UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT PAPER

INDONESIA

ENERGY PLANNING FOR DEVELOPMENT II

Project Number 497-0318

USAID/Indonesia

SEPTEMBER 1982

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CODE: A (A = Add, C = Change, D = Delete) — Amendment Number: _____ — DOCUMENT CODE: 3

2. COUNTRY/ENTITY: INDONESIA

3. PROJECT NUMBER: 497-0318

4. BUREAU/OFFICE: ASIA 04

5. PROJECT TITLE (maximum 40 characters): ENERGY PLANNING FOR DEVELOPMENT II

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 09 DD 30 YY 85

7. ESTIMATED DATE OF OBLIGATION (Under "B." below, enter 1, 2, 3, or 4): A. Initial FY 82 B. Quarter 4 C. Final FY 82

8. COSTS ($000 OR EQUIVALENT $1 = 650 Rp.)

A. FUNDING SOURCE	FIRST FY 82 B. FX	C. L/C	D. Total	LIFE OF PROJECT E. FX	F. L/C	G. Total
AID Appropriated Total	715	35	750	715	35	750
(Grant)	( )	( )	( )	( )	( )	( )
(Loan)	(715)	(35)	(750)	(715)	(35)	(750)
Other U.S. 1.						
Other U.S. 2.						
Host Country		-	-		250	250
Other Donor(s)						
TOTALS	715	35	750	715	285	1000

9. SCHEDULE OF AID FUNDING ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE 1. Grant	2. Loan	D. OBLIGATIONS TO DATE 1. Grant	2. Loan	E. AMOUNT APPROVED THIS ACTION 1. Grant	2. Loan	F. LIFE OF PROJECT 1. Grant	2. Loan
(1) S.T.	743-B		878				750		750
(2)									
(3)									
(4)									
TOTALS									

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each): 871 710 — 11. SECONDARY PURPOSE CODE:

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code							
B. Amount							

13. PROJECT PURPOSE (maximum 480 characters)

To increase the information base and capability of the Directorate General of Power (DJK) in national energy planning so that it can serve as an effective secretariat to the Interministerial Technical Committee on Energy (PTE) and the Coordinating Body on Energy (BAKOREN) at the Ministerial level.

14. SCHEDULED EVALUATIONS: Interim MM 04 YY 84 — Final MM 08 YY 85

15. SOURCE/ORIGIN OF GOODS AND SERVICES: [X] 000 [X] 941 [X] Local [ ] Other (Specify) _____

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a _____ page PP Amendment)

17. APPROVED BY — Signature: [signature] — Title: William P. Fuller, Director, USAID — Date Signed: MM 08 DD 16 YY 82

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1350-4 (3-79)

ENERGY PLANNING FOR DEVELOPMENT II
PROJECT PAPER

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ENERGY PLANNING FOR DEVELOPMENT II
PROJECT PAPER

I. Project Summary and Recommendations

A. Face Sheet (Attached)

B. Recommendations

It is recommended that AID approve the following:

Loan:	$ 750,000
Terms: 40 years to include a 10 year grace period on amortization; 2% interest during the grace period and 3% thereafter.	
GOI Contribution:	$ 250,000
	$ 1,000,000

Implementation Period: 3 years from obligation

C. Description of the Project

1. Borrower

The Government of Indonesia (GOI) will be the borrower. The GOI, the Directorate General for Power (DJK) in the Ministry of Mines and Energy will be the implementing agency. Several other GOI offices, the National Energy Coordination Board (BAKOREN), and the Technical Committee on Energy Resources (PTE), will be involved in the project's activities.

2. Project Summary

The goal of this project, and the Mission's Science and energy program in general, is the continued economic growth of Indonesia through the development and strengthening of Indonesia's scientific and technological capability.

This proposed project deals with the energy policy issues and problems in Indonesia by strengthening the technical capability of the DJK, a secretariat to the Committee on Energy (PTE), and the Coordinating Body on Energy (BAKOREN), two of Indonesia's energy policy-making bodies. Specifically, the purpose is to increase the information base and capability of the DJK in national energy planning so that it can serve as an effective secretariat to the interministerial PTE and the ministerial level BAKOREN.

Energy Planning for Development II (EPFD II) is the second part of the Energy Planning for Development Project. Part I trained individuals from the DJK in energy planning and modeling, and gathered baseline energy information through a pilot survey of firewood and kerosene use, a national energy demand analysis, and energy technology assessments for Indonesia.

This phase of the project will complete the institution building during its three year life with the establishment of an effective energy project planning and evaluation system. It will do this through two components:

a. Modeling and Analysis will establish a sophisticated model and energy data bank in the DJK to improve the policy and decision making process. DJK officials will be involved in writing and using the model. For this component, the DJK will receive about 36 person months of loan-funded short-term technical assistance and a small computer. This equipment and short-term technical assistance will assist the DJK: to develop models for energy analysis on a regional level as opposed to aggregate national analysis; to extend the pilot rural survey activity of Phase I to permit more complete analysis of household energy consumption in rural areas; to conduct detailed studies of energy use by rural industries identified in Phase I as large consumers of firewood; and to analyze more closely the feasibility of using alternative energy sources to meet specific end-use needs in the rural sector.

b. Several Energy Policy Studies have been identified in the implementation of EPFD I and in the planning for EPFD II as necessary to help the GOI improve its energy information base and adequately plan for the future. Two of these energy policy studies, Urban Household Energy Use Study and the National Survey on the Production Demand and Uses of Rural Electrification, will be funded under the project.

The Urban Household Energy Use will complete the analysis started in Phase I of energy demand by sectors. The DJK will use loan funds to prepare an urban household energy survey which analyzes the patterns of urban energy consumption and, in particular, the issues involved with converting to alternative fuels. The universities will once again be involved in developing and testing the survey approach. For this component, the loan will fund about 20 person months of technical assistance.

In addition, the DJK will supervise a National Survey on the Productive Demand and Uses for Rural Electrification. This study will assist the GOI in an area where further analysis is needed to attain the optimum use of

rural energy with the maximum impact on the economy. It is obvious from the Mission's experience with the Rural Electrification Project that programs and policies are needed to fill and stimulate the productive user demand for electricity. Though the needs are obvious, there is a shortage of the data necessary for well designed programs and policies. The information gathered under this survey is expected to assist the GOI in electrification planning, and shouldassist in the setting of electric rate policies. This activity will provide the DJK with sufficient information for sound program and policy making in the area of productive uses of electricity.

D. Summary Findings

The Project Committee has reviewed the technical, financial, social and economic aspects of the proposed project. Taking into account the technical assistance funded by the project, the Project Committee considers the GOI agencies involved to be capable of carrying out the Project successfully. The GOI appears to have no trouble in providing the counterpart funding for the project. The social and technical analyses have not identified any obstacles to the project's proposed activities. The project was found to be economically sound and can be completed in a three year period. The project will not have any negative environmental effects. On the basis of this project description and analysis, the Project Committee concludes that the project is technically, economically and socially sound and recommends that a loan not to exceed $750,000 be authorized to the GOI.

E. Project Issues

The issues raised in the PID review cable are dealt with here or in various sections of the PP.

USAID has considered combining the various energy projects into one project and has determined it to not be feasible. The Mission's energy projects are handled by three separate ministries as principal implementers with no single line ministry having functional responsibility for all of the three project areas (planning, technology development and education). Furthermore, in each project separate components relate to other ministries. It would not be feasible to add a bureaucratic layer of management on top of all these interconnections, and have a single ministry in control; this would also increase the Mission's project management burden.

The project's priorities for modeling are clearly defined in the project background and description section (pages 4-12) as direct practical applications to the resources and problems of Indonesia.

An evaluation has been budgeted for, and described in the Evaluation Section (page 27).

Finally, a Condition Precedent to Disbursement for computer equipment will assure SER/DM approval of any computer procurement.

F. Composition of the Project Committee

PROJECT DESIGN

DJK
Dr. A. Aris Munandar, Director of Energy Resources Development
Dr. A.J. Suryadi, Head, Sub-Directorate for Development
Ir. M. Pandjaitan, Head, Sub-Directorate of New and Renewable Energy Resources Development
Ir. E. Darianto, Head, Sub-Directorate for Data/Information Systems

AID
Robert Ichord, AID/W
Dave Straley, STE
Jerome Bosken, STE

PROJECT REVIEW

Rodolphe Ellert-Beck, PRO
Robert Johnson, PTE
Joseph Stepanek, ECON
Raymond Dropik, OMF
Lisa Chiles, LA
Robert C. Simpson, DD

Samaun Samadikun, Director General of Power
William Fuller, Mission Director

II. Project Background and Detailed Description

A. Background

1. Petroleum and the Indonesian Economy

The Indonesian economy has grown quite rapidly over the last few years: it grew by 9.6 percent in 1980 and 7.6 percent in 1981. Indonesia's dependency on oil export earnings, however, makes the future growth prospects somewhat uncertain. It has been the petroleum export earnings which have provided the bulk of the country's foreign exchange, averaging about 70 percent of total exports, and most of the public sector revenues, averaging over 70 percent.

The international market for petroleum is now characterized by the word "glut." The petroleum exporting countries are encountering lower prices and levels of production. The international boom-to-bust cycle for petroleum exports has swung Indonesia's balance of payments from a surplus to a deficit. In Indonesia's 1980/81 fiscal year (ending March 31), the payments surplus stood at $2.5 billion. Because of the rapid deterioration of petroleum prices and reduced international demand, the crude oil export earnings

will be about $2 billion less than originally projected for this year. Consequently, this year's balance of payments deficit will probably be $2.5 billion. Further, if petroleum production and exports continue at this year's depressed levels, the balance of payments deficit can be expected to reach $5.5 billion with a current account deficit of $4-5 billion for 1982/83. While it is difficult to predict how lower export earnings and government revenues will affect various industrial projects and sectors of the economy, one economist has forecasted that the recent developments in the international petroleum market will cause a two percent drop in next year's expected GDP growth rate for Indonesia.

Coupled with the soft international market for petroleum is a growing Indonesian market for petroleum products, which are in part subsidized. Indonesia's domestic demand for petroleum, growing at 12 percent per annum, has begun to compete with its export supplies. For several years now, the growth in domestic demand for petroleum has outpaced the increases in oil production. This has led many, the World Bank among them, to predict Indonesia becoming a net oil importer in the next 20 years if the present trend goes unchecked.

Indeed, Indonesia's pressing economic problem is how to maintain petroleum export earnings over the short run and increase total export earnings in the long run. For the short run, a trade off between domestic consumption and exports is being worked out. The GOI is considering an increase in its imports of cheap low grade crude to meet the domestic demand, freeing up its middle and high grade oils for export.

It is not known whether the GOI will carry out the plan, nor if it will work. What is certain from GOI's record of handling the economy, though, is that it will not idly watch a two percent drop in the GDP growth rate. High government officials will implement new policies and try different strategies.

2. Energy Information and Policy making in Indonesia

New policies and different strategies, though, require accurate information on prices, existing and future demand, energy production and production possibilities, and energy prices and cross elasticities. Up until recently energy planning and forecasting in Indonesia has been a simple matter. Since there has been an absence of data, complex energy models have been impossible to construct. While the lack of data has prevented Indonesia from preparing an overly complex, not too relevant model, it has also prevented the development of a simple but useful model.

With no models, policy-makers have been free to base their decisions on perceived, well intentioned beliefs, but not systematic economic analysis. This has been especially true for energy pricing policy where subsidies have been established for petroleum fuels as an attempt to improve income distribution, stop deforestation and slow the rate of cost-push inflation. Yet, because of inadequate information and modeling analysis, the impact of these decisions has either been the opposite of what was intended or has been minimal and extremely expensive.

The GOI has been aware of its informational and organizational problems and limitations for some time now. Some of these have already been dealt with rather effectively, while others remain. As background for this project, the GOI has characterized its energy information situation as:

Responsibilities for Energy Involve Many Ministries, Public Sector Organizations and Private Companies

Indonesia has approximately four ministries and fifteen other agencies or semi-public entities involved in energy production and research. Each of these has gathered energy information specific to its needs. Most of the information gathering, analysis and forecasting has been done by the state oil, gas and power companies for their own operational planning and budgeting purposes. To improve the coordination, information gathering and analysis, and operations, the GOI placed the policy-making responsibilities in one central organization. In 1980, it established the National Energy Coordination Board (BAKOREN) as an interministerial committee to: formulate government policy on the development and utilization of energy in an integrated manner; establish national programs on the development and utilization of energy; and coordinate energy programs and policies. BAKOREN is headed up by the Minister of Mines and Energy and includes the Minister of Public Works, Industry, Defense and Security, Communications, Agriculture, Research and Technology, Development and Environment and Administrative Reform; the Vice Chairman of BAPPENAS; the Director General of the National Atomic Board; and the President Director of PERTAMINA.

To carry out the information gathering and forecasting needs of BAKOREN, the GOI created the Technical Committee on Energy Resources (PTE), a committee of 27 senior officials from all the energy supplying and consuming ministries. The Directorate General of Power (DJK) serves as Management Office of the PTE, and thus the center for all studies, reviews, evaluations and forecasts. Because the DJK role in PTE is new, it does not yet have the information base and capability to serve as an effective secretariat.

No System Exists for Compiling Data on Production and Consumption

Three separate Indonesian institutions, Directorate General of Oil and Gas (Migas), Directorate General of Power, and Indonesian Institute of Sciences, did attempt to improve the forecasting and demand projections using some simple modeling techniques so that the GOI could improve energy sector policy making and planning. But all three models suffered from poor data bases and an improper application to Indonesia. All three had conflicting information for consumption by economic sector, rural energy use and future composition of the industrial sector. In addition to these forecasts, there were four foreign-donor supported studies on energy demand and supply forecasts, done more or less within the same time period. Three of the four were done specifically for separate GOI agencies: BPPT contracted Bechtel, DJK contracted Energy Development International (AID-funded) and BATAN, the nuclear power agency, contracted the Advanced Italian Nuclear Reactors (NIRA). The fourth forecast was carried out by the UNDP and World Bank as part of an Indonesian Energy Sector Assessment paper.

All four of these studies pointed to several important energy issues the GOI needs to resolve. These include: a petroleum pricing policy which distorts the competitiveness of non-petroleum fuels; a gas pricing policy which does not offer adequate incentives for increased development; a shortage of geologists, engineers and technicians; inadequate planning for coal production and use; a suitable incentive for foreign investors to develop geothermal energy; and a better inducement for secondary recovery of oil. Unfortunately, the information base and continuing mechanism for energy demand and supply forecasts to deal with these types of issues is not yet in place.

The absence of a systematic and periodical gathering of energy data has left the GOI with an information and planning vulnerability in three areas. For one, the shape and geographic location of the Indonesian economy is changing rapidly: the agricultural sector's contribution to the GDP is dropping, while the service sector's increases; and rural to urban migration continues. The GOI faces an ever changing demand on its ability to facilitate ample energy supplies with each structural and spatial change. Two, without periodic information gathering, the GOI has a difficult time assessing the need to control the demand for energy supplies and encourage conservation. Finally, other than firewood, the GOI has very little on non-commercial sources of energy. Clearly, if the GOI is to make wise decisions in a highly mobile and fluctuating economy, it will have to have an orderly information gathering and analysis system, rather than an occasional contracted study.

Not Enough Information nor Model to Demonstrate the Real Costs and Consequences of Pricing Policies

Up until recently, Indonesia's pricing policy has been based on financial subsidies of almost all petroleum products. Because of the interdependence or substitution of petroleum with other fuels, the subsidies discouraged the use of non-petroleum fuels and increased the quantity demanded of petroleum fuels. The UNDP/World Bank Energy Sector Paper indicates the financial cost of the subsidy to have been $400 million in FY 1978/79, $1.5 billion in 1980/81 and an estimated $2 billion in this fiscal year 1981/82.

In January 1982, the GOI raised the prices of its domestic petroleum in recognition of the costs inherent with subsidized fuel. Although it was a good move which many economists believe to have been late in coming, prices for kerosene, motor and industrial diesel, and fuel oil are still below opportunity cost.

It is the GOI's intent to remove all subsidies. Yet, because of the interdependence of petroleum prices with other fuels and the absence of information and models to demonstrate the costs and consequences to the various economic groups of alternative formulae for subsidy removal, the GOI finds the process of withdrawing price subsidies as extremely difficult.

3. Energy Planning for Development I

This proposed project will continue AID support started under Energy Planning for Development I for the development of a national energy planning unit within the Directorate General of Power of the Ministry of Mines and Energy (EPFD I). EPFD I funded an analysis of current and projected uses of and need for commercial and noncommercial energy in relation to the national, social and economic development programs. This analysis projected the demand for energy based on the availability of alternative energy sources and various assumed economic growth rates. Also, EPFD I assessed the technologies currently or potentially available for exploitation of available energy resources. Finally, EPFD I provided: short-term training for Indonesian officials in selected areas of demand analysis and technology assessment; assistance in organizing a workshop on forecasting and energy policy analysis; and assistance in planning for the development of an energy information system.

The culmination of EPFD I was the co-sponsorship of a workshop on National Energy Demand in the 1980's. This provided a forum for U.S. consultants, technical analysts and GOI policy makers to discuss various studies of energy demand, to reach a universally accepted conclusion of the projected

energy demand and to determine the next steps to be taken in energy planning. A copy of the summary report is presented in Annex B.

4. Relationship to Current and Planned AID and Other Donor Activities

a. USAID

This project is part of the USAID Energy Sector Strategy. A national energy plan, based on proper data, assessments and analyses, is critical to resolving the Indonesian energy dilemma, and in fact is highly relevant to accomplishing the whole national plan for economic and social development. Since energy requirements permeate all development activities, this project, which provides technical expertise and specialized manpower development, is key to the GOI being prepared to study its future energy resources and needs, and to help it make better policy, methodology and financing decisions. Better energy policy and program decisions will benefit all Indonesians; inaccurate decisions will be detrimental to most. The success of this project could have a marked impact on Indonesian development, and indirectly on U.S. interests in Indonesia.

Support for energy planning is a major element in both the AID energy sector policy and the Asia Bureau Statement on Energy. Both documents point out the need to take a broad view of the role of energy in agricultural and industrial development. The Indonesia CDSS specifically emphasizes the value of this kind of specialized technical support in promoting sound investments by Indonesia of its large foreign exchange revenues from oil. It recognizes the important U.S. interests in helping Indonesia maintain its oil export position through the diversification of domestic energy supply.

This project will complement the anticipated PUSPIPTEK Energy Laboratory Project in which BPPT, as operators of the laboratory, will develop and adapt energy technologies and examine the problems to be overcome in full utilization of those technologies. This project will be strengthening the required collaboration between BPPT and the Ministry of Mining and Energy required in the PUSPIPTEK project and indeed in many other energy programs in Indonesia.

b. Other Donor Activities

A number of other donor agencies provide technical assistance to Indonesia for energy. Their activities range from assessments to exploratory drilling. Only the World Bank provides technical assistance which directly complements this project.

The World Bank, Japan, France and Canada support broad energy sector analyses. The World Bank and Japan assist in oil and gas planning. Planning in the power sector is provided by the World Bank, Australia, Canada, Japan and France. Energy resource assessment is supported by the World Bank (coal), France (oil and geothermal), New Zealand (geothermal) and Australia (coal and oil). Technical assistance in the coal sector is provided by Australia (coal port studies), Japan (coal production) and the World Bank (review of coal production prospects). Renewable energy assessments and technology development are supported by the Asian Development Bank (rural supply/demand analysis), France (demand survey), and Germany (experimental solar and biomass applications in rural areas). The Netherlands is developing a project to assist in establishing village wood lots.

Capital assistance is provided by a number of donors with the World Bank as the largest contributor. Assistance emphasizes the electric power sector and coal production.

Coinciding with the first year of the project, the World Bank will provide three long-term consultants and several short-term consultants to the DJK in an institution building effort. The three advisors are funded under a project entitled, "Energy Management Information System."

B. Detailed Description

1. Project Goal

Continued economic growth of Indonesia through the development and strengthening of Indonesian scientific and technological capability.

2. Project Purpose

To increase the information base and capability of the DJK in national energy planning so that it can serve as an effective secretariat to the Interministerial Technical Committee on Energy (PTE) and the Coordinating Body on Energy (BAKOREN) at the Ministerial level.

3. Project Outputs/Inputs

The project's outputs are:

a. Modelling and Analysis

Economic models are a simplification of how the real economic world operates. They are developed and used by the public and private sector to help describe economic developments, predict economic events and plan for economic

changes. Because of the importance of energy as a determinant of economic change and the availability of energy as the result of economic performance, energy models have also been developed to feed into economic models and produce estimates for unknown energy planning data such as primary energy requirements, required conversion and transport facilities, and supply system costs. Also, energy models assimilate large amounts of information and present it to decision makers in a form suitable for sound energy policy making.

Under this component, a model will be developed from the integrated energy demand and supply information generated under EPFD I. It will emphasize the gathering and processing of quality information, especially data at the regional scale. This component will build a regionalized data base of current supply-demand information, adapt the energy data set up under EPFD I to accommodate regionalized data needs, and develop an approach to perform national energy projections based on regional information.

EPFD I created a substantial set of integrated energy demand and supply data. It also funded the training of six DJK officials at the Institute for Energy Research at the State University of New York at Stony Brook in: the introduction to the Reference Energy System (RES) methodology; the design of information systems for energy planning; and data sources and collection procedures.

Because the training involved in EPFD I was in RES, it is expected that the DJK will adopt either RES or a similar energy model. RES, developed by Brookhaven National Laboratory, was one of the early energy information systems developed. It displays a nation's energy system in the form of a listed set of energy flows from full resources and conversion systems to energy end-users.

However, because it is a physical, technical feasibility type model, its economic prediction and analysis aspects are extremely limited. Under this project, work will be done to link the physical characteristics to the economic. This component will finance technical assistance to modify the RES model, test it, use it, and refine it, if necessary; and to identify and begin collection of as yet unavailable data required for the model.

The technical assistance will also assist the GOI in designing an information system for energy planning and set up the procedures for data collection. Because of the limitations the GOI has on providing housing, and education allowances for foreign advisors, this project's technical assistance needs will be met by either a series of short-term consultants spread out over the life of the project

and/or services from expatriates living in Indonesia and not requiring USAID support services.

Under EPFD, it was recommended that EPFD II finance the purchase of a particular brand and model of minicomputer for which a program for the RES model has already been written. He considered reprogramming the model to fit another computer as an unnecessary expense. The GOI and USAID have decided, though, that since modifications will be made in the RES model, reprogramming will indeed be necessary. Thus, the GOI and USAID have decided not to rely on the recommended sole source procurement , and seek out the most suitable computer through competitive means.

The RES adapted energy model will require a 32 bit central processing unit, over 500 Kbytes of error correcting memory and a disk subsystem which includes a 96 megabyte cartridge module disk. This unit will be located in an office at the Directorate General of Power so as to allow the staff complete access to the computer and program. The room will be at least four by eight meters with a one to two ton capacity air conditioning unit. The computer will also need a back up power supply to handle power shortages.

Towards the end of the project, this component will finance an outside evaluation at the purpose and technical levels. It is expected that two foreign experts would be needed for one month.

Inputs

The AID loan will fund approximately 36 person months of technical assistance: six person months to assist with procurement; 30 person months for programming and modeling and project management assistance. Total technical assistance should cost about $200,000. The AID loan will also fund: a mini-computer, including minimum necessary memory, disc, and tape capability and terminal with black and white screen ($60,000); color graphics demonstration display ($14,000); line printer ($9,000); required software ($5,000); magnetic tape drive ($12,000); data base management software ($20,000). Finally, the loan will finance two person months of technical assistance for project evaluation ($15,000).

The GOI will supply office space and support for the minicomputer and technical advisors ($35,000); a service contract for the computer maintenance and repair ($35,000); and full time staff assigned to this project ($60,000).

b. Energy Policy Studies

The technical assistance funded under this component will contribute to Indonesia's energy information base. It will support two studies in areas identified during project design as critical information gaps for policy making and energy planning. These two studies are:

Urban Household Energy Use Study:

Under EPFD I, a rural household energy survey was carried out by a U.S. consulting firm and the DJK in association with eight universities. The GOI has maintained an interest in household energy consumption because a large portion (65 percent) of the total energy demand is consumed by households; the rural household sector consumes enormous quantities of subsidized kerosene; and because of a long term concern for welfare and basic human needs.

The pilot rural energy survey funded under EPFD I followed a methodology which allowed for projection techniques using simple econometric estimation procedures. Sufficient data categories were included in the survey to permit the specification of very simple log linear regression equations to analyze variations in the pattern of energy demand among the households sampled.

The pilot survey demonstrated the importance of variation analysis to policy makers. For instance, the rural energy survey found that a 10 percent increase in basic energy demand among high income households requires almost twice as much oil as would be required by a similar increase in consumption levels among poor income households.

To add one more important demographic variation to energy consumption data among different income groups and provide one more training exercise in preparation for a representative national survey, EPFD II will finance a pilot urban energy survey. The DJK will contract for technical assistance to review the survey methodology for appropriateness in urban areas, hold training courses for the supervisory staff and interviewers from participating universities, supervise the survey, and assist the DJK in collating and analyzing the data.

The survey will involve eight universities and eight cities in Java, Sumatra, Kalimantan and Lombok. The survey will canvas over 1,500 urban residents. Similar to the EPFD I rural survey, the urban survey will establish a minimal data base on energy consumption for each of three broad urban income groups, it will enhance the local capability to undertake the design and supervision of household energy

surveys, and it will complete the testing of an appropriate survey and methodology for use in a representative national survey.

Inputs:

The AID loan funds will finance 12 person months (two six month TDY's) of technical assistance for the urban energy survey. The estimated cost is $85,000. The GOI will finance the cost of the contracts with the universities for the supervisory and interview work of the survey. This GOI contribution is estimated to be $35,000. The DJK will also provide the technical advisors with office support ($5,000).

National Survey on the Productive Demand and Uses of Rural Electrification

The State Power Company (PLN) has recently gained experience through the AID/GOI rural electrification project in dealing with productive uses of electricity. Also, a limited amount of research done on three small villages electrified under the AID financed project indicates the possibility of an enormous demand for electricity by rural enterprises and a significant increase in production and productivity once electricity reaches a village.

Indonesia's electric generation capacity is over 2,700 MWs and is expected to reach 10,000 MWs by 1990. The most productive areas for distribution of the added electric capacity, the proper pricing policies to assure profitable distribution and at the same time stimulate economic growth through increased use of electricity, the power requirements of business by type and size and the proper use of technology to complement the introduction of electricity to villages are four topics where virtually no information exists.

Under this project, the DJK will undertake with PLN a national survey into the productive demand and uses of rural electrification. The survey will cover 23 representative sites throughout Indonesia. Each site will require four or five bilingual surveyors. The study will utilize technical assistance to aid in the design, field work, analysis and writing of the report. The design and field work will take one year to complete, the analysis six months and the final report writing six months.

Inputs:

AID loan funds will be used to finance the technical assistance contract for the productive uses survey. It will involve two outside consultants making periodic visits over a two year period. Total number of person months is estimated at 24. Also, loan funds will pay for the bilingual

field surveyors. Estimated cost of the contract and surveyors is $250,000. The GOI will provide office support and four full time staff members from the PLN and DJK for a period of two years to work on, supervise and analyze the survey and write the final report. Estimated contribution is $65,000.

SUMMARY BUDGET OF INPUTS

Activity	AID	GOI
1. Modeling and Analysis		
Technical Assistance	$200,000	
Computer Hardware	120,000	
Office Support		$35,000
Service Contract		35,000
Staff		60,000
Evaluation	15,000	
2. Energy Policy Studies		
Urban Household Energy Use Study:		
Technical Assistance	75,000	
Survey Supervisors and interviewers		35,000
Office Support		5,000
National Survey Productive Demand and Uses Electricity:		
Technical Assistance	250,000	
Survey Supervisors and Interviewers		60,000
Office Support		5,000
	$670,000	$235,000
Inflation and Contingencies	80,000	15,000
TOTAL	$750,000	$250,000

III. Project Analysis

A. Technical Analysis

This project sets out to increase the DJK's capability to act as an effective secretariat to PTE and BAKOREN. It will do so by increasing the Indonesian energy data base and establishing an energy model for the Indonesian policy-makers to use. The project will purchase a computer because the process of following and integrating numerous factors and volumes of data far exceeds the capability of individuals. Thus, the technical factors of the project center

around the type of model and the nature of the computer hardware and software to be selected.

Modeling methodology can be grouped into two categories: behavioral/econometric and engineering/process oriented models. The behavioral models are based on economic theory and designed for forecasting. The process models tend to be oriented to physical processes and engineering systems.

Since EPFD I trained DJK staff members in the use of a process oriented model, it is expected that the DJK will adopt it or a similar process model. There are at least 50 of these types of models published and available. USAID will not oppose the selection of a process model, but will require that the model selected be capable of capturing the interactions between energy and economic variables. At a minimum, the energy model will be required to incorporate aggregate price and income elasticities in their demand and supply calculations. USAID will also require the model to have a certain degree of compatibility with more complex and energy specific models.

In examining compatibility of models, the project implementers will plan for compatibility in definitions, data and aggregation levels. Finally, the model selected will have to be programmable on a computer or operating system for which Indonesia has an authorized maintenance representative.

Two computer hardware/software systems were considered for the project. One was to select an existing energy model and establish a telecommunications link between the DJK and a mainframe computer in the United States or Indonesia. This was ruled out because: the telephone system is not considered reliable enough; preliminary analysis did not demonstrate any cost savings; and, most importantly, it would not provide the DJK with sufficient flexibility in adjusting the model to meet its needs.

Rather, the project will choose the minicomputer system as the most efficient. In this age of computers, the low cost minicomputer offers the simplest configuration possible while at the same time provides the greatest amount of accessibility and reliability. The purchase agreement for the mini computer will guarantee: the availability of replacement parts, support for all components of the system, training in the computer operations, operating manuals and a supply of software updates for at least one year from the date of installation.

The computer dealer will work closely with the DJK in preparing the physical site for the mini-computer. Payment will only be authorized after the dealer has demonstrated the equipment to be fully functioning.

B. Financial Plan and Analysis

1. Financial Plan

The financial plan contains a Summary Cost Estimate by Source of Funding (Table III B1), a Costing of Project Outputs/Inputs (Table III B2), and a Disbursement Schedule by Calendar Year (Table III B3).

The project's total cost will be $1,000,000; three quarters of this will be loaned by AID. The GOI $250,000 contribution meets the host country contribution of 25 percent as required by Section 110 of the Foreign Assistance Act. AID funding for this project is from Selected Development Problem (Sec. 106). The financing of the computer and establishment of a model makes up 45 percent of the total project cost. Loan funds will cover $525,000 worth of technical assistance. All operating costs and local contract personnel costs related to the surveys will be borne by the GOI.

The provision for inflation and contingencies is low for both AID and the GOI. The inflation and contingency allowance for AID is about 11 percent, while for the GOI it is only 6 percent. Even with the falling rates of inflation in the U.S. and Indonesia, this allowance would appear low. Nevertheless, this allowance is considered adequate given the length of the project and the projections of over 75 percent of the disbursements to be made by the second year.

2. Budget Analysis

The long-term financial viability of the project depends on the GOI's ability to supply the counterpart funds for the project and maintain the project's operating expenses once the completion date has been reached.

Based on the experience of EPFD I, counterpart financing and maintenance of project activities will pose no problem for the DJK. The GOI allocated $214,000 to the DJK during 1980 for EPFD I. These counterpart funds were used for the contracts with eight universities and for domestic travel, per diem and support for the EPFD I consultants conducting the pilot national rural energy survey. In 1981, the GOI allocated over $30,000 as project counterpart for the EPFD I seminar in Bandung and for a rural energy survey contract with a university in Bali. Over $46,000 in counterpart funds for EPFD II have already been approved by the GOI for the first year of EPFD II. These funds will become available to the DJK as soon as the Loan Agreement is signed.

Computer maintenance and personnel costs for the modeling and analysis component of the project will be absorbed in the DJK's operating expense budget and will pose no additional budgetary burden to maintenance of the project.

TABLE III B1

Summary Cost Estimate By
Source of Funding
(In U.S. $000)

Component	A I D			G O I			Project Total
	FX	LC	TOTAL	FX	LC	TOTAL	
1. Modeling and Analysis							
Technical Assistance	195	20	215	—	—	—	
Computer Hardware	120	—	120	—	—	—	120
Local Contract Personnel	—	—	—	—	35	35	35
Service Contract	—	—	—	—	35	35	35
Operating Expenses	—	—	—	—	60	60	60
SUBTOTAL	315	20	335	—	130	130	465
2. Energy Policy Studies							
Technical Assistance	320	15	335	—	—	—	335
Local Contract Personnel	—	—	—	—	95	95	95
Operating Expenses	—	—	—	—	10	10	10
SUBTOTAL	320	15	335	—	105	105	440
SUBTOTAL	635	35	670	—	235	235	905
Contingencies and Inflation			80			15	95
TOTAL			750			250	1,000

TABLE III B2

Costing of Project Outputs/Inputs
(In U.S. $000)

PROJECT INPUTS	PROJECT OUTPUTS			
	Modeling and Analysis	Energy Policy Studies	Contingencies Inflation	Total
AID Apropriated				
Technical Assistance	215	335		550
Computer Hardware	120	-		120
Inflation and Contingencies	-	-	80	80
Subtotal	335	335	80	750
GOI Appropriated				
Operating Expenses	95	10		105
Local Contract Personnel	-	95		95
Service Contract	35	-		35
Inflation and Contingencies	-	-	15	15
Subtotal	130	105	95	250
TOTAL	465	440	95	1,000

TABLE III B3

Disbursement Schedule by Calendar Year
(In U.S. $000)

	1983		1984		1985		1982-1985		
	AID	GOI	AID	GOI	AID	GOI	AID	GOI	TOTAL
1. Modeling and Analysis:									
Macro Energy Economic Model	60	20	200	56	60	50	320	126	446
Evaluation	-	-	-	-	15	4	15	4	19
2. Energy Policy Studies:									
Urban Household Energy Use	35	30	50	10	-	-	85	40	125
National Survey Productive Demand and Uses for Electricity	120	45	130	20	-	-	250	65	315
SUBTOTAL	215	95	380	76	75	54	670	235	905
Contingencies and Inflation							80	15	95
TOTAL							750	250	1,000

C. Social Analysis

As with all projects, EPFD II will have direct and indirect beneficiaries. The direct beneficiaries, of course, will be the private and public sector personnel using the information obtained, stored and processed by the DJK. The identification of potential energy markets will offer ample opportunity to the state controlled and private sector companies involved in energy production. PTE and BAKOREN will benefit by having better and more timely information for their policy setting meetings. Benefits to the economy as a whole are expected when PTE and BAKOREN recommend and set policy, and devise energy pricing strategies which reflect the cost of petroleum relative to alternative energy sources, the true cost of subsidies and the value of conservation efforts.

While all Indonesians will benefit directly from better energy information and better energy policy, Indonesia's poor will benefit indirectly from energy policies which maintain or increase public sector revenues which fund social programs. Specific groupings of Indonesians, including the poor, will benefit as the information capability of the DJK identifies problems common among them in energy supply and demand. For example, analysis of energy data may heighten the awareness of policy-makers to energy problems unique to rural women, rural or urban industries, public transport systems, farmers or maybe even street vendors. Energy problems for specific groupings such as these will even be broken down further by geographic area. Two of the project's activities, the Urban Energy Use Survey and the Productive Uses Study are already directed at identifying energy uses and problems unique to specific groups.

This level of targeting beneficiaries for energy analysis and planning projects is provided for in the foreign assistance legislation. The authors of the legislation authorized AID to fund projects like EPFD II based on the recognition that: energy production and development are essential to the development of a nation; and the ability of nations to finance social infrastructure and development programs is seriously threatened by financial crises caused by energy problems.

D. Economic Analysis

1. Cost Effectiveness

The processes and information generated by this project will lead to greater cost effectiveness by private and public sector entities involved in energy. Systematically carrying out surveys and planning for all available energy sources in Indonesia will surface inconsistencies in strategies and projects. The energy information system will assist the

state enterprises in planning for distribution of energy and the multinational petroleum and coal companies in planning for explorations and productions. For example, this information system will be extremely important for the corporate planners of the international coal concessionaires expecting to export but tied into filling Indonesia's domestic orders first. Likewise, it will provide private and state oil companies with better information on production needs and capital investments.

The magnitude of public and private expenditures on energy development provides plenty of opportunities for the EPFD II information system to result in greater cost effectiveness. By 1988 the annual capital investment necessary to meet domestic needs and to assure petroleum exports will be between $5 and $8 billion. Cumulative capital for energy investments is estimated to be anywhere from $150 billion to $300 billion by the year 2000.

As micro economic theory tells us, improved information will also result in more efficient energy markets. For instance, the prices of kerosene sold by private distributors can vary immensely in the same geographic region, while the price of gasoline at Pertamina stations will be uniform throughout the nation. Prices differentiating of kerosene be private suppliers would dictate constitute price gouging of certain consumers. The uniform pricing of some fuels inevitably leads to an undependable supply in the less profitable regions. The EPFD II information system and planning can be expected to address and resolve some of these market inefficiencies and hence justify the cost of the project.

2. Economic Justification

At the end of the project, BAKOREN is expected to be recommending energy policies and designing better energy programs because of information made available as a result of EPFD II and provided by the DJK. The information generated as a result of EPFD II, the established model, will be one of the factors responsible for the public savings or revenues and the benefits to private sector from improved energy policies and programs. In some cases the EPFD II information capability will be the sole reason for a policy decision, in most cases it will merely hasten a decision.

While the information used in decision-making will have an impact, it is not observable and impossible to measure. A decision made six months earlier than might otherwise have happened because of improved information would attribute a six month stream of savings, or costs in the case of faulty information, to the information capability. While trying to forecast before, or even measure after, the stream of savings attributable to better information is not possible, it

is possible to estimate the total annual stream of public savings necessary for project costs to break even. Table III D1 presents such an analysis.

TABLE III D1

Illustrative Cost/Benefit Analysis
($000)

Year	Cost of Project	P.V. Cost of Project	better Information Public Savings or Increased Revenues	P.V. of Project
1983	250	217	-	-
1984	250	189	-	-
1985	250	164	-	-
1986	40	23	167	97
1987	40	20	195	97
1988	40	17	224	97
1989	40	15	258	97
1990	40	13	297	97
1991	40	11	341	97
1992	40	10	392	97
Sum of P.V.(at 15%) .		679		679

Table III D1 assumes a discount rate of 15%, no benefits until the third year of the project and a GOI maintenance and operating cost of $40,000 per year. Given these assumptions, the GOI would have to see a present value stream of $97,000 per year from 1986 until 1992 for the costs to equal the benefits. This does not appear to be an unattainable savings or revenue stream considering the total value of energy consumption and sales; for instance, by 1990 the UNDP/World Bank Energy Report estimates petroleum product consumption to be over 362 million barrels of oil equivalent, almost $11 billion at current world petroleum prices. An annual savings or revenue increase of $97,000 in 1990 will represent .000000882 of the value of Indonesia's total petroleum product consumption.

E. Institutional Analysis

1. The Institutions

The lead agency in this project is the DJK, one of three Directorates under the Ministry of Mines and Energy (MME). MME was designated in 1978 as the coordinator of all energy activities. It does so through three Directorates, the Directorate General of General Mining, the Directorate General of Oil and Gas, and the Directorate General of Power (DJK). The state enterprises involved in energy production (oil and

gas, power and coal) are under the supervision of the Minister of Mines and Energy through his three Directorate Generals. Only atomic energy, forestry and several energy related research institutes do not fall under the umbrella of the Ministry of Mines and Energy.

Three energy policy bodies operate under the direction of the MME: BAKOREN, the National Energy Coordinating Board; PME, the Permanent Committee for Energy Studies; and PTE, the Technical Committee on Energy Resources. Both PME and PTE act as Secretariats to BAKOREN. PME has control over energy research activity within the Ministry, while PTE submits energy policy proposals to BAKOREN. BAKOREN is chaired by the Minister of Mines and Energy and includes the Ministers of Public Works, Industry, Defense and Security, Communications, Agriculture, Research and Technology, Development and Environment, and Administrative Reform; the Director General of the National Atomic Board; and the President Director of PERTAMINA.

The Director General of Oil and Gas acts as the Chairman of PTE, while the Director General of Power is its Vice Chairman. It is this tight bond of responsibility for energy matters within the MME that provides the DJK with such influence and promise in working with Indonesian energy policy.

The DJK is divided into two divisions, Energy Resource Development and Electric Power. The implementation of this project will be carried out by the Energy Resource Development Division. Project activities and tasks will be delegated to the four sections of the Energy Resource Development Division; Data, Planning, Regulation and Environment, and Projects.

2. Institutional Feasibility

Two institutional issues considered during project design were the capability of the DJK staff to carry out and continue the project and the institutional flow of information between the modelers/analysts and the decision makers.

EPED I provided training in analytical methods and techniques used in understanding energy problems. It trained five DJK staff members in the development and use of data, information systems, systems and economic models and demand projection techniques. It provided hands-on experience for all of them in the use of Brookhaven National Laboratory's Reference Energy System, a graphical representation of the flow of energy for specific year and fuel/technology mix. EPED I also provided the entire DJK staff with experience in designing and supervising a rural baseline energy data survey. In addition to this training, this project and a World Bank

project will provide technical assistance to the DJK for data analysis, modeling and planning. Given the results of EPFD I and additional technical assistance, the institutional feasibility of the project should be assured.

Successful energy policy making depends on open communication between the individuals developing, operating and varying the models and the policy makers using the results of the model. The modelers must have an accurate understanding of the needs of the policy makers while the policy makers have to comprehend the capabilities and limits of a model. Because of this, the institutional setting will influence the communication between the two groups.

The institutional setting for this project could be categorized as an in-house capability even though three entities are involved. The policy making body, BAKOREN, is led by the Minister of Mines and Energy. It is served by PTE and DJK, both controlled by Minister of Mines and Energy through two of his Directorates. Thus, the MME, through two Directorates, is investing time and thought in the model and energy data base both as a user and developer. This arrangement will satisfactorily assure open communication.

IV. IMPLEMENTATION ARRANGEMENTS

A. Financial Implementation

A special account for the project will be established by the DJK for making disbursements approved by USAID. The GOI will maintain at least three months worth of project needs in the account for the life of the project. AID standard direct disbursement procedures will be followed. No elements of this loan are acceptable for reimbursement under the Fixed Amount Reimbursement Method.

The selection of consultants and procurement of equipment will be carried out in agreement with the standard provisions of the Loan Agreement. All goods and services will be contracted for directly by the GOI, with AID prior approval for all contracts over $100,000. The Mission will review the scopes of work qualifications and salaries of all persons paid with loan funds and all procurement of computer hardware and software. In addition, any procurement of computer hardware and software will require the prior approval of SER/DM in AID/W.

B. Implementation Plan

The following is a schedule of major events:

DATE	ACTIVITY
1982	
June	Project Paper approved
August	Loan Agreement signed
1983	
January	Initial conditions precedent met; Technical advisor arrives to begin work on Urban Household Energy Use Study.
February	Technical advisor arrives to assist with computer procurement.
April	RFP issued for computer equipment.
May	Technical advisors begin work on productive users study.
1984	
February	Urban Household Energy Use Survey completed.
May	Technical advisor assists with installation of computer equipment.
June	Technical advisor begins programming work.
August	Final report on Productive Uses Study issued.
1985	
January	Energy modeling fully functioning.
September	PACD

C. Evaluation Plan

In addition to the annual PES, an in-depth project evaluation will be conducted during the third year of the project. At the purpose level, it will examine how the model has been applied to specific policy questions. Any economic or social impacts directly attributable to decisions made because or with the assistance of the model will be noted.

The evaluation will also be conducted on the technical characteristics of the model, in particular the input data base and models outputs. At the data base level it will: determine whether better sources of data exist; identify discrepancies found between the original data and the processed input data; look for inconsistencies between the purpose for primary data and the manner in which it is used in the model; and examine the appropriateness of the aggregation of data. At the model output level, the evaluation will determine if: the model outputs were consistent with past outputs or are consistent with expected outputs; and determine the range of applicability of the model in terms of time limits and numerical accuracy.

D. Conditions and Negotiating Status

1. Conditions Precedent to Disbursement

a. Conditions Precedent to Initial Disbursement

Except as AID may otherwise agree in writing, prior to any disbursement or issuance of any commitment document under the Project Loan Agreement, the Borrower shall furnish to AID, in form and substance satisfactory to AID, evidence that a Project Coordinator, acceptable to AID, has been formally named.

b. Conditions Precedent to Subsequent Disbursement

Except as AID may otherwise agree in writing, prior to any disbursement or issuance of any commitment document under the Project Loan Agreement for computer hardware of software, and for studies, the Borrower shall furnish to AID in form and substance satisfactory to AID;

(1) An implementation plan with budget estimates for staffing and technical assistance, and procurement and contracting.

(2) Computer equipment and software specifications.

2. Negotiating Status

This project has been developed in coordination with

the DJK. They are familiar with the activities planned for in this project. Upon approval of the Project Paper, negotiations will begin with a joint GOI committee chaired by BAPPENAS, the National Planning Office. Thus, signing of the Loan Agreement could be expected shortly after approval of the project.

OFFICIAL FILE

ANNEX IA

REPUBLIC OF INDONESIA
NATIONAL DEVELOPMENT PLANNING AGENCY
JAKARTA, INDONESIA

No. : 1734A /B.V./8/1982

Jakarta, August 13, 1982

USAID ROUTING		
To	Act	Info
DIR		
D/D		
PRO	✓	
LA		
ECON		
MGT		
CM		
FIN		✓
FIN/B		✓
FIN/FA		✓
RD		
POP		
HN		
EHR		
EHR/T		
STE		✓
DA		
VHP		
PTE		
AGR		
PSDO		
InfoC		
JAO/ADM		
PER		
GSO		
C N		

Mr. William P. Fuller
Director
United States Agency for International
Development
c/o American Embassy
Jakarta

Dear Mr. Fuller,

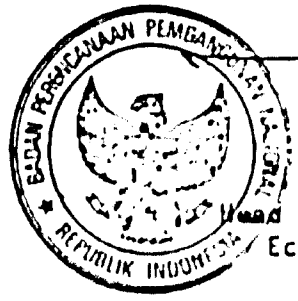
Subject : Energy Planning for Development

This is to request formally the AID for its assistance in the implementation of the above-mentioned project. The purpose of which is to increase the information base and capability of the Directorate General of Power in National Energy Planning and it will be carried out over a period of three years.

As discussed with the USAID in planning the project, the requested assistance will take the form of an AID Loan amounting to US$ 750,000. The loan will be used among other for training of key individuals in various aspects of modeling analysis, energy planning studies, purchase of commodity and equipment, and personnel costs.

Your approval of this request will be appreciated.

Yours sincerely,



F.R. Almatsier
Head of Bureau for Foreign
Economic Cooperation

Cc. : 1. Dirjen. Ketenagaan
2. Dep. Luar Negeri ,
Ditjen HESBLN.

Listed below are statutory criteria applicable generally to projects under the FAA and project criteria applicable to individual funding sources: Development Assistance (with a subcategory for criteria applicable only to loans); and Economic Support Funds.

A. GENERAL CRITERIA FOR PROJECT

1. FY 1982 Appropriation Act; Sec. 523; FAA Sec. 634A; Sec. 653 (b).

(a) Describe how authorizing and appropriations Committees of Senate and House have been or will be notified concerning the project; (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than $1 million over that amount)?

The committee on appropriations of Senate and House were notified of this project through the FY82 Congressional Presentation (Asia Programs, page 77) and through a Congressional Notification advising of AID's intention to change the Project from a grant to a loan.

2. FAA Sec. 611(a)(1). Prior to obligation in excess of $100,000, will there be (a) engineering, financial other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?

Yes.

3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?

No further legislative action is required.

4. FAA Sec. 611(b); FY 1982 Continuing Resolution Sec. 501. If for water or water-related land resource

N.A.

	construction, has project met the standards and criteria as set forth in the Principles and Standards for Planning Water and Related Land Resources, dated October 25, 1973?	
5.	FAA Sec. 611(e). If project is capital assitance (e.g., construction), and all U.S. assistance for it will exceed $1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project?	Yes
6.	FAA Sec. 209. Is project susceptible of execution as part of regional or multilateral project? If so why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.	No
7.	FAA Sec. 601(a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; and (c) encourage development and use of cooperatives, and credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.	The loan should directly encourage (a), (b), (d) and (e).

8.	FAA Sec. 601(b). Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise.)	It is anticipated that the equipment and technical assistance will be of U.S. origin.
9.	FAA Sec. 612(b), 636(h); FY 1982 Appropriation Act Sec 507. Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars.	Normal Project disbursement procedures assure this.
10.	FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?	No
11.	FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?	Yes
12.	FY 1982 Appropriation Act Sec 521. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity?	No

13.	FAA 118(c) and (d). Does the project take into account the impact on the environment and natural resources? If the project or program will significantly affect the global commons or the U.S. environment, has an environmental impact statement been prepared? If the project or program will significantly affect the environment of a foreign country, has an environmental assessment been prepared? Does the project or program take into consideration the problem of the destruction of tropical forests?	The project does not affect the environment. The Project is essentially information and research and planning.
14.	FAA 121(d). If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of project funds (dollars or local currency generated therefrom)?	N.A.

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

a.	FAA Sec. 102(b), 111, 113, 281 (a). Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained	This project is designed to benefit all Indonesians. The poor will benefit to the extent that the information capability of the GOI identifies problems common among them in energy supply and demand.

basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?	
b. FAA Sec. 103, 103A, 104, 105, 106. Does the project fit the criteria for the type of funds (functional account) being used?	Yes
c. FAA Sec. 107. Is emphasis on use of appropriate technology (relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)?	Yes
d. FAA Sec. 110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed" country)?	Yes

e. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing, or is the recipient country "relatively least developed"?	N.A.
f. FAA Sec. 122(b). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth?	Yes
g. FAA Sec. 281 (b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civil education and training in skills required for effective participation in governmental processes essential to self-government.	The project supports the development of local staff and institutional development.
2. Development Assistance Project Criteria (Loans Only)	
a. FAA Sec. 122(b). Information and capacity of the country to repay the loan, at a reasonable rate of interest.	Indonesia is able to repay this loan.
b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the	N.A.

recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan?

c. ISDCA of 1981, Sec. 724(c) and (d). If for Nicaragua, does the loan agreement require that the funds be used to the maximum extent possible for the private sector? Does the project provide for monitoring under FAA Sec. 624(g)? — N.A.

3. Project Criteria Solely for Economic Support Fund

a. FAA Sec. 531(a). Will this assistance promote economic or political stability? To the extent possible, does it reflect the policy directions of FAA Section 102? — N.A.

b. FAA Sec. 531(c). Will assistance under this chapter be used for military, or paramilitary activities? — N.A.

c. FAA Sec. 534. Will ESF funds be used to finance the construction of the operation or maintenance of, or the supplying of fuel for a nuclear facility? If so, has the President certified that such use of funds is indispensable to nonproliferation objectives? — N.A.

d. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made? — N.A.

PROJECT AUTHORIZATION

Name of Country : Indonesia

Name of Project : Energy Planning for Development II

Number of Project : 497-0318

Pursuant to Section 106 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Energy Planning for Development II Project (the "Project") for the Government of the Republic of Indonesia (the"GOI") involving planned obligations of not to exceed seven hundred and fifty thousand United States Dollars ($750,000) in Loan funds over a one year period from the date of authorization, subject to the availability of funds in accordance with the A.I.D. OYB/allotment process, to help in financing certain foreign exchange and local currency costs of the Project

The project will assist the GOI increase the information base and capability of the DJK in national energy planning so that it can serve as an effective secretariat to the Interministerial Technical Committee on Energy (PTE) and the Coordinating Body on Energy (BAKOREN) at the Ministerial level.

I hereby authorize the initiation of negotiation and execution of the Project Agreement by the officer to whom such authority has been delegated in accordance with A.I.D. regulations and Delegations of Authority subject to the following essential terms and covenants and major conditions together with such other terms and conditions as A.I.D. may deem appropriate:

A. Interest Rate and Terms of Repayment

The Cooperating Country shall repay the Loan to A.I.D. in United States Dollars within forty (40) years from the date of first disbursement of the Loan, including a grace period of not to exceed ten (10) years. The Cooperating Country shall pay to A.I.D. in United States Dollars interest from the date of first disbursement of the Loan at the rate of (a) two percent (2%) per annum during the first ten (10) years, and (b) three percent (3%) per annum thereafter, on the outstanding disbursed balance of the Loan and on any due and unpaid interest accrued thereon.

B. Source and Origin of Goods and Services

Goods and services financed by A.I.D. under the project shall have their source and origin in countries included in A.I.D. Geographic Code 941 except as A.I.D. may otherwise agree in writing.

C. Conditions Precedent to Initial Disbursement

Except as A.I.D. may otherwise agree in writing, prior to any disbursement or issuance of any commitment document under the Project Loan Agreement, the Borrower shall furnish to A.I.D. in form and substance satisfactory to A.I.D., evidence that a Project Coordinator, acceptable to A.I.D., has been formally named.

D. Conditions Precedent to Subsequent Disbursement

Except as A.I.D. may otherwise agree in writing, prior to any disbursement or issuance by A.I.D. of any commitment document for computer hardware or software, and for studies, the Borrower shall furnish to A.I.D. in form and substance satisfactory to A.I.D.;

(1) An implementation plan with budget estimates for staffing and technical assistance, and procurement and contracting.

(2) Computer equipment and software specifications.

William P. Fuller
Director

Date: August 16, 1982

Drafted:LA/PSDO:LChiles/DStraley:08/02/82, mai

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

ANNEX A

Energy Planning for Development II

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Project Goal:			
Continued economic growth of Indonesia through the development and strengthening of Indonesia's scientific and technological capability	Economic growth rate increases by more than 7% per annum	102d indicators	Political Stability
Project Purpose:	**End of Project Status:**		
To increase the information base and capability of the DJK in national energy planning so that it can serve as an effective secretariat to the Interministerial technical Committee on Energy (PTE) and the Coordinating Body on Energy (BAKOREN) at the Ministerial level.	PTE plans and projects designed based on facts and information obtained and stored at the DJK The establishment of an effective energy project planning and evaluation system at DJK BAKOREN recommending policy changes because of information provided by the DJK	Site Evaluation Public Policy Decrees	Energy policy-making continues to be centralized in bodies responsive to the DJK
Project Outputs:	**Magnitude of Outputs:**		
Modeling and Analysis: DJK officials trained in energy modeling and analytical techniques.	15 trained on the job	DJK Records USAID Records	Timely arrival of advisors and equipment
Macro Energy Economic model capable of assisting in regional energy analysis.	1 developed and in use		
Energy Policy Studies: National urban household survey	1 completed		
National survey production demand and uses of electricity	1 completed		

Project Inputs:

	($000)			
	USAID	GOI	TOTAL	
Technical Assistance	550	-	550	AID records
Computer Hardware	120	-	120	DJK records
Operating Expenses	-	105	105	
Local Contract Personnel	-	95	95	
Service Contracts	-	35	35	
Inflation and Contingencies	80	15	95	
TOTAL	750	250	1,000	

CONCLUSIONS OF WORKSHOP ON ENERGY DEMAND IN INDONESIA IN THE 1980'S

WORKSHOP OBJECTIVES AND PARTICIPATION

1. The four-day workshop was held in Bandung on 2 - 5 November 1981 to review projections of energy demand and projection of supplies from non-oil sources through the decade of the 1980's. Participating in the workshop were individuals from a number of Indonesian ministries and universities as well as 10 foreign energy experts from the United States of America. In all some 83 persons attended the workshop.

2. Ten papers were presented by individuals on the on-going energy analysis efforts at the Directorate General of Power, the Directorate General of Oil and Gas and the State Electricity Corporation (PLN), all of the Ministry of Mines and Energy; the Ministry of Industry; the Agency for the Development and Application of Technology (BPPT); the National Atomic Energy Agency (BATAN); and the Indonesian Institute of Sciences (LIPI). Four papers were presented by U.S. experts from Massachusetts Institute of Technology (MIT), Energy/Development International and the Bechtel Group Inc., dealing with the projected energy supply-demand situation in Indonesia and alternative supply strategies for reducing domestic dependence on petroleum products, cross-country comparison of energy consumption per capita, and price effects on energy consumption in Indonesia and other developing countries.

3. In addition, two panel discussions were held for the purpose of arriving at a consensus among the Indonesian and foreign experts on :

   (a) the quantities of different non-oil energy fuels likely to be available to the Indonesian economy by the end of the decade;

   (b) annual energy demands in 1990 needed to pursue current patterns of economic and social development; and

   (c) policies which the Indonesian Government could undertake to encourage the accelerated use of non-oil fuels as well as to reduce current distortions in the demand for petroleum products.

4. After much discussion and a thorough exchange of views among the workshop participants, the workshop was able to reach agreement on the following conclusions.

C O N C L U S I O N S

On Future Energy Demand

5. If the Indonesian economy grows at 6 - 7 percent per year during the 1980's, it will require the equivalent of 370 - 450 million barrels of oil (MBOE) in one form or another at the end of the decade. The corresponding figure in 1978 was 155 million barrels of oil equivalent *). This growth of energy use, corresponding to a range of 7.5 - 9 percent per year, is expected to occur if current trends continue and in the presence of current government policies regulating the price and uses of petroleum products. These figures do not include wood and other non-commercial energy, which currently account for around 65% of total energy consumption. The fraction of total annual primary energy resources used to produce electricity is expected to increase during the 1980's, reaching a value of 20 - 30 percent in 1990.

On Future Energy Supply

6. The workshop reviewed the various estimates of energy resources other than oil prepared by the various groups which could contribute to meeting the total demand for energy, and in particular the increased use of electricity in 1990, and agreed to the results listed below.

POSSIBLE FUTURE ENERGY SUPPLIES AT END OF DECADE

Resource	Physical Units	Million BOE
Coal	8-16 million metric tonnes	32 - 64
Natual Gas	$300\text{-}330 \times 10^9$ cu.ft	57 - 63
Hydro	2650 - 3800 MW	20 - 30
Geothermal	350 - 600 MW	4 - 7
Biomass *)		1 - 7
Wind		**)
Solar		**)

*) Non-traditional biomass

**) Less than 0.5 MBOE

7. Development of these supplies will necessitate substantial investment in transportation and distribution infrastructure, manpower development and industrial production capacity, if these supplies are to be produced and delivered to the various end uses

On Pricing Policy for Energy

8. The introduction of supplies of non-oil fuels listed in paragraph 6 into the Indonesian economy could be accelerated greatly by introduction of a more competive pricing structure. Although this is likely to lead to increases in real energy prices for all commercial fuels and in some sectors reduction of demand, the primary objective would be to insure fuel substitution in line with the government program of diversifying energy supplies, as well as to maximize the efficiency of energy, in particular in industry and transport.

9. It was estimated that new governmental adjustment and regulatory policies aimed at improving the effiency of energy use and fuel prices could have a substantial effect on energy demand growth. Similar policies in other developing countries have led to savings of greater than 10%.

Bandung, 5 November 1981.

INDONESIAN ENERGY POLICY

Introduction

1. The first formulation of such policy was completed in 1977, and was later used as an input for the Third Five Year Plan (Pelita III) 1979-1984.

Since then, this policy has been periodically reviewed and updated, and the latest review and updating was completed in March 1980.

2. This presentation outlines the main focal points of Indonesian energy policy, its total context, long range targets, and the mechanisms which are being developed for policy formulation and implementation.

The Indonesian Energy Scene

Energy Consumption

3. Observations on commercial energy consumption during Pelita I (1969-1974) and Pelita II (1974-1979; Annex I) have shown that average growth rates are 10% and 15% respectively. On the other hand commercial energy consumption per capita per year has increased from 0,47 BOE to 1,17 BOE in the last 10 years (1969-1979).

4. From the structure of consumption (Annex II) it is observed that the role of oil is dominant. With the development of non-oil energy resources, specially gas, however, the role of petroleum is starting to assume lesser importance.

5. Non-commercial energy consumption, based on preliminary assessment, seems to be large, although the trends show a decrease from 60% to 50% contribution of total energy consumption. More precise data are being collected. The observations made are mostly on firewood, which is the main fuel in the rural areas. Although the distribution system for kerosene has been widely developed, the consumption thereof is still limited in the rural areas, and is important mostly in urban areas.

6. Commercial sector energy consumption (Annex III), shows that the share of each sector is about equal and does not show considerable change in recent years. But if non-commercial energy consumption were included, which is mainly used in the household sector, this sector will have the biggest share.

In the table, the electricity sector is set apart. This sector (Annex IV) has shown an increase in installed capacity of 1621 MW in 10 years, an average increase of 24% a year. Even so the per capita (public) installed capacity is only about 16 W and covers only 2% of the population. The increase of public electricity in the last 2 years has reached 3 Watts per capita per year.

Energy Resources Potential

7. It is estimated that Indonesia has a recoverable deposit of oil amounting to 50 billion barrels. The level of production is 580,68 million bbl in 1979.

8. Natural gas deposits are estimated at about 30 trillion Cft. The production in 1979 was 748 million Cft, of which 27% has to be flared.

9. The hydropower potential available for electric power generation is estimated at 31 000 MW associated with 155 thousand GWh of energy potential per annum. The distribution is as follows :

Sumatera	6750 MW
J a v a	2[illegible]0 MW
Kalimantan	7000 MW
Sulawesi	5600 MW
Irian Jaya	9000 MW

Small scale utilization for mini and hydro electric power generation and other uses is widespread throughout the whole country and still need to be evaluated and assessed.

10. The proven reserves of coal amount to about 10 billion tons in South Sumatera and around 600 million tons in other parts of Sumatera. Coal found in Kalimantan still needs to be investigated. Present production reached the 800 000 ton level in 1 41. It is estimated that if the present production of 150 000 tons a year can be increased, it

duction costs will likely be around US $ 30/ton at the pitmouth.

11. The potential of geothermal energy has been deductively assessed at between 8000 and 10 000 MW. The island of Java itself has a potential of around 5500 MW. The past 6 years' experience shows that a success ratio of 0,55 has been reached for exploration holes and 0,67 for production holes. Probable reserves in 6 development regions have been found to be 3150 MW with a 58 MW proven reserves.

12. Geological surveys for Uranium are being conducted in many parts of the country, no viable deposits had been identified so far. Indication of possible deposits has been found in Kalimantan.

13. Biomass (wood and agricultural waste) has been used traditionally as an energy resource in the rural regions. Firewood consumption in Java and Bali is estimated to reach 30 million tons a year.. The potential of wood waste is also large, since wood production reaches 7 million tons on a one-shift basis, of which 40% is wasted. The potential of agricultural waste is assumed to be large also, because agriculture is the main occupation of the population. The potential of developing wood plantations is also promising, bearing in mind that forest areas and other land areas not commercially developed are available in some areas.

14. Solar energy has been used extensively in the traditional way. Preliminary measurements indicate that the yearly average of insolation is about 4 to 5 KWh/m2, which is above the limits of application.

15. Wind energy is used extensively for the traditional mode of sea transportation. Of the data available, several locations are showing promise for land-based wind generators, with wind speeds of more than 10 km/hr and an intensity of more than 1500 KWh/m2/yr.

16. Other potentials which are also promising are :

- wave energy, especially on the coasts facing the Indonesian Ocean;
- tidal energy, found in some bays;
- ocean thermal difference, in regions where the coast is steep and the depth of the sea reaches more than 500 m (Sumatra, Java and the eastern islands).

Energy Policy

Objectives

17. The core of the Indonesian energy policy is to guarantee the domestic energy supply in the amount and quality according to the demand and at a price affordable to the public, with the objective of improving the welfare of the Indonesian people and providing the necessary support for a rapid socio-economic growth.

Mission

18. Policy formulation has been based on the national aspiration which is the foundation of the state, namely that land, water and natural resources which is state owned, should be used for the optimal welfare of the population. Therefore efforts should be made to :

a. formulate an energy policy which is comprehensive and integrated, based on the development and utilization of those resources, taking into account the demand growth, not only for the domestic use, but also for export, and the development of a strategic energy supply in the long run;

b. take steps to conserve oil use, which forms the main energy source, and to develop non-oil energy resources, such as coal, hydropower, windpower, geothermal energy, nuclear energy, solar energy, and so on;

c. develop rural energy, to permit cheap energy supply in rural areas, so that damage to the forest, land and water can be minimized;

d. increase the development and management of mineral resources, specially energy minerals, because of their role as foreign exchange earners for the financing of the national development;

e. establish a national energy policy which is able to support the national development to the maximum extent possible;

f. increase the development of electric power for the improvement of the welfare of the society in rural and urban areas, and to push and trigger economic activities.

Steps to be Taken

19. To be able to reach the set objectives, and to fulfill the mission, with the potential energy resources as capital, steps to be taken are as follows :

to economize the use of the oil resources in order to maximize its value either indirectly as a foreign exchange earner or directly as a fuel for the national development. This is further strengthened by the knowledge of the availability of other types of energy which can be used to substitute for oil, and which due to their site-specific nature, or their low heat quality, cannot be exported economically.

The pattern of efforts may be categorized in the following manner :

- intensification of the survey and exploration program of energy resources especially in new areas and the creation of incentives to attract private investors;
- diversification, to minimize the dependence on oil for the domestic consumption and substitution by other energy sources;
- conservation, the issuance of regulations, and the conducting of a campaign to promote conservation, with the aim to achieve a more efficient use and savings of energy;
- indexation, the fixation of certain energy sources for the best utilization.

The building-up of the necessary infrastructure should also be taken, such as training, information, investment, R & D, Laws and Regulation and techno-structure.

Implementation

20. Based on long-range estimation of the national energy consumption, efforts have been made to establish long-range planning in the energy field.

21. These estimates are based on assumptions of the economic growth rate (expressed in GNP growth rate between 5,5 and 6,5% till the year 2000), population growth (around 2% for the same period) and energy

elasticity (will be about 1,7 during the planning period).

These assumptions will give an demand estimation for commercial energy of around 878 million BOE at the end of the period.

With the present rate of production, the total commercial energy demand will not be covered by the domestic production at the end of Repelita V (1994). This means that the role of oil in the Indonesian energy mix should be decreased, while increasing the role of natural gas, coal, geothermal and hydropower.

22. Beside the governmental participation capital nearly Rp 140 billion will be spent for the major energy programmes from the 1980/81 National Development fund for the following activities :

a. Mining development (research on processing technology of minerals, oil and gas).

b. Geology development (mapping, exploration and drilling for potential inventarisation).

c. Electricity development (erection of various power plants, transmission and distribution networks).

d. Gas and other energy resources development (gas distribution network and survey on non-conventional energy resources).

e. Training and development of physical infrastructure.

For the electricity sector, foreign exchange will be made available with the equivalent amount of Rp 269 billion for the same budget year. For rural electrification Rp 17 billion will be available.

Other major projects in the field of oil and gas are as follows :

a. the construction of a hydrocracker with a capacity of 85 000 bbl a day;
b. the expansion of 2 refineries with an additional capacity of 100 000 bbl a day each;
c. the construction of one new refinery;
d. the expansion of LNG facilities with 4 more trains;
e. natural gas utilisation projects (as petrochemical feedstock).

The main project in coal is the development of the Bukit Asam Coal Mine, to produce 3 million tons of coal a year including its infrastructure.

Hydropower and geothermal energy development for power generation are also included in the electricity sector.

23. As has been mentioned before, oil has a dominant role as a foreign exchange earner (Annex V). 65 % of the foreign exchange revenues are obtained from the export of oil and gas.

It is observed that the rate of consumption growth of petroleum products is increasing rapidly, and serious attention has been given to these trends (Annex VI and VII).

24. The energy policy is then reflected in the targets to be achieved during Pelita III (Annex VIII). The role of oil is decreasing from 82,2% to 77,7%, while the agregate role of the other energies are increasing. The non-commercial energy consumption will still be considerable, but its relative contribution will be decreasing due to scarcity or inconveniency considerations.

On the other hand, energy elasticity is expected to be 1,7 during Pelita III and not less than 1,5 until the end of the century.

25. The following financial expenditures are expected to be spent during Pelita III :

a. Oil and gas	17 433 million US $
b. Electricity and city gas	6 448 million US $
c. C o a l	470 million US $
Total	24 401 million US $

Out of this amount, about 9,7 billion US $ is expected to be spent by foreign contractors, while the rest is by government, internally generated funds by Pertamina or PLN or through project loans.

Investments in the electric power field cover distribution, transmission and generation, using oil, gas, coal, geothermal and hydro as primary energy.

The development of coal resources is concentrated around Bukit Asam Coal Mine.

Institutional Arrangements within the Energy Sector

26. The existing institutional structure consist of Ministries which are responsible for the production of energy and others which are users of energy. Integrated energy policy covers both the production and development of energy and the final use of energy.

The formation of a Ministry of Mines and Energy, which has control over the production and supply of coal, oil, gas and electricity, has helped to a great extent the coordination of energy management.

Other Ministries which are also involved in the management of energy resources are the Ministry of Public Works, who is in charge for the management of hydro resources for irrigation; the Ministry of Agriculture, in charge of the management of forestry and agricultural resources, and the National Atomic Energy Agency responsible for the management of nuclear fuel cycle.

Ministries concerned about the use aspect of energy are the Ministry for Communications and Tourism, the Ministry of Industry, the Ministry of Agriculture and the Ministry of Defence and Security.

BAKOREN

27. To be able to establish a comprehensive and integrated energy policy and also to coordinate the implementation thereof, an arrangement by a Presidential decree has been formalized through the creation of a National Energy Coordination Board (BAKOREN). The Board which is a non-structural coordinating body, chaired by the Minister of Mines and Energy, will involve the following ministers :

a. Minister of Mines and Energy (Chairman)
b. Minister for Public Works
c. Minister for Industry
d. Minister for Defence and Security
e. Minister for Communications and Tourism
f. Minister for Agriculture
g. State Minister for Research and Technology
h. State Minister for the Control of the Development and Environment
i. State Minister for the Administrative Reform/Vice Chairman of the National Development Planning Agency

j. The Director General of the National Atomic Energy Agency
k. The Director General for Oil and Gas
l. The Director General for Power.

. The main duties are the following :

a. to formulate the government policy on the development and utilization of energy in an integrated manner;

b. to establish national programmes on the development and utilization of energy;

c. to coordinate the implementation of programmes and policies in energy matters by the institutions involved;

d. taking decisions related to the above matters in order to speed up implementation.

. The Chairman of the Board will be responsible directly to the President.

The Board has the duty, authority and responsibility :

a. to formulate and prepare a draft of priorities in developing and utilization of national energy resources according to the capability to allocate capital, manpower, skill and other factors;

b. to prepare the formulation of laws and regulations in the energy field;

c. to prepare guidance for control and management for implementation of programmes in the development and utilization of energy resources;

d. to make an appraisal of research and development of energy resources;

e. to coordinate the implementation of cooperation between research and development institutions in the country with foreign institutions.

Coordination meetings will be held 4 times a year and any other time it is regarded necessary for the purpose of :

a. discussing the formulation of policy in the implementation of action programmes and development of energy resources;

b. discussing issues which arise during the implementation thereof;

c. discussing other issues related to the implementation of policy and action, programmes and development of energy.

Technical Committee on Energy Resources (PTE)

28. In the execution of daily tasks the Board will be assisted by a Technical Committee on Energy Resources. Up to the present the Committee consists of 27 senior officials from all the energy-supplying and consuming ministries, research institutions and public sector undertakings. The Committee has been working for the last 3 year, since her formation by the State Minister of Research. Originally the scope of work was :

a. to review and study present and future energy issues and based thereupon formulate a national energy policy;

b. to collect all reviews, evaluations, formulations, suggestions and programmes, and submit it to the Chairman of the Natural Resources Committee;

c. to follow regularly all the follow-ups of government decisions on energy matters and submit appraisal concerning those follow-ups.

With the creation of the Ministry of Mines and Energy the management of the Committee has been transferred to this Ministry.

The wide scope of activities has contributed to the understanding of complicated energy problems.

Studies on technical and technological development on energy have been made, appraisals on national energy seminars have been prepared and draft on energy policy have been formulated.

Broad categories of issues which will be covered are the following :

a. energy planning,
b. energy data and programming,
c. policy implementation,
d. policy instruments,
e. special issues (rural energy, water resources, public vs private electricity, nuclear power plant, agricultural use of

as source of energy and the utilization of diesel engines)

The Ministry of Mines and Energy

29. Besides the execution of the governmental function the Ministry has control over the production and supply of coal, oil, gas and electricity. The Ministry has three Directorate Generals; one is in charge of mines, which includes responsibility for all mineral resources including coal; the second is in charge of oil and gas management; the third is not only in charge of electric power and other energy resources, but also policy integration

State Enterprises

30. There are 6 state enterprises which come directly under the Minister of Mines and Energy. Four of them are energy production companies in charge of coal (PN Batubara), oil and gas (Pertamina), electricity (PLN) and city gas (PN Gas).

Research and Development

31. To support the above tasks and activities there are 3 development laboratories, each working on its specific field, namely minerals (including coal), oil and gas, and electricity (including new resources development for electricity generation such as geothermal, microhydro, wind and solar energy).

Permanent Committee on Energy (PME)

32. At the ministerial level a permanent committee is formed which has the purpose of

a. coordination between the different institutions within the Ministry on

(i) planning

(ii) research and development activities;

b. making studies and analysis on energy problems;

c. proposing steps for the improvement of the energy management within the Ministry.

Progress has been made by establishing 5 working groups, developing software needed for the Ministry, namely

a. Energy Modelling and Policy Analysis
b. Energy Information Systems
c. Energy Resources Survey and Mapping
d. Energy and Environment
e. Rural Energy.

Other Institutions

33. Although all institutions working in the energy field have been represented in the PTE, the highest authority is still with their representative Ministers.

Besides the Universities, which are also active in energy research and development, and technical colleges acting as sources of skilled manpower in the energy field, two other institutions are also active in the field of energy. The Agency for the Development and Application of Technology (BPPT) which is under the coordination of the State Minister of Research and Technology plans to build an energy laboratory. The National Space and Aeronautical Agency is active in the development of wind energy.

Conclusions

34. Energy policy formulation is subject to changing perceptions based on many uncertainties. More efforts, especially on studies of supply and demand, future market developments and technological development, are still necessary for a better formulation. This includes also policies on manpower development and other supporting activities.

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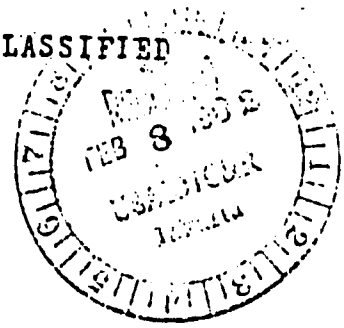

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SUBJECT APAC REVIEW OF ENERGY PLANNING FOR DEVELOPMENT PID (497-0319)

1. THE APAC APPROVED THE PID FOR SUBJECT PROJECT JANUARY 29. PARAGRAPHS BELOW ARE APAC GUIDANCE FOR FINAL PROJECT DESIGN. USA/INDONESIA CAN PROCEED TO PP PREPARATION AND PROJECT AUTHORIZATION.

2. USAID IS ASKED TO CONSIDER WHETHER THE VARIOUS ENERGY PROJECTS IN THE INDONESIA PROGRAM COULD BE COMBINED UNDER A SINGLE ACTIVITY. TOP AGENCY MANAGEMENT AND CONGRESSIONAL OVERSIGHT COMMITTEES ARE CONCERN BY THE LARGE NUMBER OF PROJECTS IN VARIOUS COUNTRY PROGRAMS. WE WOULD HOPE THAT MISSION COULD FIND A WAY TO COMBINE ENERGY INITIATIVES IN A SINGLE ACTIVITY BEFORE FINAL ACTION ON THE NEXT PP (FOR PUSPIPTEK). WE RECOGNIZE THAT THERE ARE INSTITUTIONAL AND OTHER REASONS WHY THESE HAVE BEEN DEVELOPED AS SEPARATE PROJECTS, BUT ASK THAT MISSION TAKE INTO CONSIDERATION WASHINGTON INTEREST IN REDUCING TOTAL NUMBER OF PROJECTS IN THE PROGRAM.

3. WITH REGARD TO FUTURE ASSISTANCE IN MACRO-ENERGY/ECONOMIC MODELING, APAC FEELS THAT AID ASSISTANCE PRIORITIES SHOU MOVE AWAY FROM OVERLY ELABORATE MODELS AND REFRCT TO PRACTICAL ANALYSIS. APAC RECOGNISES THAT PID INTENDS THE PHASE II ACTIVITY TO MOVE TO A REGIONAL EMPHASIS AND AN EMPHASIS ON COAL TRANSPORT AND UTILIZATION, BUT FEELS THAT PP SHOULD SET PHASE II PRIORITIES CLEARLY IN THESE DIRECTIONS.

4. APAC NOTES INTEREST OF INTERNATIONAL DONOR COMMUNITY IN THE LEADING REPORT OF THIS PROJECT TOTAL WITH ENERGY PRICING PROBLEMS AND WITH ENERGY USE SURVEY TECHNIQUES. APAC NOTES ALSO THAT EVALUATION IS NOT DISCUSSED OR BUDGETED FOR IN THE PID. PP SHOULD NOT ONLY PROVIDE AS USUAL FOR EVALUATION, BUT APAC ASKS THAT EXPERIENCES FROM THIS PROJECT BE REPORTED TO AID/W FOR OUR USE IN OTHER ENERGY ASSISTANCE WORLD-WIDE. DOCUMENTATION OF METHODOLOGY FOR USE ELSEWHERE MIGHT BE WITHIN THE FUNCTIONS OF THE LONG-TERM ADVISOR UNDER THE PROJECT, BUT IF OTHER THAN PROJECT FUNDS ARE REQUIRED TO PRODUCE THIS IN-

NAN/DS

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FORMATION. THE MISSION SHOULD SEEK NEEDED FUNDING FROM AID/W.

5. THE APAC ALSO WAS ADVISED THAT ANY COMPUTER PROCUREMENT MUST BE APPROVED BY THE OFFICE OF DATA MANAGEMENT IN AID/W (SER/DM). WE ASSUME THAT USAID WILL SEEK THAT APPROVAL WHEN EQUIPMENT AND SOFTWARE SPECIFICATIONS ARE DETERMINED. HAIG
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