- Preparing comprehensive communication strategies is advisable for all economies. Economies should consider communicating with the public and industry players when implementing response measures.

Experts' Recommendations

- Regional cooperation is critical in a global event. If one economy acts in opposition of a regional partner, it could lead to a worse situation.
- Each economy needs to assess the accurately the impact of supply disruption (very sever, sever case, or less severe case).
- Top priorities of the governments in considering responses to emergency situation should have clear rationale for the choices/rankings.
- Governments need to consider the unintended consequences of actions they are considering.
- Indonesia, Philippines and Thailand undertake studies on maritime oil supply routes and shipping arrangements during a liquid fuel emergency.

Thank you for your kind attention

http://aperc.ieej.or.jp/
michael.sinocruz@aperc.ieej.or.jp

APERC
Asia Pacific Energy Research Centre