



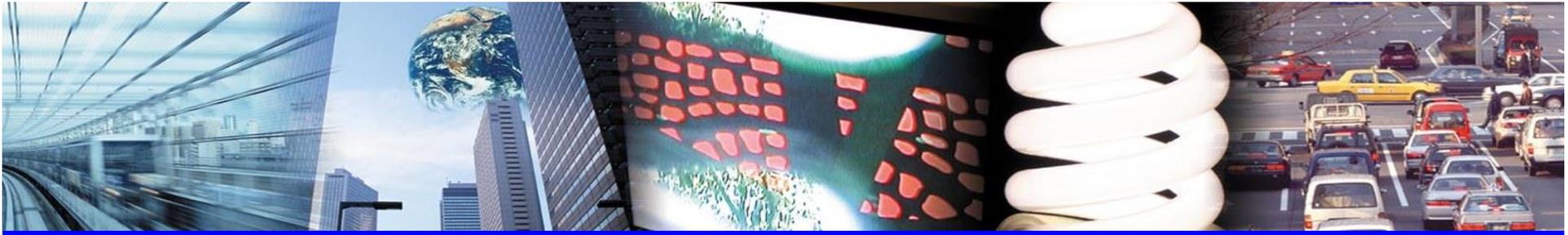
**APERC Workshop at EWG47, Kunming, China
19 May 2014**

4. Oil and Gas Emergency Exercises
***4-4. Major Challenges to Oil and Gas Security in the
APEC Region***

Hooman PEIMANI
Research Fellow, APERC



Asia-Pacific
Economic Cooperation

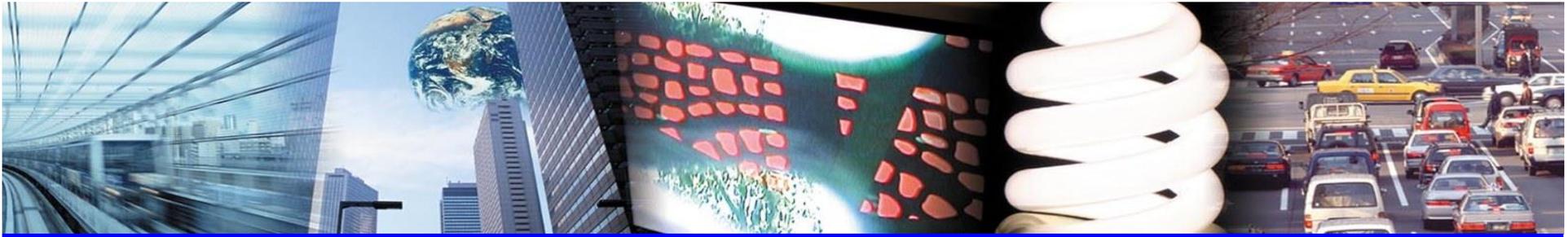


I-Introduction

Challenges to the regional oil and gas security:

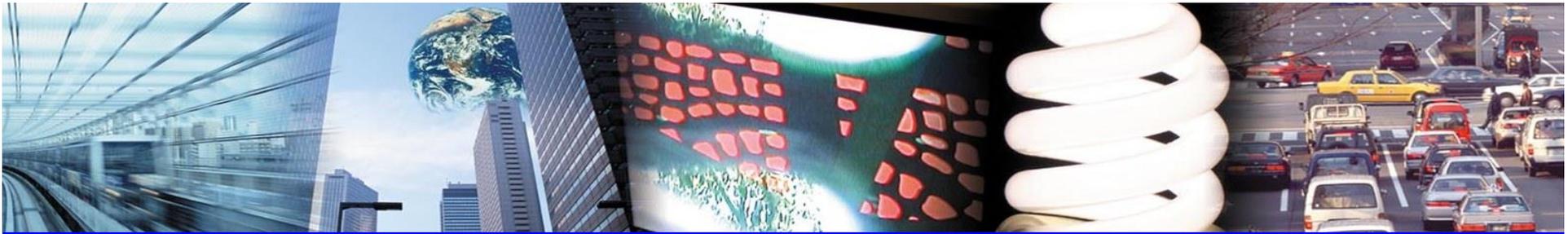
- The APEC region is now facing certain challenges and/or will predicably or potentially face others to affect its oil and gas security, which require its attention.

- Among these challenges, seven examples are especially important.



II- Examples of Major Conceivable Challenges

- A-Potential impact of instability in the Middle East on APEC's oil and gas security**
- B-Depletion of the regional fossil energy reserves and resource nationalism: Threat to APEC's objective of cross border energy networks and interconnections**
- C-Potential of unconventional oil and gas**
- D-Central Asia's growing role as an energy supplier to China and potential threats to its supplying role**
- E-The Arctic's melting impact on APEC's oil and gas security: Challenges and opportunities**
- F-Potential impact of the security-challenged economies on the TAGP project and energy security of APEC's seven ASEAN economies**
- G-Threats to oil/gas pipeline safety/security as the North-East Asian APEC economies are becoming increasingly dependent on piped oil and especially gas imports**



A-Potential impact of instability in the Middle East on APEC's oil and gas security

1-The Middle East is the APEC region's largest supplier of oil (**8.173 mbpd**, 2011) and second largest supplier of LNG (**57.69 mt**, 2012) and will remain the region's major long-term oil/LNG supplier in the foreseeable future.

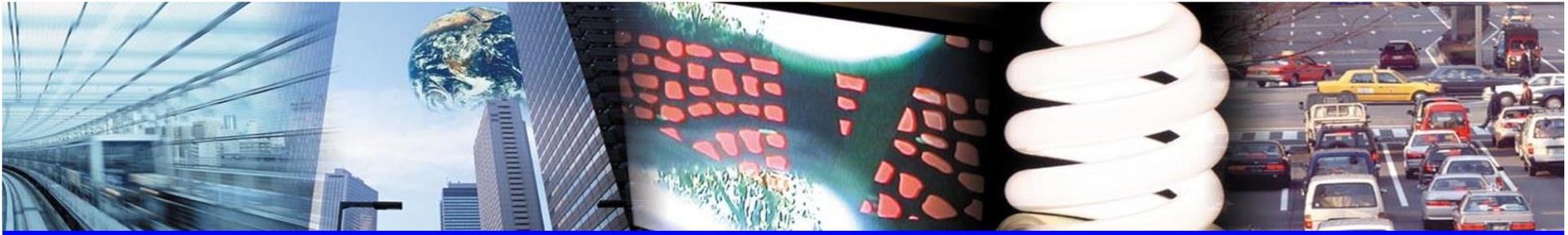
2-The main factor questioning the Middle East's ability to continue its supplying role in a sustainable and predictable manner is **its being prone to instability** in different forms.

3-The Middle East has experienced **major upheavals to affect its oil and gas exports** especially since 2010 as follows:

- **The “Arab Spring”**
- **Instability in Iraq**
- **Iran's dispute with the Western countries over its nuclear energy program**
- **Armed Conflicts in Sudan and South Sudan**



Source: <http://www.nationsonline.org/oneworld/map/north-africa-map.htm>



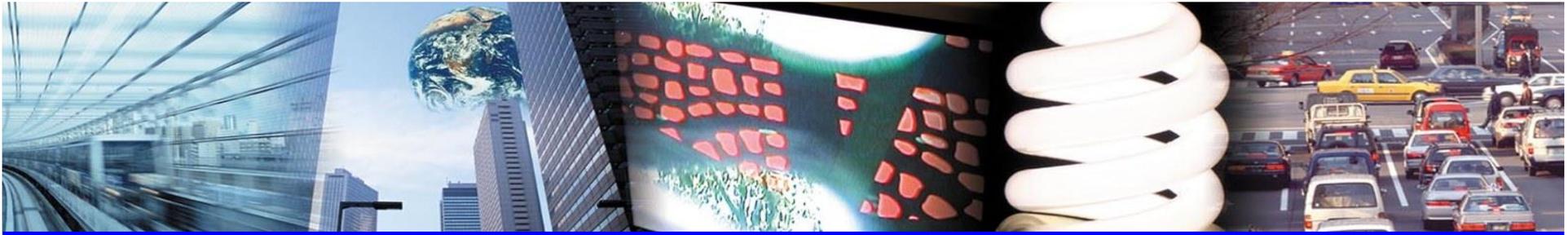
B-Depletion of the regional fossil energy reserves and resource nationalism: Threat to APEC's objective of cross border energy networks and interconnections

1-The APEC region's major energy characteristic: heavy dependency on fossil energy partly imported and partly produced in the region.

2-Depletion of the regional oil/gas supplies: The regional oil/gas resources have been depleting rapidly to the extent that some of the APEC energy-producers have become dependent on imports to different extents (e.g., Indonesia on oil).

3-Potential of resource nationalism as a challenge: Real/perceived concerns about loss of energy resources of a regional energy exporting-economy through exports to other regional economies when those resources are needed at home could kindle nationalist sentiments to result in ending/limiting such exports by a government decision caused by its own concerns or because of a popular demand.

4-Impact on the APEC region: Negative impact on the importing economies' energy security and especially oil and gas security.



C-Potential of unconventional oil and gas

1-Major APEC's large-scale unconventional oil/gas producers:

- Australia: **coal-bed methane**
- Canada: **oil sands**
- The USA: **shale gas**

2-Importance of developing unconventional oil/gas reserves for the APEC economies:

- **Australia:** Increasing its gas reserves, but **not a game changer** currently, given its significant conventional gas reserves.
- **Canada:** Expanding its oil reserves phenomenally to make it a major oil-exporter to the American market.
- **The USA:** Changing its status from a major importer of piped gas/LNG to a large economy **nearing self-sufficiency** in gas production to become self-sufficient in the near future and develop an **export capacity**.

3-Challenge of sustainability: There are questions about the sustainability of unconventional oil/gas production arising mainly from environmental and financial concerns.

Oil sand extraction in Canada

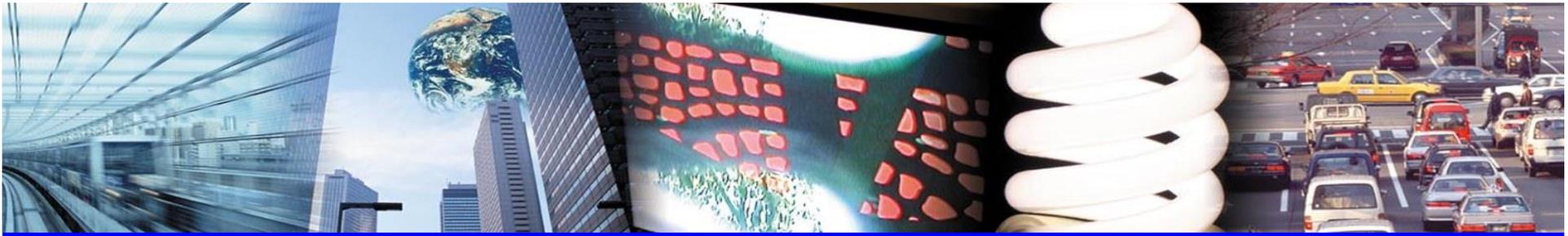


Source:

http://www.theecologist.org/News/news_analysis/829665/europe_moves_to_ban_imports_of_tar_sands_oil_from_canada.html;
<http://valdaiclub.com/usa/29460.html>

Shale gas production in the USA





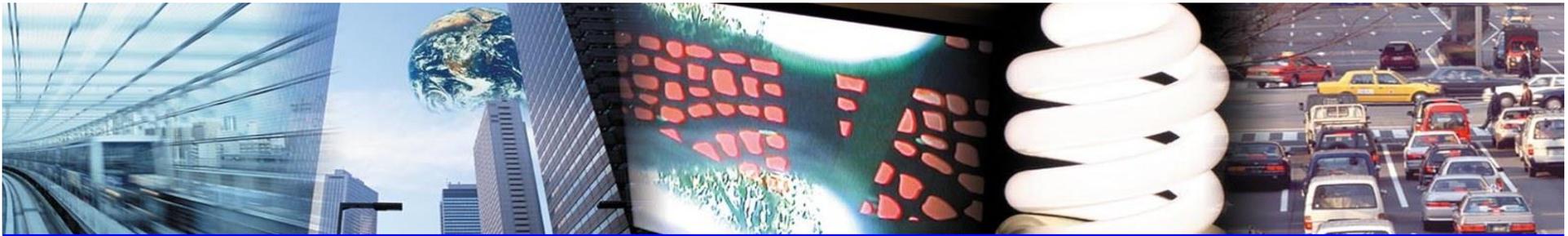
D-Central Asia's growing role as an energy supplier to China and potential threats to its supplying role

1-Energy significance of Central Asia for China: Three Central Asian countries (Turkmenistan, Uzbekistan and Kazakhstan) have emerged as major oil- and, particularly, gas-suppliers to China neighbouring Central Asia.

As a major supplier, Central Asia's ability to supply China in a sustainable manner is crucial for that APEC economy's oil and gas security.



2-Potential challenges to Central Asia's supplying role: Certain political, economic, social and military/security factors could undermine the region's ability to honour its oil and gas export commitments to China.



E-The Arctic's melting impact on APEC's oil and gas security: Challenges and opportunities

1-The Arctic ice's melting: The Arctic ice has been melting due to global warming caused by greenhouse gases, particularly CO₂, whose main source of emission has been heavy consumption of oil, gas and coal for over two centuries.

2-Opportunities arising from the melting of the Arctic ice for the APEC region: The APEC economies sharing borders with the Arctic region (**Canada, Russia, USA**) have existing oil/gas extraction in the region and/or have/could have plans to extract or increase such operation in other parts of the Arctic within their special economic zone.

a-Extensive extraction of the Arctic's oil/gas will increase their availability to the APEC economies.

b-If such extraction becomes a reality, it will **decrease APEC's dependency** on the **Middle East** to some extent and **help sustain oil/gas (LNG) prices** (by preventing drastic price hikes) or **decrease oil /gas prices** to some extent.

3-Major challenges: Efforts for extracting oil/gas at a large-scale in the Arctic region could

- contribute to competition over resources/markets between/among the APEC economies sharing borders with the Arctic and between the latter and other Arctic countries (**Norway, Denmark**) and also **Iceland, Sweden** and **Finland** located in the Arctic's close proximity.

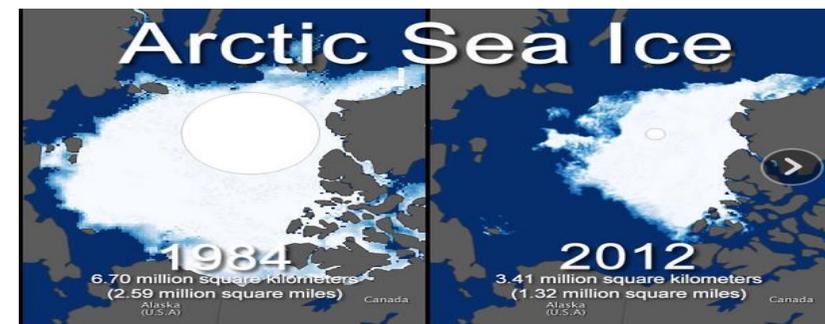
- provoke territorial disputes over parts of the Arctic region not currently owned by any country.

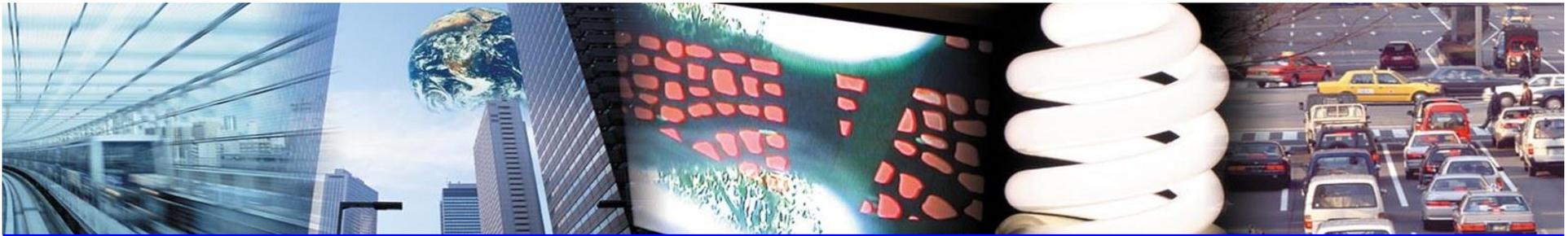
4-Consequences:

- The mentioned competitions/disputes could deprive the APEC economies of the Arctic region's energy benefits.

- Extensive oil/gas extraction in the Arctic region will speed up its melting to create major global/regional challenges.

- Such challenges (e.g., rising sea levels) could affect oil/gas security of the APEC economies by **disrupting the operation** of their oil/LNG import/export terminals and/or **increase their operational cost** by requiring major modifications to make them immune to rising sea-levels.





F-Potential impact of the security-challenged economies on the TAGP project and energy security of APEC's seven ASEAN economies

1-Security challenges of a varying extent to the APEC economies are especially evident in the ASEAN region housing seven APEC economies:

a-Nature of challenges: Challenges to the sovereignty of the ASEAN economies, including their APEC members, due to cross-border military clashes, armed drug trafficking and/or continued armed insurgencies, terrorist activities or separatist movements in their countries.

b-Challenged economies: APEC economies (Malaysia, Thailand, Indonesia and the Philippines) and non-APEC economies (Lao PDR, Cambodia and Myanmar).

2-Major potential impact of these challenges on their oil/ gas security and that of other APEC economies depending on oil/gas imports from or through them.

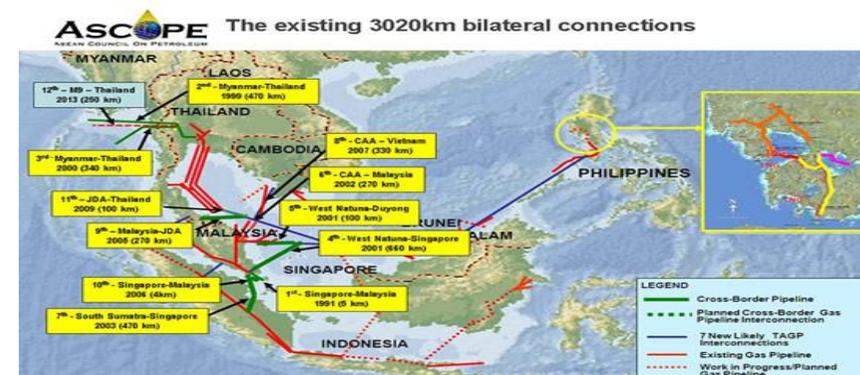
a-Possible outcome of the challenges: Loss of control over parts of the affected economies territories for a while.

b-Impact: Likely inability of the affected economies to honour their cross border energy exports resulting in the energy insecurity of the APEC economies depending on imports from/through the affected economies.

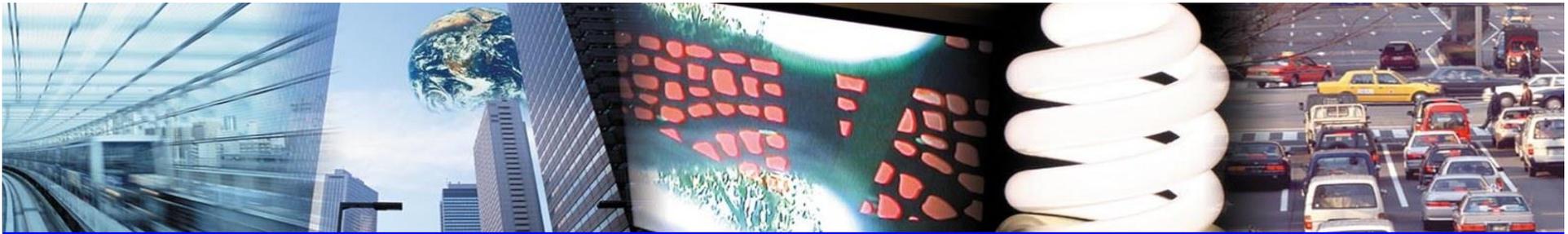
3-Challenge to the TAGP (Trans –ASEAN Gas Pipeline) project as a major case

a-The TAGP passes through the ASEAN countries, including the APEC ones.

b-As a possibility, future internal or cross-border conflicts affecting the mentioned economies could potentially stop the flow of gas through the TAGP to create gas insecurity for Southeast Asia, APEC and non-APEC economies.



Source: <http://ascope.org/component/content/article/6-projects/28-tagp.html>



G-Threats to oil/gas pipeline safety/security as the North-East Asian APEC economies are becoming increasingly dependent on piped oil and especially gas imports

1-Role of pipelines in meeting the regional oil/gas requirements:

- a. The large and growing portion of the regional oil/gas demand has been satisfied through imports mainly by sea tankers.
- b. Yet, oil/gas imports through pipelines have been expanding to increase the importance of pipelines in meeting the regional needs especially for the APEC region's largest energy consumer, China.

2-A significant amount of China's oil and gas has been imported through a few pipelines as follows:

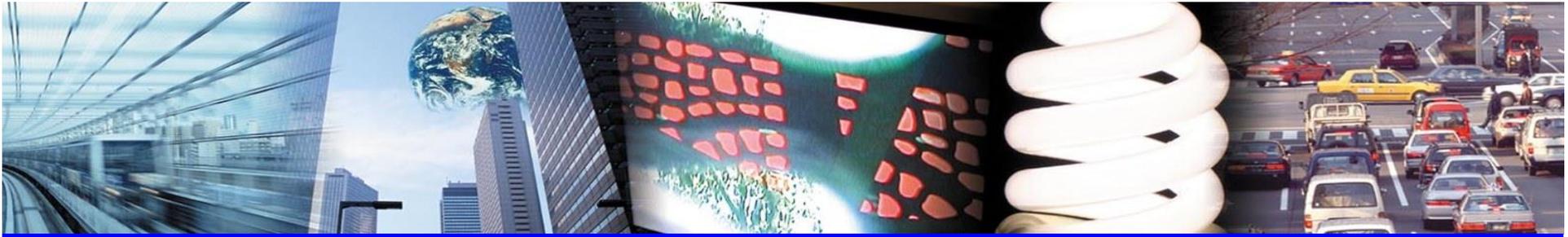
- Central Asian Gas Pipeline (carrying gas of Turkmenistan, Uzbekistan and Kazakhstan)
- Kazakhstan-China Oil Pipeline (carrying oil of Kazakhstan)
- Skovorodino-Daqing Oil Pipeline (carrying oil of Russia)
- Sino-Myanmar Oil Pipeline (carrying oil of Myanmar)
- Sino-Myanmar Gas Pipeline (carrying gas of Myanmar)

3-The importance of pipelines for other large North-East Asian APEC economies:

Japan and South Korea do not import fuels via pipelines due to their geographical situation. However, they are also stakeholders in pipeline security as they **import indirectly** part of their oil requirements via the **East Siberia Pacific Ocean Oil Pipeline**, which feeds oil tankers supplying them.

4-Threats to affect the oil and gas security of the APEC economies' depending on oil and gas imports via pipelines:

- Natural threats (e.g., extremely cold weather)
- Human-made threats (e.g., sabotage and accidents)

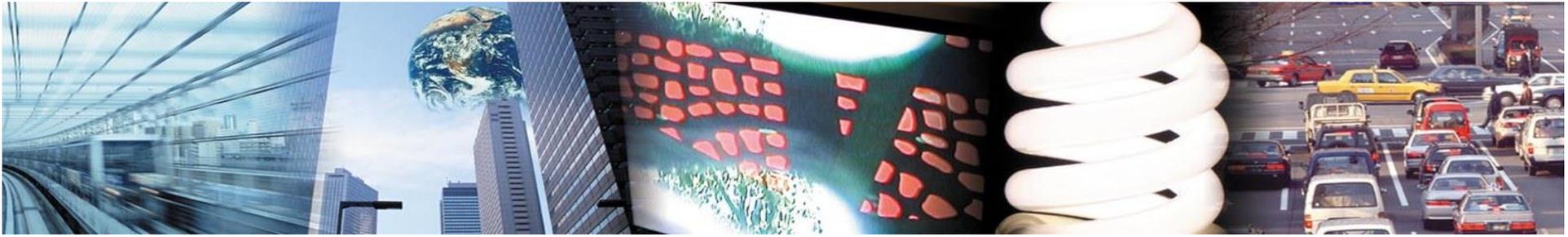


III-Conclusions

A-Various challenges threat, will predictably threat in the foreseeable future or could potentially threat the APEC regions oil and gas security.

B-Some of these challenges have their roots in the APEC region (internal challenges) while others are rooted in other regions (external challenges).

C-Identifying these challenges and the factors contributing to their emergence, scale, scope and impact is a necessity for helping the APEC economies prevent their negative impact on their oil and gas security to the extent possible or prepare themselves to ensure their oil and gas security through alternatives sources.



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