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IDA/R2016-0091/1

May 11, 2016

Closing Date: Tuesday, May 31, 2016 at 6 p.m.

FROM: Vice President and Corporate Secretary

Uganda - Grid Expansion and Reinforcement Project

Project Appraisal Document

Attached is the Project Appraisal Document regarding a proposed credit to Uganda for a Grid Expansion and Reinforcement Project (IDA/R2016-0091), which is being processed on an absence-of-objection basis.

Distribution:
Executive Directors and Alternates
President
Bank Group Senior Management
Vice Presidents, Bank, IFC and MIGA
Directors and Department Heads, Bank, IFC and MIGA

Document of
The World Bank

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Report No: PAD1581

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN THE AMOUNT OF SDR71 MILLION
(US$100 MILLION EQUIVALENT)

TO THE

REPUBLIC OF UGANDA

FOR A

GRID EXPANSION AND REINFORCEMENT PROJECT

May 5, 2016

Energy and Extractives Global Practice
Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective March 31, 2016)

Currency Unit	=	Ugandan Shilling
US$1	=	USh 3,370
US$1	=	SDR 0.71

FISCAL YEAR
July 1 – June 30

ABBREVIATIONS AND ACRONYMS

AFMUG	Africa Missions - Uganda
BoU	Bank of Uganda
BST	Bulk Supply Tariff
CEO	Chief Executive Officer
CFR	Central Forest Reserve
CPF	Country Partnership Framework
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization
EIRR	Economic Internal Rate of Return
ERA	Electricity Regulatory Authority
ERT	Energy for Rural Transformation
ESDP	Electricity Sector Development Project
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FIRR	Financial Internal Rate of Return
FM	Financial Management
GDP	Gross Domestic Product
GEE01	Global Energy and Extractives Practice
GEN01	Global Environment and Natural Resources Practice
GERP	Grid Expansion and Reinforcement Project
GGO31	Global Governance Practice – Financial Management
GHG	Greenhouse Gas
GIS	Gas Insulated Switchgear
GoU	Government of Uganda
GRS	Grievance Redress Service
GSU01	Global Social, Urban Rural and Resilience Practice
GSU07	Global Social, Urban, Rural and Resilience Practice
GWh	Gigawatt Hour
ICB	International Competitive Bidding
IDA	International Development Association
IFMS	Integrated Financial Management System
IFR	Interim Financial Report

IPPs	Independent Power Producers
kV	Kilovolt
LDCs	Licensed Distribution Companies
LEGAM	Legal Unit – Africa Region
LFRs	Local Forest Reserves
LGNA	Lira-Gulu-Nebbi-Arua Transmission Line
LICs	Low Income Countries
M&E	Monitoring and Evaluation
MEMD	Ministry of Energy and Mineral Development
MFNP	Murchison Falls National Park
MoFPED	Ministry of Finance, Planning and Economic Development
MoGLSD	Ministry of Gender, Labour and Social Development
MoLHUD	Ministry of Lands, Housing and Urban Development
NCB	National Competitive Bidding
NEMA	National Environment Management Authority
NFA	National Forestry Authority
NPV	Net Present Value
O&M	Operations and Maintenance
PAP	Project Affected Person
PCR	Physical Cultural Resource
PDO	Project Development Objective
PFM	Public Financial Management
PID	Projects Implementation Departments
PIU	Project Implementation Unit
PPAs	Power Purchase Agreement
PPDA	Procurement and Disposal of Public Assets
PS	Permanent Secretary
RAP	Resettlement Action Plan
REA	Rural Electrification Agency
REB	Rural Electrification Board
RESP	Rural Electrification Strategy Plan
ROA	Return on Assets
ROW	Right of Way
SDR	Special Drawing Rights
SIPP	Small Independent Power Producer
SP	Service Provider
ToR	Terms of Reference
UEB	Uganda Electricity Board
UEDCL	Uganda Electricity Distribution Company Limited
UEGCL	Uganda Electricity Generation Company Limited
UETCL	Uganda Electricity Transmission Company Limited
USD	United States Dollars
VAT	Value Added Tax
WACC	Weighted Average Capital Cost
WBG	World Bank Group
WENRECO	West Nile Rural Electrification Company Limited

WFALA	World Bank Group Finance and Loan Accounting

Regional Vice President:	Makhtar Diop
Country Director:	Diarietou Gaye
Acting Senior Global Practice Director:	Charles M. Feinstein
Practice Manager:	Lucio Monari
Task Team Leader:	Zayra Romo
Co-Task Team Leader:	Mbuso Gwafila

UGANDA

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Uganda Grid Expansion and Reinforcement Project (GERP) (P133305)

PROJECT APPRAISAL DOCUMENT

AFRICA

GEE01

Report No.: PAD1581

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Basic Information		
Project ID P133305	EA Category B - Partial Assessment	Team Leader(s) Zayra Romo, Mbuso Gwafila
Lending Instrument Investment Project Financing	Fragile and/or Capacity Constraints [ ] Financial Intermediaries [ ] Series of Projects [ ]	
Project Implementation Start Date 31-May-2016	Project Implementation End Date 31-Oct-2022	
Expected Effectiveness Date 30-Sep-2016	Expected Closing Date 31-Oct-2022	
Joint IFC No		

Practice Manager/Manager	Acting Senior Global Practice Director	Country Director	Regional Vice President
Lucio Monari	Charles M. Feinstein	Diarietou Gaye	Makhtar Diop

Borrower: REPUBLIC OF UGANDA	
Responsible Agency: Ministry of Energy and Mineral Development	
Contact: Dr. Fred Kabagambe-Kaliisa	Title: Permanent Secretary
Telephone No.: 256-414-234733	Email: psmend@energy.go.ug
Responsible Agency: Uganda Electricity Transmission Company Limited	
Contact: Eriasi Kiyemba	Title: Chief Executive Officer
Telephone No.: 256-417-802000	Email: transco@uetcl.com

Project Financing Data (in US$ millions)							
[ ]	Loan	[ ]	IDA Grant	[ ]	Guarantee		
[X]	Credit	[ ]	Grant	[ ]	Other		
Total Project Cost:				127.30		Total Bank Financing:	100.00
Financing Gap:				0.00			

Financing Source	Amount
BORROWER/RECIPIENT	27.30
International Development Association (IDA)	100.00
Total	127.30

Expected Disbursements (in US$ millions)

Fiscal Year	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23
Annual	0	10	15	25	25	10	10	5
Cumulative	0	10	25	50	75	85	95	100

.

Institutional Data

Practice Area (Lead)

Energy & Extractives

Contributing Practice Areas

Cross Cutting Topics

[ ] Climate Change

[ ] Fragile, Conflict & Violence

[X] Gender

[ ] Jobs

[ ] 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	Transmission and Distribution of Electricity	100		
Total		100		

☑ I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.

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Themes

Theme (Maximum 5 and total % must equal 100)

Major theme	**Theme**	**%**
Rural development	Rural services and infrastructure	100
Total		100

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Proposed Development Objective(s)

The Project Development Objective (PDO) is to increase availability and efficiency of bulk electricity supply in the project areas.

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Components

Component Name	**Cost (US$ millions)**
Construction of transmission infrastructure	106
Project implementation and operational support to UETCL	11.8
Sectoral strengthening support	4
Unallocated	5.5

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Systematic Operations Risk- Rating Tool (SORT)

Risk Category	**Rating**
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Low
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	Substantial
7. Environment and Social	Substantial
8. Stakeholders	Low
9. Other	-
OVERALL	Substantial

.

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 [ ]

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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**
Right of way compensation, Schedule 2, Section I, E, 3	No	30-Jun-2018	

Description of Covenant

The Recipient shall cause UETCL to: (a) acquire at least thirty (30) percent of the full right of way for activities under Part A.1 of the Project (of which approximately fifty (50) percent shall consist of the right of way for the Lira-Gulu section), prior to awarding the contract for the said Part A.1 of the Project; and (b) fully acquire land for all substation activities under Part A.2 of the Project prior to awarding the contract for the said Part A.2 of the Project.

Name	**Recurrent**	**Due Date**	**Frequency**
Budget line item for RAP compensation costs, Schedule 2, Section I, E, 5a	Yes		Yearly

Description of Covenant

The Recipient shall, in each Fiscal Year ("FY") commencing FY2016/2017: (a) cause UETCL to establish and thereafter maintain at all material times during the implementation of the Project, a budget line item for RAP compensation costs under Parts A.1 and A.2 of the Project; and (b) through the Ministry of Finance Planning and Economic Development, allocate counterpart funds required for the said RAP compensation costs under the said Parts A.1 and A.2 of the Project to the said budget line

item, until payment(s) for the said RAP compensation costs shall fall due.

Conditions

Source of Fund	Name	Type
IDA	Execution of Subsidiary Agreement, Article V, 5.01(a)	Effectiveness

Description of Condition

The Subsidiary Agreement has been executed on behalf of the Recipient and the UETCL.

Source of Fund	Name	Type
IDA	Project Implementation Manual, Article V, 5.01(b)	Effectiveness

Description of Condition

The Recipient has: (a) caused UETCL to prepare and adopt the UETCL Implementation Manual; and (b) through MEMD prepared and adopted the MEMD Implementation Manual, all in accordance with the provisions of Section I.C.1 of Schedule 2 of the Financing Agreement.

Team Composition

Bank Staff

Name	Role	Title	Unit
Zayra Romo	Team Leader (ADM Responsible)	Senior Energy Specialist	GEE01
Mbuso Gwafila	Team Leader	Senior Energy Specialist	GEE01
Knut Opsal	Social Specialist	Lead Social Specialist	GSU07
Grace Nakuya Musoke Munanura	Procurement Specialist	Senior Procurement Specialist	GGO01
Paul Kato Kamuchwezi	Financial Management Specialist	Financial Management Specialist	GGO31
Constance Nekessa-Ouma	Safeguards Specialist	Social Development Specialist	GSU07
Herbert Oule	Safeguards Specialist	Environmental Specialist	GEN01
Sanjay Srivastava	Environmental Specialist	Lead Environmental Specialist	GEN01
Paivi Koskinen-Lewis	Safeguards Specialist	Social Development Specialist	GSU01
Kabir Malik	Economist	Economist	GEE01
Mariano Salto	Finance	Energy Economist	GEE01

Vladislav Vucetic	Lead Energy Specialist	Lead Energy Specialist	GEE01
Christine M. Makori	Counsel	Senior Counsel	LEGAM
Christiaan Johannes Nieuwoudt	Finance Officer	Finance Officer	WFALA
Chita Azuanuka Oje	Team Member	Program Assistant	GEE01
Barbara Katusabe	Team Member	Team Assistant	AFMUG

Extended Team			
Name	**Title**	**Office Phone**	**Location**
Donald Paul Mneney	Procurement Consultant		Tanzania

Locations					
Country	**First Administrative Division**	**Location**	**Planned**	**Actual**	**Comments**
Uganda					

Consultants (Will be disclosed in the Monthly Operational Summary)	
Consultants Required?	Consultants will be required

I. STRATEGIC CONTEXT

A. Country Context

1. **Uganda, a landlocked country in East Africa, had Gross Domestic Product (GDP) growth of five percent in FY2014/15, putting the economy back on the growth path following the economic slump it experienced between 2010 and 2012**. The recovery has been driven by an acceleration in public and private investment after the negative shocks that include the global financial crisis and a prolonged drought. The value of public investments was equivalent to 6.3 percent of GDP in FY2014/15 (compared to 5.6 percent the previous year) and was accompanied by a strong increase in the total value of private investments. Continuing on the recovery path, Uganda hopes to achieve the robust growth trajectory it had for a couple of decades prior to the crisis, when it achieved an annual average GDP growth rate of 6.9 percent from 1987 - 2010.

2. **Despite the recent slowdown, the robust growth in the previous decades has had a significant impact on poverty reduction.** The proportion of households living in poverty—whether measured using the national poverty line or the international poverty line—more than halved from 1993 to 2013. The proportion of households living under the national poverty line declined from 56.4 percent in 1993 to 19.7 percent in 2013, while annual consumption growth of the bottom 40 percent averaged around three percent during this period, higher than most other countries in the region. The incidence of extreme poverty measured by the international poverty line of US$1.90 per day declined from 68.1 percent in 1993 to 33.2 percent in 2013[1]. Over the last ten years, Uganda reduced the proportion of households living under US$1.90 per day faster than any other country in Sub-Saharan Africa.

3. **However, the decrease in poverty remains fragile.** In 2013, 43 percent of the population was considered vulnerably non-poor. This implies that though these households were above the official poverty line, there is a high risk of them falling back into poverty subject to economic, political, weather, or other shocks. Inequality, too, has increased due to the relatively lower consumption growth of the bottom 40 percent of the population. The Gini coefficient increased from 0.36 in 1993 to 0.40 in 2013. In 2014, Uganda ranked 163 out of the 188 countries on the Human Development Index[2].

4. **There are large and increasing regional inequalities with most of the poor concentrated in the North and the East of the country.** In 2006, approximately 60 percent of the poor lived in the northern and eastern parts of the country and by 2013 this proportion had increased to 84 percent. At the sub-regional level, most of the poor live in the Mid-North and the East, 20.7 percent and 22 percent respectively. The West Nile sub-region (along with East Central and North East) also has a double-digit percentage of poverty. Despite the growing urbanization, nearly 84 percent of the population and 90 percent of the poor lived in rural areas in 2013.The rural poor mainly derive their income from agriculture and thus remain vulnerable to weather shocks.

5. **Uganda has one of the most rapidly growing populations in the world, which is creating pressure on public service delivery and infrastructure**. The country's average population growth rate, according to the 2014 census, was three percent per year between 2002

[1] Uganda Systematic Country Diagnostic, World Bank Group, 2015
[2] Uganda Poverty Status Report, Ministry of Finance, Planning and Economic Development, 2014

and 2014. Based on current and projected growth, Uganda's population is expected to increase from about 37.78 million in 2014 to 47 million in 2025. Rapid population growth will continue to put pressure on existing infrastructure, requiring higher rates of investment to enhance capacity and efficiency of service delivery to sustain growth in the medium term.

6. **The Government of Uganda's (GoU's) Vision 2040 aims to transform Uganda from a largely agrarian, low-income country to an upper-middle-income country by 2040.** To achieve the required acceleration in economic growth driven by private sector participation and economic diversification, it is critical to remove fundamental bottlenecks, including insufficient infrastructure (energy, transport, water, oil and gas, and information and communications technology). Enhanced competitiveness of the economy requires lowering the cost of doing business and increasing productivity, and critically depends on access to reliable and affordable infrastructure services. Recognizing this, Uganda has committed to building the stock of physical capital, notably through investments in infrastructure, including transport and energy. Vision 2040 identifies the critical importance of front-loading investments in energy, transport, oil, and information and communications technology in achieving the stated objectives of economic growth and poverty alleviation.

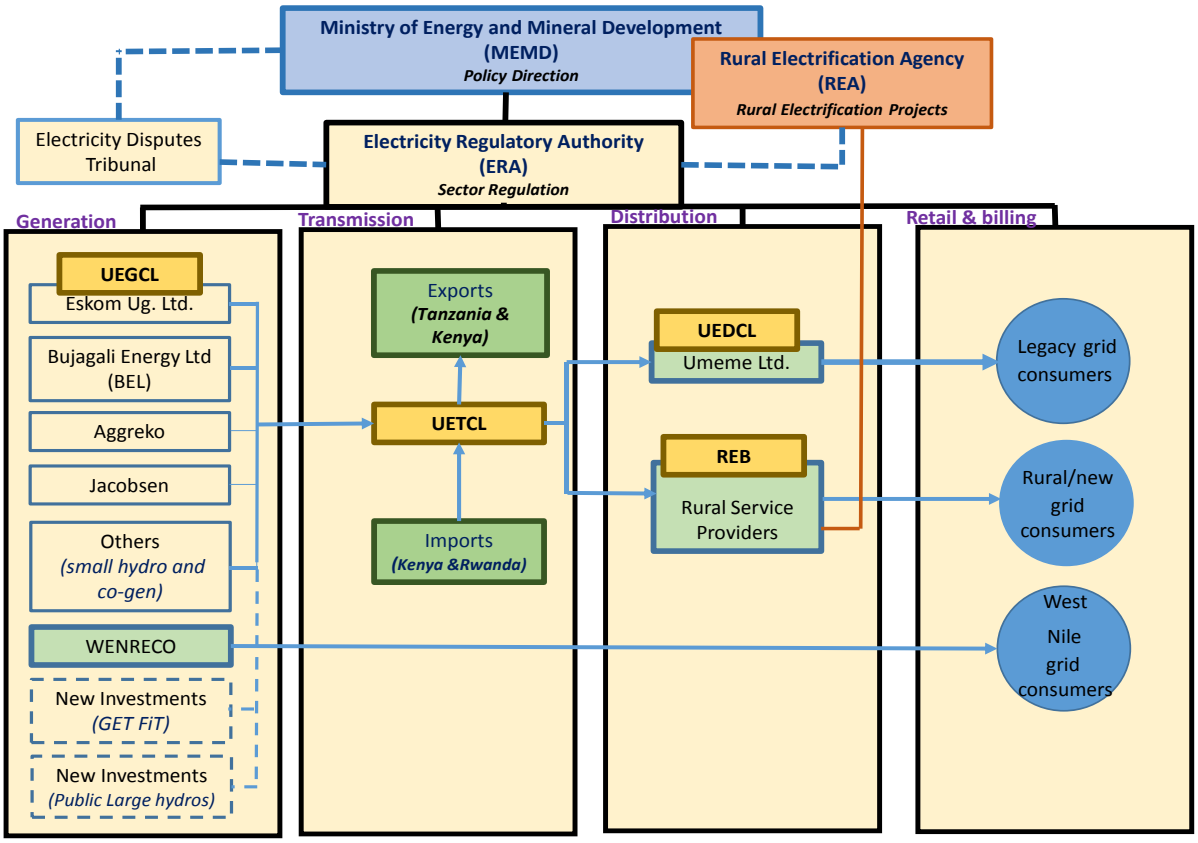
7. **Improving access to electricity and enhancing reliability of electricity service are critical for Uganda's plans for modernization and economic growth within the next 30 years**. Lack of access to electricity represents one dimension of poverty and poses a significant challenge for socioeconomic development to support the young and growing population. At the current rate of electricity access, about 86 percent of the population depends on expensive and polluting energy alternatives, such as small gasoline and diesel generators, firewood, charcoal, candles, and kerosene to meet their household lighting and heating needs. For businesses with electricity, poor reliability of service delivery imposes high costs (including the capital cost of self-generation and loss of production), which is a constraint to competiveness and undermines employment potential. The 2013 enterprise survey in Uganda (January 2013 - July 2014) shows that nearly 23.2 percent of the firms identified unreliable electricity services as the main obstacle for conducting business in the country.

B. Sectoral and Institutional Context

8. The GoU initiated a series of power sector reforms in 1997 with the objective of creating a financially viable sector capable of supplying electricity efficiently and at reasonable prices. The role of competition and private sector participation was seen as central to improving supply reliability and sector efficiency. This resulted in the unbundling of the vertically integrated Uganda Electricity Board (UEB) into three separate government-owned corporate entities: the Uganda Electricity Generation Company Limited (UEGCL); the Uganda Electricity Transmission Company Limited (UETCL); and the Uganda Electricity Distribution Company Limited (UEDCL). An operation and management contract was awarded for the government-owned hydropower plants. Private investors were able to operate in Uganda as independent power producers (IPPs). On the distribution side, the management and operation of legacy distribution assets were leased to Umeme Limited, a private company, and subsequent distribution assets developed outside the Umeme concession area were leased to several smaller licensed distribution companies (LDCs). The UETCL, given its central role as the transmission operator, remains a government owned company.

9. **To support the implementation of the power sector reform strategy, the GoU passed the Electricity Act 1999 establishing the new regulatory framework and sector structure, including new agencies**. The Ministry of Energy and Mineral Development (MEMD) remained the agency responsible for overall sector coordination, planning, and policy. The Electricity Regulatory Authority (ERA) was established in 2000 to oversee all sector activities with the responsibility for issuing distribution and generation licenses, tariff setting, and developing and monitoring performance standards for electricity service. A Rural Electrification Board (REB) was established in 2001, chaired by the Permanent Secretary (PS) of the MEMD, to oversee the implementation of rural electrification activities, and the Rural Electrification Agency (REA) was created as the secretariat to the REB to support the day-to-day operations. Figure 1 illustrates the current structure of the power sector in Uganda.

Figure 1: Structure of the Ugandan Power Sector



10. **MEMD is the primary agency for the GoU at the helm of the electricity sector, and is responsible for sector policy direction and coordination.** It has a critical role to fulfill in policy formulation, planning, and coordination of the expanding and increasingly complex electricity sector. Sector coordination is crucial to ensure operational efficiency and harmonization between various sector agencies. Policy formulation and planning functions are important determinants of sector strategy and help articulate government priorities and guide the definition of operational principles and required investments for the sector. As a part of its role in sector policy and coordination, the MEMD is represented on the Boards of key government-owned sector entities, including UETCL.

11. **UETCL as the single buyer, electricity wholesaler, and transmission system operator is at the center of Uganda's power sector.** As the single buyer/wholesaler of electricity, UETCL buys electricity from all generation plants (including IPPs and imports) and sells to the distribution companies (and for exports). Private sector operations in electricity generation (including small independent power producers [SIPPs]) are supported by take-or-pay power purchase agreements (PPAs) that are signed with UETCL. In addition, in its role as transmission system operator, UETCL's mandate includes: (a) operation and maintenance (O&M) of the high voltage (HV) transmission grid (66kV and above); (b) dispatch of generation plants to meet the demand on the system on an ongoing basis; (c) planning of the expansion of transmission network; and (d) preparation and implementation of transmission projects.

12. **Considerable results have been achieved through the power sectors reforms.** The current installed generation capacity increased from about 300 MW in 2002 to 879 MW in 2015, including 79 percent from hydropower, 15 percent co-generation, and the rest from thermal generation. Private sector capital was mobilized for investments in the generation sector, including Bujagali hydro (250 MW) and other SIPPs. The transmission network has expanded from 1,165 km in 2003 to 1,627 km in 2014. In 2014, about 3,100 GWh of electricity was sold by UETCL (of which 167 GWh was exported to Kenya, Tanzania, Rwanda, and the Democratic Republic of Congo).[3] The volume of sales has been growing in the past years, with growth in both domestic sales and exports – the compounded annual average growth rate between 2010 and 2014 was 6.45 percent per year. On the distribution side, Umeme, with more than 650,000 customers, remains the largest company with a market share of around 95 percent with regards to both customers and electricity sales. Total distribution network losses decreased from almost 40 percent in 2005 to 21.3 percent in 2014 and the revenue collection rate improved from 80 percent to 100 percent in the Umeme service areas.

13. **Despite progress as a result of the reforms, access to electricity in Uganda is only 14 percent, which is below the average access rate of 24 percent for countries in Sub-Saharan Africa.** To address the urgent need to increase access to electricity, the GoU has approved a Rural Electrification Strategy Plan (RESP) for 2013 - 2022, which provides a roadmap to increase access to 26 percent by 2022. The plan includes a series of investments in distribution and off-grid solutions required to achieve this target. The RESP also requires REA to work in collaboration with UETCL to extend the transmission network to meet rural and urban electricity needs. The Bank is supporting the implementation of the RESP through the Energy for Rural Transformation III (ERT-III) Project (P133312), which is financing grid and off-grid electricity connections. Other development partners[4] are also providing financing for electrification in Uganda.

14. **The current demand-supply balance may be strained in the short term due to demand outstripping available supply.** Due to high population growth and several efforts in the sector to increase electricity access, demand for electricity is projected to surpass available generation capacity in the next few years. This supply shortage is expected to remain until the planned large hydropower plants of Isimba and Karuma are commissioned in 2018. As a

[3] In 2014, UETCL revenues generated from electricity sales through the Bulk Supply Tariff (BST) reached US$271 million.

[4] Agence Francaise de Développement, African Development Bank, Germany's KfW Development Bank, Nordic Development Bank, Islamic Development Bank, Japan International Cooperation Agency, European Union, the United Kingdom's Department for International Development, Government of Norway, among others.

preventative measure in the short term, ERA has introduced a time-of-use demand side management program whereby tariffs for industrial customers are increased to incentivize a shift in consumption from peak to off-peak and shoulder periods. In addition, the GoU is promoting the development of the SIPPs that can be commissioned faster and could be developed simultaneously with Isimba and Karuma without imposing additional financial and managerial burden on the government. In the medium- to long term-term, there is an increasing need to extend and improve transmission and distribution infrastructure, to improve supply availability, reliability, and efficiency by bringing bulk electricity supply closer to existing and emerging demand centers.

15. **Current policy and planning arrangements are not conducive to optimal system expansion.** Current sector plans are often carried out through individual entities, and harmonized only at the start of each planning period. However financing for investments comes from different sources and at different times leading to uncoordinated investments. This arrangement results in sub-optimal investments in generation capacity with respect to timing, location, and choice of technology. Likewise, transmission expansion planning has become much more complex as it tries to accommodate the interdependencies of generation and demand, including committed generation investments that are planned without the involvement of the transmission grid operator/planner. The MEMD formulated the Power Sector Investment Plan in 2011, but this plan was not updated and was never used to guide sector investment decisions. A system-wide planning arrangement is needed to help address the interdependencies of generation, transmission, and demand, and improve the sequencing and cost-efficiency of investments from the country's perspective. Capacity for overall coordination of sector activities also needs to be improved for this to be achieved.

16. **UETCL's most recent Grid Development Plan attempts to integrate the interlinkage of transmission requirements with future demand growth and generation expansion**. The Grid Development Plan details the transmission grid investment requirements for Uganda for the period 2014 - 2030 to meet the projected national load growth, integrate new generation developments to the grid, and align transmission developments with government programs for increased electricity access and regional interconnection. It will be regularly updated by UETCL.

17. **Substantial investments will be required in the transmission network to provide low-cost bulk electricity supply across the country.** Considering the base scenario with a conservative growth demand for electricity under the Grid Development Plan, the UETCL will require around US$3.8 billion of investments in the transmission network from 2014 to 2030 (an average of about US$225 million annually). These investment requirements for transmission network extension have been largely financed by government contributions and concessional loans from multilateral development banks and other development partners when available.

18. **The multi-year tariff and regular tariff reviews have helped manage sector financial sustainability, but UETCL's ability to finance its future investments remains a challenge.** ERA sets tariffs through a multi-year tariff setting process (that is, three year period) that is based on revenue requirements and is adjusted quarterly considering currency fluctuations, inflation, and fuel costs. ERA sets the Bulk Supply Tariff (BST) that UETCL charges to distribution companies as the wholesaler of electricity and the retail tariffs charged to end user customers by each of the distribution companies. In October 2015, ERA approved an increase of 15.5 percent for the BST, taking it to approximately US$0.08/kWh and an increase of 18 percent for the retail tariff, which resulted in an approximately US$0.16/kWh charge for residential end-

user customers. The current BST adjustment methodology employed by ERA mainly considers the cost of purchasing power from the generators, leaving a small margin for UETCL to cover the cost of operating and maintaining the network. There are no provisions for future capital investments or for the provision for strategic spare parts, and the BST does not fully cover UETCL's debt service obligations.

19. **UETCL has a limited capacity to finance future investments.** A financial assessment of UETCL was carried out as part of project preparation.[5] Findings indicate that over the last two years, UETCL posted annual profits, helping the company to recover from the previous years' losses that hindered its equity position. This is a result of the understanding between the UETCL, the Ministry of Finance, Planning and Economic Development (MoFPED), and ERA that the GoU will convert its outstanding loans to UETCL (all concessional) into government equity to reduce financial pressure on the company and to maintain the BST at the lowest possible level. This arrangement has been formalized by UETCL's Board, including MoFPED, through a Board resolution. Therefore, the financial covenants (related to DSCR and earnings before interest, taxes, depreciation and amortization [EBITDA] margin) under the Bank-supported Electricity Sector Development Project (ESDP, P119737) have been met for FY13 and F14, and it is expected to be maintained.

20. **Given the strategic importance of UETCL in the power sector, attention needs to be paid to its financial outlook and particularly to its financial sustainability in the short, medium, and long term.** There are four main factors that should be monitored closely as they could impact UETCL's financial position: (a) supply and demand unbalance, for example, the emerging situation of excess generation capacity that is based on take-or-pay contracts; (b) large capital investment requirements in the medium term (for example, the following six years); (c) withholding of payments by Umeme due to unpaid government bills (a remedy provided for in Umeme's concession agreement)[6]; and (d) BST that is below cost recovery level.

21. **The current capacity of UETCL to implement its infrastructure investment plans is inadequat**e. UETCL is currently structured mainly for O&M of the existing transmission system. The existing project implementation unit (PIU) is not sufficiently resourced to manage the current and planned infrastructure projects. This situation poses challenges for UETCL to effectively implement its investment program. It is therefore necessary for UETCL's project implementation team to be augmented to enable increased efficiency and effectiveness in project and contract management.

22. **The government has commissioned a study to review power sector reforms, including the role of UETCL as the 'single-buyer'.** The review, supported by the ESDP and expected to be completed by the end of 2016, will evaluate the current policy and regulatory set-up for the sector, as well as the human resource constraints facing key sector institutions. Based on the review, recommendations will be made regarding: (a) increasing the ability of the sector to attract and sustain adequate investments (including from the private sector); (b) increasing electricity access rate nationally; (c) improving reliability and security of supply; and (d) improving the operational efficiency of the sector. Implementation of key recommendations from

[5] The financial assessment took into consideration the audited and approved financial statements from 2012 and 2013, draft financial statements from 2014, and projections for 2015.

[6] Umeme concession agreement foresees five layers of remedies to compensate against the GoU default: Umeme-UEDCL lease fee off-set; UEDCL escrow account; interest during construction backstopped letter of credit (no longer available since 2012); UETCL offsets; and concession termination.

the study is expected to be supported under this project as a part of the technical assistance component.

23. **This project will continue support for transmission strengthening and sector capacity building provided under the ongoing ESDP.** As under ESDP, this project supports transmission investment to increase the availability of bulk electricity to previously underserved areas where consumption is constrained by low availability and quality of electricity. As mentioned above, the ESDP is also supporting the review of power sector reforms, and the financial and technical assistance provided to UETCL under this project is designed to support the evolution of the transmission sub-sector as required and recommended by the findings of the review.

C. Higher Level Objectives to which the Project Contributes

24. **The project contributes to the GoU's economic growth and poverty reduction objectives outlined in Vision 2040, and is aligned with the Bank's twin goals of reducing poverty and promoting shared prosperity.** The project areas in the West Nile and Northern Uganda are characterized by extremely low electricity access rates (between one and three percent,[7] one of the lowest in all sub-regions of Uganda) and relatively high poverty rates (especially Northern Uganda, which is a post-conflict region). By increasing availability and efficiency of bulk power supply in these areas, the project will ease electricity supply constraints and lay the foundation for improving household electricity access and the development of income generating and productive electricity use activities.

25. **The proposed project is also aligned with Uganda's Vision 2040 goal of improving electricity infrastructure.** Improved access to and affordability of infrastructure services is central to the GoU's strategy and vision for accelerating equitable economic growth and reducing poverty to achieve middle-income country status. The proposed project will finance a crucial section of the transmission grid and will help to improve availability and efficiency of bulk electricity supply to the northern and north-western regions of the country while supporting the national transmission company to improve its overall operational efficiency. The supported investments are also in line with UETCL's medium-term investment plan.

26. **The proposed project is aligned with the priority investment areas of Uganda's most recent National Development Plan (NDP-II) and the priority areas identified in the World Bank Group's Country Partnership Framework (CPF, 2016-2021).** The CPF for Uganda supports structural transformation of the economy by balancing the provision of services of rural and urban areas, with special attention to the northern and eastern regions. The CPF will support enhanced agricultural commercialization to increase rural incomes and strengthen backward and forward linkages with industry, particularly agro-processing; while helping Uganda realize the potential of urbanization through investments in productive and connective infrastructure to spur private investments. The proposed project supports the CPF's objectives of enhancing power infrastructure to support inclusive and sustainable economic development and human capital development through the provision of reliable electricity services. The proposed project focuses on the West Nile and Northern Uganda areas that are characterized by extremely low electricity access rates and relatively high poverty rates. By increasing availability and efficiency of bulk power supply in these areas, the project will ease electricity supply constraints and lay the

[7] Uganda Bureau of Statistics, 2013.

foundation for improving household electricity access and development of income generating and productive use activities.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

27. The project development objective (PDO) is to increase availability and efficiency of bulk electricity supply in the project areas.

28. Progress toward achieving the PDO will be measured by the following indicators:

- Transmission lines constructed under the project (km);
- Increased bulk supply capacity in the project areas (MW);
- Reduction in technical losses in the project area (percentage); and
- Direct project beneficiaries (number), of which female (percentage).

29. The full results framework is provided in annex 1.

B. Project Beneficiaries

30. The primary beneficiaries of the project are the current and future electricity consumers in the project areas (Northern and West Nile regions), who will benefit from the increased availability of electricity supply. The proposed project will benefit existing grid connected consumers, including residential, commercial, and industrial consumers, by meeting their suppressed demand and improving efficiency of supply. Increased transmission capacity and the resultant increase in the availability of bulk electricity will ease supply constraints to enable more end-user connections to the grid and increase overall electricity access in the project area. Improved electricity availability may also spur development of productive uses of electricity to generate income and jobs. The number of beneficiaries is conservatively quantified as the populations of Gulu, Nebbi and Arua districts – approximately 1.6 million people (from the 2014 census).[8]

31. LDCs (service providers [SPs]) in the project area will also benefit from the project as they will have a more efficient supply of electricity to increase access/connections and expand their revenue base.

32. UETCL and MEMD, as recipients of the technical assistance, will benefit from the support provided to strengthen operational effectiveness. Consequently, all of UETCL's customers (distribution companies) and other key sector agencies will benefit indirectly from this assistance.

III. PROJECT DESCRIPTION

A. Project Components

33. The proposed Grid Expansion and Reinforcement Project (GERP) will support the implementation of the Grid Development Plan by financing the strategic expansion and upgrade of transmission infrastructure, including a transmission line and substations, with a focus on enabling increased electricity access and the need to accommodate the increasing demand for

[8] This is considered conservative as the power and associated benefits will flow to the current and future distribution network beyond the immediate districts with the planned sub-stations.

electricity. The strategic investments to be supported by the GERP were selected considering; (a) areas that are not served by the main electricity network; (b) areas in greater need of electricity services based on regional poverty levels; and (c) complementary downstream investments being undertaken in the distribution network and funded through the ERT series of projects to increase rural energy access. The project will also finance technical assistance activities to UETCL and MEMD to enhance project implementation, contract management, safeguard monitoring, support for power sector policy development actions in the context of the review of power sector reforms, and the mitigation of sector financial risks. In addition, the project will support future investment readiness activities and implementation support of the GERP.

Component A: Construction of Transmission Infrastructure (Estimated Cost US$106 million, of which IDA US$80 million Equivalent and GoU US$26 million)

34. The objective of this component is to provide increased electricity transmission capacity to meet the power supply needs of Northern Uganda and the West Nile region and to interconnect the isolated West Nile distribution network to the main transmission grid. Currently, the demand for the entire West Nile area is supplied by a single small hydropower plant (3.5 MW Nyagak 1).[9] It is projected that the available excess capacity will soon be exhausted by the connection of a medium-sized industrial load and the expansion of electricity access to households and enterprises through the ongoing rural electrification programs supported by the Bank (ERT III Project) and other development partners. The project will also form the basis for future interconnection and energy exchanges between Northern Uganda, West Nile, and the neighboring countries.

Subcomponent A-1: Transmission Line (LGNA) and Sub-component A-2: Substation Works

35. This subcomponent will finance a high voltage (132 kV) transmission capacity that will interconnect the isolated distribution system in the West Nile to the main transmission grid at existing Lira 132/33kV substation. This will entail construction of: (a) 314 km of 132kV double circuit transmission line from Lira, through Gulu and Nebbi, to Arua; (b) extension of the existing 132 kV substation at Lira; (c) a 132/33kV substation with two 40 MVA transformers at Gulu; (d) 132/33kV substation with two 20 MVA transformers at Nebbi; and (e) a 132/33kV substation with two 40 MVA transformers at Arua. UETCL is currently implementing three transmission line projects that are expected to connect to the existing grid at the existing 132 kV Lira substation, but the times for these connections are not certain. Additionally, only one transmission line can be run from the north (Gulu side) into Lira substation. In the event that the proposed Lira-Gulu-Nebbi-Arua (LGNA) transmission line is not able to connect at Lira, an option to construct a 132kV switching station has been included in the project design. Given the uncertainty in the requirement and location of the switching yard at the time of appraisal, appropriate provisions were included in the disclosed safeguard documents.

36. This subcomponent will also include short interconnections from the new substations at Gulu, Nebbi, and Arua to the nearest feasible connection points on the existing 33 kV network currently supplying power in these areas. This will ensure that the transmission line is connected to existing distribution infrastructure in a timely manner to expedite the accrual of benefits (increased availability and reliability of electricity) to end-consumers in the project areas. Additionally, the design and construction of the substations at Gulu, Nebbi, and Arua will have

[9] Construction of Nyagak 1 benefitted from ERT-1 support. The Bank continues to support Nyagak 1 through Carbon Finance operations.

enough capacity and spare 33kV feeder panels to allow future distribution network expansion (rural electrification) and access scale up programs. As the transmission system is extended, the LGNA transmission line will, in future, accommodate new interconnection points along the line to connect new loads (demand) and generation capacity.

Subcomponent A-3: Engineering Construction and Supervision Consultant

37. This subcomponent will finance an engineering construction supervision consultant for transmission to assist UETCL with (a) reviewing detailed designs, procurement of contracts, and construction supervision for the transmission line and substations works undertaken in Subcomponent A1 (including certifications for contractor payment, preparation of reports required by UETCL and IDA, and expertise transfer and training for staff); and (b) supervision and monitoring of the implementation of the Environmental and Social Management Plan (ESMP) and Resettlement Action Plan (RAP).

Component B: Project Implementation and Operational Support to UETCL (Estimated Cost US$11.8 million, of which IDA US$11 million Equivalent and GoU US$0.8 million)

38. The UETCL plays a central role in the electricity sector as the single buyer and transmission system operator. This component is proposed to support the UETCL to enhance its project implementation capacity, contract administration, and operational effectiveness through technical assistance and modernization of management systems. This component is specifically intended to address the capacity constraints the UETCL is experiencing due to its growing portfolio of transmission projects. Support under the component is described below.

Subcomponent B-1: Capacity Assessment and Project Implementation Support

39. A capacity assessment of the UETCL will be undertaken and its findings will serve as a basis for financing activities and expertise to enhance the UETCL's effectiveness in project implementation, contract administration, and day-to-day operation of the transmission system. It will also include a review and support to the UETCL's capacity to negotiate PPA commitments and include a financing plan to optimize the company's resources and financing options. This sub-component will also support GERP implementation, including hiring of specialist consultants to support various aspects of project implementation, regular and comprehensive monitoring of safeguard compliance measures identified for the project, and necessary skills training of the UETCL staff.

Subcomponent B-2: UETCL's System Modernization

40. This subcomponent will support an enhancement of the operational efficiency of UETCL through the acquisition of planning and operational tools. These include project monitoring and evaluation (M&E) tool (at corporate level), Enterprise Resource Planning (ERP) tool, and an audit of the system protection and control function. This sub-component will also support the adoption of analytical tools to better manage its financial resources and risks, such as accounting software and corporate financial projections and modeling.

Subcomponent B-3: Biodiversity Off-set

41. This subcomponent will support UETCL's efforts in offsetting the deforestation impacts associated with the transmission line. UETCL will, in collaboration with National Forestry Authority (NFA) and local governments, undertake restoration tree planting in degraded Central

Forest Reserves (CFRs) and Local Forest Reserves (LFRs) along and/or adjacent to the transmission line. The restoration activities shall be undertaken in line with the respective forest management plans of selected CFRs and LFRs along the transmission line, in areas that are void of land conflicts.

Component C: Sectoral Strengthening Support (Estimated Cost US$4 million, of which IDA US$3.5 million Equivalent and GoU US$0.5 million)

42. MEMD has a critical role to fulfill in policy formulation and strategy, planning, and coordination of the growing and increasingly complex electricity sector. In this regard, MEMD will prepare a Power Sector Investment Plan, that is, a least cost power development plan to ensure that planning of new investments results in least cost for the country and end user. The following activities will provide complementary support for sector strengthening.

Subcomponent C-1: Coordination and Supervision of Safeguards

43. This subcomponent will focus on the supervision functions for monitoring of environment and social impacts including resettlement and compensation of project affected persons (PAPs) to ensure proper implementation, identify bottlenecks and measures that require inter-ministerial cooperation with MoFPED, Ministry of Lands, Housing, and Urban Development (MoLHUD), Planning, Office of Chief Government Valuer, National Environment Management Authority (NEMA), NFA, Ministry of Gender, Labour and Social Development (MoGLSD), and so on.

Subcomponent C-2: Sector Skill Assessment

44. This subcomponent will assess the current situation and gaps of government power sector agencies with regard to the adequate technical skills to support operational and financial sustainability of the sector. The assessment will also propose recommendations to enhance the skills of current and new staff with the support of state-of-art tools.

Subcomponent C-3: Sector Skill Strengthening Program

45. This subcomponent will finance the recommendations of the sector skills assessment under Subcomponent C-2. This will include the curriculum development/revision, in-house training, tools and equipment, and so on.

B. Project Financing

46. The lending instrument for the proposed project is Investment Project Financing. The GoU will receive an IDA credit of SDR71 million equivalent to US$100 million. The credit will be granted to UETCL for components A and B. The total project cost is estimated at US$127.3 million. Cost estimates by component are detailed in table 1 (costs in the table include a price contingency for each component). For Component A, cost estimates are based on the recently completed feasibility study for the proposed LGNA transmission project funded under the ESDP.

Project Cost and Financing

Project Financing	Project Cost (US$ millions)	IDA Financing (US$ millions)	GOU (US$ millions)	% IDA Financing
Component A. Construction of Transmission Infrastructure	**106.0**	**80.0**	**26.0**	**75**
Transmission line (LGNA)	58.0	49.0	9.0	-
Substation Works (including 33 kV interconnector)	30.0	25.0	5.0	-
Engineering and construction supervision consultant	7.0	6.0	1.0	-
RAP Implementation	11.0	0	11.0	-
Component B. Project Implementation and Operational Support to UETCL	**11.8**	**11.0**	**0.8**	**93**
Capacity assessment and project implementation support	5.0	4.5	0.5	-
UETCL systems modernization	5.8	5.5	0.3	-
Biodiversity off-set	1.0	1.0	0.0	-
Component C. Sectoral Strengthening Support	**4.0**	**3.5**	**0.5**	**88**
Coordination and supervision of social safeguards	0.7	0.7	0.0	-
Sector skill assessment	0.3	0.3	0.0	-
Sector skill strengthening program	3.0	2.5	0.5	
Unallocated	**5.5**	**5.5**		
Total Financing Required	**127.3**	**100.0**	**27.3**	**79**

Note: (a) The GoU's contribution is estimated based on 18 percent value added tax (VAT) and 100 percent contribution for RAP implementation costs. (b) Unallocated funds are in lieu of price and physical contingencies for construction works under Components A and C.

C. Lessons Learned and Reflected in the Project Design

47. Lessons learned from previous transmission and distribution projects have been considered in the design of this project. Key lessons are summarized below.

48. ***Capacity assessment.*** Previous projects in the transmission and distribution sector have suffered delays due to capacity constraints of implementing agencies. Drawing on lesson learned from previous projects, project supervision and implementation capacity will be bolstered through the hiring of specialist consultants by UETCL. In addition, an assessment of UETCL's overall project implementation capacity will be undertaken to inform project support for UETCL's capacity development plan with regard to staffing, skills, and operational and planning tools.

49. ***Streamlined implementation responsibilities.*** The electricity sector in Uganda has numerous entities with interacting and, in some cases, overlapping responsibilities. Any project in the electricity sector therefore requires coordination between multiple entities and stakeholders. Lessons learned from previous projects, such as the ongoing ESDP, have shown that coordination between multiple implementing agencies increases transaction costs and may cause implementation delays. The proposed project will limit the number of implementing agencies to UETCL for all infrastructure components, with a small sub-component related to power sector technical assistance implemented by the MEMD. This arrangement has worked well under the ESDP.

50. ***Project cost estimates***. To avoid the severe cost over runs (or under runs) experienced by previous Bank-financed projects in Uganda's power sector, cost estimates are compared against more recent experience and consider expected variations in future costs. In addition, the cost

estimates are being undertaken by an independent, international, reputable consulting firm with extensive experience of implementing transmission projects in Sub-Saharan/East Africa.

51. ***Timely implementation.*** During the implementation of the ESDP, procurement and execution of large infrastructure works proved to be challenging and were often delayed given the lack of implementation readiness of the investments at the time of project effectiveness. In light of this, all preparatory activities for Component A have already been completed, including feasibility studies, detailed project designs, bidding documents, and the Environmental and Social Impact Assessment (ESIA) and RAP. The UETCL has also been advised to proceed with the procurement of the construction supervision consultant and construction contractors for the project as this will allow all related procurement activities, except for contract awards, to be completed by the time of project effectiveness. Similarly, under this project, support for future project readiness will be provided as a part of technical assistance to the UETCL.

52. ***Implementation and oversight of safeguard mitigation actions***. An escrow account will be established for counterpart funds for resettlement compensation to avoid delays experienced in this area under previous transmission projects. The escrow account will be monitored by the project team to ensure that adequate funds are maintained, at any time, to cover all outstanding compensation payments. Compensation and land acquisition will be implemented in segments to expedite completion of compensation of PAPs in priority sections of the line corridor. The contractor will be allowed access for the start of civil works only to sections where PAPs have been compensated. This arrangement will be included in the bidding document.

53. ***Coordination of procurement and implementation of RAP***. To ensure compliance with OP 4.12 on Involuntary Resettlement that indicates that PAPs must be fully compensated prior to the start of physical works, provisions were made in the procurement aspects to reflect this. In this regard, the transmission line contract will only be awarded after at least 30 percent of the full right of way (ROW) has been acquired, with at least 50 percent of the ROW for the section between Lira and Gulu acquired. For the substation contracts, it was agreed that contract award will take place only after the full acquisition of land for the substation sites.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

54. The project will rely on the existing PIUs at UETCL and MEMD, which have prior experience in implementing IDA-financed projects. Each PIU will have a project coordinator. The PIU for the UETCL will need to be supplemented with additional staff given the size of the project portfolio it manages, including additional activities to be financed under GERP.

55. UETCL will be responsible for the implementation of Components A and B. Component A will be carried out in close collaboration with Umeme in the Gulu area, and West Nile Rural Electrification Company Limited (WENRECO) in the West Nile Region (Nebbi and Arua) for effective coordination of outages and service restoration with the distribution companies at the time of commissioning the transmission line. Subcomponent B-4 will be carried out in close collaboration with the NFA and respective Local governments along the transmission line. The existing UETCL PIU that is implementing the ESDP will be responsible for GERP implementation. PIU will comprise existing staff in the Projects Implementation Department (PID) of UETCL, supported by the other departments and specialist consultants (project management, contract management, procurement, social safeguards, environmental safeguards,

and project accounting) who will be financed through the GERP. Appropriate technical assistance is included to support implementation, especially in the areas of procurement processing and supervision of construction works.

56. MEMD will be responsible for the implementation of Component C.

57. Each implementing agency will be responsible for preparation and submission of progress reports to IDA as required for its respective project components. A more detailed description of project implementation arrangements, including fiduciary responsibilities, is provided in annex 3.

B. Results Monitoring and Evaluation

58. Overall project M&E will be carried out by each implementation unit headed by the respective project coordinators.

59. The PIU in UETCL will include a dedicated project manager appointed by the UETCL and the project will finance an assistant to the project manager to assist on all the M&E activities of the project and who will report to the project manager. The M&E officer will prepare a monthly progress report for discussion by the UETCL's senior management and on a periodic basis by the UETCL's Board. Monthly progress reports will also be submitted to the Bank including an update on progress on all results indicators (every quarter).

60. Annex 1 presents the project's results framework, which defines specific outcomes and results to be monitored. In addition to regular monitoring and reporting on the agreed project indicators, activities to be monitored include the timely, efficient, and transparent supervision of procurement and contract management; monitoring of construction and commissioning of the transmission and distribution works; effective implementation of all safeguards instruments; and studies and training activities.

C. Sustainability

61. There are four key factors that determine the sustainability of the project:

(a) **Timely implementation of the Grid Development Plan**. The current transmission investment plan is considered adequate for meeting the growing loads in Northern and West Nile regions of Uganda by building the proposed LGNA line. The feasibility report prepared for the proposed LGNA transmission line estimates that, by 2018, the demand for electricity in the project area is expected to surpass the existing capacity by 300 percent in Gulu, 174 percent in Nebbi, and 345 percent in Arua. Timely project implementation will allow Uganda to meet the rapidly increasing demand for electricity in the region with important economic benefits for the country, as shown in the economic analysis.

(b) **Enhancement of UETCL's project implementation capacity**. The project will provide financial support to implement a comprehensive capacity assessment and capacity development plan for the UETCL. The main purpose of this is to enhance UETCL's ability to execute projects in a timely manner, while managing its day-to-day operational responsibilities. Safeguard capacity assessment will be part of the UETCL's comprehensive capacity assessment. An initial assessment will be carried out to review the organizational structure; adequacy of human resources and the management of project related activities; O&M of existing transmission

infrastructure; arrangements for planning, design and implementation of new transmission projects; and availability of corporate resources (accounting, finance, human resources, procurement, logistics, information technology, and so on.). Based on the capacity assessment's findings, UETCL will implement a plan of action detailing: (i) appropriate organizational structure of the project implementation team; (ii) the functional accountabilities and responsibilities of each implementation unit within the UETCL's structure for project implementation; (iii) key business processes for the responsible unit(s); and (iv) information technology tools and procedures to ensure accountability and governance of projects. This support is expected not only to ensure project sustainability but also to enhance UETCL's capacity to implement projects in the long term.

(c) **Enhancement of UETCL's financial viability**. The project will increase UETCL's cash inflows through the net financial return of the LGNA transmission line as indicated in the financial analysis. In addition, a Business Plan will be developed with support from the project to provide a roadmap for UETCL's capital investment program, assess UETCL's capacity to undertake PPA commitments, and develop a financing plan intended to optimize the company's resources and financing options. This will contribute to enhance UETCL's financial viability. The sustainability and improved revenue performance of the downstream distribution sector also impacts the sustainability of the benefits from the proposed investment.

(d) **Increase in grid-based electricity access**. Accrual of benefits to the consumers will depend on the ability of the distribution companies in the project area[10] to operate and maintain the distribution network and to connect new households to the grid. The Bank-supported ERT-III Project provides financial and capacity strengthening support to distribution companies to improve operations and increase connections. As a part of the ERT-III Project, the Bank is supporting the GoU to formulate and adopt a connection cost policy, which will be applied consistently across SPs and will help address the affordability barrier to increasing household connections.

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

62. This project has been assessed to have an overall implementation risk of ***Substantial***. The key risks that might affect the project and mitigation measures are discussed below.

63. ***Institutional capacity for implementation and sustainability***. The UETCL is implementing large capital investments in transmission system expansion and upgrade. As a result, the capacity of the existing UETCL PIU, which is handling these projects, is stretched and may not be able to implement the proposed GERP in a timely manner. This puts the GERP at risk of delays and inadequate quality control. To mitigate this risk, the PIU will be strengthened through the hiring of specialist consultants to bolster supervision and implementation functions. In addition, further capacity enhancement will be undertaken based on the results of the capacity and financial assessment.

[10] Umeme, WENRECO, and other future LDCs

64. ***Fiduciary.*** Procurement risks under the project are assessed as high, though these will be mitigated to substantial (details in section D below). Financial management (FM) risks are assessed as substantial, to be mitigated to moderate (details in Section C below). As such, the overall fiduciary risk of the project is assessed as Substantial.

65. ***Environment and social.*** The construction of the transmission line is expected to adversely affect approximately 3,281 PAPs, who will need to be compensated adequately prior to commencement of project civil works as detailed in the project RAP. To ensure swift implementation of the RAP, an adequately funded escrow account (for counterpart funds required for resettlement compensation) will be established. This account is expected to have sufficient resources available at any time to fully compensate PAPs well in advance of the start of physical works for each section of the transmission line, requiring careful advance planning on compensation and procurement. Compensation and land acquisition will be implemented by sections, requiring completion of one section before moving to another. The UETCL will hand over a section for the start of civil works once compensation is fully concluded. Additionally, targeted technical assistance is included under the project for the UETCL and MEMD to ensure proper implementation and monitoring of the ESIA and RAP. An assessment of the necessary human and institutional capacity for RAP implementation is considered as part of the overall UETCL's capacity assessment.

66. ***Climate and disaster risks***. The project's vulnerability to climate and disaster risk is minimal. While climate projection data in Uganda is relatively scarce, there is limited data and some relevant studies to inform the assessment. The United States Agency for International Development's Uganda Climate Change Vulnerability Assessment in 2013 concluded that: (a) a robust and significant warming signal has been found across all temperature records; (b) there may be potential increase in precipitation during dry season; and (c) there is a potential for increase in the frequency of extreme events. The most significant and robust impact is the increase of the temperature, which could reach a 1.5°C annual average increase by 2030. This level of temperature rise is unlikely to affect transmission lines and substation facilities that the project is financing.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

67. The economic analysis for the project follows a standard cost benefit framework. Comparing the present value of incurred costs to the stream of attributable benefits, the economic internal rate of return (EIRR) and net present value (NPV) of benefits will inform the project's viability over its economic life time, assumed to be 40 years.

68. The results from the analysis show that the project is economically viable with an NPV of US$297 million (assuming a 10 percent discount rate) and an EIRR of 38 percent. Sensitivity analysis also shows that the project's viability is robust to large changes in the assumed values of underlying parameters and cost over-runs. Details of the analysis are presented in annex 5.

Table 1 - Estimated Economic Viability

	Base Case
EIRR (%)	38
NPV (US$)	297
Benefit-cost ratio	3.3

Note:*Discount rate = 10 percent

69. **Rationale for use of public funds and value-added of Bank support**. The Bank has been a close partner of the GoU in the development of the Ugandan electricity sector and is well positioned to continue its commitment to the expansion and modernization of electricity supply in Uganda. Drawing on expertise and experience from work in different regions, the Bank's engagement under this project will enable adoption of best practices in design and execution of network expansion, thus ensuring technically and socially efficient delivery. Further, Bank financing enables the GoU to source loans at rates that would ensure the financial viability of the transmission extension that is critical for increasing access to electricity and support inclusive economic growth. In the absence of this, commercial loans would place a financial burden on the utility, which is beginning to recover its financial position (more below).

Financial Analysis

70. A financial analysis of the LGNA transmission line has also been carried out. The Financial Internal Rate of Return (FIRR) and financial NPV of the LGNA transmission line in the base case scenario are satisfactory at 2.9 percent and US$51.5 million, respectively.[11] Details of assumptions are included in annex 5.

71. The overall FIRR and NPV of the LGNA transmission line would remain robust under all sensitivity scenarios that includes increase in capital costs, reduction in benefits (due to less power flows than expected); and increase in O&M costs. Results are presented below:

Table 2 – Results of the Sensitivity Analysis (Switch Values)

FIRR = WACC (Weighted Average Capital Cost) (0.75%)	Value (%)
CAPEX increased by	40
Benefits reduced by	28
O&M increased by	79

Financial Analysis of UETCL

72. Since the commissioning of Bujagali hydropower plant in 2012, the financial situation of UETCL started to improve as costly thermal power generation was replaced by cheaper hydropower generation. The share of hydropower (including mini-hydro) increased from over 50 percent in 2011 to about 79 percent in 2013 (the remaining came from co-generation, thermal and imports). This change in the generation mix implied a reduction of the GoU subsidies (in the form of capacity payment to thermal generation) from USh 590 billion (US$236.9 million) in FY2011 to USh 66 billion (US$26.1 million[12]) in FY2013.

73. UETCL has recovered from previous losses and posted profits for the last two consecutive years, which helped to bring back equity figures into positive values. Per UETCL's

[11] At 0.75 percent discount rate, which is equal to the weighted average cost of capital of IDA funds.
[12] Exchange rate of December 2013: 2528 USh = US$ 1

financial statements, the figures for FY14 are USh 16 billion[13] (US$4.9 million[14]), and for FY13 USh 25 billion (US$9.9 million). Furthermore, in FY14, UETCL was able to capitalize debt for USh 331 billion (US$98 million) helping to rebalance equity and debt positions. Given the return to profits and the capitalization of the debt shown in 2013 and 2014, UETCL had the ability to meet the financial covenants (related to DSCR and EBITDA margin) under the Bank-funded ESDP, as presented in the table below.

Table 3 – UETCL Financial Covenants

Covenant		FY13	FY14
DSCR	Target	1.0	1.0
	Observed	1.14	28.5
EBITDA ratio	Target	1.5	2.0
	Observed	3.0	7.7

Source: World Bank based on UETCL data

B. Technical

74. The proposed project includes works and equipment related to: (a) construction of the LGNA transmission line, including construction of short 33 kV interconnectors to the existing distribution networks (to enhance distribution network performance and electrification); and (b) project implementation support and technical assistance. The project does not present any unusual design, construction, and operational challenges. The technologies, standards, and guidelines to be used are well known and proven in Uganda.

75. **Project selection criteria.** This is a priority project for UETCL and the investments are based on the Uganda Grid Development Plan, which details the transmission investments requirements for Uganda for the period 2013 - 2020. The investment plan is updated every year after carrying out of rigorous network analysis, power flow studies, and least cost power cost analysis.

76. **Transmission and distribution investments.** The design, including technical parameters and estimated project costs for the transmission line and distribution feeders are based on a feasibility study prepared by an international reputable consultant for the UETCL. Project designs and specifications are in accordance with international best practice and technical standards, adapted for local conditions as appropriate, to ensure fit-for-purpose investments.

77. The UETCL investment component is packaged in different contracts/lots to ensure efficient implementation. There will be one tendering process including four lots: (a) Lot 1: the Lira-Gulu 132 kV transmission line works; (b) Lot 2: the Gulu-Nebbi-Arua 132 kV transmission line works; (c) Lot 3: substation works at Lira and Gulu; and (d) Lot 4: substation works at Nebbi and Arua.

78. **Implementation capacity.** A capacity assessment of UETCL will be carried out to ascertain any capacity shortfalls that will require support from the project. The findings of the study will be used as a basis for designing a project component for capacity strengthening of the UETCL and technical assistance in the form of engineering and construction supervision consultants that will assist the UETCL on the procurement of project construction contractor(s) and supervision of design and construction of the transmission.

[13] Excluding extraordinary profits of USh 105.5 billion due to an asset revaluation exercise.
[14] Exchange rate of December 2014: US$ 1 = 3367 USh.

C. Financial Management

79. An FM assessment was carried out for the UETCL and MEMD as implementers of the proposed GERP. FM arrangements will follow a similar structure as those considered under the ESDP since such arrangements are considered adequate to provide, with reasonable assurance, accurate and timely information on the status of the project as required by IDA.

80. The overall FM assessed risk is substantial with a residual risk of moderate after implementation of mitigation measures. Key risks are: (a) delays in payment processing (b) inadequate RAP compensation budgets and processes and (c) late completion of external audits.

81. The project's FM transactions will be managed within the existing set-up in the participating institutions of which the overall accounting officers are the PS for the MEMD and the Chief Executive Officer (CEO) for the UETCL. The institutions' accounting departments are adequately staffed with Principal Accountant as head (for the ministry) and Finance Manager for UETCL with senior accountants, accountants and several accounts assistants. For the MEMD, the Principal Accountant reports to the Under Secretary who also reports to the PS, while for the UETCL, the Finance Manager reports to the CEO. The participating institutions have accounting policies and procedures that will be used for the project. The institutions are computerized with the Sun accounting system while the ministry is also computerized with the Integrated Financial Management Information System (IFMS) and the government is migrating all projects onto the IFMS accounting during the year 2015/16. UETCL has an internal audit unit comprised of head of internal audit and internal auditors who will include the project activities in their work plan. The project's financial statements were audited by the Auditor General in accordance with statutory requirements, and based on terms of reference (ToR) reviewed by IDA. Details of the findings and conclusions of the assessment are provided in annex 3.

D. Procurement

82. Procurement will be conducted by UETCL and MEMD. Procurement will follow the Guidelines: Procurement of Goods, Works and Non-consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers dated January 2011 and revised in July 2014 and the Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers dated January 2011 and revised in July 2014. The Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants, dated October 15, 2006 and revised in January 2011, will apply to this project.

83. The main procurements will be for the construction of transmission lines and substations and the associated supervision of construction. The market for this is now well developed with a high level of competition and average bidder participation exceeding 15 bidders. The procurement for works shall be packaged into four lots and this shall be procured through international competition

84. The overall risk for procurement is high with a residual risk of substantial after implementation of mitigation measures. The key risks to procurement are: (a) major delays in procurement due to lack of adequate staff in both the procurement and technical departments given the multiple projects under implementation and the lack of appropriate authorization or delegation of decision making authority to project staff; (b) delayed contract implementation and rising costs due to delayed land acquisition; (c) weaknesses on contract administration especially

works certification resulting in delayed implementation; and (d) delayed implementation arising from hiring of unqualified bidders due to misrepresentation of bidder qualifications. These will be mitigated through: (a) hiring of additional staff complemented with designation of full time UETCL staff to project implementation on performance contracts and with appropriate delegation of decision making authority; (b) training in procurement and contract administration for staff of both MEMD and UETCL; (c) operationalizing and strengthening of the procurement and contract management and reporting system in the UETCL; and (d) regular internal audit of procurement processing and contract administration to assess adherence to agreed business standard and timely remedial action.

E. Social (including Safeguards)

85. The project areas in the West Nile and Northern Uganda are characterized by relatively high poverty rates (especially Northern Uganda, which is a post-conflict region). By increasing availability and efficiency of bulk power supply in these areas, the project will ease electricity supply constraints and lay the foundation for improving household electricity access and the development of income generating and productive electricity use activities.

86. As part of the preparation of the project, consultations were held with the communities in the project area. A RAP and an ESIA have been prepared to guide the process in addressing any negative social impact from the project. The RAP has been consulted upon, approved by the Bank, and disclosed in InfoShop on March 21, 2016 and in-country on March 29, 2016.[15]

87. The project is Category "B", as activities and interventions are not expected to lead to large scale, significant or irreversible environmental or social impacts. The project's Component A involves the construction of a transmission line (314 km) from Lira to Gulu, Nebbi and Arua as well as the construction of three substations and a possible 132 kV switching station between Lira and Gulu. The transmission line will require acquisition and clearing of a 2x12.5 meter wayleave and a five meter wide ROW at the center of the transmission line corridor, according to the Electricity Act. To comply with the standards used by the UETCL, the five meter-wide ROW is acquired permanently by the UETCL and 12.5 meter wide easements on either side of the line remain available for use by the landowners whose properties the line traverses but with restrictions: (a) no hard structures can be built; and (b) the height of trees cannot exceed four meters. Land acquisition may lead to loss of assets, restrictions of access to livelihoods, and limited resettlement. Therefore, Involuntary Resettlement OP/BP 4.12 is triggered to cover any adverse social impacts related to civil works under Component A.

88. The construction of three new sub-stations will take place at Gulu, Nebbi and Arua towns, and a possible 132kV switching station between Lira and Gulu. These locations are currently open spaces without any structures or nearby settlements. Therefore, the land required for the substations in these three locations need to be acquired from the owners who should be adequately compensated for any loss of crops or trees.

89. During the preparation of the RAP, 3,281 PAPs were identified and their main concerns related to the implementation of the project are the timeliness and adequacy of compensation for lost assets, lack of access to electricity, and the risk of HIV/AIDs due to the influx of contractor workers. To respond to the communities' concerns about timeliness and adequacy of compensation for lost assets, the valuation and compensation are set in accordance with rates set

[15] Consultation are summarized in the ESIA Chapter 5 and in the RAP Chapter 11.

at district level for crops and non-permanent structures, which are enacted by District Land Boards. To meet the Bank safeguard's requirements, additional compensation measures are identified in the RAP (chapters 9 and 10). This will ensure that all household livelihoods are, at the minimum, restored. To ensure that PAPs are timely compensated, it was agreed that the transmission line contract will only be awarded after acquiring at least 30 percent of the full ROW, with at least 50 percent of the ROW acquired for the section between Lira and Gulu. For the substation contracts, it was agreed that contract award will take place only after the full acquisition of land for the substation sites. The mitigation measure in relation to lack of electricity will be addressed by coordinating the efforts on the electrification project ERT III and rural electrification programs financed by the GoU and other donors. MEMD will coordinate the investment priorities with UETCL and REA.

90. To address the concerns of HIV/AID due to the influx of workers, and the risk identified as part of the social assessment in relation to (a) increased gender imbalances and in particular risks of sexual abuse and child abuse by construction workers; (b) potential for school dropout rates, early marriages and pregnancies; and (c) child labor, the following mitigation measures have been incorporated in the ESIA as part of the design of the project: (a) strengthening safeguard supervision and monitoring capacity at UETCL and MEMD; (b) zero tolerance policy of sexual misconduct and of child labor; (c) community and contractor sensitization; (d) community awareness; (e) consistent reporting and monitoring of social and environmental safeguards; (f) regular consultation with affected communities; and (g) close bank supervision on social and environmental aspects. Further detail of these mitigation measures are elaborated in annex 3.

91. **Gender**. Wherever relevant and feasible, the project will track gender disaggregated data for M&E purposes.

F. Environment (including Safeguards)

92. The project is category "B" given the low impact of the project on the natural environment and low density settlement patterns within project route. Even though the transmission line will, in a limited manner traverse parts of swamps/wetlands, forests reserves, cross the river Nile and is located just outside the fringes of Murchison Falls National Park (MFNP), no major ecosystems and protected/conservation areas will be adversely affected by the proposed transmission line, the impacts are localized, reversible and easily mitigated as has been elaborated in the ESMP.

93. The project is also expected to pose moderate health and safety risks which are identified and mitigation actions are proposed in the ESIA. Adequate environmental and social mitigation measures have been elaborated in the ESMP to mitigate potential impacts on natural habitats, sensitive bird species, child labor, labor force management, sexual abuse of minor girls (<18 years of age). For these reasons, the project triggered OP 4.01, Environmental Assessment. In addition, the project also triggered the following environmental Safeguard Policies: (a) Natural Habitats OP/BP 4.04 since the project passes through a limited area of wetlands, forests, terrestrial grassland crosses the river Nile and affects natural habitats in a limited way in six forest reserves, (b) Forests OP/BP 4.36 since the project passes through and affects 6 forests and private woodlots, which have as main purpose to supply wood resources; and (c) Physical Cultural Resources OP/BP 4.11 because the project associated civil and earth works will

encounter both known (for example, graves) and unknown Physical Cultural Resources (PCRs). A PCR Management Plan and Chance Finds Procedure have been prepared as part of the ESIA.

94. An ESIA was prepared by UETCL, in a consultative manner, systematically identifying the potential environmental and social impacts and developed appropriate mitigation measures to be implemented under the project. The ESIA was cleared by the Bank and disclosed at the Infoshop on March 21, 2016 and by the client in-country on March 29, 2016. An ESMP was prepared as part of the ESIA. The ESIA assessed the environmental and social impacts of the transmission line, sub-stations and access roads, especially the impacts of temporary access roads in wetlands, health and safety aspects, among others. Before commencement of the construction activities, the contractor shall be required to develop a construction ESMP to guide actual implementation of the required mitigation measures and this shall incorporate statutory conditions of approval by NEMA and any other relevant regulatory agency (for example, the MoGLSD).

95. ***Institutional arrangement for social and environment safeguards implementation.*** Through implementation of the ESDP, UETCL and MEMD have developed safeguards capacity and have competent Environmental Safeguards Specialists employed under ESDP. However, the implementation and supervision of the safeguards by both MEMD and UETCL have had some coordination challenges. To take advantage of the lessons learned while implementing the ESDP, the same PIUs at UETCL and MEMD will carry out the implementation and supervision of social and environmental safeguards but additional support will be provided to enhance in-house capacity for their implementation. Furthermore, both UETCL and MEMD will hire social development specialists to specifically undertake implementation of the social aspects of the GERP. In addition, MEMD and UETCL's collaborative function with other relevant government agencies will improve, especially with the NEMA, ERA, NFA, MoGLSD, the Uganda Wildlife Authority, and the respective District Local governments of Lira, Gulu, Oyam, Kole, Nebbi and Arua.

96. Greenhouse gas (GHG) accounting analysis conducted for the project showed that the project will result in net reduction of 40,080 tCO_2 of GHG, based on project's power loss reduction, land clearing and SF_6 gas emissions. Climate and disaster risk screening has also been conducted. It identified that Uganda is likely to face a temperature increase up to 1.5°C by 2030, but it is unlikely to affect project's transmission and substations facilities.

G. World Bank Grievance Redress

97. 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. Citizen Engagement

98. As part of the ESDP, the government is conducting a study to review the impact of the power sector reforms in providing affordable, inclusive, and reliable electricity services to support economic growth. Through this study, it is proposed to carry out a consultation process with all energy stakeholders, including targeted household beneficiaries to learn their concerns about electricity services delivery. Outcomes of the consultations will be incorporated as part of the recommendations of the study that will inform policy decision on how to improve the power sector structure to achieve affordable, inclusive, and reliable electricity services. The consultation process will be conducted by MEMD. The learning from this process will inform project implementation.

Annex 1: Results Framework and Monitoring

Country: Uganda

Project Name: Uganda Grid Expansion and Reinforcement Project (GERP) (P133305)

Results Framework

Project Development Objectives

PDO Statement

The Project Development Objective (PDO) is to increase availability and efficiency of bulk electricity supply in the project areas.

These results are at | Project Level

Project Development Objective Indicators

		Cumulative Target Values						
Indicator Name	**Baseline**	**YR1**	**YR2**	**YR3**	**YR4**	**YR5**	**YR6**	**End Target**
Transmission lines constructed under the project (Kilometers)	0.00	0.00	0.00	90.00	197.00	314.00	314.00	314.00
Increased bulk supply capacity in the project areas (Megawatt)	0.00	0.00	0.00	80.00	80.00	200	200	200.00
Reduction in technical losses in the project	28.9	28.9	28.9	28.9	25.6	25.6	25.6	25.6

area (Percentage)[16]								
Direct project beneficiaries (Number) - (Core)	0.00	0.00	0.00	0.00	440000.00	1600000.00	1600000.00	1600000.00
Female beneficiaries (Percentage - Sub-Type: Supplemental) - (Core)	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00

Intermediate Results Indicators

		Cumulative Target Values						
Indicator Name	**Baseline**	**YR1**	**YR2**	**YR3**	**YR4**	**YR5**	**YR6**	**End Target**
Substation constructed or rehabilitated under the project (Number)	0.00	0.00	0.00	0.00	4.00	4.00	4.00	4.00
Capacity plan endorsed by UETCL's Board (Yes/No)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Project implementation team established (Yes/No)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes

[16] Baseline technical losses are for the Lira-Gulu 33kV line as provided by Umeme.

Percentage of project affected persons (PAPs) compensated (Percentage)	0.00	10.00	30.00	60.00	85.00	100.00	100.00	100.00
Sector skill assessment (Yes/No)	No	No	No	Yes	Yes	Yes	Yes	Yes
Consultation process with all energy stakeholders (Yes/No)	No	No	Yes	Yes	Yes	Yes	Yes	Yes
UETCL to maintain a debt service coverage ratio of at least 1.0 (Yes/No)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UETCL to maintain an EBITDA (Number)	1.00	1.50	2.00	3.00	3.00	3.00	3.00	3.00

Indicator Description

Project Development Objective Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Transmission lines constructed under the project	A transmission line constructed to interconnect Lira, Gulu, Nebbi and Arua.	Annual	UETCL monthly report	UETCL

Increased bulk supply capacity in the project areas	Construction of a double circuit HV transmission line and HV substations with capacity that is significantly higher than the current capacity on 33kV feeders to enhance reliability and supply availability.	Annual	UETCL monthly report	UETCL
Reduction in technical losses in the project area	The reduction is defined solely for the segment between Lira and Gulu where the new 132kV will have technical losses that are considerably lower than the current losses on the overextended 33kV distribution line linking Lira and Gulu.	Annual	UETCL database	UETCL
Direct project beneficiaries	Direct beneficiaries are people or groups who directly derive benefits from an intervention (i.e., children who benefit from an immunization program; families that have a new piped water connection). Please note that this indicator requires supplemental information. Supplemental Value: Female beneficiaries (percentage). Based on the assessment and definition of direct project beneficiaries, specify what proportion of the direct project beneficiaries are female. This indicator is calculated as a percentage.	Annual	UETCL database	UETCL
Female beneficiaries	Based on the assessment and definition of direct project beneficiaries, specify what percentage of the beneficiaries are female.	Annual	UETCL database	UETCL

Intermediate Results Indicators

Indicator Name	**Description (indicator definition etc.)**	**Frequency**	**Data Source / Methodology**	**Responsibility for Data Collection**
Substation constructed or rehabilitated under the	Under Component A, an extension of the Lira substation will be conducted and	Annual	UETCL monthly report	UETCL

project	three new substations at Gulu, Nebbi, and Arua will be constructed (this is an integral part of the transmission line).			
Capacity plan endorsed by UETCL's Board	An assessment of UETCL's capacity to implement projects will be carried out. Recommendations will be discussed with UETCL's senior management and a capacity plan will be proposed and endorsed by the UETCL's Board.	Annual	UETCL monthly report	UETCL
Project implementation team established	The project implementation unit will be embedded into the project management team which will be formally established.	Annual	UETCL monthly report	UETCL
Percentage of project affected persons (PAPs) compensated	Percentage PAP identified that are compensated.	Semi-annually	UETCL monthly report	MEMD
Sector skill assessment	The sector skill assessment will detail the gaps and the skills required to improve government agencies' operation and financial performance.	Annual	MEMD monthly report	MEMD
Consultation process with all energy stakeholders	Through this study about the impact of the power sector reforms in providing affordable, inclusive and reliable electricity services to support economic growth, it is proposed to carry out a consultation process with all energy stakeholders, including targeted household beneficiaries to learn their concerns about electricity services delivery.	Annual	MEMD monthly report	MEMD
UETCL to maintain a debt service coverage ratio of at least 1.0	UETCL to maintain a debt service coverage ratio of at least 1.0	Annual	UETCL’s Financial Statements	UETCL
UETCL to maintain an EBITDA	UETCL to maintain an EBITDA ratio of at least 1 percent in FY16, 1.5 percent in	Annual	UETCL’s financial statements	UETCL

	FY17-18, 2 percent in FY19 and 3 percent thereafter			

Annex 2: Detailed Project Description

Uganda: Grid Expansion and Reinforcement Project (P133305)

1. The proposed GERP will support the implementation of Uganda's Grid Development Plan by financing the strategic expansion and upgrade of transmission infrastructure, including the 132 kV LGNA transmission line and associated substations. The aim of the project is to enable electricity access scale-up and to help meet the increasing demand for electricity in the project area. The proposed transmission line will help increase availability and efficiency of bulk electricity supply in the Gulu area and to connect the isolated 33 kV grid in the West Nile region to the national grid.

2. By improving the availability and efficiency of bulk power supply in the project areas, the proposed project will enable an increase in electricity access for households and businesses and induce improved productivity for commercial activities such as agribusiness (especially agro-processing) and other small and medium enterprises. In the long-term, the project will also serve as a basis for future interconnection of the national transmission grid with the Democratic Republic of Congo and South Sudan. As the transmission system is extended, the LGNA transmission line will, in future, accommodate new connections to new loads (or demand) and evacuation of new generation capacity.

3. The strategic investments to be supported by the GERP were selected considering (a) areas that are not yet served by the main electricity transmission network; (b) areas in greater need of efficient and reliable electricity services based on poverty levels and post conflict situations; and (c) complementary downstream investments being undertaken in the distribution network and funded through the ERT series of projects to increase rural energy access.

4. In addition to the infrastructure investments, the project will also finance technical assistance to UETCL and MEMD. The assistance to UETCL will support systems modernization and enhancement of implementation and planning capacities including support for implementation of the proposed GERP. The support to MEMD has the objective of improving sector-wide projects implementation and supervision.

5. The components of the project are:

Component A: Construction of Transmission Infrastructure (Estimated Cost US$106 million, of which IDA US$80 million Equivalent and GoU US$26 million)

6. The objective of this component is to provide increased electricity transmission capacity to meet the power supply needs of Northern Uganda and the West Nile region and to interconnect the isolated West Nile distribution network to the main transmission grid. Currently, the demand for the entire West Nile area is supplied by a single small hydropower plant (3.5 MW Nyagak 1).[17] It is projected that the available excess capacity will soon be exhausted by the connection of a medium-sized industrial load and the expansion of electricity access to households and enterprises through the ongoing rural electrification programs supported by the Bank (ERT III Project) and other development partners. The project will also form the basis for future interconnection and energy exchanges between Northern Uganda, West Nile, and the rest of the country.

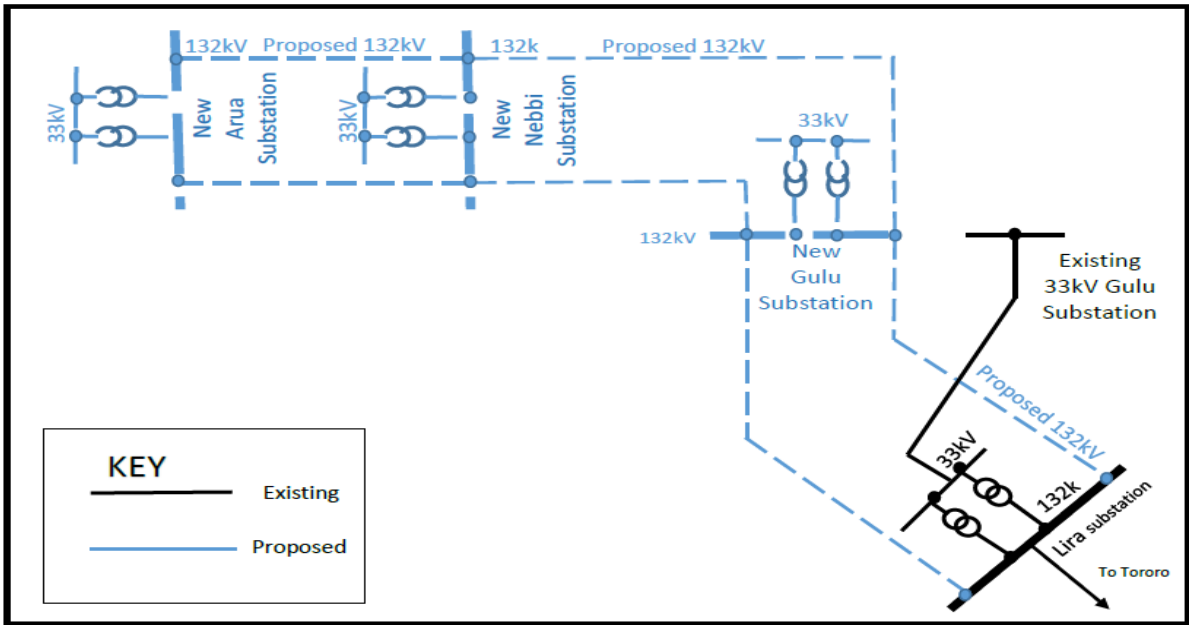
[17] Construction of Nyagak 1 benefitted from ERT-1 support. The Bank continues to support Nyagak 1 through Carbon Finance operations.

Subcomponent A-1 Transmission Line (LGNA) and Subcomponent A-2 Substation Works

7. This component will finance a high voltage (132 kV) transmission capacity that will interconnect the isolated distribution system in the West Nile to the main transmission grid at existing Lira 132/33kV substation. This will entail construction of: (a) 314 km of 132kV double circuit transmission line from Lira, through Gulu and Nebbi, to Arua; (b) extension of the existing 132 kV substation at Lira; (c) a 132/33kV substation with two 40 MVA transformers at Gulu; (d) 132/33kV substation with two 20 MVA transformers at Nebbi; and (e) a 132/33kV substation with two 40 MVA transformers at Arua. UETCL is currently implementing three transmission line projects that are expected to connect to the existing grid at the existing 132 kV Lira substation, but the times for these connections are not certain. Additionally, only one transmission line can be run from the north (Gulu side) into Lira substation. In the event that the proposed LGNA transmission line is not able to connect at Lira, an option to construct a 132kV switching station has been included in the project design. Given the uncertainty in the requirement and location of the switching yard at the time of appraisal, appropriate provisions were included in the disclosed safeguard documents.

8. This component will also include short interconnections from the new substations at Gulu, Nebbi, and Arua to the nearest feasible connection points on the existing 33 kV network currently supplying power in these areas. This will ensure that the transmission line is connected to existing distribution infrastructure in a timely manner to expedite the accrual of benefits (increased availability and reliability of electricity) to end-consumers in the project areas. Additionally, the design and construction of the substations at Gulu, Nebbi, and Arua will have enough capacity and spare 33kV feeder panels to allow future distribution network expansion (rural electrification) and access scale up programs. As the transmission system is extended, the LGNA transmission line will, in future, accommodate new interconnection points along the line to connect new loads (demand) and generation capacity. Figure 2.1 below provides a diagrammatic illustration of the expected scope of work for this component.

Figure 2.1 – Single Line Diagram of the Proposed Component A



9. The following is a detailed scope of work for each activity expected under this component.

Extend the existing 132 kV busbar at Lira substation or construct a new 132kV switching station between Lira and Gulu

10. The extension of the 132 kV busbar at Lira substation will entail the establishment of a 132kV double busbar, with ten bays, to enhance operational flexibility. This subcomponent will include the following: two line bays for the existing 132 kV transmission lines from Tororo/Opuyo, two line bays for the 132 kV Gulu transmission line circuits to be constructed under this project, two transformer bays, four spare unequipped transmission line bays, one bus-coupler bay, and one bus section bay. However, at the time of going to site, there may be a requirement to construct a new 132 kV switching station between Lira and Gulu instead of extending the substation at Lira. The switching station will at a minimum consist of six fully equipped 132 kV transmission bays.

Construct a 132/33kV substation at Gulu

11. A new 132/33kV substation will be constructed near Gulu Town, in Northern Uganda. The scope of work will include construction of a new substation with a 132kV double busbar configuration with twelve bays and two 40MVA 132/33kV, ONAN/ONAF power transformers. The 132 kV bays will include: (a) two bays for the line circuits to Lira, (b) two line bays for the transmission circuits to Nebbi, (c) two transformer bays, (d) two fully equipped spare line bays, (e) one unequipped spare line bay, (f) one bus-coupler bay, (g) one bus-section bay, and (h) one unequipped spare transformer bay.

12. The Gulu substation scope of work will include a new substation building comprising a 33 kV switch-room, a control room and other rooms for office and related facilities. There will be also installation of a new 33kV indoor gas insulated switchgear (GIS) switchboard comprised of: (a) two 33kV incomer panels for the two substation transformers, (b) one 33kV bus-section panel, (c) six 33kV feeder panels with two spare feeder panels on each side of the bus-section, and four 33 kV feeders (approximately 7 km in total) to the nearest connection points with the existing distribution grid. The points of connection will be on the following 33kV lines: Gulu-Bobi; Gulu-Adjumani; Gulu-Acholibur; and at the existing 33kV Gulu substation.

Construct a new 132/33kV substation at Nebbi

13. A new 132/33kV substation will be constructed near Nebbi, in West Nile. The scope of work will include construction of a new substation with a 132kV double busbar complete with nine bays as follows: (a) two bays for the line circuits to Gulu, (b) two line bays for the transmission circuits to Arua, (c) two transformer bays, (d) one bus-coupler bay, (e) one bus-section bay, (f) one spare unequipped bay. This substation will have two 20MVA 132/33kV, ONAN/ONAF power transformers.

14. The Nebbi substation scope of work will include a new substation building comprising a 33 kV switch-room, a control room and other rooms for office and related facilities. There will be also installation of a new 33kV indoor GIS switchboard comprised of: (a) two 33kV incomer panels for the two substation transformers, (b) one 33kV bus-section panel, (c) six 33kV feeder panels with two spare feeder panels on each side of the bus-section panel, two 33 kV feeders (approximately 2 km in total) to the nearest connection points with the existing distribution grid.

The points of connection will be on the following 33kV lines: (a) Nebbi-Arua and (b) Nebbi-Nyagak

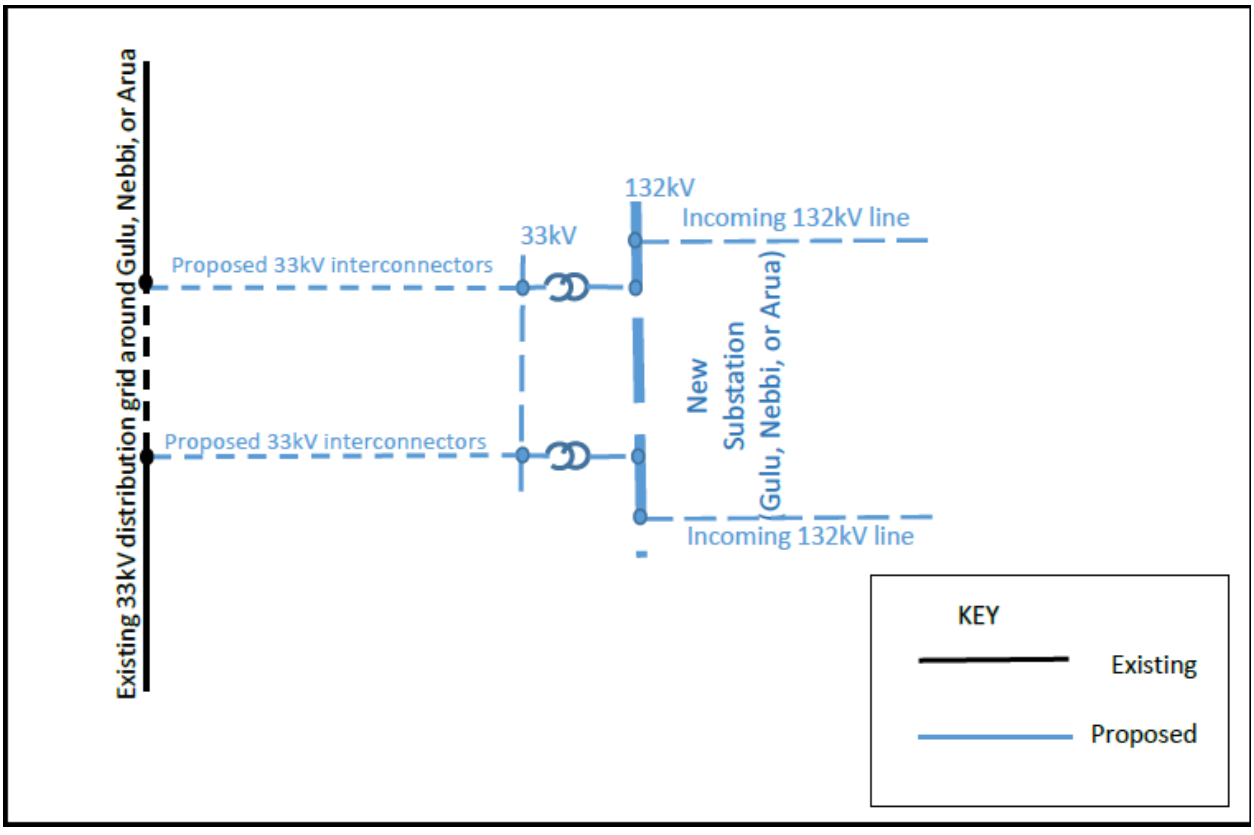
Construct a new 132/33kV substation at Arua

15. A new 132/33kV substation will be constructed near Arua, in West Nile. The scope of work will include the construction of a new substation with a 132kV double busbar complete with six bays as follows: (a) two bays for the line circuits to Nebbi, (b) two transformer bays, (c) one bus-section bay, and (d) one unequipped spare bay) This substation will have two 40MVA 132/33kV, ONAN/ONAF power transformers.

16. The Arua substation scope of work will include a new substation building comprising a 33 kV switch-room, a control room and other rooms for office and related facilities. There will be also installation of a new 33kV indoor GIS switchboard comprising of: (a) two 33kV incomer panels for the two substation transformers, (b) one 33kV bus-section panel, (c) six 33kV feeder panels with two spare feeder panels on each side of the bus-section panel, and (d) two 33 kV feeders (approximately one km in total) to the nearest connection points with the existing distribution grid. The points of connection will be on the following 33kV lines: (a) Arua-Maracha and (b) Arua-Zombo

17. A typical single line diagram for the proposed 132/33kV substations is as shown in figure 2.2.

Figure 2.2 – Typical Single Line Diagram for the Substations the Proposed Component A



18. Construction of the substations at Gulu, Nebbi, and Arua will incorporate the short 33 kV interconnectors to the existing distribution networks (operated by Umeme around Gulu and

WENRECO in Nebbi and Arua). The objective is to ensure that the transmission line can immediately provide the expected benefits to the targeted beneficiary communities by coordinating and synchronizing the commissioning of the distribution interconnectors with the commissioning of the substations at Gulu, Nebbi, and Arua.

19. Interconnecting the existing distribution grid to the new substations will reduce system technical losses and improve voltage profiles and performance of the existing distribution systems. This will also allow further extension of the existing distribution grid to reach new consumers thus contributing toward the achievement of the GoU's objectives of universal access to electricity services. This component will complement the distribution network expansion and household connection activities financed under the ERT III project.

Subcomponent A-3 Engineering Construction and Supervision Consultant

20. This subcomponent will finance an engineering construction supervision consultant for transmission to assist UETCL with (a) reviewing detailed designs, procurement of contracts, construction supervision for the transmission line and substations works undertaken in Component A (including certifications for contractor payment, preparation of reports required by UETCL and IDA, and expertise transfer and training for staff); and (b) supervision and monitoring of the implementation of the ESMP and RAP.

Component B: Project Implementation and Operational Support to UETCL (Estimated Cost US$11.8 million, of which IDA US$11 million Equivalent and GoU US$0.8 million)

21. UETCL plays a central role in the electricity sector as the single buyer and transmission system operator. This component is proposed to support the UETCL to enhance its project implementation capacity, contract administration, and operational effectiveness through technical assistance and modernization of management systems. This component is specifically intended to address the capacity constraints the UETCL is experiencing due to its growing portfolio of transmission projects. Support under the component will include the following.

Subcomponent B-1: Capacity Assessment and Project Implementation Support

22. A capacity assessment of UETCL will be undertaken and its findings will serve as a basis for financing activities and expertise to enhance UETCL's effectiveness in project implementation, contract administration, and day-to-day operation of the transmission system. It will also include a review of UETCL's capacity to negotiate PPA commitments and include a financing plan to optimize the company's resources and financing options. This subcomponent will also support GERP implementation, including hiring of specialist consultants to support various aspects of project implementation, regular and comprehensive monitoring of safeguard compliance measures identified for the project, and necessary skills training of UETCL staff.

Subcomponent B-2: UETCL's System Modernization

23. This subcomponent will support an enhancement of the operational efficiency of UETCL through the acquisition of planning and operational tools. These include project M&E tool (at corporate level), Enterprise Resource Planning (ERP) tool, an audit of the system protection and control function, and financial resources and risks management tools such as accounting software. The M&E system software tool will help to ensure a more effective management and oversight of project implementation performance. This will require the supply, installation, licensing, training of system and all necessary hardware. With the expansion of the transmission

grid, new protection and control measures are required for effective and reliable operation of the system. It is therefore necessary to conduct an audit of the current protection and control philosophies to identify shortcomings and recommend measures for improvement. The support for the adoption of analytical tools such as accounting software and corporate financial projections and modeling is necessary to optimally manage its financial resources and risks.

Subcomponent B-3: Biodiversity Off-set

24. This subcomponent will support UETCL's efforts in offsetting the deforestation impacts associated with the transmission line. UETCL will, in collaboration with NFA and Local governments, undertake restoration tree planting in degraded CFR and LFR along and/or adjacent to the transmission line. The restoration activities shall be undertaken in line with the respective forest management plans of selected CFRs and LFRs along the transmission line, in areas that are void of land conflicts.

Component C: Sectoral Strengthening Support (Estimated Cost US$4million, of which IDA US$3.5 million Equivalent and GoU US$0.5 million)

25. This component will support the preparation of a Power Sector Investment Plan, that is, a least cost power development plan, to ensure that planning of new investments results in a least cost for the country and end user. The following activities will provide complementary support for sector strengthening and will be implemented by MEMD.

Subcomponent C-1: Coordination and Supervision of Safeguards

26. This subcomponent will focus on the supervision functions for monitoring of environment and social impacts including resettlement and compensation of PAPs to ensure proper implementation, identify bottlenecks and measures that require inter-ministerial cooperation with the MoFPED, MoLHUD, Planning, Office of Chief Government Valuer, NEMA, NFA, MoGLSD, and so on.

Subcomponent C-2: Sector Skill Assessment

27. This subcomponent will assess the current situation and gaps of government power sector agencies with regard to the adequate technical skills to support operational and financial sustainability of the sector. The assessment will also propose recommendations to enhance the skills of current and new staff with the support of state-of-art tools.

Subcomponent C-3: Sector Skill Strengthening Program

28. This subcomponent will finance the recommendations of the sector skills assessment under Subcomponent C-3. This will include the curriculum development/revision, in-house training, tools and equipment, and so on.

29. A breakdown of the project cost estimates is provided in table 2.1.

Table 2.1 – Project Costs and Financing (US$ million)

Project Financing	Project Cost (US$ millions)	IDA Financing (US$ millions)	GoU (US$ millions)	% IDA Financing
Component A. Construction of Transmission Infrastructure	**106.0**	**80.0**	**26.0**	**75**
Transmission line (LGNA)	58.0	49.0	9.0	-
Substation Works (including 33 kV interconnector)	30.0	25.0	5.0	-
Engineering and construction supervision consultant	7.0	6.0	1.0	-
RAP Implementation	11.0	0	11.0	-
Component B. Project Implementation and Operational Support to UETCL	**11.8**	**11.0**	**0.8**	**93**
Capacity assessment and project implementation support	5.0	4.5	0.5	-
UETCL systems modernization	5.8	5.5	0.3	-
Biodiversity off-set	1.0	1.0	0.0	-
Component C. Sectoral strengthening support	**4.0**	**3.5**	**0.5**	**88**
Coordination and supervision of social safeguards	0.7	0.7	0.0	-
Sector skill assessment	0.3	0.3	0.0	-
Sector skill strengthening program	3.0	2.5	0.5	
Unallocated	**5.5**	**5.5**		
Total Financing Required	**127.3**	**100.0**	**27.3**	**79**

Note: (a) The GoU's contribution is estimated based on 18 percent VAT and 100 percent contribution for the RAP implementation costs. (b) Unallocated funds are in lieu of price and physical contingencies for construction/refurbishment works.

Annex 3: Implementation Arrangements

Uganda: Grid Expansion and Reinforcement Project (P133305)

Project Institutional and Implementation Arrangements

1. **Overall coordination**. The project will rely on the existing PIUs at UETCL and MEMD, which have prior experience in implementing IDA-financed projects. However, each of the PIUs would need to be supplemented given the new activities financed under the GERP. UETCL will be responsible for the implementation of components A and B. Component A will be carried out in close collaboration with Umeme, in the Gulu area, and WENRECO, in the West Nile Region (Nebbi and Arua) regarding the interconnection with the distribution companies. Subcomponent B-4 will be carried out in close collaboration with NFA and respective District Local governments along the transmission line. The MEMD will be responsible for the implementation of Component C. Some sub-components will require coordination and active participation of the ERA.

2. **UETCL's PIU.** UETCL is a state-owned transmission company responsible, for planning, operation, and maintenance of the transmission grid in Uganda, and will therefore own and operate the assets to be constructed under Component A. The UETCL will also be the beneficiary of the technical assistance under Component B. It is proposed that these components be implemented by the existing PIU, which is responsible for implementation of the ongoing Bank financed ESDP. The PIU will be mainstreamed into the existing PID of UETCL taking advantage of the experience gained from previous IDA financed projects.

3. Findings of the UETCL's capacity assessment will support the PID to have the required skills and staff numbers to effectively manage UETCL's entire investment program over the next one to five years. In the initial stages, the PIU will be supported fully by the project, but UETCL will be required to gradually mainstream the PID into its organizational structure and have it fully funded from its budget by the end of the fifth year.

4. **Power sector support - MEMD**. The PIU, which is responsible for the ESDP at MEMD, will be strengthened to implement the activities under Component C.

Financial Management

5. An FM assessment was carried out at the UETCL and MEMD implementing agencies for the proposed GERP. This was in accordance with the FM requirements for Bank financed investments.

6. **Organizational structure and experience.** UETCL is a limited liability company incorporated in Uganda wholly owned by the government and headed by a CEO. The CEO is appointed by and reports to the Board of Directors. UETCL is made up of eight departments of which the PID will be responsible for this project. The UETCL has managed various projects including the Fourth Power Generation Project, Power Sector Development Operation Project, and currently ESDP financed by IDA. MEMD is a typical government ministry with an appointed accounting officer. MEMD will implement the technical assistance component (Component C) of the project.

7. The overall FM assessed risk is substantial with a residual risk of moderate after implementation of mitigation measures. Key risks are: (a) delays in payment processing; (b)

inadequate RAP compensation budgets and processes; and (c) late completion of entity external audits.

8. **Country and UETCL issues.** The Public Financial Management (PFM) framework in Uganda is developed to a great extent. The present framework for budget formulation, execution, and audit is provided by the PFM Act 2015, Anti-Corruption Act 2009, Local government Financial and Accounting Regulations and the National Audit Act 2008. The PFM Act provides the legal framework for enhancing the control and management of public resources and strengthening fiscal transparency and accountability.

9. **Delayed payment of contractors.** Delays in paying contractors' invoices by UETCL has been an issue and is likely to jeopardize the project implementation progress. The assessment revealed that the UETCL's internal approval process chain consists of six steps that kick in after the invoices are certified for payment by the supervision consultant. This payment process presents unnecessary delays in project implementation.

10. **Budgeting.** There is a Project Manager in place at UETCL who works with teams from the engineering / environment departments to prepare the project budget. The system of planning and budgeting for the project is participatory thus enhancing commitment of the various stakeholders. Teams prepare their respective budgets which are submitted to the Accounting Officer for approval. Budget performance is monitored through undertaking regular variance analysis to ensure agreed budgets are not exceeded. At MEMD, individual departments are involved in the budgeting process. Government ministries' planning and budgeting procedures are documented in the government's Treasury Accounting Instructions and are adequate.

11. **Accounting system.** UETCL's project transactions are, generally, captured and accounted for in line with acceptable accounting practices. The accountants of the project use the Sun Accounting software to record and maintain accounting information. Relevant accounting manuals are in place and finance officers are internally trained to use the system. MEMD uses the IFMS which has the donor project module expected to be used for this project. Information required for preparation of financial reports submitted to the Bank is extracted from the accounting system and manually prepared per required formats. The Chart of Accounts is adequate to capture the Project's expenditure in a meaningful manner.

12. **Staffing.** The finance offices of MEMD and UETCL are adequately staffed to manage project work. Project Accountants are adequately experienced, qualified, and familiar with the Project systems. The principal project accountant has attended training on Bank FM guidelines and FM implementation issues.

13. **Internal controls.** Generally, approval and authorization controls exist at the project office and are followed. Segregation of roles is evidenced by the separation of initiation requests, approval, execution, recording, and custodial roles. Significant payments made under the project relate to contractual work which is paid for in accordance with certificates raised. All payments are reviewed by the Project Accountants and Project Manager before they are effected. Contract ledgers are in place to monitor contracts versus cumulative payments made. Regular monthly bank reconciliations are prepared and certified.

14. **Internal audit.** MEMD and UETCL have an Internal Audit department which carry out project audits. An assessment of the Internal Audit Department at UETCL revealed that it has

adequate staff resources and operates independently. The audit scope of work covers value for money audits, spot checks for cash and field visits to verify project activities.

15. The internal audit reports raised concerns on significant delays in the implementation of planned project activities, especially delays in procurement of consultants for the feasibility study; approval of RAP valuation report and slow acquisition of the corridor for power line construction.

16. **Funds flow.** The project will require two U.S dollar designated accounts to be held by the MEMD and UETCL both opened at the Bank of Uganda (BoU). When required, the other line ministries or agencies will access advances from the MEMD following well laid down accountability instructions agreed between accounting officers. The PS of MEMD and CEO of the UETCL will be the "Accounting Officers" for the project, assuming the overall responsibility for accounting for the project funds.

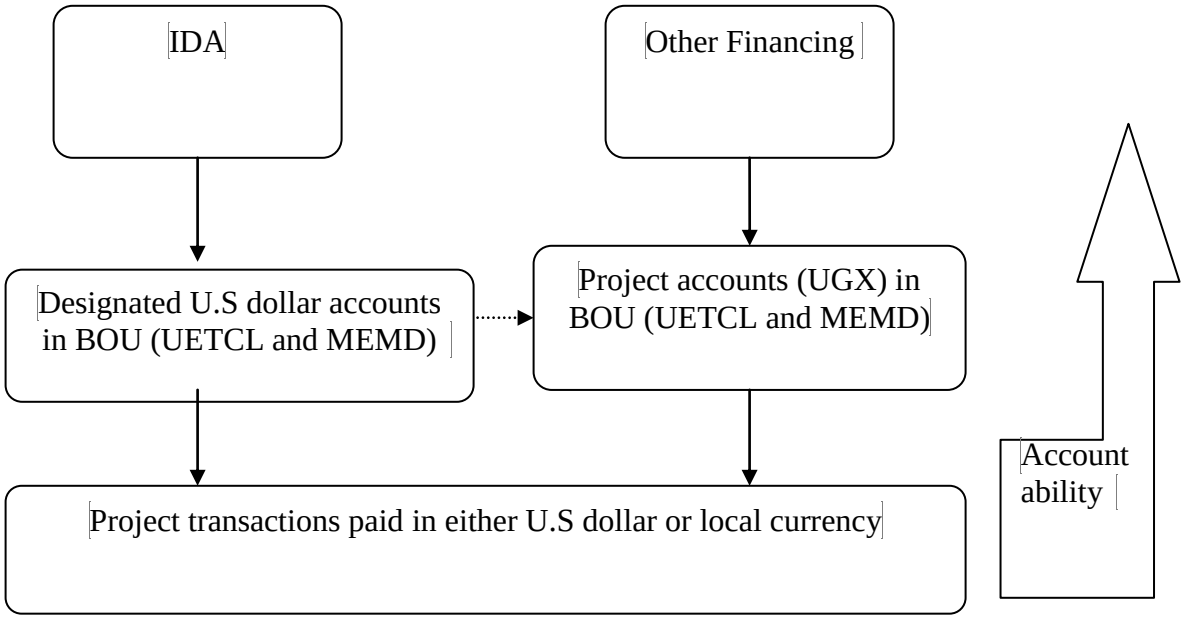
17. **Bank accounts**

- *Designated account.* Denominated in US dollars. Disbursements from the IDA Credit will be deposited on this account; and
- *Project account.* Denominated in local currency. Transfers from the Special Account (for payment of transactions in local currency) will be deposited in this account.

18. These bank accounts shall be opened at the BoU in accordance with the additional instructions included in the Letter of Disbursement. Initial cash flow forecasts upon which the advance disbursement will be made from the IDA Credit should be prepared by the entities. The account signatories will follow existing government systems for the two entities per the FM Manuals of the UETCL and treasury accounting instructions for ministries.

19. The government is operating under the Treasury Single Account for consolidated funds and has made transitional plans for donor funded projects. When agreed actions are implemented, projects will be migrated to the same system under the donor funded platform.

PROJECT FUNDS FLOW CHART



20. **Disbursement and reporting arrangements.** The participating institutions will be using the report-based disbursement method. Funds flow arrangements for the project (through the two bank accounts above) will be as follows:

21. The institutions will prepare a six monthly cash flow forecast for the project based on the work plan and submit the withdrawal application to the Bank after the effectiveness of the project. Subsequent withdrawal applications should be submitted quarterly with interim financial reports (IFRs) within 45 days after the end of the quarter. The quarterly periods follow the calendar year quarters hence IFRs should be prepared as of end of March, June, September, and December. IDA will make an advance disbursement from the proceeds of the Credit based on the cash flow forecast by depositing into a Borrower-operated Designated Accounts held at BoU denominated in United States Dollars.

22. Funds can be transferred from designated accounts to the project account denominated in Uganda Shillings to make payments in local currency. The project expenditure can be paid from either the designated account or the project account. These will include transfers to other implementing units under the terms of Accountability Instructions issued by the coordination agency. Other payment methods under the credit will be reimbursement, special commitments and direct payments.

23. Formats of the various periodic financial monitoring reports will be according to the current agreed under the ESDP which provide quality and timely information to the project management, implementing agencies, and various stakeholders monitoring the project's performance.

24. The following quarterly IFRs will be produced by the institutions;

- A statement of Sources and Uses of Funds for the reported quarter and cumulative period (from project inception) reconciled to opening and closing bank balances; and

- A statement of uses of funds (expenditure) by project activity/component comparing actual expenditure against the budget, with explanations for significant variances for both the quarter and cumulative period.

25. In addition to the above IFRs, the institutions will also have to submit to the Bank the following information to support report-based disbursement:

- Designated Account (DA) Activity Statement.
- DA Bank Statements.
- Summary Statement of DA Expenditures for Contracts subject to Prior Review.

26. The annual financial statements should be prepared in accordance with International Public Sector Accounting Standards (which among others includes the application of the cash basis of recognition of transactions) for ministries and International Financial Reporting Standards, for UETCL.

27. **External auditing.** The Auditor General is primarily responsible for the auditing of all government projects. If the audit is subcontracted to a firm of private auditors, with the final report being issued by the Auditor General, IDA funds may be used to pay the cost of the audit. The audits should be done in accordance with International Standards on Auditing. The audit report for the project should be submitted to IDA within six months after the end of each financial year. In addition, UETCL's entity audited accounts should also be submitted to IDA within six months after the year end. MEMD and UETCL have managed a number of IDA projects and there has been late submission of audit reports in past years. No significant issues have been raised in the most recent project audit reports except the qualified entity reports due to asset valuation and related party obligations by UETCL. Appropriate ToR for the external auditor must be developed, and agreed with IDA.

28. The Bank policy on access to information requires that the borrower disclose the audited financial statements publicly. Following the Bank's formal receipt of these statements from the borrower, the Bank will make them available to the public in accordance with this policy.

29. The audit reports that will be required are shown below.

Table 3.1. Audit Reports

Audit Report	Due Date
Continuing Entity Financial Statements, that is UETCL's annual audited accounts.	Six months of the end of each fiscal year
Project Specific Financial Statements that is the project annual audited accounts for MEMD and	Six months of the end of each fiscal year

30. The FM risk rating summary identifies the key risks that project management may face in achieving Project objectives, and provides a basis for determining how management should mitigate these risks.

Table 3.2. Financial Management Risks and Mitigation Measures

Risk	Risk Rating	Risk Mitigating Measures Incorporated into Project Design	Mitigated Risk	Any Conditions
Inherent Risk				
Entity: The UETCL relies mainly on power generated by other entities like the UEGCL, Private generators and while it sells power to the UEDCL. Both cases are outside the UETCL's control which pose a financial risk. Its operations are also spread nationwide thus operational risk.	S	This will be mitigated by ensuring that a clause is inserted in the Project Agreement that will ensure the UETCL remains financially sound throughout the project's life so as to meet its debt service and working capital requirements. Agreements and contracts for both purchase and sale of power are in place to safeguard interests of related parties. The GoU has also agreed on a scheme of subsidies to the UETCL to mitigate some risks. Major transactions for the project will be handled at the head office of the UETCL to minimize operational challenges.	M	-
Project Level- It is a project with significant civil works on power line construction and compensation issues of affected people plus ROW might affect project progress. Construction and material costs could escalated and problems of price fixing and collusion could arise.	H	The sector intends to streamline and shorten the time between the design and construction phases to minimize on price fluctuations. In addition, the sector will work closely with the procurement agency to reduce restrictions for contractors to increase competition and avoid possible ganging up for price fixing. RAPs will be closely monitored and sufficient budget will be a condition through an Escrow account.	S	YES Escrow Account
		Overall Inherent Risk	**S**	-
Control Risk				
Budgeting, Accounting and Staff: Possibility of lack of appropriate budgets, staff or failure to capture Bank funded project transactions	M	Budgeting and Accounting systems at the UETCL are satisfactory. A Project FM Manual is in place to supplement the UETCL's Financial Policies and Procedures Manual to take into consideration the specific policies and procedures for the Project. The accounting system is computerized with Sun financials. Staffing arrangements are adequate and the UETCL has an FM policies manual that is adequate to be utilized.	L	-
Internal Control- Inability to follow up reported internal control weaknesses. Payment Processing delays could slow project progress.	H	The UETCL has good internal control systems documented in the FM policies manual. Its internal audit function is in place and internal auditors will have the project in their work plans. The UETCL has agreed to cut on un-necessary approval steps to ensure timely payments.	S	-

Risk	Risk Rating	Risk Mitigating Measures Incorporated into Project Design	Mitigated Risk	Any Conditions
Funds Flow, **Financial Reporting:** Risk of lack of transparency in the system and Financial Information may be late and unreliable for purposes of preparation of required reports.	S	Arrangements to efficiently move funds have been established in the previous phases of power projects by the UETCL with effective flows. Banking arrangements are satisfactory. The project will use IFRs and the UETCL has produced formats of unaudited IFRs that will be used. These formats have been agreed with the Bank. Staff have attended Bank training in FM and Disbursement.	M	-
External Audit- The UETCL could fail to submit audit reports on time.	S	The Auditor General is primarily responsible for the auditing of all government projects with satisfactory arrangements. The audit may be subcontracted to a firm of private auditors with agreed TOR. The UETCL has recently improved on project audits but entity audits still delay due to the operations of the Board. Arrangements will be made to have audit reports approved by the Board on time for eventual submission to the Bank.	M	-
		Overall Mitigated Risk	**Moderate**	-

Procurement

31. Procurement under the project will be conducted by MEMD for Component C and UETCL for Components A and B.

32. Procurement will be carried out in accordance with the Guidelines on Procurement of Goods, Works and Non-Consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers dated January 2011 and revised July 2014; and the Guidelines on Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers dated January 2011 and revised July 2014. The Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants dated October 15, 2006 and revised in January 2011 will apply to this project.

33. **Use of National Procurement System.** – All contracts procured at national level following National Competitive Bidding (NCB) and other lower procurement procedures such as shopping may follow the national public procurement law (the Procurement and Disposal of Public Assets Authority (PPDA) Act, 2003 and its attendant regulations. These procedures have been reviewed by the Bank and found to be acceptable, except for the following provisions, which will not be applicable under this project:

- Domestic preferences shall not apply under NCB;
- The charging of fees for dealing with bidder complaints at procuring entity level shall not be permitted;

- Firms or individuals debarred or suspended by the Association shall not be eligible (in addition to firms or individuals suspended by PPDA);
- Paragraph 6(1)(c) of the fourth schedule of the PPDA Act set out in annex 1 to the Financing Agreement (restriction on contract amendments to an aggregate amount of twenty-five percent (25 percent) of the original contract amount) shall not apply;
- Regulation 48(a) of the PPDA (Rules and Methods for Procurement of Supplies, Works and Non-consultancy Services) Regulations set out in annex 1 to the Financing Agreement (on rejection of a bid submitted by a bidder who did not obtain the bidding document directly from the procuring and disposing entity) shall not apply; and
- Regulation 53(9) of the PPDA (Rules and Methods for Procurement of Supplies, Works and Non-consultancy Services) Regulations set out in annex 1 to the Financing Agreement (restriction on the use of bid securing declarations to restricted domestic bidding and quotations procurement) shall not apply.
- Shopping shall follow the request for quotations procedures (as defined in the PPDA Act and attendant regulations) subject to the provisions in sub-paragraphs (a) to (f) immediately above.
- Framework Agreements ("FAs") shall be subject to the following, namely, that FA procedures (as defined in the PPDA Act) shall be subject to competitive bidding under NCB procedures (subject to the exceptions under paragraph 3 above).

Solicitation Documents to be used

34. **Goods, Works and non-consulting services.** The Bank's standard bidding documents and standard bid evaluation forms will be used for procurement under the International Competitive Bidding (ICB).

35. Under NCB, the standard tender documents for procurement of supplies prepared and issued by the PPDA may be used subject to modifications acceptable to the Bank and those indicated under the use of National Procurement System as well as the following:

- Ineligibility applies to firms suspended by PPDA, and shall extend to firms debarred or suspended by IDA.
- In accordance with paragraph 1.16(e) of Procurement Guidelines, each bidding document and contract shall provide for the following: (a) the bidders, suppliers, contractors and subcontractors shall, on request, permit the Association to inspect the accounts and records relating to the bid submission and performance of the contract; and shall have the accounts and records audited by auditors appointed by the Association; and (b) any deliberate and/ or material violation of such provision by any bidder, supplier, contractor, or subcontractor may amount to an obstructive practice provided for in paragraphs 1.16(a) and (v) of the Procurement Guidelines.

36. **Consulting services.** The Bank's Standard Request for Proposal document and sample form of evaluation will be used in the selection of consulting firms. The PPDA procedures for selection of consultants including bidding documents, evaluation forms, and so on, shall not apply. 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.

37. The procurement of works and services for the project for Component A will be divided into four lots: (a) construction of transmission lines separated in two lots; (b) substation works separated into two lots, (c) engineering and construction supervision consultant for the transmission and distribution works. The construction of works will be procured on a supply and installation basis through ICB.

Procurement Plan

38. To be eligible for financing, the procurements shall follow the arrangements in the financing agreement and the procurement plan.

Table 3.3. List of Contract Packages to be Procured Following ICB and Direct Contracting

Ref No.	Contract (Description)	Financier	Cost Estimate (US$ millions)	Procurement method	P-Q	Domestic Preference (Yes/No)	Review by Bank (Prior/Post)	Expected Bid-Opening Date
1.	Lot 1 :132 kV double circuit Lira-Gulu- transmission line Lot 2: 132 kV double circuit Gulu-Nebbi-Arua transmission line 132 kV Lira Lot 3: Substation extension at Lira and new 132/33 kV Gulu Substation Lot 4: 132/33kV new Nebbi and Arua Substations (UETCL)	IDA	74.0	ICB	No	No	Prior	July 2016

Table 3.4. List of Consulting Assignments with Short-List of International Firms

Ref. No.	Description of Assignment	Financier	Cost Estimate (US$ millions)	Selection Method	Review by Bank (Prior/Post)	Expected Proposals Submission Date
1.	Construction supervision for Lira-LGNA transmission line and associated substation works	IDA	5.0	QCBS	Prior	May 2016

2.	Environmental and social monitoring and supervision (MEDM)	IDA	0.5	QCBS	Prior	May 2016

Table 3.5. Non Consultancy Services

Ref. No.	Description of Assignment	Financier	Cost Estimate (US$ millions)	Selection Method	Review by Bank (Prior / Post)	Expected Proposals Submission Date
1.	Enterprise Resource Planning (ERP) tool (UETCL)	IDA	4.5	ICB	Prior	November 2016
2.	M&E System (UETCL)	IDA	0.1	ICB	Prior	November 2016

Table 3.6. List of Consulting Assignments with Individuals

Ref. No.	Description of Assignment	Financier	Cost Estimate (US$ millions)	Selection Method	Review by Bank (Prior/Post)	Expected Proposals Submission Date
1.	PM Assistant – HV transmission Projects (UETCL)	IDA	0.225	ICS	Prior	May 2016
2.	Transmission Substation Engineer – 2 No. (UETCL)	IDA	0.40	ICS	Prior	May 2016
3.	Transmission Line Engineer – 2No. (UETCL)	IDA	0.40	ICS	Prior	May 2016
4.	Social Development Officer – 2No. (UETCL)	IDA	0.20	ICS	Prior	May 2016
5.	Procurement Officer (UETCL)	IDA	0.20	ICS	Prior	May 2016
6.	Surveyor (UETCL)	IDA	0.15	ICS	Prior	May 2016
7	Environmental Safeguard Officer (UETCL)	IDA	0.20	ICS	Prior	May 2016
8.	Procurement Officer (MEMD	IDA	0.20	ICS	Prior	May 2016
9.	Social Specialist (MEMD)	IDA	0.20	ICS	Prior	May 2016
10.	Environmental Specialist (MEMD)	IDA	0.20	ICS	Prior	May 2016

Table 3.7. Prior Review Thresholds

Expenditure Category	Contract Value Threshold (US$)	Procurement/ Selection Method	Contracts Subject to Prior Review
Works	>10,000,000	ICB	All Contracts
	<10,000,000 >200,000	NCB	As specified in Procurement Plan
	< 200,000	Shopping	None (Post review)
Goods	>1,000,000	ICB	All Contracts
	<1,000,000 >100,000	NCB	As specified in Procurement Plan
	< 100,000	Shopping	None (Post review)
Consulting Services - Firms	> 300,000	QCBS	All Contracts
	< 300,000 > 200,000	CQS/ Other	All Contracts
	< 200,000	CQS/ Other	None (Post Review)
Consulting Services – Individuals (ICS)	>100,000	ICS – Qualification	All Contracts
	<100,000	ICS – Qualification	None (Post review)
Non-Consulting Services	>500,000	ICB	All Contracts
	<500,000	NCB	As specified in Procurement Plan
	< 50,000	Shopping	None (Post review)
All types of contracts	All contracts	Sole source/ direct contracting and ToR	As specified in Procurement Plan

Procurement Risk and Mitigation Measures

39. The assessment concluded that overall risk procurement risk is high with residual risk of substantial after implementation of proposed mitigation measures as summarized below:

Table 3.8. Procurement Risks and Mitigation Measures

Risk	Action	Timeframe	Responsibility
Major delays in procurement due to lack of adequate staff in both the procurement and technical departments given the multiple projects under implementation and the lack of appropriate authorization or delegation of decision making authority to project staff	Hiring of additional staff complemented with designation of full time UETCL staff to project implementation on performance contracts and with appropriate delegation of decision making authority; regular internal audit of procurement processing and contract administration to assess adherence to agreed business standard and timely remedial action	During project implementation	UETCL
Delays in handover of sites to contractors after contract signing exposing Client to possible claims.	Prepare and implement a draft Environmental and Social safeguards schedule/ plan in parallel to the preparation of the tender documents to ensure availability of land for execution of civil works immediately after contract signing and thereafter continuous handover with the entire site available within the first	During project implementation	UETCL and MEMD

	6 of the civil works contract. Submit monthly progress report for each contract		
Weaknesses on contract administration especially works certification resulting in delayed implementation	Operationalizing and strengthening of the procurement and contract management and reporting system; Training in contract administration	During project implementation	UETCL
National procurement procedures are not fully consistent with IDA procurement procedures	Financing Agreement shall include the exception provisions	Exceptions to use of NCB are listed in the Financing Agreement	IDA/ MEMD and UETCL

Record Keeping

40. Each implementing agency will be responsible for record keeping and filing of procurement records for ease of retrieval of procurement information. In this respect, each contract shall have its own file and should contain all documents on the procurement process in accordance with the requirements and as described in the PPDA Act.

Frequency of Procurement Supervision

41. In addition to the prior review to be carried out by the Bank, the capacity assessment of the implementing agencies recommends six-monthly supervision missions to visit the field, including at least one mission to carry out a post review of procurement actions.

Environmental and Social (including safeguards)

42. **General safeguards.** The project is classified as category B as activities and interventions are not expected to lead to large scale, significant or irreversible environmental or social impacts. The project triggers the following Bank operational policies. OP4.01 (Environmental Assessment), OP4.04 (Natural Habitats), OP4.11 (Physical Cultural Resources), OP4.12 (Involuntary Resettlement) and OP4.36 (Forests).

43. The ESIA and RAP indicate the potential social and environmental impacts within the project area, and define a specific plan on how to address such impacts. UETCL and its contractors will ensure timely preparation of all the action plans as defined in the ESIA, RAP and ESMP to mitigate the potential impacts at the start of the project implementation. A comprehensive checklist for project social and environmental issues, communication and community engagement plan, and a grievance redress mechanism are important and will be initiated after Board approval the project. UETCL will continue to assess any emerging risks during implementation and corresponding mitigation measures established to minimize/avoid any negative impacts.

Social Aspects

44. The social assessment (within the RAP and ESIA) indicates a number of key social issues that the participating/benefiting communities may face. The project risks are the following: (a) increased gender imbalances and in particular risks of sexual abuse and child abuse by construction workers; (b) potential for school dropout rates, early marriages and pregnancies; (c)

challenges relating to the post-conflict environment in Northern Uganda; (d) risk of HIV/AIDS transmission due influx of contractor workers; and (e) child labor.

45. Following the findings of the RAP and ESIA, the Uganda safeguard portfolio review and the experience of similar projects in the Uganda portfolio, the following mitigation measures have been agreed to and are capture un the ESIA:

- *Capacity.* Strengthening safeguards supervision and monitoring capacity at UETCL and MEMD through hiring and training of individual consultants, with support provided under Components B and C.

- *Contract clause*. Zero tolerance of sexual misconduct with minors, female workforce and community members, and of child labor will be included as conditions in the contract with the UETCL and the contractor(s) for works.

- *Community sensitization.* Enhancing the role of the SP for HIV sensitization, to also monitor risks and recommend mitigation measures in relation to sexual misconduct, child protection, including collaboration with local health centers and schools.

- *Community awareness.* UETCL, in collaboration with MEMD, will prepare awareness materials highlighting possible risks to communities from the temporary influx of workers and recommended precautions. The materials will specifically focus on risks associated with sexual misconduct with minors, child labor, and school dropouts. Signage will be displayed in prominent places, including the contractor's camp and worksites, as well as in the communities, schools and health clinics.

- *Contractor sensitization.* The contractor will be required to carry out a half-day worker sensitization program to inform and sensitize workers on the criminality and zero tolerance of sexual and child abuse. The workers will be subsequently required to sign a "model code of conduct" undertaking to refrain from any undesirable behavior vis a vis the community.

- *Consistent reporting and monitoring.* To ensure the timely compensation of PAPs, an indicator on the completion of compensation has been included in the project results framework. Further, quarterly progress reports will include the progress and assessment of safeguards compliance at worksites. The Bank will pay specific attention to the above issues and Aide-memoires during implementation will regularly report updates on social and environmental safeguard compliance, bringing to attention any issues in a timely manner. Finally, the functioning of the grievance redress mechanism will be closely monitored to ensure robust performance and that complaints and grievances are redressed in a timely manner.

46. As part of the consultation, it was identified that the project is expected to adversely affect approximately 3,281 PAPs, who will need to be compensated adequately prior to

commencement of project civil works as detailed in the project RAP[18]. The project is expected to lead to positive opportunities for PAPs and communities, with no indirect and/or long-term negative impact in these areas of operation. Wherever relevant and feasible, the project will also track implementation progress and impacts with gender disaggregated data.

Environmental Aspects

47. The proposed LGNA 132 kV transmission line will include the following activities: (a) construction of a transmission line (approximately 314 km) from Lira substation to the proposed new substations in Gulu, Nebbi and Arua; (b) extension of the existing Lira substation; (c) construction of access roads; and (d) construction of workers camps and storages facilities as necessary. The project may also affect some natural habitats such as wetlands and forests, and in addition affect an area broader than the sites subject to physical works with regard to workers camps/ equipment storage yard, construction of access roads, as well as associated health and safety aspects.

48. Based on the ESIA, the transmission line will, in a limited manner, traverse parts of swamps/wetlands, forests, and river Nile, no major ecosystems and protected/conservation areas would be adversely affected by the proposed transmission line. Given the presence of Crested Crane Birds at the River Nile crossing, it has been recommended the use of bird diverters and to be included in the final engineering design to mitigate bird-collision with overhead line conductors. The project is categorized as Environmental Assessment Category "B". Therefore, the project has triggered the following Environmental Safeguards Policies as summarized in the table below.

Table 3.8. Environmental Safeguards Policies

Safeguard Policy	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	**Yes**	Triggered because the project will have limited environmental and social impacts. Even though the transmission line will, in a limited manner, traverse parts of swamps/wetlands, forests reserves, crosses the river Nile and passes close by the MFNP, no major ecosystems and protected/conservation areas would be adversely affected by the proposed Transmission line. There are only four areas on which minor impacts are expected. These impacts have been adequately mitigated. These areas include: (a) Anaka – Karuma section which fringes on, but remains outside the MFNP (clearance has been obtained from the Uganda Wildlife Authority), (b) Koch

[18] The RAP identifies 3,281 PAPs across 180 villages of which 2,546 PAPs will be affected in their land. The RAP's inventory also indicates that 1032 residential houses will be affected, along with 1115 graves, 14 shrines, 13 wells or boreholes, 7 churches, 7 schools, 1 health center and 6 commercial structures.

Safeguard Policy	Triggered?	Explanation (Optional)
		Awing Air-field, which has obtained clearance from Civil Aviation Authority, (c) Short sections of about 6 Forest Reserves that will require conditional clearance by National Forest Authority before commencement of construction works. A reforestation program has been included in the ESMP; and the presence of Crested Crane Birds at the River Nile crossing for which the ESMP has recommended use of bird diverters and already included in the final engineering design. The transmission line may also have environmental, health and safety impacts on the surrounding communities and the general public during construction and operation, for which mitigation measures have been recommended in the ESMP. Adequate mitigation measures have been provided for potential impacts such as the use of child labor and sexual abuse of minor girls (<18 years old).
Natural Habitats OP/BP 4.04	**Yes**	This Policy is triggered because the transmission line passes through and will affect natural habitats such as wetlands, forest reserves, and the Nile River.
Forests OP/BP 4.36	**Yes**	This Policy is triggered because the project passes through and will affect forest reserves.
Pest Management OP 4.09	**No**	N/A. This is because the project does not envisage procurement and/or use of pesticides (herbicides for weed control).
Physical Cultural Resources OP/BP 4.11	**Yes**	Triggered because the project associated civil and earth works will encounter both known and unknown PCRs.
Indigenous Peoples OP/BP 4.10	**No**	The listed Project areas of Lira, Gulu, Kole, Nebbi and Arua are not inhabited by Indigenous Peoples according to OP 4.10.
Involuntary Resettlement OP/BP 4.12	**Yes**	OP 4.12 is triggered to address social impacts from Component A of the project. Under that component, the proposed project will support the construction of a new transmission line

Safeguard Policy	Triggered?	Explanation (Optional)
		which will involve acquisition of the transmission line corridor over a distance of 314 km. Similarly, the construction of three new substations (at Gulu, Nebbi and Arua) will require land acquisition. Since this land may already be occupied by people and their economic activities, there will likely be some limited displacement of people and disruption and loss of livelihoods and/or loss of assets.
Safety of Dams OP/BP 4.37	**No**	The Project does not involve construction of dam facilities nor relies on existing dams.
Projects on International Waterways OP/BP 7.50	**No**	The project will not involve development of projects on international waterways.
Projects in Disputed Areas OP/BP 7.60	**No**	There are no known areas under dispute in the project area.

Safeguard Implementation Capacity

49. Through the implementation of the ESDP, UETCL has had substantial safeguards capacity developed over time. Under the ESDP, a safeguards specialist has been recruited and worked jointly with the established environment section under the PID. The section has six environmental personnel and several sociologists on short and long term employment handling the RAP implementation of different projects and other social issues. However, the implementation and supervision of the safeguards by UETCL has also had some weaknesses that must be reviewed to identify and address any gaps. The project will provide financing for hiring dedicated environmental specialist and social development specialist to guide and lead management of environmental and social aspects to ensure compliance with the safeguard requirements. In addition, MEMD and UETCL shall collaborate with other relevant government agencies, such as NEMA, ERA, NFA, Uganda Wildlife Authority, MoGLSD, and the respective District Local governments of Lira, Gulu, Oyam, Kole, Nebbi and Arua. Additionally, the Contractor and the supervising consultants shall be required to hire full time environmental and social specialists to undertake supervision, monitoring and reporting implementation of environmental and social aspects of the project. Detailed implementation arrangements have been provided in the ESIA, Chapter 8.3. Going forward, the Bank will continuously support UETCL and MEMD to undertake implementation of safeguards requirements of the proposed project.

Monitoring and Evaluation of Safeguards

50. All of the data and information required to monitor the project's performance and results will be provided through regular quarterly reports, prepared by the implementing agencies, and statistics from the UETCL's monthly system operation reports. UETCL has gained substantial experience in this under the ongoing ESDP and have been successful in the preparation and

submission of the required quarterly project monitoring reports. In this regard, no additional capacity building is needed in this area. The only exception is the monitoring of the implementation of the RAP, where special arrangements will be needed to ensure adequate oversight and tracking of progress to ensure timely compensation to PAPs, as well as proper handover of the land to the contractor to start civil works and effective management of complaints.

Annex 4: Implementation Support Plan

Uganda: Grid Expansion and Reinforcement Project (P133305)

1. **Strategy and approach for implementation support.** The strategy for implementation support has been developed on the basis of the nature of the project and responds to capacity and financial assessments of UETCL, and lessons learned from previous Bank financed projects in the transmission sub-sector. The implementation support's objective is to ensure that government agencies involved implement the project successfully to achieve the PDO. It also ensures that the Bank's resources and staff are sufficient to supervise and support project implementation.

Implementation Support Plan

2. **First phase**. Technical implementation support will focus on ensuring timely establishment of the PIU at UETCL, and that appropriate technical design of the project components is carried out. Additionally, the Bank support under this phase will focus on the procurement process for concluding the tendering of the major infrastructure packages. In this regard, ToR for the additional staff required for the PIU positions at UETCL have been prepared by the client and will be reviewed by the Bank to ensure that tasks are appropriately defined and the required qualifications and experience are adequate to perform the key functions required for project implementation. The Bank team will include staff and consultants, complemented with specialized expertise as required.

3. **Second phase**. After completion of the first phase, the Bank team's support will focus on monitoring of the construction process, contracts management, disbursements, and effectiveness of capacity building and technical assistance activities. The Bank team will include staff and consultants, complemented with specialized expertise as required. The Bank team will be also closely supported by a senior social specialist familiar with transmission line projects in order to oversee compliance with safeguard frameworks.

Procurement and Technical Aspects

4. The Bank Procurement Specialists will regularly participate in implementation support missions to assist in monitoring procurement procedures and plans. The procurement plan will indicate contracts which are subject to Bank's prior review. All other contracts will be subject to post-review. The Bank team will include a Bank staff engineer, complemented with specialized expertise, depending on the nature and scope of each component, to review project technical designs, specifications and proposals. Field visits will be carried out to the construction sites to monitor progress including environmental and social safeguard implementation. During the regular implementation support missions, the procurement plans will be updated at least once each year (or more often as required to reflect the actual project implementation needs) and post-procurement reviews will be carried out at a minimum once annually.

Financial Management Aspects

5. FM supervision will start by assessing the progress of the project management unit staffing and reviewing the plan in place to execute disbursements following FM guidance. This supervision will take place before contracts are awarded in case improvement measures need to take place before disbursement. The FM supervision will also review quarterly progress and financial audits. With regards to resources, a country-office-based staff for eight weeks per year is expected to be required.

Environmental and Social Aspects

6. Environmental and social safeguards support will include visits to project areas and the monitoring of mitigation measures. During construction, monitoring is necessary to ensure compliance with environmental and social safeguards related to the infrastructure projects. With regard to resources, environmental and social specialists are expected to support the project for eight weeks per year each. The environmental and social specialist, appointed for the supervision of the project, will pay specific attention to the risk and mitigation measures identified and will regularly report updates on environmental and social safeguard compliance to the task team leader and management, bringing to attention any issues in a timely manner.

7. **Audit.** Internal control functions will have to be strengthened under the project as detailed in annex 3. The Bank's project team will closely monitor FM activities to identify in advance potential delays in the preparation of the financial and audit reports and undertake corrective measures. Project financial statements will be audited by an external auditor hired under the project under ToR acceptable to the Bank and with the approval of the Uganda regulations.

Overall Support Implementation Needs

8. The Bank team should be composed of a mix of skills and experience for successful project implementation. The table below outlines the expected staff weeks and travel required to make sure the actions and schedule are appropriately resourced.

Table 4.1. Expected Staff Weeks and Travel Required

Time	Focus	Skills Needed	Resource Estimate (US$, thousands)	Partner Role
First phase (approx. 18 months)	Establishment of the PIU at UETCL and strengthening PIU's team Design of procurement documents Implementation of ESIA and RAP	Engineering; procurement; FM; environmental; and social and legal.	250	There is no co-financing
Second phase (approximately 18-80 months)	Review of progress in construction and capacity building; review of sector technical and financial performance; procurement; M&E; safeguards; and FM.	Engineering; sector regulatory and planning; M&E specialist; financial analyst; economist; environmental and social.	300	There is no co-financing

Table 4.2. Skill Needed

Skills Needed	Number of Staff Weeks	Number of Trips per year
Team leader	8	2
Transmission engineer	6	2
Procurement specialist	6	0 - Field staff
Environmental specialist	6	2
Social specialist	7	4 – supported by field staff
Specialized technical experts	2	As required
Financial analyst	2	1
Legal	3	1 (initially)
Administrative support	3	0
Financial management specialist	5	0 – Field staff
Monitoring and evaluation expert	2	0

Annex 5: Economic and Financial Analysis

Uganda: Grid Expansion and Reinforcement Project (P133305)

Economic Analysis

1. The economic analysis for the project follows a standard cost benefit framework. Comparing the present value of incurred costs to the stream of attributable benefits, the EIRR and NPV will inform the project's viability over its economic life time – assumed to be 40 years.

Description of Project Benefits

2. The proposed project intends to construct a 132kV transmission line extending 314 km connecting substations at Lira to Arua, though Gulu and Nebbi. In doing so, the proposed transmission line will extend the existing transmission network (currently reaching until Lira) into the north and north-western regions. This will help increase capacity of and reinforce electricity supply to the northern region (Gulu) which is currently solely fed by an overextended 33 kV distribution line; and also increase electricity supply and reliability in the West Nile region (the Nebbi – Arua section) which is currently served by an isolated 33kV distribution grid.

3. Broadly, the benefits from the proposed project may be classified into two categories:

(i) the increased efficiency in electricity supply (reduction in distribution losses, reduced outages and voltage fluctuations), and,

(ii) the increased supply of electricity to the North and North-west regions to meet existing suppressed demand and expected growth in demand.

4. The project area is currently fed by over extended distribution lines (33 kV). The network of existing distribution lines extend over hundreds of kilometers and experience high levels of technical losses due to low voltage along these lines and thus higher line resistance. The installation of the transmission line will allow power to flow at higher voltage, thus reducing technical line losses and making a greater amount of electricity available for consumption. The benefit derived by end consumers both residential and non-residential is the value of the additional electricity from the consumption of the otherwise wasted electricity (reduced distribution losses).

5. The second major benefit is from the increased capacity of electricity supply to the project area to meet the suppressed demand and the projected growth in demand. Currently isolated, the West Nile grid is fed by one mini-hydro facility at Nyagak-I (3.5 MW) and a small diesel-based (MW) generator. The northern region (Gulu) is also supply constrained with the existing 33kV distribution system providing the only means to supply electricity to the region. With the connection to the main grid through the proposed transmission line, increased electricity supply will be available to the meet electricity demand in the North and North-West region.

6. Additional benefits would also accrue from the project during its economic lifespan but are very difficult to value, predict and quantify. They are discussed here, but not included in the quantification of benefits. The economic analysis thus represents a conservative estimate of the economic viability of the proposed project.

7. Reinforcing electricity supply to the region through the proposed transmission line will also improve the quality of electricity supply. Currently, with very long distribution lines, electricity supply suffers from low voltage and outages. The proposed transmission line will improve the voltage conditions of electricity supply and reduce the incidence of outage in the existing 33kV distribution line from Lira to Gulu.

8. Increased grid reliability due to the "n-1" resilience built into the design of the proposed transmission line for the Lira-Gulu section. Currently, this section is supplied by radial distribution lines and thus is at risk of breakdowns in case the single line malfunctions. With a double circuit transmission line, failure in one circuit will be backed up by the other, thus reducing the risk of outage considerably. Similarly, resilience will also be increased in the West Nile system with the transmission line (Nebbi-Arua) being backed-up to a certain extent by the existing distribution system. This benefit is not quantified in the economic analysis as the valuation of the risk reduction is very difficult with the data available.

Description of Costs

9. The main costs associated with the project and associated benefits are:

(i) capital costs of the transmission line expenditure,

(ii) O&M costs of the transmission lines,

(iii) capital costs of substation construction (expansion in the case of Lira) and connection to 33 KV feeders from the substation, and,

(iv) average generation cost of additional electricity.

Assumptions Underlying Analysis

10. The economic viability of the project is evaluated starting in 2016 with the commissioning of the Lira-Gulu section by the end of 2018 and the rest of the transmission line in the following year. Thus the first year that benefits accrue form the flow of electricity is assumed to be 2019. The assumed electricity flow through the transmission line at each of the four substations was estimated through a power flow modelling analysis conducted as a part of the feasibility study. The power flow modelling assumed a base case and a high and low case with regard to the volume of power transmission through the system. The analysis is presented using the base case scenario while also presenting corresponding results for the low scenario to highlight robustness of the project's economic viability. Table 5.1 presents the main assumptions underlying the analysis.

Table 5.1 – Main Assumptions for the Economic Analysis

Variable	Value	Note
Project Life (years)	40	
Discount rate	10%	
Distribution Losses	28.9%	Estimated for the Lira-Gulu section based on information obtained from Umeme
Transmission Losses	3.3%	Average transmission system losses for 2014
VAT	18%	
Contingencies	10%	
O&M Cost (% of capex)	2%	
Value of energy (US$/kWh)	0.172	Valued at the existing average retail tariff
Average generation Cost (US$/kWh)	0.030	

**Note:* Capex is assumed to be drawn down over 2016-2019 in the following manner: 20 percent, 20 percent, 30 percent, and 30 percent.

Results

11. The results show that the project is economically viable and robust to variations in key underlying parameter within reasonable limits.

12. To assess the economic viability of the project, the stream of benefits from increased supply of electricity and reduced distribution losses are evaluated against the project capital costs, the O&M cost and the average generation cost of supplied electricity. The cost benefit analysis, assuming a discount rate of 10 percent and removing taxes and contingencies form capital expenditure, estimates an NPV of US$268 million (EIRR: 30 percent) under the base scenario of power flows. It is noteworthy that the end-consumer benefits from electricity consumption are valued at the retail tariff of electricity, which is no greater than the benefit derived by the consumer (otherwise they would not purchase electricity at that price). It thus represents a conservative estimate of the project benefits.

Table 5.2. – Estimated Economic Viability

	Base Case	**Low Case***
EIRR (%)	30	23
NPV (US$, millions)	268	171
Benefit-cost ratio	2.9	2.5

***Note:* The power flows in the low case are roughly 70 percent of the base case scenario though the proportion varies from year to year.

Sensitivity

13. A switching value analysis was performed to test the robustness of the economic viability of the project to changes in the assumed values of key parameters. The results show that under the base case, the project remains viable until an increase in capital expenditure of 425 percent, a reduction in electricity flow through the system to 21 percent of the assumed amount, or an increase in the average cost of generation of 345 percent (implying a cost of roughly US$0.104 /kWh). The results show that even under the low power flow scenario the project is sufficiently robust to changes in the parameter values.

Table 5.3 – Sensitivity Analysis (Switching Values)

Parameter	Base Case (%)	Low Case (%)
Capital Costs	425	305
Reduced Power Flow	21	29
Generation Cost	345	320

GHG Accounting for Uganda

14. The project's impact on GHG emission calculations are based on Component A which involves construction of a new transmission line and substations.

15. **Loss reduction.** The proposed component is expected to reduce technical loss between Gulu and Lila from 20 percent to 13.3 percent by channeling electricity to high-voltage transmission line. The annual transmission at Gulu substation is 41,391 MWh. The project life is estimated to be 40 years, hence the electricity transmitted over project life is 1,655,640 MWh. Grid emission factor of Uganda is 0.484tCO_2/MWh, based on the standardized baseline by United Nations Framework Convention on Climate Change.

16. Under the baseline scenario, the technical loss (20 percent) will be 331,128MWh, and associated GHG emission will be 160,266 tCO_2. Under the project scenario, the technical loss (13.3 percent) will be 220,200 MWh, and associated GHG emission will be 106,576tCO_2. Hence the component net emission will be -53,690 tCO_2, resulting in net emission reduction.

17. **Land clearing.** The transmission line will be 314km, with 5m of ROW. This will require land clearing for 157 ha. The ESIA report states that "Grasslands and Wooded grasslands is the most represented natural vegetation type". For GHG analysis, it is assumed that the land consists of Moist/Wet Grassland with biological density of 24tCO_2/ha. Based on these assumptions, expected GHG emission from land clearing is 3,768 tCO_2.

18. **SF_6.** The project will install in total six transformers in Gulu, Nebbi and Arua. All of the transformers will serve newly constructed 132/33kV substations. These transformers are likely to have closed pressure design for SF_6 gas. Bank GHG accounting manual provides assumptions of 0.5 kgSF_6/kV, gas leakage percentage of 2.6 percent and Global Warming Potential of 23,900 tCO_2-e/tSF_6. Project life of 40 years. Given above assumptions, one transformer is likely to emit 1,640tCO_2. Six transformers will likely emit 9,840tCO_2.

19. In total, the project will result in net emission reduction of -40,080tCO_2.

UETCL's Financial Health

20. Since the commissioning of Bujagali hydropower plant in 2012, the financial situation of UETCL started to improve as costly thermal power generation was replaced by cheaper hydropower generation. The share of hydro-power (including mini-hydro) increased from a little over 50 percent in 2011 to about 94 percent in 2013 (the six percent remaining came from co-generation and imports). This change in the generation mix implied a reduction on GoU subsidies (in the form of capacity payment to thermal generation) from USh 590 billion (US$236.9 million) in FY2011 down to USh 66 billion (US$26.1 million) in FY2013.

21. UETCL has recovered from previous losses and posted profits for the last two consecutive years, which helped to bring back equity figures into positive values. According to

UETCL's financial statements[19], the figures for FY14 are USh 16 billion[20] (US$4.9 million[21]), and for FY13 USh 25 billion (US$9.9 million). Furthermore, in FY14, UETCL was able to capitalize debt for USh 331 billion (US$98 million) helping to rebalance equity and debt positions. Given the return to profits and the capitalization of the debt shown in 2013 and 2014, UETCL had the ability to meet the financial covenants (related to DSCR and EBITDA margin) under the Bank-funded ESDP, as presented in the table below.

Table 5.4. – UETCL Financial Covenants

Covenant		FY13	FY14
DSCR	Target	1.0	1.0
	Observed	1.14	28.5
EBITDA ratio	Target	1.5	2.0
	Observed	3.0	7.7

Source: World Bank based on UETCL data.

22. Further to the calculation of the financial covenants, the analysis also evaluated other financial ratios. The output of the study shows that UETCL has sensibly reduced its rate of return, measured as the Return on Assets (ROA)[22].

23. A low ROA value can be caused by new investments not producing revenues yet (that is, increases in work in progress account) or by low profit level. In the case of UETCL, it seems the low ROA appears to reflect a combination of both issues. A low ROA implies that UETCL is not profitable enough with respect to the amount invested in assets, and a decrease of this ratio may represent inefficiency of obtaining revenues from new investments.

24. Furthermore, this situation is exacerbated by the existence of direct government subsidies that helps financing operational activities, out of which the company would be in financial distress at the current tariff level.

25. Part of the explanation for this situation comes from the tariff methodology. The BST allows UETCL a return on investments equivalent to depreciation and a return on capital expenditures. However, the BST methodology received from ERA does not specify either an explicit procedure for calculating the Regulatory Asset Base it determines or how the rate of return on the investments shall be calculated.

26. The analysis acknowledge the fact that UETCL is a state-owned company and, as such, the rate of return on investments may deviate from the values commonly observed in the private sector, even more when considering the fact that UETCL receives concessional finance for its investments. Nonetheless, a more reasonable ROA value would allow the company to generate enough profits that would prevent recurrent cash constraints that could hamper the financial and operational performance of the company.

Financial Analysis of the Project

27. The financial analysis presented in this section evaluates the net financial return of the Lira-Gulu-Nebbi-Arua Transmission Project. The project is assumed to generate cash inflows by

[19] Audited but pending of Board approval at the moment of performing the analysis.
[20] Excluding extraordinary profits of USh 105.5 billion due to an asset revaluation exercise.
[21] Exchange rate of December 2014: 3367 USh = US$ 1
[22] ROA = Profit of the year (excl. extraordinary results) / Total assets

selling electricity at the average transmission tariff while cash outflows are represented by the investment costs, O&M costs and the financial impact of VAT during construction period.

28. **Project costs**. The investment cost of the project is estimated in US$82.8 million[23] (inclusive of VAT[24]) and includes the construction of a double circuit 132kV transmission line from LGNA assumed to be commissioned in 2018. The O&M costs are assumed to be 2 percent of the total investment costs.

29. The financial analysis assumes that during the construction period, the project will have to support VAT on inputs (VAT debit) without the possibility to net them off with VAT collected from sales (VAT credit). Thus, the analysis assumes a negative impact of VAT during construction period.[25]

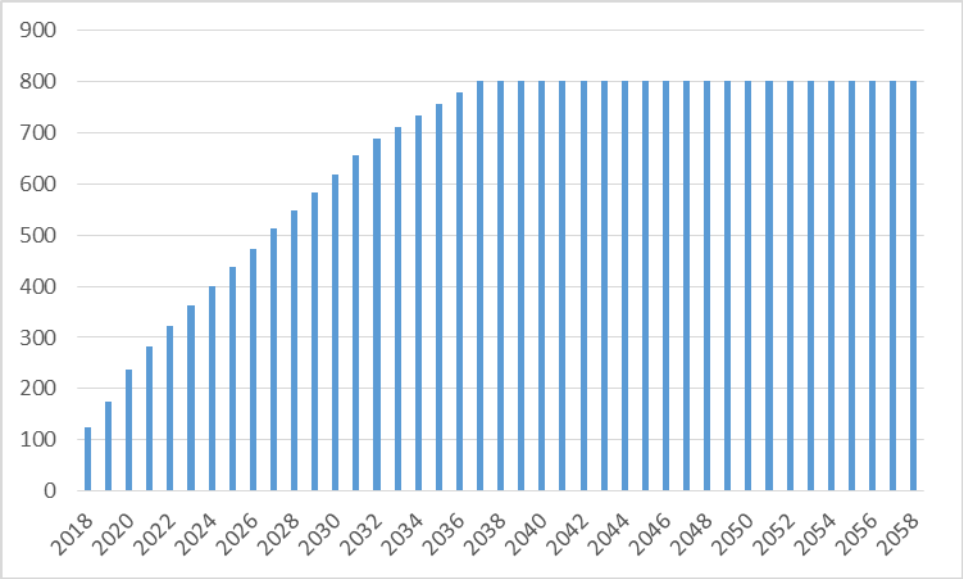
Table 5.5. – Investment Costs and Disbursement Period (US$, millions)

	2016	2017	2018
Assumed Capital Disbursements	14.0	41.4	13.6
Assumed O&M Costs	0.3	1.1	1.4
VAT during construction	2.6	7.7	2.0
Total Costs	16.9	50.2	17.0

30. **Project benefits**. The project benefits are measured as the revenues from transmission charges for the incremental electricity transported by the new line. Transmission charges are estimated as the average transmission tariff charged by the UETCL to its customers – 8.14 US$/MWh[26]. Electricity sales are estimated according to the load forecast analysis developed for the project Feasibility Study (see Figure). The estimation of the electricity sales contemplates a 3.3 percent transmission losses.

[23] At prices of 2015. However, since bid quotes are performed on nominal US$, the financial model includes the impact of US inflation during the construction period.
[24] 18 percent VAT is considered for the financial analysis.
[25] This is a conservative approach as it can be expected that the project negative VAT position is netted with positive VAT position from UETCL
[26] ERA – Tariff Order Q4 2015. Transmission costs (excl. generation): 94,125 USh million; Sales to Distributors: 3,162 GWh; and FX rate: 3658.4 USh/US$

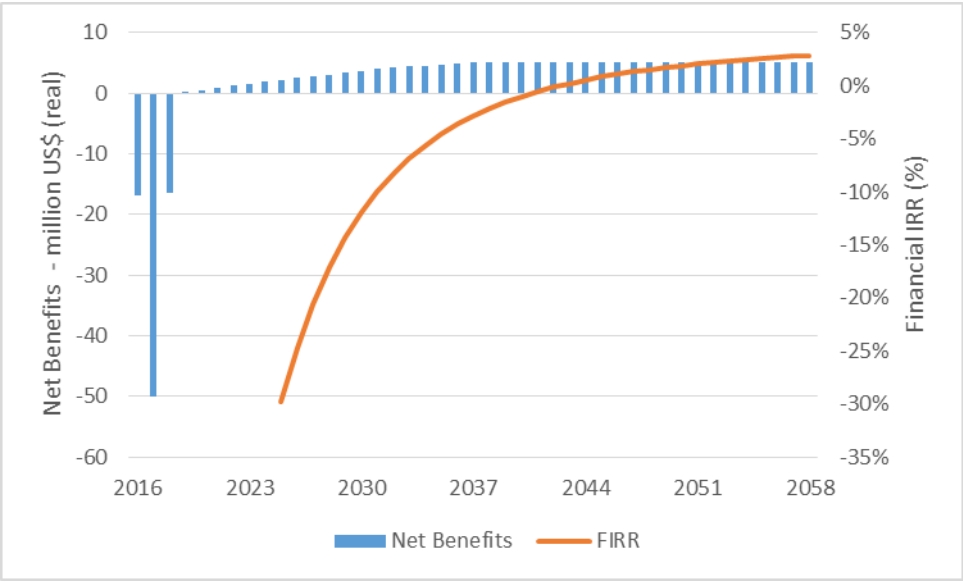
Figure 5.1 – Power Flow (GWh)



31. **Discount rate**. An estimation of a financial discount rate has been developed for calculating the NPV of the project. The financial discount rate assumes that 7/8 of the project is financed through an IDA loan with a cost of debt of 1.9 percent per year in nominal U S dollars while the 1/8 remaining is financed by the GoU through an equity injection, with an estimated 8 percent rate of return in nominal US dollars. Assuming a US inflation rate of 1.9 percent, the WACC can be estimated at 0.75 percent.[27]

32. **Results.** Based on these assumptions, the financial rate of return from the project is 2.9 percent and the NPV US$ 51.5 million. The figure below summarizes the results of the financial analysis.

Figure 5.2 – Project's Net Benefits and FIRR



[27] Assuming no tax shield.

33. **Sensitivity analysis**. Sensitivity analysis reflects the vulnerability of the project to external economic and financial shocks over which the project has no control. A sensitivity analysis in the form of switching value was done for the following scenarios:

- Increase in Capital Costs;
- Reduction in Benefits (due to less power flows than expected); and
- Increase in O&M costs.

34. The results of the sensitivity analysis are presented below:

Table 5.6 – Results of the Sensitivity Analysis (Switch Values)

FIRR = WACC (0.75%)	Value (%)
CAPEX increased by	40
Benefits reduced by	28
O&M increased by	79

35. The results show the project provides a good level of resilience to breakeven in the cases under analysis.

Annex 6: Map

Uganda: Grid Expansion and Reinforcement Project (P133305)