

Greater Mekong Subregion (GMS)
Special Subregional Energy Forum (SEF)

The Current Status of Energy
Development in Cambodia

Victor Iona
Deputy Director General of Energy
General Department of Energy
Ministry of Industry, Mines and Energy

Bangkok, 18-19 March, 2009

Energy Policy

To provide an adequate supply of energy throughout Cambodia at reasonable and affordable price,

To ensure a reliable and secured electricity supply at reasonable prices, which facilitates the investments in Cambodia and developments of the national economy,

To encourage exploration and environmentally and socially acceptable development of energy resources needed for supply to all sectors of Cambodia economy,

To encourage the efficient use of energy and to minimize the detrimental environmental effects resulted from energy supply and consumption.

Current Structure of Energy Sector

■ MIME : responsible for government policy, strategies and planning in the energy sector;

■ CNPA (1998) : Role and responsibility to manage and develop both downstream and upstream activities within the petroleum sector

■ EAC (Sept., 2001): a regulatory body, responsible for licensing, tariff setting and regulations.

■ EDC (March, 1996): limited liability company owned by government; consolidated license granted by EAC.

CNPA : Cambodian National Petroleum Authority MIME : Ministry of Industry, Mines and Energy
EAC : Electricity Authority of Cambodia EDC : Electricité du Cambodge

1. Energy Efficiency and Conservation

- Start from year 2000, Cambodia had a good opportunity to join Energy Efficiency & Conservation Programme (EE&C) with ASEAN countries.
- We had mainly technical cooperation, particularly in the form of "on-the-job training" from some institutions & countries, e.g. ACE, EU, ECCJ, UN-ESCAP, ADEME,... in EE&C in the Industry & Building sectors.

4

ASEAN ENERGY COOPERATION

Building (Competition)

- ⇒ Le Royal Hotel (Retrofitted), Year 2001
- ⇒ Sofitel Royal Angkor (New and Existing), year 2002
- ⇒ Angkor Century Hotel (New and Existing), year 2003

Industry (Actual Energy Audit)

- ⇒ M & V International Manufacturing, December 2002 and February 2003
- ⇒ June Textile Co., December 2002 and February 2003

Training/Capacity building

- ⇒ Arab-Malaysia Development Berhad Textile Factory, in Penang City, Malaysia on 14 – 20 January 2001
- ⇒ Ceramics Factory, in Hanoi City, Vietnam on 14-20 January 2002
- ⇒ Mini-hydro power plant, in Vientiane, Laos PDR on 14-20 January 2002

2. RENEWABLE ENERGY RESOURCES

- **Solar Energy:** the average sunshine duration of 6-9 hours per day, giving an average of 5kWh/sq.m-day.
- **Wind Energy:** The southern part of the great lake Tonle Sap, the mountainous districts in the southwest and the coastal regions, such as Sihanoukville, Kampot, Kep and Koh Kong have the annual average wind speed of 5m/s or greater. The total area around 5%.
- **Hydro:** The potentiality of hydro resource is about 10.000MW, but currently electricity coming from hydro resource is less than 20MW.

RENEWABLE ENERGY RESOURCES (Con't)

- **Biomass:** The report prepared by NEDO on "the Assistance Project for the Establishment of an Energy Master Plan" identified significant biomass energy resources from a variety of agricultural residues such as rice husk., Cassia, Cassava, Luscenia, Mulberry, Coconut, SEM, Pro..
- **Biogas:** The effectiveness of small scale biogas has been demonstrated in Cambodia by a number of different projects. The use of animal wastes to generate high quality gas for cooking has significant economic, health, social and environment benefits for poor rural households.
- **Biofuel:** Jatropha – 200 ha , Palm Oil – 4,000 ha (recently) and will be increased to 10, 000 ha in the next few years , sugar cane 20,000 ha and cassava also promoted.

National Policy on Rural Electrification by Renewable Energy

- 1) Endeavor to provide access to reliable, safe electricity services, with insignificant impact on the environment and at an affordable price for rural communities,
- 2) Provide effective legal, regulatory frameworks and various to a encouragements and train the private sector to participate in providing electricity services by renewable energy in the rural areas;
- 3) Ect as a market enabler, through various incentives, for enabling equity in access to reliable and safe electricity services, with insignificant impact on the environment, at an affordable price for the rural communities;

National Policy on Rural Electrification by Renewable Energy (Con't)

- 4) Encourage the efficient generation, transmission and distribution of electricity using the renewable energy technologies, through tariffs, which are in conformity with the Electricity Authority of Cambodia (EAC)'s regulations;
- 5) Promote electricity systems by renewable energy at least cost for rural communities, through research and pilot development, as part of RGC's portfolio on grid and off-grid technologies; and
- 6) Ensure adequate resources, appropriate institutional mechanisms and training to empower the poor involving in rural electrification to participate.

Project Implementation

- **Solar Photovoltaic:** Project with NEDO Japan, SIDA , other international and national institutions including Prime Minister project we had installed around 0.5 MW in the country.
- **Biomass Gasification:** Project with Canada in Battambang (7kw + 20kw) and with DEDE Thailand in Kompong Cham (30kw). On going project in Sambour District, Kompong Thom Province with the capacity 30kw by FONDEM France, will start to install in 2009 and a number of biomass gasifiers done by local investors.
- **Microhydro:** On Going Project with UNIDO capacity 65kw two units, Grant from JICA 2 micro hydropower plants 370 kw.

Project Implementation (Con't)

- **Bio-fuel:** Have more than 10 companies doing with Jatropha, planting around 1,000 ha, no once do with big scale yet.
- **Bio-Energy:** One company from Korea doing on this field with the production capacity of ethanol 36,000 t/year from 100,000 tons of cassava.
- The WB assist to Rural Electrification Fund by providing granted (GEF) and IDA Loan Aprox. USD 12 mil. to implement the following projects:
 - 1- Expansion off-grid new 50,000 connections with subsidy \$45/connection,
 - 2- Study and development of micro hydropower plants (village hydro) with investment cost USD 2.7 mil.,
 - 3- Install 12,000 SHS to people in rural areas – people have to pay back all the cost during 5 yrs period (maximum).

3. Oil and Gas

- Cambodia has been importing all necessary petroleum products from neighboring countries such as Thailand, Vietnam and Singapore
- Recently Cambodia has discovered oil in four exploration wells in Block "A" covers 6,278 km², which is located in the offshore Cambodia, approximately 120 km south-west far from the main land
- With the recent rise in fuel prices and as well as for industrialization of the country it has become prudent for the country to build her own refinery to:
 - Reduce the burden of fuel imports on the budget;
 - Ensure a sustainable energy supply system and security
 - Satisfy domestic demand
- An oil refinery is planned to be constructed utilizing domestic crude oil to be expectedly produced offshore and The Refinery will be located in Sihanouk Ville (Cambodia) near the port
- The refinery shall be operated by government agency called CNPA (Cambodian National Petroleum Authority)

**Vision & Purposes : Oil & Gas
Development in Cambodia**

- Oil & gas for Economic Growth, Energy Security, Environmental Protection & Conservation, Poverty Alleviation and Peace and Stability in the region ;
- To enable Cambodia to monetize it's petroleum resources;
- To reduce Cambodia's total dependence on imported petroleum finished products;
- To develop a natural gas & crude oil market national, regional and international;
- Convertible electricity generation based on indigenous gas and;
- To reduce electricity prices...expand energy consumption & network;

Cambodian Petroleum Industry

- Cambodia's petroleum industry is in the early stages of development. The Government, however, created the Cambodian National Petroleum Authority (CNPA) in 1998.
- Promote investment in Cambodia's upstream oil and gas sectors
- Investigate potential downstream markets for natural gas in Cambodia, including electricity generation
- Update and enhance regulatory framework and reliability of information

Cambodian Petroleum Industry (Cont.)

Current major exploration projects in Cambodia's oil and gas sector include:

- Ongoing exploration & drilling program by ChevronTexaco in Block A, offshore
 - Encouraging data acquisition and exploration activity:
 - Tonle Sap area, onshore (new frontier).
 - Blocks B and C, D, E and F offshore, Cambodia.

Crude Oil Refinery

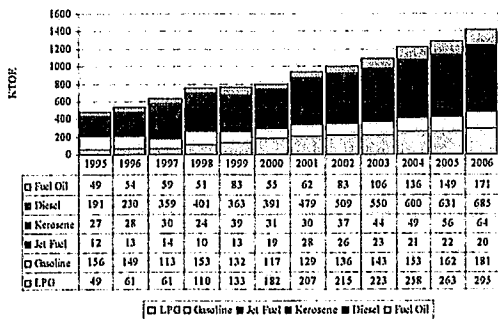
- The initial plant capacity is estimated 30,000 barrel/day; maximum capacity is about 50,000 barrel/day of crude oil
- Crude oil is expected to be supplied from offshore oil fields in Cambodia by year 2010.

Oil Production

- Produce petroleum products aim at domestic market
- Production outputs:
 - Regular Gasoline;
 - Premium Gasoline;
 - Kerosene;
 - Diesel; and
 - Fuel Oil

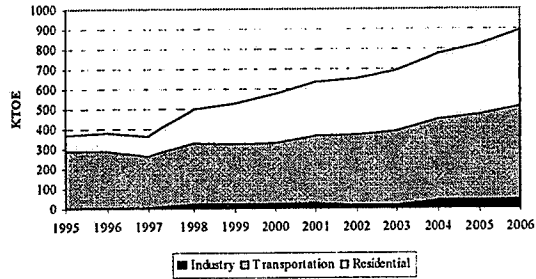
Cambodia Oil Statistics

Cambodia Imported Petroleum Products



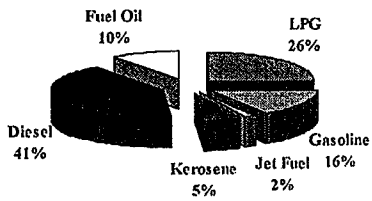
Cambodia Oil Statistics (Cont.)

Petroleum Consumption by Economic Sector

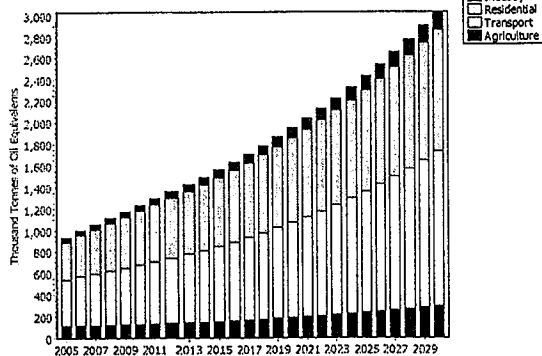


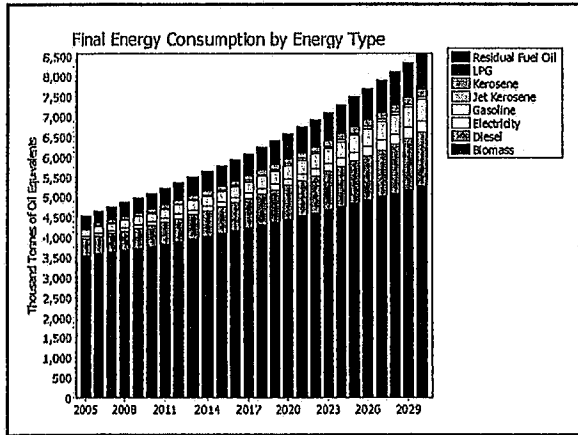
Cambodia Oil Statistics (Cont.)

Share of Petroleum Products Consumption in 2006



Projected Petroleum Consumption by Sector





End of Presentation

Thank you for your attention.
