APEC Expert Group on Clean Fossil Energy (EGCFE)
Oil and Gas Meeting

Oil and Gas Security Exercise in Peru

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APERC
Asia Pacific Energy Research Centre

APEC
Asia-Pacific
Economic Cooperation

APEC Oil and Gas Security Exercises (OGSE)

- The APEC OGSEs are being implemented in response to the 10th APEC Energy Ministers Meeting Declaration in Saint Petersburg, Russia on 24-25 June 2012.

- The Saint Petersburg Declaration:

  "We encourage EWG and APERC to work in collaboration with the International Energy Agency (IEA) and the Association of Southeast Asian Nations (ASEAN) on activities to improve the response to oil and gas emergency situation in the APEC region, including emergency response workshop and exercises".

- Main objectives of "the APEC Oil and Gas Security Exercises":
  - To investigate the domestic systems for the emergency preparedness in each APEC economy.
  - To develop possible scenarios of oil and gas emergency situation.
  - To accumulate the necessary information and analysis by mobilizing capable experts in the APEC region

About previous APEC OGSE

APERC has held five oil and gas security exercises (OGSE):

1- In 2013, the Joint Southeast Asian Exercise in Bangkok, Thailand.

2- The Indonesian Exercise was held also in 2013.

3- The Philippines hosted the 3rd OGSE and the first under the OGSI in December 2015.

4- Finally, on March 2017, Australia was host to the 4th OGSE, which was a regional capacity building with participation of other APEC economies – Indonesia, the Philippines and Thailand.

In November 2015, APERC officially launched the Oil and Gas Security Initiative (OGSI) expanding the program related to supply security consisting of three pillars, one of which is the OGSE.

APEC Oil and Gas Security Initiative (OGSI)

- Further to the OGSE efforts, APERC implements the Oil and Gas Security Initiative (OGSI), which was officially launched in November 2015 where OGSE is one of its pillars.
- The OGSI is a response to the Energy Ministerial Mandate adopted during the Beijing APEC Energy Ministerial Meeting in September 2014.
- The OGSI consists of three overarching activities, namely:

1. Voluntary Implementation of OGSE by APEC economies through establishing Oil and Gas Security Exercise Model Procedure (EMP), upon the request of each economy.
2. Establishing the APEC Oil and Gas Security Network (OGSN) by sharing information through an official maling list and conducting a yearly OGSN Forum once, in order to share information and exchange views on energy security and its challenges.
3. Publish Oil and Gas Security Studies (OGSS) by researching on issues related to oil and gas security and publish one or two reports per year as part of an oil and gas security studies series.

5th OGSE, two 'blind' type scenarios

- November 6-8, 2017 in Lima, Peru.
- The OGSE in Peru was a 'blind' type exercise.
- Participants are briefed about hypothetical supply disruptions without prior notice.
- The goal is to make a realistic approach to a possible emergency response with limited time and information.

	Venue	Main Theme	Presentations
Monday 6 November	Novotel Lima	• Presentation. • Peru's energy policy. • Oil Emergency Scenario.	• Presentation on APEC EMP. • Peru's energy planning framework.
Tuesday 7 November	Novotel Lima	• Gas Emergency Scenario. • Experts' comments and suggestions	• Experts presentation.
Wednesday 8 November	Peru LNG Melchorita Liquefaction Plant	• Briefing of LNG sector in Peru. • Site visit.	

OIL AND GAS SECURITY EXERCISE IN PERU

Expert Team

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   Lead Energy Specialist
   Inter-American Development Bank (IADB)
2. ***Ms. Martha Vides Lozano***
   Senior Hydrocarbons Specialist,
   Latin American Energy Organization (OLADE)
3. ***Dr. Phoumin Han***
   Energy Economist
   Economic Research Institute for ASEAN and East Asia (ERIA)
4. ***Mr. John Powell***
   Director, Office of Liquid Fuels Analysis,
   U.S. Department of Energy
5. ***Mr. Pedro Gamio***
   Professor and Researcher,
   Institute for the Science of Nature, Territory and Renewable Energies (INTE - PUCP)
6. ***Mr. Hiroaki Maruyama***
   Project Director,
   Japan Oil, Gas and Metals National Corporation (JOGMEC)

The first scenario: Oil supply disruption.

Map source: Google Map

- Peru's central coast region, where Lima is located, was hit by an **8.8 magnitude earthquake**. The earthquake was followed by a **tsunami**.
- The La Pampilla refinery, located in the port of Callao, has **completely stopped operations** due to damages caused by both, the earthquake and the tsunami.
- With a capacity of 102 000 b/d (half of Peru's capacity). out of operation, the main impact will be in the central coast region where **around 40% of the gasoline and 30% of the diesel** demand is produced.
- Distillation Units 1 and 2 were heavily damaged, resulting in a **total loss of production of fuel products and around 50% of stock products**.
- The repair of the damaged **Distillation Units 1 and 2 facilities is expected to take at least 2 months** and **at least 3 weeks for Distillation Unit 3**.

Oil emergency scenario participant's responses

- Importing extraordinary oil products cargoes by ship;
- Using production from the Talara refinery;
- Clearing major highways and roads, as they need to be used to transport oil products from other refineries or terminals;
- Rationing demand and cancelling non-essential activities – such as school and university classes;
- Clearing the highways if damaged, specially important for transporting oil products;
- Assess the integrity of the affected refinery as well as other refineries;
- Reviewing basic services first, such as hospitals and food distribution;
- Rationalising demand;
- Using the contingency fund, in order to buy oil products;

The second scenario: Gas supply disruption.

- Strong rains caused a massive landslide, also known as “huaico”.
- This landslide **fractured** the **Camisea gas pipeline**, which transports **more than 90% of Peru’s natural gas** coming from the Camisea field.
- All natural gas flows **completely stopped**. The repair team cannot reach the damaged area due to safety concerns as heavy rains are still happening.
- Repairing of the pipeline and the normalisation of the natural gas flows will take, **at least, 3 weeks**, depending on the extent of the damage.
- Unavailability of the gas pipelines implications:

1. Around **50% of power generation** capacity off. Even by turning on oil-fueled power plants, blackouts are expected.
2. **Industrial and residential** natural gas users will face, at least partial, shortages of natural gas.
3. All **LNG export** cargoes, suspended.

Gas emergency scenario participant's responses

- The government should clarify in detail the infrastructure that was damaged during the disaster.
- Assuring there were no other fractures or leaks in the pipeline;
- Maximising hydropower generation;
- Dispatching as much as possible power plants fuelled by oil and coal;
- Importing as much electricity as possible from Ecuador;
- Rationalising power demand with the exception of vital facilities;
- Suspending all LNG export cargoes;
- Using gas available in the LNG exports plant facility;
- Maximising the use of LPG as a substitute fuel.

PHOTOS

Expert Review Team preliminary findings

- The team recommended establishing a robust database with:
  - power generation installed capacity, reserve margin, main supply routes,
  - energy demand estimates of essential services,
  - stocks levels on a real-time basis as well as collecting data on oil and gas demand,
  - crude production,
  - crude oil and product import volumes,
  - refined volumes for each refinery, sales, and pipelines, ports and land tankers capacity.
- The team also recommended setting up a task force to develop an emergency operation and determining entities that will be responsible for:
  - co-ordinating information;
  - communicating with the public;
  - analysing and determining the extent of the emergency;
  - providing overall coordination of emergency relief efforts;
  - mandating restrictive policies;
  - and soliciting international support.

Conclusion

- Despite having an Energy Security Law and some policies, **long-term planning approach s**eem new to Peru.
- Participants emphasised that Peru has been focusing on supply security, mainly, if not exclusively, by i**nfrastructure** development.
- Peru relies heavily on both crude oil and product imports. Most of their **infrastructure concentrated in coastal** areas vulnerable to earthquakes, tsunamis and floods.
- More than 95% of total gas production comes from the **Camisea** field.
- Almost all of this gas is transported by a **single pipeline** and is used to generate around **60% of Peru's electricity**.
- Safe to argue that the Peruvian oil and gas sector are **severely exposed** to supply disruptions, especially natural disasters.
- It seemed that Peruvian authorities did not have very clear **management** procedures, **communication strategies** and **responsibility** distribution.
- While disaster preparedness plans and actions involve considerable **investments**, recovery and emergency costs **without preparedness** are not only costlier but could also be catastrophic.

Thank you for you attention.

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