

GROUP AND REGION-FOCUSED TRAINING
of
Japan International Cooperation Agency(JICA)

COUNTRY REPORT

ENERGY POLICY (A) J 1404092

(From June 1 to June 21)

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MYANMAR

June 3, JICA TOKYO

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General Information

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Location Map of Myanmar



Country Profile

Introduction

- Country Name - The Republic of the Union of Myanmar
- Located in South East Asia
- Capital - Nay Pyi Taw
- Major Cities - Yangon, Mandalay and Mawlamyaing
- Population - 60 millions
 - Average growth rate - 1.75% per annum
- Total Area - 676,552 sq.km
 - Total international boundary - 5860 km
 - Coastal strip - 2833 km
- Neighbouring Countries
 - China on North and North - East
 - Laos on East
 - Thailand on South - East
 - Bangladesh and India on North - West
- Main Export - Rice, Timber, Fishery and Mineral
- Four Major Rivers
 - Ayeyawady, Chindwin, Sittaung, Thanlwin
- Other Features - A lot of mountains and forest areas, rivers and creeks rich in natural resources abundant in energy resources for power.



Background History of Organization

1910

Companies

1950

Rangon Electric
Tramway and Supply
Co., (RET&S)

1951

ESB (Electricity Supply
Board)
The Electricity Act (1948)

1997

Ministry of Electric
Power (MOEP)

1989

Ministry of Energy

Myanma Electric Power
Enterprise (MEPE)

1972

Ministry of Industry(2)

Electric Power
Corporation (EPC)

2006

Ministry of Electric
Power No.1 (MOEP-1)

Ministry of Electric
Power No.2 (MOEP-2)

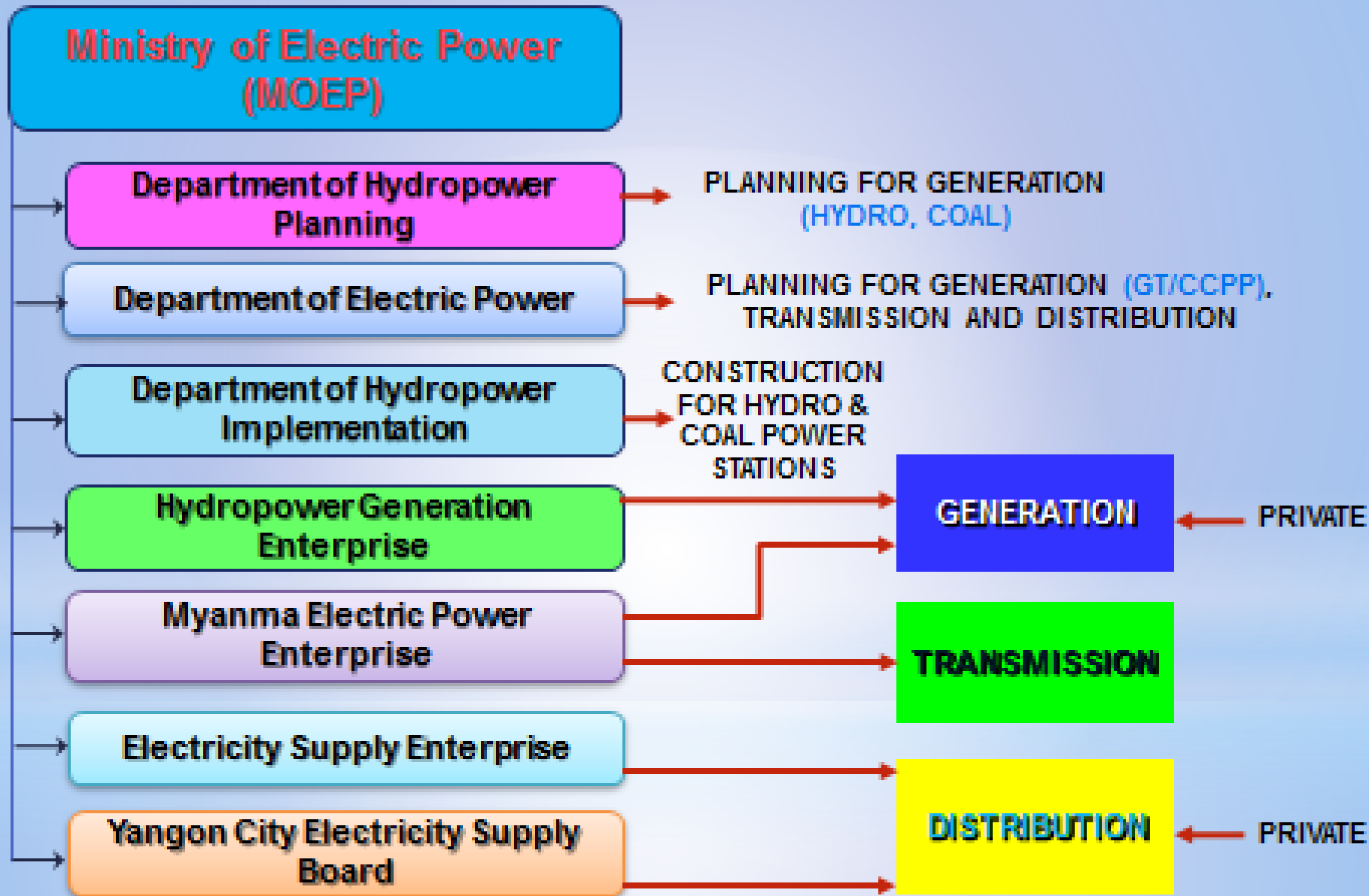
2012

Ministry of Electric
Power (MOEP)

Organizational Profile

Organization	-	Ministry of Electric Power
Organizational Type	-	Governmental
Established Date -		5th September 2012 [Reorganized MOEP 1 and MOEP 2]
Number of employee	-	permitted - 37,514 appointed - 21,350
Business type	-	Generation, Transmission and Distribution
Activities	-	Hydro & Thermal Power Development, Operation & Maintenance, Transmission & Distribution Development, System Operation & Maintenance and Selling Power to End Users.

Structure of Power Generation, Transmission and Distribution



Current Energy Policy and Measures

- ✓ To formulate National Energy Policy based on energy demand and production and fulfillment of energy requirement on energy matters of State, National Energy Management Committee and Energy Management Committee are formed.

National Energy Management Committee

- Vice-President(2) Patron
- Union Minister for Energy Chairman
- Union Minister for Electric Power Vice-Chairman
- Deputy Minister for Energy Secretary
- Deputy Minister for Electric Power Joint-Secretary
- There are nine members of relative energy sector.

Energy Management Committee

- Union Minister for Energy Chairman
- The person nominated
by the Chairman Secretary
- There are twelve members of relative energy sector.

Energy Management Committee of Ministry of Electric Power

- Director General Chairman
- Deputy Director General Member
- There are two deputy chief engineers, one director, one superintendent engineer and two assistant directors as members.

Policies

1. For sufficient electricity supply throughout the country, to expand the national power grid for effective utilization of generated power from the available energy resources such as hydro, wind, solar, thermal and other alternative ones.
2. To conduct the electricity generation and distribution in accordance with the advanced technologies and to uplift and enhance the private participation in regional distribution activities.
3. To conduct Environmental and Social Impact Assessments for power generation and transmission in order to minimize these impacts.
4. To restructure the power sector with cooperation, boards, private companies and regional organizations for more participation of local and foreign investments and formation of competitive power utilities.
5. To formulate the electricity acts and regulations with the idea assistances of the local and international experts to be in line with the open economic era.

Technical Assistant to develop Electricity Sector

Description

- National Electricity Master Plan(JICA-NEWJET)
- Power System Planning
- National Electrification Plan
- Off-Grid Renewable Plan
- Enhancing the Power Sector's Legal Regulatory Framework

Organization

- NEWJET
- China Three Gorges Corp-KHIDI
- World Bank
- Asia Development Bank (ADB)
- Asia Development Bank (ADB)

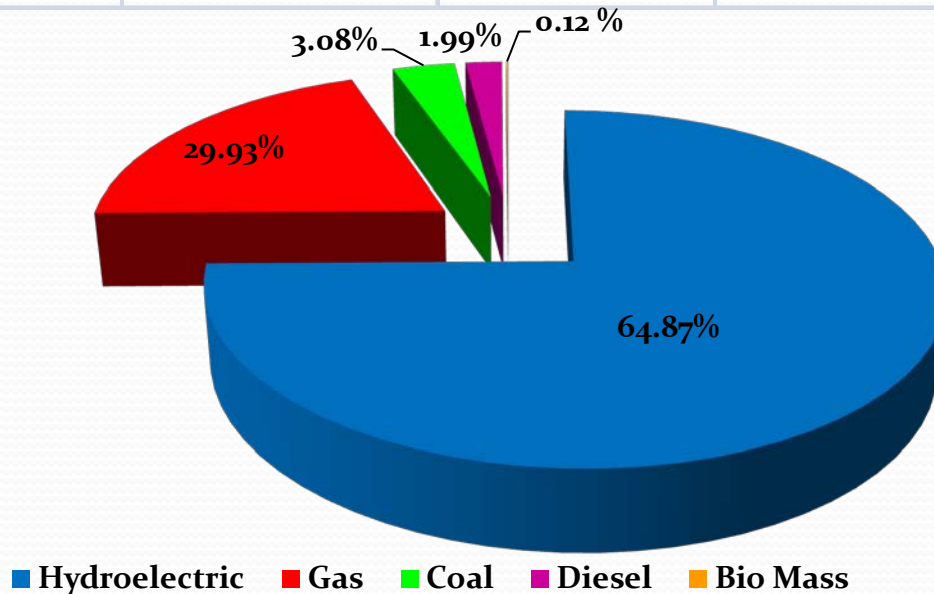


Past Energy Demand and Supply

Max; demand Focus	-	2370 MW
Peak Load	-	2100.42 MW
Nos of consumers	-	2.9 millions
Per capita consumptions	-	180 KWh
Electrification ratio	-	32 %
Rural Electrification ratio Grid)	-	6 % (Only
Power Loss	-	Total Loss - 23 %
		Transmission Loss - 6 %
		Distribution Loss - 17 %

Installed Capacity in Year 2013

	<u>Grid System</u>	<u>Isolated</u>	<u>Total</u>	
	(MW)	(MW)	(MW)	(%)
Installed Capacity	3,771	120	3,891	100.00%
Hydroelectric	2,491	33	2,524	64.87%
Gas	1,160	4.00	1,164	29.93%
Coal	120	-	120	3.08%
Diesel	-	78	78	1.99%
Bio Mass	-	5	5	0.12%



Organizational Profile

Generation Facilities

(1) Ministry's own	-	Hydro	(22) nos	1651	MW
		Coal Fired	(1) nos	120	MW
		Gas Turbine	(16) nos	834.9	MW
		Diesel sets	(635) nos	77.61	MW
		Ministry Total		(674) nos	2683.51
(2) JV Scheme	-	Hydro	(2) nos	840	MW
(3) Local government	-	Mini hydro	(32) nos	33.33	MW
	-	Biomass	(43) nos	4.7	MW
(4) Private sector	-	Hydro	(1) nos	120	MW
	-	Gas Turbine	(4) nos	329.58	MW
		National Total	(756) nos	4011.12	MW

Organizational Profile

Transmission Facilities

Voltage (kV)	Nos. of Line	Length		Substations	
		miles	km	nos	Capacity MVA
230	43	1,894	3030.40	31	4010
132	37	1350	2160	21	1248.5
66	138	2248	3616	130	1975
Total	218	5492	8806.4	182	7233.5

Distribution Facilities

Voltage (kV)	Length		Transformer Capacity (MVA)
	miles	km	
33	4349.03	6958.448	4961.355
11	8944.77	14311.632	5466.282
6.6	178.46	285.536	1481.156
0.4	10241.56	16386.496	-
Total	23713.82	37942.112	10153



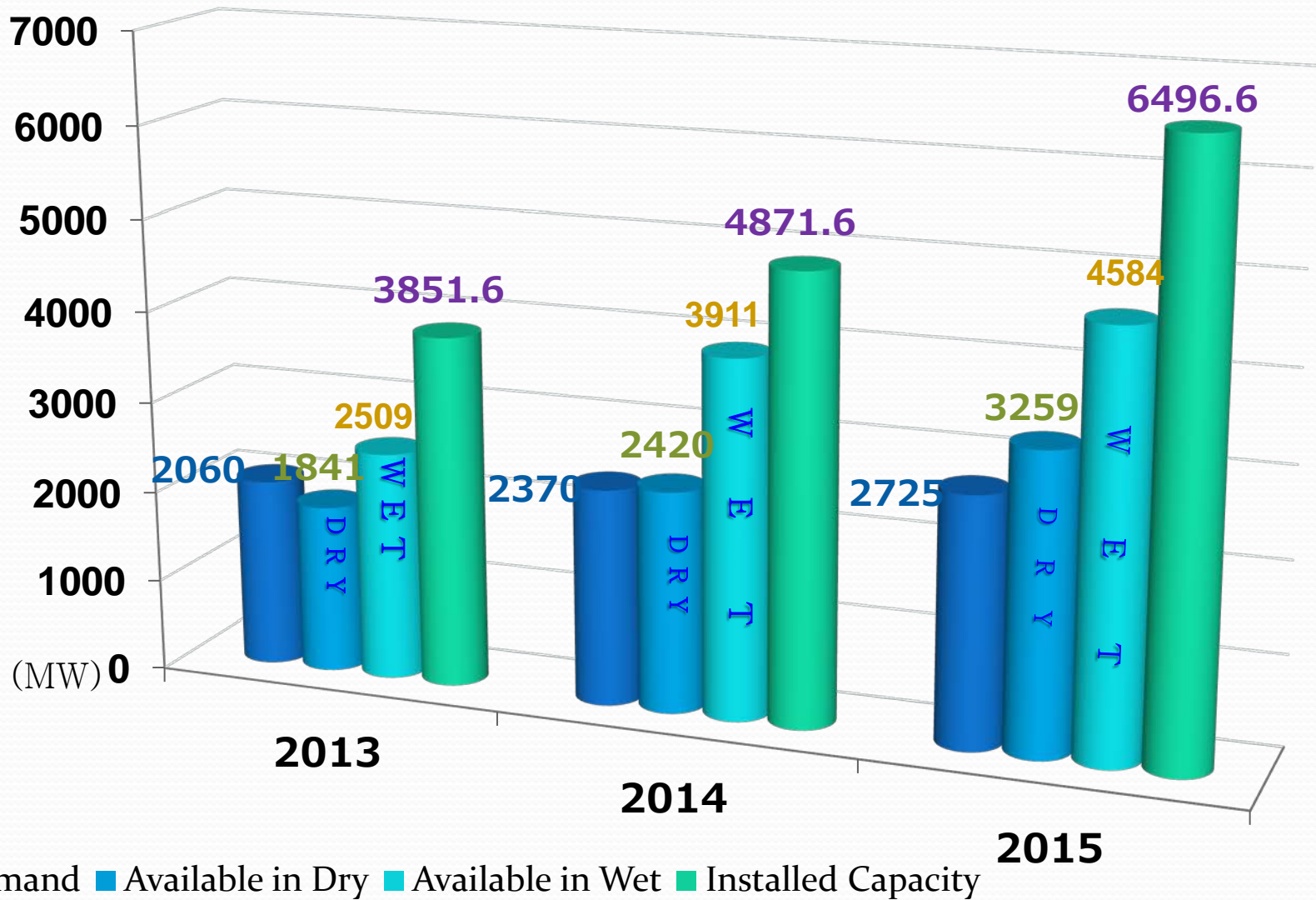
Outlook of Energy Demand and Supply

Demand Forecasting for Short Term Period

Sr. No.	Year	Demand (MW)	Increased Rate(%)
1	2013	2060	15 %
2	2014	2370	15 %
3	2015	2725	15 %
4	2016	3130	15 %

- Applied the trend of demand increase in past 3 years which was nearly 15%.
- Based on the system peak load in year 2012 which was 1790 MW.
- Excluded for industrial zones and special economic zones.

Install , Demand and Generating Capacity (MW) in each Year Up to 2015 - 2016



Demand Forecasting

- ❖ From 2001-2002 to 2011-2012 decade, the economic growth of the state increased and the average GDP growth rate was about 11%, the elasticity factor, the ratio of GDP growth rate and power consumption was about 1.4%.
- ❖ At that moment, the power consumption increased from 2001-2002 to 2011-2012 was 2.5 times.
- ❖ The power demand forecasting from 2012-2013 to 2030-2031 is based on the GDP growth rate 8.7 %, population growth rate 1.1% and also based on the yearly growth rate of GDP and population of the regions and states, 13%.
- ❖ **To meet the Electricity demand growth during both of short and long term period, we need to implement a lot of projects for Generation, Transmission, and Distribution. We would like to invite the investor to participate in Electric Power Business, not only the capital investment but also in terms of technical assistance.**

Long Term Planned Target for Electricity Supply Up to Year 2030–31

Term	Expected Population (million)	Demand Forecast (MW)	Required Generation (GWh)	Target for Power Consumed per person (kWh)	Target for Electrified Household (%)
Yr. 2011–12	60.44	1,806	10,444	173	27%
From Yr.(2012–13) to Yr.(2015–16)	63.14	3,078	17,797	282	34%
From Yr.(2016–17) to Yr.(2020–21)	66.69	5,686	32,874	493	45%
From Yr.(2021–22) to Yr.(2025–26)	70.45	10,400	60,132	854	60%
From Yr.(2026–27) to Yr.(2030–31)	74.42	19,216	111,100	1,493	80%

Major Difficulties in Energy Policy

- Increasing Demand
- No more allocation of natural gas up to 2018
- Understanding of Environmental Impact Assessment and Social Impact Assessment
- The energy sector institutional framework is fragmented

Current Issues emphasized in First priority

- ✓ Introduction of 500 kV transmission system and SCADA EMS system
- ✓ Solving the supply and demand unbalance problem within short term, especially in dry season
- ✓ Reduction of high power loss and upgrading the distribution system
- ✓ Enhancing private sector participation to be involved more and more in generation and distribution activities
- ✓ Formulating Electricity laws and regulations, taking the idea assistance from Local and international experts
- ✓ Capacity building and human resources development program for engineers to be in line with the advanced technology



- **THANK YOU**
- **FOR YOUR KIND ATTENTION**

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