Consultation on Power Development Program

Department of Energy

Japan International Cooperation Agency

Objective

- Provide background, analysis and result of PDP 2004-2013
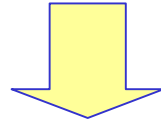- Discussion on Technical Issues for future PDP

Legal Basis of Plans

RA 9136
Electric Power Industry Reform Act , Chapter III

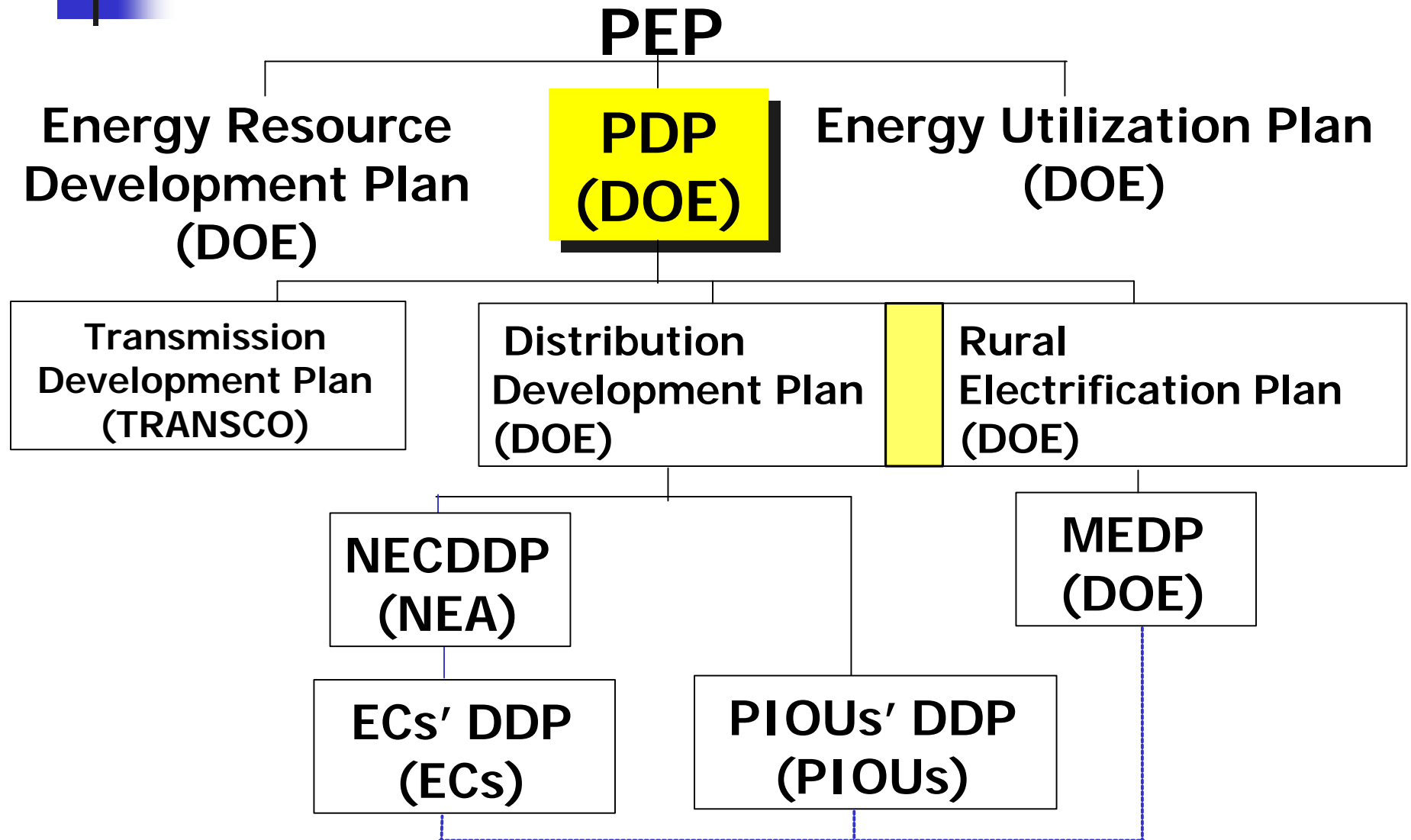*Implementing Rules and Regulations Rule 3*

DOE prepares

- ✍ **Philippine Energy Plan**
    And
- ✍ **Power Development Program**

Structure of <u>P</u>ower <u>D</u>evelopment <u>P</u>lan

PEP

Energy Resource Development Plan (DOE)

PDP (DOE)

Energy Utilization Plan (DOE)

Transmission Development Plan (TRANSCO)

Distribution Development Plan (DOE)

Rural Electrification Plan (DOE)

NECDDP (NEA)

MEDP (DOE)

ECs' DDP (ECs)

PIOUs' DDP (PIOUs)

Overview

"The Study on Institutional Capacity Building for the DOE under a Restructured Philippine Electric Power Industry in the Philippines"

By JICA

Akihisa Mizuno, Team Leader

Objectives of the Study

? Assistance for preparing the PDP

? Assistance for preparing the MEDP

? Assistance for evaluating and approving the TDP

? Support for establishing the Energy Investment Promotion Office(EIPO)

Member of the Study Team

Responsibility	Name
Team Leader	Akihisa Mizuno (CEPCO)
Demand Forecasting	Satoshi Morozumi (MRI)
Power Development Program	Hiromi Sakakibara (CEPCO)
Transmission Development Plan	Koseki Koki (CEPCO)
Rural Electrification Plan	Hideo Semba (SEPCO)
Distribution Development Plan	Naoki Shibayama (CEPCO)
Investment Promotion A	Hiroaki Nagayama (MRI)
Investment Promotion B	Naoki Motoshima (MRI)
Coordination	Kenji Ikeda (CEPCO)

CEPCO: Chubu Electric Power Co. Inc., SEPCO: Sikoku Electric Power Co., Inc.

MRI: Mitsubishi Research Institute Inc.

Study Schedule

	2002			2003											2004		
	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Investigation in Philippine		1st			2nd				3rd					4th				
Report		? IC/R			? P/R									? DF/R			? F/R	
Workshop		? 1st								? 2nd			? 3rd					
Technical Seminar					? 1st ? 2nd (1st:STATISTICA, 2nd:WASP, PSS/E)													

Main Topics of Each Investigation:

1st Investigation	2nd Investigation	3rd Investigation	4th Investigation
- **Initiation of the Study** - **1st Workshop** - **Collection of Necessary Data and Document** - **Procurement of Equipment**	- **Transfer of skills through 1st and 2nd Technical Seminars** - **Data Review and Analysis** - **Preliminary Demand Forecasting** - **Evaluation of PDP Subordinate Programs**	- **2nd Workshop** - **Preparation of PDP** - **Evaluation of Subordinate Programs (TDP, MEDP)** - **Development of Information System for EIPO** - **Formulating the Manuals for PDP Preparation**	- **3rd Workshop to Disseminate EIPO Web site** - **Submission of DF/R**

Summary of the Output

Responsibility	Output
Demand Forecast	Preparation of Demand Forecasting Model Using Historical Data from DUs in a Restructured Electric Power Sector
Power Development Program	Supply Expansion Plan by Simulation Software, WASP & GT-Max
Transmission Development Plan	Evaluation of TDP by PSS/E
Rural Electrification Plan/ Distribution Development Plan	Assessment for Rural Electrification Plan with Electrical Map for Planning and Monitoring Preparation of Data Submission Flow from DUs to DOE
Investment Promotion	Recommendation on Investment Promotion Development of Web Page for EIPO

PDP Preparation Process (Planned and Actual)

	March	April	May	June	July	August	September
Demand Forecasting							
1. Submission of DUs Development Plan to DOE							
2. Data Arrangement							
3. Demand Forecasting							
Supply Expansion Plan							
4. Simulation for Supply Expansion Plan							
5. Sensitivity Analysis							
Transmission Development Plan							
6. Evaluation of TDP2003							
7. Coordination between DOE and TRANSCO							
8. Preparation of TDP2004							
9. Evaluation of TDP2004							
Rural Electrification							
10. Updating the Brangay List							
11. Approval of Universal Charge							
12. Preparation of MEDP							
Philippine Energy Plan							
13. Integration subordinate plans to PEP							
14. Public Consultation							
15. Submission to the Congress							

Legend

- - - - - Planned

——→ Actual

Result of Demand Forecasting

Peak Demand

Philippines

MW	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
PDP 2003 High GDP	7,970	8,605	9,368	10,270	11,322	12,413	13,702	15,168	16,790	18,585	20,573	22,773
PDP 2003 Low GDP	7,970	8,508	9,177	9,957	10,883	11,808	12,906	14,148	15,508	17,000	18,636	20,429
PDP 2002 Low GDP	8,248	8,883	9,633	10,469	11,424	12,378	13,359	14,423	15,562	16,790	18,106	
Actual	7,970											

Peak Demand in Luzon Grid

LUZON Elasticity constant case

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
NEDA High GDP CASE Luzon	6,039	6,530	7,120	7,817	8,628	9,472	10,470	11,605	12,862	14,256	15,800	17,512	19,409	21,511
NEDA LOW GDP CASE Luzon	6,039	6,454	6,967	7,564	8,272	8,982	9,822	10,771	11,812	12,954	14,206	15,579	17,084	18,735
LOWER GDP Modified CASE Luzon	6,039	6,454	6,967	7,564	8,272	8,982	9,724	10,527	11,397	12,339	13,358	14,462	15,656	16,949
PEP2003–2012 LOW GDP Case Result Luzon	6,308	6,752	7,275	7,835	8,503	9,161	9,830	10,548	11,319	12,149	13,034			
PEP2002–2011 LOW GDP Case Result	6,293	6,830	7,458	8,143	8,915	9,762	10,689	11,705	12,816	14,038				
Luzon Actual	6,039													

Power Supply and Demand Profile Philippines

Investment Opportunity for Natural Gas
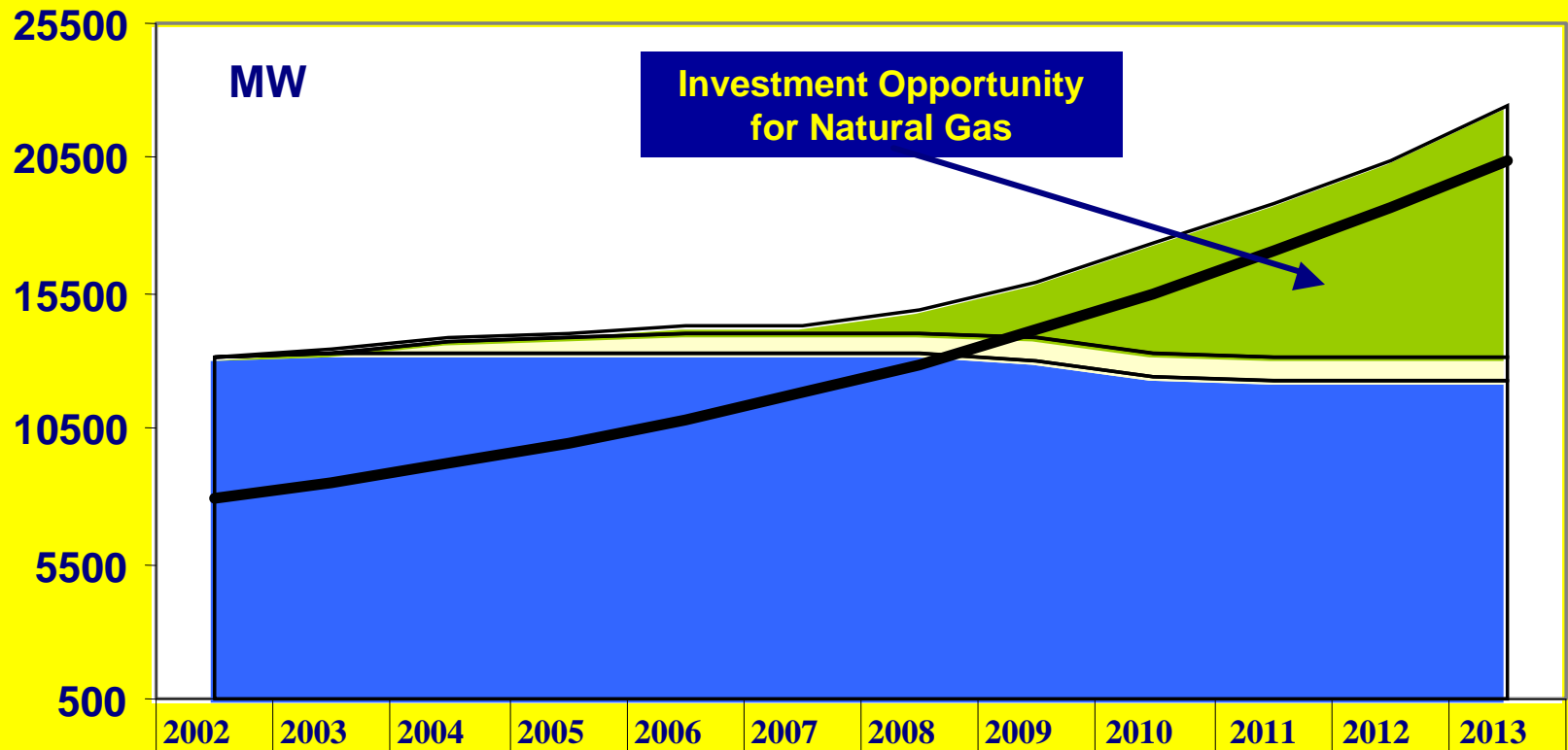
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Addition	0	100	100	150	250	250	850	2000	4150	5750	7350	9300
Committed	0	0	450	560	825	825	825	825	825	825	825	825
Existing	13179	13264	13264	13264	13264	13264	13264	13054	12404	12305	12305	12305
Peak	7970	8508	9177	9957	10883	11808	12906	14148	15508	17000	18636	20429

Review of the Previous TDP

Main Projects

- **Luzon Grid**
  - 230kV T/L Reinforcement in North Luzon
  - Countermeasures against Power Development in South Luzon

- **Visayas Grid**
  - Leyte-Cebu Interconnection
  - Negros-Cebu,Negros-Panay Interconnection

- **Mindanao Grid**
  - 230kV T/L between Abaga S/S and Bunawan S/S

Luzon

Reinforcement of 230kV T/L

Countermeasures against Power Development in South Luzon

Leyte-Cebu Interconnection

Negros-Panay Interconnection

Negros-Cebu Interconnection

Visayas

Mindanao

Abaga-Bunawan 230kV T/L
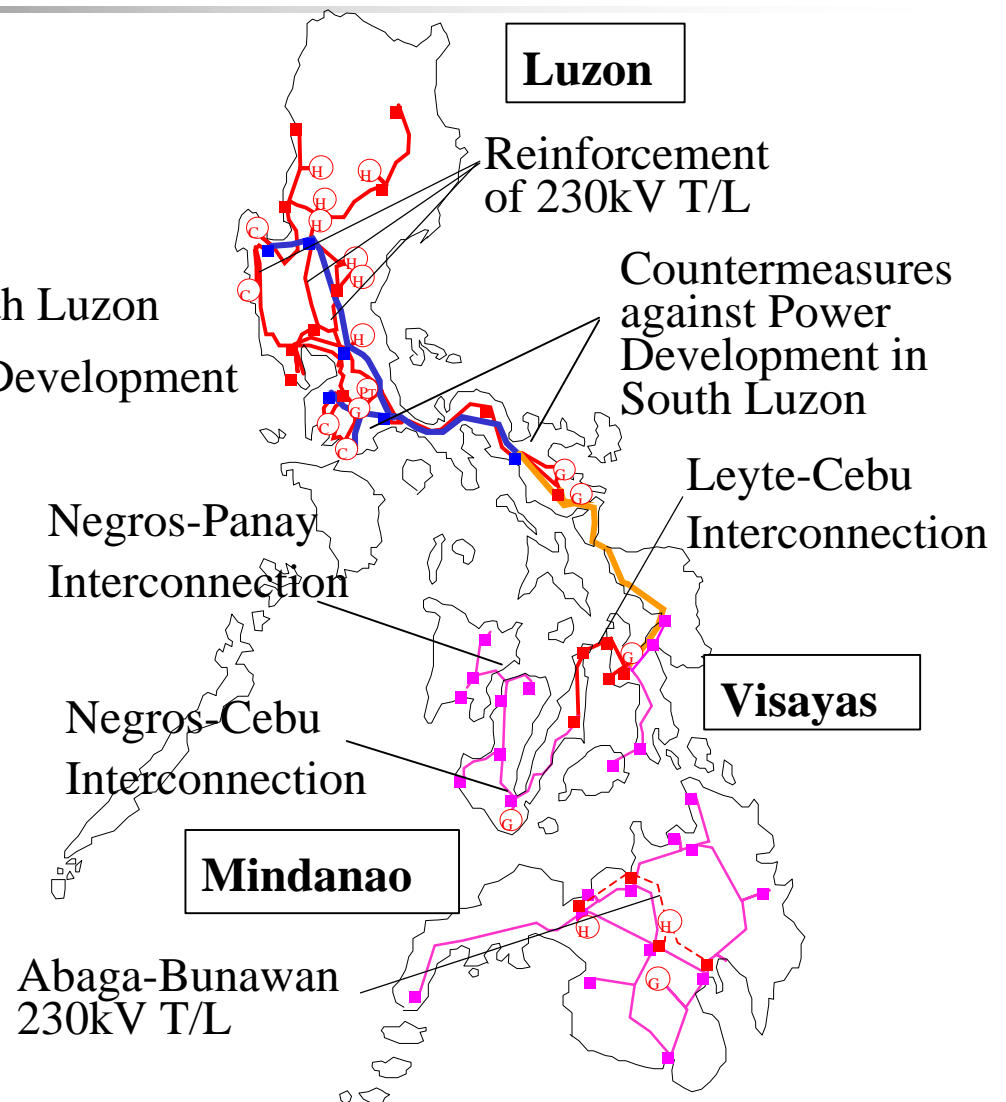
Rural Electrification 2003-2006

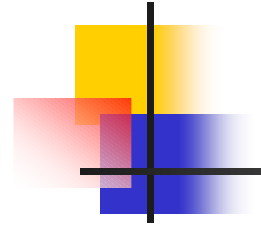**Total Number of Unenergized Barangay : 5,409**

Un-Energized Barangay
Total   : 5,409
ECs   : 5,277
PIOU/LGU   : 132

For Stand-Alone 936 Barangays
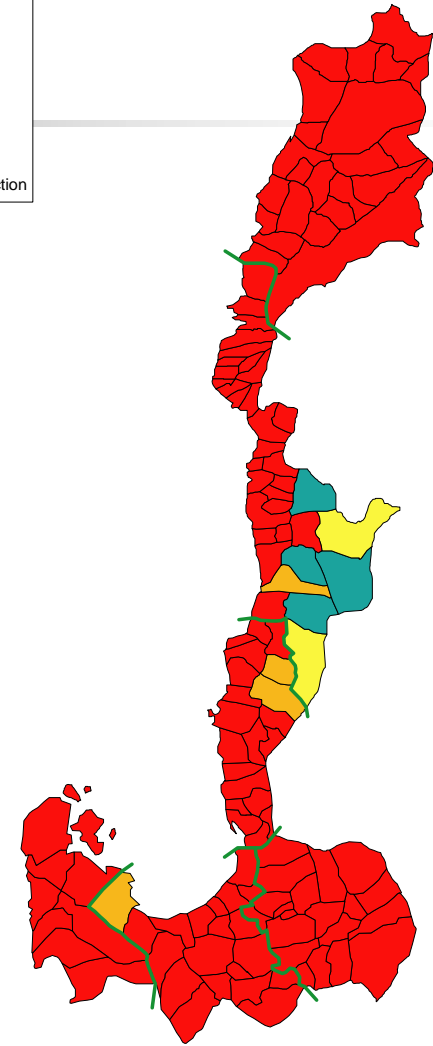
For Grid Extension 4,473 Barangays

MEDP

DDP

Electric Maps to Monitor Electrification Level

Legend
- 90% and above
- 89% to 75%
- 74% to 50%
- Under 49%
- Data unavailable
- Municipality Border
- Electric Utilities Jurisdiction

REGION 1