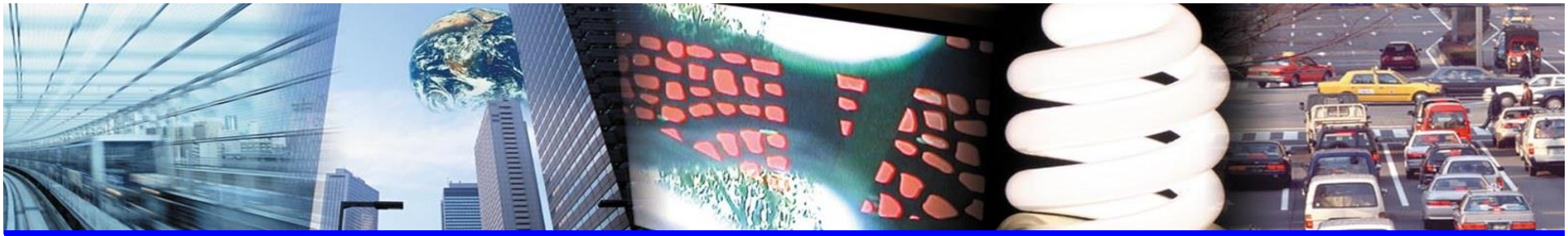
APERC Workshop at EWG47, Kunming, China
19 May 2014

4. Oil and Gas Emergency Exercises

4-3. Indonesian Exercise

Chrisnawan ANDITYA
Researcher, APERC

Asia-Pacific
Economic Cooperation



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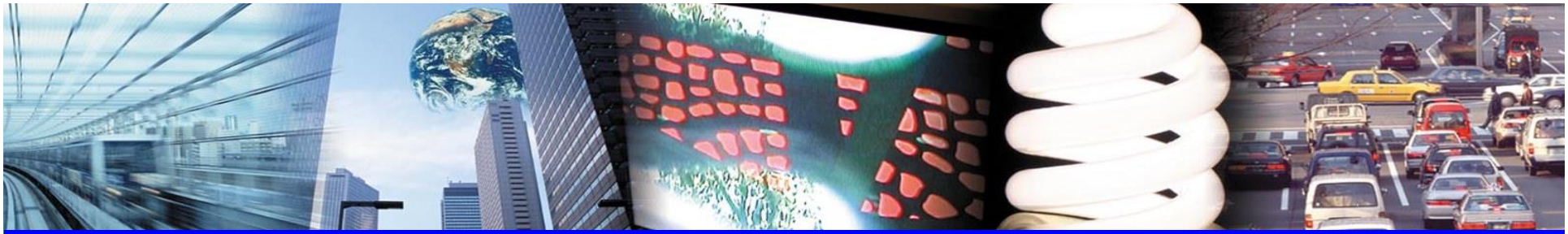
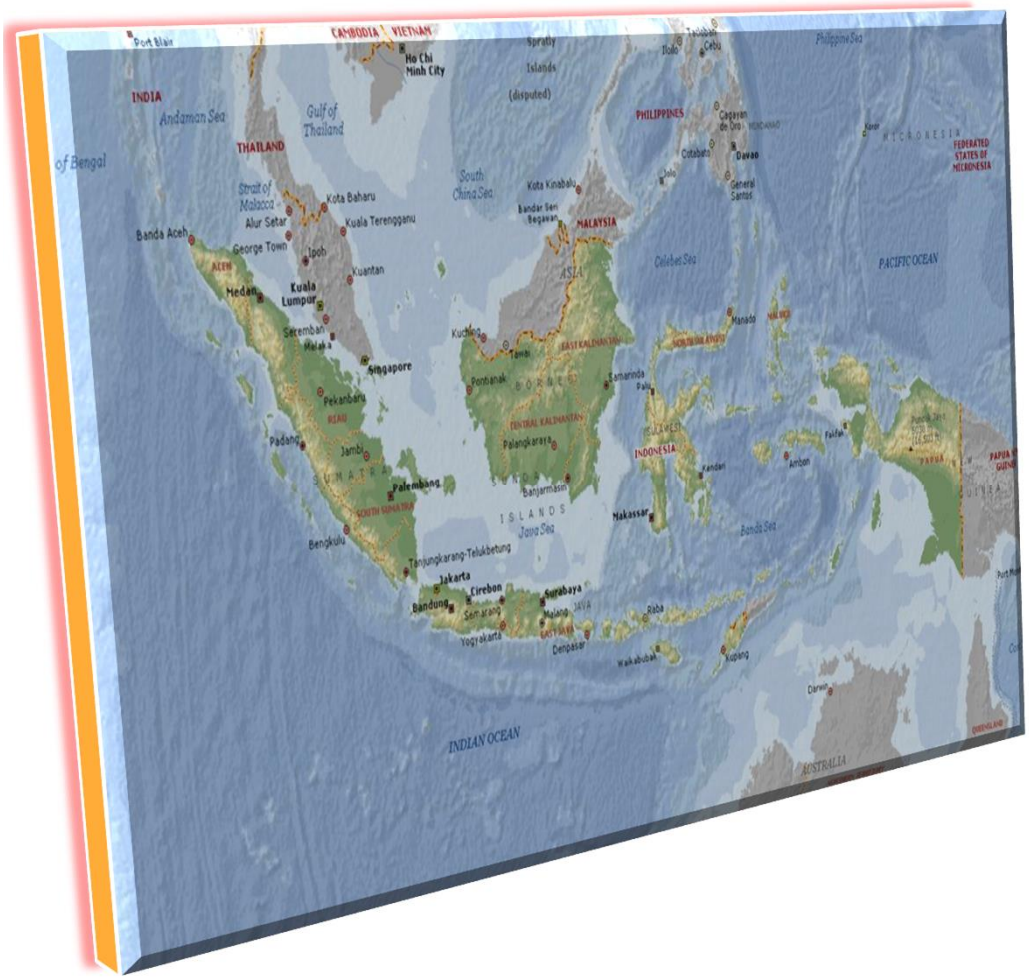
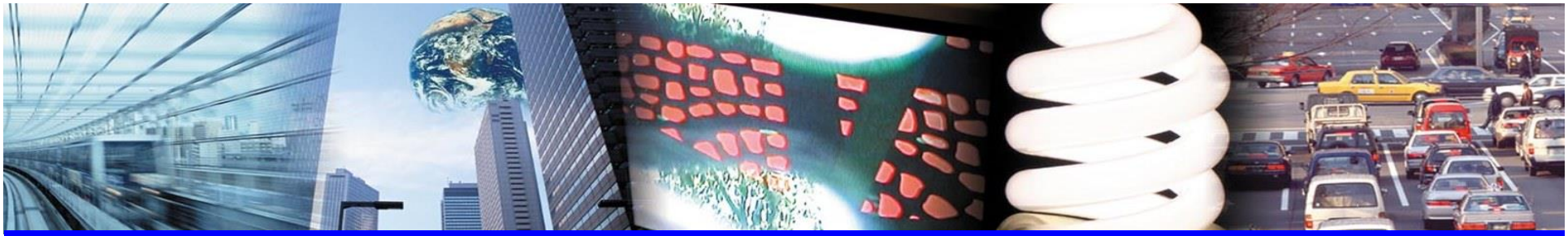


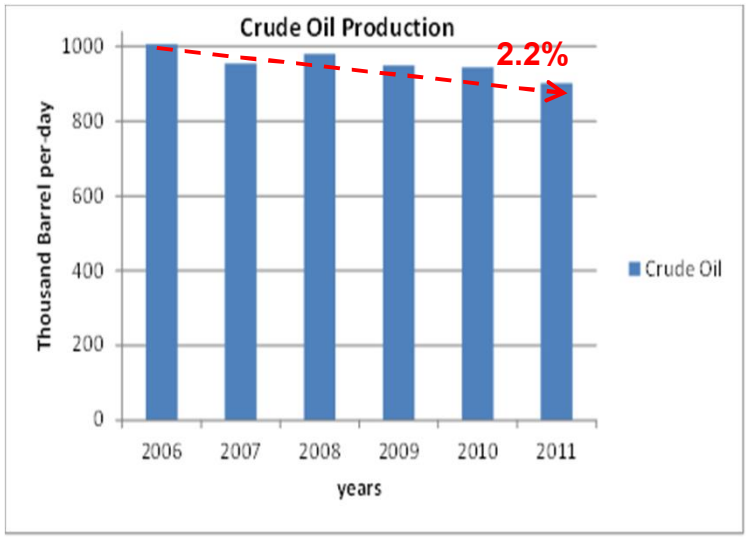
Overview of Indonesia



The Economy Profile	2011
Å No. Islands	17,508
Å Area (million sq. km)	7.9
Å Population (million)	244
Å Income/capita (USD)	3,612
Å Energy Reserves:	
- Oil (billion barrels)	3.7
- Natural Gas (trillion cubic metres)	3.0
- Coal (billion tonnes)	5.5

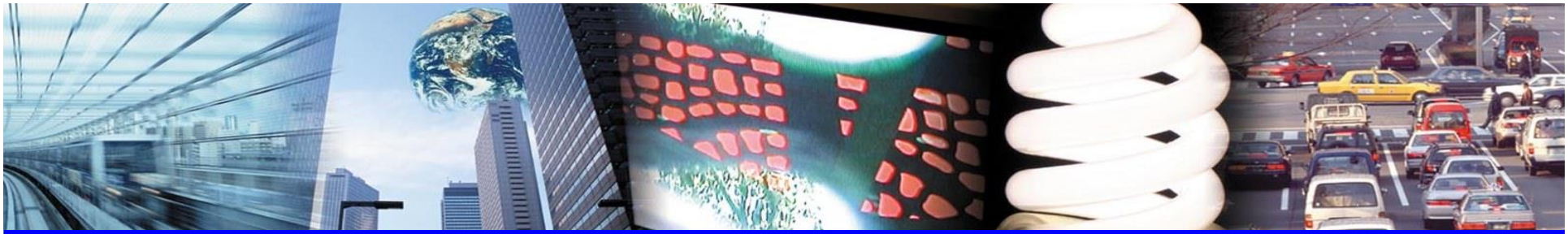


Supply Side – Crude Oil



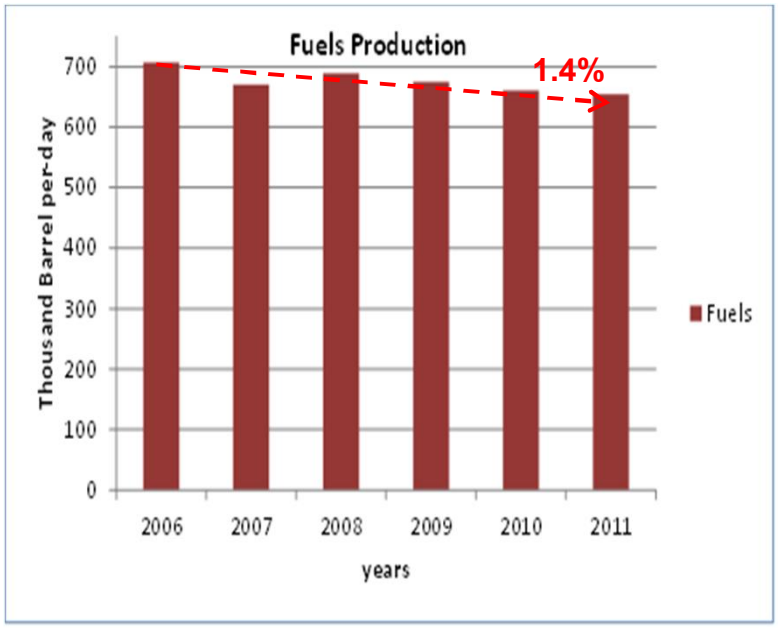
Source: ESDM, 2012 and DJMIGAS, 2011

- **Oil production** has been on a **downward** trend.
- **41%** of total crude oil production was **exported**, mostly to Japan.
- **33%** of crude oil demand was **imported** mostly from Saudi Arabia.
- There are **10 operational refineries** with the total capacity of 1,157 thousand barrels per day.



Supply Side - Fuel Products

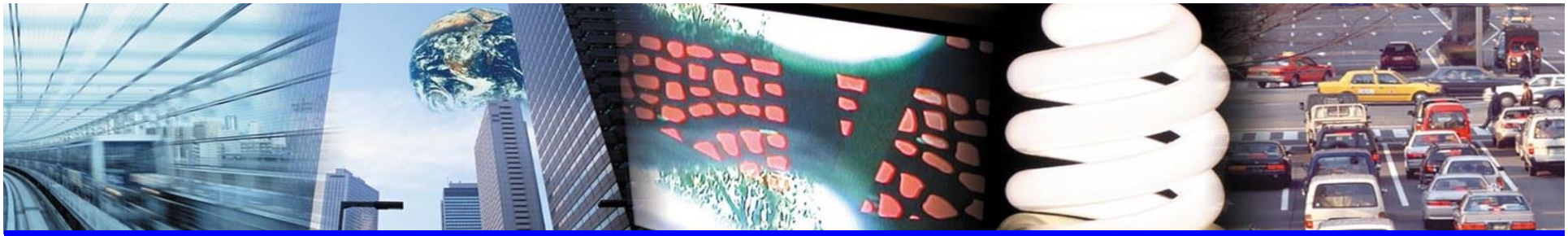
- **Fuel production** has been on a **downward** trend.
- Most of fuel products were **Gas Oil/ ADO/HSD**.
- **42%** of total fuel products demand was **imported** from Singapore, mostly Premium.
- **Fuel imports** are projected to reach **52%** of the total fuel consumption in 2030 (Indonesia Energy Outlook 2011).



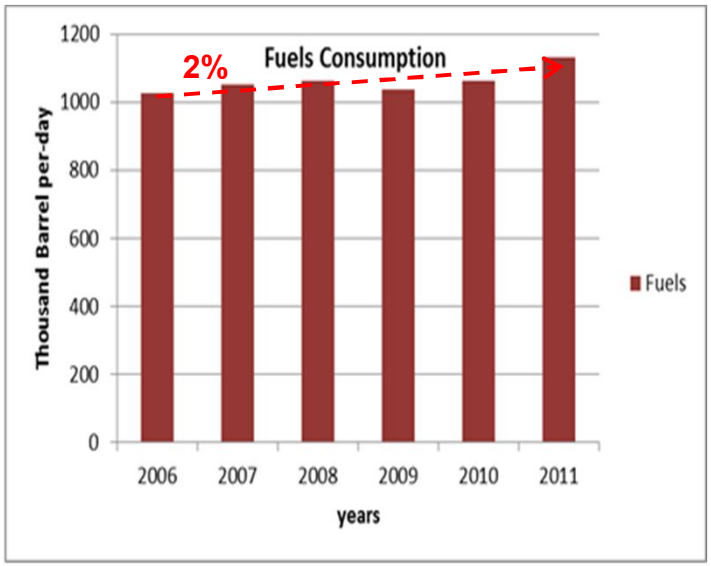
Source: ESDM, 2012 and DJMIGAS, 2011

Note:

- *Gas Oil, ADO (Automotive Diesel Oil), and HSD (High Speed Diesel) are Diesel Oil types used as fuel for high speed diesel engine in Indonesia.*
- *Premium is one of Mogas-(Motor Gasoline) branded names in Indonesia's market which has an octane number of about 89 RON.*



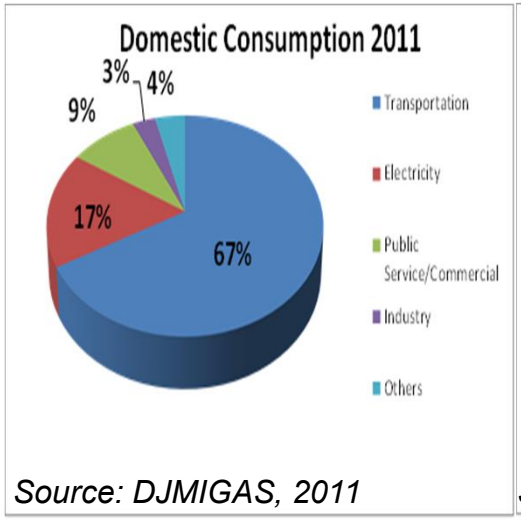
Demand Side – Fuel



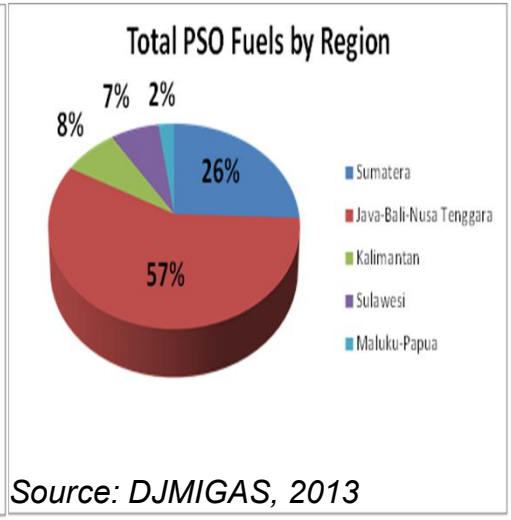
Source: ESDM, 2012 and DJMIGAS, 2011

- **Fuel demand** is expected to **increase**, mostly from the transportation sector.
- The **transportation sector** accounted for **the largest consumer**.

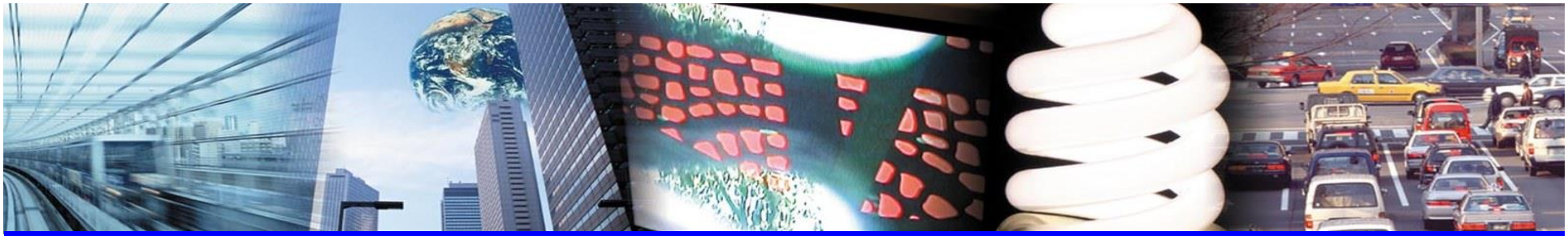
- By region, **Java-Bali-Nusa Tenggara** is **the largest consumer**.
- **Fuels** are mainly **distributed by tankers**, except for several areas on Java Island where pipelines are used.



Source: DJMIGAS, 2011



Source: DJMIGAS, 2013



Indonesia's Emergency Response

Regulation

The Energy Law No.30
(Managing and guaranteeing the availability of energy, and dealing with energy crisis & emergency)

The Oil & Gas Law No.22
(ensuring the availability & distribution of fuels, and joint use of the infrastructure of fuels in areas where experiencing a shortage of fuels and in remote areas)

The Presidential Reg. No.7 on APSA Ratification
(providing petroleum supply to the ASEAN Member States in distress at the aggregate amount equal to 10% of the normal domestic requirement)

Emergency Response System

The Company Level
(An oil/fuel emergency affecting an oil company's facility)

The Regional Level
(An oil/fuel emergency covers a region or province)

The National Level
(An oil/fuel emergency covering more than one region or province)

The National Energy Council (NEC) *will call all the concerned agencies and stakeholders to meet to discuss the required mitigation action*

Emergency Response Mitigation

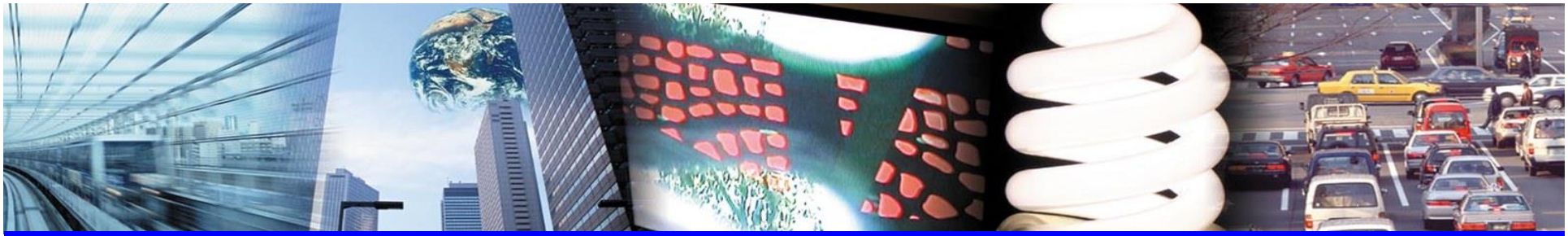
Short-term
(Implementing supply & demand measures; and promoting public understanding)

Long-term
(Increasing domestic prod. & reducing oil import; stockpiling; diversifying fuel for transportation & power gen.; and developing NRE supply)

Supply Side Management
(Activating alternative & emergency supply dist. maximizing domestic prod.; restricting crude oil & oil product exports; increasing alternative energy use (biofuel/CNG); reducing feedstock to the petrochemical plants; draw-downing of oil stock; and rescheduling/postponing oil & gas field maintenance)

Demand Side Management
(**Oil Demand:** Conducting public communication; restricting private motor vehicle use; limiting opening time of gas stations; and rationing oil. **Electricity Demand:** Switching to alternative fuel usage for power gen.; electricity saving campaign; limiting opening time of department stores/theatres; and shifting working hour)

Note:
APSA: ASEAN Petroleum Security Agreement



The 1st Stage of The Oil Emergency (1)

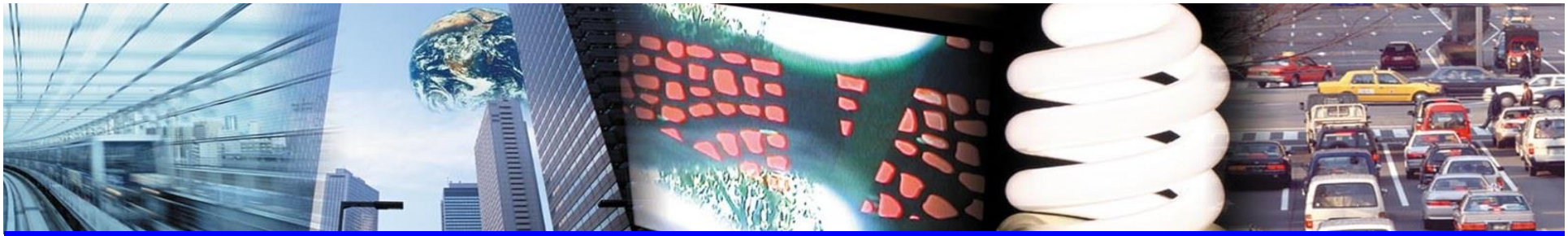
- **The Scenario:**

  An 8 magnitude earthquake strikes the **Cilacap** area. Fuel Oil Complex (FOC) Iôs installations are damaged resulting in the **total loss** of its **production of fuel products**. FOC II are somewhat damaged. Repairing FOC I will take at least **3 months** and FOC II will take at least **2 weeks**.

- **The Impact:**
  - **100%** of crude oil imports (Arabian Light Crude) cannot be fed to **FOC I**.
  - **30%** of the crude oil imports and **70%** of the domestic crude oil production cannot be fed to **FOC II**.
  - As a result, **10%** of the national Mogas and **20%** of the national Diesel Oil **cannot be produced for 3 months**.
- **The Affected Area: Provinces of West Java and Central Java**.
- **The Level of Emergency: Company Level** (PERTAMINA).

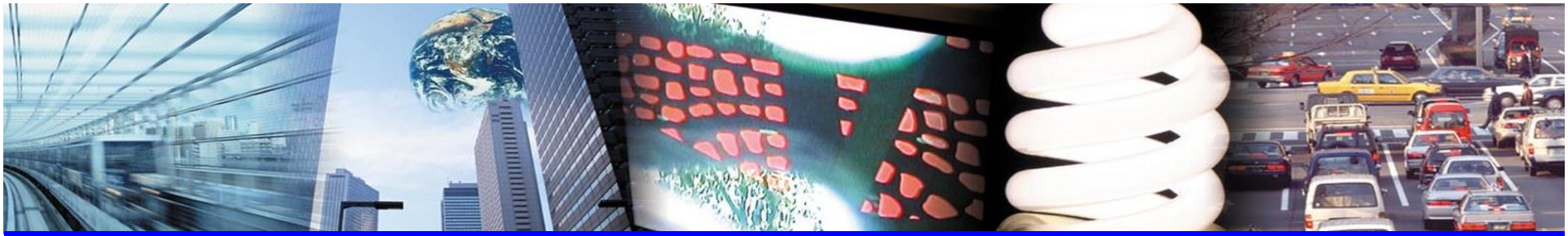
Note:

- *Mogas (Motor Gasoline) is light hydrocarbons used in motor vehicle internal combustion engine (not including aircraft). In Indonesia market, 3 types of gasoline are available, namely Premium, Premix/Pertamax, and Super TT/Pertamax Plus.*
- *Diesel Oil is one of refinery product that contains heavy gasoil. In Indonesia market, diesel oil is distinguished into Automotive Diesel Oil (ADO), Gas Oil, High Speed Diesel (HSD), Industrial Diesel Oil (IDO), and Marine Diesel Fuel (MDF).*



The 1st Stage of The Oil Emergency (2)

- **The Emergency Response Measures:**
  - The **imported ALC** will be **stored in the other terminal**.
  - **Crude oil** which cannot be fed to FOC II will be **reallocated to other refineries**.
  - **Import Mogas** and **Diesel Oil** from Singapore or buy it from spot markets.
  - **Release fuel stock**.
- **The Experts' Recommendation:**
  - The Government should **support PERTAMINA's measures**.
  - Every **long-term oil contract** between PERTAMINA and other oil companies should include a **special clause in case of emergency**.
  - PERTAMINA could consider **securing a proper spare capacity** of its domestic refineries.
  - The Government and PERTAMINA need to prepare a **public communication plan** to avoid peopleôs panic-buying.

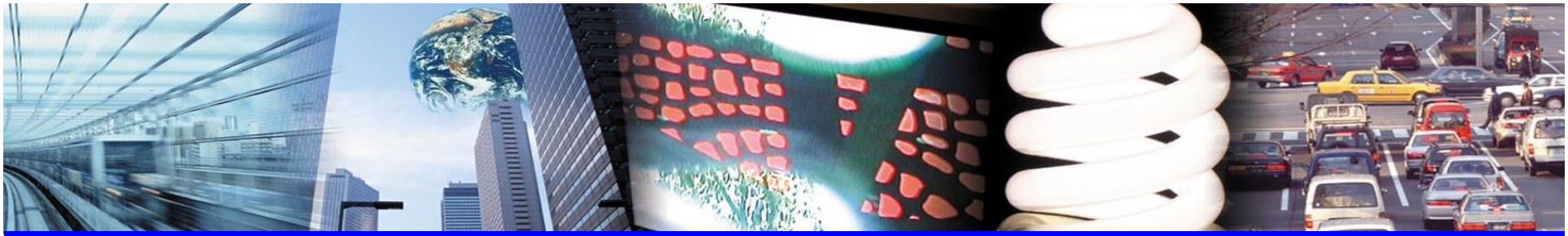


The 2nd Stage of The Oil Emergency (1)

- **The Scenario:**

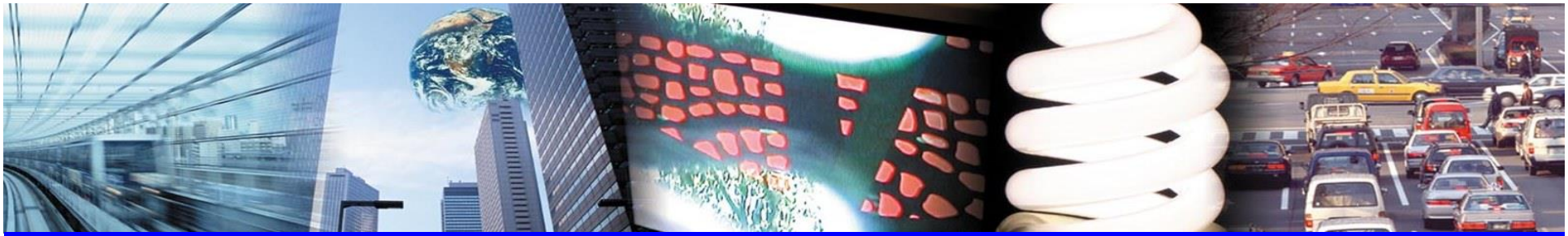
  3 weeks after the 1st incident, there is **aftershock** and it makes further damaged the entire plant (**the plant completely shut down**). The restoration of the plant will take at least **1 year**. The refineryôs other oil-related facilities are also damaged. The restoration of these facilities are not certain how long it will take.

- **The Impact:**
  - **10%** of the national Mogas and **20%** of the national Diesel Oil **cannot be produced for 1 year**.
  - **348 thousand barrels** of crude oil per day **cannot be processed**.
- **The Affected Area: the entire country**.
- **The Level of Emergency: National Level**.



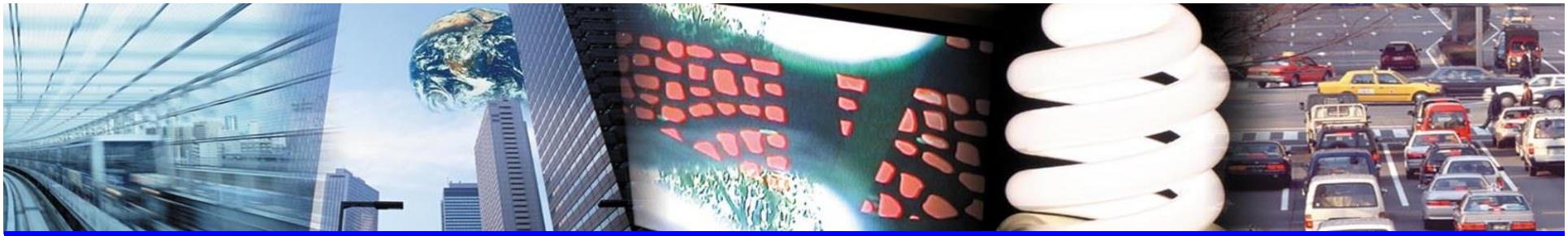
The 2nd Stage of The Oil Emergency (2)

- **The Emergency Response Measures:**
  - PERTAMINA will **report** to **the Ministry of Energy and Mineral Resources** (MEMR).
  - **MEMR will monitor** and **evaluate** the impact of disruptions and **coordinate the meetings** with related agencies and stakeholders in order to propose **emergency response measures**.
  - The necessary **measures** will be **implemented by NEC**, as follows:
    - **Supply side**: importing Mogas and Diesel Oil; conducting Crude Processing Deals (CPD) to overseas refineries; and increasing alternative energy use.
    - **Demand side**: Communicating with the public to prevent public panic and hoarding; and introducing car-pooling and oil-rationing.



The 2nd Stage of The Oil Emergency (3)

- **The Experts' Recommendation:**
  - Indonesia should prepare its **emergency response strategy** to be ready.
  - **CPD** is a good measure but the Government must have **information** on it.
  - The Government needs **securing a budget** for CPDs and importing fuels.
  - Increasing **biofuel** consumption is a good option but it is a **long process**.
  - **Recovering the Cilacap Refinery's** and **its facilities** as soon as possible.
  - The **environmental impact** of the incident should be **investigated**.
  - The Government should **assess** the disruptive impact on **non-fuel products** as well.
  - **Oil rationing** is a good measure but the Government should prepare an **implementation plan** beforehand.

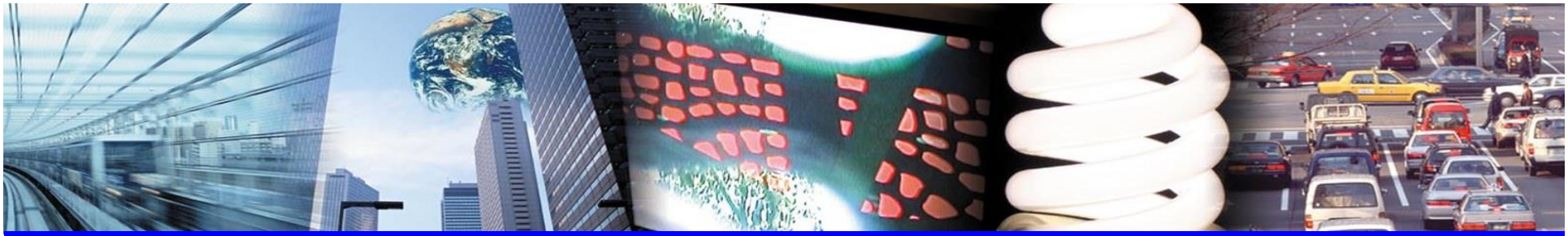


The 3rd Stage of The Oil Emergency (1)

- **The Scenario:**

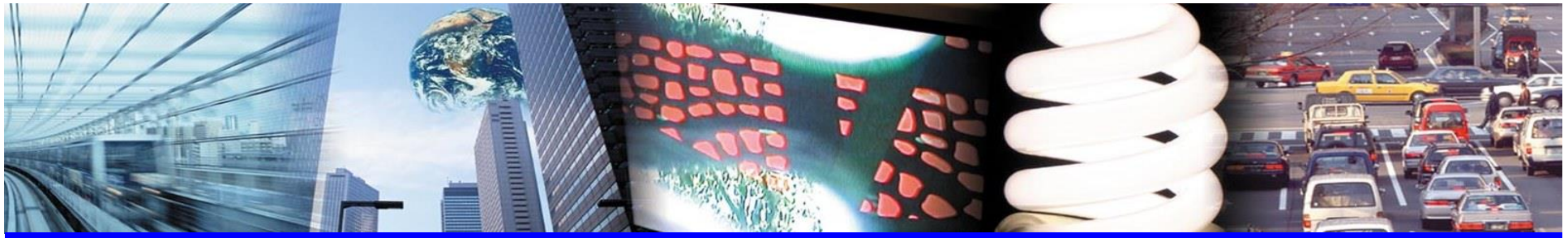
  6 months after the 2nd incident, some local residents **cut off the oil pipeline** from Bangko to Dumai to protest against the government measures to increase fuel price and to demand for improving the welfare from PT Chevron Pacific Indonesia (CPI). It causes a **problem for the distribution of oil**. The damaged pipeline can be repaired in **1 week**, but CPI needs some time to persuade the local residents. however it is quite **uncertain** whether they can **reach an agreement** at that time

- **The Impact:**
  - **30-40 thousand barrels** of crude oil per day cannot be fed to **the Dumai Refinery**.
  - **Decreasing the national fuel production** and the **inventory limit level** at several depots since the Cilacap Refinery is still fully in-operational.
- **The Affected Area: Dumai and Siak areas**.
- **The Emergency Level: National Level**.



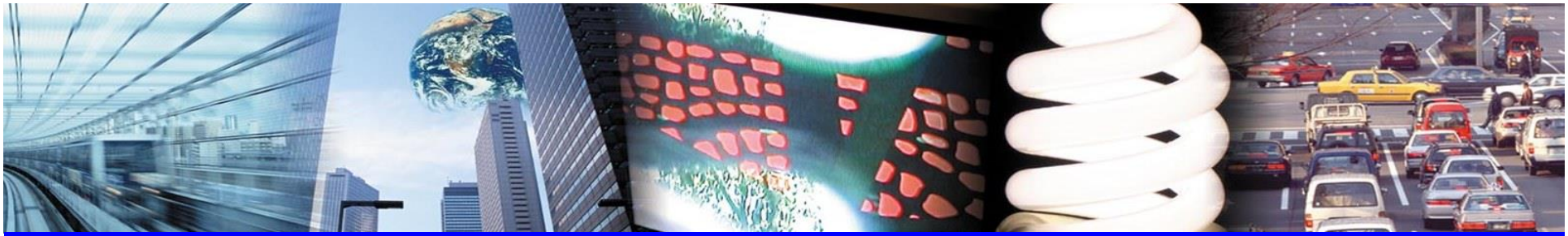
The 3rd Stage of The Oil Emergency (2)

- **The Emergency Response Measures:**
  - **30-40 thousand barrels** of crude oil per day will be **stored in the slop tanks & other storages.**
  - CPI and PERTAMINA will **report** to **the MEMR**.
  - **MEMR will monitor** and **evaluate** the impact of disruptions and **coordinate the meetings** with related agencies and stakeholders in order to propose **emergency response measures**.
  - **Engaging the local leaders** to negotiate with the local residents to end their blockade.
  - The necessary **measures** will be **implemented by NEC**, as follows:
    - **Supply side**: temporary export restriction & prioritizing crude oil for the Dumai Refinery; maximizing other domestic refineries production; and increasing fuel imports.
    - **Demand side**: implementing more widely the existing demand side measures (car-pooling).



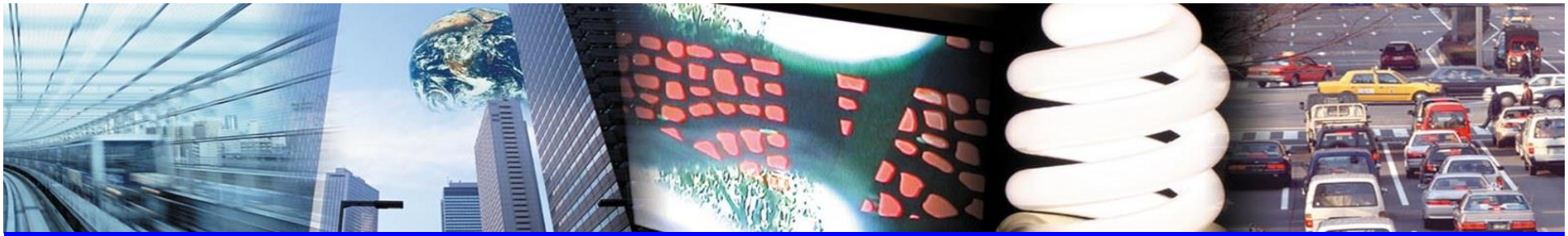
The 3rd Stage of The Oil Emergency (3)

- **The Experts' Recommendation:**
  - Though some laws prioritizing domestic needs has been established, but the Government still needs **detailed regulations** to **implement the required action** (i.e., energy export restriction).
  - **Car-pooling** is a good measure but the implementation requires the necessary **detailed regulations**.
  - The Government could implement **work time shift**, including **work at home** (telecommuting).



General Recommendation

- The Government should **assess the affected region on a regular basis**.
- **Supply-side:**
  - Indonesia should consider **emergency oil stockpiling**.
  - The Government should consider tackling the shortcomings of its **domestic oil distribution infrastructure**.
- **Demand-side:**
  - The Government should be the point of **dissemination of information** to the public on emergency situations.
- Support from the Indonesian Government for establishing **Coordinated Emergency Response Measures (CERM)** is needed.



Expert Review Team Members and APERC Secretariat

EXPERT REVIEW TEAM MEMBERS

Mr. Yuichiro NISHIDA
International Energy Agency

Dr. Hardiv H. SITUMEANG
ASEAN Centre for Energy

Mr. Victorino S. BALA
ASEAN Council On Petroleum

Mrs. Chairani RACHMATULLAH
The Heads of ASEAN Power Utilities/Authorities Council

Dr. Phoumin HAN
Economic Research Institute for ASEAN and East Asia

Dr. Ucok WR SIAGIAN
Bandung Institute of Technology

Dr. Woonam SEOK
Korea Energy Economics Institute

Mr. Yoshinori SATAKE
Ministry of Economy, Trade and Industry, Japan

Dr. Ken KOYAMA
Institute of Energy Economics, Japan

Mr. Yoshikazu KOBAYASHI
Institute of Energy Economics, Japan

APERC SECRETARIAT

Mr. Takato OJIMI
President

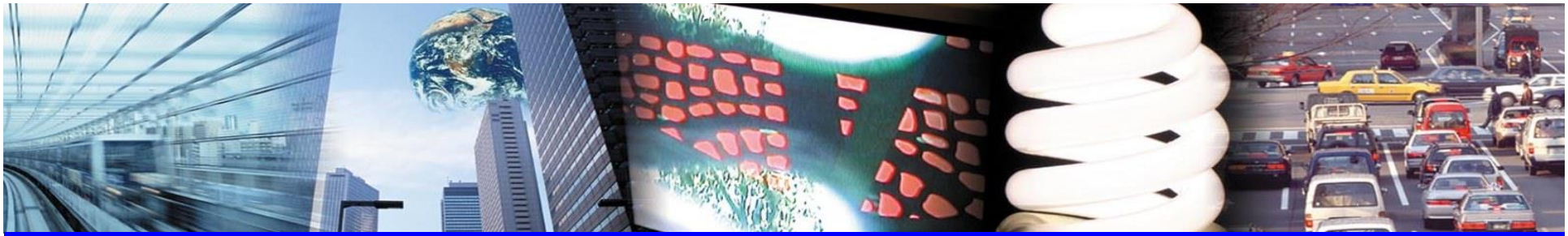
Dr. Kazutomo IRIE
General Manager

Dr. Hooman PEIMANI
Research Fellow

Mr. Goichi KOMORI
Senior Researcher

Mrs. Elvira T GELINDON
Senior Researcher

Mr. Chrisnawan ANDITYA
Researcher



Indonesia's Stakeholders Delegates

- **DG of Oil and Gas**
- DG of Electricity
- DG of New Renewable Energy & Energy Conservation
- Data & Information Centre of Energy & Mineral Resources

Ministry of Energy and Mineral Resources

Ministry of Transportation

Ministry of Finance

Coordinating Ministry of Economic Affairs

National Energy Council

Indonesia Entrepreneur Association for Oil & Gas Downstream

Indonesia Oil and Gas Community

Medco Sarana Kalibaru

Santos

Premier Oil Indonesia

Chevron Pacific Indonesia

PGN

PERTAMINA

Regulatory Agency for Downstream Oil & Gas Business Activities

Special Task Force for Upstream Oil & Gas Business Activities

Ministry of Interior

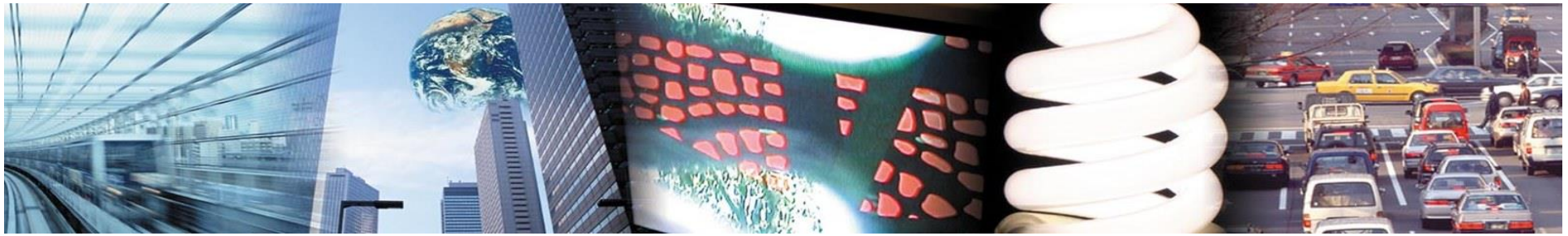
Indonesia Exercise

Note:

: Indonesian Government

: Energy Companies

: Energy Associations



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