



Oil supply emergency preparedness policies and procedure: A review and assessment



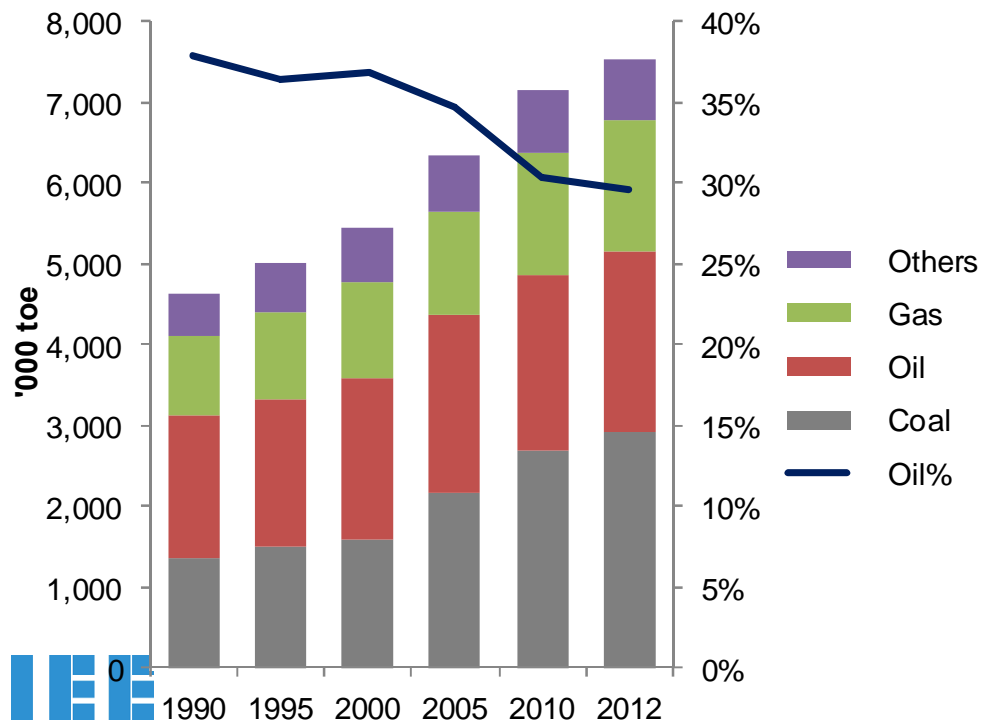
22 April 2015

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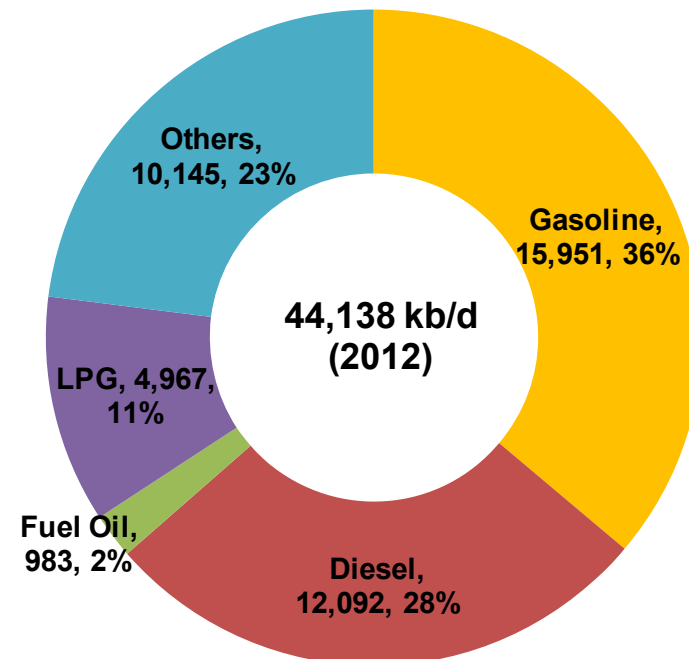
Oil use in APEC --- Historical

- Oil demand in APEC has been steadily increasing.
 - Its share however dropped from 38% in 1990 to 30% in 2012
- Combined share of gasoline and diesel over the total demand exceeds 60%.
 - As in the other parts of the world, transportation sector drives APEC's oil demand.

APEC's energy demand



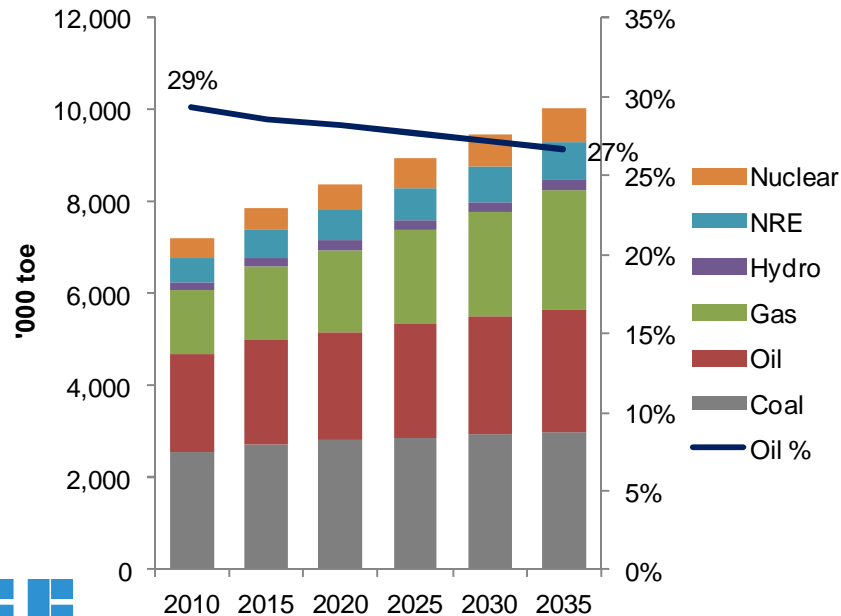
APEC oil demand by product (kb/d)



Oil use in APEC --- Outlook

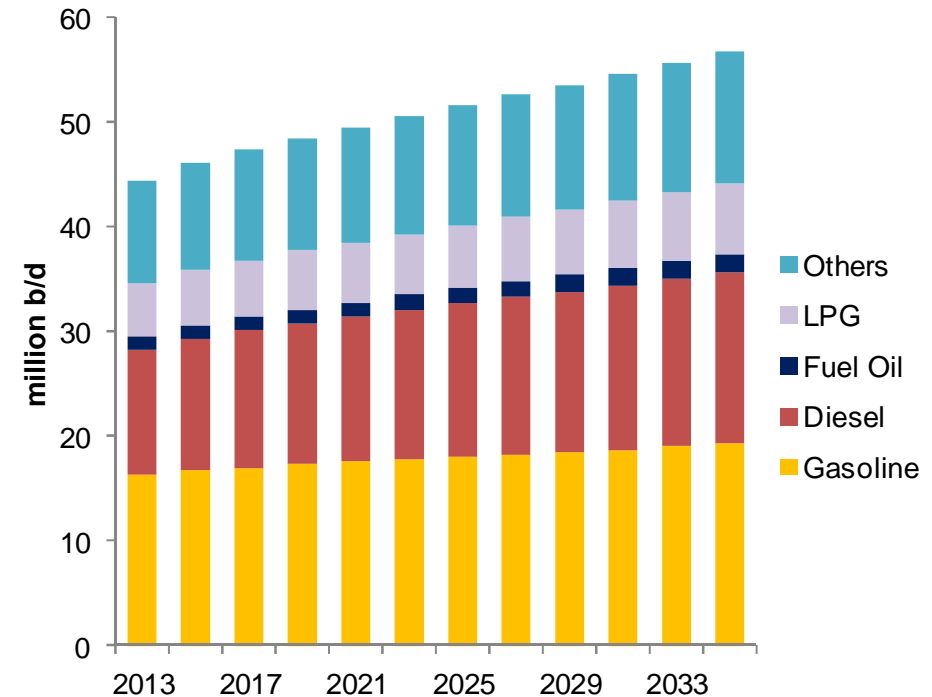
- Oil will remain as the second largest energy source for APEC.
 - Its share in the total energy mix will slightly fall by 2% from 2010 to 2035.
- Demand of all oil product is expected to grow.
 - Diesel and gasoline in particular will continue to be the major driving force to increase the regional oil consumption.
 - 60% of total demand growth comes from gasoline and diesel demand growth.

APEC's energy demand outlook



Source: APERC

Oil product demand (2013-35)

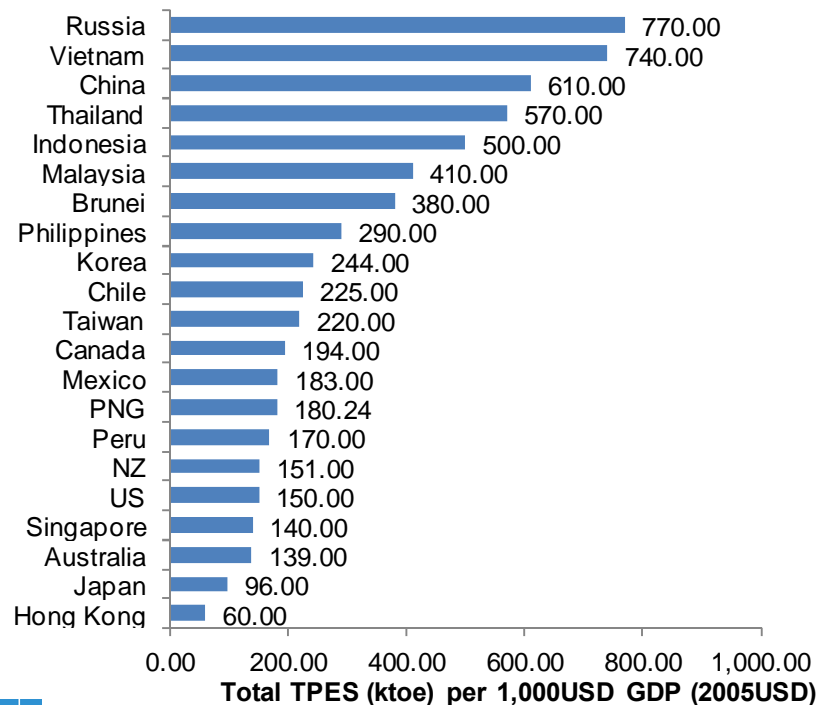


Source: APERC

Energy intensity and oil intensity

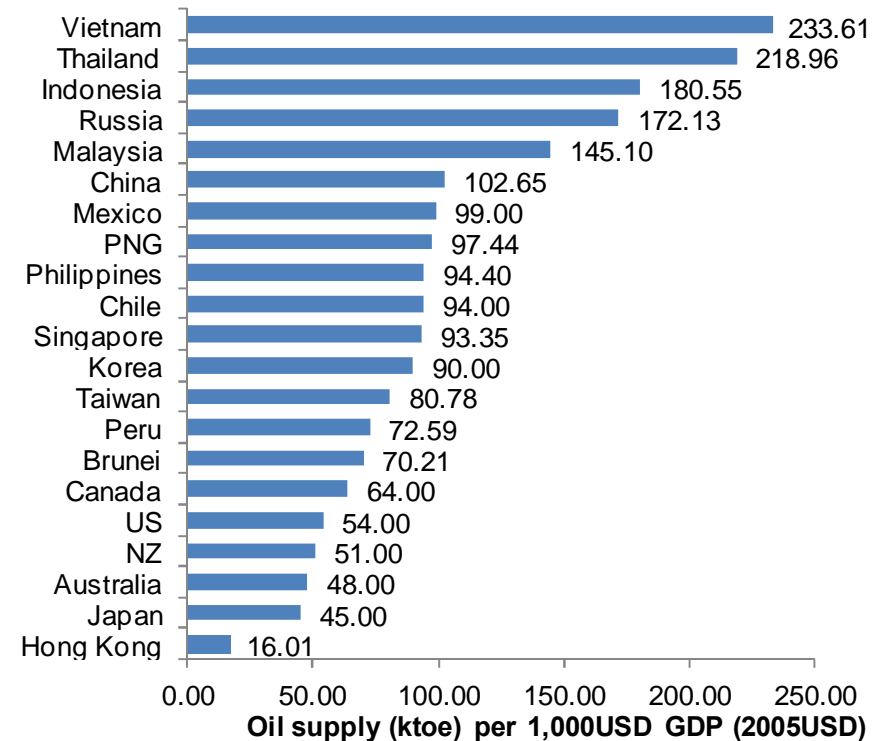
- Energy intensity varies over APEC economies reflecting each member's stage of economic development, industrial structure, and energy consumption behavior.
- Oil intensity tends to be higher in oil exporting economies, industrialized economies with heavy industry, and in ASEAN.

Energy intensity in APEC Economies



Source: APERC

Oil intensity in APEC Economies

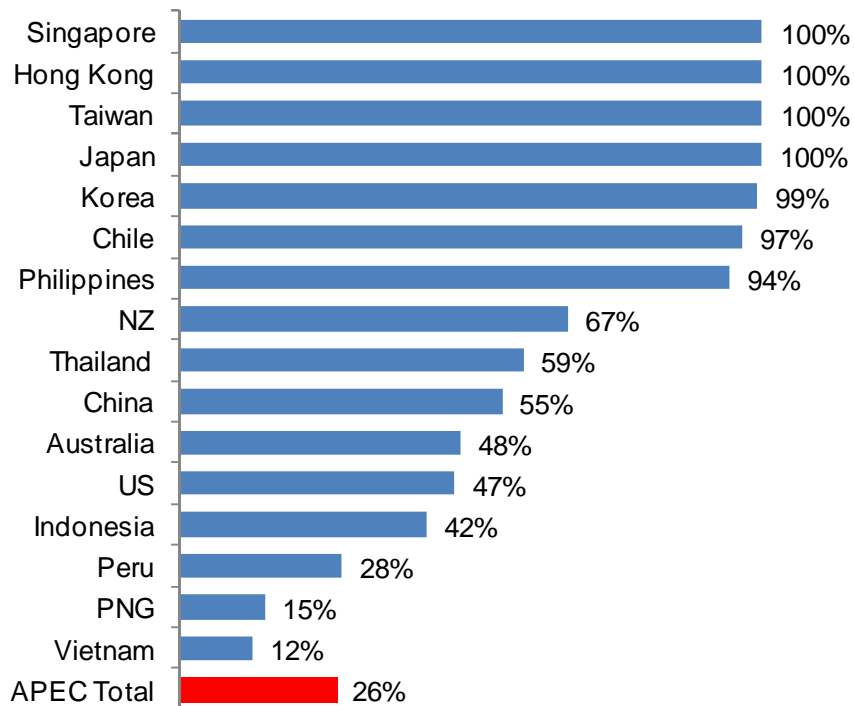


Source: APERC

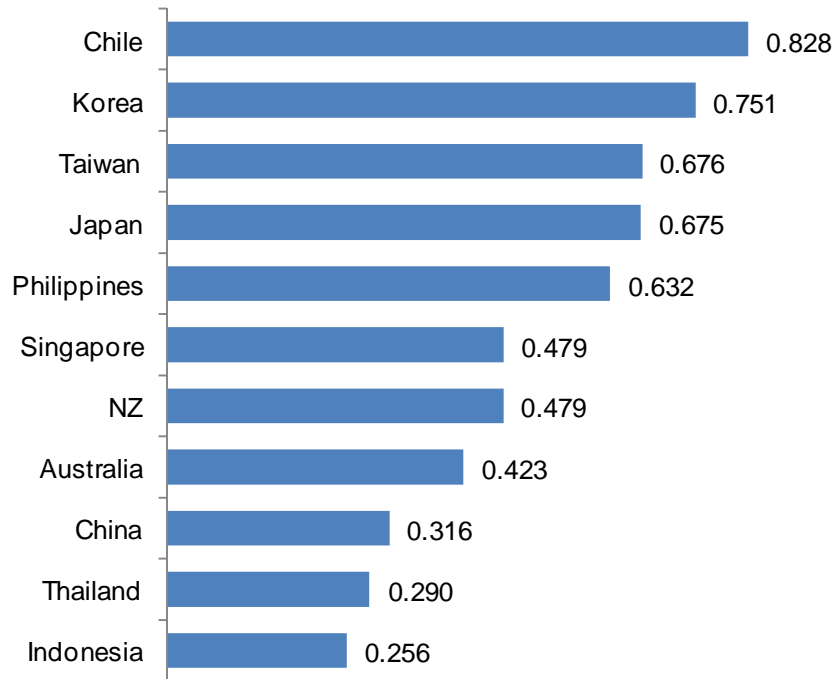
Import dependence and its concentration

- A number of APEC economies are net oil importers.
 - Some economies completely depend on import for its oil supply.
- High import dependence economies tend to have a concentrated sources of imports.
 - Asian economies are likely to have a higher HHI now and in the future.

APEC's oil importer and its dependence



Herfindahl-Hirschman Indices (HHI)



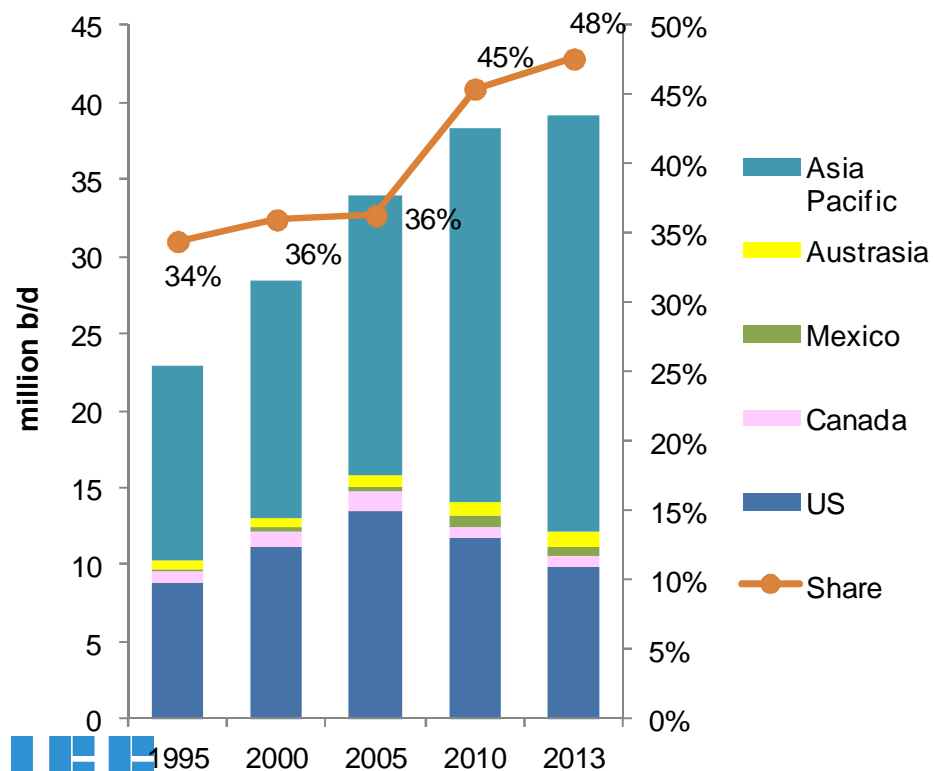
Source: APERC

HHI is calculated by 7 regional categories (APEC, FSU, Middle East, Africa, Other Asia Pacific, Other Americas).
Source: APERC

Oil trade in APEC

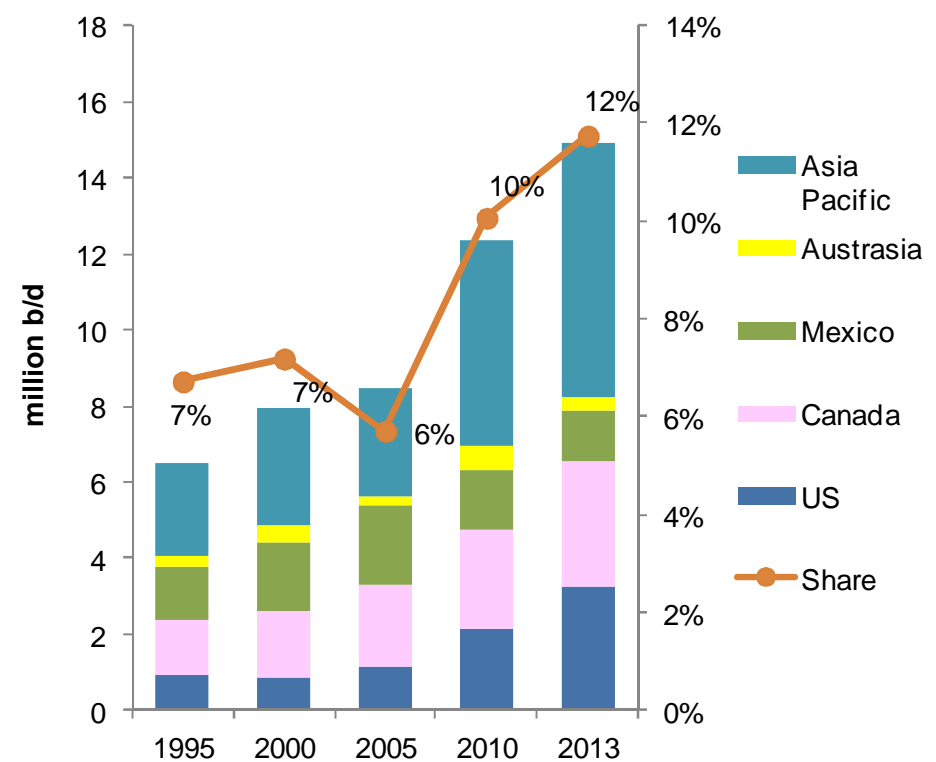
- As its oil demand continues to grow, APEC is becoming the center of the international oil trade.
 - Oil import growth in Asia Pacific is to some extent offset by the decline of the US import.
 - Oil export is growing more rapidly than import.

Oil imports by Asia Pacific and its share



Import figures include trade volume of South Asia
Source: BP

Oil exports by Asia Pacific and its share



Export figures include trade volume of South Asia
Source: BP

National Emergency Strategic Organization: NESO⁷

□ Most economies have identified and established NESO.

Economy	The National Emergency Strategic Organization (NESO)
Australia	The Minister for Industry as the permanent core of the NESO is responsible for co-ordinating emergency response in the event of an oil supply disruption. In the case of a major oil crisis affecting more than one jurisdiction, ministers have agreed that the National Oil Supplies Emergency Committee (NOSEC), which includes the fuel industry, will advise on appropriate actions.
Brunei	The Energy Department Prime Minister Office (EDPMO) is the leading governmental body responsible for dealing with oil supply disruptions.
Canada	The Energy Supplies Allocation Board (ESAB) is a key agency in the event of an oil supply disruption. Under certain circumstances, the federal government has the authority, under the Energy Supplies Emergency Act, to take measures to reallocate energy supplies within Canada.
Chile	The National Emergency Office (Onemi), overseen by the Ministry of the Interior and Public Security is the leading governmental body responsible for dealing with oil supply disruptions.
China	The State Council, comprised of the premier, vice-premiers, state councillors and ministers, is the main decision maker and has the authority to order releases from the Strategic Petroleum Reserve
Chinese Taipei	(No information)
Hong Kong	(No information)
Indonesia	The National Energy Council is responsible for co-ordinating emergency response in the event of an oil supply disruption.
Japan	The Petroleum Refining and Reserve Division of the Natural Resources and Fuel Department acts as a secretariat and forms the core of the Japanese national emergency strategy organisation (NESO) during oil supply disruptions, in co-operation with other relevant ministries and industry.
Korea	The Energy and Resource Policy Division and the Petroleum Division of MOTIE function as the core body of Korea's national emergency strategy organisation (NESO).
Malaysia	The National Security Council of the Prime Minister's Department is the agency that has responsible for dealing with oil supply disruption.
Mexico	(No information)
New Zealand	The Ministry of Business, Innovation and Employment (MBIE) is responsible for policy related to oil supply security and in an international disruption would chair the national emergency strategy organisation (NESO) and take the lead in developing a plan of action.
PNG	(No information)
Peru	(No information)
Philippines	The Department of Energy (DOE) as the lead agency of the Inter-Agency Energy Contingency Committee is the main and leading governmental body responsible for dealing with oil supply disruptions.
Russia	(No information)
Singapore	The Inter-Agency Government Committee will be established by the government for dealing with oil supply disruptions.
Thailand	The Minister of Energy and the Fuel Management Committee are responsible for co-ordinating emergency response in the event of an oil supply disruption.
United States	The US Department of Energy (DOE) serves as the country's national emergency strategy organisation (NESO), with the responsibility of initiating and co-ordinating a US response to an oil supply disruption.
Viet Nam	The Ministry of Industry and Trade (MOIT) is the leading governmental body responsible for dealing with oil supply disruptions.

Stockpiling policy

□ Importing economies outside IEA have begun to build their oil stockpiling.

Economy	Strategic Oil Stockholding
Australia	Australia does not impose minimum stockholding requirements on oil companies, nor does it have public stocks; all oil stocks in Australia are held by industry on a commercial basis. As of November 2014, the oil stock level was 50 days of net imports.
Brunei	31 days for industry under the Energy Contingency Plan for Refined Petroleum Product Imports.
Canada	Canada does not have publicly held stocks and does not impose a compulsory stockholding obligation on industry. All the country's oil stocks are industry stocks held for commercial purposes.
Chile	at least 25 days of operational oil stock based on sales during the previous 6 months is held by producers (refineries) and importers of liquid, petroleum-based fuels.
China	A minimum stockholding obligation on industry as part of the National Petroleum Reserve is still under considering. This is expected to be composed of government stocks and obligatory industry stocks, and will include both crude oil and products.
Chinese Taipei	(No information)
Hong Kong	(No information)
Indonesia	22 days of operational oil stock based on domestic oil consumption held by Pertamina (the national Oil Company).
Japan	Japan meets its stockholding obligation to the IEA by holding government emergency stocks and by placing a minimum stockholding obligation on industry. 70 to 90 days of average daily imports, sales or refined production from the previous 12 months must be held by refineries, specified distributors and importers and 70 days of the stockholding for industry. As of November 2014, the oil stock level was 161 days of net imports.
Korea	Korea meets its stockholding obligation to the IEA by holding government stocks and by placing a minimum stockholding obligation on industry. Crude refiners are obliged to hold at least 40 days of stocks, in either crude or products (excluding naphtha), based on a 12-month average of their previous year's sales. Product importers, LPG importers and petrochemical companies are also required to hold at least 30 days of stocks, based on their domestic sales. As of November 2014, the oil stock level was 237 days of net imports.
Malaysia	Holding emergency oil stock is not be considered at the moment.
Mexico	(No information)
New Zealand	New Zealand has no domestic public stocks, and the government does not place a minimum stockholding obligation on industry. All stocks in New Zealand are held on a commercial basis. As of November 2014, the oil stock level was 92 days of net imports.
PNG	(No information)
Peru	(No information)
Philippines	Total stock levels including operational stocks must not less than 30 days of daily domestic supply.
Russia	(No information)
Singapore	No mandatory stockholding for refineries or private oil companies. Power generating companies are obliged to hold 90 days of fuel oil stocks as backup fuels.
Thailand	Based on the amendment of the Fuel Trade Act of 2000, refineries is obligated to hold 6% of their yearly sales of crude oil and oil products; retailers and importers are obligated to hold 6% of crude oil and 10% of oil products. Their total levels must be at least 43 days of domestic consumption.
United States	United States meets its stockholding obligation to the IEA by holding government emergency stocks and by placing a minimum stockholding obligation on industry. 90 days obligation of stock should be maintained by public Strategic Public Reserve and industry for commercial purposes. As of November 2014, the oil stock level was 249 days of net imports.
Viet Nam	At least 90 days of net imports (or around 60 days of consumption) by 2015 based on the National Stockpile Master Plan.

Emergency policy and exercises

- Emergency policy framework has been developed or being developed in most economies. More exercises need to be developed to operationalize the framework.

Economy	Emergency Policy	Exercise Activity
Australia	In case of emergency, the minister would initially consult with NOSEC and other agencies to assess potential implications and appropriate response measures.	Emergency response exercises is conducted regularly every 2 years by IEA
Brunei	In case of emergency, the government has mandatory right to purchase and control all crude and oil product stocks held by the industry	APEC Oil and Gas Security Exercise (OGSE): Joint Southeast Asian Exercise in 2013
Canada	In case of national emergency, the ESAB would have the authority to regulate company stocks.	Emergency response exercises is conducted regularly every 2 years by IEA
Chile	In case of emergency, the Onemi is responsible for co-ordinating public and private efforts to control emergencies, disasters and catastrophes and to co-ordinate all the actions and operations.	(No information)
China	In case of emergency, the State Council will implement potential measures, including order releases stock from the Strategic Petroleum Reserve.	(No information)
Chinese Taipei	(No information)	(No information)
Hong Kong	(No information)	(No information)
Indonesia	In case of emergency, Fuel Distribution System which has been established will be activated by the government to ensure supply availability in disrupted areas. This system as part of one of requirements need to be carried out by industry if she wants to get oil business licence	OGSE: Joint Southeast Asian Exercise in 2013 and APEC on Oil and Gas Security Exercise: Indonesia Exercise in 2013
Japan	In case of emergency, NESO may ask the Minister of Economy, Trade and Industry (METI) or the initiative of the METI will take a decision to release government stocks or lower the industry obligation.	Emergency response exercises is conducted regularly every 2 years by IEA
Korea	In case of emergency, NESO will implement potential measures in demand and supply side, such as oil stock release, lowering of compulsory stockholding obligation on industry and demand restraint.	Conduct emergency exercise every year.
Malaysia	In case of emergency, the Prime Minsiter could issue direction on the operations of PETRONAS (National Oil Company) including full control over the company's stock.	OGSE: Joint Southeast Asian Exercise in 2013
Mexico	(No information)	(No information)
New Zealand	In case of emergency, NESO will take necessary measures such as drawdowning stock based on the International Energy Agreement Act of 1976 or implement demand restraint based on the Petroleum Demand Restraint (PDR) Act of 1981.	Emergency response exercises is conducted regularly every 2 years by IEA
PNG	(No information)	(No information)
Peru	(No information)	(No information)
Philippines	In case of emergency, oil contingency plan will be activated by the government to implement potential measures.	OGSE: Joint Southeast Asian Exercise in 2013
Russia	(No information)	(No information)
Singapore	In case of emergency, the government will monitor the real-time security development, through various entities such as the Risk Assessment Horizon Scanning programme office and depending on the risk level, an appropriate inter-agency government committee will be convened to manage the situation.	OGSE: Joint Southeast Asian Exercise in 2013
Thailand	In case of emergency, the government and the Fuel Management Committee will implement potential measures, such as drawdowning of the government-controlled oil stock.	Emergency Response Exercises with IEA in 2009. OGSE: Joint Southeast Asian Exercise in 2013
United States	In case of emergency, emergency stockholding schemes will be activated to respond to emergency by drawdowning of public and industry oil stocks.	Emergency response exercises is conducted regularly every 2 years by IEA
Viet Nam	In case of emergency, the Committee of the State Management of Domestic Markets will be convened to make recommendations to the prime minister on possible emergency measures.	OGSE: Joint Southeast Asian Exercise in 2013

Summary of indices

- Asian and South American economies tend to be more vulnerable for oil supply security.

	Oil dependence	Net import	HHI	Oil intensity	Regional framework	Stockpiling days
Australia	35%	48%	0.423	48.00	IEA	50 days
Brunei	22%	0%	no data	70.21	APSA	31 days
Canada	33%	0%	no data	64.00	IEA	no data
Chile	42%	97%	0.828	94.00	none	25 days
China	18%	55%	0.317	102.65	none	30-60 days
Hong Kong	23%	100%	no data	16.01	none	no data
Indonesia	45%	42%	0.256	180.55	APSA	22 days
Japan	47%	100%	0.675	45.00	IEA	161 days
Korea	37%	99%	0.751	90.00	IEA	237 days
Malaysia	35%	0%	no data	145.10	APSA	no data
Mexico	54%	0%	no data	99.00	none	no data
New Zealand	34%	67%	0.479	51.00	IEA	92 days
Papua New Guinea	72%	15%	no data	72.59	none	no data
Peru	51%	28%	no data	94.40	none	no data
Philippines	32%	94%	0.632	97.44	APSA	30 days
Russia	22%	0%	no data	172.13	none	no data
Singapore	60%	100%	0.479	93.35	APSA	90 days (power generation)
Chinese Taipei	39%	100%	0.676	80.78	none	no data
Thailand	41%	59%	0.290	218.96	APSA	43 days
United States	36%	47%	0.289	54.00	IEA	249 days
Vietnam	35%	12%	no data	233.61	APSA	62 days

Impact of oil supply disruption

Large	65%+	80%+	0.80+	200+	none	below 40 days
Moderate large	50-65%	60%-80%	0.60-0.80	150-200		40-60 days
Med	35-50%	40%-60%	0.40-0.60	100-150	APSA	60-80 days
Moderate low	20-35%	0%-40%	0.20-0.40	50-100		80-100 days
Low	below 20%	0%	0-0.20	0-50	IEA	More than 100days

Implications

- Development status of oil security and emergency response varies over economies.
 - IEA style of obligatory and %cookie cutter+cooperation framework is difficult for APEC economies.

- Yet a number of cooperation opportunities exist among APEC economies.
 - Combination of economies with different background may create effective cooperation.
 - As oil trading activities expand in the APEC, further liberalization of trade and investments will bring more benefits to oil supply security.

- Cooperation items are categorized into short-term and long-term items
 - Long-term items: lowering oil intensity, import dependence, and net imports, etc.
 - Short-term items: building oil stockpiling, emergency preparedness, etc.

- Possibility of inter-framework collaboration within APEC
 - APEC has IEA member countries, APSA member countries, and countries that do not belong to any oil supply security framework.
 - How can APEC enhance inter-framework collaboration?



Thank you for your attention!