

2-1. APERC Oil and Gas Security Exercise (OGSE) in Thailand

EGEEEC62 and EGCFF2024 Joint Meeting
23 May 2024 – Nanjing, China

Ms. Elvira Torres Gelindon, Research Fellow



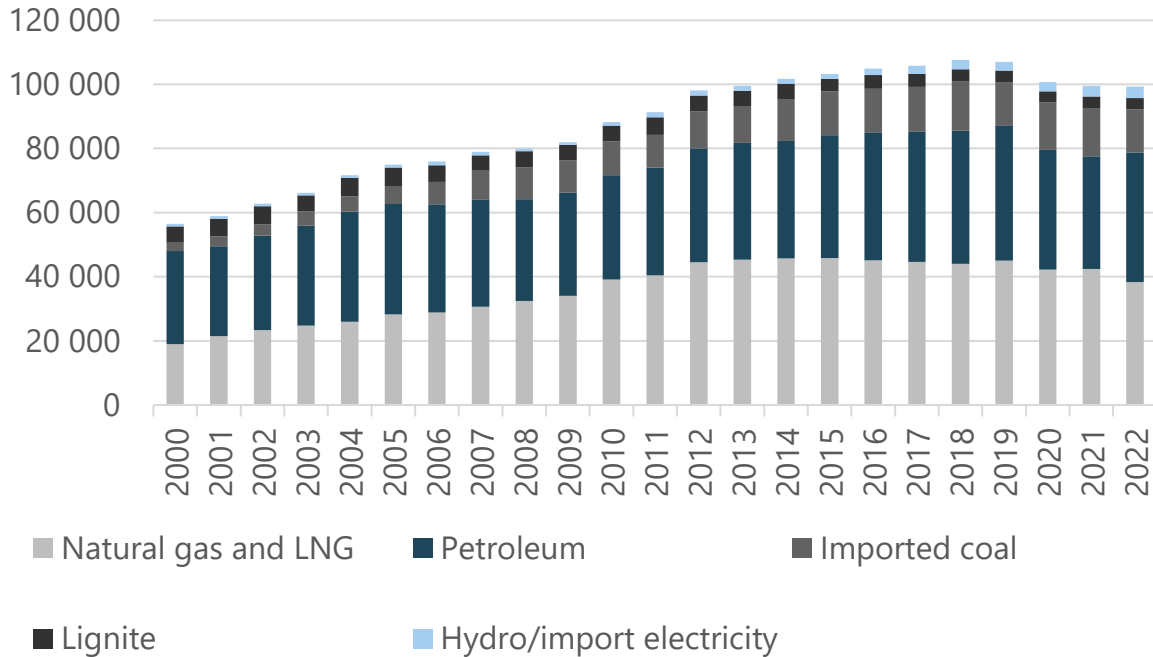
Outline of presentation

- Thailand's Energy Overview
- Oil and Gas Security Exercise
 - Scenarios
 - Projected impacts
 - Responses
- Recommendations from the Experts
- Conclusion
- Approved publication

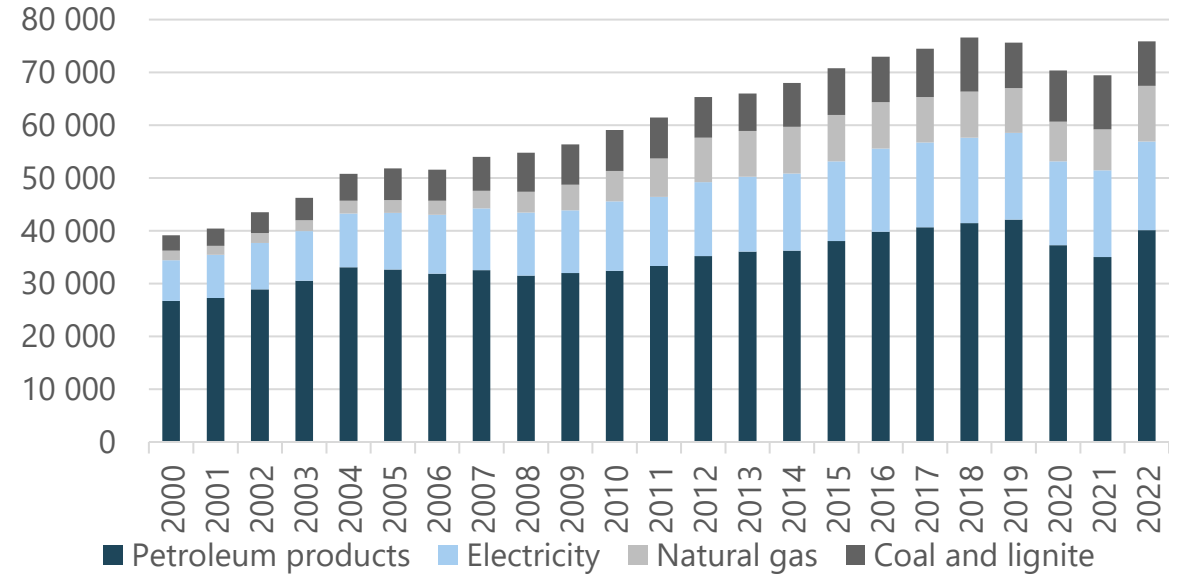
Thailand's energy overview

Oil and gas continue to be important in energy supply

Primary energy supply (ktoe)



Final energy consumption (ktoe)



Source: EPPO

- In 2022, oil and gas combined accounted for 80% primary energy supply and 65% of final energy consumption.
- Thailand imported 92% of its crude oil supply and 38% of its natural gas supply in 2022.
- Reliance on oil and gas imports has prompted Thailand to focus on energy security preparedness.

Key messages from the 5th OGSE in Bangkok

- Thailand has conducted comprehensive emergency exercises at the national level every year since 2013.
- However, the scenarios presented at the 5th OGSE were fundamentally different from those in previous exercises.
- As a result, the OGSE this year provided new perspectives and broadened Thailand's views on preparing for future energy emergencies.
- Suggestions from the Expert Team were well received and viewed as valuable by the Thai stakeholders.

Oil and gas security exercise

DISCLAIMER

- The Thairoil refinery and Thapline pipeline incidents described in the scenarios are purely hypothetical and used solely for the Exercise.
- The incidents described in the QATARGAS scenario are purely hypothetical and used solely for the Exercise. A true *force majeure* incident in Qatargas happened in January 2009, when a breakdown in the supply of cooling seawater to the plant occurred that lasted for three weeks.

Details: [REUTERS](#)

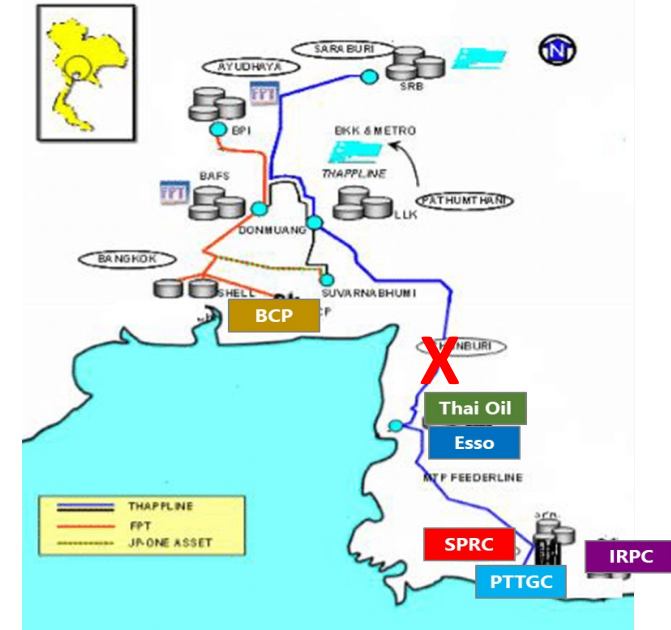
Oil Emergency Scenario – Two stages

Stage 1



- **Incident:** A major fire occurred at the Thairoil refinery while PTTGC, the largest refinery, is under major maintenance shutdown.
- **Impact:** Severe petroleum product supply disruption of 555 kb/d from the two largest refineries, accounted for 45% of total Thailand product supply.

Stage 2



- **Incident:** Fire at the Thairoil refinery causes severe damage and closure of the nearby Thapline, the largest product pipeline.
- **Impact:** An estimated 60% of transport fuel products from the five major refineries cannot be shipped via pipeline.

Response by government and industry participants

Stage 1

- **Supply measures**
 - Government bans 121.5 kb/d of oil product export.
 - More product imports, speed-up PTTGC maintenance, more production from remaining refineries.
- **Demand measures**
 - Rationing of consumption.
 - Minimizing petrochemical consumption.
 - Relaxation of petrol specifications.
 - Higher blend of ethanol and biodiesel and promote more uses.

Stage 2

- **Supply measures**
 - Relax of truck ban-hour to allow oil trucks to delivery to inner cities.
 - Use FPT pipeline (but has capacity limitation).
 - Use more marine transport to deliver to marine terminals.
- **Demand measures**
 - Extensive oil rationing and public communication to prevent panic.

The Gas Emergency Scenarios: Three stages

Stage 1



Incident

force majeure in Qatargas III due to a conflagration and equipment failure

Impact

Thailand's Eastern gas market loses 36% of its LNG supply (0.41 bcf/d) for the month

Stage 2



Incident

Typhoon Zigzag a few days later

Impact

Reduced offshore production (by 0.8 bcf/d) and LNG import rate (to 0.35 bcf/d)

Stage 3



Incident

Offshore pipeline failure

Impact

Offshore production from offshore and joint-development areas remains 0.7 bcf/d lower than before the Qatargas III force majeure

Response of government and industry participants

Stage 1

- Supply measures
 - Evaluating the gas supply situation and strategising the decision on gas procurement.
- Demand measures
 - Implementing demand-side measures are not necessary.

Stage 2

- Supply measures
 - Increasing LNG imports to bolster the available supply.
- Demand measures
 - Switching power generation to diesel at dual-fire generating facilities.

Stage 3

- Supply measures
 - Reducing LNG send-out rate until the arrival of the 1st imported cargo.
- Demand measures
 - Managing the power generation system to enhance efficiency and reduce gas supply to the petrochemical sector.

❖ **Immediate response from the government** - Activate the Emergency Response

Working Team

Recommendations

Some of the recommendations from the experts

Oil emergency (20 recommendations)

- Documenting emergency response policy and procedure and clearly addressing the respective roles and responsibilities.
- Imposition of restrictions on LPG exports should be carefully considered, as this could create a ripple effect across ASEAN economies reliant on Thailand for LPG supply.
- Priority list and implementation process for petroleum products rationing should be agreed upon by involving agencies/authorities in advance and endorsed by the highest authorities.
- Importance of accurate and up-to-date data.

Gas emergency (16 recommendations)

- Documentation of emergency response exercises is advised for future reference.
- Assess the grid's flexibility, specifically its ability to import electricity.
- Evaluate the option of offering a higher fee to LNG carriers to expedite LNG shipments.
- Prioritise the long-term end-use fuel flexibility.
- Ensure access to real-time data during emergency situations.

Conclusion

- Even though Thailand already has a complete emergency response plan, there is still room for improvement.
 - The scenarios that APERC prepared are not yet in the Thai emergency plan.
- Effective communication with involved stakeholders during the planning/discussion is critical.
 - The experts commended Thai stakeholders' professionalism and effective communication.
- Internal/ministerial collaboration is essential.
- Thailand recognizes the need to incorporate the new learnings from the exercise in its emergency plan.
 - Thai stakeholders welcomed the new information gathered from the Exercise.
- The OGSE is a good exercise to test the effectiveness of the economies' own emergency plans.

Published!

[APEC website \(https://www.apec.org/publications\)](https://www.apec.org/publications)

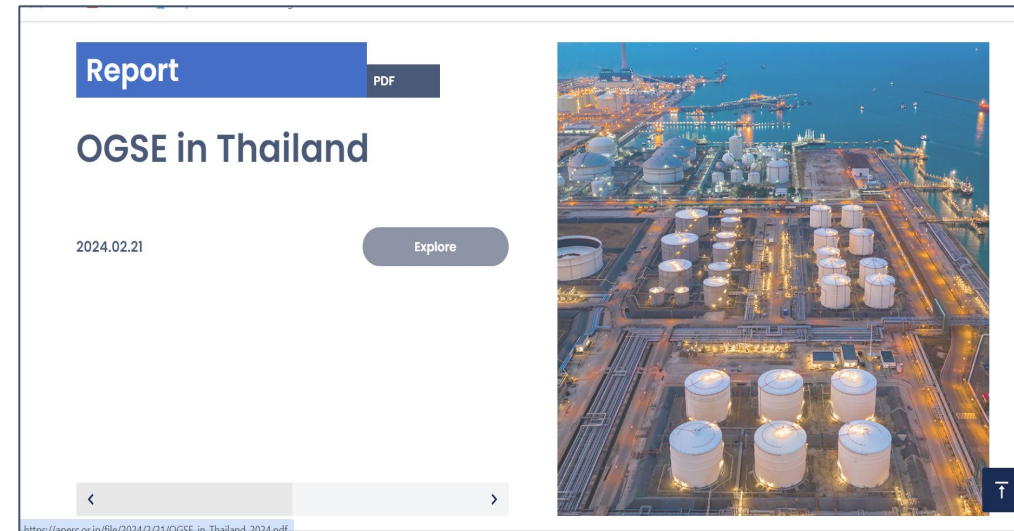


The screenshot shows the APEC website interface. At the top, there is a navigation menu with links for News, Groups, Topics, Projects, Declarations and Statements, and Meetings. The main heading is "APEC Oil and Gas Security Exercise in Thailand - 5th APEC Oil and Gas Security Exercise". Below the heading is a thumbnail image of the report cover. To the right of the thumbnail, the following details are listed:

Published Date	February 2024
Type of Publication	Reports
Publication Under	SOM Steering Committee on Economic and Technical Cooperation (SCE), Energy Working Group (EWG)
Accessed	80
Pages	59
Download publication	Download 

Below the details is a "Description" section.

[APEC website \(https://aperc.or.jp/\)](https://aperc.or.jp/)



The screenshot shows the APERC website interface. At the top, there is a navigation menu with links for News, Groups, Topics, Projects, Declarations and Statements, and Meetings. The main heading is "Report" with a "PDF" button next to it. Below the heading is the title "OGSE in Thailand". To the right of the title is a large image of an oil refinery at night. Below the title, the date "2024.02.21" is displayed, and there is an "Explore" button. At the bottom, there is a navigation bar with left and right arrows.

- January 2024 - Endorsed by the EWG members
- February 2024 – Published on both APEC and APERC websites

Great appreciation to the Host



Group photo



Site visit Group photo

...and Experts

Invited experts



Mr Cuauhtémoc López-Bassols (IEA)



Mr Beni Suryadi (ACE)



Dr Han Phoumin (ERIA)



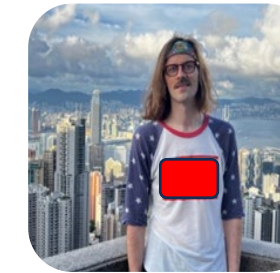
Mr Masashi Nemoto (JOGMEC-Japan)



Dr Kazutomo Irie



Mr Thanan Marukatat



Mr Chris Doleman



Dr Ruengsak Thitiratsakul (PIT-Thailand)



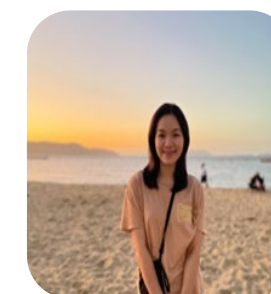
Dr Weerin Wangjiraniran, .D. ENG (Chulalongkorn U.)



Dr Robert Perry Jr. (US-DOE)



Ms Elvira Torres Gelindon



Ms Phawida Jongsuwanwattana

APERC team

Thank you.

<https://aperc.or.jp>

