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Report No: PAD1147

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN THE AMOUNT OF SDR 47.1 MILLION
(US\$65 MILLION EQUIVALENT)

TO THE

REPUBLIC OF MADAGASCAR

FOR AN

ELECTRICITY SECTOR OPERATIONS AND GOVERNANCE IMPROVEMENT PROJECT

MARCH 1, 2016

ENERGY AND EXTRACTIVES GLOBAL PRACTICE
AFRICA REGION

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CURRENCY EQUIVALENTS

(Exchange Rate Effective on January 31, 2016)

Currency Unit = Malagasy Ariary (MGA)
MGA 3 170.9 = US\$1
US\$1 = 0.72437523 SDR

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ADER	<i>Agence de Développement de l'Electrification Rurale</i> (Agency for Rural Electrification)
AMI	Advanced Metering Infrastructure
CERC	Contingency Emergency Response Component
CMS	Commercial Management System
CPF	Country Partnership Framework
CQS	Selection Based on Consultants' Qualification
DA	Designated Account
DC	Direct Contracting
DPO	Development Policy Operation
EIA	Environmental Impact Assessment
EIRR	Economic Internal Rate of Return
EMP	Environmental Management Plan
ERP	Enterprise Resource Planning
ESDP	Energy Sector Development Project
ESIA	Environmental and Social Impact Assessment
ESMAP	Energy Sector Management Assistance Program
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESOGIP	Electricity Sector Operations and Governance Improvement Project
EU	European Union
FIRR	Financial Internal Rate of Return
FM	Financial Management
GDP	Gross Domestic Product
GIS	Geographic Information System
GWh	Gigawatt Hour
GRS	Grievance Redress Service
HFO	Heavy Fuel Oil
IBRD	International Bank for Reconstruction and Development
IC	Individual Consultant
ICB	International Competitive Bidding

IDMS	Integrated Distribution Management System
IFC	International Finance Corporation
IFMIS	Integrated Financial Management Information System
IFR	Interim Financial Report
IPP	Independent Power Producer
IRM	Immediate Response Mechanism
JIRAMA	<i>Jiro Sy Rano Malagasy</i> (National Water and Electricity Utility)
KV	Kilovolts
kWh	Kilowatt Hour
LCS	Least Cost Selection
LCPDP	Least Cost Power Development Plan
LV	Low Voltage
MCC	Metering Control Center
MDM	Meter Data Management
MEH	Ministry of Energy and Hydrocarbons
MIP	Management Improvement Plan
MIS	Management Information System
MV	Medium Voltage
NCB	National Competitive Bidding
NPV	Net Present Value
O&M	Operations and Maintenance
OP/BP	Operational Policy/Bank Procedure
ORE	<i>Office de Régulation de l'Électricité</i> (Electricity Sector Regulator)
PCB	Polychlorinated Biphenyl
PFM	Public Financial Management
PGE	Programme Général de l'Etat
PIM	Project Implementation Manual
PND	<i>Programme National de Développement</i> (National Development Program)
PPA	Project Preparation Advance
PPP	Purchasing Power Parity
P-RAMS	Procurement Risk Assessment and Management System
PWSRP	Power and Water Sector Recovery and Restructuring Project
QCBS	Quality and Cost Based Selection
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
RPP	Revenue Protection Program
SBD	Standard Bidding Document
SCD	Systematic Country Diagnostic
SDR	Special Drawing Right
SREP	Scaling-Up Renewable Energy Program
SSS	Single Source Selection
TBD	To be Determined
ToR	Terms of Reference
USD	United States Dollar
WB	World Bank

Regional Vice President:	Makhtar Diop
Country Director:	Mark R. Lundell
Senior Global Practice Director:	Anita Marangoly George
Practice Manager:	Lucio Monari
Task Team Leader:	Isabel Neto
Co-Task Team Leader:	Vonjy M. Rakotondramanana

**MADAGASCAR
ELECTRICITY SECTOR OPERATIONS AND GOVERNANCE IMPROVEMENT
PROJECT**

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PAD DATA SHEET

Madagascar

MG-Electricity Sec Operations & Governance Improvement Project(ESOGIP) (P151785)

PROJECT APPRAISAL DOCUMENT

AFRICA

0000009257

Report No.: PAD1147

Basic Information			
Project ID P151785	EA Category B - Partial Assessment	Team Leader(s) Maria Isabel A. S. Neto, Vonjy Miarintsoa Rakotondramanana	
Lending Instrument Investment Project Financing	Fragile and/or Capacity Constraints []		
	Financial Intermediaries []		
	Series of Projects []		
Project Implementation Start Date 22-Mar-2016	Project Implementation End Date 30-Jun-2020		
Expected Effectiveness Date 30-Jun-2016	Expected Closing Date 30-Jun-2020		
Joint IFC No			
Practice Manager/Manager Lucio Monari	Senior Global Practice Director Anita Marangoly George	Country Director Mark R. Lundell	Regional Vice President Makhtar Diop
Borrower: Ministry of Budget and Finance			
Contact: Telephone No.:	Gervais Rakotoarimanana 261202227614	Title: Email:	Minister tresor@moov.mg
Responsible Agency: Ministry of Energy			
Contact: Telephone No.:	Olga RASAMIMANANA 261348341006	Title: Email:	Secretary General sg@energie.gov.mg

Responsible Agency: JIRAMA						
Contact: Xavier RAKOTOZAFY		Title: Mr.				
Telephone No.: 261348305230			Email: deel@jirama.mg			
Project Financing Data(in USD Million)						
<input type="checkbox"/>	Loan	<input type="checkbox"/>	IDA Grant	<input type="checkbox"/>	Guarantee	
<input checked="" type="checkbox"/>	Credit	<input type="checkbox"/>	Grant	<input type="checkbox"/>	Other	
Total Project Cost:		65.00		Total Bank Financing: 65.00		
Financing Gap:						
Financing Source				Amount		
BORROWER/RECIPIENT				0.00		
International Development Association (IDA)				65.00		
Total				65.00		
Expected Disbursements (in USD Million)						
Fiscal Year	FY16	FY17	FY18	FY19	FY20	
Annual	0.0	3.0	24.7	30.7	6.7	
Cumulative	0.0	3.0	27.7	58.3	65.0	
Institutional Data						
Practice Area (Lead)						
Energy & Extractives						
Contributing Practice Areas						
Cross Cutting Topics						
<input type="checkbox"/> Climate Change						
<input type="checkbox"/> Fragile, Conflict & Violence						
<input type="checkbox"/> Gender						
<input type="checkbox"/> Jobs						
<input type="checkbox"/> Public Private Partnership						
Sectors / Climate Change						
Sector (Maximum 5 and total % must equal 100)						
Major Sector		Sector		%	Adaptation Co-benefits %	Mitigation Co-benefits %
Energy and mining		General energy sector		100	0	8
Total				100		
<input type="checkbox"/> I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information						

applicable to this project.		
Themes		
Theme (Maximum 5 and total % must equal 100)		
Major theme	Theme	%
Financial and private sector development	Infrastructure services for private sector development	40
Financial and private sector development	State-owned enterprise restructuring and privatization	40
Economic management	Debt management and fiscal sustainability	20
Total		100
Proposed Development Objective(s)		
The Project Development Objective is to improve the operational performance of the national electricity utility (JIRAMA), improve the reliability of electricity supply in the project area, and, in the event of an eligible crisis or emergency, to provide immediate and effective response to said eligible crisis or emergency.		
Components		
Component Name	Cost (USD Millions)	
Improving electricity sector planning and financial sustainability	2.48	
Strengthening operational performance and governance of JIRAMA	12.56	
Investing in enhanced reliability of electricity	48.62	
Project management	1.34	
Contingent Emergency Response	0	
Systematic Operations Risk- Rating Tool (SORT)		
Risk Category	Rating	
1. Political and Governance	High	
2. Macroeconomic	Low	
3. Sector Strategies and Policies	Substantial	
4. Technical Design of Project or Program	Moderate	
5. Institutional Capacity for Implementation and Sustainability	High	
6. Fiduciary	Substantial	
7. Environment and Social	Moderate	
8. Stakeholders	Substantial	
9. Other		
OVERALL	High	

Compliance			
Policy			
Does the project depart from the CAS in content or in other significant respects?	Yes []	No [X]	
Does the project require any waivers of Bank policies?	Yes []	No [X]	
Have these been approved by Bank management?	Yes []	No []	
Is approval for any policy waiver sought from the Board?	Yes []	No [X]	
Does the project meet the Regional criteria for readiness for implementation?	Yes [X]	No []	
Safeguard Policies Triggered by the Project		Yes	No
Environmental Assessment OP/BP 4.01		X	
Natural Habitats OP/BP 4.04			X
Forests OP/BP 4.36			X
Pest Management OP 4.09			X
Physical Cultural Resources OP/BP 4.11		X	
Indigenous Peoples OP/BP 4.10			X
Involuntary Resettlement OP/BP 4.12		X	
Safety of Dams OP/BP 4.37			X
Projects on International Waterways OP/BP 7.50			X
Projects in Disputed Areas OP/BP 7.60			X
Legal Covenants			
Name	Recurrent	Due Date	Frequency
Recruitment of external audit firm (Schedule 2, Section V.1)		No later than six months after effectiveness	
Description of Covenant			
By no later than 6 months after the Effective Date, the Recipient shall recruit an external auditor in accordance with the provisions of Section III of Schedule 2 to the Financing Agreement, and on the basis of terms of reference, qualifications and experience acceptable to the Association.			

Name	Recurrent	Due Date	Frequency
Appointment or recruitment of a		No later than	

qualified accountant and procurement assistant (Schedule 2, Section V.2)		three months after effectiveness	
Description of Covenant			
By no later than 3 months after the Effective Date, the Recipient shall appoint or recruit a qualified accountant and a procurement assistant at the MEH in accordance with the provisions of Section III of Schedule 2 to the Financing Agreement, and on the basis of terms of reference, qualifications and experience acceptable to the Association.			
Name	Recurrent	Due Date	Frequency
Launching of a competitive and transparent selection of staff at JIRAMA to occupy top management positions (Schedule 2, Section V.3)		No later than 12 months after effectiveness	
Description of Covenant			
By no later than 12 months after the Effective Date, the Recipient, with the support of specialized consultants, shall launch a competitive and transparent selection of staff at JIRAMA to occupy the top management positions.			
Conditions			
Source Of Fund	Name	Type	
IDA	Appointment or recruitment of a project coordinator	Effectiveness	
Description of Condition			
The Recipient has appointed or recruited a qualified project coordinator at the MEH in accordance with the provisions of Section III of Schedule 2 of the Financing Agreement, and on the basis of terms of reference, qualifications and experience acceptable to the Association.			
Source Of Fund	Name	Type	
IDA	Execution of the Subsidiary Agreement.	Effectiveness	
Description of Condition			
The Subsidiary Agreement has been executed on behalf of the Recipient and the Project Implementing Entity.			
Source Of Fund	Name	Type	
IDA	Disbursement for Emergency Expenditures	Disbursement	
Description of Condition			
No withdrawal shall be made under Category (4), for Emergency Expenditures under Part 5 of the Project, unless and until the Association is satisfied, and notified the Recipient of its satisfaction, that all of the following conditions have been met in respect of said activities:			
(i) the Recipient has determined that an Eligible Crisis or Emergency has occurred, has furnished to the Association a request to include said activities in the IRM Part in order to respond to said Eligible Crisis or Emergency, and the Association has agreed with such determination, accepted said request and notified the Recipient thereof;			

- (ii) the Recipient has prepared and disclosed all Safeguards Documents (and any other safeguard instruments) required for said activities, and the Recipient has implemented any actions which are required to be taken under said instruments, all in accordance with the provisions of Section I.E of Schedule 2 to this Agreement;
- (iii) the Recipient's Coordinating Authority has adequate staff and resources, in accordance with the provisions of Section I.E of this Schedule 2 to this Agreement, for the purposes of said activities; and,
- (iv) the Recipient has adopted an IRM Operations Manual in form, substance and manner acceptable to the Association and the provisions of the IRM Operations Manual remain - or have been updated in accordance with the provisions of Section I.E of this Schedule 2 so as to be appropriate for the inclusion and implementation of said activities under the IRM Part.

Team Composition

Bank Staff

Name	Role	Title	Specialization	Unit
Maria Isabel A. S. Neto	Team Leader (ADM Responsible)	Senior Operations Officer		GEEDR
Vonjy Miarintsoa Rakotondramanana	Team Leader	Senior Energy Specialist		GEEDR
Sylvain Auguste Rambelason	Procurement Specialist	Senior Procurement Specialist		GGODR
Enagnon Ernest Eric Adda	Financial Management Specialist	Senior Financial Management Specialist		GGODR
Nathalie Munzberg	Lawyer	Senior Counsel		LEGEN
Allison Berg	Team Member	Senior Operations Officer		GEEDR
Paul-Jean Feno	Safeguards Specialist	Senior Environmental Specialist		GENDR
Pauline Ravalisoamampianina	Team Member	Program Assistant		AFMMG
Pedro Antmann	Team Member	Lead Energy Specialist		GEEDR
Thanh Lu Ha	Team Member	Senior Program Assistant		GEEDR
Vincent Roquet	Team Member	Senior Social Development Specialist		GSURR
Kabir Malik	Team Member	Economist		GEEDR
Mariano Salto	Team Member	Energy Economist		GEEDR

Marie-Paule Ngaleu	Team Member	Program Assistant			GEEDR
Aissatou Diallo	Team Member	Senior Finance Officer			WFALA
Extended Team					
Name	Title	Office Phone	Location		
Locations					
Country	First Administrative Division	Location	Planned	Actual	Comments
Madagascar	Analamanga	Analamanga	X		
Madagascar	Vakinankaratra	Vakinankaratra	X		
Madagascar	Alaotra Mangoro	Alaotra Mangoro	X		
Madagascar	Diana	Diana	X		
Madagascar	Sava	Sava	X		
Madagascar	Boeny	Boeny	X		
Madagascar	Sofia	Sofia	X		
Madagascar	Betsiboka	Betsiboka	X		
Madagascar	Androy	Androy	X		
Madagascar	Atsimo	Atsimo	X		
Madagascar	Andrefana	Andrefana	X		
Madagascar	Antsinanana	Antsinanana	X		
Madagascar	Analanjirifo	Analanjirifo	X		
Madagascar	Menabe	Menabe	X		
Madagascar	Haute Matsiatra	Haute Matsiatra	X		
Madagascar	Vatovavy Fito Vinany	Vatovavy Fito Vinany	X		
Madagascar	Ihorombe	Ihorombe	X		
Madagascar	Any other areas on which the Bank may agree in writing with the Government	To be determined (TBD)			
Consultants (Will be disclosed in the Monthly Operational Summary)					
Consultants Required?		Consultants will be required			

I. STRATEGIC CONTEXT

A. Country Context

1. **Madagascar is a low-income country with a population of about 23.6 million and a Gross Domestic Product (GDP) of US\$10.59 billion in 2014.** Madagascar ranked 155 out of 187 countries in the United Nations 2014 Human Development Report. A vast majority of the Malagasy population is extremely poor. Extreme poverty (per capita consumption under US\$1.9 purchasing power parity – PPP – 2011 per day) was around four fifths of the population between 2001 and 2012 (the latest data available). Over the same timeframe, absolute poverty (US\$3.1 PPP per capita per day) rose from an estimated 84.1 percent in 2001 to 89.9 percent of the population in 2005, then continued to rise reaching 93 percent in 2012.¹ Madagascar is also highly vulnerable to natural disasters, including cyclones, droughts, and flooding. It is estimated that one quarter of the population, or approximately five million people, currently live in zones at high risk of natural disasters.

2. **Madagascar is emerging from several years of political and economic turbulence, following a political crisis that started in 2009.** Madagascar returned to constitutional order when a duly-elected Government took office in 2014, after a five-year political crisis. The crisis had devastating effects on the economy, poverty, and social outcomes. The return to constitutionality was an event welcomed by all, but it is only a first step in putting the country on track in terms of sustainable development. Despite continued tensions between the executive and legislative branches, steps have been taken since the election: a new National Development Plan and its implementation strategy were elaborated; a process of national reconciliation has been initiated and democratic institutions have been strengthened with municipal (July 2015) and senatorial (December 2015) elections taking place; macroeconomic stability has been maintained and the Ministry of Finance has launched reforms of its public finances, starting with the customs and tax administrations; and respective Ministries have elaborated strategies for social protection, education, and universal health coverage and are starting to implement them.

3. **The Government suffers from a paucity of public resources.** Given the low level of public resources, few reforms requiring large, new expenditures are feasible in the near future. The fiscal authorities have little space to conduct countercyclical policies to stimulate growth. Madagascar's tax revenue as a share of GDP has historically been among the lowest in the world, hovering below ten percent in 2014. Strategies for increasing tax revenue have been elaborated and are starting to show some initial results. The Government still allocates a large share of the discretionary spending to unaffordable and poorly-targeted fuel subsidies and transfers to finance the losses of the two troubled state-owned companies: JIRAMA,² the public water and electricity utility, and Air Madagascar. It is making efforts to improve the performance of both companies but progress is slow and vested interests in favor of status quo abound.

4. **Social and economic development is constrained by the lack of electricity.** At the household level, inadequate electricity access constrains the delivery of basic social services and

¹ Source: INSTAT, EPM 2001-2010, ENSOMD 2012, and World Bank staff estimates.

² Acronym for Jiro sy Rano Malagasy.

is a factor of inequality and exclusion within the society. Unreliable current power supply also makes it difficult to do business in Madagascar. Insufficient and unreliable electricity is clearly one of the most severe constraints in Madagascar's investment climate. In Doing Business 2015³ Madagascar is ranked 189 out of 189 countries in regard to the difficulty, delay, and cost of getting electricity. The private sector has cited unreliability of electricity supply as one of the most important factors affecting competitiveness, having indicated a willingness to pay more if the reliability and quality of the electricity service was improved. Further expansion of mining, agriculture, and manufacturing, with the corresponding gains in terms of employment creation, will indeed require an increased, reliable supply of electricity. Access to electricity by the general population stood at about 14 percent in 2010, lower than many comparable countries. It is estimated to have fallen to around 12-13 percent currently given population growth since 2010. New connections are increasing at a rate of approximately one percentage point annually partly because of JIRAMA's inability to invest. Increasing access to electricity, particularly in suburban and rural areas, would result in the improvement in the living conditions of the populations served and provide a stronger foundation for the development of income generating activities.

B. Sectoral and Institutional Context

5. **The electricity sector in Madagascar is dominated by JIRAMA, the vertically integrated state-owned utility.** JIRAMA is responsible for the majority of the generation, transmission, and distribution of electricity in Madagascar. The Ministry of Energy and Hydrocarbons (MEH) implements Government policy and provides strategic coordination of the energy sector, and oversight of JIRAMA's electricity sector activities. The Energy Regulation Office (ORE) reviews and approves tariffs. The Rural Electrification Agency (ADER) is responsible for rural electrification through grid-extension and/or off-grid and mini-grid systems. Other important sector agents include private companies that supply power to JIRAMA under an independent power producer (IPP) arrangement and through power rentals. The current legal and regulatory framework of the sector was developed in the last decade. The Electricity Law of 2000 and its regulations enabled the establishment of a fairly comprehensive institutional framework. Following the promulgation of the Electricity Law, private investment is legally possible in the energy sector in Madagascar. IPP tariffs are currently negotiated on a contract by contract basis and are supervised by ORE.

6. **Access to electricity services is low countrywide, and even more so in rural areas.** The estimated current electricity access rate countrywide is around 12-13 percent, with an estimated 39 percent of the population in urban and peri-urban areas having access and an estimated five percent of the population in rural areas having access. This is mainly due to the country's poverty level and low population density, particularly in rural areas where over 67 percent⁴ of the population lives. The comparison with other African countries in similar conditions shows that Madagascar performs quite poorly on several dimensions, for example in regard to the level of total losses (i.e., technical and non-technical), the number of customers per employee, and consumption per capita figures. For instance, regarding electricity consumption per capita, Madagascar's was the lowest consumption at 46kWh per capita versus 52kWh per

³ <http://www.doingbusiness.org/data/exploreeconomies/madagascar>.

⁴ Source: World Development Indicators.

capita in Ethiopia, 92kWh per capita in Tanzania, and 105kWh per capita in the Democratic Republic of Congo.⁵ In addition, due to the adverse effects of the political crises of 2002 and 2009, and the continuing deterioration of JIRAMA's financial situation, the country achieved little progress in terms of electrification between 2003 and 2013.

7. The current power supply is inadequate to meet demand during peak hours, and the transmission and distribution networks are overloaded. As a consequence of the progressive deterioration of JIRAMA's operational and financial performance, over the past five years its customers have suffered periodic load shedding. The frequency of power supply interruptions has significantly increased in recent years in the capital city Antananarivo, which accounts for about 60 percent of the total demand in the country. The transmission and distribution networks are overloaded due to long-term, insufficient investment in expansion and rehabilitation of the existing infrastructure. Most of the distribution assets are reaching the end of their economic life, as the underground cables, overhead lines, and switchgears in the established residential and commercial areas of the major towns in Madagascar were installed in the early 1980s. More than 80 percent of the distribution transformers are overloaded. Failures in critical network assets are frequent. There has been a clear deterioration in the quality and reliability of electricity supply in the country, which is jeopardizing the development of new economic activities. Immediate action is needed to halt further deterioration.

8. Electricity infrastructure and services are deteriorating throughout the country. The electrical system in Madagascar is composed of two types of installation: (i) three interconnected networks, i.e., Antananarivo, Toamasina, and Fianarantsoa, which are controlled by JIRAMA; and (ii) about 130 isolated centers installed by JIRAMA and ADER. The interconnected networks, which account for about 70 percent of the total load of the country, have hydro power plants whereas most of the isolated centers are supplied by diesel power plants. The total installed capacity of the country was about 450 MW in 2014, of which about 50 percent is in the interconnected network of Antananarivo. The total firm capacity was decreasing due to lack of maintenance, and the system was not able to fully satisfy existing demand. The suppressed power demand for the Antananarivo interconnected network in 2014 was approximately 40 MW during the dry season, which would require the installation of additional generation capacity in the short term. In addition, the availability of some of the generator sets owned by JIRAMA is decreasing due to lack of maintenance. The total generation of the country was about 1,487 GWh in 2014 and the total energy billed was about 1,000 GWh, of which just over 51 percent is consumed by large customers⁶ (26 percent by medium voltage (MV) customers, and 25.4 percent by low voltage (LV) customers). The remaining consumption is by LV customers who consume less than 1,000kWh per month.

9. The electricity sector suffers from poor reliability and high losses. Power outages in isolated centers is frequent, with an average of two to three hours in duration per day. Moreover, in 2014 the interconnected network of Antananarivo experienced poor quality of services characterized by high frequency and duration of interruptions, particularly during peak hour. The level of system losses (both technical and non-technical losses) is estimated at 35 percent in

⁵ Source: World Development Indicators.

⁶ Large customers are those who consume over 1,000kWh per month.

2014 (versus 27 percent in 2012⁷), of which the non-technical loss is estimated at 20 percent. The average bill collection rate fell to about 60 percent in 2014. Although payment rates of bills corresponding to public administration are particularly poor, such low overall collection evidences suboptimal collection in the segment of fully manageable customers. This situation is mainly due the fact that transmission and distribution lines and transformers are overloaded and the existing management information system (MIS), in particular the commercial management system, is inefficient to address the non-technical losses in a sustainable manner.

10. **JIRAMA is poorly equipped with tools to manage the sector.** While the technical capacity of JIRAMA staff is good, the company currently uses an old commercial management system with several modules that are independently operated. The current system does not automatically consolidate the commercial database, and different versions of the software exist depending on the size of the generation control centers. Moreover, the accounting system, the logistic management system, and the human resource management system that the utility uses are obsolete and not integrated. The company does not use a network information system or geographic information system, which makes it difficult to respond in a timely manner to interruptions that require physical, on site intervention. As a result of the lack of a modern, integrated MIS, JIRAMA is unable to take well-informed decisions regarding network operations.

11. **JIRAMA's financial position has deteriorated significantly in recent years, and the company is a heavy fiscal burden for the Government.** The financial position of JIRAMA deteriorated between 2010 and 2013 due to declining operational efficiency, inability to collect revenues sufficient to cover costs, and the rising price of inputs, primarily imported fuel. To address the electricity supply gap, the Government and JIRAMA have entered into several ad-hoc, expensive, quasi-IPP/leasing contracts, awarded in general on a noncompetitive basis, to install thermal power plants running on diesel. This approach resulted in a large increase in the country's cost of electricity production. The current average supply cost is about US\$0.23 per kWh⁸ mainly due to the fact that the share of thermal generation, which reached about 45 percent of total generation in 2013, significantly increased. On the other hand, the average revenue from JIRAMA's sales is about US\$0.17 per kWh. JIRAMA has relied on Government subsidies to pay the fuel bills, generator rentals, and energy purchases from private power generators, adding fiscal pressures on the already resource-starved State. The Government subsidy to JIRAMA imposed a heavy cost on the Malagasy treasury, and diverted resources from more productive expenditures with direct impacts on the poor. The amount of Government subsidies to JIRAMA for the years 2012 and 2013 are respectively about US\$67.7 million and US\$73.2 million,⁹ which corresponds to approximately seven percent of annual Government revenues. A reduction in unaffordable and poorly targeted subsidies is one of the focus areas of the International Monetary Fund staff monitored program in Madagascar.

12. **Weak planning and poor choices regarding generation options for the country have exacerbated the poor financial situation of the sector.** Weak enforcement of sector planning over recent years and lack of governance in the development of generation options for the

⁷ Source: JIRAMA.

⁸ This compares to a cost of US\$0.10 per kWh for both Burundi and Zambia, for example.

⁹ Ariary 149 billion and Ariary 161 billion equivalent, respectively. Source: JIRAMA 2012 Activity Report.

country has translated into high costs for JIRAMA and the sector as a whole. Today the country relies primarily on expensive imported thermal fuel based generation. However, Madagascar possesses enormous potential in renewable energy resources, particularly hydro. Hydropower potential has been estimated at 8.4 GW¹⁰ although the economically exploitable potential has not been established. The number of untapped hydro sites has been reported as more than 800, ranging from a 10 kW (or less) to 600 MW located throughout the country. The Government must carry out systematic planning to identify and implement generation projects that represent the least cost options for the country, making it possible to move gradually away from imported, fuel-based generation.

13. Private sector participation in the electricity sector requires a healthier utility. Additional private sector investment is needed to implement the least cost options and increase generation capacity. However, the private sector currently faces difficulties given JIRAMA's inability to pay for supply contracts. There are also reports of underperformance of existing IPPs, which are failing to supply contracted power. Several IPPs have recently presented proposals for development of certain sites. However, despite the urgent need for additional sources of generation, the Government lacks clear criteria, rules, and procedures for determining which, if any, of these unsolicited proposals should be pursued. Government needs to put in place the governance framework to guarantee that once the least cost options have been identified, decisions regarding investments on additional generation capacity will be made on the basis of this plan, and selection of private partners done on the basis of competitive procedures.

14. The Government has requested World Bank support to redress the sector situation. The objective is to establish a sound foundation for the development of the sector going forward, by improving the governance and operational performance of JIRAMA in the first instance. The authorities have identified, together with the Bank, a set of high priority activities that could be carried out in the short- to medium-term to achieve significant improvements in sector performance and governance. Ultimately, the actions identified aim to create the building blocks to attract sound private sector investment in generation, as well as additional funding from development partners to support increased electricity access. To reduce fiscal costs, the Government's program focuses on efficiency improvements, and lowering the cost of supply in the medium term. Given its dilapidated state, the Government is also keen to address urgent investments in the network.

15. The project contributes to poverty reduction and shared prosperity. Reliable and expanded electricity supply is a key determinant of productivity and competitiveness and is critical to enable economies to attract investments, expand and diversify production, and ultimately create jobs. Insufficient and unreliable electricity is clearly one of the most severe constraints in Madagascar's investment climate. Power shortages mean big losses in terms of foregone production to Malagasy firms. At the household level, inadequate electricity access constrains the delivery of the basic social services, and electricity access is a factor of inequality, leading to the exclusion of poorer people. It would be ineffective and unsustainable to focus on access improvements in this project: efforts to increase electricity generation capacity will not translate into better access without first addressing transmission and distribution capacity bottlenecks due to the poor state of the grid. Investments under the project will target

¹⁰ PowerPoint, *Sites hydroelectriques a Madagascar*, JIRAMA.

rehabilitation and upgrade of the national distribution system to alleviate distribution capacity constraints, reduce losses, and ultimately support the expansion of electricity supply and access, in line with the goals of reducing poverty and promoting shared prosperity. This project would set the basis for future projects focusing on access. A parallel program of support, under the Scaling Up Renewable Energy in Low Income Countries Program (SREP), is also currently being discussed to support Madagascar in developing off-grid access. Moreover, a Sustainable Energy For All (SE4All) initiative for Madagascar is being implemented by the European Union (EU); under this initiative an investment prospectus will be prepared to help accelerate implementation of the access agenda.

16. The Bank has been engaged in the power sector in Madagascar over the past decades with mixed results; the proposed project is an opportunity to re-engage following the most recent political crisis. The US\$46 million equivalent Energy Sector Development Project (ESDP, P001533) was approved in 1996 and closed in 2005. While not particularly successful in terms of its original design due to the multiple objectives combined with too many project components/subcomponents, the project helped to improve the sector legal and regulatory framework, including opening the sector to private sector participation and placing JIRAMA under a management contract with a foreign operator to help improve its performance. A follow-on project, the Power and Water Sector Recovery and Restructuring Project (PWSRP, P095240) was approved in 2006 and closed in 2013. The PWSRP provided modest financing of US\$10 million equivalent as the first phase of an Adaptable Program Loan. The project included limited rehabilitation of JIRAMA's infrastructure as well as extension of the management contract and eventual contracting of a private operator to take over the company. Under the ESDP, implementation of the management contract contributed to improved cash flow and reduced financial losses, and enabled the start of a turnaround from a situation of near bankruptcy. With the political crisis that erupted and the overthrow of the then head of state, progress on sector reform was interrupted.¹¹

17. Government commitment is key to the reform of JIRAMA. Any reform must be accompanied by considerations of the sector political economy and a definition of the best strategies to address them. Government has so far demonstrated its interest and commitment to the reforms that would be supported by the project, but the risks remain high. Recognizing the importance of the reform of JIRAMA and given the Government's role as owner of JIRAMA, the Government has set up a Strategic Committee for the Reform of JIRAMA, with representatives from MEH, the Ministry of Water, the Ministry of Finance and Budget, the Central Bank, JIRAMA, and the Presidency. This Committee is responsible for driving the reform of JIRAMA, and has already approved the scope of work of the MIP. The Strategic Committee will be responsible for making the key decisions regarding implementation of the MIP. In the meantime, the Cabinet approved certain measures to improve the situation in the sector: (i) alignment of JIRAMA statutes with the Commercial Companies' Law (2014), including the strict separation of the General Assembly, Board of Directors, and management of

¹¹ The international consultancy firm that was implementing the management contract was debarred from World Bank business before the contract renewal date (due to an unrelated case elsewhere in Africa). As a result, it was decided that a few individual management consultants, paid by the Government, would provide management services to JIRAMA instead. The objective was to give enough time to the Government to decide on the pace and direction of future utility reform.

the company, which is still work in progress; (ii) actions aimed at controlling theft, thereby limiting non-technical losses through site visits to several neighborhoods¹²; and (iii) coloring diesel used for electric power generation to reduce the chance of theft of fuel for other applications. While these indicate Government willingness to act, these actions are still timid and of limited effectiveness. That said, the implementation of more systematic and effective measures, such as those supported by the project, require financial resources which have been unavailable.

18. To address current sector issues, the Government has developed a “recovery plan” for the period up to 2019. This recovery plan amounts mostly to a list of priority investments of US\$346 million for JIRAMA and of US\$68 million for ADER. The Government has also identified the need to strengthen the institutional and technical capacity of MEH and ORE to carry out their respective roles and duties. The actions to be supported through ESOGIP have been selected as the priority, immediate actions that need to be undertaken to establish a more robust basis for sector development. Through the project, the Government would also establish a program to support the sector in the medium- to long-term, which could be presented to other technical partners, financiers, and investors.

19. Several key studies are ongoing to lay the basis to attract additional support to the sector. The Bank approved a Project Preparation Advance (PPA) in the amount of US\$1.33 million in October 2014. Through this advance, the Government is financing several studies, including development of the MIP, development of a Least Cost Power Development Plan (LCPDP), elaboration of a tariff study, and development of an Electrification Strategy. Through donor coordination, the Bank would seek to leverage additional financing for complementary investments in JIRAMA, but also other possible investments, such as the development of renewable energy mini-grids. The medium- to longer-term program would allow the Government to identify the most attractive projects to expand production capacity, including those where partnerships with the private sector could be considered. These partnerships could eventually be developed through competitive and transparent tender processes. IFC and MIGA may be asked to provide additional support to the Government in this regard.

20. The proposed project is complementary to other support provided by the Bank. The Bank is currently implementing technical assistance, financed by the Energy Sector Management Assistance Program (ESMAP), which is mapping the potential of small hydropower projects (less than 20 MW). This will improve datasets and increase the awareness of stakeholders (both Government and private sector) for facilitating the development of this renewable energy resource. Most importantly, it will create opportunities to lower the cost of generation, green the energy mix, and foster private sector participation in hydro generation. This activity will provide an indication of the sites with the best potential for electricity generation, and will be an input to the LCPDP. In addition, the Bank is providing short-term assistance to MEH in identifying the most promising IPPs to be developed immediately, and supporting the review of associated documentation and development of an adequate regulatory framework. The purpose of this activity is to increase installed generation capacity in an efficient, transparent, and accountable manner. The Government has also submitted a request in October 2015 for support under the

¹² Publication of statistics of major diesel-based generation centers to enhance transparency and accountability is included in the recent Resilience Development Policy Operation (P153084).

Scaling-Up Renewable Energy Program (SREP). The Government has also requested support through the IFC-led Scaling Solar initiative.

21. **Complementarity with development policy operations.** Given the importance of the electricity sector and of JIRAMA's poor financial situation for the country as a whole, the Bank included electricity sector specific prior actions in the Madagascar Resilience Development Policy Operation (DPO) approved by the Board in December 2015 (P153084). Going forward, ESOGIP may be complemented by additional prior actions and triggers under DPOs to support electricity sector reforms, including the reform of JIRAMA.

C. Higher Level Objectives to which the Project Contributes

22. **The project is consistent with the National Development Program and the sector policy recently approved.** The Government has made the “fight against poverty through inclusive growth” its main objective and has developed a strategy centered on three pillars: improving governance, promoting economic recovery, and expanding access to basic social services. This strategy has been outlined in the *Programme Général de l'Etat* (PGE) and translated into a 2015-2019 National Development Program (*Programme National de Développement*, or PND) with an implementation plan. The Government has also recently approved an updated energy sector policy with support from the European Union and GIZ. Some of the key objectives of the new policy are the development of the sector based on least cost options, the improvement of access and quality of service, and the development of the sector on an operational and financially sustainable manner. The ESOGIP is consistent with these strategic directions.

23. **The project is also aligned with the Bank's twin goals, the conclusion of the Systematic Country Diagnostic and the themes being elaborated for the Country Partnership Framework (CPF) under preparation.** Access to electricity is key to economic growth and social inclusion. In Madagascar, efforts to increase access are hindered by the financial position of JIRAMA, the lack of generation capacity, and the poor state of the grid. The project addresses these aspects as critical first steps to improve the expansion of electricity supply and access, in line with the goals of reducing poverty and promoting shared prosperity. The program is grounded in the Systematic Country Diagnostic (SCD¹³), electricity having been identified as the top constraint to private sector development (and employment). Building on the SCD, the CPF under preparation identifies power sector reform and the need to improve the performance of JIRAMA as a top priority along with other areas in the sector covered in ongoing or future sector support already mentioned above (ESMAP, SREP, Scaling Solar). The project also contributes indirectly to other CPF proposed objectives, such as the need to increase fiscal space (including for infrastructure investments and social spending) and improve agricultural productivity (which may require power inputs). Also, implementation of the project is expected to have a positive impact on reduction of CO₂ emissions due to lower electricity generation compared to a “business as usual” scenario.

¹³ The SCD was published on August 25, 2015 (Report No. 99197).

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

24. The Project Development Objective (PDO) is to improve the operational performance of the national electricity utility (JIRAMA), improve the reliability of electricity supply in the project area, and, in the event of an eligible crisis or emergency, to provide immediate and effective response to said eligible crisis or emergency.

B. Project Beneficiaries

25. Project beneficiaries will be existing electricity customers, who will benefit from the project through improved and more reliable electricity service in the project areas. It is estimated that 175,000 customers will benefit from the project. The areas selected for improved reliability were those where equipment is overloaded so that service quality and reliability can improve in a more significant manner. Overall, the project will contribute to enhanced management, operation, and financial viability of the electricity sector, thus laying a solid foundation for expanding electricity services to Madagascar's population and firms. Sector institutions will also benefit from support under the project.

C. PDO Level Results Indicators

26. The indicators that will be used to measure achievement of the PDO are:

- Total electricity losses per year in the project area (percentage);
- Interruptions in electricity service per year in the project area (Number);
- Direct project beneficiaries (number), of which female (percentage).

While the PDO reflects the fact that a portion of project resources could be used to respond in the event of an eligible crisis or emergency as part of the IDA Immediate Response Mechanism (IRM),¹⁴ tracking of this conditional element of the PDO occurs at the intermediate results indicator level.

III. PROJECT DESCRIPTION

A. Project Components

27. While sector needs are immense, the proposed Electricity Sector Operations and Governance Improvement Project (ESOGIP) focuses on critical actions to improve JIRAMA's performance and re-establish a sound basis for the sector to develop. The project comprises a set of priority actions to improve the current situation in three key, inter-related areas: (i) electricity sector planning and sector financial sustainability; (ii) operational performance and governance of JIRAMA; and (iii) reliability of electricity service. Actions in the areas of planning and financial sustainability include specific studies focused on least cost options for power

¹⁴ See <http://www.worldbank.org/ida/immediate-response-mechanism.html>.

development, to guide future investments by the private sector and development partners in generation, transmission, and access; a review of the tariff system and complementary safety nets; and a targeted program to improve revenue collection. Improvement of JIRAMA's governance will be addressed through the preparation and implementation of a Management Improvement Plan (MIP). The MIP will focus on the optimization of the company's organizational structure, transparent appointment of top managers, incorporation of information systems to enable efficient, transparent, and accountable execution of operations in all business areas, and the implementation of a revenue protection program (RPP). Priority network investments will be supported to halt the further degradation of network assets and service reliability. Implementation of the identified priority actions will strengthen the physical and institutional infrastructure, improve the operational and financial performance of JIRAMA, and pave the way to accelerate the electrification of the country (both expanding the grid and implementing off-grid solutions) and enable more private sector investments in generation to lower the cost of supply.

28. ESOGIP takes into account lessons from the past, following a simple design and focusing on reforming JIRAMA from within through preparation and implementation of a MIP. The proposed approach to improve the operational performance of JIRAMA is based on the preparation and effective implementation of a MIP. Given the previous mixed experience of sector reform in Madagascar, the MIP would focus for an initial three-year period on the key aspects impacting the effectiveness of operations. The MIP will define a roadmap for implementation of an optimal organizational structure (building on the existing structure to the extent that it is relevant), followed by the competitive and transparent selection of staff to occupy the top management positions with the support of specialized consultants. The MIP will also include the incorporation of a modern MIS to provide JIRAMA management with the right tools and information to manage the company better, as well as implementation of a revenue protection program (RPP) targeted at about 6,000 large customers to sustainably reduce non-technical losses in supply (unmetered consumption). The MIP will also address execution of urgent investments in rehabilitation/upgrade of facilities for electricity supply to reduce technical losses and bring service quality to acceptable levels. An initial improvement in service quality is a prerequisite to enable tariff increases to wealthy consumers able to pay cost reflective rates. In parallel with actions on operational performance, the Government is pursuing a legal reform for JIRAMA to start operating under commercial law. This should contribute to accelerate and give sustainability to the action plans to improve the company's performance.

29. ESOGIP will provide support to key sector institutions to improve electricity sector planning and address sector financial sustainability. Support will also be provided to strengthen the governance and operational performance of JIRAMA. While the amount of funding provided for these activities is not large, the actions supported are foundational to the robust development of the sector going forward. The project also supports investments to enhance the reliability of electricity services. Given the large investment needs,¹⁵ several criteria were used to determine which ones to prioritize under this project, including economic return on investment based on reduction of generation cost, cost of losses, and cost of currently unserved energy. The proposed project has five components as summarized below. Further details are provided in Annex 2.

¹⁵ Immediate investment needs were estimated at US\$346 million by JIRAMA.

30. **Component 1. Improving electricity sector planning and financial sustainability (US\$2.48 million equivalent).** This component will finance a combination of capacity building, action plans, roadmaps, and studies that will: (i) ensure planning of the optimum investments needed to develop the power sector in Madagascar, from electricity generation to the effective connection of end users, together with a “glide path” for recovering costs; (ii) define mechanisms for effective implementation of the outcomes of the planning process; and (iii) strengthen in a sustainable manner the capacity of Government agencies responsible for planning the power sector and implementation of the outcomes of the planning process. In order to meet these objectives, the component will support the preparation of several studies, notably a Least Cost Power Development Plan (LCPDP), the definition of a Strategy and Action Plans to Increase Electricity Access, and studies to address the sector financial viability. The component will further support strengthening of the capacity of public agencies responsible for planning and implementation of the Electrification Strategy, as well as other complementary technical assistance.

31. **Component 2. Strengthening operational performance and governance of JIRAMA (US\$12.56 million equivalent).** This component will comprise the preparation and effective implementation of a MIP for JIRAMA for a three-year period, focused on improving efficiency, transparency, and accountability in the key operations areas of electricity supply, commercial functions, and management of corporate resources, with specific emphasis on better service quality and non-technical loss reduction. The MIP will include recommendations regarding an improved organizational structure for JIRAMA, which will be implemented with support under this component. This component will also support the incorporation of Management Information Systems (MIS) at JIRAMA as well as implementation of the RPP.

32. **Component 3. Investing in enhanced reliability of electricity (US\$48.62 million equivalent).** This component will finance priority investments regarding the reinforcement of an existing 138/63kV substation, the construction of new 63kV transmission line for the looping of the network, the rehabilitation and/or reinforcement of distribution networks in Antananarivo, and the upgrading of existing distribution systems in selected districts of the country in order to increase the reliability of the networks.¹⁶ This component will provide financing for the rehabilitation of auxiliaries of generation plants, and for the design and supervision of works.

33. **Component 4. Project Management (US\$1.34 million equivalent).** This component will support project management. It will finance the recruitment of social and environmental safeguards experts to provide support to JIRAMA as necessary to prepare and monitor the project safeguards studies as well as the recruitment of a financial management specialist and a procurement specialist. In addition, this component will include the financing of the project audits, purchasing of office selected equipment, and financing of incremental operating costs. Moreover, this component will provide financing for capacity building through training focused on MEH and JIRAMA staff.

34. **Component 5. Contingent Emergency Response (US\$0 million).** This component will

¹⁶ Works will be implemented, namely the regions of Analamanga, Vakinankaratra, Alaotra Mangoro, Diana, Sava, Boeny, Sofia, Betsiboka, Androy, Atsimo Andrefana, Antsinanana, Analanjirifo, Menabe, Haute Matsiatra, Vatovavy Fito Vinany, Ihorombe, or any other areas on which the Bank may agree in writing with the Government.

provide immediate response in the event of an eligible crisis or emergency.

B. Project Cost and Financing

35. The lending instrument for the proposed project is Investment Project Financing. The project will be entirely financed by an IDA credit. The total project cost is US\$65 million. The Ministry of Finance and Budget will receive the IDA funds and will on-lend funds to the MEH and JIRAMA to implement the respective project components. Cost estimates inclusive of taxes have been prepared, reviewed, and adjusted in consultation with project counterparts and are in line with similar projects in Sub-Saharan Africa. Cost estimates by component are detailed in Table 1.

Table 1. Project Cost and Financing by Components¹⁷

Project Components	Project cost (US\$ million)	% of cost financed by IDA
1. Improving electricity sector planning and financial sustainability	2.48	100%
2. Strengthening operational performance and governance of JIRAMA	12.56	100%
3. Investing in enhanced reliability of electricity	48.62	100%
- Reinforcement of an existing 138/63 kV substation and construction of 63kV transmission lines	10.67	
- Rehabilitation and/or upgrading of existing distribution networks	34.50	
- Rehabilitation of auxiliaries of generation plants	2.45	
- Technical assistance	1.00	
4. Project management	1.34	100%
5. Contingency emergency response	0	100%
Total Project Costs	65.00	100%
Total Financing Required	65.00	100%

C. Lessons Learned and Reflected in the Project Design

36. Lessons from experiences with utility reforms across Sub-Saharan Africa (including Liberia, Kenya, Rwanda, and Tanzania) and emerging countries in other regions have informed the design of this project. Project design and preparation also builds on lessons learned from the preparation of the ESDP and PWSRP, and ensuing country dialogue.

37. During the 1990s and first decade of the 21st century, many reforming emerging countries (Armenia, Brazil, Chile, Colombia, Georgia, Ghana, India, Kenya, Moldova, Peru) incorporated incentive-based regimes for regulation of the electricity distribution segment, providing incentives for distribution utilities to deliver high-quality service to their customers and

¹⁷ The PPA funds been used to finance preparatory studies and initial implementation of activities in various components and whose costs are included in this table.

maximize their profits through efficiency in operations. Under that regulatory environment, several distribution companies successfully implemented MIPs aimed at improving their performance in all business areas, with a particular focus on customer service in all dimensions. The design and implementation of MIPs were supported by the following premises: (i) customer satisfaction and willingness to pay tariffs are dependent on efficient service provision and good service quality (in both technical and commercial aspects); cost recovery is an essential prerequisite to achieving the financial sustainability of the company; and a company's management under incentive-based regulation calls for efficiency in operations in all business areas, with the support of information systems to provide reliable corporate information in their execution, which is critical to enhance transparency, accountability, and corporate governance, both internally and externally (regulators, government, civil society).

38. In most cases, the main components of the MIPs were: (i) selecting and appointing a new management team (having initially some foreign members, but becoming fully local over time) with adequate technical skills and ethics; (ii) incorporating a management information system (MIS) to enable efficient, transparent, and accountable execution of operations; (iii) implementing programs for sustainably reducing non-technical (i.e., commercial) losses in supply, focused initially on large users; and (iv) executing urgent investments in the rehabilitation and upgrade of existing electricity distribution networks, which is critical to achieving an acceptable quality of service.

39. The successful design and implementation of MIPs made it possible for the utilities to achieve and sustain significant improvements in their operational performance, as well as realize the financial sustainability of the companies and of the power sectors in which they operate. Lessons learned from these experiences are incorporated in this project, which follows a simple design. Lessons learned along different dimensions and how they are incorporated in this project are summarized in the Table 2 below.

Table 2. Lessons Learned

Lesson	Reflection in the Design of the Proposed Project
<p>The strategy and plan to reform JIRAMA must be strongly owned by the Government to maximize chances of success and avoid repetition of failed earlier reform attempts.</p>	<ul style="list-style-type: none"> • The implementation of JIRAMA's reforms will be anchored in the MIP. The MIP was approved by the Board of Directors of JIRAMA and involved ministries in February 2016, as confirmed by the Letter of Sector Policy presented in Annex 6. Specific arrangements to monitor execution of the plan by the Board and involved ministries will also be adopted. • Design of the MIP incorporates best practices and lessons learned from the most successful experiences in reform of electricity utilities in emerging countries (Latin America, Europe and Central Asia, South Asia) in the 1990s and first decade of the 21st century. • Most of the activities in the scope of the MIP (implementation of information systems, revenue protection program and urgent investments to improve quality of electricity service) will be financed by the project, together with consultancy services to support their effective execution.
<p>Improving sector technical and financial planning requires ownership by competent public agencies and resources for systematic development of the</p>	<ul style="list-style-type: none"> • The studies to be prepared with project support will involve the relevant sector institutions through ad-hoc implementation teams, to ensure technical quality, full consideration of the existing sector reality, and ownership. Specific implementation and coordination arrangements have already been put in place for the various studies, which have been launched under the PPA. Specific focal points within each competent institution have been identified.

Lesson	Reflection in the Design of the Proposed Project
planning process and implementation of its outcomes.	<ul style="list-style-type: none"> • Technical assistance funds are included in the project to support Government in implementation of the recommendations coming out of the LCPDP and the Electrification Strategy.
Weak implementation capacity within the sector can delay project execution.	<ul style="list-style-type: none"> • Procurement for project activities will be carried out by the Project Management Unit recently established at MEH, and fully integrated within the institution. JIRAMA also has implementing agency functions, and significant experience in similar activities, as most investments in the power sector of the country have been historically financed by development partners. The responsible units/teams are already in place both at MEH and JIRAMA. The project team within each agency will be composed of experienced individuals and expert consultants as needed covering all the functions required for successful implementation. • Consultants with confirmed international experience will be hired under the project to provide support to JIRAMA to supervise the implementation of transmission and distribution works, as well as MIS and RPP, if needed. • The project design has been kept simple, focusing only on the most urgent components of the reform, so as not to overtax the capacity of the Government institutions, particularly the implementing agencies.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

40. The project will be implemented under the overarching responsibility of the MEH. Supervisory responsibility of JIRAMA lies with the Government, which owns the company.¹⁸ Supervisory responsibility is shared by different Government institutions: MEH is responsible for oversight of JIRAMA’s energy sector operations; the Ministry of Water, Hygiene and Sanitation, is responsible for oversight of JIRAMA’s water sector operations (since JIRAMA is a combined electricity and water utility); and the Ministry of Finance and Budget is responsible for oversight of JIRAMA’s financial position. Since MEH has overall responsibility for energy sector policy and planning, it is the natural leader of the project.

41. The Project Coordinator will be based at MEH. MEH will also be responsible for the implementation of Component 1. The procurement and financial management staff (hired with the support of the PPA) will support MEH and work to train MEH staff in these functions. MEH will be responsible for consolidating information on the various project components and prepare and submit project monitoring reports as agreed with the World Bank.

42. JIRAMA will be responsible for the implementation of Components 2 and 3. A project focal point at JIRAMA has been appointed, and existing procurement, financial, and technical staff will take the lead in implementing activities under Components 2 and 3, and in reporting to the project coordinator in MEH. While existing capacity at MEH and JIRAMA is generally considered adequate, training for existing staff will be supported and additional expertise will be contracted as necessary.

¹⁸ JIRAMA’s Board of Directors is comprised of representatives of relevant ministries, the Presidency, the Prime Minister’s office, a representative of the private sector, and representatives of the employees union. The Director General of JIRAMA, appointed by the President, reports to the Board.

43. A Project Coordination Committee, chaired by MEH with members from relevant institutions, will provide strategic guidance and advice on alignment with sector policy and ensure overall governance and fiduciary oversight of the project. The Coordinating Committee will meet at least once per year (and more often as necessary) to approve the project's annual work plan and budget.

44. In addition, as mentioned above, the Government has established a Strategic Committee for the Reform of JIRAMA. Since the reform of JIRAMA requires strong ownership and direction from the Government, this Committee, whose membership is wider than that of the Project Coordination Committee, is responsible for driving the reform of JIRAMA. Unlike the Project Coordination Committee, which will have a more technical focus on the activities being implemented under the project, the Strategic Committee will focus on higher level reform issues related specifically to JIRAMA. It will approve any plans, decisions, and actions related to the reform of JIRAMA and will actively supervise the implementation of the MIP. Both the Ministry of Finance and Budget and MEH are members of the Strategic Committee, which also comprises a representative of the Presidency.

45. Project implementation arrangements are described in Annex 3.

B. Results Monitoring and Evaluation

46. The results framework, attached as Annex 1, identifies result indicators for the project as a whole as well as for each of its components. The two project implementing agencies, MEH and JIRAMA, will be responsible for collecting and verifying data, and MEH will consolidate the information and submit progress reports to the Bank on an annual basis for PDO indicators and on a semi-annual basis for the intermediate indicators at component level.

C. Sustainability

47. The sector reforms supported under the project aim to put in place systems, processes, and incentives that will allow electricity services to be provided in a sustainable manner. The MIP is meant to put in place a transparently recruited management team to lead JIRAMA in a sustainable direction going forward. The RPP targets improved financial sustainability of JIRAMA in the short-term, while the LCPDP and tariff reform study will provide a roadmap to further financial sustainability of the sector over the long-term. Finally, by improving the reliability of electricity service, the project will also support an important input to firm competitiveness and wider socio-economic development over the long-term.

48. **Sustainability is intimately dependent on internal ownership of the reform process.** The implementation of the MIP to improve JIRAMA's governance and operational performance can trigger resistance from the utility staff and management, which may feel threatened by the uncertainty inherent to any reform process, and the potential risk of losing their jobs. The overall process may fail if strong internal ownership by JIRAMA's Board and management and staff at all levels is not ensured. An effective communications strategy on the scope and activities of the MIP and expected benefits for staff, including very clear messages aimed at eliminating any concern on retrenchments or losses of jobs, will be a key component of the plan.

49. **Skills re-development and support in implementation.** An in-house, all-inclusive training strategy involving staff at all levels will be a key component of the MIP. It is envisaged that the core team for the implementation of the plan will be formed by existing staff. Mentoring, coaching, capacity building, and career development opportunities will empower staff, build participation in the change process, and ensure that new skills, practices, and processes are internalized. A business support services firm, playing an advisory role, will be hired to assist in the competitive selection of staff for positions at all levels and in implementation of all activities under the MIP.

50. **Transparency and accountability.** Efficient, transparent, and accountable performance of JIRAMA in all business areas requires the incorporation of state-of-art supporting tools. The modern, integrated MIS will help to improve (i) the quality of electricity service by reducing network down times and technical losses; (ii) financial performance of the utility by improving billing and revenue collection; (iii) management of corporate resources (accounting, procurement, human resources and facilities management); and (iv) accountability by providing management with key information to allow more effective decision making. Increased efficiency, transparency, and accountability of operations will not only improve the sector's performance, but also enhance its image and credibility with shareholders and electricity customers alike, gaining support for sustained good performance.

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

51. The overall risk rating for the project is high. The key risks to the PDO are: (i) the ability to carry out the proposed reforms of JIRAMA and the ability to isolate JIRAMA from political interference; (ii) the ability to enforce sector strategies and policies; and (iii) the institutional capacity to implement the proposed reforms; (iv) fiduciary risk. The key risks and mitigation measures are discussed below.

52. **Political and Governance Risks.** These risks are considered high in light of the governance challenges that have plagued the sector to date. Lack of strong lines of accountability have resulted in piecemeal and ineffective sector management. Short-term pressures to increase the country's generation capacity combined with a lack of sector planning have led to non-transparent, inefficient, and costly decisions in regard to unsolicited generation proposals from private developers. While from a technical point of view the activities to be supported under the MIP are not complex, adherence to the MIP will require strong commitment and leadership from Government to overcome vested interests present in management of a poorly performing utility. In general, JIRAMA employees are open to reform, but there continues to be a high risk at the political and top management level. Having said this, the Government is committed to the development of the sector as it is considered one of the key cornerstones for the country's overall economic development and realization of the National Development Program. Government's commitment is reiterated in the Letter of Sector Policy (Annex 6) and also demonstrated by the establishment of the Strategic Committee for the reform of JIRAMA. Success of the reform efforts will hinge on Government's leadership and the existence of champions to drive change, as well as on the buy-in of JIRAMA's top management for the reform actions to be undertaken.

The reform of JIRAMA is clearly a high risk, high reward activity. The Bank team's assessment is that governance issues are mostly political and not operational.

53. **Sector Strategies and Policies Risks.** The key risks in this area that could impact the PDO include continued poor sector financial performance as a result of reliance on high cost thermal generation with the tariffs not able to cover the operating costs, and a continued piecemeal approach to sector planning and development. This risk has been assessed as substantial. Key sector goals include electricity supply reliability, operating efficiency, and increased access to electricity services, which are consistent with the principles of the new Energy Strategy that has recently been approved by the Government. The LCPDP that is under preparation with project support will provide a roadmap for the Government to make better decisions regarding least cost options for the development of sector infrastructure (generation, transmission, and distribution) and establish a sound basis for better governance in the selection of priority investments in the sector. The project also provides support to improve the financial performance of JIRAMA. The effective application of the support provided under the project will ultimately depend on the political and governance aspects described above.

54. **Institutional Capacity for Implementation and Sustainability Risks.** While technical capacity at MEH and JIRAMA is good, capacity is overstretched given the immense challenges facing the sector. This risk is thus rated high. Since project coordination and implementation is integrated into the existing duties of staff at MEH and JIRAMA, delays in project implementation may be faced. Delays in implementation of reforms due to lack of political will are a risk already described above that may constrain the ability to assure efficiency and accountability in the sector. To supplement existing MEH and JIRAMA capacity, procurement and financial management expertise has already been recruited and is available to MEH; additional expertise will be contracted by JIRAMA with the support of the project as needed (e.g., for preparation of bidding documents, in the area of preparation and implementation of safeguards studies, and for oversight of rehabilitation and construction works, etc.).

55. **Fiduciary Risks.** The project will be implemented in an environment where fiduciary risks, including fraud and corruption, are considered high. Thus, both financial management and procurement risks have been assessed as high before the implementation of mitigation measures. The residual risk once mitigation measures are taken into account is substantial for both financial management and procurement, as described in Annex 3. Both areas are discussed in more detail in Section VI below.

56. **Stakeholder Risks.** Given the multiple actors with interests in the sector, including not only different government entities but also the private sector and industry trade unions, this risk is considered substantial. As mentioned above, strong commitment and leadership from Government to overcome vested interests will be key. The Bank is also committed to maintaining a strong sector dialogue, involving all relevant stakeholders, to ensure that the objectives of the project are met.

57. **Climate and Disaster Risks.** Short- and long-term climate change and disaster risks that could potentially affect the sustainability of outputs and outcomes of the project include mainly cyclones, floods, and landslides. About three cyclones per year hit Madagascar, with heavy rains

that lead to a major flood and landslides. Expected impacts would be the destruction of electric poles, and the cutting-off of the electricity supply until the restoration of the network is possible, in the aftermath of a cyclone: a significant number of households and dependent trades of electricity would be interrupted. The National Policy for Disaster Risk Management is contained in the current National Strategy for Disaster Risk Management, which provides a coordinated approach to risk mitigation (development planning, urban planning, land use planning, environmental impact evaluation, etc.), preparedness (early warning and response), risk financing, (insurance and contingent liability funds), and reconstruction planning (early recovery and sustainable reconstruction). Several development partners, including the Bank, are working with Madagascar to reduce vulnerabilities to natural disasters and the negative effects of climate change. In regard to the ESOGIP, the Emergency Infrastructure Preservation and Vulnerability Reduction Project (P132101) is currently developing a standard for electricity infrastructure to render such infrastructure resilient to the effect of cyclones and wind, in particular. The standards are currently being assessed and the teams will liaise to explore the possibility of using the standards under development for at least part of the project-supported investments.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

58. This section provides a summary of the economic and financial analysis for the investments under the proposed project. The specific activities considered (accounting for 64 percent of financing provided by the project) are: (i) the implementation of the RPP for sustainable reduction of (unmetered consumption) through advanced metering, systematic remote recording and monitoring of consumption of large users (Component 2); (ii) reinforcement of transmission facilities (Component 3); (iii) rehabilitation/upgrade of distribution networks (Component 3); and (iv) rehabilitation of auxiliaries of generation plants (Component 3). Other activities under the proposed project, including those under Components 1 and 4, are technical assistance to strengthen planning and build capacity and thus are not considered in the economic and financial analysis.

59. The initial phase of the RPP is expected to include all MW-supplied customers (around 1,000) and the largest LV-supplied customers (around 5,000). In total, the RPP is expected to cover approximately the 6,000 largest electricity customers in Madagascar, representing some 50 percent of total sales in 2014. Broadly, the benefits of the project arise from: (i) a reduction on technical losses due to grid reinforcements; (ii) a reduction of non-technical losses which are transformed into electricity sales, increasing revenues for JIRAMA; and (iii) savings from reduced consumption due to price elasticity effects. While clear additional economic, and financial benefits would arise from the rehabilitation of auxiliary components of generation plants, the lack of detailed technical information prevents a reasonable estimation of such benefits, therefore they are assumed to be zero for the purposes of this analysis.

60. The results of the economic analysis shows that the overall project is economically viable with a net present value (NPV) of US\$58.5 million (at ten percent discount rate) and an Economic Internal Rate of Return (EIRR) of 28.7 percent, with an outstanding contribution of

the RPP (Component 2). Switching value analysis shows that the economic viability of the overall project is robust to sizeable changes in the value of key underlying parameters.

61. Also, the implementation of the project will result in an estimated reduction of 781,245 CO₂ tons during the overall lifetime of the project due to lower electricity generation compared to the “business as usual” scenario. No economic benefits have been computed out of these emission reductions.

62. Finally, the financial analysis shows that the project is able to generate a NPV of US\$284.1 million (at zero discount rate) and a Financial Internal Rate of Return (FIRR) of 31.5 percent.¹⁹ Also, the payback period of the project is estimated in approximately three years. The financial results show the project is highly resilient to potential costs overruns and/or changes in performance in the reductions of non-technical losses.

63. The rationale for the use of public sector financing for the investments under the proposed project rests primarily on the characteristics of the project. The high risk country environment and the fact that JIRAMA is a state-owned company with unprofitable operational performance makes it an unlikely candidate for private sector financing. The World Bank provides significant value added in the context of this project as the project aims to improve significantly JIRAMA’s operational performance by reducing technical and non-technical losses as well as by improving the efficiency of selected generation assets of the utility. For additional details and assumptions considered in the economic and financial analysis, see Annex 5.

B. Technical

64. The Bank supports several countries in sub Saharan Africa (e.g., Cameroon, Kenya, Liberia, Rwanda, Tanzania, to name a few) in the development of strategies and plans to improve sector planning and/or financial sustainability and similar, well-developed approaches will be applied under this project. Regarding the reform of JIRAMA, as described above, lessons learned from other countries’ experiences in designing and implementing MIPs are being applied under this project.

65. A review of the investments that will be financed under the project was carried out. The reinforcement of the existing 63kV substation of Ambohimanambola and the rehabilitation and/or upgrading of distribution networks are straightforward since the main activities concern the installation of new transformers and auxiliaries within the existing facilities to replace overloaded transformers, and the replacement of insulators and re-stringing of conductors for the upgrading of 5kV lines to 20kV and to 35kV, which will not change the initial overall design of lines. Transformers and associated materials are globally proven. The construction of additional 20kV distribution lines to improve the network configuration is technically sound in responding to excessive voltage drop caused by long reticulation. The project will use as much as possible standard technical specifications in order to achieve maximum cost efficiency.

¹⁹ Considering a benefit of US\$15/ton linked to the estimated CO₂ emission reduction, the mitigation benefits equate to around 4 percent of the NPV for the project.

66. The detailed design for the construction of 63kV transmission lines is based on international best practice and on past experience of JIRAMA. The final routing of the transmission lines will be confirmed by JIRAMA and priority will be given to the most direct routing, which has lower environmental and social impact. The 63kV lines will use standard conductor which will be strung on steel lattice towers or on tubular steel poles based on the availability of land for establishing the necessary right of way. The towers or poles will be erected in concrete foundations.

67. The rehabilitation of existing distribution lines and construction of new 20kV and 63kV lines and upgrading of existing 63kV substation have been successfully conducted by JIRAMA in the past, and therefore would not pose any major technical issues. Past experience in other countries in Sub Saharan Africa has also demonstrated that rehabilitation and construction of similar transmission and distribution systems in terms of technology is well proven.

68. The total duration of the rehabilitation and construction works is estimated at 30 months. The duration of the works will be optimized due to the fact that JIRAMA will undertake all the rehabilitation works of existing distribution networks and private companies will build new 63kV lines in parallel.

C. Financial Management

69. MEH and JIRAMA will be responsible for financial management aspects of the different project components for which they are responsible (component 1 for MEH, components 2 and 3 for JIRAMA, and respective activities under component 4), and MEH will consolidate financial management reporting. While MEH and JIRAMA financial management systems are assessed as adequate for purposes of the project, the overall fiduciary risk for the project has been assessed as substantial. Mitigation measures to address the risks include: (i) MEH will recruit a qualified accountant to second the financial management specialist already in place (managing the PPA); (ii) the Project Implementation Manual describes the role and responsibility of each implementing entity and the applicable fiduciary procedures; (iii) the integrated financial management information system (IFMIS) will be set up both at MEH and JIRAMA with the ability to consolidate implementing entities' financial data; (iv) the audit of the project annual financial statement will be undertaken by a reputable auditing firm; and (v) the audit of JIRAMA's annual financial statements will be done according to terms of reference agreed with the Bank.

70. Disbursements will be made in accordance with the *World Bank Disbursement Guidelines for Projects*, dated May 1, 2006. Per the decree on external debt management signed on October 2015, two designated accounts will be opened at the Central Bank²⁰, one for the MEH implementing entity and one for JIRAMA denominated in U.S. Dollars. Funds will flow from the World Bank to the Treasury account and transferred to the Designated accounts opened in USD or in Ariary. More details on financial management and disbursement arrangements are provided in Annex 3.

²⁰ As a transition arrangement pending final implementation arrangements for the decree, the designated account will be opened in a commercial bank acceptable to the Association.

D. Procurement

71. A Procurement Code was enacted in July 2004 and included simplification of procedures and compliance with international standards. The Procurement Code has also been supplemented by regulations, procedures manuals, and standard bidding and other procurement documents. Nevertheless, during the preparation of the project, it was agreed with the Borrower that IDA Guidelines and Standard Bidding Documents (SBDs) will be used. The Project Implementation Manual governing ESOGIP reflects the arrangements for the proposed project.

72. MEH will have the overall responsibility for procurement activities for Component 1 and its activities under Component 4 and the *Direction de l'Équipement Électricité* as procuring unit of JIRAMA will have the overall responsibility for procurement activities for Components 2 and 3 and its activities under Component 4 of the project. The two procurement teams are currently duly staffed with proficient procurement officers. The procurement units' staff has substantial experience in managing procurement operations during implementation of former Bank-financed projects. A Procurement Capacity Assessment of the respective units at MEH and JIRAMA, including training needs and arrangements, was conducted as part of project preparation. The overall project risk for procurement is rated high. After mitigation measures are implemented, the residual risk would be substantial. Mitigation measures are detailed in Annex 3.

73. An initial 18 month Procurement Plan has been developed by MEH and JIRAMA, covering procurement activities expected under the project components. After the project is approved by the Board it would be published on the Ministry of Finance and Budget website and the Bank's external website. The Procurement Plan will be updated in agreement with the Bank at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity. The prior review thresholds set out in the Procurement Plan will be reviewed from time to time and revised as needed during the project implementation.

E. Social (including Safeguards)

74. **The project is environmental category B** since any social and environmental impacts are expected to be small to moderate, temporary, site-specific and mostly reversible, and mitigation measures can readily be designed.

75. **Triggering of policy on Involuntary Resettlement (OP/BP 4.12).** The project triggers the Bank's safeguard policy on Involuntary Resettlement because it involves the construction, rehabilitation, and operation of MV substations and overhead transmission lines, requiring acquisition of lands, removal of valued trees, and restriction of access to sources of informal incomes. The potential adverse impacts are associated with implementation of Component 3, which includes new construction, rehabilitation, and expansion of substations, transmission lines and distribution lines.

76. **Potential negative social impacts during site preparation and construction/extension of transmission lines and rehabilitation/upgrading of substations and distribution lines.** The potential negative social impacts during site preparation and construction of

transmission lines and rehabilitation/upgrading of existing substations and distribution lines are mainly related to small-scale land acquisition and resettlement for construction of the substations, power towers, and acquisition of right of ways. The potential social risks during operation would be that resettlement commitments made during construction including livelihood restoration for affected persons would not be properly monitored and followed through during operation. However, these potential impacts are expected to be small to moderate, temporary, and site-specific and resettlement measures can be readily designed and implemented.

77. **Resettlement Policy Framework (RPF).** The detailed locations of the works proposed for extension of transmission lines and for upgrading of existing substations and distribution lines are not known at the present time. An RPF has therefore been prepared to ensure that activities to be financed under the project that require involuntary resettlement in local communities are properly managed on the basis of Resettlement Action Plans (RAPs) prepared and implemented in compliance with the World Bank's OP 4.12. An assessment of potential social risks of subprojects that could be financed by the project has been conducted under the RPF. The RPF establishes the requirements for preparation of RAPs for subprojects requiring involuntary resettlement, including sample terms of reference (ToRs). The result of socio-economic studies have characterized different forms of compensation. Since the technical studies of activities under Component 3 will be prepared or updated when the financing are available, the RPF has proposed specific RAP ToRs for each group of activities that JIRAMA could launch in parallel with the technical studies. These requirements contain a description of the types of social baseline studies to be prepared for resettlement plans, including collection of gender-disaggregated data on project affected households and persons. They also contain provisions related the assessment and compensation of affected assets and to resettlement supervision, monitoring, and reporting. This will include gender disaggregated gender indicator tracking. The revised draft RPF has been finalized by JIRAMA and has been disclosed in the Bank's Infoshop and in-country on January 15, 2016.

78. **Safeguard Implementation, Monitoring, and Training.** JIRAMA, as an implementing agency for Component 3, will be responsible for the preparation and supervision of RPF implementation. JIRAMA has an operational department in charge of environment but has no clearly defined unit responsible for resettlement. During project implementation, JIRAMA's environmental unit will be responsible for preparing and ensuring the effective implementation of environmental and social safeguard measures (including RAPs) and for regular liaison with the national authorities responsible for land management, as well as with local authorities and communities. There will be regular reporting on resettlement implementation. JIRAMA will receive training on the resettlement requirements to be applied to the project by the World Bank safeguard team at the project launching. The Government will pay the costs of any resettlement compensation.

79. **Public Consultation and Information Disclosure.** The affected people and communities and other relevant stakeholders have been consulted during the elaboration of the RPF in September/October 2015. The feedback from the consultations have been incorporated into the project design and the final draft RPF. In the RPF, a public consultation mechanism has been developed for preparation and disclosure of draft RAPs during the implementation phase.

Consultation processes developed for RAP preparation and implementation include specific requirements to include women and other vulnerable groups.

80. **Social Inclusion and Gender Integration.** Relevant inequalities between women and men still persist in the country and, although there is significant potential to positively contribute to the country's development, women still represent a vulnerable group in many cases.²¹ In this context, the project will explore specific ways in which the proposed project components can reduce gender disparities and further foster social inclusion and gender integration. This might entail a series of gender sensitive interventions, such as potential integration of social and gender specialists into JIRAMA's Environment Unit; development of gender-related trainings for JIRAMA; and inclusion of gender-disaggregated data in the customer service satisfaction survey and monitoring and evaluation framework. Additionally, the project will integrate a gender-sensitive perspective in the consultations for the preparation of the safeguards instruments during implementation; in the terms of reference for the recruitment of key JIRAMA positions.

F. Environment (including Safeguards)

81. In addition to OP/BP 4.12, Involuntary Resettlement, other Safeguard Policies triggered by this operation are OP/BP 4.01, Environmental Assessment, and OP/BP 4.11, Physical Cultural Resources.

82. **Triggering of policy on Environmental Assessment (OP/BP 4.01).** The project triggers the policy on Environmental Assessment (OP/BP 4.01) because it involves the construction, rehabilitation, and operation of MV substations and overhead transmission lines, requiring the identification, mitigation and monitoring of potential adverse environmental and social impacts. The potential adverse impacts are associated with implementation of Component 3, which includes new construction, rehabilitation, and expansion of the substations and transmission lines.

83. **Potential negative environmental impacts during site preparation and construction/extension of transmission lines and rehabilitation/upgrading of substations and distribution lines.** The potential negative environmental impacts during site preparation and construction/extension of transmission lines and rehabilitation/upgrading of existing substations and distribution lines mainly include: (i) increased levels of dust, noise, and other emissions from excavation activities, land clearing activities, material stockpiles, operation of heavy equipment, and transportation of construction materials and electrical equipment; (ii) construction site waste generation; (iii) traffic disturbance and road damage due to the transportation of building materials and equipment; (iv) health and safety issues for workers and community; (v) any machinery accidental risks; (vi) hazard solid waste from the old equipment replaced

²¹ In the last decades, Madagascar has engaged in several efforts at the national level to promote gender equality and foster women's empowerment. However, gender-based inequalities persist. Based on 2010 data, women's earnings are on average 34 percent lower than those of men with the same characteristics. And according to a World Bank study (2014), over the 2005-2010 period, the ratio of extreme poverty rates by gender (male/female) passed from 3.2 percent to -2.4 percent, with female heads of households more deprived in comparison to male heads. In some areas, land acquisition is still subject to strict traditional laws that exclude women, notably in the south and southeast (African Economic Outlook, Madagascar, 2014).

(transformers with PCB); and (vii) harm to potential chance finds of physical cultural resources during the civil works of transmission line extension. The potential negative environmental impacts during operation would be the effects associated with exposure to public safety risks, noise and electric and magnetic fields from high voltage power lines and substations. However, these potential impacts are expected to be small to moderate, temporary, site-specific and mostly reversible and mitigation measures can readily be designed. In addition, the environmental and social impacts of anticipated activities are expected to be moderate, site-specific, and manageable to an acceptable level, and the proposed project requires no exceptions to the World Bank's policies on environmental and social safeguards.

84. **Policy on Physical Cultural Resources (OP/BP 4.11).** Concerning infrastructure subprojects mainly the construction of new 63kV transmission lines, the rehabilitation and/or reinforcement of distribution networks, and the upgrading of existing distribution systems, no archaeological vestiges will be impacted following the socio-economic survey developed in the Environmental and Social Management Framework (ESMF). For more assurance, the ESMF has made provisions for cultural resources management in the event the Physical Cultural Resources OP 4.11 is triggered during the implementation phase and includes "chance finds" procedures for inclusion in the contractors' contract. Mitigation measures will be included in the respective subproject RAPs and Environmental Management Plans (EMPs), including chance find procedures.

85. **Environmental and Social Management Framework (ESMF).** The detailed locations of the works proposed for extension of transmission lines and for upgrading of existing substations and distribution lines are not known at the present time. An ESMF has therefore been prepared to ensure that activities to be financed under the project would not create adverse impacts on the local environment and local communities, and that the residual and/or unavoidable impacts will be adequately mitigated. The ESMF includes an Environmental and Social Management Plan (ESMP), has taken into account the environmental and social profiles in the project areas on the potential activities to be supported by the project. The ESMF/ESMP outlines an environmental and social screening process for future sub-projects to ensure that they are environmentally and socially sound and sustainably implementable, in line with Government and World Bank policies and guidelines on environmental and social impact management. The ESMF has considered ToRs for specific environmental and social studies, including the related ESMP for each group of activities that JIRAMA could launch in parallel with the technical studies. JIRAMA under its Environment and Risk Prevention Department will be responsible for the procurement of consultants to prepare the studies, for supervising the consultants and it will also be responsible for the monitoring of the implementation of the ESMPs and RAPs in the project areas. The final ESMF was disclosed in-country and at the Bank's Infoshop on January 15, 2016.

86. **Safeguard Implementation, Monitoring, and Training.** JIRAMA, as an implementing agency for Component 3, under its Environment and Risk Prevention Department will be responsible for the preparation and supervision of ESMF implementation. This department will carry out ESMP/RAP, to ensure that the mitigation measures are being effectively implemented, and will conduct field visits on a regular basis. Monitoring checklists will be prepared on the basis of the mitigation plans for this purpose. Progress reports shall document the progress of

ESMF implementation. Finally, the project will engage specialists/firms to conduct detailed environmental and social studies (ESIA/ESMP; RAP). The Environment and Risk Prevention Department of JIRAMA will ensure regular liaison with the National Office of Environment, local authorities and communities. The JIRAMA will receive training on the safeguard instruments to be applied to the project by the World Bank safeguard team at the project launching.

87. **Public Consultation and Information Disclosure.** The affected people and communities and other relevant stakeholders have been consulted during the elaboration of the ESMF and RPF in September/October 2015. The feedback from the consultations has been incorporated into the project design, the final draft ESMF and RPF. Likewise, during project implementation, JIRAMA is expected to consult project-affected groups, and local governmental and nongovernmental organizations on all environmental and social aspects of the project and take their views into account accordingly. Public consultations will be carried out as early as possible and provide, in a timely manner prior to consultation, all the relevant materials in the form and language(s) needed to be understandable and accessible to the groups being consulted. Preparation of stand-alone environmental and social safeguards instruments of potential sub-projects (ESMP) and RAP when needed will also be prepared through a consultative and participatory process involving all stakeholders at the regional and national levels. The draft ESMF and RPF have been received at the Bank on October 27, 2015. The final versions were disclosed in-country and at the Bank's Infoshop on January 15, 2016.

G. World Bank Grievance Redress

88. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/GRS>. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

H. Beneficiary Feedback

89. Beneficiary feedback will be captured through a customer service satisfaction survey to be administered by JIRAMA to gauge the impact of the investments financed by the project. While JIRAMA's offices have a mechanism for recording written feedback from customers on a voluntary basis, JIRAMA does not currently proactively carry out a customer satisfaction survey. In the first instance, assistance will be provided under the project to design the survey, which will be focused on customers in the project area. The project will support the administration of a baseline survey in the first year of the project, before any upgrades to JIRAMA's transmission

and distribution network are undertaken. JIRAMA will analyze the results of the baseline survey and respond to client feedback to the extent possible. JIRAMA will prepare a report detailing the results of the survey and how the company has taken customer feedback into account. Toward the end of the project, once a majority of the improvements to the transmission and distribution network have been realized, the customer satisfaction survey will be repeated. JIRAMA will again analyze the results, and produce a report on how feedback is being addressed. The results of the two surveys will also be compared. This type of customer feedback survey is being introduced with the support of the project; the Bank team and JIRAMA, through the course of the dialogue under the project, will explore options for continuing, and possibly expanding, the use of a customer satisfaction survey as a longer-term beneficiary feedback mechanism beyond the life of the project.

Annex 1: Results Framework and Monitoring

Country: Madagascar

Project Name: MG-Electricity Sector Operations & Governance Improvement Project (ESOGIP) (P151785)

Results Framework

Project Development Objectives

PDO Statement

The Project Development Objective is to improve the operational performance of the national electricity utility (JIRAMA), improve the reliability of electricity supply in the project area,²² and, in the event of an eligible crisis or emergency, to provide immediate and effective response to said eligible crisis or emergency.

These results are at | Project Level

Project Development Objective Indicators

Indicator Name	Baseline	Cumulative Target Values				
		YR1	YR2	YR3	YR4	End Target
Total electricity losses per year in the project area (Percentage)	35%	35%	32%	30%	28%	28%
Interruptions in electricity service per year in the project area (Number)	870	860	790	710	650	650

²² “Project Area” means the geographical areas where project activities under Component 3 of the project will be implemented, namely the regions of Analamanga, Vakinankaratra, Alaotra Mangoro, Diana, Sava, Boeny, Sofia, Betsiboka, Androy, Atsimo Andrefana, Antsinanana, Analanjrofo, Menabe, Haute Matsiatra, Vatovavy Fito Vinany, Ihorombe, or any other areas on which the Bank may agree in writing with the Government.

Indicator Name (cont.)	Baseline	Cumulative Target Values				
		YR1	YR2	YR3	YR4	End Target
Direct project beneficiaries (Number) - (Core)	0	0	65,000	140,000	175,000	175,000
Female beneficiaries (Percentage - Sub-Type: Supplemental) - (Core)	50%	50%	50%	50%	50%	50%

Intermediate Results Indicators

Indicator Name	Baseline	Cumulative Target Values				
		YR1	YR2	YR3	YR4	End Target
JIRAMA's Management Improvement Plan (MIP) completed and key management positions recruited (Text)	No	MIP adopted by Government, key management positions advertised	Key management positions— Director level and above— competitively recruited	Yes	Yes	JIRAMA business plan published, Director-level and above competitively recruited
Completion of key studies: Least Cost Power Development Plan (LCPDP), Tariff Study (Text)	No	No	Yes	Yes	Yes	LCPDP and Tariff Studies completed and published
Percentage of total sales (kWh) covered by the Revenue Protection Program (RPP) (Percentage)	0%	0%	0%	30%	40%	40%
Installation of Management Information System (MIS) at JIRAMA, and populated with data (Text)	No	No	MIS (incl. CMS, IDMS, ERP, GIS) installed	MIS populated with data	Yes	MIS functioning and used for sector monitoring and reporting

Indicator Name (cont.)	Baseline	Cumulative Target Values				
		YR1	YR2	YR3	YR4	End Target
Distribution lines constructed or rehabilitated under the project (Kilometers) - (Core)	0 km	0 km	50 km	110 km	195 km	195 km
Distribution lines constructed under the project (Kilometers - Sub-Type: Breakdown) - (Core)	0 km	0 km	40 km	80 km	165 km	165 km
Distribution lines rehabilitated under the project (Kilometers - Sub-Type: Breakdown) - (Core)	0 km	0 km	10 km	30 km	30 km	30 km
Transmission lines constructed under the project (Kilometers - Sub-Type: Breakdown) - (Core)	0 km	0 km	5 km	20 km	34 km	34 km
JIRAMA customer satisfaction survey undertaken in project area and report on customer feedback and how it was addressed by JIRAMA (Text)	No survey	Survey designed, and baseline survey conducted	Report on how survey feedback was addressed by JIRAMA		Survey repeated, report on how survey feedback was addressed by JIRAMA	Customer satisfaction survey administered by JIRAMA
Time taken for first disbursement of funds requested by Government for an eligible emergency or crisis (weeks)	0	8	8	8	8	8

Indicator Description

Project Development Objective Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Total electricity losses per year in the project area	Unit: Percentage This indicator measures the total losses, including technical and non-technical (i.e., commercial) losses, under the project.	Annual	JIRAMA data system.	JIRAMA
Interruptions in electricity service per year in the project area	Unit: Number Number of incidents at the level of the distribution network caused by an equipment overload in the project area.	Annual	JIRAMA data system.	JIRAMA
Direct project beneficiaries	Unit: Number Direct beneficiaries are the people connected by JIRAMA in the project area— who will benefit from improved electricity services as a result of the construction and/or rehabilitation of transmission and distribution lines. For purposes of calculating the number of people connected, JIRAMA considers that for each customer/contract there are on average 1.5 households connected, and an average of 5 people per household.	Annual	JIRAMA data system.	JIRAMA
Female beneficiaries	Unit: Percentage Based on the definition of direct project beneficiaries, this sub-indicator measures the percentage of the beneficiaries that are estimated to be female, which is half the population in Madagascar (50%).	Annual	JIRAMA data system.	JIRAMA

Intermediate Results Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
JIRAMA's Management Improvement Plan (MIP) completed and key management positions recruited (Text)	Unit: Text This indicator measures whether JIRAMA MIP has been prepared and completed, and top management positions based on the MIP recruited in a transparent and competitive manner.	Semi-annual	Project progress report.	JIRAMA
Completion of key studies: Least Cost Power Development Plan (LCPDP), Tariff Study	Unit: Text This indicator measures whether the LCPDP and Tariff Study have been prepared and completed.	Semi-annual	Project progress report.	MEH
Percentage of total sales (kWh) covered by the Revenue Protection Program (RPP).	Unit: Percentage This indicator measures the percentage of total sales that are covered by the RPP.	Semi-annual	JIRAMA data system.	JIRAMA
Installation of Management Information System (MIS) at JIRAMA, and populated with data (Text)	Unit: Text This indicator measures whether the MIS (including CMS, IDMS, ERP, and GIS) have been installed and populated with updated data.	Semi-annual	Project progress report.	JIRAMA
Distribution lines constructed or rehabilitated under the project	Unit: km This indicator measures the length of the distribution lines constructed or rehabilitated/upgraded under the project.	Semiannual	Project progress report.	JIRAMA
Distribution lines constructed under the project	Unit: km This indicator measures the length of the distribution lines constructed under the project.	Semiannual	Project progress report.	JIRAMA

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Distribution lines rehabilitated under the project	Unit: km This indicator measures the length of the distribution lines rehabilitated/upgraded under the project.	Semi-annual	Project progress report.	JIRAMA
Transmission lines constructed under the project	Unit: km This indicator measures the length of the transmission lines constructed under the project.	Semi-annual	Project progress report.	JIRAMA
JIRAMA customer satisfaction survey undertaken in project area and report on customer feedback and how it was addressed by JIRAMA (Text)	Unit: Text This indicator measures whether JIRAMA has designed and administered a customer satisfaction survey and taken into account feedback received.	Semi-annual	JIRAMA report.	JIRAMA
Time taken for first disbursement of funds requested by Government for an eligible emergency or crisis (weeks)	Unit: weeks This indicator will measure effectiveness of the instrument to provide rapid access to financing to Madagascar in the event of an eligible emergency or crisis. Time will be measured from the moment the Bank receives the Government's request for assistance.	Annual	Project progress report	JIRAMA

Annex 2: Detailed Project Description

MADAGASCAR: ELECTRICITY SECTOR OPERATIONS AND GOVERNANCE IMPROVEMENT PROJECT

1. ESOGIP will provide support to key sector institutions to improve electricity sector planning and address sector financial sustainability. Support will also be provided to strengthen the governance and operational performance of JIRAMA. The proposed project has five components as described below.

Component 1. Improving electricity sector planning and financial sustainability (US\$2.48 million equivalent)

2. This component will finance a combination of capacity building, action plans, roadmaps, and studies that will: (i) ensure planning of the optimum investments needed to develop the power sector in Madagascar, from electricity generation to the effective connection of end users, together with a “glide path” for recovering costs; (ii) define mechanisms for effective implementation of the outcomes of the planning process; and (iii) strengthen in a sustainable manner the capacity of the Government agencies responsible for planning the power sector and implementation of the outcomes of the planning process. In order to meet these objectives, the component will support the following activities:

- ***Preparation of a Least Cost Power Development Plan (LCPDP) (US\$0.5 million).*** The Government is in need of an updated roadmap for the development of the country’s electricity sector over the next 15-20 years. To this end, the project will support consultancy services for MEH to lead the preparation of a LCPDP in order to define the investments needed in all the segments of the electricity supply chain (from generation, transmission, and distribution to consumers’ connection). The LCPDP will start from reliable demand forecasts, based on an update of existing projections, priorities in areas to be electrified, and type of electricity services to be provided (including transitory stages until full electrification is achieved). Other key inputs are the scenarios to be defined by the Government in terms of energy mix for electricity generation (hydropower and other traditional resources, renewables, etc.). The Studies and Planning Department in MEH will be responsible for and lead the preparation of the LCPDP, with technical support from JIRAMA, ADER, and ORE. Discussions are ongoing with MEH on how to best operationalize the LCPDP so that once the options have been identified, decisions regarding investments on additional generation capacity will be made on the basis of this plan, and selection of private partners done on the basis of competitive procedures.
- ***Definition of a Strategy and Action Plans to Increase Electricity Access (US\$0.23 million).*** Complementary to the LCPDP will be the definition of action plans to increase access to electricity services (“electrification”) until full grid coverage country-wide is achieved. The definition of a strategy for electrification of the country is a Government responsibility and should comprise setting priorities, ensuring funding (grants, loans, national budget, tariff revenues, etc.), defining optimum technical solutions for specific situations, and putting in place implementation arrangements (roles and responsibilities of Government agencies, the national utility, etc.). Best technical solutions and implementation arrangements for electrification in urban and peri-urban areas could be different from the most adequate for rural areas. This component will finance consultancy services required for the definition of a strategy and action plans to increase electricity access in the whole Madagascar, both on-grid and off-grid.

- ***Preparation of Studies to Address Sector Financial Viability (US\$0.35 million).*** The component will finance the execution of studies needed to improve the pricing system for electricity services in Madagascar in order to ensure the financial viability of the power sector. The “steady state” to be achieved in terms of financial viability of the power sector is the application of a tariff system, eventually complemented by a social safety net aimed at protecting low income consumers (i.e., targeting subsidies to those who cannot afford to pay cost-reflective rates), resulting in revenues that allow the utility to ensure full recovery of ***total*** costs of ***efficient*** service provision. However, it may be necessary to adopt a phased approach, as the application of the “steady state” may not be viable in the short term, either due to a gap between the current low average tariff level and that required to recover efficient costs of service provision, and/or due to the fact that the cost-reflective average tariff level could be higher than the consumers’ current average ability to pay for electricity service. The component will support consultancy services to (i) assess current average ability to pay for electricity services and determination of the most adequate methodology for tariff setting to be applied in the short and medium term; and (ii) design of a socially and politically acceptable “glide path” for the effective application of the proposed methodology and related tariff charges, eventually complemented by a social safety net aimed at protecting low income users unable to pay cost reflective rates. The assessment should also address the level of support needed from the Government budget and its affordability to the Government.
- ***Strengthening the capacity of public agencies responsible for planning and Implementation of the Electrification Strategy (US\$0.4 million).*** The component will include capacity building and technical assistance actions aimed at strengthening the institutional and operational capacity of MEH and other ministry agencies responsible for planning and implementation of the electrification strategy to ensure that they are able to effectively carry out those critical tasks on a long-term basis.
- ***Other complementary technical assistance (US\$1 million).*** This component will finance complementary technical assistance and any tools that will be needed for implementation of the LCPDP and/or the Electrification Strategy once these are available. Other areas for support could include advice on how to green existing mini-grids predominantly powered by diesel.

Component 2. Strengthening operational performance and governance of JIRAMA (US\$12.56 million equivalent)

3. This component will comprise the preparation and effective implementation of a Management Improvement Plan (MIP) for JIRAMA for a three-year period, focused on improving efficiency, transparency, and accountability of JIRAMA’s performance in the key operations areas of electricity supply, commercial functions, and management of corporate resources in a sustainable manner, with specific emphasis on better service quality and non-technical loss reduction. The component will support JIRAMA to implement actions in these areas. Key activities under this component include:

- ***Preparation of MIP for JIRAMA (US\$0.16 million).*** The MIP is in the final stages of preparation supported by the PPA. It will provide a basis to guide project interventions. The MIP will provide a roadmap for implementation of an optimal organizational structure for JIRAMA (including description of functions and responsibilities of positions

at all levels and definition of skills required for each position), followed by the selection of staff to occupy top management positions through competitive and transparent processes, with the support of specialized consultants. The MIP will include the incorporation of modern, integrated management information systems at JIRAMA to provide the tools for management and staff to better run the company and the sector. The MIP will also address the implementation of an RPP and urgent investment needs in rehabilitation and upgrade of facilities to reduce technical losses and bring service quality to acceptable levels (see Component 3).

- **Implementation of JIRAMA organizational structure (US\$0.4 million).** Based on the recommendations in the MIP, this component will support implementation of the recommended organizational structure for JIRAMA. Support will be provided for the services of specialized consultants that will support the company in selection of staff to occupy positions at the top management level through competitive and transparent (publicly disclosed) processes. Specific support for communications strategy and change management will also be included. The MIP is at final stages of preparation, and the consultant in charge of the assignment will make specific recommendations on the communication strategy. A specialized firm will be hired for that purpose, together with the company to support the process to select and appoint staff in management positions. Costs of both services are included under support to implementation of the MIP.
- **Incorporation of management information systems (MIS) (US\$9 million).** In line with the MIP, the component will support the purchase and installation of the MIS, which will include a commercial management system (CMS), an integrated distribution management system (IDMS), and an enterprise resource planning (ERP) system, to make more efficient, transparent, and accountable the development of processes and activities in all business areas. This includes operation and maintenance (O&M) of assets for electricity supply, attention to customer claims, commercial functions, and management of corporate resources. The installation and use of the MIS must be complemented with the update of respective databases (customers, assets, etc.) supported by a geographic information system (GIS). Some limited investment may be needed in support infrastructure and in rehabilitation of existing buildings.
- **Implementation of a revenue protection program (RPP) (US\$3 million).** The component will further support the implementation of a RPP for sustainable reduction of non-technical losses in supply (unmetered consumption) through systematic remote recording and monitoring of consumption of large users as designed in the MIP.

The main objective of the RPP is to protect JIRAMA's revenues from sales to its large customers, ensuring that all users in that "high value" segment are permanently billed according to their accurately metered full consumption.

The "ABC or Pareto effect" in the composition of the market served by JIRAMA is impressive in quantitative terms: around one percent of the total number of customers (all users supplied in MV and the largest consumers in LV) represent just over 50 percent of total kWh currently billed. Sustainable protection of the revenues generated by consumers in that "high value" segment becomes a key task for JIRAMA's operational and financial sustainability. This starts by ensuring permanent billing of all the large customers according to their actual fully metered consumption ("zero non-technical losses").

Relevant experiences in several developing countries show that the sustainable recovery and protection of the revenues generated by the large customers can be achieved by managing their consumption (metering, reading and billing) through advanced metering infrastructure (AMI). This refers to the installation at each customer's premises included in the program of consumption metering systems including communication devices that make possible to periodically transmit their records to remote points where they are systematically analyzed, processed, and monitored by staff of organizational units, known as Metering Control Centers (MCCs), created for that specific purpose, with the support of software packages, i.e., Meter Data Management (MDM), designed to monitor, timely detect and correct any eventual irregular condition in electricity use.

The RPP to be implemented by JIRAMA will learn from other country's experiences adapting it to the local context and will comprise: (i) installation/relocation of AMI infrastructure (consumption metering systems and devices for remote communication) at the customer's premises of around 6,000 users with recorded monthly consumption above 1,000 kWh; (ii) creation of the MCC as a new organizational unit within the company; and (iii) incorporation of a state-of-the-art MDM software package and training of the operators of the MCC in its systematic use for monitoring consumption of all large customers targeted by the RPP. Commercial losses in JIRAMA are about 20 percent of its total energy purchases. As implementation of the RPP will protect on a permanent manner at least 50 percent of total current JIRAMA's sales and make possible to eliminate in a permanent manner the unmetered consumption in electricity supply to the targeted large consumers, it is expected to have a significant impact on the sustainable reduction of the company's total commercial losses. Lower commercial losses imply a combined increase in energy sales and reduction of electricity generation, both contribution to significantly improve JIRAMA's financial performance. RPP will also enable the load profiling of electricity consumers, which is a key input to improve both service quality (outages and other problems in supply are immediately detected) and accuracy of load forecasting for planning purposes.

Component 3. Investing in enhanced reliability of electricity (US\$48.62 million equivalent)

4. This component will finance priority investments regarding the reinforcement of an existing 138/63kV substation, the construction of new 63kV transmission lines for the looping of the network, the rehabilitation and/or reinforcement of distribution networks in the capital city Antananarivo, and the upgrading of existing distribution systems in selected districts of the country in order to increase the reliability of the networks. This component will also provide financing for the rehabilitation of auxiliaries of generation plants, and for the design and supervision of works. The component will include:

- ***Reinforcement of existing 138/63 kV substation and construction of 63kV transmission lines (US\$10.67 million).*** This concerns the reinforcement of existing transmission infrastructure and the construction of new 63kV transmission lines as follows: (i) installation of 2 x 60MVA 138/63kV transformers and auxiliaries at the existing substation of Ambohimambola; (ii) construction of about 25 km of lines that will connect the substations of Tana Nord and Tana Sud; and (iii) construction of about 8 km of lines between the substations of Tana Nord and Ambodivona.

- ***Rehabilitation and/or upgrading of existing distribution networks (US\$34.5 million).*** This comprises the replacement of 20/0.4kV overloaded transformers by new transformers with adequate capacities, and the installation of associated accessories and switchgear; the construction of 20kV lines; the installation of distribution sub-stations with primary voltage 20kV; and the replacement of around 130 5/0.4kV pole mounted transformers and of insulators, accessories, and conductors in about 144 km of existing 5 kV lines to upgrade the infrastructure to operate in 20kV. In addition, this component will finance the installation of about 4240 new wooden poles to replace existing ones in bad condition and rehabilitate distribution networks.²³ The component will also finance the installation of metering systems.
- ***Rehabilitation of auxiliaries of generation plants (US\$2.45 million).*** This comprises purchasing spare parts necessary for the rehabilitation of the fuel supply and treatment system of JIRAMA's existing heavy fuel oil (HFO) plants in order to ensure that lower cost HFO could be used to run the engines of these plants. In addition, this component will finance the installation of a motorized bar screen in Andekaleka hydro plant to evacuate plant debris in the water intake. Moreover, this component includes the rehabilitation and commissioning of the alternator of one unit at Antelomita small hydro plant to increase its installed capacity.
- ***Technical Assistance (US\$1 million).*** This component will finance the hiring of consultants to support JIRAMA to finalize the design of the activities, to prepare the bidding documents, and to supervise the implementation of transmission and distribution works.

Component 4. Project Management (US\$1.34 million equivalent)

5. This component will support project management related issues. Support will be provided to both MEH and JIRAMA.

- ***Component 4.1. Project Management at MEH (US\$0.60 million).*** This subcomponent will finance the recruitment of project staff, including a financial management specialist and a procurement specialist. In addition, this component will include the financing of the project audits and financial management software, training, purchasing of selected office and IT equipment, training and financing of incremental operating costs.
- ***Component 4.2. Project Management at JIRAMA (US\$0.74 million).*** This subcomponent will finance the recruitment of social and environmental safeguards experts to provide support to JIRAMA to prepare and monitor the project safeguards studies. It also includes support for the design and implementation of the customer satisfaction survey. In addition, this subcomponent includes financing for purchasing of selected office and IT equipment and incremental operating costs. Moreover, this component will provide financing for capacity building through training for JIRAMA staff.

²³ Works will be implemented, namely the regions of Analamanga, Vakinankaratra, Alaotra Mangoro, Diana, Sava, Boeny, Sofia, Betsiboka, Androy, Atsimo Andrefana, Antsinanana, Analanjirofo, Menabe, Haute Matsiatra, Vatovavy Fito Vinany, Ihorombe, or any other areas on which the Bank may agree in writing with the Government.

Component 5. Contingent Emergency Response (US\$0 million)

6. This component will be providing immediate response to an eligible crisis or emergency, as needed. This would finance emergency works in case of a disaster event by including a “zero-dollar” Contingency Emergency Response Component (CERC). Following an adverse event that causes a major disaster, the Government may request the Bank to channel resources from this component into an Immediate Response Mechanism (IRM). The IRM would enable the use of a portion of uncommitted funds from the overall IDA portfolio to respond to emergencies. Specific details around this component (including activation criteria, eligible expenditures, and specific implementation arrangements as well as required staffing for the Coordinating Authority) will be defined in greater detail in the IRM Operations Manual, which will go through a consultation and clearance process.

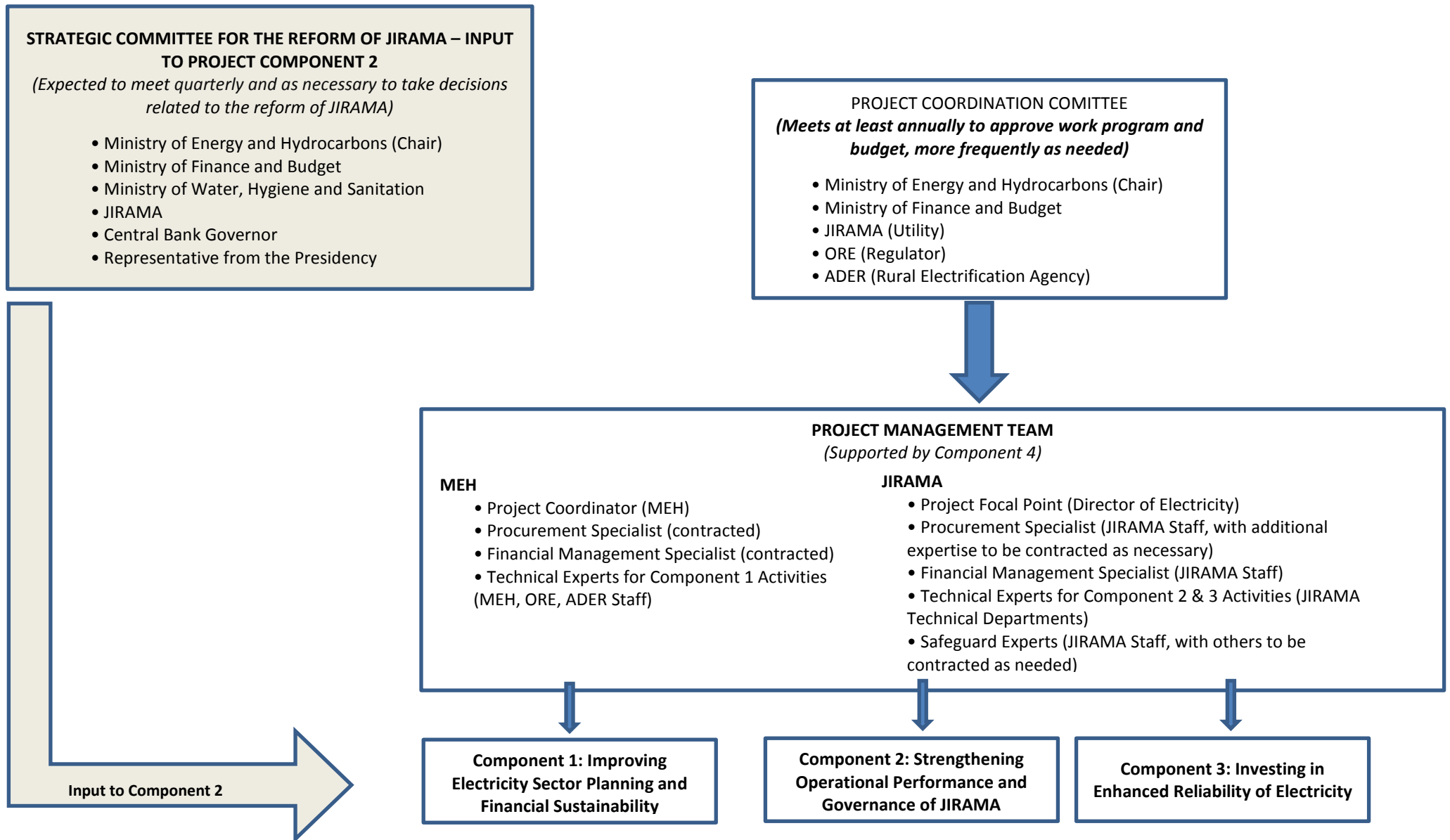
Annex 3: Implementation Arrangements

MADAGASCAR: ELECTRICITY SECTOR OPERATIONS AND GOVERNANCE IMPROVEMENT PROJECT

Project Institutional and Implementation Arrangements

1. The project will be implemented under the overall responsibility of the Ministry of Energy and Hydrocarbons (MEH). As the institution with the overall policy oversight for the sector, MEH will have the ultimate responsibility for coordination and implementation of the project. Since the project touches on planning, operations, and regulation and not simply investments in JIRAMA, MEH is the natural leader for the project. Implementing reforms at JIRAMA will also require explicit and strong ownership and direction from Government, as the company's owner.
2. The Project Coordinator will be based at MEH. MEH will also be responsible for the implementation of Component 1. While technical capacity at MEH is good, since MEH does not have previous experience implementing World Bank projects, procurement and financial management staff (hired with the support of the PPA) are supporting MEH and, at the request of MEH, will work to train MEH staff in these functions. JIRAMA, which has previous experience implementing World Bank projects, will be responsible for the implementation of Components 2 and 3. A project focal point at JIRAMA has been appointed, and existing procurement, financial, and technical staff will take the lead in implementing activities under Components 2 and 3 activities and in reporting to the project coordinator in MEH.
3. Component 4 will support project management. While existing capacity at MEH and JIRAMA is considered adequate, training for existing staff will be supported and additional expertise will be contracted as necessary. The two implementing agencies will manage procurement, financial flows, and environmental and social safeguards matters as necessary for their respective components. Project progress reporting will be consolidated by the Project Coordinator at MEH, and information will be shared with the Project Coordination Committee as needed and with the World Bank in accordance with the agreed project reporting requirements.
4. A Project Coordination Committee, chaired by MEH with members from relevant institutions, including JIRAMA, ORE, ADER, and the Ministry of Finance and Budget, will be responsible for providing guidance and advice on alignment with sector policy as well as to provide guidance on implementation of the project, and ensure overall governance and fiduciary oversight of the project. The Project Coordination Committee will meet at least once per year to approve the project's annual work plan and budget, and more frequently as necessary.
5. The Government has also established a Strategic Committee for the Reform of JIRAMA. This Committee is comprised of representatives from MEH, the Ministry of Water, the Ministry of Finance and Budget, the Central Bank, JIRAMA, and the Presidency. This Committee is responsible for driving the reform of JIRAMA and approving any plans, decisions, and actions related to the reform of JIRAMA, and it will actively supervise the implementation of the MIP.
6. The project implementation arrangements, including the role of the Strategic Committee, are shown in Figure 3.1.

Figure 3.1 – Project Implementation Arrangements



Financial Management, Disbursements and Procurement

Financial Management

7. **Country Public Financial Management Situation and Use of Country System.** The project will be implemented in an environment where the overall country fiduciary risks including fraud and corruption risks are high. The Government intends to mainstream the project into existing Government structures and use the country public financial management (PFM) systems to reduce the multiplicity of processes, procedures and information systems, which increase workload and undermine the strengthening of country systems. A recent country PFM review identified some weaknesses that could negatively affect the smooth implementation of the project in case the country PFM system is fully used. Other risks include the number of implementing agencies. A number of these risks will be directly addressed as part of the design of the project. The project will opt for the gradual use of the country PFM systems using a risk-based approach. Additional mitigation measures include: (i) the development of a project manual which will provide clarity of role and responsibility as well as the process to implement and report on project activities; (ii) the strengthening of the control environment, and monitoring and evaluation systems; and (iii) the frequency of the Bank implementation support.

8. The proposed financial management and disbursements arrangements complies with the Financial Management Manual for World Bank-financed Investment Operations dated March 1, 2010. MEH and JIRAMA will be in charge of the implementation of their respective components (Component 1 for MEH and Components 2 and 3 for JIRAMA) and MEH will assume the ultimate responsibility for the coordination and the implementation of the project. MEH and JIRAMA financial management system have been assessed to determine whether (i) the financial management arrangements are adequate to ensure that the project funds will be used for its intended purposes in an efficient and economical way; (ii) the financial reports will be prepared timely with accuracy and reliability; and (iii) the project's assets will be safeguarded. The assessment concludes that MEH and JIRAMA's financial management system are adequate and complies the Bank's minimum requirements under OP/BP10.00, subject to the effective implementation of the mitigation measures described in the paragraph below.

9. The overall fiduciary risk for the project has been assessed as **Substantial** and the proposed mitigation measures are: (i) MEH will recruit a qualified accountant to second the Financial management specialist already recruited and who is managing the PPA; (ii) an operational manual is designed and describe the role and responsibility of each implementing entity and the applicable fiduciary procedures; (iii) the IFMIS will be set up both at MEH and JIRAMA with the ability to consolidate implementing entities financial data; (iv) the audit of the project annual financial statement by a reputable auditing firm according the ToRs agreed upon with the Bank; (v) the audit of JIRAMA's annual financial statements according the ToRs agreed upon with the Bank.

10. **FM Conditions and FM covenants.** The FM conditions and FM covenants are as follows:

- a) The recruitment of an external audit firm for project financial statement (6 months after the project's effectiveness);
- b) The recruitment or appointment of a qualified accountant at the implementing entity at the MEH to second the Financial Management Specialist (3 months after the project's effectiveness);

Table 3.1 Financial Management Risks

Risk	Risk Mitigating Measures Incorporated into Project Design	Residual Risk/(Risk) rating	Preparation/ Implementation
Inherent risk		High	
Country level PFM reform is experiencing implementation delay and weaknesses identified by the PEFA 2014 in PFM cycle generate the risk of lack of transparency and accountability in the use of public funds	Implement PFM reform agenda with the support of World bank and others donors (African Development Bank and European Union).	High	Preparation/ implementation
Entity level MEH is not experienced in the management of donor funded projects	Rely on the external qualified staff recruited to ensure the fiduciary responsibility of MEH	Substantial	Implementation
Project level Lack of coordination between MEH and JIRAMA	Describe the role and responsibility of each implementing entity in the operational manual and ensure its implementations during the supervision	Substantial	Preparation/ Implementation
Control Risk		Substantial	
Budgeting Delay in preparing yearly budget and inappropriate monitoring of budget execution resulting in delay in achieving project's objectives.	Follow strictly budget procedures and timeline as per administrative and financial manual of procedures. Ensure that the annual work program is in line with the procurement plan to prevent any delay due to the procurement process (mainly for the rehabilitation component). Track budget variances and take proactive decisions	Moderate	Implementation Implementation Implementation
Accounting Lack of capacity in the financial management of World Bank financed project which will result in delay and inaccuracies in recording financial transactions.	Provide training to MEH and JIRAMA fiduciary staff	Moderate	Implementation
Internal Controls and Internal audit Ineffective audit function	Provide support to the JIRAMA internal audit unit to strengthen its capacity and ability to perform the risk based approach audit	Substantial	Implementation
Funds Flow Risk of delay in the disbursement of the funds due to the location of the designated account at the	Open a Designated Account at the Central Bank Provide support the Government to identify and mitigate the risk of the transfer of the	Substantial	Preparation/ Implementation

Risk	Risk Mitigating Measures Incorporated into Project Design	Residual Risk/(Risk) rating	Preparation/ Implementation
Central Bank	funds to the Central Bank (dedicated unit for donors funded projects at the Central Bank etc.)		Preparation/ Implementation
Financial Reporting and Monitoring Unreliable IFRs and delay in submitting the IFRs	Set up an information system with the consolidation module and able to produce the IFRs according to the format agreed with the World Bank	Substantial	Preparation/ Implementation
External Auditing Inadequate audit opinion	Recruit qualified and independent external auditors under ToRs satisfactory to the Bank. The audit will be performed according to internationally recognized standards, the scope and the objectives of the audit tailored to the particularity of the project.	Moderate	Implementation
Fraud & Corruption Risk of fraud & corruption in the contracts management	Ensure that the grievance redress mechanism is part of the project	Moderate	Implementation
Overall Risk		Substantial	

11. **Overall residual risk.** The overall residual risk rating is **Substantial**.

12. **Strengths.** JIRAMA is experienced in the management of the World Bank financed project.

13. **Staffing.** The MEH implementing entity and JIRAMA is staffed with qualified fiduciary staff. At MEH, one financial management specialist has been recruited to manage the PPA. At JIRAMA, the project fiduciary management staff are comprised of one Financial Management Specialist, one accountant, and one disbursement assistant experienced in World Bank financed project procedures. The JIRAMA fiduciary staff are not paid from project funds, but on JIRAMA resources. Given the coordination role to be played by MEH, one additional account will be recruited according to the ToRs acceptable to the Bank to second the Financial Management Specialist. At the project launching, World Bank financial management specialist will provide training to the project's fiduciary staff on the World Bank financed project financial procedures.

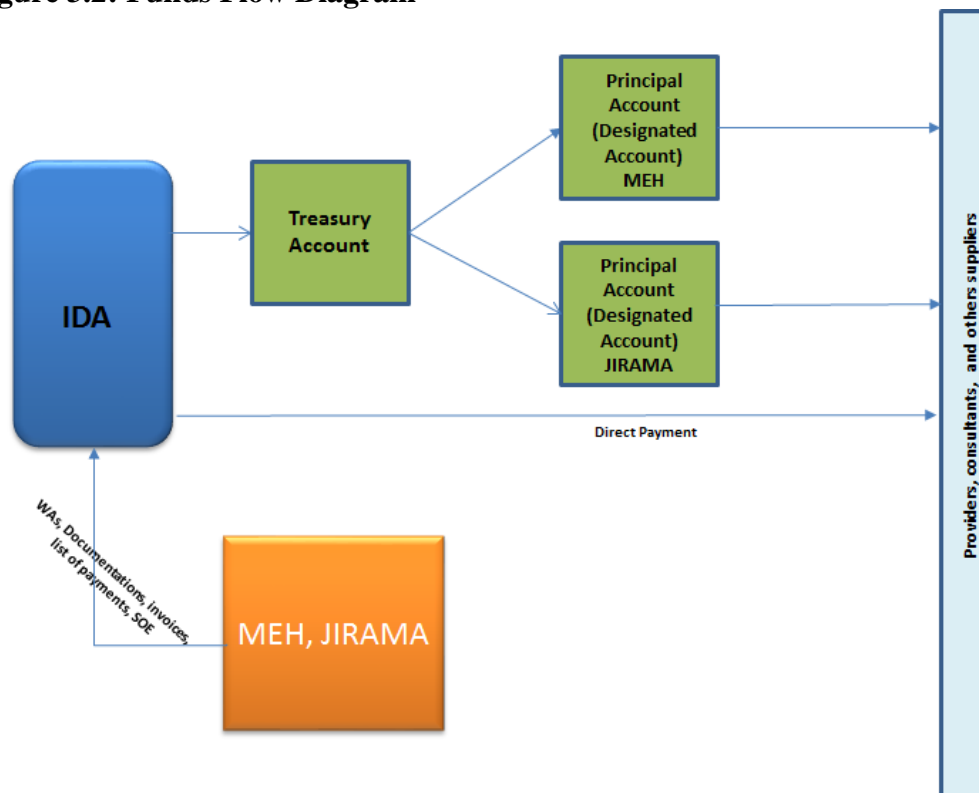
14. **Budgeting.** The MEH implementing entity and JIRAMA will prepare the annual budget for their respective components, but MEH will be in charge of the consolidation of these budgets. The budget information will be prepared in line with the regular Government annual budget preparation cycle. The annual budget will be sent to the Ministry of Finance and Budget for consolidation into the national budget. The budget planning and execution procedures will be further detailed in the project's operational manual.

15. **Accounting.** The project accounting records will be maintained on a modified accruals cash basis with disclosure of commitments and in accordance with the National Accounting Standards. All information on the budget execution will be entered ex-post in the Government public financial management system (*Gestion Finances Publiques*). To that end, MEH will send the budget execution report to the Ministry of Finance and Budget.

16. **Disbursement Arrangements.** Disbursements will be made in accordance with the *World Bank Disbursement Guidelines for Projects*, dated May 1, 2006. The financing proceeds will be disbursed using the four disbursement methods available to the project – reimbursement, advance, direct payment and special commitment. As per the decree on external debt management signed on October 2015, two designated accounts will be opened at the Central Bank, one for the MEH implementing entity and one for JIRAMA denominated in USD. In line with decree no. 2015-1457 dated 27/10/2015, the funds will flow from the World Bank to the Treasury account and transferred to the Designated accounts (or “principal account”) opened at the Central Bank in Ariary or USD and managed by the project team (coordinator jointly with the Financial Management Specialists at MEH and JIRAMA). The two DAs will receive an initial advance up the ceiling amounts of USD 250,000 for DA-A (MEH) and USD 4,600,000 for DA-B (JIRAMA), equivalent to four month of forecasted expenditure and will be replenished regularly through monthly Withdrawal Applications supported with Statements of Expenditures. Direct payments may be made to service providers at the request of the Borrower. The funds flow diagram is below.

17. For activities under the Contingent Emergency Response Component (CERC- Component 5), disbursement will be subject to the conditions precedent to accessing the CERC funds, namely that the Recipient has provided, and the Bank has accepted, evidence of the occurrence of an eligible crisis or emergency and the Recipient has prepared and adopted/adhered to the IRM Operations Manual. Disbursements under this component will follow procedures described in the IRM Manual including supporting documentation.

Figure 3.2: Funds Flow Diagram



18. **Disbursements by category.** The table below sets out the expenditure categories and percentage of eligible expenditures to be financed out of the Financing proceeds taking into account the prevailing Country Financing Parameter for Madagascar.

Category	Amount of the Financing Allocated (expressed in USD)	Percentage of Expenditures to be Financed (inclusive of Taxes)
(1) Goods, works, non-consulting services, consultants' services, Training and Operational Costs for Component 1 and 4.1	1,880,000	100%
(2) Goods, works, non-consulting services, consultants' services, Training and Operational Costs for Component 2, 3 and 4.2	61,790,000	100%
(3) Refund of Project Preparation Advance (Q941)	1,330,000	Amount payable pursuant to Section 2.07 of the General Conditions
(4) Emergency expenditures under Component 5	-	100%
TOTAL AMOUNT	65,000,000	

19. **Internal controls and Internal audit.** Internal controls will comprise, but not limited to the following: division of responsibilities between the implementing entities, segregation of duties, periodic reconciliation of accounting and reporting data. The details on internal controls will be provided in the project operational manual. Regarding the Internal audit, the *Direction Generale de l'Audit Interne* within the Ministry of Finances will be responsible for the internal audit of the project's activities. The Internal audit unit of JIRAMA will be also strengthened to carry out risk based audit covering activities related to the components implemented by JIRAMA.

20. **Reporting.** The project will be reporting to the Bank on quarterly basis in the form of the Interim Unaudited Financial Reports (IFRs) which format was agreed with the Bank. The IFRs will be submitted to the World Bank within 45 days after the end of each reporting period and will comprise: (i) the statement of resources and use of funds, (ii) the statement of use of funds per component or activity, (iii) the designated account reconciliation statement, and (iv) the budget execution report.

21. **External financial Audit.** The external audit of the project financial statements will be carried out by contracted external auditors with the audit ToRs agreed with the Bank and the Court of Account may be involved in the audit process for information and capacity building purpose. JIRAMA as an entity will also produce its annual financial statement audit reports; the

said audit will be performed by an auditor acceptable to the Bank with the ToRs agree upon with the Bank.

22. **Financial Management Conditions and Covenants.** Financial covenants are summarized as follows:

Action	Responsible	Timeline
Recruit an external auditor upon ToRs acceptable to the Bank to audit the project financial statement	MEH	6 months after effectiveness
Provide training on World Bank financial management procedures	WB	On need basis

23. **Conclusions of the FM Assessment.** The overall residual FM risk is considered Substantial. The proposed financial management arrangements for this project are considered adequate subject to the implementation of the mitigation measures and met the Bank's minimum fiduciary requirements under OP/BP10.00.

24. **Implementation Support and Supervision Plan.** Financial management implementation support intensity and frequency will be in line with risk-based approach, and will involve a collaborative approach with the entire task team. A first implementation support mission will be performed two months after the project effectiveness. Afterwards, the missions will be scheduled by using the risk based approach model and will include the following diligences: (i) monitoring of the financial management arrangements during the supervision process at intervals determined by the risk rating assigned to the overall FM Assessment at entry and subsequently during implementation (based on Implementation Status and Results Reports); (ii) integrated fiduciary review on key contracts; (iii) review the IFRs; (iv) review the audit reports and management letters from the external auditors and follow-up on material accountability issues by engaging with the task team leader, client, and/or auditors; the quality of the audit (internal and external) is to be monitored closely to ensure that it covers all relevant aspects and provide enough confidence on the appropriate use of funds by recipients; and (v) others assistance to build or maintain appropriate financial management capacity and efficient internal control system.

Procurement

25. **General.** Procurement for the proposed project will be carried out in accordance with the World Bank's Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" Dated January 2011 and Revised July 2014; Consulting services would be procured following the Bank's Guidelines "Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" Dated January 2011 and Revised July 2014; and the provisions stipulated in the Financing Agreement. The World Bank Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credit and Grants dated October 15, 2006 and revised on January 2011, would also apply. The general description of various items under different expenditure categories is provided below. For each contract to be financed by the Grant/Credit, the different procurement methods or consultant selection methods, the need for

prequalification, estimated costs, prior review requirements, and time frame would be agreed between the Borrower and the Bank team and will be reflected in the Procurement Plan.

26. **Goods.** Goods to be procured under the project would include mainly equipment for investments in rehabilitation/upgrade of facilities for electricity supply and metering, equipment for reinforcement of distribution networks; supply and installation of generating units including power transformers switchgear and cable. Implementation by Independent Power producer maybe envisaged with a long-term power purchase agreement with JIRAMA and spare parts for conversion of diesel to heavy fuel-oil.
27. **Works.** Works to be procured under this project would include the rehabilitation and upgrading of energy distribution networks.
28. **Consultant Services.** These would include: advisory services in technical dimensions, design and implementation of institutional reforms in the areas of public financial management, accounting, public procurement, audit, strategic planning, human resources management, e-Government and change management of complex public administration reforms; design and delivery of training, capacity building and institutional strengthening programs; advisory services on communication, stakeholder consultation and collaboration mechanisms; project related reviews and surveys, project audit and services of individual consultants to support project coordination and implementation.
29. **Training.** The project will finance training programs for a large number of stakeholders, development of e-learning systems and study tours in areas the public financial management, accounting, public procurement, audit, strategic planning, human resources management, e-Government and change management of complex public administration reforms. The project teams at MEH and JIRAMA will develop a detailed training plan which will be approved by the Bank.
30. **Procurement methods.** Procurement of works, goods and non-consulting services will be conducted using the Bank's Standard Bidding Documents (SBD) for all ICB and a Sample Bidding Document for Procurement of Works and Goods following National Competitive Bidding (NCB) procedures for all NCB. The standard NCB provisions for Madagascar, as included in the Financing Agreement, would be applied to all the NCB contracts. The following methods will be used: International Competitive bidding (ICB), NCB, Shopping, Direct contracting and Force Account for installation of equipment carried out by JIRAMA (state-owned company). Selection methods for consulting firms will depend on the nature and complexity of assignments, interest to foreign firms and need for international expertise, together with the estimated budget of the services. The following methods will be used: Quality and Cost-Based Selection (QCBS), Least Cost Selection (LCS), Selection Based on Consultant's Qualification (CQS), Individual Consultants Selection (ICS) and Single-Source Selection (SSS). Short lists of consultants for services estimated to cost less than US\$300,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.
31. **Operational Costs.** Operating costs would include all expenses necessary to ensure proper implementation of the project, including but not limited to local travel, communication and bank charges. The quarterly budget for operating costs would be prepared by ESOGIP and cleared by the Bank.

Advertising Procedures

32. General Procurement Notice, Specific Procurement Notices, Requests for Expression of Interest, and results of the evaluation and contracts award should be published in accordance with advertising provisions in the following guidelines: “Guidelines: Procurement under IBRD Loans and IDA Grants” dated January 2011, and “Guidelines: Selection and Employment of Consultants by World Bank Borrowers” dated January 2011. The borrower will keep a list of received responses from potential bidders interested in the contracts.

Assessment of the agency’s capacity to implement procurement.

33. The capacity of the ESOGIP teams at MEH and JIRAMA for implementation of procurement activities were assessed in October 2015 and documented in the P-RAMS.²⁴ Procurement activities for the project will be carried out by the ESOGIP team at MEH and JIRAMA procurement unit. JIRAMA has established acceptable internal procurement procedures that meet Bank's procurement procedures and policies. Performance of the delivered operations has consistently been rated as satisfactory.

34. The overall project risk for procurement is rated ‘**High**’. After mitigation measures are implemented, the residual risk would be ‘**Substantial**’. The risks associated with procurement and the mitigation measures were identified in the assessment of the agency’s procurement capacity and are summarized in the table below.

Table 3.2 Procurement Risks

Description of Risk	Risk Rating	Mitigation Measures	Residual Risk Rating
Potential procurement delays: arrangements for clearance of evaluation reports with the ESOGIP may lead to procurement delays; Government officials from implementing partners-agencies, who would be involved in project procurement through Tender Committees may not be familiar with international procurement procedures; coordination problem.	H	(i) The Bank and MEH have agreed on a timeline to finalize tenders from bid document preparation to contract award. The Bank team will closely monitor adherence to the timeline; (ii) Intensive procurement training for Government staff, including Tender Committee members, involved in conducting procurement; (iii) Steering Committee of key stakeholders will be established.	S
Contract administration procedures may not be adequate to ensure efficient and timely contract implementation; contract amendments not processed diligently	H	More emphasis and training on appropriate contract management; regular physical inspections and compliance checks and quality control of the deliverables by the ESOGIP team at MEH.	S
Complaint resolution procedures not in place and nor effective	H	Compliant resolution procedure to be addressed in the Project Implementation Manual	S
Perceived level of corruption in the	H	Enforcement of public disclosure and	S

²⁴ The Procurement Risk Assessment and Management System (P-RAMS) is a comprehensive risk assessment and management tool designed for project teams to (i) identify control gaps and procurement risks, (ii) allocate project resources more efficiently, and (iii) monitor progress toward developing client capacity.

Description of Risk	Risk Rating	Mitigation Measures	Residual Risk Rating
country is high.		transparency provisions of the Bank's Guidelines; publishing contract awards and progress reports from the implementing entities on the Ministry of Finance and Budget and external Bank websites; Close Bank implementation supervision.	
OVERALL	H		S

Procurement Plan

35. The initial 18 month Procurement Plan agreed between the Borrower and the Bank was finalized on December 17, 2015. After the project is approved by the Board it will be published on the Ministry of Finance website and Bank's external website. The Procurement Plan would be updated in agreement with the Bank team at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity. The prior review thresholds set out in the Procurement Plan will be reviewed from time to time and revised as needed during the project implementation.

36. The thresholds for methods of procurement and prior review limits are detailed below.

Expenditure Category	Contract Value (USD)	Procurement Method	Bank Prior Review
Works	≥5,000,000	ICB	All the ICB contracts
	< 5,000,000	NCB	First 2 NCB contracts and all other NCB contracts above \$5,000,000
	≤ 100,000	Shopping	The 1st Shopping contract
	Irrespective of Value	DC	All DC contracts and amendment of contracts rising NCB contracts above \$5,000,000
Goods (including non-consulting services)	≥500,000	ICB	All the ICB contracts
	< 500,000	NCB	First 2 NCB contracts and all other NCB contracts above \$500,000
	≤ 100,000	Shopping	The 1st Shopping contract
	Irrespective of Value	DC	All DC contracts and amendment of contracts rising NCB contracts above \$500,000
Consultant Services	Irrespective of Value	QCBS, LCS, CQS*, SSS	All contracts above USD 200,000 for firms plus the 1st CQS contract regardless of value; all contracts above USD 50,000 for individuals; and all SSS contracts.

Expenditure Category	Contract Value (USD)	Procurement Method	Bank Prior Review
Notes:	ICB – International Competitive Bidding NCB – National Competitive Bidding DC – Direct Contracting QCBS – Quality and Cost Based Selection LCS – Least Cost Selection *CQS – Selection Based on Consultants’ Qualification would be followed depending on type of assignments for estimated value less than USD 300,000 SSS – Single Source Selection IC – Individual Consultant selection procedure		

Frequency of Procurement Supervision

37. In addition to the prior review supervision to be carried out from the World Bank country office, the capacity assessment of the Implementing Agency has recommended two supervision missions per year during which ex-post reviews would be conducted on a sample basis (20 percent in terms of number of contracts) for the contracts that are not subject to the Bank’s prior review. One post review report, which would include physical inspection of sample contracts, would be prepared each year. At least ten percent of the contracts would be physically inspected.

Disclosure

38. The following documents shall be disclosed on the Ministry of Finance and Budget and State Agency for Public Procurement websites: (i) procurement plan and updates; (ii) invitation for bids for goods and works for all ICB and NCB contracts; (iii) request for expression of interest for selection/hiring of consulting services; (iv) contract awards of goods and works procured following ICB/NCB procedures; (v) list of contracts/purchase orders placed following shopping procedure on quarterly basis; (vi) short list of consultants; (vii) contract award of all consultancy services; (viii) list of contracts following DC or CQS or SSS on a quarterly basis; and (ix) action taken report on the complaints received on a quarterly basis.

39. The following details shall be sent to the Bank for publishing in the Bank’s external website and United Nations Development Business²⁵: (i) invitation for bids for procurement of goods and works using ICB procedures and selected procurement irrespective of contract value; (ii) request for expression of interest for consulting services with estimated cost more than US\$300,000 and selected procurement irrespective of contract value; (iii) contract award details of all procurement of goods and works using ICB procedure; (iv) contract award details of all consultancy services with estimated cost more than US\$300,000; and (v) list of contracts/purchase orders placed following SSS or CQS or DC procedures on a quarterly basis.

²⁵ <https://www.devbusiness.com/>

Details of the Procurement Arrangements Involving International Competition

1. Goods, Works, and Non Consulting Services

(a) List of contract packages to be procured following ICB and direct contracting:

1	2	3	4	5	6	7	8	9
Ref. No.	Contract (Description)	Estimated Cost X \$1,000	Procurement Method	P-Q	Domestic Preference (yes/no)	Review by Bank (Prior / Post)	Expected Bid-Opening Date	Comments
1.	Improving electricity sector planning and financial sustainability							
2.	Strengthening the operational performance and governance of JIRAMA							
2.3	Related studies and works, supply and implementation of MIS	9,000	ICB	TBD	No	Prior	Feb 29, 2016	
2.4	Related studies, supply and implementation of RPP	3,000	ICB	No	No	Prior	Feb 29, 2016	
3.	Investing in enhanced reliability of electricity							
3.1	Urgent investments in rehabilitation/upgrade of facilities for electricity supply							
	Reinforcement of transformation 138/63KV							
	Supply and installation for the reinforcement of existing transmission RIA	10,670	ICB	Yes	No	Prior	March 17,2016	
3.2	Urgent investments in rehabilitation/upgrade of distribution networks including equipment							
	Equipment for distribution networks	24,020	Multiple ICB	No	No	Prior	April 15,2016	
	Supply of 7,360 concrete poles	2,700	ICB	No	No	Prior	April 29,2016	
	Works for rehabilitation/ upgrade of distribution networks	7,290	ICB	No	No	Prior	Sept 15,2016	
	Crane rental for JIRAMA force account works	520	NCB	No	No	Post	Nov 15,2016	
3.3	Conversion of Diesel to HFO							
	Parts for conversion of diesel to HFO							
	Supply of HFO spare parts	1,450	ICB	No	No	Prior	March 17,2016	
3.4	Rehabilitation/upgrade of existing production plants							
	Installation of a motorized bar screen in Andekaleka	600	ICB	No	No	Prior	April 1,2016	
	Rehabilitation and	400	ICB	No	No	Prior	March 30,	

	commissioning of an alternator in Antelomita						2016	
4.	Projet management							
4.1	MEH							
	Office and IT equipment	50						
	Operating costs	200						
4.2	JIRAMA							
	Office and IT equipment	30						
	Operating costs	110						
	TOTAL	60,040						

(b) ICB contracts estimated to cost above US\$5,000,000 for works and US\$500,000 for goods per contract and Direct contracting will be subject to prior review by the Bank.

2. Consulting Services

(a) *List of Consulting Assignments with short-list of international firms.*

2.1 Firms

1	2	3	4	5	6	7	8	9
Ref. No.	Contract (Description)	Estimated Cost X \$1,000	Selection Method	Prior and Post Review	Submission and Opening Date (T)	Financial Proposal Opening Date)	Contract Signature Date	Comments
1.	Improving electricity sector planning and financial sustainability							
1.1	Preparation of a Least Cost Power Development Plan (LCPDP) for the electricity sector							
	TA to MEH	500	QCBS	Prior			Oct 5,2015	
1.2	Definition of a strategy and action plans to increase electricity access countrywide							
	TA	200	QCBS	Prior	January 15, 2016	March 15, 2016	April 15, 2016	
1.3	Studies to address Sector Financial Viability							
	Tariff study	250	QCBS	Prior			Nov 10,2015	
1.4	Strengthening the capacity of Government agencies responsible of planning							
	TA and capacity building	500	TBD	Prior	TBD	TBD	TBD	
1.5	Other complementary technical assistance							
	TA for LCPDP and access strategy implementation	1,000	TBD	Prior	TBD	TBD	TBD	
2.	Strengthening the operational performance and governance of JIRAMA							
2.1	Preparation of MIP for JIRAMA							
2.2	Implementation of JIRAMA organizational structure							
	TA	400	QCBS	Prior	TBD	TBD	TBD	
2.3	Incorporation of management information system							

2.4	Implementation of revenue protection program							
3.	Investing in enhanced reliability of electricity							
3.6	Preparation of Bidding documents and works supervision							
	JIRAMA Preparation of BD and works supervision	1,000	QCBS	Prior	May 15,2016	July 3,2016	July 15,2016	
4.	Project management							
4.1	MEH							
	Financial audit	150	QCBS	Prior	Dec 18,2015	Jan 29,2016	Feb 22,2016	
	Financial management software	PM					Done	
4.2	JIRAMA							
	Environmental and social studies	600	QCBS	Prior	June 13,2016	August 1,2016	TBD	
	Customer satisfaction survey	60	CQS	Post	TBD	TBD	TBD	
	TOTAL	4,660						

2.2. Individual Consultants Contract

1	2	3	4	5	6	7	8	9
Ref. No.	Contract (Description)	Estimated Cost X \$1,000	Selection Method	Prior and Post Review	Submission and Opening Date (T)	Financial Proposal Opening Date)	Contract Signature Date	Comments
1.	Improving electricity sector planning and financial sustainability							
2.	Strengthening the operational performance and governance of JIRAMA							
2.1	Preparation of a management Improvement Plan for JIRAMA							
	Complementary TA	100	ICS	Prior			Jun 2015	
3.	Investing in enhanced reliability of electricity							
4.	Project management							
4.1	MEH							
	Procurement specialist	100	ICS/SSS	Prior	TBD	TBD	TBD	
	Financial management specialist	100	ICS/SSS	Prior	TBD	TBD	TBD	
	TOTAL	300						

(b) **Prior review:** (a) each contract estimated to cost more than US\$200,000 per contract for Firms and US\$50,000 per contract for individuals consultants; (b) all single source selection; (c) all training; and (d) all amendments of contracts raising the initial contract value by more than 15 percent of original amount or above the prior review thresholds will be subject to IDA prior review mandatory in paragraphs 2 and 3 of Annex 1 of the Bank's Consultants selection Guidelines.

(c) **Short lists composed entirely of national consultants:** Short lists of consultants for services estimated to cost less than US\$100,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

(d) **Post review:** For each contracts for services not submitted to the prior review, the procurement documents will be submitted to IDA post review in accordance with the provisions of paragraph 4 of Annex 1 of the Bank's Consultant selection Guidelines. The post review will be based on a ratio of at least one to five contracts.

Madagascar NCB Exceptions (Based on the Procurement Guidelines as revised Jan. 2011)

General

1. The procedures to be followed for National Competitive Bidding (NCB) shall be those set forth in "Law no. 2004-009 of July 2004 portant Code des Marchés Publics"—the Public Procurement Law (PPL)—with the modifications described in the following paragraphs.

Eligibility

2. The eligibility of bidders shall be as defined under Section I of the Procurement Guidelines; accordingly, no bidder or potential bidder shall be declared ineligible for contracts financed by the Association for reasons other than those provided in Section I of the Procurement Guidelines. The requirement of producing a registration number (*Numéro d'Immatriculation*) for any bidder to participate in the bidding process shall not be interpreted as a prior requirement to any sort of local registration, license, or authorization.

3. Government-owned enterprises or institutions of the Republic of Madagascar shall be eligible to participate in the bidding process, only if they can establish that they are legally and financially autonomous, operate under commercial law, and are not dependent agencies of the Borrower or Sub-Borrower.

Bidding Documents

4. Standard bidding documents acceptable to the Association shall be used so as to ensure economy, efficiency, transparency, and consistency with the provisions of Section I of the Procurement Guidelines.

Participation by Joint Ventures

5. Participation shall be allowed from joint ventures on condition that such joint venture partners will be jointly and severally liable for their obligations under the Contract. Therefore, the "*Groupement Conjoint*," as set forth in the PPL, shall not be allowed under NCB.

Preferences

6. No domestic/regional preference, or any other kind of preferential treatment, shall be given for domestic/regional bidders, and/or for domestically/regionally manufactured goods, and/or for

domestically/regionally originated related services.

Applicable Procurement Method

7. Subject to these provisions, procurement shall be carried out in accordance with the “Open Competitive Bidding” method (Appel d’offres ouvert) set forth in the PPL.

Qualification

8. Qualification criteria shall entirely concern the bidder’s capability and resources to perform the contract, taking into account objective and measurable factors. The qualification criteria shall be clearly specified in the bidding documents, and all criteria so specified, and only such criteria so specified shall be used to determine whether a bidder is qualified. Qualification criteria shall be assessed on a “pass or fail” basis, and merit points shall not be used. Bidders’ qualifications shall be assessed by post-qualification.

Fees for Bidding Documents

9. If a fee is charged for the bidding documents, it shall be reasonable and reflect only the cost of their typing, printing or publishing, and delivery to prospective bidders, and it shall not be so high as to discourage bidders’ participation in the bidding process. Bids may be submitted by electronic means only provided that the Association is satisfied with the adequacy of the system, including, inter alia, that the system is secure, maintains the integrity, confidentiality, and authenticity of the bids submitted, and uses an electronic signature system or equivalent to keep bidders bound to their bids.

Bid Validity and Extension of Bid Validity

10. The bid validity period required by the bidding documents shall be sufficient to complete the evaluation of bids and obtain any approval that may be required. If justified by exceptional circumstances, an extension of the bid validity may be requested in writing from all bidders before the original bid validity expiration date, and it shall cover only the minimum period required to complete the evaluation and award of the contract. The extension of the bid validity requires the Association’s no objection for those contracts subject to prior review, if it is longer than four (4) weeks, and for all subsequent requests for extension, irrespective of the period.

Bid Evaluation

11. (a) Evaluation of bids shall be made in strict adherence to the evaluation criteria declared in the bidding documents. Evaluation criteria other than price shall be quantified in monetary terms, and the manner in which they will be applied for the purpose of determining the lowest evaluated bid shall be established in the bidding documents. A weighting/scoring system shall not be used. (b) A contract shall be awarded to the qualified bidder offering the lowest-evaluated and substantially responsive bid. No negotiations shall be permitted. (c) Bidders shall not be eliminated on the basis of minor, non-substantial deviations. (d) In case of requests for clarifications, bidders shall not be asked or permitted to alter or complete their bids.

Rejection of All Bids and Re-bidding

12. All bids shall not be rejected, the procurement process shall not be cancelled, and new bids shall not be solicited without the Association’s prior concurrence.

Securities

13. Securities shall be in the format included in the bidding documents. No advance payment shall be made without a suitable advance payment security.

Publication of Contract Award

14. Information on contract award shall be published at least in a national newspaper of wide circulation within two (2) weeks of receiving the Association's no objection to the award recommendation for contracts subject to prior review, and within two (2) weeks from the award decision for contracts subject to post review. Publication shall include the following information: (a) the name of each bidder which submitted a bid; (b) bid prices as read out at bid opening; (c) evaluated prices of each bid that was evaluated; (d) the names of bidders whose bids were rejected and the reasons for their rejection; and (e) the name of the winning bidder, the final total contract price, and the duration and summary scope of the contract.

Contract Modifications

15. In the case of contracts subject to prior review, the Association's no objection shall be obtained before agreeing to: (a) a material extension of the stipulated time for performance of a contract; (b) any substantial modification of the scope of services or other significant changes to the terms and conditions of the contract; (c) any variation order or amendment (except in cases of extreme urgency) which, singly or combined with all variation orders or amendments previously issued, increases the original contract amount by more than 15%; or (d) the proposed termination of the contract. A copy of all contract amendments shall be furnished to the Association for its records.

Right to Inspect/Audit

16. In accordance with the Procurement Guidelines, each bidding document and contract financed from the proceeds of the Financing shall provide that bidders, suppliers, and contractors, and their subcontractors, agents, personnel, consultants, service providers or suppliers, shall permit the Association, at its request, to inspect their accounts, records and other documents relating to the submission of bids and contract performance, and to have them audited by auditors appointed by the Association. Acts intended to materially impede the exercise of the Association's inspection and audit rights constitute an obstructive practice as defined in the Procurement Guidelines.

Fraud and Corruption

17. Each bidding document and contract financed from the proceeds of the Financing, and as deemed acceptable by the Association, shall include provisions stating the Bank's policy to sanction firms or individuals found to have engaged in fraud and corruption as defined in the Procurement Guidelines.

Debarment under National System

18. The Association may recognize, if requested by the Borrower, exclusion from participation as a result of debarment under the national system, provided that the debarment is for offenses involving fraud, corruption, or similar misconduct, and further provided that the Association confirms that the particular debarment process afforded due process and the debarment decision is final.

Environmental and Social (including safeguards)

40. **The Project is classified as category B** in the World Bank's Environmental Assessment classification due to the low size and site specific nature of its foreseen social and environmental risks and impacts. The environmental and social Safeguard Policies triggered by this operation are: OP/BP 4.01 (Environmental Assessment); Physical Cultural Resources OP 4.11; and OP/BP 4.12 (Involuntary Resettlement).

41. There are no potential large scale, significant and/or irreversible impacts expected to arise from this project. Under Component 3, the proposed project plans to conduct civil works to rehabilitate/construct or upgrade existing facilities for electricity supply (generation, transmission, distribution). The project proposes the reinforcement of an existing 138/63kV substation, the construction of new 63kV transmission lines for the looping of the network, the rehabilitation and/or reinforcement of distribution networks in the capital city Antananarivo, and the upgrading of existing distribution systems in selected districts of the country in order to increase the reliability of the networks. For those investments, the technical studies need to be prepared or updated. The project will finance: (i) transformers and auxiliaries replacement on the existing substation; (ii) construction of about 25 km of lines that will connect the substations of Tana Nord and Tana Sud; (iii) construction of about 8 km of lines between the substations of Tana Nord and Ambodivona; (iv) rehabilitation and/or upgrading of existing distribution networks; and (v) rehabilitation of auxiliaries of generation plants mainly purchasing of spare parts, including power transformers, switchgear and cables for connection to the network. The ESMF indicates that the proposed Project could potentially induce adverse environmental and social impacts, including the effects related to: (i) noise over the acceptable standards for residential areas; (ii) air pollution and contribution to greenhouse gas emission from the generating units smokes; (iii) liquid waste (used oil) generation inducing the pollution of surrounding area and underground water; (iv) occupational health and safety risks in case employees are not equipped with appropriate protective materials; (v) any machinery accidental risks; and (vi) sellers temporary resettlements along the transmission line during the works, resettlement risks for any transmission line extensions, solid waste from the old replaced equipment; harm to potential chance finds of physical cultural resources during the civil works of transmission line extension. These impacts are, however, expected to be site specific with no large scale impacts. In addition, the environmental and social impacts of anticipated activities are expected to be moderate, site-specific, and manageable to an acceptable level, and the proposed project requires no exceptions to the World Bank's policies on environmental and social safeguards. The technical studies of these activities under Component 3 will still be prepared or updated when the financing are available.

42. At the national level, Madagascar has a legislative and regulatory framework which is conducive to good environmental management. JIRAMA is actively responsive in addressing safeguards issues. It was recorded the availability of Environmental and Social Management Plan for some investments in compliance with the Malagasy Environment National Law under *Décret N°2004-167* (MECIE) that mentions the requirement to prepare an Environmental assessment for both private and public development investments. The national environmental law will be reinforced by the World Bank safeguard policies for this proposed project. Safeguards instruments being prepared by the client.

43. The JIRAMA has engaged the services of a consultant to prepare two separated safeguards instruments. These instruments have assessed the potential impacts of all activities to be supported by the proposed operation, the expected adverse environmental and social impacts, and identified mitigation measures, including the principles, procedures to be followed for the safeguards policies triggered: OP/BP 4.01 (Environmental Assessment); Physical Cultural Resources OP 4.11 and OP/BP 4.12 (Involuntary Resettlement).

44. **OP/BP 4.01 (Environmental Assessment):** Since the precise locations and potential impacts of future subprojects cannot be identified prior to appraisal, an Environmental and Social Management Framework (ESMF) has been prepared to be used to screen sub-project proposals for environmental, social, gender, and health and safety impacts by using the ESMF screening form and checklist. The ESMF includes an Environmental and Social Management Plan (ESMP), has taken into account the environmental and social profiles in the project areas on the potential activities to be supported by the project. The ESMF/ESMP outlines an environmental and social screening process for future sub-projects to ensure that they are environmentally and socially sound and sustainably implementable, in line with Government and World Bank policies and guidelines on environmental and social impact management. The screening outcomes will determine if sub-projects will need to prepare an Environmental and Social Impact Assessment (ESIA). The screening of the sub-projects will be done by the Environment and Risk Prevention Department in JIRAMA level. The technical studies of activities under Component 3 will be prepared or updated when the financing is available. The ESMF has considered ToRs for specific environmental and social studies, including the related ESMP for each group of activities that JIRAMA could launch in parallel with the technical studies. JIRAMA under its Environment and Risk Prevention Department will be responsible for the procurement of consultants to prepare them, supervise the consultants and it will be responsible for the monitoring of the implementation of the ESMPs and RAPs in the project areas. It will ensure that all contractor contracts include environmental and social clauses, which are attached as an annex to the ESMF, in order to ensure adequate environmental and social management practices during project implementation phase. The ESMF contains also the screening guidelines to be used to implement Project-supported works. Funds to prepare and implement these potential ESIA, ESMPs have been included in the project costs (US\$500,000).

45. The solid waste assessment in JIRAMA has noted that the National Company JIRAMA had stopped to import transformers with PCB since 1985. An operationally secured site was identified in Antananarivo to collect and store the old transformers with PCB. JIRAMA is waiting for a National law on hazardous waste to define the correct procedures for its elimination.

46. **Physical Cultural Resources OP 4.11:** Concerning infrastructure subprojects mainly the construction of new 63kV transmission lines, the rehabilitation and/or reinforcement of distribution networks, and the upgrading of existing distribution systems, no archaeological vestiges will be impacted following the socio-economic survey developed in the ESMF. For more assurance, the ESMF has made provisions for cultural resources management in the event the Physical Cultural Resources OP 4.11 is triggered during the implementation phase and includes “chance finds” procedures for inclusion in the contractors’ contract.

47. **Involuntary Resettlement OP 4.12:** Since the precise physical locations of the proposed activities are unknown at this stage and the project activities in component 3 may lead to the acquisition of land, loss of assets and/or means of livelihood that could result in permanent or temporary involuntary resettlement, the Borrower has prepared an RPF that sets forth the basic principles and procedures that both the Borrower and the World Bank must follow to mitigate any potential adverse social impacts. The RPF includes detailed information on legal and institutional framework, eligibility criteria, assets evaluating methods, implementation

arrangements, grievances redress mechanism, resettlement budget totally covered by the Government and monitoring and evaluation. The RPF contains the basic principles and procedures/directives to be followed by the Borrower for the preparation of the RAP once the physical locations of the proposed activities are known. The result of socio- economic studies have characterized different forms of compensation. Since the technical studies of activities under component 3 will be prepared or updated when the financing are available, the RPF has proposed specific RAP ToR for each group of activities that JIRAMA could launch in parallel with the technical studies. The Malagasy Government has proposed to finance the costs of resettlement (land acquisition costs; compensation on crops, trees, shelter, habitat, structures, etc.) for a provision of approximately US\$400,000 on the RAPs.

48. **Monitoring of Environmental and Social Management Framework:** JIRAMA with its Environment and Risk Prevention Department will be in charge of the project safeguard environmental and social compliance. This department will carry out ESMP/RAP, to ensure that the mitigation measures are being effectively implemented, and will conduct field visits on a regular basis. Monitoring checklists will be prepared on the basis of the mitigation plans for this purpose. Progress reports shall document the progress of ESMF implementation. Finally, the project will engage specialists/firms to conduct detailed environmental and social studies (ESIA/ESMP; RAP). The existing capacity at JIRAMA will be strengthened through training and capacity building so that the company can appropriately monitor safeguard aspects²⁶.

49. **Public Consultation and Information Disclosure.** The affected people and communities and other relevant stakeholders have been consulted during the elaboration of the ESMF and RPF. The feedback from the consultations has been incorporated into the project design and the final draft ESMF and RPF. Likewise, during project implementation, JIRAMA is expected to consult project-affected groups, and local governmental and nongovernmental organizations on all environmental and social aspects of the project and take their views into account accordingly. Public consultations will be carried out as early as possible and provide, in a timely manner prior to consultation, all the relevant materials in the form and language(s) needed to be understandable and accessible to the groups being consulted. Preparation of stand-alone environmental and social safeguards instruments of potential sub-projects (ESMP) and RAP when needed will also be prepared through a consultative and participatory process involving all stakeholders at the regional and national levels. The draft ESMF and RPF have been received at the Bank in October 27, 2015. The final versions have been disclosed in-country and at the Bank's Infoshop on January 15, 2016.

Monitoring and Evaluation

50. **Monitoring and evaluation for the project will be undertaken with support from the MEH and JIRAMA project teams.** MEH will be responsible for collecting, verifying, and collating information and submitting consolidated reports to the Bank. The Results Framework (Annex 1) identifies result indicators for the project as a whole as well as for each of its components, including the annual target values for the results indicators and baseline data against which project implementation progress and results will be measured. Semi-annual progress

²⁶ The project budget takes this into account.

reports on intermediate indicators and annual reports on all indicators in the results framework will be submitted to the Bank. MEH will be responsible for indicators related to Component 1 activities, while JIRAMA will be responsible for data related to activities related to Components 2 and 3, drawing on JIRAMA databases, and passing the information to MEH for consolidated reporting to the Bank.

51. **JIRAMA Key Performance Indicators.** To enable tracking of improved performance as a result of an improved MIS and staff capacity building activities under Component 2 of the project, during the third year of the project implementation and following the commissioning of the MIS, JIRAMA shall prepare a set of key performance indicators covering the key business functions. The key performance indicators shall include both medium-term performance improvement targets and annual work plan targets. In addition, the annual targets will be used to develop and implement a performance dashboard that will be used to track and measure performance on a real time basis. ORE, the regulator, would be involved in the development of JIRAMA's key performance indicators.

Annex 4: Implementation Support Plan

MADAGASCAR: ELECTRICITY SECTOR OPERATIONS AND GOVERNANCE IMPROVEMENT PROJECT

1. The strategy for implementation support has been developed based on the nature of the project and the identified risks. World Bank team members will be based both at headquarters and in the Madagascar and other country offices to ensure timely response to the client, perform close project implementation support, and anticipate implementation problems.
2. **Country and sector dialogue.** The Bank team will continue maintaining a close dialogue with the Government, MEH, JIRAMA, and other relevant sector institutions in order to strengthen focus on project implementation.
3. **Support to project implementation capacity.** The Bank team will coordinate with the MEH and JIRAMA teams to provide support as needed to ensure that all the key functions are fulfilled, in particular the position of project coordinator. One procurement specialist and one financial management specialist have been hired to provide support to MEH on fiduciary aspects. Expertise both at MEH and JIRAMA will be further complemented as necessary to increase the team's efficiency.
4. **Support to design and bidding of the MIP.** The following three main pillars have been identified in the MIP: organizational structure, MIS, and RPP. These three areas together with the identified priority investments on the reinforcement and rehabilitation of transmission and distribution networks will underpin the preparation of tendering documents for the ESOGIP. Specific support is being made available through the PPA to prepare the bidding documents for most of the project activities, and it is expected that the procurement tenders for the MIS and RPP will be advertised during the first quarter of 2016. The Bank team will continue to leverage internal expertise in utility reforms and performance-based contract frameworks to set up coordinated support to the client in the implementation of the MIP under the project.
5. **Support to investments execution.** Consultants will be hired to support JIRAMA to supervise the implementation of contracts related to the investments in the rehabilitation and upgrade of transmission and distribution networks. In addition, the Bank will undertake supervision missions to perform technical due diligence to ensure that contractual obligations are met. The Bank's project team and JIRAMA's project team will conduct regular site visits to project targeted areas throughout the duration of the project.
6. **Procurement requirements and inputs.** The Bank's Procurement Specialist supporting the project is based in Antananarivo and will provide close support and advice to the implementation units of the projects. In addition to the prior review supervision to be carried out from the World Bank country office, the capacity assessment of the implementing agency has recommended two supervision missions per year during which ex-post reviews would be conducted on a sample basis (20 percent in terms of number of contracts) for the contracts that are not subject to the Bank's prior review. One post review report, which would include physical inspection of sample contracts, would be prepared each year. At least ten percent of the contracts would be physically inspected. The Bank's project team will help strengthen procurement management efficiency by: (i) reviewing relevant procurement documentation and

providing timely feedback to the project implementation teams at MEH and JIRAMA; (ii) providing clear guidance on the Bank's Procurement Guidelines to the implementation units as needed; and (iii) monitoring procurement progress against the updated Procurement Plans. Tailored training to procurement staff of the implementation units will be provided as part of implementation support to the ESOGIP to facilitate the procurement process.

7. **Financial management requirements and inputs.** The Bank's Financial Management (FM) Specialist supporting the project is based in Rwanda. FM implementation support intensity and frequency will be in line with risk-based approach, and will involve a collaborative approach with the entire task team. A first implementation support mission will be performed two months after project effectiveness. Afterwards, the missions will be scheduled by using the risk based approach model and will include the following diligences: (i) monitoring of the financial management arrangements during the supervision process at intervals determined by the risk rating assigned to the overall FM Assessment at entry and subsequently during implementation (based on Implementation Status and Results Reports); (ii) integrated fiduciary review on key contracts, (iii) review of IFRs; (iv) review of audit reports and management letters from the external auditors and follow-up on material accountability issues by engaging with the task team leader, client, and/or auditors; the quality of the audit (internal and external) is to be monitored closely to ensure that it covers all relevant aspects and provide enough confidence on the appropriate use of funds by recipients; and (v) other assistance to build or maintain appropriate financial management capacity and efficient internal control system.

8. **Environmental and Social safeguards.** Compliance with environmental and social safeguards related to the rehabilitation and upgrading of the transmission and distribution networks will be a primary responsibility of the project implementation team at JIRAMA. The JIRAMA team will implement safeguards for the priority investments. The Bank's project team will pursue close monitoring of environmental and social management under the project. The team will also continue to liaise with the Government to ensure that encroachment along the right of way of transmission and distribution lines is properly managed.

Implementation Support Plan

9. The annual implementation support cost is determined as follows: 40 staff weeks with an average cost of US\$4,000 per week. The total annual budget is about US\$160,000. The annual costs will decrease when the safeguard mitigation measures are completed and the implementation of the MIP achieves significant progress.

Table 4.1 Activity Planning for Implementation Support

Time	Focus	Skills Needed	Resource Estimate
First twelve months	Complete recruitment of Project Management Team staff	Technical, procurement	US\$160,000 per annum
	Design and Development of Business plan	Technical, utility reform	
	Preparation of all bidding documents for rehabilitation works	Power engineer, procurement	
	Establishment of FM arrangements and systems	Financial management	
	Implementation of environment and social safeguards	Environment, social safeguard	
12-60 months	Technical supervision	Power engineer/utility reform	US\$480,000 (on the basis of US\$160,000 per annum)
	Safeguards supervision	Safeguards	
	Monitoring and evaluation supervision	Monitoring and evaluation	

Skills Mix Required

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
General supervision and project management (Task Team Leader)	12	3/year	
Power engineer	8	3/year	
Energy Specialist	4	Field staff	
Procurement specialist	5	Field staff	
Financial management specialist	3	Field staff	
Utility reform specialist	5	2/year	
Environmental specialist	2	Field staff	
Social Development Specialist	2	1/year	
Administrative support	4	-	
Disbursement specialist/analyst	1	-	

Annex 5: Economic and Financial Analysis

MADAGASCAR: ELECTRICITY SECTOR OPERATIONS AND GOVERNANCE IMPROVEMENT PROJECT

1. This annex provides economic and financial analyses for the investments under the proposed project. The specific activities considered are: (i) the implementation of a revenue protection program (RPP) for sustainable reduction of (unmetered consumption) through advanced metering, systematic remote recording and monitoring of consumption of large users (component 2); (ii) reinforcement of transmission facilities (component 3); (iii) rehabilitation/upgrade of distribution networks (component 3); and (iv) rehabilitation of auxiliaries of generation plants (component 3). Other activities under the proposed project, including those under components 1 and 4 are technical assistance to strengthen planning and build capacity and do not finance any investments, thus are not considered as part of this analysis.

2. The initial phase of the RPP is expected to include all MV-supplied customers (around 1,000) and the largest LV-supplied customers (around 5,000). In total, the RPP is expected to cover approximately the 6,000 largest electricity customers in Madagascar, representing some 50 percent of total sales in 2014. Broadly, the benefits of the project arise from: (i) a reduction on technical losses due to grid reinforcements; (ii) a reduction of non-technical losses, which are transformed into electricity sales, increasing revenues for JIRAMA; and (iii) savings from reduced consumption due to price elasticity effects. While clear additional economic and financial benefits would arise from the rehabilitation of auxiliary components of generation plants, the lack of detailed technical information prevented a reasonable estimation of such benefits, therefore they are assumed to be zero for the purposes of this analysis.

Economic Analysis

3. The economic analysis for the project adopts a cost benefit framework to calculate the present value of the stream of net benefits derived from project investments – the RPP (component 2) and the grid reinforcements and upgrades (component 3).²⁷ The following are the benefits quantified:

- (a) Reduced technical losses resulting from grid reinforcement investments (component 3);
- (b) Energy cost savings resulting from investments under the revenue protection program (component 2).

4. Investments in distribution and transmission reinforcements are conservatively assumed to result in a two percentage point reduction in technical losses (from a currently estimated 15 percent). At the current annual generation this will result in a “virtual” additional electricity generation of 30,000 MWh. It is assumed that half of these reductions in technical losses will start to accrue in the fourth year project implementation, increasing to the full reduction by the fifth year. The benefits from the electricity savings are valued at the generation cost (a lower bound), which is again a conservative estimate as the true benefit would be the consumption benefits derived by end-users.

5. Investment in the RPP is expected to result in significant benefits through the reduction in commercial losses, assumed to reduce by eight percentage points starting in year three of the

²⁷ No benefit stream is calculated from the rehabilitation of auxiliary components in the generation plants.

project. Part of the reduction in commercial losses is directly from collections and increased revenues (5.3 percentage points). This is purely a financial transfer from the consumers to the utility and thus it is not included in estimate of economic benefits.²⁸ The second part of reduced commercial losses results from reduced consumption due to consumer price response. This reduction translates into reduced electricity generation and is thus valued at the average generation cost. It is assumed that the RPP results in a reduction of commercial losses of 2.7 percentage points, implying reduced generation requirement of 40,000 MWh per year, starting in the third year of the project.

6. The identified benefits are evaluated against project investment costs and the operation and maintenance costs of the investments. Operations and maintenance costs are assumed to accrue to the tune of two percent in the year following the incurred investment expenditure. Value added tax of 18 percent is excluded from the investment cost amounts. The table below summarizes the key underlying parameters used for the calculations:

Assumptions	Value	Unit	Note
<i>Project Costs (net of tax)</i>			
Component 2	10.59	US\$ million	Annual Disbursement: 30%, 70%, 0%, 0%, 0%
Component 3	40.38	US\$ million	Annual Disbursement: 10%, 35%, 35%, 20%, 0%
O&M	2%		
VAT	18%		
Project Economic Life	20	years	Discount rate: 10%
Commercial loss reduction from RPP	8.0%		Annual generation: 1500 GWh
Increase in billed sales	5.3%		
Reduction in generation	2.7%		
Technical loss reduction from reinforcement	2.0%		
Generation cost - diesel	0.24	US\$/kWh	Based on the import price of diesel of 0.81 US\$/liter

	EIRR (%)	NPV @10% DR (US\$m)
Project	28.7	58.45
Project Benefit-cost ratio	2.2	

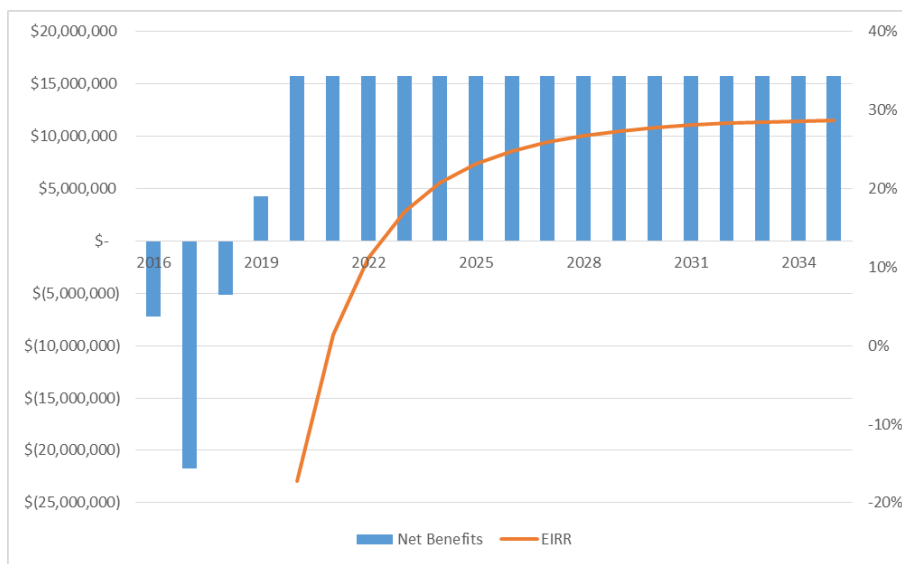
7. The results from the economic analysis of investments under components 2 and 3 shows that the overall project is economically viable with an NPV of US\$58.45 million (at 10 percent

²⁸ Economic benefits may result from the reallocation of funds to the utility for further investment in infrastructure/generation. However, to quantify these benefits, more complicated assumptions and greater data would be required. Excluding this benefit merely increases the conservativeness of the estimated economic viability of the project investments.

discount rate) and an EIRR of 28.7 percent. Component 2 is a major driver of the economic benefits of the project (93 percent share of the total NPV) due to the low investment required to develop the RPP sub-component compared to its expected economic benefits. It is important to consider that no benefit has been computed in this component for the rehabilitation of auxiliary generation components. Further, switching value analysis shows that the economic viability of the overall project is robust to sizeable changes in the value of key underlying parameters.

Scenario	Base case	Sensitivity	Comment
CAPEX increase	USD 50.97 million	USD 162.02 million	A 218 percent increase in CAPEX would be required to drive the NPV below 0.
RPP impact on non-tech losses (reduced generation only)	Reduction of 2.7 percent points	Reduction of 0.26 percentage points	A reduction in non-tech losses of only 0.26 percentage points (as compared to 2.7 under the base scenario) would be required to maintain economic viability with NPV = 0

Figure 1 – Net economic benefits of the project (components 2 and 3)



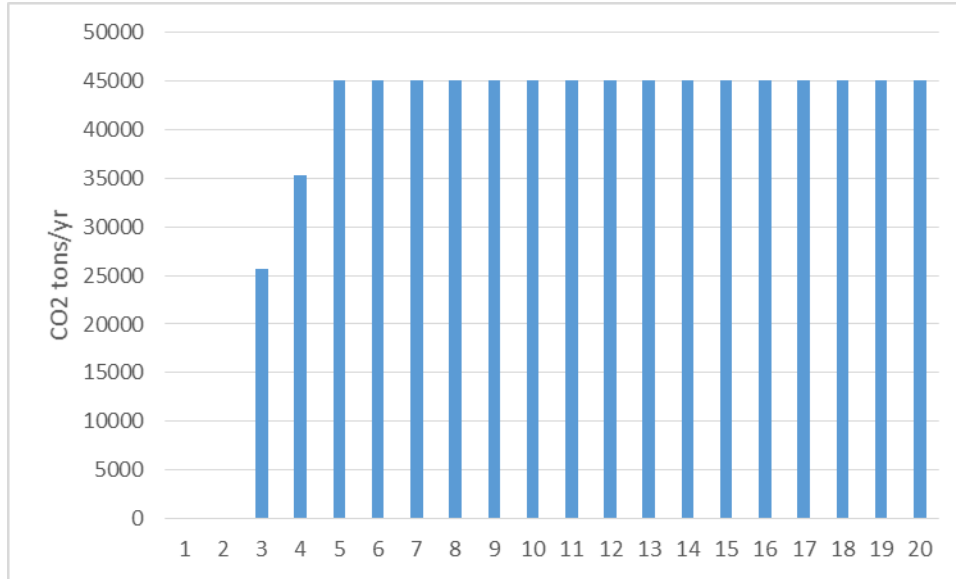
Reductions of CO₂ emissions

8. The implementation of the project is expected to result in lower electricity generation compared to the “business as usual” scenario, due to: (i) the reduction in technical losses through the implementation of investments in rehabilitation and upgrade of transmission and distribution networks; and (ii) lower consumer demand derived from the price elasticity as a consequence of the implementation of the RPP sub-component.

9. This reduction in electricity generation has, therefore, a positive impact on the reduction of CO₂ emissions that can be estimated by multiplying the expected reductions in electricity generation by the default grid CO₂ emission factor in Africa (0.643tCO₂e/MWh). As a result, the

project is expected to reduce 781,245 CO₂ tons during its lifetime; the estimated annual reduction values are presented in the figure below.

Figure 2 – Estimated CO₂ emission reductions (in tons per year)



10. The reduction of CO₂ emissions is considered to be an additional benefit of the project but, nonetheless, it has not been used to compute any economic or financial benefit as part of the analysis presented in this section.²⁹

Financial Analysis

11. The financial analysis evaluates the net financial return of the project (FIRR and FNPV). The project is expected to generate cash inflows from (i) the sale of electricity that is currently consumed but not paid for (assumed at the MV tariff); (ii) the savings from electricity not procured due to a lower level of technical losses; and (iii) the savings from the electricity not procured due to price elasticity in recovered non-technical losses. Associated cash outflows are represented by the capital costs on transmission and distribution strengthening under the project, including the costs on new metering equipment, their installation, and operation and maintenance. The financial analysis compares the present value of inflows with the present value of cash outflows to determine the attractiveness of the project from the financial perspective.

12. To prepare the financial analysis of the project, the following assumptions have been developed:

- (a) Gross demand: 1.5 TWh/yr.
- (b) Electricity losses:

²⁹ Considering a benefit of US\$15/ton, the mitigation benefits equate to around 4% of the NPV for the project.

	Without project	With Project
Total	35.0%	25%
Technical	15.0%	13.0%
Non-technical	20.0%	12.0%
<i>RPP customers</i>	8.0%	0.0%
<i>Rest</i>	12.0%	12.0%

(c) The eight percent reduction of non-technical losses in large customers is absorbed according to the following rule: 2/3 by increase in sales and 1/3 by generation savings.

(d) Large customers are mainly located in Zone 1 and the average electricity tariff is 158 MGA/kWh (52.1 USD/MWh).³⁰ No changes on the contracted capacity assumed.

(e) The marginal cost of the avoided generation is assumed in 0.24 USD/kWh.

13. The project is expected to invest approximately US\$60.2 million (including taxes) to implement components 2 (US\$12.56 million) and 3 (US\$48.62 million). With operations and maintenance costs estimated at two percent of the capital expenditures.

14. The project is expected to be financed 100 percent with an IDA credit, which typically charges a nominal interest rate in the range of 0.5 percent to one percent per year in USD. Taking into consideration the low inflation levels of the United States economy, currently in the range of two percent per year, the real interest rate of the IDA credit would be somewhere in the range between zero and -1.5 percent. Based on this, the financial analysis assumes a zero percent discount rate in real USD following a conservative scenario

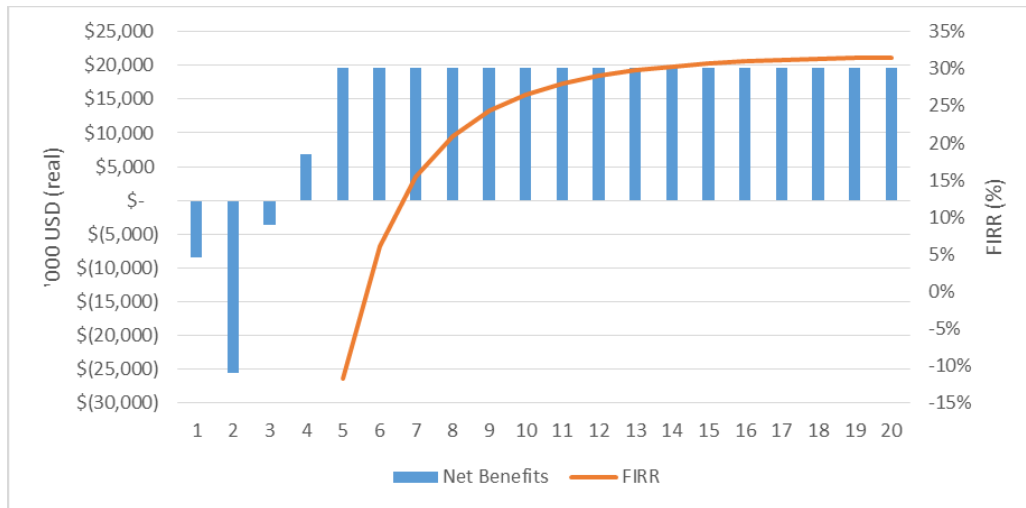
15. Based on these assumptions, the financial analysis shows that the project is able to generate a NPV of US\$284.1 million (at zero percent discount rate) and a FIRR of 31.5 percent. Also, the payback period of the project is estimated in approximately three years (see table and figure below).

	FIRR (%)	NPV @0% DR (US\$m)
Project	31.5	\$284.1

16. The financial impact of the RPP sub-component (component 2) is the main value driver of the project with an 81 percent share of the total NPV of the project; while the reduction in technical losses is expected to contribute the 19 percent remaining.

³⁰ Exchange rate is 1 USD = 3,031 Madagascar Ariary.

Figure 3 – Net financial benefits of the project (components 2 and 3)



17. *Sensitivity analysis:* a sensitivity analysis in the form of switching values was performed on the two key value drivers to understand their impact on the expected NPV and FIRR. The results are presented in the table below:

Scenario	Base case	Sensitivity	Comment
CAPEX increase	USD 61.2 million	USD 270.5 million	A 350 percent increase in capex would be required to make the NPV = 0.
RPP impact on non-tech losses	From 8 percent to 0 percent	No reduction in non-tech losses	Even if the project is only able to reduce the technical losses, the NPV = 37 million USD

18. As can be observed, the financial results shows the project is resilient to potential costs overruns and changes in performance in the reductions of non-technical losses.

Annex 6: Letter of Sector Policy



MINISTRE DE L'ENERGIE
ET DES HYDROCARBURES

MINISTRE DES FINANCES
ET DU BUDGET

Antananarivo, le 04 février 2016.

N° 017 /MEH/CAB/MIN

Le Ministre de l'Energie et des
Hydrocarbures
Le Ministre des Finances et du Budget

à

Madame Le Représentant Résident
de la Banque Mondiale à Madagascar
ANOSY
101 - ANTANANARIVO

Objet : Lettre de Politique Sectorielle ELECTRICITE

Madame le Représentant Résident,

La Politique Générale de l'Etat (PGE) formule la **Vision de Développement** du Pays par l'image « *Madagascar, une Nation moderne et prospère* ».

La vision de Madagascar à travers la Nouvelle Politique de l'Energie (NPE) sur la période 2015-2030 se fixe comme objectif de faire passer de 15 à 70% des ménages à une source d'électricité ou d'éclairage moderne, et ce obtenue à 80% à partir de sources d'énergies renouvelables

Dans ce cadrage macro-économique de la PGE et du PND, la VISION transposée dans le secteur de l'Energie, le défi que le Ministère de l'Energie et des Hydrocarbures s'engage à relever et qui constitue sa mission principale est de : « *fournir de l'énergie au moindre coût pour soutenir la croissance économique ainsi que le développement durable et inclusif* ».

Le développement du secteur de l'Energie revêt ainsi un caractère stratégique pour asseoir une croissance économique inclusive et durable à Madagascar conformément au troisième axe du Plan National de Développement (PND), dans l'objectif de renforcer les structures d'épaullement et structurantes.

Il est à rappeler que le secteur de l'Energie à Madagascar présente des enjeux et défis importants, avec un faible taux d'accès à l'électricité et des services d'approvisionnement peu fiables, et une dépendance importante aux combustibles fossiles importés.

Pour faire face à ces enjeux, le Ministère de l'Energie et des Hydrocarbures, a élaboré la Nouvelle Politique de l'Energie (NPE) pour la période 2015-2030.

Cette NPE s'inscrit dans le cadre du Plan National de Développement (PND) 2015-2019 et reflète la volonté du Gouvernement d'assainir le secteur, et de fournir un cadre favorable aux investissements dans le secteur de l'Energie en tirant profit des nouvelles technologies qui permettraient des économies énergétiques considérables.

Le développement du secteur électrique malgache accuse un retard significatif et les performances du secteur sont négatives.

- Les pertes globales du secteur électrique ont atteint plus de 30% en 2014
- Le mécanisme des ajustements tarifaires réguliers n'a pas été respecté
- La planification des investissements n'a pu être mise en œuvre, malgré un Plan Electricité de projets hydrauliques sur 15 ans ;
- Un poids de plus en plus important des charges en combustibles

En effet, une rétrospective du Secteur de l'Énergie à Madagascar au cours de la dernière décennie met en exergue que l'évolution du secteur électrique malgache a été négative notamment à cause des effets néfastes des deux crises politiques de 2002 et de 2009.

Ainsi, les ajustements tarifaires appliqués en 2001, 2005, 2006, 2007, 2008, 2009 puis en 2012 rendus nécessaires par l'augmentation des prix des hydrocarbures n'ont pas permis une amélioration significative de la qualité de service ni une amélioration du taux d'accès. Les nouvelles connexions sont rationnées notamment à cause de l'insuffisance de capacité de production et de la saturation des réseaux de transport et de distribution handicapant le développement de nouvelles activités économiques.

En outre, la situation financière de la JIRAMA n'a cessé de se dégrader depuis 2010 à cause de (i) la baisse d'efficacité en la gestion commerciale, liée à l'augmentation des pertes techniques et non techniques et au faible taux de recouvrement des factures, et (ii) la hausse du prix du pétrole sans des ajustements des tarifs, alors que le pourcentage de production thermique d'électricité au pays est élevé et coûte chère.

Le recours aux unités d'urgence thermique au gasoil, faute de mise en œuvre des résultats de planification de sites hydroélectriques, pour satisfaire la demande pèse également sur le secteur.

La JIRAMA a dû recourir aux subventions de l'Etat pour pouvoir payer les factures d'achat de carburant, les locations de groupes électrogènes ainsi que les achats d'énergie aux producteurs privés d'électricité.

La Nouvelle Politique de l'Énergie NPE Vision 2015-2030 se fixe pour objectif de répondre aux défis d'urgence économique, sociale et environnementale du secteur.

Et dans les actions d'urgence, afin de pouvoir faire face à ces défis, le Gouvernement a identifié un ensemble d'actions prioritaires pour le redressement de la situation du Secteur Electricité, dont les bases ont été discutées et définies lors d'un atelier de priorisation en Juin 2014.

Dans ce cadrage global du secteur de l'Électricité en particulier, le Gouvernement de Madagascar a sollicité un financement de la Banque Mondiale pour répondre à des besoins d'assistance urgente dans plusieurs volets, notamment (i) la planification des investissements dans le secteur, (ii) l'amélioration de la soutenabilité financière du secteur, y compris les aspects tarifaires et (iii) l'amélioration de la performance de la JIRAMA.

Cette sollicitation a été ainsi accordée à travers la préparation du projet d'Amélioration de la Gouvernance et des Opérations du Secteur de l'Électricité ou PAGOSE, dont des activités préparatoires ont été engagées par le biais de l'allocation d'une Avance de Préparation du Projet PPA.

Dans le cadre de ces activités préparatoires du projet PAGOSE, le Gouvernement de Madagascar a déjà lancé la préparation du Plan de Développement au moindre cout PDMC, dont le démarrage a été engagé en décembre 2015, et dont les premiers rapports intérimaires seront disponibles en Juin 2016.

L'élaboration du PDMC établit les fondements d'une bonne gouvernance pour sa mise en œuvre, dont les investissements pour le développement des sites de production et des réseaux de

transport et de distribution seront basés sur des processus concurrentiels et transparents, à travers des Appels d'Offres ouverts, afin d'assurer les conditions les meilleures pour le pays : le PDMC constituera le guide et référentiel pour la sélection des projets de production et de transmission par la suite.

Mention doit être faite que sans attendre le PDMC, le Gouvernement à travers le Ministère de l'Energie et des Hydrocarbures a déjà lancé un Appel à Manifestations d'Intérêts au mois de mai 2015 pour le développement de treize sites prioritaires en vue de l'aménagement de centrales hydro-électriques : un processus d'appel d'offres ouvert international a par la suite été lancé, dont 04 sont en cours de finalisation (dossiers techniques, DAO, AO, sélection, négociations et adjudication).

Le Ministère vient également de lancer au mois de Décembre 2015 un Appel à Manifestation d'Intérêt pour le développement de sites à alimenter par source solaire (photovoltaïque), avec l'appui de la Société Financière Internationale SFI/IFC du groupe de la Banque Mondiale.

Les réalisations suscitées témoignent de la volonté et de l'engagement du Gouvernement à avancer dans une logique de moindre coût avant même que le PDMC soit finalisé.

Une fois le PDMC finalisé et adopté par le Gouvernement, il deviendra le guide pour tout investissement futur dans le domaine de production et de transport. Le Gouvernement a l'intention de mettre en place un mécanisme et des procédures pour garantir la mise en œuvre de ce plan.

Une Etude Tarifaire a également démarrée depuis le mois de décembre 2015, et bientôt l'élaboration d'une stratégie d'accès à l'électricité sera engagée également.

En ce qui concerne l'Etude tarifaire, le Gouvernement se basera sur (i) l'évaluation de la capacité moyenne actuelle à payer pour des services d'électricité et à déterminer la méthodologie de tarification la plus adaptée à appliquer sur le court et le moyen terme ainsi que sur (ii) la conception d'une "trajectoire graduelle" socialement et politiquement acceptable pour l'application effective de la méthodologie proposée et les redevances associées, qui sera complétée par un filet de sécurité social visant à protéger les usagers à faible revenu n'ayant pas la capacité de payer des tarifs reflétant les coûts.

Par rapport à l'amélioration de la performance opérationnelle de la JIRAMA le Gouvernement s'est déjà engagé dans la préparation d'un Plan d'Amélioration de la Gestion PAG de la JIRAMA.

Le projet de rapport final du Consultant dédié à ce volet a été livré et le Gouvernement, à travers le Comité Stratégique pour la Réforme de la JIRAMA vient d'approuver le PAG tel que décrit dans le rapport plus détaillé du mois de janvier 2016 et s'engage à le mettre en œuvre, suivant le calendrier proposé, à travers le PAGOSE, notamment en ce qui concerne :

- o **la mise en œuvre de la structure organisationnelle proposée**, à travers le recrutement la sélection du personnel pour occuper des postes au niveau de la direction de l'entreprise à travers des méthodes concurrentielles et transparentes (publiés) avec l'appui de consultants spécialisés.
- o **l'incorporation des systèmes d'information de gestion (SIG)** de façon à rendre plus efficace, et transparent le développement des processus et des activités dans tous les domaines d'exploitation: opérations et maintenance (O & M) des actifs pour l'alimentation de l'électricité et systèmes de gestion pour les réclamations de la clientèle, fonctions commerciales; et la gestion des ressources corporatives.

L'incorporation du SIG doit être complétée par l'amélioration et la mise à jour de leurs bases de données respectives (clients, actifs des réseaux, etc.) et appuyé par un système d'information géographique (SIG).

- o **la mise en œuvre d'un programme de protection du revenu (PPR)** pour la réduction durable des pertes non-techniques (consommation non mesurée) à travers l'enregistrement systématique et la surveillance à distance de la consommation des grands utilisateurs. La phase initiale du PPR devrait inclure tous les clients alimentés en Moyenne Tension (MT) et les plus grands Basse Tension (BT) (-6,000, ie -1% des clients, ce qui représente plus de 50% du revenu).

Le Conseil d'Administration de la JIRAMA, organe délibérant de la société nationale, a également donné son approbation sur les différentes composantes du PAG, témoignant de l'engagement du management de la société à soutenir le programme de renforcement de la performance opérationnelle et de la gouvernance de la JIRAMA à travers la transparence, et une meilleure redevabilité.

Il est à rappeler que la Direction Générale, sur la base des orientations stratégiques de son Conseil d'Administration, a déjà déployé des efforts visant à soutenir le redressement de la JIRAMA : il s'agit notamment (i) d'une étude pour la mise en conformité des Statuts de la JIRAMA avec les textes en vigueur régissant les sociétés commerciales, dont le rapport intérimaire a été déjà livré ; (ii) de l'Audit des Contrats de location en cours d'exécution actuellement, ainsi que des Contrats en IPP's en cours d'exécution et dont les résultats seront livrés incessamment ; (iii) de la diffusion sur le site de la société des états financiers de la JIRAMA, fort de cette volonté de transparence ; (iv) des opérations de ratissage dans la capitale et au niveau des chefs-lieux de province pour détecter les anomalies en vue du redressement des pertes non techniques en particulier les fraudes et vols d'électricité, etc.

A travers les différentes actions développées dans la présente Lettre de Politique sectorielle, le Gouvernement veut établir les bases soutenables du secteur « Electricité » à Madagascar, pour que celui-ci constitue véritablement « **le moteur du développement économique** » : la présente marque ainsi l'engagement fort de la part du Gouvernement de Madagascar à mettre en œuvre de manière responsable les différentes composantes du Projet PAGOSE, en vue d'une meilleure soutenabilité du secteur de l'Electricité .

Recevez, Madame le Représentant Résident, l'assurance de notre considération distinguée.



Gatien HORACE



RAKOTOARIMANANA Francois M.M. Gervais

[UNOFFICIAL TRANSLATION OF THE LETTER OF SECTOR POLICY]

**MINISTRY OF ENERGY
AND HYDROCARBONS**

N° _____17/MEH/SG

**MINISTRY OF FINANCE AND
BUDGET**

Antananarivo, February 4, 2016

Minsiter of Energy and Hydrocarbons
Minister of Finances and Budget

to

The World Bank Resident Representative in
Madagascar
ANOSY
101 - ANTANANARIVO

Subject: Sector Policy Letter ELECTRICITY

Madam Resident Representative,

The General Policy of the State (GPS) formulates the Development Vision of the Country through the image "Madagascar, a modern and prosperous nation".

The vision of Madagascar through the New Energy Policy (NEP) for the period 2015-2030 sets a goal of 15 to 70% for household access to electricity or modern lighting, 80% of which should be obtained from renewable energy sources

In this macroeconomic framework of the GPS and the NEP, the VISION transposed into the energy sector, means that the challenge that the Ministry of Energy and Hydrocarbons is committed to meet and which constitutes its primary mission is to: "provide energy at least cost to sustain economic growth and sustainable and inclusive development".

The development of the Energy Sector constitutes therefore a strategic axis to establish an inclusive and sustainable economic growth in Madagascar, as spelled out in the third axis of the National Development Plan (NDP), with the aim of strengthening the support and structuring structures.

It is worth noting that the Energy sector in Madagascar has major issues and challenges, with a low rate of access to electricity and unreliable supply services, and significant dependence on imported fossil fuels.

To address these issues, the Ministry of Energy and Hydrocarbons, developed the New Energy Policy (NEP) for the period 2015-2030.

The NPE is part of the National Development Plan (NDP) 2015-2019 and reflects the Government's desire to clean up the sector, and provide a framework for investment in the energy sector by leveraging new technologies that allow significant energy savings

The development of the Malagasy power sector is significantly delayed and the sector's performance is negative.

- Overall losses in the electricity sector have reached more than 30% in 2014;
- The mechanism for regular tariff adjustments has not been respected;
- The planning of investments has not been implemented, despite there being an Electricity Plan for hydro projects for 15 years;
- There is an increasing weight of fuel expenses

Indeed, a retrospective of the Energy Sector in Madagascar over the past decade highlights that the evolution of the Malagasy power sector was negative in particular due to the adverse effects of the two political crises of 2002 and 2009.

Thus, tariff adjustments applied in 2001, 2005, 2006, 2007, 2008, 2009 and in 2012 made necessary by the increase in oil prices has not led to a significant improvement in the quality of service or improved access rate. New connections are rationed in particular because of the lack of generation capacity and the saturation of transport and distribution networks handicapping the development of new economic activities.

In addition, the financial situation of JIRAMA has steadily deteriorated since 2010 due to (i) the reduction in efficiency in business management, related to the increase of technical and non-technical losses and low bill collection, and (ii) the increase in oil prices without adjustments of tariffs, while the percentage of expensive thermal power generation in the country is high.

The use of thermal emergency diesel units, lack of implementation of the hydroelectric sites of planning results, to meet demand also weighed on the sector.

JIRAMA had to resort to state subsidies to pay for fuel purchase invoices, rents power generators and energy purchases to private electricity producers.

The New Energy Policy (NEP) 2015-2030 establishes the objective of meeting the urgent challenges of economic, social and environmental sector.

In between the emergency actions needed to meet these challenges, the Government has identified a set of priority actions for the recovery of the Electricity Sector's situation. These were discussed and defined during a workshop prioritization in June 2014.

Within this overall framework of the electricity sector in particular, the Government of Madagascar has applied for funding from the World Bank to meet the urgent needs for assistance in several aspects, including (i) the planning of investments in the sector, (ii) improving the financial sustainability of the sector, including tariff aspects and (iii) improving the performance of JIRAMA.

This request was granted through the preparation of the Electricity Sector Operations and Governance Improvement Project or ESOGIP, whose preparatory activities were initiated through the allocation of a Project Preparation Advance (PPA).

As part of these preparatory activities for the ESOGIP project, the Government of Madagascar has already started preparing a Least Cost Power Development Plan (LCPDP), which started in December 2015, and the first interim reports will be available in June 2016.

The development of the LCPDP lays the foundation for good governance for its implementation. The investments for the development of generation facilities and transmission and distribution networks will be based on competitive and transparent processes through open tenders,

so as to ensure the best conditions for the country: the LCPDP will be the guide and reference for the selection of generation and transmission projects thereafter.

To note that without waiting for the LCPDP, the Government, through the Ministry of Energy and Hydrocarbons has already launched a Call for Expressions of Interest in May 2015 for the development of thirteen priority sites for the construction of hydroelectric power plants: an open international tender was subsequently launched, of which 04 are being finalized (technical files, Bidding documents, selection, negotiation and award).

The Ministry has also launched in December 2015 a Call for Expression of Interest for the development of sites for solar power (photovoltaic), with support from the International Finance Corporation IFC / IFC Group of the World Bank.

These actions demonstrate the willingness and commitment of the Government to move forward following a least cost approach even before the LCPDP is finalized.

Once the LCPDP is finalized and adopted by Government, it will become the guide for any future investments in the field of generation and transmission. The Government intends to establish the mechanisms and procedures to ensure the implementation of this plan.

A tariff study has also been launched in December 2015, and soon the development of an access to electricity strategy will also commence.

Regarding the tariff study, the Government based itself on the following (i) assessment of the current average ability to pay for electricity services and definition of the most suitable methodology for pricing to be applied to the short and medium term as (ii) the design of a socially and politically acceptable "glide path" for the effective implementation of the proposed methodology and associated charges, which will be complemented by a social safety net to protect low income users who do not have the capacity to pay tariffs that reflect costs.

Regarding the improvement of JIRAMA's operational performance, the Government is already committed in the preparation of a Management Improvement Plan (MIP) for JIRAMA.

The draft final report of the consultant working on this component was delivered and the Government, through the Strategic Committee for the Reform of JIRAMA, has approved the MIP as described in the more detailed report of January 2016, and is committed to its implementation, according to the proposed timetable, through the ESOGIP, especially regarding:

- **the implementation of the proposed organizational structure** through the recruitment of staff for positions at the executive level of the company through competitive and transparent methods (published) with the support of specialized consultants.
- **the incorporation of management information systems (MIS)** to improve efficiency and transparency in all operating areas processes and activities: operations and maintenance (O & M) of assets for supply of electricity and management systems of customer complaints, business functions; and management of corporate resources. The incorporation of MIS must be complemented by the improvement and updating of the various databases (customers, network assets, etc.) and supported by a geographic information system (GIS).
- **the implementation of an income protection program (RPP)** for the sustainable reduction of non-technical losses (unmetered) through the systematic recording and remote monitoring of large users consumptions. The initial phase of PPR should include all customers supplied with medium voltage (MV) and the largest

Low Voltage (BT) (~ 6,000, ie ~ 1% of customers, representing over 50% of income).

The Board of Directors of JIRAMA (the deliberative body of the national society), has also approved the various components of the MIP, demonstrating the commitment of the management of the company to support the program to strengthen the operational performance governance of JIRAMA through transparency and better accountability.

It should be recalled that the General Management of JIRAMA, based on the strategic direction of its Board of Directors has already made efforts to support the recovery JIRAMA: namely through (i) a study of how to bring the Articles of Association of JIRAMA into compliance with current legislation governing commercial companies (an interim report has been delivered); (ii) an audit of current lease agreements as well as ongoing Independent Power Producers (IPP) contracts (the results will be delivered shortly); (iii) the publication and disclosure of the JIRAMA's financial statements on its website , a strong indicator of the commitment to transparency; (iv) operations in the capital and in the provincial capitals to detect anomalies for the recovery of non-technical losses in particular linked to fraud and electricity theft, etc.

Through various actions mentioned in this Letter of Sector Policy, the Government wants to establish sustainable foundations for the "Electricity" sector in Madagascar, so that it becomes truly "the engine of economic development": this marks the strong commitment by the Government of Madagascar to implement in a significant manner the different components of the ESOGIP Project, so that it can deliver better sustainability in the Electricity sector.

Receive, Madam Resident Representative, the assurance of our highest consideration.

[signed by the Minister of Energy and Hydrocarbons] [signed by the Minister of Finance and Budget]

Annex 7: Map

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