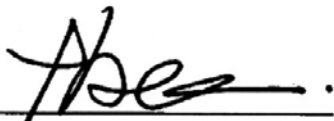


**SCOPE OF WORK
FOR
THE STUDY ON OPTIMAL ELECTRIC POWER DEVELOPMENT
IN JAVA-MADURA-BALI
IN THE REPUBLIC OF INDONESIA**

**AGREED UPON BETWEEN
MINISTRY OF ENERGY AND MINERAL RESOURCES,
PT. PLN (PERSERO)
AND
JAPAN INTERNATIONAL COOPERATION AGENCY**

Jakarta, 5 November, 2007



Mr. Takashi Sakamoto
Resident Representative
Indonesia Office
Japan International Cooperation Agency



Ms. Emy Perdanahari
Director of Electricity Program Supervision
Directorate General of
Electricity and Energy Utilization
Ministry of Energy and Mineral Resources



Dr. Herman Darnel Ibrahim
Director of Transmission and Distribution
PT. PLN (PERSERO)

1. Introduction

In response to the request of the Government of Republic of Indonesia (hereinafter referred to as “the Government of Indonesia”), the Government of Japan decided to conduct the Study on Optimal Electric Power Development in Java-Madura-Bali in the Republic of Indonesia (hereinafter referred to as “the Study”), in accordance with the relevant laws and regulations in force in Japan.

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as “JICA”), the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, will undertake the Study in close cooperation with the authorities concerned of the Government of Indonesia.

The present document sets forth the scope of work with regard to the Study.

2. Objectives of the Study

The objectives of the Study are:

1. To formulate the power development plan in Java-Madura-Bali (hereinafter referred to as “Jamali”) for 20 years from 2009 to 2028; and
2. To transfer relevant skills and technologies to Indonesian counterpart personnel.

3. Study Area

The Study will cover Java-Madura-Bali area.

4. Scope of the Study

In order to achieve the above-mentioned objectives, the Study will cover the following.

- Preliminary Study Stage-

4.1 Collection and analysis of existing data and information

The following data and information will be collected and analyzed.

- 1) National policies, relevant laws and regulations and institutional frameworks on electric power sector
- 2) National policy on energy and national primary energy potentials, including nuclear power development and the vision for infrastructure such as pipelines and port facilities to supply gas and coal to power plants
- 3) Socio-economic situation and regional development plans
- 4) Electric power sector in Jamali
 - a. Institutional framework of PT. PLN (PERSERO) KANTOR PUSAT (hereinafter referred to as “PLN”)

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including Penyaluran dan Pusat Pengatur Beban Jawa Bali (hereinafter referred to as "P3B JB"), Indonesia Power, PJB, and IPPs.

- b. Current situation of electric power demand and supply
- c. Current situation of existing power facilities
- d. Current situation of power system operation
- e. Existing development plan of power resources
- f. Existing development plan of transmission and substation
- g. Electricity tariff and fossil fuel price

- Study Stage on Optimal Scenario -

4.2 Power demand forecast

The following demand forecast study will be conducted.

- 1) Review of the existing power demand forecast
- 2) Review of the economic development policies, economic growth forecast and regional development plans
- 3) Update of power demand forecast

4.3 Setting up of power development scenarios

The following study will be conducted to identify optimal power development scenario.

- 1) Evaluation of primary energy potentials
- 2) Evaluation of feasibility of the existing plans for power development projects
- 3) Evaluation of methodology of development plan of transmission and substation including Java-Sumatra interconnection
- 4) Strategic Environmental Assessment
- 5) Setting up of alternative scenarios for power development and identification of optimal scenario
- 6) Estimation of financial investment to realize the optimal scenario

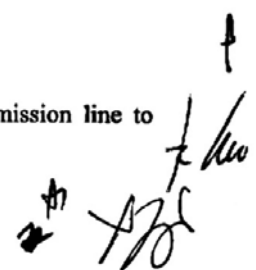
- Conclusion and Recommendation Stage -

4.4 Optimal power development planning

The following study will be conducted to develop optimal power development plan.

- 1) Development of optimal development plan of power resources
- 2) Development of optimal development plan of transmission and substation
- 3) Recommendation on financial procurement and measures to promote private sector investment to realize the optimal power development plan
- 4) Recommendation on environmental and social considerations on the optimal power development plan
- 5) Recommendation for improvement of power system operation

* The optimal development plan of transmission and substation will cover from 500kV transmission line to 150/20kV or 70/20kV substation.

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* The DC (Direct Current) interconnection from Sumatra to Java will be applied to transmission system planning in Jamali but transmission system planning in Sumatra is out of scope of the Study.

5. Schedule of the Study

The Study will be carried out in accordance with Tentative Time Schedule as shown in Appendix I attached herewith.

6. Reports

JICA will prepare and submit the following reports in English to the Government of Indonesia.

- (1) Inception Report (Ic/R): Fifteen (15) copies
- (2) Interim Report (It/R): Fifteen (15) copies
- (3) Draft Final Report (Df/R): Twenty (20) copies

The Government of Indonesia shall present its comments to JICA within one month of receipt of the Draft Final Report.

- (4) Final Report and Summary (F/R): Thirty (30) copies

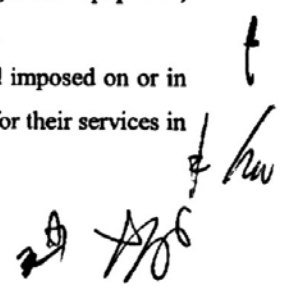
JICA will submit these reports within six (6) weeks after receiving the comments of the Government of Indonesia on the Draft Final Report.

7. Division of Technical Undertakings

The division of technical undertakings of the Study by JICA, Ministry of Energy and Mineral Resources (hereinafter referred to as "MEMR"), and PLN is detailed in Appendix II attached herewith.

8. Undertakings of the Government of Indonesia

- (1) In order to facilitate the smooth conduct of the Study, the Government of Indonesia shall take necessary measures:
 - a) to permit the members of the JICA study team to enter, leave and sojourn in Indonesia for the duration of their assignments therein, and exempt the members of the JICA study team from foreign registration requirements and consular fees;
 - b) to exempt the members of the JICA study team from taxes, duties and any other charges on equipment, machinery and other materials brought into and out of Indonesia for the conduct of the Study;
 - c) to exempt the members of the JICA study team from income taxes and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the JICA study team for their services in connection with the implementation of the Study;



- d) to provide necessary facilities to the JICA study team for remittances as well as for the utilization of funds introduced into Indonesia from Japan in connection with the implementation of the Study;
 - e) to facilitate prompt clearance through customs and inland transportation of equipment, materials and supplies required for the Study and of the personal effects of the members of the JICA study team.
- (2) The Government of Indonesia shall bear claims, if any arises, against the members of the Team resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the member of the JICA study team.
- (3) MEMR shall be the responsible organization for the Study and also the coordinating body in relations with the other governmental and non-governmental organizations concerned for the smooth implementation of the Study. MEMR and PLN shall act as the counterpart agencies to the JICA study team.
- (4) MEMR and PLN shall, at its own expense, provide the JICA study team with the following, in cooperation with other organizations concerned.
- a) security-related information on as well as measures to ensure the safety of the JICA study team,
 - b) information on as well as support in obtaining medical services,
 - c) available data (including maps, photographs and macro data such as economic growth rate to forecast power demand) and information related to the Study,
 - d) counterpart personnel,
 - e) suitable office space with necessary equipments and facilities in Jakarta,
 - f) credentials or identification cards, and
 - g) communication facilities such as telephone, facsimile, E-mail etc. if necessary.

9. Effectuation of Scope of Work

The Scope of Work of the Study will come into effect after completing necessary arrangements between the Government of Japan and the Government of Indonesia.

10. Consultation

JICA, MEMR and PLN will consult with each other in respect of any matter that may arise from or in connection with the Study.

Appendix I: Tentative Study Schedule

Appendix II: Division of Technical Undertaking

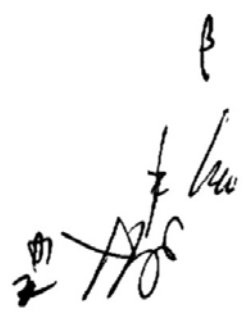
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Tentative Study Schedule

	1	2	3	4	5	6	7	8	9	10	11	12
1. Collection and analysis of existing data and information												
1-1. National policy, laws and regulations, etc. on electric power sector		■										
1-2. National policy on energy and national primary energy potentials		■										
1-3. Socio-economic situation and regional development plan		■										
1-4. Electric power sector in Java-Bali		■										
2. Power demand forecast												
2-1. Review of the existing power demand forecast					■							
2-2. Review of the economic development policies, etc.					■							
2-3. Update of power demand forecast					■							
3. Setting up of power development scenarios												
3-1. Evaluation of primary energy potentials						■						
3-2. Evaluation of feasibility of the existing power development projects						■						
3-3. Evaluation of methodology of development plan of transmission and substation						■						
3-4. Strategic Environmental Assessment						■						
3-5. Setting up of alternative scenarios and identification of optimal scenario						■						
3-6. Estimation of financial investment to realize the optimal scenario						■						
4. Optimal Power Development planning												
4-1. Development of optimal development plan of power resources							■					
4-2. Development of optimal development plan of transmission and substation							■					
4-3. Recommendation on financial procurement and promote private investment							■					
4-4. Recommendation on environmental and social considerations							■					
Reports	▲ Ic/R							▲ I/R		▲ Df/R		▲ F/R
Workshop	△							△		△		
Technology Transfer Seminar												

Legend : ■ Work in Indonesia

Reports: Ic/R: Inception Report
 Iu/R: Interim Report
 Df/R: Draft Final Report
 F/R: Final Report



Division of Technical Undertakings

	JICA	MEMR and PLN
1. Collection and analysis of existing data and information		
1-1. National policy, laws and regulations, etc. on electric power sector	to collect data and information	to provide data and information
1-2. National policy on energy and national primary energy potentials	to collect data and information	to provide data and information
1-3. Socio-economic situation and regional development plan	to collect data and information	to provide data and information
1-4. Electric power sector in Jambi	to collect data and information	to provide data and information
2. Power demand forecast		
2-1. Review of the existing power demand forecast	to carry out the Study	to work with the Study team
2-2. Review of the economic development policies, etc.	to carry out the Study	to work with the Study team
2-3. Update of power demand forecast	to carry out the Study	to work with the Study team
3. Setting up of power development scenarios		
3-1. Evaluation of primary energy potentials	to carry out the Study	to work with the Study team
3-2. Evaluation of feasibility of the existing plans for power development projects	to carry out the Study	to work with the Study team
3-3. Evaluation of methodology of development plan of transmission and substation	to carry out the Study	to work with the Study team
3-4. Strategic Environmental Assessment	to carry out the Study	to work with the Study team
3-5. Setting up of alternative scenarios and identification of optimal scenario	to carry out the Study	to work with the Study team
3-6. Estimation of financial investment to realize the optimal scenario	to carry out the Study	to work with the Study team
4. Optimal Power Development planning		
4-1. Development of optimal development plan of power resources	to carry out the Study	to work with the Study team
4-2. Development of optimal development plan of transmission and substation	to carry out the Study	to work with the Study team
4-3. Recommendation on financial procurement and promote private investment	to carry out the Study	to work with the Study team
4-4. Recommendation on environmental and social considerations	to carry out the Study	to work with the Study team
4-5. Recommendation for improvement of power system operation	to carry out the Study	to work with the Study team

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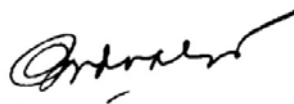

**MINUTES OF MEETING
FOR
UPDATE OF TRANSMISSION DEVELOPMENT PLAN OF
OPTIMAL ELECTRIC POWER
IN JAVA-BALI
IN THE REPUBLIC OF INDONESIA**

**AGREED UPON BETWEEN
THE MINISTRY OF ENERGY AND MINERAL RESOURCES,
PT. PLN (PERSERO)
AND
THE JAPAN INTERNATIONAL COOPERATION AGENCY**


Jakarta, 5 November , 2007



Mr. Takashi Sakamoto
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Indonesia Office
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Ms. Emy Perdanahari
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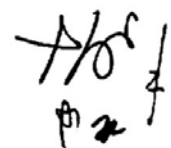
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1. Placement of the Previous Minutes of Meeting

Both sides agreed that the understanding of the items other than those mentioned in this Minutes of Meetings remains unchanged from the one mutually confirmed in the Minutes of Meetings signed on 16 August, 2007.

2. Title of the Study

Both sides agreed that the title of this development study shall be changed from “Update of Transmission Development Plan of Optimal Electric Power in Java-Bali” to “The Study on Optimal Electric Power Development in Java-Madura-Bali”.

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