



Opportunities for Cooperation in Myanmar Petroleum Energy Sector

Aung Kyaw Htoo
Assistant Director
Energy Planning Department
Ministry of Energy

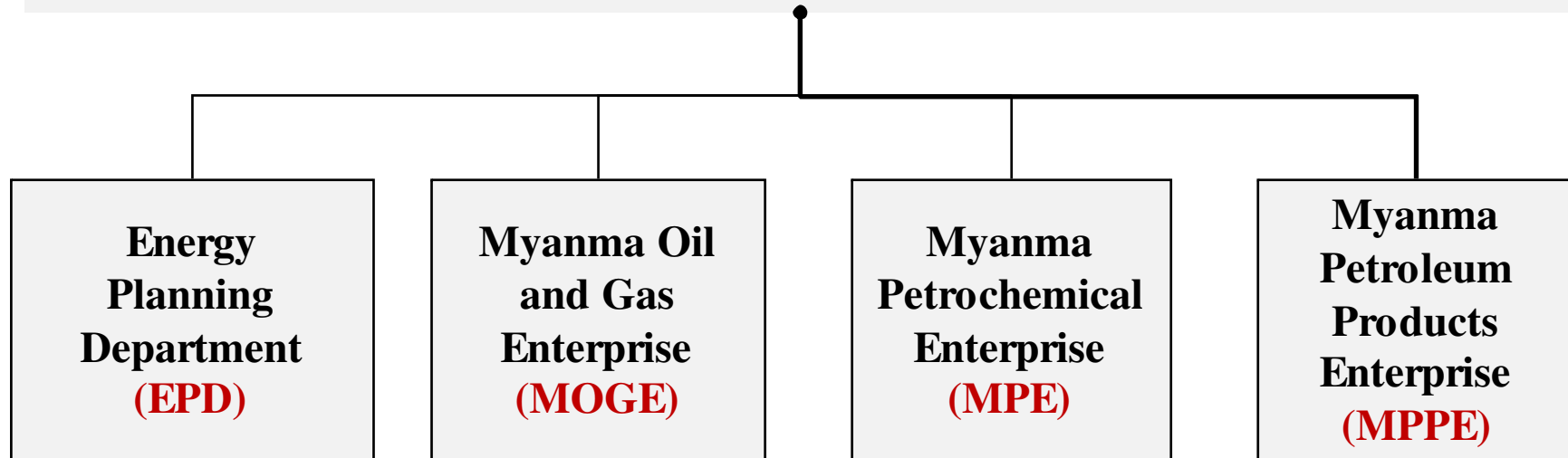
Yangon, 20-21 June 2012

Content

1. Ministry of Energy
2. Petroleum Oil & Gas Sector
3. Petrochemical Industry Sector
4. Petroleum Products Sector
5. Opportunities
6. Conclusion

(Ministry of Energy)

Organizations and Respective Responsibilities



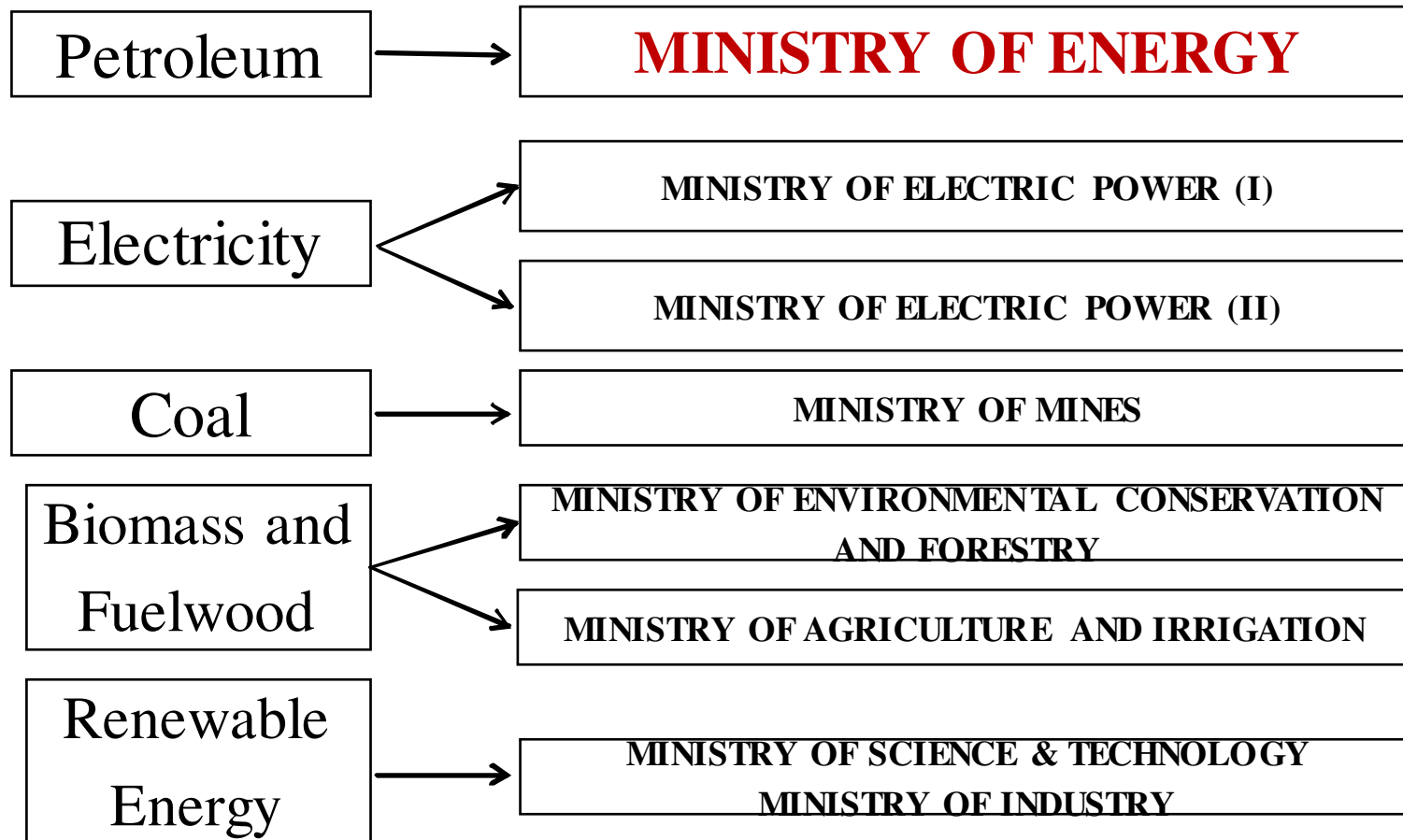
- Technical Arm
- Coordination
- Management
- Regulation

- Exploration
- Drilling
- Production
- Onland Oil and Gas Pipeline Network
- CNG

- Refineries & Process
- Fertilizer Plants
- Methanol Plant
- CO2 and LPG Plants
- Waxing & Tar

- Marketing
- Distribution

Institutional Framework



* Ministry of Energy is a Focal Point of the Myanmar Energy Sector Cooperation in the Region

Petroleum Oil and Gas Sector

Exploration and Development of Petroleum

Petroliferous Basin

SEDIMENTARY BASINS

1. Rakhine Coastal
2. Hukaung
3. Chindwin
4. Shwebo-Monywa
5. Central Myanmar
6. Pyay Embayment
7. Ayeyarwady Delta
8. Bago Yoma Basin
9. Sittaung Valley
10. Mepale
11. Mawlamyine
12. Namyau
13. Hsipaw-Lashio
14. Kalaw
15. Rakhine offshore
16. Moattama offshore
17. Tanintharyi offshore

STATUS OF EXPLORATION

(Offshore)

Thoroughly Explored Basins

1. Rakhine Offshore
2. Moattama Offshore
3. Tanintharyi Offshore



STATUS OF EXPLORATION

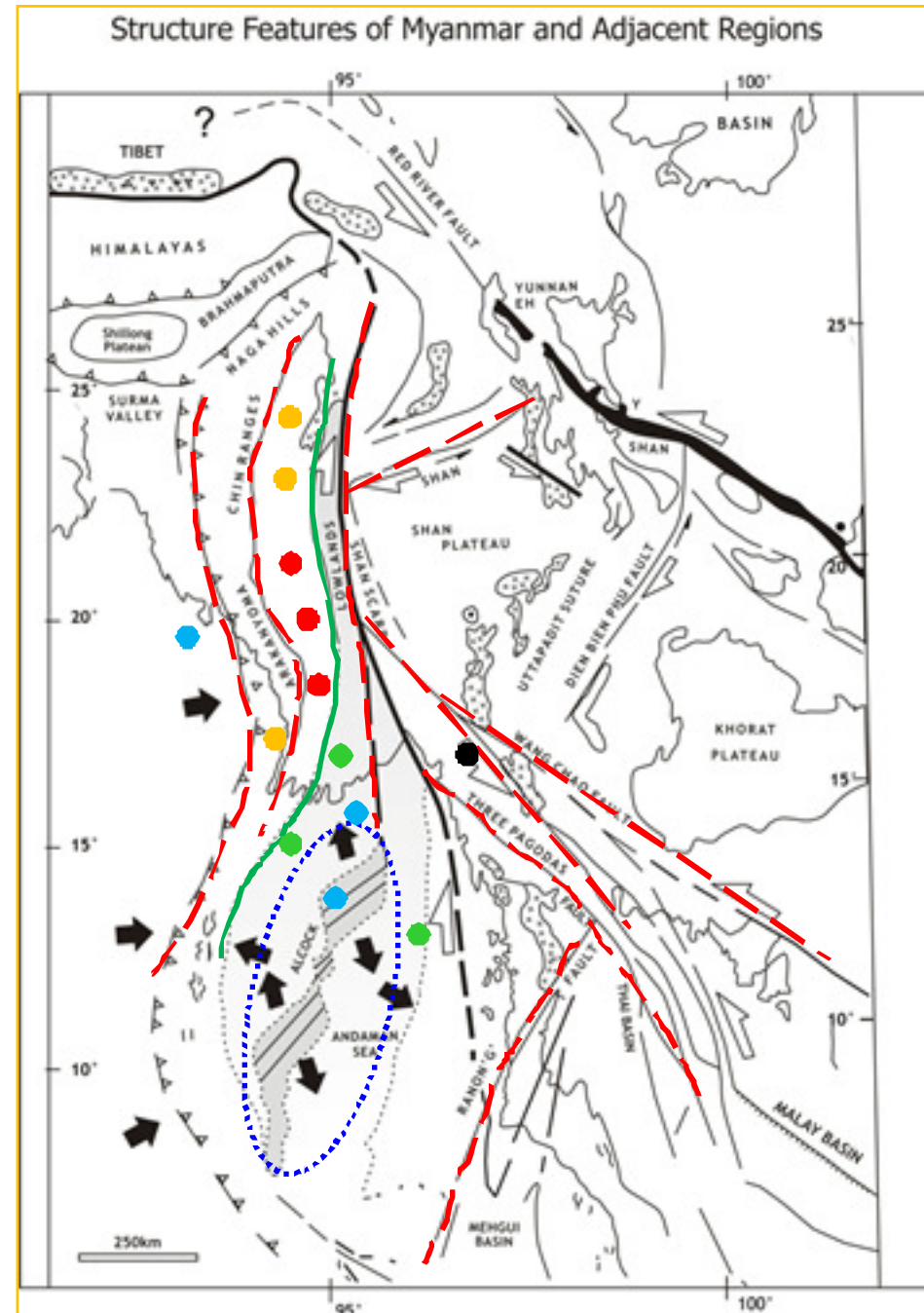
(Onshore)

- A. Thoroughly Explored Basins
 1. Central Myanmar
 2. Pyay Embayment
 3. Ayeyarwady Delta
(Only Part of the Basin)
- B. Explored to Some Extent
 1. Chindwin
 2. Rakhine Coastal
- C. Very Little Explored
 1. Hukaung
 2. Shwebo-Monywa
 3. Bago Yoma
- D. Not Explored Yet
 1. Hsipaw-Lashio
 2. Namyau
 3. Kalaw
 4. Sittaung Valley
 5. Mawlamyine
 6. Mepale (Oil Shale)

Myanmar Petroliferous Basins

Significant Structural Features

1. Western Scarp Active Subduction Zone (Andaman Trench)
2. Thrust zone of Western Indo-Burman Ranges (Wedge)
3. **Kabaw** Right Lateral Fault Zone
4. **Central Volcanic Arc**
5. **Sagaing** Right Lateral Strike Slip Fault Zone (Shan Scarp Fault)
6. **Nan-Ting** (Momeik & ShweLi) Right Lateral Strike Slip Fault Zone
7. **Papun-Wang Chao** Left-Lateral Strike Slip Fault Zone
8. **Three Pagoda** Left Lateral Strike Slip Fault
9. **Ranong** Right Lateral Strike Slip Fault
10. **Andaman Sea Spreading Center**, Rift segments & West Right Lateral Strike Slip Fault Zone



Exploration and Development of Petroleum (Cont.)

Summary

Oil and Gas Fields (onshore)

Discovered (28)	- 28 oil and gas fields
Producing (22)	- 17 oil fields and 5 gas fields
Tested/Suspended (6)	- 1 tested and 5 suspended oil fields
Appraisal (1)	- Southern Chindwin Basin

Gas Fields (offshore)

Producing (2)	- Yatana and Yetagun
Ongoing (2) to mid of 2013	- Shwe A-1 & A-3, Zawtika Project M-9
Plan (1)	- A Project for domestic use in Block M-3
Appraisal (1)	- Block A-6

Domestic Crude Pipeline Network

- 535 km (Pre 1988;450 km & Post 86 km)

Domestic Gas Pipeline Network

Onshore (4" to 20")
km) - 2339 km (Pre 1988; 468 km & Post 1871

Offshore, Yadana to Yangon (24") - 441 km (offshore 286.5+ onshore 149.7)

Export Gas Pipeline to Thailand (PTTEPI)

Yadana to Metering Station (36") - 410 km

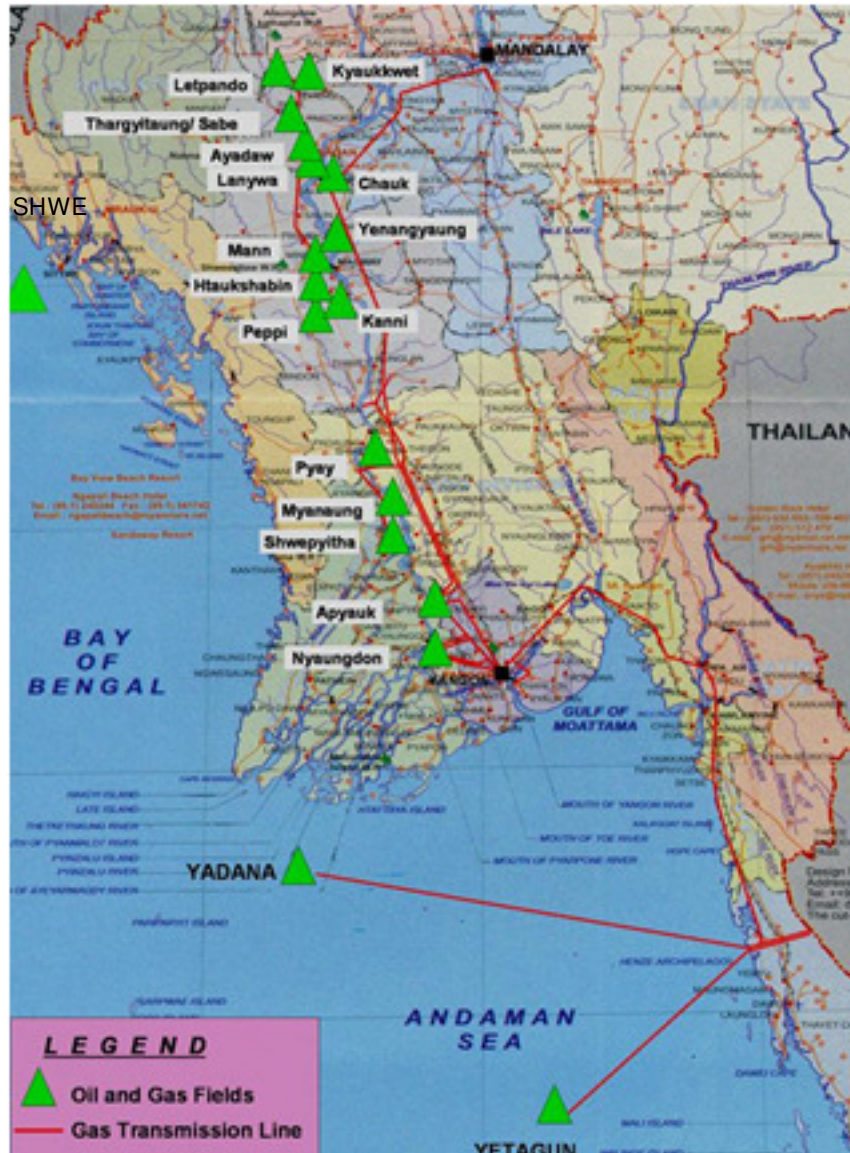
Yetagun to Metering Station (24") - 274 km

Myanmar –China Pipeline (Ongoing)

Crude Pipeline (32") - 741 km

Exploration and Development of Petroleum (Cont.)

OIL & GAS FIELDS (ONSHORE)



<u>SR NO.</u>	<u>OIL & GAS FIELDS</u>	<u>YEAR OF DISCOVERY</u>	<u>REMARKS</u>
1	YENANGYAUNG	1887	PRODUCING
2	AYADAW	1893	PRODUCING
3	CHAUk	1902	PRODUCING
4	LANYWA	1902	PRODUCING
5	YENANMA	1914	PRODUCING
6	PYAYE (Pyay Embayment)	1924	PRODUCING
7	PAYAGON (Ayeyarwaddy Delta)	1959	SUSPENDED
8	MYANAUNG (Ayeyarwaddy Delta)	1964	PRODUCING
9	PYAY (Pyay Embayment)	1965	PRODUCING
10	SHWEPYITHA (-do-)	1967	PRODUCING
11	PYALO (-do-)	1969	SUSPENDED
12	MANN	1970	PRODUCING
13	LETPANDO	1974	PRODUCING
			2 YEARS & SUSPENDED
		1995	PRODUCING ⁵
14	PEPPI	1976	PRODUCING
15	HTAUKSHABIN	1978	PRODUCING
16	HTANTABIN (Pyay Embayment)	1980	SUSPENDED
17	KANNI	1985	PRODUCING
18	TABIN	1986	SUSPENDED
19	APYAUk (Ayeyarwaddy Delta)	1991	PRODUCING
20	KYAUkkWET	1995	PRODUCING
21	INDANG (Ayeyarwaddy Delta)	1996	SUSPENDED
22	NYAUNGDON (-do-)	1999	PRODUCING
23	THARGYITAUNG	2001	PRODUCING
24	SABE	2001	PRODUCING
25	INDAW (Chindwin basin)	2002	TESTED
26	DAHATPIN	2005	PRODUCING
27	HTAGAING	2006	PRODUCING
28	MAUBIN (Ayeyarwaddy Delta)	2007	PRODUCING 9

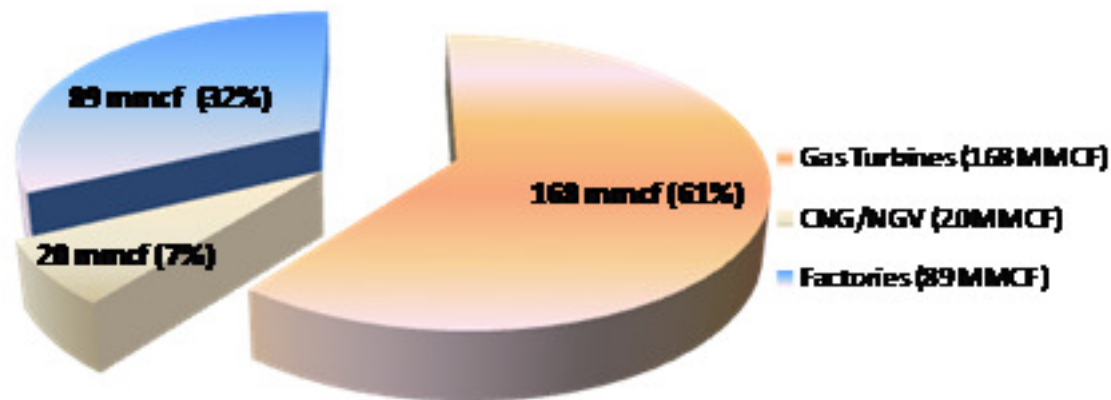
Production, Supply and Consumption of Natural Gas (Onshore and Offshore)

Domestic Demand & Supply

<u>CRUDE OIL (BBL/D)</u>		
DEMAND	SUPPLY	RATIO
60,000	20,000	33%
<u>GAS (MMCFD)</u>		
DEMAND	SUPPLY	RATIO
590	240	41%

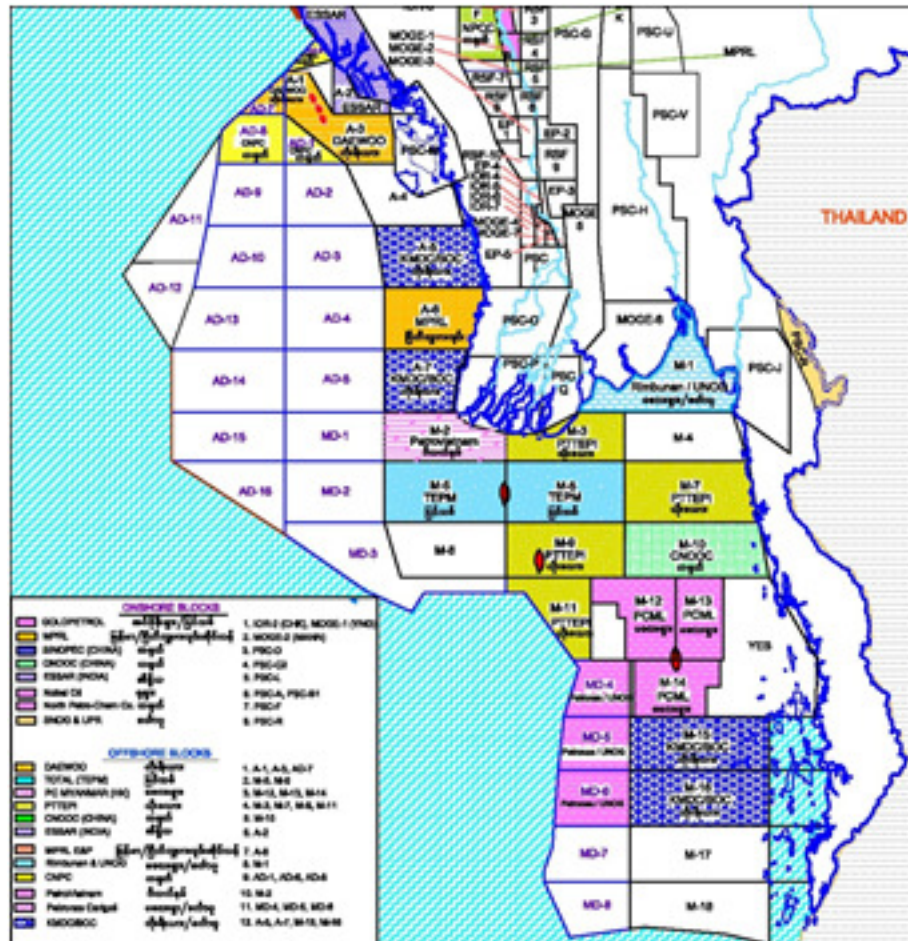
Domestic Gas Supply Projects on 2013 (unit in mmcf)

Project	Demand	Supply	Supply Ratio (%)	Remark
Onshore+Offshore	590	240	41	Present
Zawtika Project	73	60		2013
Shwe Project	130	100		2013
Total	793	400	51	2013



61% of Total Natural Gas supply to Gas Turbines
20 % of Total Electricity are generated by Gas Turbines

Current Offshore Activities



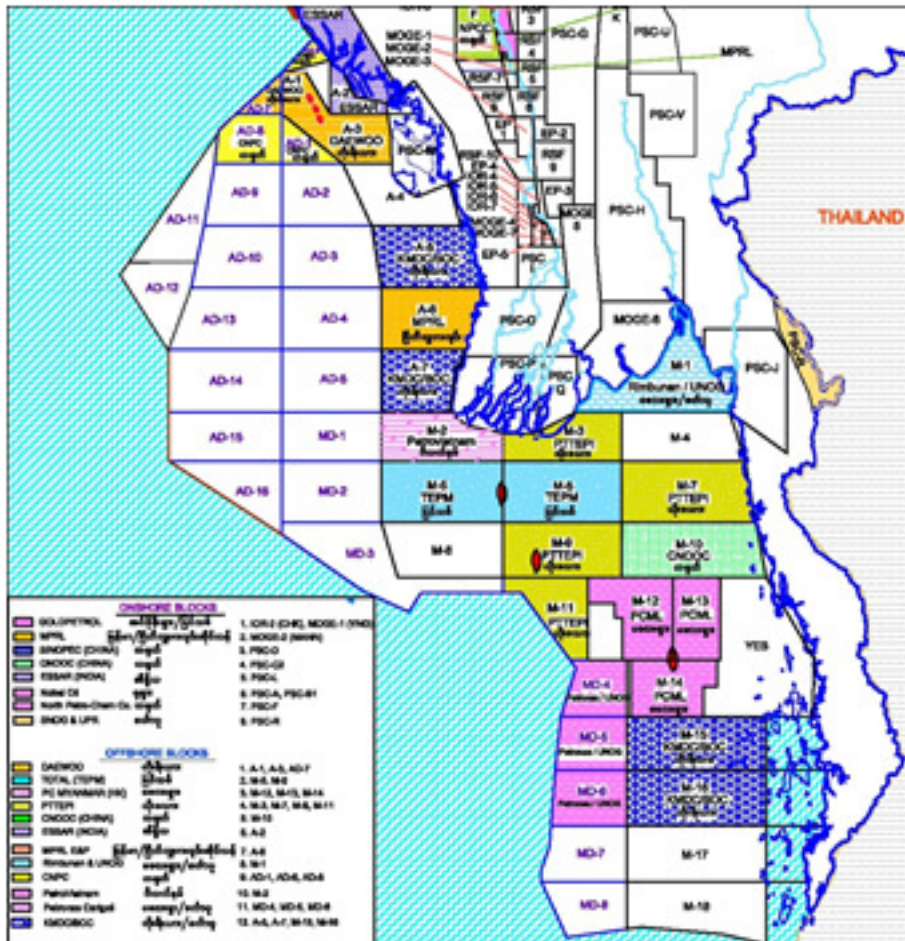
Company / Operator

Block

TOTAL	- M-5, M-6 (Yadana Project)
PETRONAS	- M-12, M-13, M-14 (Yetagun Project)
DAEWOO INTERNATIONAL	- A-1, A-3 (Shwe Project)
PTTEPI	- M-3, M-11, - M-9 (Zawtika Project)
CNOOC	- M-10
CNPC INTERNATIONAL LTD	- AD-1, AD-6, AD-8
MPRL E&P	- A-6
RIMBUNAN PETROGAS	- M-1
PETROVIETNAM	- M-2
DAEWOO INTERNATIONAL	- AD-7
PETRONAS OVERSEA	- MD-4, MD-5, MD-6
KMDC	- A-5, A-7, M-15, M-16

In offshore area, **24** Contracts are active in **25** offshore blocks with **19** foreign companies from **11** countries.

Available Offshore Blocks (25 blocks)



- ❖ Rakhine Offshore Blocks (2 block)
 - A-2, A-4 (around to Shwe Gas Field)
- ❖ Mottama/Taninthayi Blocks (6 blocks)
 - M-4, M-7, M-8, M-17, M-18, YEB (Vicinity of M3, Yatana, Yetagun & Zawtika gas fields and prospective areas)
- ❖ Rakhine Offshore (12 blocks)
 - Deep Water Blocks
 - AD-2 to AD-5
 - AD-9 to AD-16
- ❖ Mottama/Taninthayi Offshore (5 blocks)
 - Deep Water Blocks
 - MD-1, MD-2, MD-3, MD-7, MD-8

8 shallow water blocks and 17 deep water blocks are open for new investors.

Cleaner Fossil Energy Programme



CNG Program for AUTOMOTONS in Cities

- ❖ Initiated in Myanmar since 1986
- ❖ 1986 – August 2004 (5 CNG Refueling Stations)
587 NGVs (Converted from petrol buses)
- ❖ CNG /NGV Programme was reactivated in August 2004
- ❖ 45 CNG Refueling Stations in Myanmar-
27,472 NGVs (Converted from both petrol / diesel cars)

Future

CNG Refueling Stations will be installed along the existing domestic pipeline corridor.

2 mmcf of Offshore Natural Gas mix with 20 mmcf of onshore gas for supply CNG Program

Petrochemical Industry Sectors (Downstream)

Summary of Petrochemical Industry

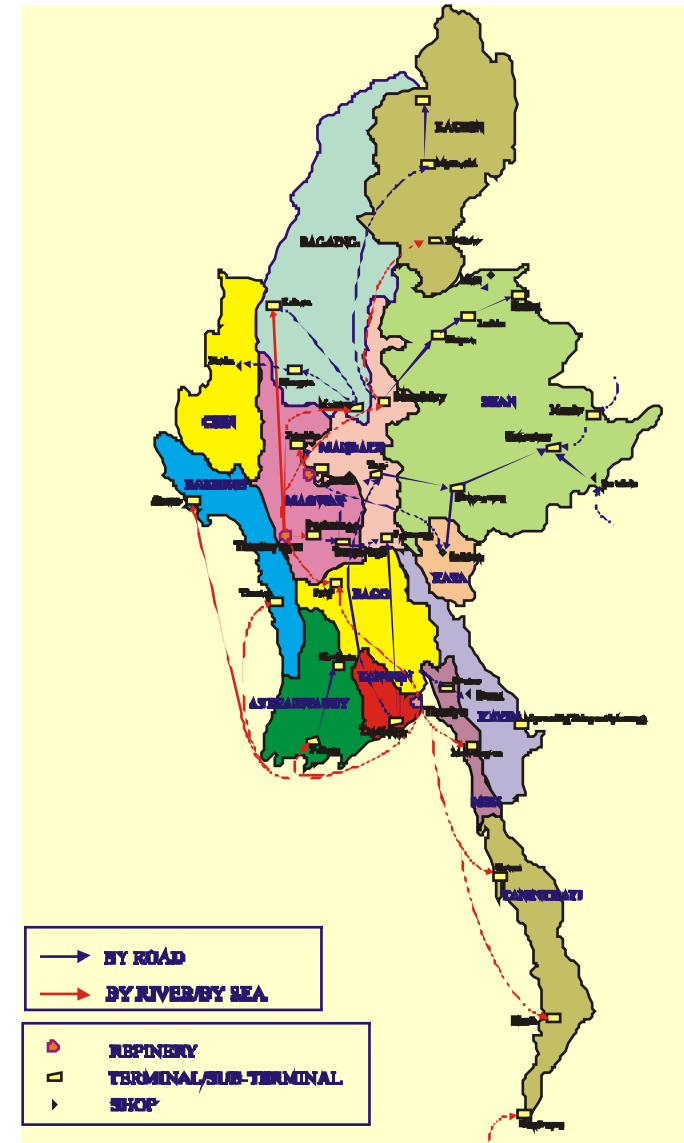
3 Refineries	-	(total capacity 51,000 bbl/day)
3 LPG Plants	-	(50 mmscfd)
5 Fertilizer Plants	-	(Ammonia 1340 MTD & Urea 2012 MTD)
1 Methanol Plant	-	(450 MT, under rehabilitation)
1CO ₂ Recovery Plant	-	(Liquid 24 Ton & Dry ice 6 Ton/day)

Petroleum Products Sector

Fuel Transportation and Facilities

Modes of transportation of petroleum products

1. Tankers to coastal terminals
 2. Oil barges from refineries to fuel terminal and shops
 3. Rank lorries
- 12 Filling Stations for Government Sector
 - 260 Filling Stations are privatized since 2010 June
 - 179 New Filling Stations are already distributed and 540 New Filling Stations are still under construction by private sector



Opportunities

Opportunities for Cooperation

(in Petroleum E&P)

1. New Prospects in Petroliferous Onshore & Offshore Blocks for Exploration and Production under PSC Basis
 - ❖ Direct Negotiation to Offshore Blocks
 - ❖ International Bidding Round Year 2012 for most of available blocks will be launching on next 2-3 months.
2. Tendering for Oil Field Services based on technical & commercial reliability through International Tendering
3. Indispensable equipments for pipeline, gas compressor, separator, production units and CNG kit etc.
4. Research and Development

Managing Director
Myanma Oil and Gas Enterprise (MOGE)
Fax: 95-67-411125, 411178
E-mail : mogemd@mptmail.net.mm

Procedures to Conduct Petroleum Operations in Myanmar Onshore Areas On Production Sharing Contract (PSC)

1. Submit Letter of Expression of Interest
2. Credentials:
 - ✓ Article of Association (AOA), Certificate of Incorporation, Latest Annual report, Latest Financial Statement (of) Financial Report
3. Documents are to be endorsed for authenticity by Representative Embassy of the Republic of the Union of Myanmar at the place of Company's registration (or) establishment or nearest
4. Sealed envelopes superscribed "***Confidential***" "***Myanmar Onshore Blocks Bidding Round-2012***"
5. Address to:

Director General,
Energy Planning Department, Ministry of Energy
Building No.6, Nay Pyi Taw, The Republic of the Union of Myanmar
Fax: +95 67 411 113, Email: myanmoe@mptmail.net.mm

Procedures to Conduct Petroleum Operations in Myanmar Onshore Areas On Production Sharing Contract (PSC) (Contd.)

6. The potential bidders will be selected into shortlist
 7. MOGE will present “General Data Overview” for Bidding Blocks
 8. EPD will explain the preferable “Standard Terms and Conditions”
 9. Cooperate (Joint operating) with at least ***one Myanmar National Owned Company*** which has been registered in Ministry of Energy
 10. Not more than 3 blocks are limited to propose
 11. Terms and Conditions, Production Sharing Contract and complementing with MOU or MOA or DOA for cooperated Myanmar companies to submit for each proposed blocks.
- ❖ The proposed Terms and Conditions will be assessed by EPD
 - ❖ The best offered Terms and Conditions will be selected for awarding blocks
 - ❖ The Model “Production Sharing Contract (PSC)” will be provided to Awarded Potential Bidders

Production Sharing Contract (PSC)

Onshore and Offshore

General Terms and Condition of PSCs

Technical Evaluating Agreement (TEA), 2 Years only for Offshore deep water blocks

Exploration Period (Initial term) - 3 years (*contractor will have the option to back-off*)

- 1st. Extension

- 2 years (*contractor will have the option to back-off*)

- 2nd. Extension

- 1 year (*contractor will have the option to back-off*)

Production Period

- 20 years (*or based on reserve*)

Royalty

- 12.5%

(Royalty is available Petroleum depend on water depth for deep water offshore blocks)

Income Tax

- 25% on CONTRACTOR's Net Profit

(3 years Tax Holiday starting from the Production)

Domestic requirement

- 20% of Crude Oil and 25% of Natural Gas of CONTRACTOR's share of profit petroleum at 90% Fair Market Price

State Participation

- 15 % of undivided interest and MOGE has the option to extend up to 25% at its own discretion.

Governing Law

- Laws of the Republic of the Union of Myanmar

Arbitration

- Myanmar Arbitration Act 1944, UNCITRAL Arbitration Rules

Opportunities for Cooperation

(in Petrochemical Sector)

1. New Refinery capacity of 56,000 bpd by using Imported Crude from Myanmar-China Crude Oil pipeline 2 Million MT /year
2. New Liquefied Petroleum Gas (LPG) Plant (on surplus natural gas)
3. New LNG project in Made Island
4. Joint venture of Thanlyin Refinery
5. Material Supply for Petrochemical Plants
6. Research and Development, e.g. Laboratory, Process etc.
7. New Petrochemical Plants (as a result of discovered gas fields and surplus domestic gas)
8. Indispensable equipments for Petroleum Industries

Managing Director
Myanma Petrochemical Enterprise (MPE)
Fax: 95-67-411126
E-mail : mpeho@mptmail.net.mm

Opportunities for Cooperation

(in Petroleum Products Marketing)

1. Supply of Petroleum Products to Government Sector when tender invited for spot purchase
2. Contemporary Transportation Units, tanker & fuel barge etc. in tender basic
3. Indispensable equipments for Petroleum Products transportation and distribution systems

Managing Director
Myanma Petroleum Products Enterprise (MPPE)
Fax: 95-67-411281, 411484
E-mail : mppe.ho2@mptmail.net.mm

Energy Saving Target

- ❑ To reduce Energy Consumption by 5% in 2020 and 8% in 2030 relatively with existing BAU (Business As Usual) scenario
- ❑ To Improve Energy Efficiency 7% in 2020, in the residential sector and 16% in all sectors at 2020
- ❑ To achieve 15~18% of Renewable Energy in the total power installed by 2020

Public Private Partnership Opportunities

- ❖ Filling Stations, Storage Tanks and Jetty for LPG business
- ❖ Marketing of Petroleum Products
- ❖ Lease for Thanlyin Lube Blending Plant

Email: mptaoffice@goldenland.com.mm

myanmar.mpta@gmail.com

Conclusion

- ✓ Exploration and Production of Onshore and Offshore Blocks is highly prominence.
- ✓ Services in E & P of Petroleum.
- ✓ Joint Venture in Petrochemical Industry.
- ✓ More Opportunities for Investors in Petroleum Products & LPG Marketing Business.

Contract Focal Point for Energy Business

Person: Director General
Energy Planning Department
Ministry of Energy

Address: Building No.6, Nay Pyi Taw

Fax. 95 - 067 - 411 113

Ph. no. 95 - 067 - 411 057
95- 067 - 411 099

Email: myanmoe@mptmail.net.mm

Thank For Your Time & Attention