The 1st Workshop for APEC Initiative for Enhancing Quality of Electric Power Infrastructure

Issues in Relation to Electric Power Infrastructure Projects

25 August 2015

Tokyo, Japan

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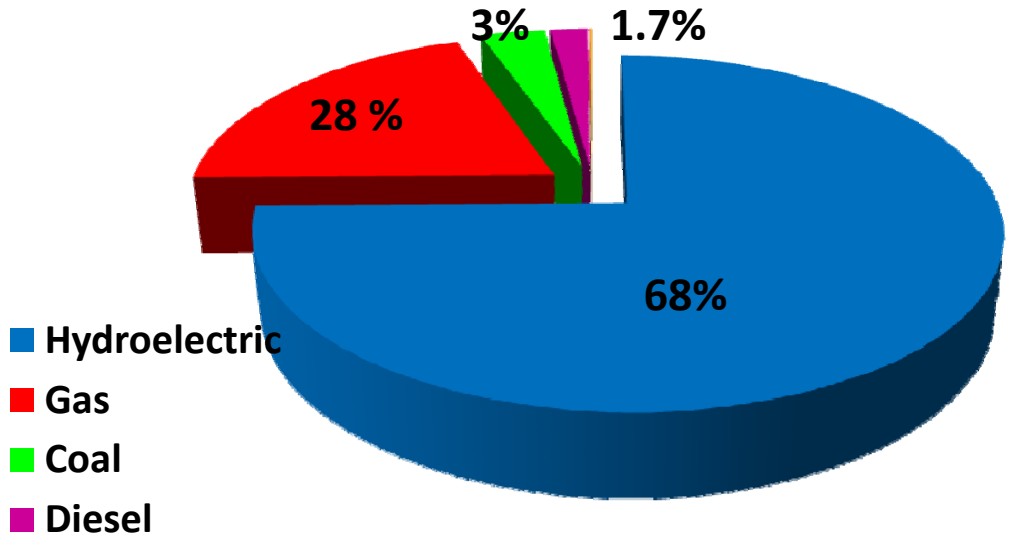
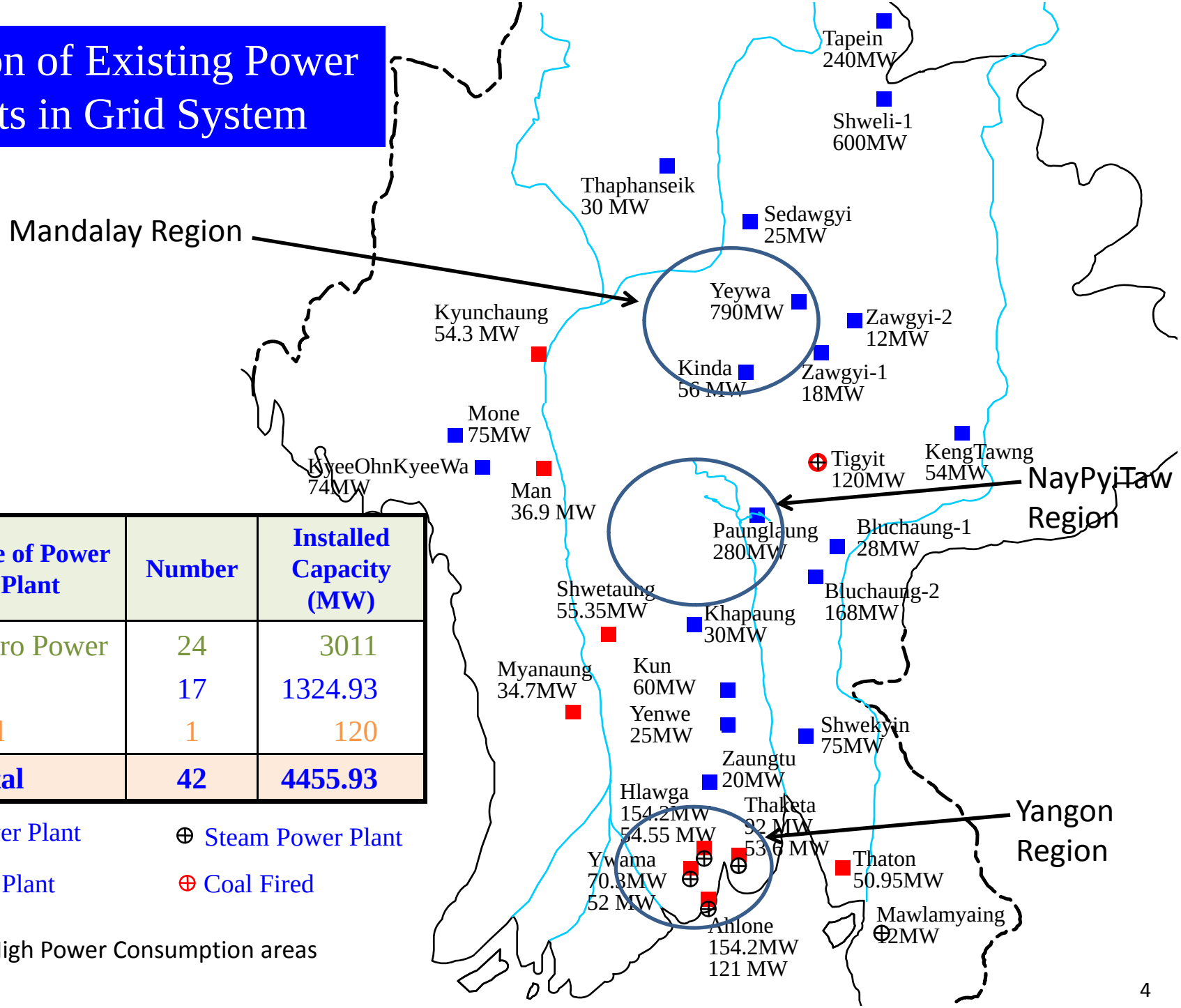
Installed Capacity in Year 2015

	Grid System (MW)	Isolated (MW)	Total (MW)	(%)
Installed Capacity	4,600.33	114.28	4,714.61	100.00%
Hydro Power	3,151.00	34.17	3,185.17	67.56%
Tharmal	1,329.33		1,329.33	28.20%
Coal	120.00	-	120.00	2.55%
Diesel	-	80.11	80.11	1.70%



Location of Existing Power Plants in Grid System



Sr No.	Type of Power Plant	Number	Installed Capacity (MW)
1.	Hydro Power	24	3011
2.	Gas	17	1324.93
3.	Coal	1	120
Total		**42**	**4455.93**

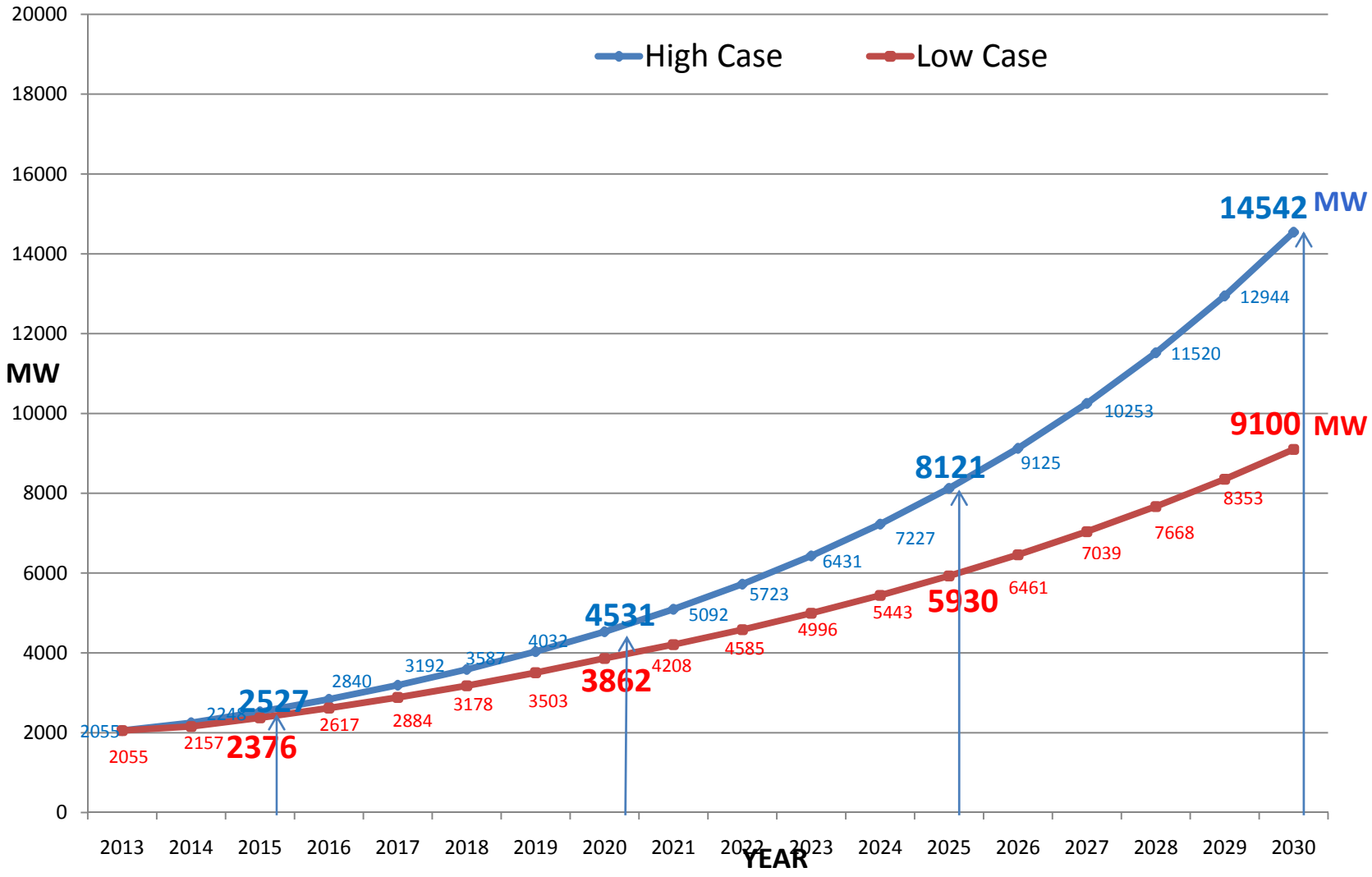
■ Hydro Power Plant ⊕ Steam Power Plant

■ Gas Power Plant ⊕ Coal Fired

High Power Consumption areas

Power Development Plan

- The result of the demand forecast according to the Master Plan Study conducted by JICA and MOEP



Power Development Plan

Peak Forecast Demand for the years of 2015, 2020 and 2025 and 2030

Year	High Case (MW)	Low Case (MW)
2012(base year)	1874	1874
2015	2527	2376
2020	4531	3862
2025	8121	5930
2030	14,542	9100

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Power Development Plan

- Ministry of Electric Power had been trying hard to implement further power projects exploiting available resources in Myanmar so as to fulfill the state power demands in near future:
  - (a) Hydropower
  - (b) Coal
  - (c) Natural Gas
  - (d) Solar
  - (e) Wind Power

Power Development Plan

- Ministry of Electric Power had already laid down the strategic ways to implement power projects:

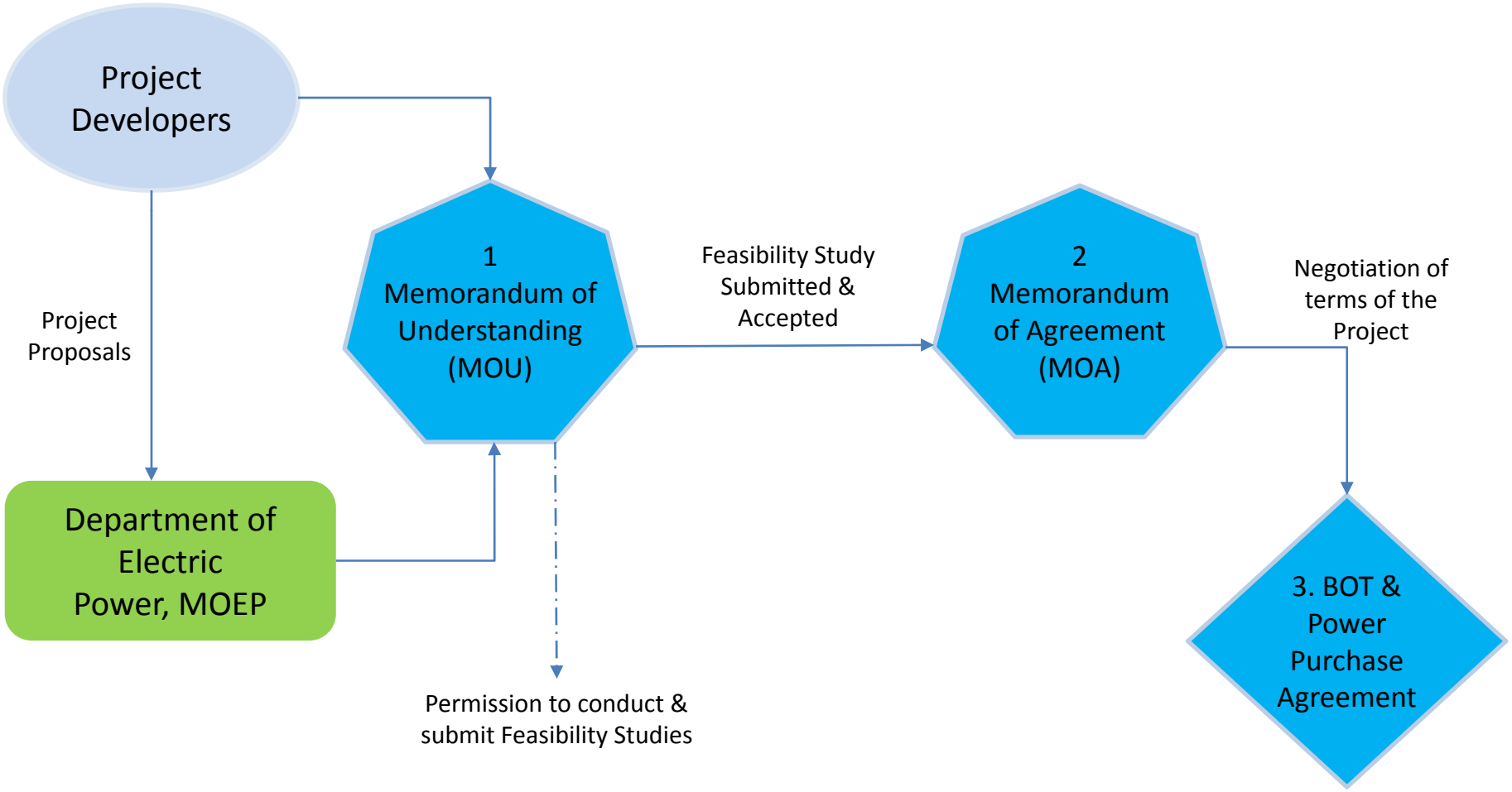
  (a) Sole investment by Ministry of Electric Power

  (b) Investment by local entrepreneurs on B.O.T basis

  (c) Investment by foreign companies on JV/B.O.T basis

- On the development of each and every power project, Ministry of Electric Power always focuses to be reasonable electricity price per unit, efficient electricity generation, and rendered least impact on environmental and social matters.

Existing process for Private Projects



Issues in Relation to Electric Power Infrastructure Projects

(1) Hydro

- Nearly 70% of the current supply. Lower supply capacity during dry seasons
- Large hydro cannot easily be developed due to significant environmental and social issues and other difficulties. (e.g. Myitsone suspended in 2011)

(2) Gas

- Domestic supply already falls short of the demand.
- New gas field (M-3) is awaited until 2019-2020. Other gas fields are subject to exploration. Domestic gas production will hit the ceiling by 2020.

(3) Coal

- Domestic production is limited. Import may be necessary.
- Potential sites for Coal Power Plants could be found along the coast line where deep seaports could possibly be developed.
- Air pollution and CO2 emission should be mitigated by such advanced technologies as Clean Coal Technology

Issues in Relation to Electric Power Infrastructure Projects

- Solving the supply and demand unbalance problem within short term, especially in dry season
- Reduction of high power losses and upgrading the distribution system
- Replacement of inefficient old generating units.
- Enhancing Public Private Partnership (PPP) to participate in power sector
- Capacity building and human resources development program for engineers to be in line with the advanced technology.

Issues in Relation to Electric Power Infrastructure Projects

- The Main issues – Financing
- Measures
  - (1) Government Budget Allocation
  - (2) Supporting of development partners (JICA, ADB, World Bank)
  - (3) IPP Project
- Investment Project with Development Partner
  - (1) ADB
    - A $60 million project loan for the rehabilitation of the distribution network in Yangon, Mandalay, Sagaing, and Magway regions (approved in 2013)
    - A $80 million project loan for upgrading and expanding transmission substations and lines in Yangon (for approval in 2015)

Issues in Relation to Electric Power Infrastructure Projects

(2) JICA

a) Sector Planning

- National Electricity Master Plan (Technical Cooperation completed)
- Follow-up Assistance of NEMP for generation and transmission planning (Technical Cooperation planned)

b) Power Generation

- Urgent Rehabilitation and Upgrade in Yangon ($140M Loan signed)
- Infrastructure Development in Thilawa ($100M Loan signed)
- Baluchaung No.2 Hydropower ($70M Grant signed)

c) Power Transmission

- National Power Network Development 500kV Phase I ($250M Loan Loan signed)
- National Power Network Development 500kV Phase II (JP¥ 41.115 billion)

Issues in Relation to Electric Power Infrastructure Projects

d) Power Distribution and Electrification

- Power Distribution Improvement in Yangon ($60M Loan signed)
- Power Distribution Improvement in Major Cities (Loan under study)
- Rural power infrastructure development Phase I ($50M Loan signed)
- Rural power infrastructure development Phase II (Loan under study)
- Capacity Development of Power Transmission and Distribution Engineers (Technical Cooperation planned)

(3) World Bank

- Construction of New Combined Cycle Power Plant Project in Thaton Gas Fired Power Station. (US$ 140 million IDA credit)
- National Electrification Plan (US$ 1.5 million Grant)
- National Electrification Project (US$ 400 million IDA credit)

Issues in Relation to Electric Power Infrastructure Projects

We would like to request APEC to assist

- ❑ Technical Assistance
- ❑ Financial Assistance

Thanks you for your Attention