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Report No: 119032-ET

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROGRAM APPRAISAL DOCUMENT

ON A

PROPOSED REGULAR CREDIT

IN THE AMOUNT OF SDR 176.9 MILLION
(US$250 MILLION EQUIVALENT)

AND A

PROPOSED SCALE-UP FACILITY CREDIT

IN THE AMOUNT OF US$125 MILLION

TO THE

FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

FOR THE

ETHIOPIA ELECTRIFICATION PROGRAM

February 7, 2018

Energy and Extractives Global Practice
Africa Region

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CURRENCY EQUIVALENTS
(Exchange Rate Effective Date: August 31, 2017)

Currency Unit	=	Ethiopian Birr (ETB)
ETB 23.42	=	US$1
SDR 0.70751880	=	US$1

FISCAL YEAR
Government of Ethiopia
July 8 – July 7

ABBREVIATIONS AND ACRONYMS

AF	Additional Financing
AfDB	African Development Bank
AWPB	Annual Work Plan and Budget
BoFED	Bureau of Finance and Economic Development
BoQ	Bill of Quantities
BPR	Business Process Reengineering
CE	Citizen Engagement
CEO	Chief Executive Officer
CMS	Customer Management System
CPAR	Country Procurement Assessment Report
CPF	Country Partnership Framework
CSA	Central Statistics Agency
DBE	Development Bank of Ethiopia
DLI	Disbursement Linked Indicator
DoE	Department of Electrification
DP	Development Partner
EAPP	East African Power Pool
EBITDA	Earnings before Interest, Tax, Depreciation, and Amortization
EEA	Ethiopian Energy Authority
EEU	Ethiopian Electric Utility
EEP	Ethiopian Electric Power
EEPCo	Ethiopian Electric Power Corporation
EFY	Ethiopian Fiscal Year
EHS	Environmental, Social Safeguard, Health and Safety
EIRR	Economic Internal Rate of Return
ELEAP	Ethiopia Electrification Program
ENREP	Electricity Network Reinforcement and Expansion Project
ERP	Enterprise Resource Planning
ESSA	Environmental and Social System Assessment
ESMAP	Energy Sector Management Assistance Program
ESRSP	Energy Sector Review and Strategy Program
ESMS	Environmental and Social Management System
ETB	Ethiopian Birr
F&C	Fraud and Corruption
FEACC	Federal Ethics and Anti-Corruption Commission

FHH	Female-headed Household
FM	Financial Management
FPPA	Federal Public Procurement Agency
FY	Fiscal Year
GBV	Gender-based Violence
GDP	Gross Domestic Product
GFDP	General and Financial Delegation of Power
GHG	Greenhouse Gas
GIS	Geographic Information System
GoE	Government of Ethiopia
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Service
GTP	Growth and Transformation Plan
GWh	Gigawatt Hour
IBEX	Integrated Budget and Expenditure
ICB	International Competitive Bidding
IFA	Integrated Fiduciary Assessment
IFC	International Finance Corporation
IFRS	International Financial Reporting Standards
IPP	Independent Power Producer
IRM	Implementation Road Map
IVA	Independent Verification Agency
KPI	Key Performance Indicator
kWh	Kilowatt hour
LV	Low Voltage
M&E	Monitoring and Evaluation
MFI	Microfinance Institution
MHH	Male-headed Household
MoEFCC	Ministry of Environment, Forest, and Climate Change
MoFEC	Ministry of Finance and Economic Cooperation
MoWIE	Ministry of Water, Irrigation, and Electricity
MSE	Medium and Small Enterprise
MTF	Multi-Tier Framework
MV	Medium Voltage
MW	Megawatt
NCB	National Competitive Bidding
NEP	National Electrification Program
NES	National Electrification Strategy
NPV	Net Present Value
O&M	Operations and Maintenance
OFAG	Office of the Federal Auditor General
PAP	Program Affected Person
PDO	Program Development Objective
PEC	Procurement Endorsing Committee
PEFA	Public Expenditure and Financial Accountability
PFM	Public Financial Management
PforR	Program-for-Results

POM	Program Operational Manual
PP	Procurement Planning
PPE	Personal Protective Equipment
PPP	Public-Private Partnership
PSE	Private Sector Enterprise
PV	Photovoltaic
REACC	Regional Ethics and Anti-Corruption Commission
REB	Regional Energy Bureau
REF	Rural Electrification Fund
RVR	Results Verification Report
SAS	Stand-alone Solar Systems
SBD	Standard Bidding Document
SDR	Special Drawing Rights
SNNPR	Southern Nations, Nationalities, and Peoples' Region
SOE	State-Owned Entity
SORT	Systematic Operations Risk-Rating Tool
SUF	Scale-up Facility
STEM	Science, Technology, Engineering, and Math
ToR	Terms of Reference
TVET	Technical and Vocational Education and Training
UEAP	Universal Electricity Access Program
USAID	United States Agency for International Development
WIP	Work in Progress
WMEB	Water, Mines, and Energy Bureau
WPPP	Works and Procurement Policy and Procedure

Regional Vice President:	Makhtar Diop
Global Practice Vice President:	Laura Tuck
Country Director:	Carolyn Turk
Senior Global Practice Director:	Riccardo Puliti
Practice Manager	Sudeshna Ghosh Banerjee
Task Team Leaders:	Rahul Kitchlu, Karen Bazex

FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

Ethiopia Electrification Program

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PAD DATA SHEET

Federal Democratic Republic of Ethiopia

Ethiopia Electrification Program

PROGRAM APPRAISAL DOCUMENT

AFRICA
Energy and Extractives Global Practice

Basic Information			
Date:	February 7, 2018	Sectors:	Energy and Extractives
Country Director:	Carolyn Turk	Themes:	Rural services and infrastructure (70%), Other rural development (30%)
Practice Manager:	Sudeshna Ghosh Banerjee		
Global Practice Vice President:	Laura Tuck		
Program ID:	P160395		
Team Leaders:	Rahul Kitchlu, Karen Bazex		

Program Implementation Period:	Start Date: 03/01/2018	End Date:	07/07/2023
Expected Financing Effectiveness Date:	06/01/2018		
Expected Financing Closing Date:	07/07/2023		

Program Financing Data		
[ ] Loan	[ ] Grant	[ ] Other
[x] Credit		

For Loans/Credits/Others (US$M):

Total Program Cost:	676.5	Total Bank Financing:	375
Total Cofinancing:	n.a.	Financing Gap:	n.a.

Financing Source (US$, million)	**Amount**
BORROWER/RECIPIENT	247.50
IBRD/IDA	375.00
CONNECTION FEES	54.00
Total	676.50

Borrower: Federal Democratic Republic of Ethiopia							
Responsible Agency: Ethiopian Electric Utility (EEU)							
Contact: Ato Gosaye Mengiste				Title: Chief Executive Officer (CEO)			
Telephone No.: +251 111 560 041				Email: gosayea@gmail.com			
Expected Disbursements (in US$ Million)							
Fiscal Year	2018	2019	2020	2021	2022	2023	2024
Annual	35.2	56.5	71.2	70.0	66.8	75.0	0.3
Cumulative	35.2	91.7	162.9	232.9	299.7	374.7	375.0
Program Development Objective(s)							
The Program Development Objective (PDO) is to increase access to electricity in Ethiopia and to enhance institutional capacity for planning and implementation of the Government's electrification program.							
Compliance							
Policy							
Does the program depart from the CAS in content or in other significant respects?					Yes [ ] No [X]		
.							
Does the program require any waivers of Bank policies applicable to Program-for-Results operations?					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]		
Overall Risk Rating: Substantial							
Legal Covenants							
Name	**Recurrent**		**Due Date**		**Frequency**		
Adoption of Program Operational Manual (POM) by MoWIE. Schedule 2, Section I, C, 1 (a) and (b) of Financing Agreements and Section I, C, 1 of the Program Agreement.			August 01, 2018				
Description of Covenant The Recipient shall: (a) prepare and furnish to the Association for its review, a draft POM setting out detailed institutional, administrative, financial, technical and operational guidelines and procedures for the implementation of the Program and Program Action Plan, and including: (i) detailed safeguards (including Environmental and Social							

Management System guidelines prepared in accordance with Section I.D.2 of the Financial Agreement), financial management (including funds flow and budgeting) and procurement arrangements; and (ii) a monitoring and verification system for the Program; and (b) within one (1) month after the Effective Date, adopt (through MoWIE) and cause EEU to adopt, such POM as shall have been approved by the Association ("Program Operational Manual") and thereafter, implement the Program in accordance with the POM.			
Establishment of the Environmental and Social Management Systems for national and regional levels. Schedule 2, Section I, D, 2 of the Financing Agreements.		August 01, 2018	
Description of Covenant Within one (1) month from the Effective Date, the Recipient shall cause EEU to establish at the national and regional level, and thereafter maintain, a system for environmental and social management ("ESMS") of Program-related activities, including: (a) policy and procedural guidelines, prepared in accordance with terms of reference (ToR) acceptable to the Association, and finalized taking into account the Association's comments thereon (finalized guidelines to be annexed to the POM); and (b) having in place staff, and other resources, satisfactory to the Association.			
Legal Conditions			
Name	**Type**		
Subsidiary Agreement. Article V, 5.01 of the Financing Agreements.	Effectiveness		
The Subsidiary Agreement has been executed on behalf of the Recipient and the Program Implementing Entity.			
.			

Team Composition			
Bank Staff			
Name	**Title**	**Specialization**	**Unit**
Rahul Kitchlu	Senior Energy Specialist	Team Leader	GEE01
Karen Bazex	Senior Energy Specialist	Co-Team Leader	GEE01
Lara Born	Energy Specialist	Technical assessment	GEE01
Rhonda Lenai Jordan	Young Professional	Power Engineer	GEE01
Olayinka Bisiriyu	Energy Finance Analyst	Financial analysis	GEE07
Arsh Sharma	Energy Finance Analyst	Financial analysis	GEE08
Zijun Li	Carbon Finance Specialist	Economic analysis	GCCFM
Inka Ivette Schomer	Operations Officer	Gender and citizen engagement	GTGDR
Abiy Demissie Belay	Senior Financial Management Specialist	Financial management	GG025
Ayalew Kebede Belew	Senior Procurement Specialist	Procurement	GG001

Chukwudi H. Okafor	Senior Social Development Specialist	Social safeguards	GSU07
Samuel L. Demsash	Social Development Specialist	Social safeguards	GSU07
Yalemzewud Simachew Tiruneh	Social Development Specialist	Social safeguards	GSU07
Edward Felix Dwumfour	Senior Environmental Specialist	Environmental safeguards	GEN01
Yacob Wondimkun Endaylalu	Environmental Specialist	Environmental safeguards	GEN01
Berhanu Legesse Ayane	Senior Public Sector Specialist	Governance	GG027
Chita Obinwa	Senior Program Assistant	Program assistant	GEE01
Hanna Ketselamaryam Hailu	Program Assistant	Program assistant	AFCE3
Non-Bank Staff			
Name	**Title**		**Unit**
Arun Sanghvi	Electrification Specialist		GEE01
Chiara Odetta Rogate	Electrification Specialist		GEE01
Anna Elisabeth Wikman	Electrification Specialist		GEE01
Abdulhakim Mohammed	Electrification Specialist		GEE01
Eyob Ayana	Electrification Specialist		GEE01
Bogalech Admasu Berhane	Financial Management Specialist		GG025
Bedilu Reta	Environmental Specialist		GEN01
Feben Demissie	Social Development Specialist		GSU07

I. STRATEGIC CONTEXT

A. Country Context

1. **Ethiopia is a large, land-locked, and diverse country.** Located in the Horn of Africa, Ethiopia extends over an area of 1.1 million km^2 - about the size of France and Spain combined. With an estimated population of about 100 million in 2015, out of which 80.5 percent are rural dwellers, Ethiopia is the second most populous country in Sub-Saharan Africa. The country is a land of diverse nationalities and peoples, and its biophysical environment includes a variety of ecosystems, with significant differences with regard to climate, soil properties, vegetation types, agriculture potential, biodiversity, and water resources. The natural resources base remains the foundation for most livelihoods and is subject to considerable climate risks. Despite past progress, a historic legacy of underinvestment still bears its mark as more than half of the adult population is illiterate, and the country's infrastructure deficit remains one of the largest in the world. Ethiopia is undergoing a faster demographic transition than the rest of Africa, with a rapidly rising working-age population that presents both opportunities and challenges (more than 60 percent of the population is below 25 years of age).

2. **Ethiopia is one of the world's poorest countries but has achieved substantial progress in economic, social, and human development over the past decade.** With a per capita income of US$619 (2015), Ethiopia remains the 15th poorest country in the world. Nonetheless, growth averaged nearly 11 percent per year since 2004 and extreme poverty[1] fell from 55 percent in 2000 to 34 percent in 2011, which is one of the most impressive poverty reduction results recorded internationally (within Sub-Saharan Africa, only Uganda reduced poverty faster). Low levels of inequality have largely been maintained. With a few exceptions, Ethiopia attained the Millennium Development Goals. Yet, vulnerability to return to poverty remains high, especially for those engaged in rural livelihoods depending on rain-fed agriculture. Addressing gender gaps between men and women in access to education and decision making, rights, employment, unpaid labor, land, and productive resources is essential for economic growth in the country. World Bank (2009)[2] estimates indicate that reducing basic gender inequalities in education and the labor market could increase the annual gross domestic product (GDP) growth in Ethiopia by around 1.9 percentage points.[3]

3. **The Government of Ethiopia (GoE) has embarked on a structural transformation of the economy and society.** The GoE has completed its first phase of the Growth and Transformation Plan (GTP-I) (2010–2015), which set a long-term goal for Ethiopia to become a middle-income country by 2025, with a growth rate of at least 11 percent per year during the plan period. During 2011–2015, Ethiopia grew at a rate of 10 percent. A second phase of the GTP (GTP-II) is under implementation for 2015–2020. GTP-II puts a strong emphasis on structural transformation, industrialization, urbanization, and export promotion. Public infrastructure investment has been at the center of the country's economic strategy. Ethiopia was able to achieve a substantial expansion of energy, road, railway, and telecom infrastructure, financed by domestic and external public borrowing. However, the investment climate for private sector remains suppressed (in 2017, Ethiopia's 'Doing Business' ranking was 159). Public investments in basic service provision, such as education and health, have contributed to poverty reduction, as did the

[1] Extreme poverty in measured as consuming less than US$1.90 (2011 Purchasing Power Parity) a day.
[2] Unleashing the Potential of Ethiopian Women Trends and Options for Economic Empowerment, June 2009.
[3] An important contribution to poverty reduction given the elasticity of growth to poverty reduction.

introduction of rural safety nets. GTP-II continues to commit that women and youth benefit from and participate in the overall economic, political, and decision-making processes in Ethiopia. In the electricity sector, GTP-II priority is to provide sufficient power for both domestic consumption and export while significantly increasing households' access.

B. Sectoral and Institutional Context

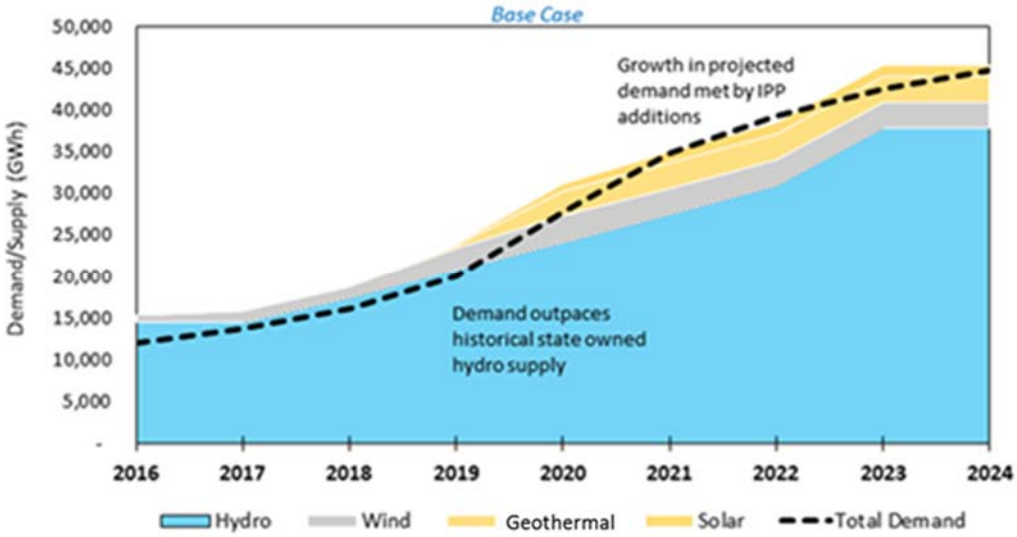
4. **Ethiopia has vast and largely unharnessed clean energy resources.** Ethiopia is endowed with significant renewable energy resources, with massive potential for hydro, solar, wind, and geothermal power. It is one of the few countries in Sub-Saharan Africa, if not the world, which generates all its electricity from renewable resources. Already, the available generation capacity, mostly based on hydropower, has reached 4,256 MW.[4] Other large-scale hydropower projects (with capacity exceeding 6,000 MW) are now under construction. Ongoing and future expansion of generation capacity will continue to rely exclusively on renewable resources. However, the actual energy supplied from these hydropower plants is subject to uncertainty and fluctuations due to variations in seasonal and annual rainfall amounts, as well as climate change (for example, impact of the El Niño in 2015–2016 led to countrywide blackouts). Given the expected strong growth in demand for electricity (nearly 10 percent, annually), complementary energy resources must be developed to mitigate the risk of overreliance on and variability of hydropower.

5. **A diversified mix of supply resources (including solar, wind, and geothermal power) would not only ensure continued sufficiency of supply, but also act as a mitigant to climate change.** In line with Pillar 3 of Ethiopia's 'Climate Resilience Green Economy Strategy' (2011), the GoE targets to have about 15–20 percent of its energy supply from non-hydropower-based renewable resources (during GTP-II). Based on these planned additions to generation capacity, including that provided by solar, wind, and geothermal sources, Ethiopia is expected to have over 9,000 MW of installed capacity by 2020, which would provide sufficient energy (over 25,000 GWh) to supply the expected demand (see Figure 1, which includes domestic and export demand estimates).

6. **Ethiopia's electrification rate is at odds with its huge energy resources.** In addition to the abundant electricity generation capacity, the grid network has also expanded substantially under GTP-I (covering nearly 60 percent of towns and villages, representing about 80 percent of the population). Despite major strides in the past decade, Ethiopia's electricity sector continues to fall short of the promise of effective service delivery, with the second highest energy access deficit in Africa (over 60 million people without access). Currently, the on-grid access rate is about 20 percent and the off-grid access rate is about 10 percent.[5] The last-mile connections have not kept pace with infrastructure expansion due to lack of financial resources and inadequate utility capacity (see Annex 4), posing a binding constraint to economic growth and social development. There are over 350,000 registered customers who have been waiting for a connection for the past many years, of which, about 50,000 have already paid the full connection fee. Currently, it is estimated that of the 14.4 million unelectrified households, about 5 million live within connection-viable vicinity of the grid network.

[4] Currently, the second highest available generation capacity in Sub-Saharan Africa.
[5] Electricity access in urban areas is estimated to be 94 percent and in rural areas 12 percent.

Figure 1. Electricity Supply-Demand Balance in Ethiopia (2016–2024)



Source: World Bank estimates based on available information on progress of various projects.

7. **Ethiopia's cost of supplying electricity, and the electricity tariffs, are among the lowest in Sub-Saharan Africa, presenting some unique opportunities and challenges.** The Ethiopian electricity sector is an outlier in the region in that the ongoing power generation costs (based on low-cost, low-carbon sources) are fairly low (no recurrent fuel costs). Furthermore, compared to regional peers, the aggregate technical and commercial losses are not very large (about 23 percent) and the bill collection rate is reasonably high (85–90 percent). The average domestic tariff rate, last revised in 2006, sits at US$0.03 per kWh, one of the lowest in Sub-Saharan Africa.[6] The low tariff rate, on the one hand, has driven robust average energy consumption at the household level (on average, about 120 kWh per month) but, on the other hand, has created financial challenges for the sector. In addition, currently, the cost of connection and the associated fees are proportional to the distance of the households from the grid. This means that while several hundred thousand households within immediate proximity of the grid network could easily afford a connection, the increasing cost of connection could be a concern as more and more distant and rural household are connected to the network.

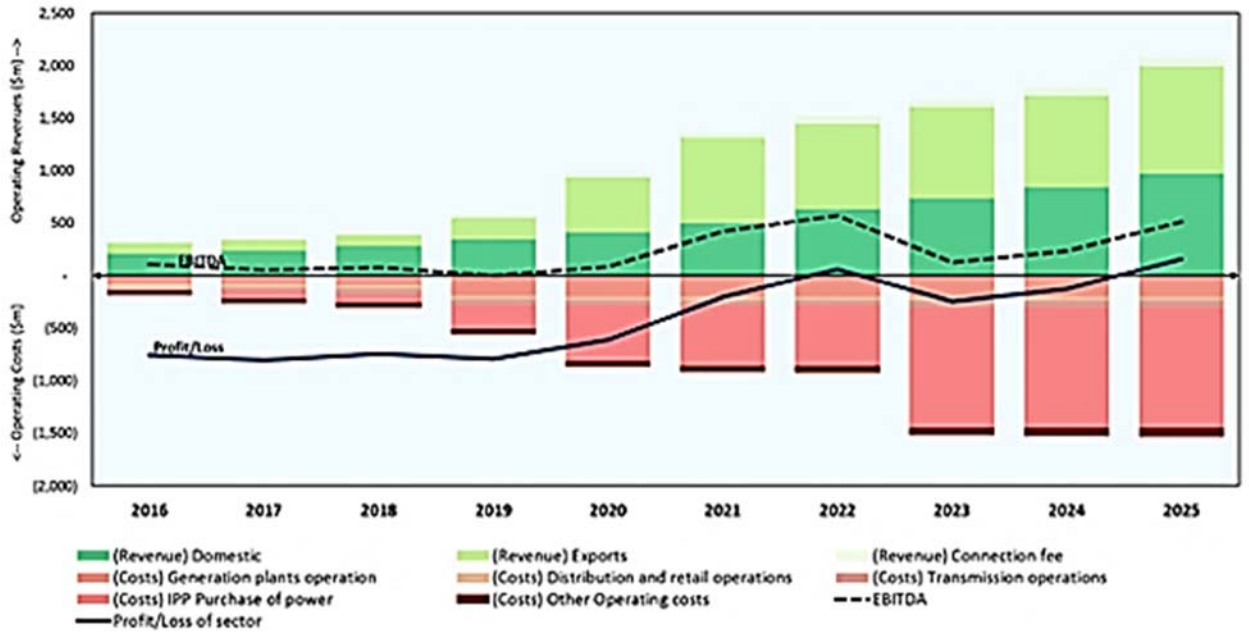
8. **The electricity sector maintains a slim operating profit but its debt profile is compromised.** While the sector can currently maintain a slender operating profit margin, the sector revenue has not kept pace with rising borrowing costs. Public borrowing by the utilities in recent years (primarily, domestic bonds purchased by citizens) has created a growing future debt service obligation, which is anticipated to hit the sector finances in the coming years as these short-term loans (nearly US$5 billion) will create a cash flow problem for the sector (see Figure 2). While any direct internationally held debt service obligations of the utilities are met on time, most of the domestically held debt is routinely rolled forward.

9. **To continue the growth path of the sector, a long-term financial sustainability plan is being devised and implemented**. After many years of inaction on this front, the sector utilities have prepared a revised tariff framework (January 2017) which reflects full cost of service. Under the new framework, the proposed average domestic tariff rate would be set at US$0.06 per kWh

[6] In 2006, the tariff was set at the cost-reflective level of US$0.6 per kWh (currency devaluation impact has since been observed). Before 2006, the tariff was last revised in 1997.

(cost-reflective level). The proposed tariff framework is being reviewed by the utilities and the Ethiopian Energy Authority (EEA). It is expected to be presented to the Ministry of Water, Irrigation, and Electricity (MoWIE) and then to Parliament for review during the fiscal year 2018. While the domestic tariff regime forms an important element of financial sustainability, the GoE is also considering additional actions, such as augmenting domestic revenue with revenue from power exports, systematic restructuring and/or refinancing of existing debt, and finding innovative ways of reducing the public investment burden and introducing sustainable financing mechanisms (for example, increased private participation).

Figure 2. Projected Financial Position - Income/Costs and Profit/Loss at Current Tariff



Source: World Bank estimates based on progress of project pipeline.

10. **In the coming years, Ethiopia could become a regional energy superpower, which would also provide additional revenues to the sector.** Given its massive clean energy reserves, Ethiopia can become a cornerstone of the regional power market and of the East African Power Pool (EAPP). While the GoE is aggressively expanding the base of domestic connections, in parallel, it is also focused on becoming a power export hub in East Africa. In the coming years, power exports to Sudan, Djibouti, Kenya, and Tanzania could boost the country's export revenue potential, estimated to be as much as US$600 million, per year, by the end of the decade.[7] In addition, planned EAPP interconnection to the Southern African Power Pool could further open the market for Ethiopian exports to Southern African countries. By 2020, Ethiopia could achieve as much revenue from power export as it does domestically. The export revenue could be used for domestic investments and cross-subsidies for consumers, reducing the need for large tariff increases in the future.

11. **The GoE is undertaking far-reaching restructuring of the electricity sector, focusing on service delivery.** In 2013, the vertically integrated utility, Ethiopian Electric Power Corporation (EEPCo), was unbundled into two public enterprises: (a) the Ethiopian Electric Power (EEP) Company, responsible for the generation and transmission sub-sectors; and (b) the Ethiopian

[7] Based on current plans, sale of about 1,000 MW of generation capacity externally by 2020 (roughly 10 percent).

Electric Utility (EEU), responsible for power distribution and sales. The MoWIE continues to be responsible for coordination and oversight of the electricity sector. The Universal Electricity Access Program (UEAP), which drove the grid network expansion program under GTP-I, resulting in one of the most significant grid expansion programs in recent years in Sub-Saharan Africa, moved from EEP to the EEU in January 2016. The GoE also established an independent regulatory agency EEA, responsible for developing effective rules, directives, and standards for sector.

12. **Efforts are also under way to improve the implementation capacity of the sector utilities which has, thus far, constrained the scaling-up of electrification programs.** The fast-paced growth of the sector infrastructure in the past decade created capacity challenges for EEP and the EEU. To address this, a management contractor was brought in for two years (Power Grid Corporation of India) after the unbundling process. However, significant improvements were not observed due to the limited scope of the engagement (there was limited delegated authority provided for some key management areas). Capacity constraints of the utilities has hampered access expansion in Ethiopia, as the utilities lack coordinated technical and planning functions (for example, least-cost, nationwide connections rollout program), streamlined workflow and supply chain networks, and efficient commercial processes that can support electrification. In the past years, while strategic focus on various segments of the electricity sector's value chain has improved, as new agencies, EEP and the EEU are continuing to encounter significant challenges related to implementation of large-scale projects. Many efforts are now under way to address internal administrative and operational issues (for example, complete overhaul of the systems and tools; business process reengineering [BPR]; separation of financial accounts; upgrading the billing, accounting, and related management systems; and so on). Going forward, the GoE plans to continue the process of internal reform and capacity development of the utilities.

13. **With GTP-II, the GoE's focus is on last-mile connectivity and not just infrastructure growth.** The GoE recognizes the need to focus on connecting households and has put strong emphasis on the rapid scale-up of electricity connections, particularly in areas that are already within the immediate and short-term reach of the network. Under the new leadership and institutional arrangements of the electricity sector, rolling out household connections has become a top priority. Such access expansion will rely on existing and future renewable energy plants. The GoE considers on-grid electrification to be a high-impact, low-hanging fruit, which can significantly improve service delivery. Based on these priorities, EEU, responsible for operating the distribution network and expanding the rate of on-grid electrification, is now going through a process of departmental reorganization to streamline its business processes.

14. **GTP-II has also put forward ambitious off-grid targets, which would continue the success achieved under ongoing programs.** Currently, the off-grid expansion is implemented through two channels: (a) Rural Electrification Fund (REF), with focus on the installation of stand-alone solar systems (SAS) facilitated by Regional Energy Bureaus (REBs), and public facilities program working with the Ministries of Health and Education both with geographical focus on un-electrified rural areas; and (b) credit facilities administered by the Development Bank of Ethiopia (DBE) (under the IDA-financed projects, Electricity Network Reinforcement and Expansion Project [ENREP, P119893] and ENREP-Additional Financing [AF, P155563]), which are successfully channeling finances to support private sector enterprises (PSEs) and microfinance institutions (MFIs) for deployment of off-grid renewable energy systems and energy-efficient products. While over a million households have benefited from these programs, the GoE is

reviewing the current institutional arrangements to enable further scale-up of off-grid programs in the coming years.

15. **Ethiopia aims to reach universal electricity access by 2025 in accordance with the National Electrification Program (NEP).** The GoE launched its 'National Electrification Strategy' (NES) in June 2016. The NES defined the strategic priorities for sustainable energy sector development and scaling up electrification. The GoE's 'NEP, launched in November 2017, will support the implementation of the electrification program and will be carried out in phases based on a least-cost, spatial-proximity targeting methodology. The NEP takes a comprehensive approach to electrification through a balance of on-grid and off-grid service provisioning (see Table 1), as well as public and private sector-led interventions. Moreover, the NEP also aims to address the institutional and technical bottlenecks through a comprehensive set of program implementation support activities to be carried out in the near term to ensure the achievement of the targets. Projections, which will be updated regularly based on the geospatial least cost plan and general progress, indicate that on-grid service will remain the primary delivery modality, while off-grid penetration is expected to peak by 2025, serving 35 percent of the population and then tapering off to be a relatively marginal solution by 2030.

Table 1. Electricity Access Expansion Targets under the NEP

Period		Households (millions)	New On-grid Connections (millions)	Cumulative On-grid Connections (millions)	On-Grid Access Rate (%)	Off-Grid Access Rate (%)	Total Access Rate (%)
GTP-II	2016	18.0	0.1	3.6	20	11	31
	2017	18.5	0.2	3.8	21	11	33
	2018	19.0	0.5	4.3	23	11	34
	2019	19.5	0.7	5.0	26	11	37
	2020	20.0	0.8	5.8	29	13	42
GTP-III	2021	20.4	1.0	6.8	33	16	49
	2022	20.8	1.5	8.3	40	20	60
	2023	21.2	2.0	10.3	49	24	73
	2024	21.6	2.0	12.3	57	29	86
	2025	**22.0**	**2.0**	**14.3**	**65**	**35**	**100**
GTP-IV	2026	22.6	2.0	16.3	72	28	100
	2027	23.2	2.0	18.3	79	21	100
	2028	23.8	2.0	20.3	85	15	100
	2029	24.4	2.0	22.3	91	9	100
	2030	**25.0**	**2.0**	**24.3**	**97**	**3**	**100**

Source: NEP Implementation Road Map (IRM).

16. **Following decades of self-managed and self-financed investments in the electricity sector, the GoE is looking to aggressively crowd-in the private sector.** Historically, all electricity infrastructure development has been centrally planned and publicly financed. This has caused significant macro-financial constraints which are widely seen as unsustainable in the long term. In addition, the utilities have struggled to keep up with the upgrades required (systems, tools, and human resources) to match the sector growth. While the utilities have generally performed well on technical aspects of designing and executing large-scale infrastructure development projects, much more needs to be done to develop skills for upcoming technologies. Consequently, the GoE is looking to invite the private sector to participate in the power generation segment (independent power producers [IPPs]), to crowd in commercial financing, augment technical know-how, and improve the implementation speed of the electricity sector. Globally, newer

technologies such as solar and wind are largely privately financed, unlike hydro, which is primarily public financed.

17. **The GoE is also implementing investment climate reforms to attract a diverse group of financiers.** The GoE is taking several steps to ensure that key legal and regulatory changes, adequate commercial and procurement frameworks, and institutional arrangements are put in place to prepare for private participation. The GoE has prepared an umbrella regulation which paves the way for public-private partnerships (PPPs). The new 'PPP Proclamation' was passed by the Parliament on January 25, 2018. The GoE is preparing a transparent and competitive procurement framework (auction-based bidding procedures, as feasible), which is expected to become the default methodology for procuring IPPs. The GoE is working closely with key sector stakeholders to review existing commercial and banking regulations that may affect development of IPPs in the country. Finally, a dedicated IPP unit has been established at EEP, which would become the primary counterparty to the IPPs. The scale and scope of the ongoing reforms will require continued support from high-level authorities, as well as international expertise and experience.

18. **The World Bank Group has been providing comprehensive policy advice, technical support, and financing for sector development.** The NES was supported under Phase 1 of the World Bank's three-year programmatic technical assistance, the Energy Sector Management Assistance Program (ESMAP)-funded Ethiopia Energy Sector Review and Strategy Program (ESRSP, P146616). The NEP-Implementation Roadmap (NEP-IRM) has been developed as part of Phase 2 of the ongoing ESRSP, while Phase 3 activities will support the development of a nationwide geographic information system (GIS) platform for least-cost planning. The World Bank Group has also prepared a 'Joint Implementation Plan' to coordinate support for the NEP and for IPP development. Specifically, the International Finance Corporation (IFC) is supporting the development of the private sector-led SAS market through the World Bank Group/IFC 'Lighting Africa Program', as well as supporting the development of the mini-grid market through advisory activities. The World Bank Group has also been leading the coordination efforts with other development partners (DPs) and assisting the GoE in coordinating and developing the electrification program in the country. Given the pace of the ongoing reform program and the increased engagement of the DPs with the GoE in the electricity sector, the World Bank has supported close coordination of the DPs through an Energy Sector Roundtable. This roundtable is proposed to be included as a subgroup under the official Donor Assistance Group of Ethiopia, which is chaired by the World Bank.

19. **The proposed ELEAP supports the NEP, by financing the first phase of grid intensification activities, building implementation capacity, and creating a blueprint for scaling up electrification.** The proposed ELEAP is also designed to create the framework for crowding in resources from other DPs. Using a Program-for-Results (PforR) instrument, ELEAP would help establish a sectorwide programmatic approach for financing electrification by demonstrating the viability of the NEP and ensuring good practices for access expansion. The GoE is expected to launch the road map for the NEP and syndicate financing from interested DPs in the coming months. Further description of ongoing and possible additional support from the DPs to the NEP is presented in Annex 9. The proposed ELEAP is also well-aligned with the objectives of the IDA Scale-Up Facility (SUF) to prioritize projects with potentially transformational impact, given the significant increase in access to electricity that will be supported under a programmatic framework by ELEAP (as outlined in sections below).

C. Relationship to the CPF and Rationale for Use of the Instrument

20. **The proposed ELEAP is aligned with the World Bank's Country Partnership Framework (CPF) for FY18–FY22[8]**. It supports Focus Area 2 ('Building Resilience and Inclusiveness'), by providing access to electricity for the citizens of Ethiopia. It directly supports Objective 1.2 'Increased Access to Reliable Energy Supply' by providing financing for the implementation of the NEP to significantly scale up energy access in the country and assist the GoE in reaching universal electrification. The operation also supports the CPF focus on building resilience and inclusiveness (including gender equality).

21. **The proposed ELEAP supports the World Bank's twin goals of poverty reduction and shared prosperity and is aligned with Sustainable Development Goal 7, Sustainable Energy for All, and the World Bank's Energy Sector Directions Paper.** Provision of last-mile electrification under the proposed ELEAP will increase access to electricity services for poor households, particularly in rural areas, creating opportunities to study and work, contributing to raising the quality of life, improving safety at night and stimulating off-farm activity and economic interaction. Increased access to reliable electricity supply will not only lower costs and improve the profitability of business enterprises[9] but is also key to enabling the setup of new private sector-led enterprises which stimulate GDP growth. In addition, the Program will contribute to the cross-cutting issues such as gender and climate change by supporting expansion of low-emission renewable energy, which reduces women's exposure to indoor air pollution and time burden associated with obtaining alternative energy sources.[10] Improved electricity access for social services such as health clinics will also promote gender equality through gains in maternal health outcomes.

22. **The World Bank is well placed to support the GoE's NEP.** There is a strong development rationale for the public-sector support to the proposed ELEAP. The World Bank has broad experience supporting the design and implementation of access programs around the world, such as in Vietnam, Bangladesh, Kenya, Tanzania, and Rwanda. Under these programs, the World Bank has provided support for the establishment of an adequate framework and financing for investments, to ensure sustainability of investments. Such experiences have allowed the World Bank to identify lessons learned and best practices at the technical, institutional, and financial levels, factoring in the specific context of each country.

23. **The proposed ELEAP will build on the World Bank's ongoing support to the Ethiopian electricity sector value chain**. The World Bank's support to the energy sector includes over US$1 billion of IDA-financed projects under implementation, which include energy resource development, network rehabilitation and expansion, and access enhancement. The World Bank's comprehensive engagement has allowed it to gain deep understanding of the electricity sector and enables it to effectively support the implementation of the NEP, from the strategic perspective of overall universal electrification. Through its technical assistance engagements (for example, ESMAP-funded Africa Renewable Energy Access [AFREA], the Gender and Energy Program, and the State and Peacebuilding Fund), the World Bank is already supporting the GoE to fine-tune a comprehensive and coordinated electrification program. The proposed ELEAP will also help

[8] Report No. 115135-ET.

[9] The report Revisiting What Works: Women, Economic Empowerment and Smart Design (2016) indicates that rural electrification is 'proven' to be beneficial in encouraging women's entrepreneurial activities if gender inequalities in the family and local economy are accounted for.

[10] In Ethiopia, cooking with electric (*injera*) cookstoves is common (when access to electricity is made available).

strengthen the institutional and technical capacity to define, implement, and oversee the NEP, optimizing the allocation of financial, technical, and institutional resources and mobilizing investments from DPs.

24. **The World Bank's portfolio is also well aligned with principles of 'Maximizing Finance for Development' under IDA-18.** This includes supporting increased commercial financial flows to the electricity sector in power generation (development of IPPs), as well as supporting increased private sector participation in off-grid service delivery (under ENREP and NEP). The proposed ELEAP provides public sector financing for electrification initiatives where commercial financing is not considered viable while also supporting utility reforms and institutional strengthening which can further support increased commercial financial flows to the sector in the future.

25. **The PforR instrument is well suited to support the NEP.** The PforR instrument rewards achievement of and accountability for results. The NEP's primary objective is to expand electrification through measurable targets, with clear outputs, and beneficiaries. In addition, the instrument provides the World Bank with leverage to inform and influence key strategic and policy orientations necessary to implement a viable electrification program. The PforR instrument allows the establishment of high-level, programmatic targets, compared with the traditional investment approach, with focus on project-based implementation. As such, the PforR instrument provides a unique opportunity to influence system wide improvements by supporting the GoE's flagship engagement in the electricity sector, that is, the NEP. The results-based financing approach can drive momentum behind these objectives by incentivizing key outcomes that usually do not get sufficient attention. The PforR approach would allow the World Bank's intervention to better align with the GoE's goals. The improvements expected as part of the proposed ELEAP at the institutional level will strengthen the sector. In this context, the sector institutions would also be incentivized to address the challenges of a growing sector, by focusing on improving their technical and operational performance. The PforR allows the GoE to use and strengthen its own systems, which not only ensures longer-term sustainability of the NEP but also provides a unique window of dialogue on core issues (for example, utility reform, institutional capacity development, and so on). The implementation of the proposed ELEAP as a PforR, can also create a compelling vehicle for syndication of funds from other DPs.

II. PROGRAM DESCRIPTION

A. The Government's Program - NEP

26. The NEP aims to achieve universal electrification by 2025. The NEP will be carried out in phases, with the immediate focus being on the early years of the Program (2018–2023). The NEP is organized into three pillars addressing the dominant challenges of the sector: (a) Pillar 1: On-grid electrification; (b) Pillar 2: Off-grid service provisioning; and (c) Pillar 3: Sector capacity and institutional reform. Each of the pillars provides a specific menu of activities to be carried out to reach universal electrification (see Figure 3; details in Annex 1). The phased focus under the NEP also allows for enhanced technical planning and coordinated fund mobilization.

27. **Pillar 1 - On-grid electrification.** Given the unique situation of the electricity sector in Ethiopia (sufficiency of supply and vast grid network footprint), the core focus of the NEP in the early years will be around on-grid access provision, taking advantage of renewable energy based supply. The execution will be carried out as follows:

(a) **Densification.** In the early years, NEP will target last-mile connections to households that are near the existing network infrastructure of the EEU (estimated to be nearly 5 million households). These connections mostly require short low voltage (LV) expansion, service drops, and meters.

(b) **Expansion.** The second phase of the NEP will target connecting new customers who are not proximate to the existing grid. These connections will require both medium voltage (MV) and LV extensions (as well as possible reinforcement of the transmission network and energy generation). Detailed network design for grid expansion will be informed by completion of the comprehensive geospatial least-cost rollout plan (under development).

28. **Pillar 2 - Off-grid service provisioning.** The on-grid connection expansion will be a multi-decade undertaking. Therefore, support for sustainable and affordable off-grid service provision (for example, SAS or mini-grid systems) will be implemented under the NEP alongside the on-grid connection program. Pillar 2 of the NEP targets communities where the grid would not reach within the next 5–10 years (pre-electrification) as well as communities for which the grid is not the least-cost solution (permanent off-grid). This includes the following:

(a) **Stand-alone solar system.** Targeting the rollout of solar photovoltaic (PV) systems through a combination of public and private sector-led approaches. The private sector would be supported by a combination of market development support and access to finance programs (such as credit facilities provided by the DBE). In remote areas of the country, where the private sector has not established distribution channels, public programs will be implemented (for instance, through the EEU or the MoWIE). The implementation modalities for public and private provision of SAS will be defined in the planned off-grid strategy (under development as part of the NEP).

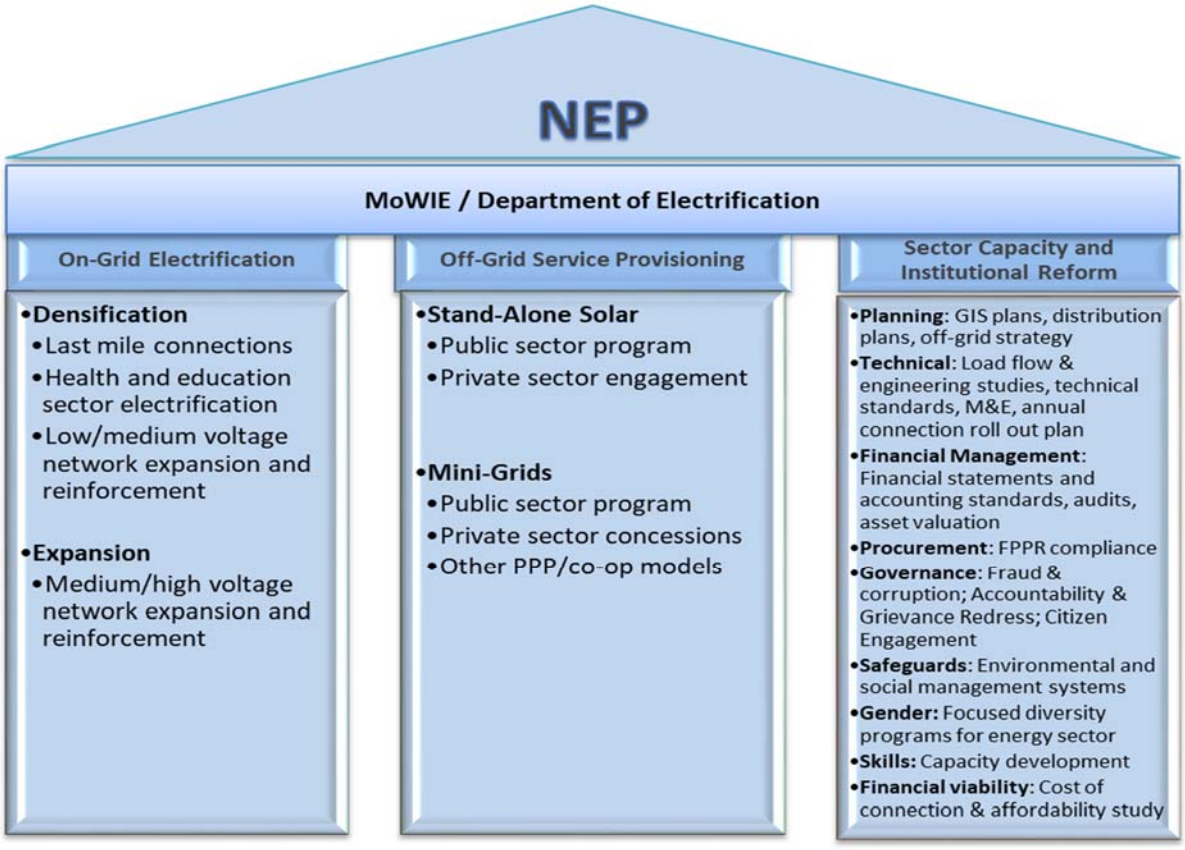
(b) **Mini-grids.** Targeting the rollout of micro-/mini-grids with local LV networks and powered by appropriate renewable energy resources (solar or hybrid), implemented through a combination of public and private sector-led approaches. Deployment of a nationwide mini-grid program in remote areas will require clarity on tariffs, grid integration protocol, quality of service, and so on. These issues will be addressed in the planned off-grid strategy.

29. In addition, the NEP targets to achieve universal access for social services delivery institutions, especially in the health and education sectors, as well as ensure adequate and reliable services for newly established ones. Under the NEP, secondary schools and health centers are expected to achieve universal access by 2022, and primary schools and remote health posts by 2025.

30. **Pillar 3 - Sector capacity and institutional reform.** This pillar focuses on providing the necessary technical assistance and capacity-building support required by the sector institutions to achieve the ambitious targets set under Pillars 1 and 2 by directly supporting the achievement of outcomes from the first two pillars. This includes a comprehensive program with a focus on utility reform and skill development in the following areas: (a) planning capabilities; (b) technical and commercial capacities; (c) financial management (FM) functions; (d) streamlining procurement; (e) transparency, accountability, and governance; (f) safeguarding the environment and society; (g) gender equity; and (h) long-term sector financial viability.

31. The GoE has prepared an IRM for the NEP (NEP-IRM). It provides an action plan and a timetable, and estimates yearly connections (grid and off-grid) for targeting universal access by 2025. The NEP-IRM also includes a bankable investment prospectus, which can be used for syndication of funds for electrification. Furthermore, the NEP-IRM identifies roles and responsibilities of sector institutions and stakeholders (for example, local communities, private sector, and others), as well as technical assistance and capacity building required for the implementation of the NEP. It constitutes the foundational programmatic document that the GoE will use to promote the coordination and alignment of relevant Government agencies and DPs toward the achievement of the goals. Under the NEP, the MoWIE will coordinate and provide oversight for the effective and timely execution of all components of the NEP through the Development of Electrification (DoE), with guidance from a Steering Committee. While the DoE will support the day-to-day coordination and oversight of the NEP, the Steering Committee, comprising cross-sectoral leaders and other experts, will provide high-level strategic direction and policy guidance; facilitate effective coordination across the GoE's ministries, departments, and agencies; and monitor the sector-level 'dashboard' of key indicators of progress and performance.

Figure 3. Comprehensive Electrification Approach under the Three Pillars of the NEP



Source: NEP-IRM.

B. Program Development Objectives and Key Results

32. The Program development objective (PDO) is to increase access to electricity in Ethiopia and to enhance institutional capacity for planning and implementation of the Government's electrification program.

33. The following outcome indicators will be used to measure achievement of the PDO:

- **PDO Indicator 1:** Number of people provided with on-grid electricity services
- **PDO Indicator 2:** Number of people provided with off-grid electricity services
- **PDO Indicator 3:** Improved planning and implementation capacity of the electricity sector[11]

34. The Program includes three Results Areas: (1) increase access to on-grid electricity in areas covered by the power grid; (2) increase access to off-grid electricity; and (3) strengthen sector capacity and institutional reform. The Results Chain (Table 2) includes a description of activities within each of the Results Areas which are necessary for achieving the PDO. Indicators and outcomes within each of the Results Areas have been defined to monitor the progress of the Program. A subset of these indicators will be used as Disbursement Linked Indicators (DLIs,) bolded in Table 2) of the Program; the remaining will be monitored through the Program Results Framework. Technical requirements for achieving the outcomes have been included in the Program Action Plan. A detailed description is presented in the following paragraphs as well as in Annexes 2, 3, and 8.

Table 2. Program Results Chain

Results Area	Activities	Intermediate Indicators/Outputs	Outcomes
Results Area 1: Increase access to on-grid electricity in areas covered by the power grid	• Service drops, including meters, and ready-boards • LV and MV lines constructed or rehabilitated	• **Cumulative number of residential grid electricity connections under the Program [DLI1]** • Cumulative number of non-residential grid connections under the Program • Households connected to the grid under the Program that are female-headed	• Increased number of people provided with on-grid electricity services
Results Area 2: Increase access to off-grid electricity	• Preparation of feasibility studies and implementation plans for mini-grids and SAS • Installation of renewable energy/hybrid mini-grids • Installment of SAS	• Households provided with electricity through mini-grids and SAS • **Cumulative number of mini-grids installed [DLI2a]** • Cumulative capacity of renewable energy installed through mini-grid projects under the Program • **Cumulative number of stand-alone solar PV systems installed [DLI2b]**	• Increased number of people provided with off-grid electricity services
Results Area 3: Strengthen sector capacity and	• Staff training and annual capacity-building activities • Preparation of studies on: o Affordable customer connection policy	• **DoE is established and has put in place integrated M&E system, that is maintained throughout the Program [DLI3]**	• Strengthen sector institutional capacity

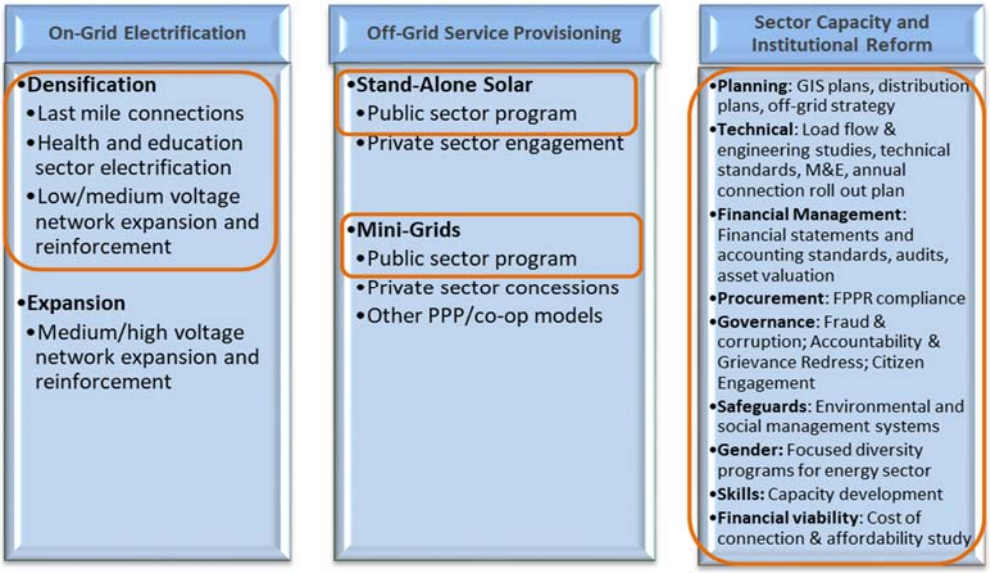
[11] The target ('Yes') for PDO Indicator 3 is achieved upon achievement of all Intermediate Results Indicators on institutional capacity, planning, fiduciary management, gender and citizen engagement, and safeguards systems described in detail in Annex 2.

Results Area	Activities	Intermediate Indicators/Outputs	Outcomes
institutional reform	○ Low-cost electrification/technical standards ○ Long-term financial sustainability ○ Power system rehabilitation • Establishment of minimum entry conditions for procurement • Preparation of off-grid strategy • Establishment of a gender and citizen engagement (CE) framework	• Finalization and implementation of affordable connections study and long-term financial sustainability study • **Annual connection rollout plans adopted by EEU [DLI4]** • **Audited financial statements (compliant with International Financial Reporting Standards [IFRS]) submitted [DLI5a]** • **Acceptable performance of procurement processes and (internal and external) audit system maintained [DLI5b]** • **Reports on fraud and corruption (F&C) verified by the Federal Ethics and Anti-Corruption Commission (FEACC [DLI5c]** • **Gender and CE work program approved in first year of Program and Gender and CE reports updated annually; [DLI6a]** • **Annual customer satisfaction in key aspects of the Program was equal or higher than last year's, as per annual surveys (between July 8, 2019 through July 7, 2022) [DLI6b]** • Women in STEM: Increase women's employment at EEU • **ESMS established and operational according to the adopted guidelines [DLI7]** • Cumulative number of staff in EEU and MoWIE receiving training under the Program	• Improved cost-effectiveness of Program • Strengthen sector planning capacity • Improve gender and CE systems • Strengthen safeguards system

C. PforR Program Scope

35. The proposed ELEAP is designed as a subset of the NEP. It will support significant scale-up in electricity connections under Pillar 1 (densification). It will also support pilot programs for off-grid service delivery (public sector-led programs supporting SAS and mini-grids) under Pillar 2. The proposed Program will provide strong emphasis on Pillar 3 (sector capacity and institutional reform), being an essential precondition for success of the activities under the first two pillars. The proposed ELEAP will finance the activities of the NEP's three pillars in three results areas on a countrywide eligibility basis.

Figure 4. Program Boundaries for the Proposed ELEAP



Source: NEP-IRM.

36. **Activities under Results Area 1: Increase access to on-grid electricity** in areas covered by the power grid through large scale and programmatic densification of electricity connections, including installation of LV extensions, service drops, metering and limited installations or rehabilitation of MV lines. While Ethiopia's geospatial least-cost access expansion plan is under development,[12] substantial progress can be made on an immediate basis by implementing densification activities in areas where the network can support new connections (a significant waiting list already exists). Densification of consumer connections in areas that have been recently electrified through the UEAP will enable electrification at a rapid pace, subject to improvements in sector capacity (as described in paragraph 38 below). Large-scale and programmatic densification activities will result in improved cost-efficiency of the electrification program and significantly increased economic benefits in the targeted areas. Activities for densification connections will mostly include installation of short LV extensions, service drops, and metering, while a few connections might require limited MV extensions. As part of the NEP, the proposed ELEAP will directly support 1,080,000 new connections.

[12] The World Bank and other DPs are supporting the GoE with technical assistance activities to establish a data-driven planning framework through the development of a nationwide geospatial least-cost plan, which will further detail cost of connection and guide the optimal strategy for sequencing the rollout of on- and off-grid connections to achieve universal access.

37. **Activities under Results Area 2: Increase access to off-grid electricity** through provision of support for pilot-scale off-grid service delivery activities, including off -grid electrification of communities using renewable energy mini-grids (such as solar and hybrid), as well as installation of SAS for beneficiaries in these communities. The ongoing private sector-led market development activities and off-grid service delivery will be continued through the DBE credit facilities under the ENREP. The NEP also envisions scaling up public sector-led off-grid programs. This includes mini-grids and SAS for remote areas of the country where neither the grid nor the private sector distribution channels will reach in the near term. While the comprehensive off-grid strategy of the NEP is under development, the proposed ELEAP will support pilot-scale off-grid service delivery activities, that is, off-grid electrification of up to five communities using renewable energy mini-grids (solar or hybrid) and 50,000 SAS for households in these communities.

38. **Activities under Results Area 3: Strengthen sector capacity and institutional reform.** Support under ELEAP will address the key elements of Pillar 3 of the NEP, which focuses on supporting sector capacity and institutional reform in the Government's electrification program, specifically improving the capacity of EEU and MoWIE to plan and implement the Program through, inter alia, (a) preparation of annual connection and roll-out plans; (b) establishment of the DoE and an integrated M&E system; (c) production of International Financial Reporting Standards Compliant Audited Financial Statements (without disclaimer opinion); (d) performance improvements of procurement processes; (e) production of reports on F&C allegations; (f) preparation of reports on CE and gender; (g) improvement of customer satisfaction; and (h) establishment and maintenance of an ESMS.

39. **Program beneficiaries.** The beneficiaries of the Program will include the following:

(a) **Households.** Given that the majority of the unelectrified households in Ethiopia are in rural areas, the Program activities are substantially geared toward being 'pro-poor'. Access to electricity contributes to an improvement in the quality of life by enabling newly connected consumers to undertake productive and income-generating activities (less time spent on fetching traditional sources of energy and clean water) and enhanced access to information/communication (through phone, radio, television, and so on). Empirical evidence also points to health benefits owing to the reduction of indoor air pollution due to reduced kerosene consumption.

(b) **Social institutions.** Improvements in the quality of public service delivery are expected through increased electricity connections, especially of public facilities such as schools; clinics; hospitals (for example, for cold chain, vaccine and medicine refrigeration, lighting, sterilization); and water pumping stations (for example, for safe drinking water) used by poor and vulnerable households.

(c) **Productive enterprises.** Improved access to electricity supply will contribute to increased productivity and income of enterprises (particularly for micro/small/medium enterprises) and will assist them in reducing their dependency on expensive diesel generation that has a substantially higher per unit cost. In addition, increased access to electricity can boost productivity and reduce sales and equipment losses.

(d) **Electricity sector institutions.** The sector institutions, especially the MoWIE and EEU, are expected to benefit from the strengthening of planning and implementation

capacity of the NEP, which could translate into improved institutional performance as well as cost-effectiveness, efficiency, transparency, and accountability of the sector.

(e) **Gender-differentiated benefits.** Providing rural households, social services, and enterprises with improved electricity services has the potential to promote gender equality, create employment and business opportunities for women, and improve development outcomes regarding, for example, education. Under the Program, gender-differentiated considerations will be mainstreamed as part of the utility operations.

40. **Excluded activities.** The Program will not support activities that are likely to have significant adverse impacts that are sensitive, diverse or unprecedented on the environment and/or affected people. The Program will also exclude activities that involve the procurement of (a) works, estimated to cost US$50,000,000 equivalent or more per contract; (b) goods estimated to cost US$30,000,000 equivalent or more per contract; (c) non-consulting services, estimated to cost US$20,000,000 equivalent or more per contract; and (d) consulting services, estimated to cost US$15,000,000 equivalent or more per contract.

41. **Program financing.** The Program financing consists of funding from the Government's own resources in the amount of US$247.5 million over 66 months, or approximately US$45 million per year, connection fees from new customers in the amount of US$50 per customer,[13] and the World Bank's contribution of US$375 million (US$250 million in IDA Regular Credit and US$125 million in IDA Scale-Up Facility (SUF) Credit) totaling US$676.5 million over 2018–2023 (see Table 3).[14]

Table 3. Program Financing for ELEAP (US$, millions)

Source	Amount	Percentage of Total
GoE	247.5	37
Connection fees	54.0	8
IDA	375.0	55
Total Program Financing	**676.5**	**100**

Source: NEP-IRM.

D. Disbursement Linked Indicators and Verification Protocols

42. The disbursement under the proposed ELEAP will be governed by a set of seven DLIs. The selection of the DLIs was guided by the following: (a) consideration of how the selected DLIs would directly provide the incentives for meeting Program goals and (b) feasibility of measuring, monitoring, and verifying the Disbursement Linked Results (DLRs). The choice of DLIs is based on the most relevant output indicators, which signal progress toward achieving the planned outcomes under the Program.

(a) **DLI 1: Establish on-grid electricity connections.** This DLI relates to the outcome envisioned under Results Area 1 of increasing access to grid connections within the

[13] Connection fees are expected to increase over the course of the Program; however, conservative estimates were considered for Program financing calculations. The number of new connections was calculated as 1,080,000.

[14] The Program financing framework presented here constitutes the first stage of funds mobilized as part of the NEP. In the coming years, it is expected that AF will be mobilized to support the NEP targets. NEP-IRM estimates financing need of about US$1,400 million in the first five years of the NEP.

existing network (that is, up to 3 km from the grid) and measures the cumulative number of residential and non-residential grid connections under ELEAP.

(b) **DLI 2: Establish off-grid electricity access.** This DLI relates to Results Area 2 and will be triggered upon commissioning of renewable energy mini-grids and installations of stand-alone solar (SAS) system, following the preparation of related feasibility studies and implementation plans.

(c) **DLI 3: Strengthen sector institutional capacity.** This DLI relates to Results Area 3 and will be triggered upon establishment of the DoE within the MoWIE to ensure coordination of activities under the NEP and putting in place an integrated M&E system that is maintained throughout the Program. The DoE will include staff with technical, procurement, FM, safeguards, and M&E capacity.

(d) **DLI 4: Strengthen sector planning capacity.** This DLI relates to Results Area 3 and will be triggered upon adoption by the EEU Board of the annual EEU connection rollout plans, necessary to identify resources, staffing, and material needs, as well as modus operandi in rolling out the envisioned connections for each year.

(e) **DLI 5: Strengthen fiduciary systems.** This DLI is intended to strengthen FM, procurement, and governance systems to address critical risks noted in the Integrated Fiduciary Assessment (IFA). It is related to Results Area 3 and will be triggered upon achievements of the following milestones:

- **FM.** Delivery of IFRS-compliant audited financial statements by the EEU on time and with audit opinion other than adverse or disclaimer in the later years of the Program, as capacity improves.
- **Procurement.** (1) ***Minimum Conditions established and maintained***: These entry conditions will include: (i) deployment of the required procurement staff; (ii) establishment of a well-functioning contract award committee and complaints handling and debarment mechanisms, which shall follow the Federal Public Procurement Rules; (iii) strengthening internal and using external procurement audit systems; (iv) establishment of a procedure for advance orientation of staff in procurement and contract management; and (v) establishment of procurement and contract management and monitoring system. (2) ***Performance Measures***: MoWIE and EEU will be required to achieve acceptable performance (as defined in the POM) of procurement processes and internal and external audit systems. Such audits should be accompanied by MoWIE and EEU management response (accountability). The procurement DLI will measure both performance of the procurement auditor (based on time line and quality of the audit) and procurement performance of EEU (including EEU's UEAP unit) and MoWIE (based on the findings of the Independent Verification Agent).
- **Governance.** The: MoWIE will submit a yearly report on F&C allegations and responses related to the Program for verification by the FEACC. The report will include a review of staffing (ethics and anticorruption officers or vigilance officers in all relevant offices at all levels) and disclosure of responses (including timing) to grievances of complainants related to power drop/interruption and line

connection/meter). FEACC verification will be evidenced by a cover letter from FEACC attached to the report. An independent verification agent will verify the satisfaction of DLI 5, including that FEACC had carried out the required verification under this DLI.

(f) **DLI 6: Improve gender and CE systems.** This DLI encompasses efforts to mainstream CE and gender activities at the EEU. The EEU will publish an annual report summarizing CE and gender activities each year for the duration of the proposed ELEAP. This DLI is related to Results Area 3 and will be triggered upon (i) the design and adoption of CE and gender work program (as defined in the POM) in the first year and publication of a report on CE engagement and gender activities for subsequent years of the Program and (ii) the annual customer satisfaction survey showing equal or increased customer satisfaction in key aspects (service, grievance, transparency, dialogue, or others, and so on) in the later years of the Program.

(g) **DLI 7: Strengthen safeguards systems.** This DLI responds to the critical need to strengthen capacity to supervise and monitor the social and environmental impacts of the Program. The existing ESMS in the EEU needs to be improved and implemented at the regional and national levels. During the first year of implementation, the EEU will establish the ESMS, including recruitment/assignment of safeguards personnel at the regional and national levels and the adoption of safeguards guidelines. In subsequent years, the MoWIE and EEU will ensure adequate implementation of the ESMS, focusing on the adequate screening of subprojects, the implementation of recommended safeguards measures, and the functioning of the complaint-handling mechanism.

E. Capacity Building and Institutional Strengthening

43. Skill development within the sector institutions is a core aspect of the sustainability of the NEP, and is therefore, a key focus of ELEAP. The continual and rapid expansion of electrification in Ethiopia will require extensive capacity-building support not only for the electricity sector institutions, the MoWIE and EEU, but also for the broader sector participants such as academic institutions (universities and vocational training centers) and community and other local stakeholders.

44. Selected NEP activities related to skill development will be supported by ELEAP and/or related World Bank operations. Additional details are provided in Annex 1.

(a) **Sector institutions (EEU and MoWIE).** Comprehensive training, technical assistance, and capacity-building support will be provided for sector institutions for technical and planning skills development, program management, M&E, fiduciary systems and safeguards management, as well as for transition to customer-oriented business processes. These activities not only aim to strengthen the technical capacity of the utility and its staff but also target improving commercial operations and utility performance.

(b) **Academic institutions.** The EEU has an ongoing program to recruit and train recent university graduates, as well as technical and vocational education and training (TVET) program graduates. Deeper interlinks will be supported with relevant local

universities and TVET institutions to prepare a pipeline of skilled labor force for the electricity sector.

(c) **Community and local stakeholders.** Capacity development support will also be provided to broader stakeholders in the electricity sector, such as community groups, local industry participants, women, and civil society organizations.

III. PROGRAM IMPLEMENTATION

A. Institutional and Implementation Arrangements

45. The MoWIE will be responsible for achieving the targets of the ELEAP. Under the MoWIE, the DoE will be responsible for Program oversight and monitoring progress. The DoE will rely on other sector agencies, including the EEU, to facilitate successful implementation of the goals and objectives of the ELEAP. In addition, a Steering Committee will provide high-level strategic direction and policy guidance to the DoE.

46. The main implementing agency for majority of the ELEAP activities will be the EEU. For Results Area 1 (on-grid access), activities will be implemented by the EEU's Retail and Wiring unit (under the Distribution Department), as well as the UEAP unit. Results Area 2 (off-grid access) will be implemented by the EEU's UEAP unit (with technical support from the relevant MoWIE departments). Activities under Results Area 3 will be implemented either by the EEU or by the MoWIE, as relevant. The POM will be prepared to provide detailed implementation procedures. In addition, MoFEC will sign a subsidiary agreement with EEU that will include terms of proceeds of the financing made available to EEU and EEU's responsibility in carrying out activities under the Program. Detailed institutional and implementation arrangements are in Annex 1.

B. Results Monitoring, Evaluation, and Verification Agencies

47. While the MoWIE (through the DoE) will be tasked with the overall Program coordination and reporting, the EEU will report achievements of its tasked activities through the DoE. The EEU's Planning Department already monitors the utility's key performance indicators (KPIs), while the Quality Control and Process Excellence Department monitors KPIs from each of its regional departments. The EEU prepares quarterly and monthly reports for its Board and MoWIE. The EEU also has a grievance-handling mechanism in place and carries out routine customer satisfaction surveys. However, the technical assessment highlighted the need to improve capacity of M&E systems. Capacity to monitor results will be key to ensure the Program's success and effectiveness. The proposed ELEAP will support strengthening of the existing M&E system which is needed to track and monitor progress against the NEP targets. The M&E system will be linked to the GIS planning tool, leading to a comprehensive management information system. The MoWIE will be incentivized to establish an independent M&E unit, including staff, resources, and provision of training (DLI 3).

48. In line with the World Bank's policy for PforR, the MoWIE will retain independent verification agencies (IVAs) under ToRs acceptable to the World Bank to verify the achievement of DLI results. The MoWIE will engage the Central Statistics Agency (CSA) as the IVA to conduct surveys with an agreeable sample size for connections to be verified under DLIs 1 and 2. The CSA will verify that connections comply with acceptable quality standards, as established by the EEU, as well as conduct site visits of the commissioned mini-grids and deployed SAS. An IVA (most likely a consulting firm) will be hired to verify achievements of all remaining DLIs 3, 4, 5, 6, and

7. Verification will be carried out on an annual basis. DLI 3 will also further strengthen the verification capacity of the CSA, including by allowing for additional technical expertise needed to verify the quality of electricity connection provided under the Program. During implementation, the World Bank and the MoWIE will carry out periodic reviews of the CSA and IVA reports, as necessary, and evaluate the overall appropriateness of the verification arrangements, taking mitigation measures, as needed.

C. Disbursement Arrangements

49. **Disbursements.** IDA Credit proceeds will be disbursed against submission, to the World Bank, of the IVAs' Program Results Verification Report (RVR) on the achievement of the DLIs. The DoE will present the Program RVR to the World Bank within three months of the end of each fiscal year. The World Bank will use the Program Report to determine the amount of the eligible disbursements to be made based on the results achieved. The MoWIE, the EEU, and the Ministry of Finance and Economic Cooperation (MoFEC) understands that if after the IDA Credit closing date, the World Bank establishes that the withdrawn financing balance exceeds the total amount paid for Program expenditures, exclusive of any such amounts financed by any other financier or by the World Bank under any credit or grant, the Borrower shall promptly, upon notice from the World Bank, refund such excess amount of the withdrawn financing balance.

50. **Advances.** An advance of up to 24 percent of the IDA Credit (not applicable to IDA SUF Credit) in the amount of SDR 42.9 million (equivalent to US$60.5 million) is available upon effectiveness of the Financing Agreement of the IDA Regular Credit, of which (i) SDR 42.5 million (equivalent to US$60 million) is available for EEU for all DLRs except DLRs 3.1 through 3.6 and 5.12 through 5.16; and (ii) SDR 0.4 million (equivalent to US$0.5 million) is available for MoWIE for DLRs 3.1 through 3.6 and 5.12 through 5.16 only. There will be no advance under the SUF Credit.

51. When the DLRs, against which the advance is disbursed, are achieved, the amount of the advance will be deducted (recovered) from the total amount due to be disbursed under such DLIs. The advance amount recovered by the World Bank is then available for additional advances ('revolving advance'). The World Bank requires the Borrower to refund any advances (or portion of advances) if the DLIs have not been met (or have only been partially met) by the IDA Credit closing date.

52. **Prior results.** An amount of up to SDR 22.7 million (equivalent to US$32 million) will be allocated for prior results from the IDA Regular Credit.[15] Disbursements for prior results will be made against the verification of the results following the effectiveness of the credit.

IV. ASSESSMENT SUMMARY

A. Technical

53. **Technical soundness.** The proposed ELEAP will target an estimated 1,080,000 on-grid connections as its main technical activity. Carrying out connections is a routine engagement for the EEU and does not include major departure from the existing technical approaches nor does it include implementation of untested technologies. However, the main challenges are related to

[15] Of this amount, it is expected that US$30 million would be linked to DLI 1 (on-grid connections), US$1 million to DLI 3 (DLR 3.1 Establishment of the DoE), and US$1 million to DLI 4 (DLR 4.1 Adoption of the FY18 connection rollout plan).

technical bottlenecks that have emerged in the past years and are preventing the EEU from scaling up its connection program (in the past, the EEU was connecting nearly five times as many customers as today). To support successful implementation, the following bottlenecks need to be addressed: (a) limited planning capacity of the implementation agency, EEU; (b) limited load capacity of the existing network; (c) ineffective coordination among the various units in charge of connections within the EEU; (d) affordability issues of the connections and revising the connection policy; and (e) lack of a systematic approach and strategy toward achieving the off-grid targets under the NEP. Based on the context and the possibility of addressing these bottlenecks through careful preparation, the overall technical risk is rated Moderate. Assistance for supporting enhanced technical capacity will be mobilized under ELEAP (see Annex 4 for details).

54. **Planning and operational preparation.** In preparation for the implementation of the grid connection rollout component of ELEAP, the EEU has already launched several initiatives ensuring that adequate planning, technical, procurement, and operational measures are put in place by effectiveness of the Program, including (a) establishment of a 'Modernization Team' led by the office of the Chief Executive Officer (CEO), with the mandate to improve the pace of connections, identify key bottlenecks for scaling up implementation, and enable effective coordination across the EEU; (b) completion of a nationwide MV feeder-level technical network analysis, including estimation of the maximum number of customers that can be connected in the first year of the Program without overloading the transformers beyond 90 percent of their rated capacity; and (c) development of the next year's connection rollout plan.

55. **Institutional arrangements.** For the proposed ELEAP, the EEU will be mandated to implement the main activities related to capital expenditures (on-grid and off-grid electrification). In this context, the EEU's Distribution Department has had extensive experience in the task of designing and rolling out the LV lines from the distribution transformers to connect households, shops, and social institutions. The EEU's UEAP unit has demonstrated its expertise of MV and LV extensions to towns and villages by undertaking an extensive grid expansion plan in the past years. The MoWIE/DoE will provide coordination, reporting, and Program oversight for the NEP. The technical assessment of the MoWIE and EEU concurred with the appropriateness of incorporating this arrangement under the proposed ELEAP and recommended capacity enhancement support, which has been incorporated in Results Area 3 (see annexes 1 and 4).

56. **Program expenditure framework.** The planned expenditures for the proposed ELEAP include on-grid (that is, LV/MV extensions and service drops but not upstream investments such as generation/transmission) and off-grid service delivery expenditures (SAS and mini-grids). The expenditures are estimated to be US$676.5 million. Table 4 provides a list of expenditures eligible under the Program. Expenditure categories are aligned with the chart of accounts at the agencies. On average, the cost per on-grid connection is calculated as US$300 (to provide sufficient support under the Program for related LV/MV extension and rehabilitation). There is no disaggregation between works and material expenditures for LV/MV lines and mini-grids. Since the upstream costs of generating and transmission fall under EEP's chart of accounts, this joint expenditure category will include only LV/MV lines and mini-grids. The expenditures related to SAS will be added as a new category to the chart of accounts (see details in Annex 4). The MoWIE will treat the expenditures related to the Program as separate budget line items and disaggregation is not seen as a risk.

Table 4. Program Expenditures under ELEAP (US$, millions)

Allocation for 2018–2023	
Cost Items (corresponding account codes)	**Amount**
Service drops	
(i) Material for customer connection (5118)	300.0
(ii) Salaries, wages, and other allowances (5200–5299)	24.5
LV/MV extension/rehabilitation and mini-grids	
(i) Material and equipment (1500–1519)	300.0
(ii) Salaries and wages (1520–1529)	20.0
(iii) Training (5302)	5.0
(iv) Other costs (1530–1539)	10.0
Stand-alone solar systems (new)	7.0
Operating expenditures (MoWIE)	
(i) Operational and consultancy costs	10.0
Total	**676.5**

Source: World Bank.
Note: a. Includes materials and equipment.

57. **Funding predictability.** Infrastructure investments in Ethiopia have totaled more than US$127 billion over the last 15 years, where US$33 billion was spent on social infrastructure, US$27 billion on water, US$23 billion on electricity, and US$21 billion on roads. From the total investment budget of US$13 billion for 2016–2017, priority is given to road development as well as rural electrification and diversification of the energy mix.[16] Overall, the GoE's GTP-II-related sector investments called for US$11 billion worth of new projects out of which over US$8 billion have already been raised and committed. The financing plan for these public-sector projects includes a mix of funding sources, part of it coming from the GoE's self-financing and customer contributions but most of it coming from new loans/bonds. Borrowing is sought from multilateral and bilateral partners, international DPs, and commercial banks, as well as domestic and diaspora bonds issued directly by the sector. The Government share of financing of the Program (US$247.5 million over 66 months, or approximately US$45 million per year) is in line with the financing allocated over the past years, which averaged US$50–100 million per year.[17]

58. **Adherence to budgeted Program expenditure and execution of the NEP priorities.** As indicated in the ongoing Public Expenditure and Financial Accountability (PEFA) assessments, the GoE has a well-functioning planning and budgeting system and the MoWIE prepares its plan and budget in line with this system. It follows the Federal Government budget calendar and manuals. On the other hand, the EEU uses the former EEPCo's planning and budgeting procedure manual. Physical plans are adequately costed and the annual work plan and budget (AWPB) is sufficiently detailed. The sources of funds of the EEU include budget from the Federal Government, sales of electricity (including connection fees), loans and grants, customer contributions, and other miscellaneous income. The Federal Government budget partly covers the cost borne by the UEAP to extend lines to new areas, while the customer contributions include connection fees collected from new customers and tariffs. The GoE's contribution to the UEAP is

[16] http://www.business-sweden.se/globalassets/energy-report-ethiopia.pdf.
[17] Based on the UEAP/EEU contributions received under GTP-I and GTP-II per the financial statements of the utilities.

included as part of the MoWIE's budget and proclaimed at the federal level. The EEU's consolidated AWPB is required to be approved by the Board of the EEU. Budget preparation and review by the executive management adheres to the EEU's budget calendar and is concluded before the start of any fiscal year. The Program budget will be proclaimed within the MoWIE following the GoE's budget calendar and the MoWIE will ensure that this is completed for the Program period. The MoWIE and EEU will also ensure that there is recording, accounting, and reporting on the NEP and ELEAP sources and expenditures.

59. **Efficiency of Program expenditures.** The Program targets densification of connections that are proximate to the existing network (typically within one pole length of the existing network). Technical assessment estimates that there are nearly a million such customers whose cost for connections, on average, is US$150. Under the current policy, the EEU's contribution to the cost is capped at about US$100 and the remainder is paid by the end users (on average, US$50 for these connections). While affordability is not expected to be a challenge for such connections, a comprehensive connection study is being planned under the Program to assess the costs and propose mechanisms to ensure affordability of connections as the program targets households farther away from the grid in future years. A least-cost GIS planning is also being undertaken, which will help ensure that all connections under the Program are made with maximum efficiency. The selection of densification areas (clusters of households proximate to the existing grid) will be determined by overlay of the following criteria: (a) geographic spread and diversity; (b) network capacity; and (c) connection affordability. The villages and communities recently, or soon to be, provided with network coverage by the UEAP in rural areas, have relatively newer network systems and are not expected to have overloaded transformers.

Table 5. Typical Cost of Connections (Last-mile Service Drop)

Distance from MV Line	Average Cost of Connection (US$)	Customer Contribution (US$)	EEU Contribution (US$)
One pole	150	50	100
Two poles	300	200	100
Three poles	450	350	100

Source: EEU Connection Cost Estimation Manual.

60. **Economic evaluation.** The World Bank carried out an economic assessment of the proposed Program using a standard cost-benefit analysis for Results Areas 1 and 2. The detailed analysis, including sensitivity and background of assumptions used, are in Annex 4.

- **Economic benefits.** Program benefits, including grid densification, SAS, and mini-grids, are assessed by calculating the avoided costs that would occur in the 'without project' scenario. The estimated economic benefits for households are conservatively estimated by current expenditures of non-electrified households for electricity services that can be substituted by electricity. Total cost for lighting, mobile phone charging, and radio combined is estimated to be US$7.31 per month for non-connected households. Additional economic benefits from grid connections include improved health services and education, improved communications and connectivity, increase in income-generating opportunities, and so on. These benefits are commonly recognized but are difficult to quantify.
- **Program costs.** The costs include capital expenditures consisting of material and related costs for erecting 1,080,000 on-grid connections, five mini-grids, and 50,000

SAS, in addition to operation and maintenance (O&M) expenditures for the three core Program activities. Value added taxes and other transferable costs were excluded.

- **Results.** At a discount rate of 6 percent, the economic net present value (NPV) of the Program is US$372.9 million and the benefit-cost ratio is 1.5. The economic internal rate of return (EIRR) is estimated at 18.3 percent (see Table 6). The Program is assessed as economically viable. The discounted payback period is 10 years.

Table 6. NPV and EIRR for the Program

EIRR	18.3%
NPV	US$372.9 million

Source: World Bank.

61. **Financial viability of the sector.** As described in the earlier sections, the sector will continue to recover its operating costs in the coming years propelled by rising trends in export revenues and revenues from increased domestic energy sales. At the current tariff levels (average across categories of around US$0.03 per kWh), domestic revenues are expected to rise from US$128 million in 2016 to around US$649 million in 2025. Export revenues are expected to be the anchor revenues for the sector, due to significant growth in export volumes (increasing by a factor of 12 from 2016 to 2025) and a relatively high export tariff (average export tariff is about US$0.07 per kWh) when compared to domestic tariff, rising from around US$100 million annually in 2016–2018 to around US$1,200 million by 2025. As Ethiopia shifts toward procuring power from IPPs in the future, the sector will face significantly higher operating costs (due to dollar-denominated power purchase agreements with IPPs). To be financially sustainable in its day-to-day operations, the sector needs to generate sufficient revenues to cover its operating costs. Based on current plans, the combined domestic and export revenues between 2016 and 2025 are expected to offset the operating costs incurred during this period.

62. The key challenge for the sector's financial viability is related to the accumulated debt from past capital expenditures. Currently, the sector carries nearly US$5 billion of outstanding debt (mostly birr denominated and domestically held), which will affect the financial sustainability of the sector in coming years. While international debt service obligations are prioritized and regularly met, at current tariff levels, the sector will be unable to honor all its domestic debt obligations (especially, principal/face value payments). The sector would have to continue to either incur net losses in the foreseeable future or choose to roll forward the domestic debt. Assuming that a cost-reflective tariff (US$0.06 per kWh) is enacted in the coming years, the sector's cash flow would be sufficient to cover even the past obligations in the medium-term scenario (see Annex 4 for details).

63. **Program financial evaluation.** The Program's financial assessment concluded that the core activities under ELEAP (connection densification) would support long-term financial viability of the sector. Each additional household connection provides overall net positive revenue to the utility (as the financial costs are only limited to last-mile connections). At current tariff levels and connection costs, the Program has a positive NPV at US$4.96 million. Assuming payback from the time after all the 1,080,000 new consumers are connected, the Program breaks even in the next seven years at the current tariff levels (see Annex 4 for details).

64. It is important to point out that as the connection program extends into future expansion phase (under the NEP), requiring the utility to reach customers farther away from the grid, leading to an increase in average costs (that is, incurring transmission and other upstream costs), the current

tariff levels will not be able to sustain positive returns. As discussed earlier, the GoE is already preparing a long-term financial viability plan, with the objective of increasing domestic tariffs, improving cost efficiency of the sector, and ensuring financial sustainability of the sector.

65. **Gender.** Ethiopia suffers from some of lowest gender equality performance indicators in Sub-Saharan Africa. The GoE is committed to the achievement of gender equality. Women's Affairs Directorates have been established at the MoWIE and EEU and various gender-specific targets and goals have been set. In GTP-I, bold measures were undertaken to ensure gender equity and GTP-II envisages increasing the economic benefit for women; increasing women's decision making; growing the crop productivity of female-headed households (FHHs); and increasing women's participation in building good governance, democratization, and development. To gain insights into key gender gaps, a detailed sector-wide analysis was conducted for the electricity sector, showing gender disparities at various levels.[18] Based on the findings of the analysis and other country-level targets, the NEP will incorporate several key gender actions, which will form a core part of ELEAP, incentivized through DLIs and a Program Action Plan. These include (a) capacity building for gender equity; (b) promoting women's interest in science, technology, engineering, and math (STEM) careers; (c) a baseline assessment and recommendation of child care provision; (d) gender-sensitive analysis of provision of connection cost subsidy; (e) increasing productive uses of energy that benefit women; (f) implementing gender-based violence (GBV) clinics and other related activities focused on enhancing prevention and response to GBV; and (g) incorporating sex-disaggregated data in the M&E systems (see Annex 1 for details).

66. **CE.** Long-term development of the electricity sector requires effective and transparent public-sector institutions. The centrality of customer service is among the top four priorities of the EEU's strategic themes, and customer engagement is important for new connections, billing and collection, maintenance, and complaints management. The EEU has adopted a Citizen Charter which outlines the understanding between citizens and the EEU on the quality of service and the provision of grievance redress. The utility has also established various mechanism for customers to voice input and grievances, including public forums, suggestion boxes, customer satisfaction surveys, call centers, and a vigilance office. Customer feedback is currently received through surveys, face-to-face feedback, feedback forms, public fora and posts, fax, and telephone. The following CE engagement measures will become part of ELEAP, incentivized through DLIs and Program Action Plan: (a) strengthening of community-level CE activities; (b) community-based electricity education program; (c) consumer awareness media campaigns; (d) consumer-centric capacity building for the EEU staff; and (e) commercial performance improvement training (see Annex 1 for details).

B. Fiduciary

67. An IFA for ELEAP was carried out for the MoWIE and EEU and a sample of participating regions and districts under the EEU, including the UEAP (see Annex 5 for details), consistent with 'Operational Policy, World Bank Procedure and Directives; and Guidance for Program-for-Results Financing'. The IFA assessed FM; procurement system rules and procedures and their application, including oversight mechanisms at the Program implementing entities; F&C and complaint-handling mechanisms.

[18] Welfare Monitoring Survey (2011), Demographic and Health Survey (2011), Enterprise Survey (2015), and Household Consumption and Expenditure Survey (2011).

68. The IFA entailed a review of the capacity of the sample participating entities to (a) record, control, and manage all Program resources and produce timely, understandable, relevant, and reliable information for the Borrower and the World Bank; (b) follow procurement rules and procedures, capacity, and performance focusing on procurement performance indicators and the extent to which the capacity and performance support the PDOs and risks associated with the Program and the implementing agency; and (c) ensure that the implementation arrangements are adequate and risks related to F&C, as well as complaint-handling mechanism, are reasonably mitigated by the existing framework.

69. **Financial management.** The 2014 PEFA assessment for the Federal Government notes the major improvements that have been made. Ethiopia has significantly improved its performance over the last three years. However, the ratings for regional administrations that had PEFA assessments, while showing improvements, were, on average, lower than those of the Federal Government. Several of these issues are being addressed through the Expenditure Management and Control Program, the GoE's flagship Public Financial Management (PFM) reform program.

70. The FM assessment of the MoWIE concluded that there are staffing constraints both in numbers and capacity (at finance and internal audit) and that there are some internal control inadequacies. Budget preparations and control are of reasonable capacity, but the utilization of budget is lagging. At the EEU, the main concerns noted were external financial audits, staffing constraints, and financial systems issues. The entity's financial audit (year ended July 7, 2016) has not been carried out. The last available audit report (year ended July 7, 2015) was issued with a disclaimer of opinion and contains significant internal control findings. Action plans were prepared to address issues and a high-level task force comprising MoFEC and the MoWIE and the utility was established to ensure a credible follow-up of the implementation of the FM actions plans. However, the progress in resolving the issues has been slow. The EEU's financial statements are not compliant with IFRS. The EEU has established a project office comprising staff from relevant units, which will work with a consulting firm, to be appointed, to help transition to IFRS, perform asset valuation, and develop/update FM policies and procedures. The EEU has also contracted an international firm for the supply and installation of Enterprise Resource Planning (ERP), which would further enhance automation of its billing and accounting systems. Other challenges noted in the assessment revealed that although the physical plans are adequately costed and the AWPB is sufficiently detailed, budget approval by the EEU Board is usually delayed, and budget executions are low. Based on these observations, the FM risk assessed for this operation is rated High. To mitigate the risks and weaknesses, specific actions are identified in the Program Action Plans and DLIs (for example, providing incentive for preparation and submission of audited financial statements with opinion other than disclaimer and adverse).

71. **Procurement.** A Country Procurement Assessment Report (CPAR) was carried out in 2002 and updated in 2010. Though some improvements were achieved since the 2002 CPAR, the 2010 CPAR highlighted several risk areas and inadequacies in the legal, institutional setup, and procurement practices. These inadequacies or situations may affect the implementation of the proposed ELEAP.

72. The World Bank carried out a procurement system assessment as part of the IFA for the proposed ELEAP.[19] The review included applicable procurement systems, rules, and procedures, including oversight mechanisms at the Program implementing agencies, the EEU and MoWIE. The EEU is a state-owned enterprise and is an entity whose procurement is not regulated under Ethiopia's Federal Government Public Procurement Proclamation of 649/2009. The MoWIE follows the Federal Government Public Procurement Rules. The EEU has prepared its own procurement guidelines and manuals based on the Federal Procurement law, World Bank procedures, and other best practices. The EEU's Board of Directors gives both oversight and operational function to the procurement activities of the EEU. Program procurement and contracts administration risks identified during the assessment include (a) the EEU is not governed by national procurement proclamation and directives; (b) inadequate procurement capacity at the EEU, including the UEAP unit; (c) transparency and fairness issues related to the procurement process as the result of not implementing the applicable procedures available; (d) competitiveness issues as the result of other state-owned entities' involvement in tenders and application of direct contracting and different preferential treatment to medium and small enterprises (MSEs); (e) inadequate accountability, integrity, and oversight arrangements and complaint-handling and debarment setup and mechanism; and (f) inadequate contracts administration and the inefficient resolution of contractual disputes. Consequently, the procurement management risk is rated High. To mitigate the risks, specific actions have been included in DLIs and Program Action Plan.

73. **F&C and complaint-handling mechanism.** Ethiopia has a robust legal framework for addressing F&C risks. The principal institutions responsible for the fight against corruption are the FEACC and the Federal Attorney General's office.[20]

74. The F&C assessment revealed that despite the progress made in tackling challenges at the EEU, petty corruption is still widespread. Petty corruption is largely expressed in the form of bribery, fraud, theft, and embezzlement. However, the incidents are not systematically tracked, especially at the regional and district levels. The main complaints in the sector relate to power drop or interruption and inaccessibility and delay of maintenance, delay of line connection/installation of transformers for customers who pay, dwellers associations, firms, and Government projects in their order of priority. There are systems and procedures for handling bidders' enquiries and complaints at the federal level and remedial actions are taken by the Complaint Review Board. At the EEU, procurement complaints are received from a very small number of the bidders partly as a large portion of the procurement is through direct purchase. There is a need to ensure competitiveness for adequate and timely delivery of goods. The F&C complaint-handling system has gaps that hinder adequate functioning and it is necessary to strengthen the structure and capacity of complaint-handling staff and improve the tracking, recording, and reporting of F&C at the MoWIE and EEU. The F&C management risk is rated High. To mitigate the risks and inadequacies noted, carefully selected actions, as shown in the Program Action Plan and DLIs, seek to address these challenges.

[19] The implementing agencies are the federal MoWIE and Ethiopia Electric Utility (EEU). Because substantial amount of program funds will be used by the EEU, including the UEAP, the key focus of the procurement assessment was on the EEU, including the UEAP. In addition to the EEU headquarters, among 19 EEU regional offices and 8 UAEP branches participating in the Program, 4 from the EEU and 2 from the UEAP have been visited and assessed.

[20] Federal Attorney General Establishment Proclamation No. 943/2016 and Federal Ethics and Anti-Corruption Commission Proclamation No. 880/2015.

75. **Conclusion of the IFA.** Overall, the IFA concludes that the FM and procurement systems provide reasonable assurance that the financing proceeds will be used for the intended purposes, with due attention to the principles of economy, efficiency, effectiveness, transparency, and accountability and for safeguarding the Program assets once the proposed mitigation measures have been implemented. Appropriate systems to handle the risks of F&C, including effective complaint-handling mechanisms, have been agreed and established. The risk mitigation measures, including specific DLIs, are identified for critical issues. Actions have been proposed that will support the DLIs and help improve efficiency and performance monitoring, which are indicated in the Program Action Plan. These actions will be implemented in accordance with IDA's "Guidelines on Preventing and Combating Fraud and Corruption in Program-for-Results Financing," dated February 1, 2012, and revised July 10, 2015. Other interventions include using result indicators for the Program, using other programs that are addressing the issues, and so on. The details of the assessment, including main risk areas and the mitigation measures, are presented in Annex 5.

C. Environmental and Social

76. The proposed ELEAP supports last-mile electricity service delivery through on-grid and off-grid electrification activities, which are likely to have manageable environmental and social impacts during the construction and operation phases. An Environmental and Social System Assessment (ESSA) was carried out to assess the institutional capacity of the implementing agencies (EEU and MoWIE) as well as the respective regional and local level counterparts, to plan, monitor, and report on environmental and social management measures and address social and environmental issues associated with the Program (see Annex 6 for details).

77. Both positive and negative impacts could result from the Program activities. Environmental and social benefits will be derived from the substitution of hydrocarbon-based fuels (for example, kerosene) of electricity for household and business electricity sources and increased reliance on renewable energy sources and access to electricity. However, poor planning and implementation of the proposed ELEAP could adversely affect the biophysical and social environment, on which the population relies. The potential adverse environmental and social impacts of the Program are likely to be associated with the construction and rehabilitation of MV and LV distribution lines, upgrade of substations, installation of transformers, construction of mini-grids, and disposal and replacement of spent lead-acid batteries from SAS. The potential adverse social impacts are likely to be associated with land acquisition for mini-grids and possible acquisition of way leaves (rights-of-way) for MV and LV distribution lines.

78. The anticipated impacts of the proposed ELEAP are expected to be manageable and most of them may stem from ground disturbance due to vegetation clearance and excavation/digging for pole erection, masonry activities to reinforce the electric pole, on-site concrete mixing, transportation and distribution of solar systems, installation of equipment, and waste management within and around the core activities area. These are also not anticipated to be of large scale but could affect individual Program Affected Persons (PAPs) who may lose assets, including structures, crops and trees, and the use of portions of their land. It is anticipated that most of the adverse effects associated with the construction and operation will be reversible in nature and there are no impacts that will lead to irreversible negative permanent change.

79. The overall risk rating for the environmental and social safeguards under this Program is Moderate, reflecting primarily the limited technical personnel, knowledge, budget, and other

facilities for overall safeguards management, particularly at the local and regional levels of the EEU and REBs. The ESMS to be established at each Woreda, the EEU district offices, and REBs will ensure sufficient staffing, capacity, financial, and other resources are in place during Program implementation. The ESSA has identified additional key measures to help the implementing agencies overcome gaps related to environment, social, and safety aspects and improvements of the implementing agencies system on safeguards management. To mitigate the risks and inadequacies noted, carefully selected actions, as shown in the Program Action Plan and DLIs, seek to address these challenges.

80. Activities that could have significant adverse impacts, are sensitive, diverse, irreversible, or unprecedented on the environment, and/or affected people are not eligible for ELEAP financing and are excluded from the Program. Screening of risk will be part of the implementation of the ESMS for which training will be provided. The draft ESSA was disclosed in-country and on the World Bank's external website on June 23, 2017. Public consultations on the draft ESSA took place on July 6, 2017. Following incorporation of the feedback received, the revised ESSA was disclosed in-country and on the World Bank's external website on August 22, 2017.

81. **Climate disaster risk screening.** The Program has been screened for risks related to climate change and disaster risk management. Recurrent drought and floods pose the greatest threat to the country's environment and its local population. Hydroelectricity is the main source of energy in Ethiopia, which makes the energy sector vulnerable to increasing droughts. The GoE is keen to diversify the energy mix through the exploitation of other renewable energy resources, including geothermal, wind, and solar. The climate risks have limited impact on the distribution and off-grid investments made under the Program. The team has confirmed that the technical specifications for equipment will take into consideration the climate risks, especially with regard to future increases in droughts and floods. Activities under Results Area 2 support the Government's agenda of diversifying energy resources through the promotion of SAS and mini-grids. At the same time, the use of renewable energy products will lead to greenhouse gas (GHG) reductions that are expected to alleviate climate and disaster risks in the long term.[21]

82. **Grievance redress.** Communities and individuals who believe that they are adversely affected because of a World Bank supported PforR operation, as defined by the applicable policy and procedures, may submit complaints to the existing program grievance redress mechanism or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed to address pertinent concerns. Affected communities and individuals may submit their complaint to the World Bank's independent Inspection Panel which determines whether harm occurred, or could occur, because of World Bank's 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 World 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.

[21] The analysis on avoided GHG emissions is included in Annex 4.

D. Integrated Risk Assessment

83. The overall risk rating for the proposed ELEAP is Substantial. The detailed risk assessment and corresponding mitigation measures under the Systematic Operations Risk-Rating Tool (SORT) template is presented in Annex 7.

84. The following are the risks rated High or Substantial:

- **Political and governance: Substantial.** Ethiopia will hold its next general elections in 2020. Following demonstrations and unrest, the Government declared a state of emergency on October 9, 2016, which was lifted on August 4, 2017. Despite the respite, there is a risk that further tensions between the Government and civil society could negatively affect implementation of the Program due to lack of accessibility to rural areas, the Government's capacity to take strategic decisions on time, and civil society's acceptance of Program objectives. **Mitigation Measures:** To mitigate this risk, the team developed a comprehensive CE strategy, with a focus on sharing information with the public on the Program design, including its objectives, selection criteria, and roles and responsibilities of national and regional entities in implementation. Consultations took place on July 6, 2017, to that effect. However, increased country risk mitigation is beyond the scope of the proposed Program. Another risk concerns the selection of beneficiaries: the EEU has selected subprojects based on geographical quotas after receiving proposals from the regional offices. This will be addressed through the distribution plan prepared under the NEP, which will lay out the investments for the Program time frame and the grid rollout connections plan, which will identify households to be connected based on established criteria.

- **Institutional capacity for implementation and sustainability: Substantial.** Key sector institutions, such as, the MoWIE and EEU will have major key responsibilities for implementing the proposed Program, under the MoWIE's supervision. While EEU is experienced in implementing activities under the operation, i.e. connection of households, its capacity may be stretched with the ambitious electrification expansion planned under the NEP. **Mitigation Measures:** The Program supports the strengthening of the MoWIE's capacity to design and oversee implementation and improve the EEU's technical, financial, and operational capacity by enhancing planning and M&E capacity, cost effectiveness, and safeguards mitigation. Technical assistance provided under World Bank-executed trust funds will help complement efforts to enhance the capacity of both institutions.

- **Fiduciary: High.** The entity's financial audit (year ended July 7, 2016) has not been carried out. The last available audit report (year ended July 7, 2015) was issued with a disclaimer of opinion and contains significant internal control findings. On the procurement side, there are competitiveness, transparency and fairness issues and inadequate accountability, integrity, and oversight. In addition, there is a general lack of adequate fiduciary capacity at the EEU and MoWIE that could undermine implementation of the Program. **Mitigation measures:** This will include (a) the ongoing implementation of an FM action plan; (b) technical assistance to support comprehensive improvement on procurement and FM capacity; (c) the implementation of the recommendations of the Program's IFA for enhancing fiduciary capacity (FM and procurement), whose costs were integrated in the

expenditure program; and (d) update of bidding documents and procurement procedures to ensure transparency, fairness and competitiveness. Key actions are included in the Program Action Plan and the DLIs.

- **Other - Financial viability of the sector: Substantial.** The current domestic electricity tariff (US$0.03 per kWh), which is among the lowest in Sub-Saharan Africa, could represent a constraint to sector development as well as for scaling up electricity access, particularly regarding repayment of domestic debt obligations, as well as for raising new financing. **Mitigation measures:** This risk will be partly mitigated through the ongoing efforts of the GoE to revise the tariff structure. While domestic tariff regime forms an important element of financial sustainability, the GoE is also considering additional actions, such as, augmenting domestic revenue with revenue from power exports, possible restructuring and/or refinancing of existing debt, and finding innovative ways of reducing the public investment burden, and introducing sustainable financing mechanisms (for example, increased private participation through IPPs). It is also important to highlight that the proposed ELEAP supports improved financial viability of the sector—each new connection provides positive financial returns to the utility.

E. Program Action Plan

85. Based on key areas of improvements highlighted in the Program assessments, the World Bank identified actions that will strengthen the country systems; enhance the capacity and performance of the implementing agencies, to improve preparedness; and mitigate risks for the Program to deliver its results.

86. A Program Action Plan has been prepared which relates to technical aspects, fiduciary aspects, and environmental and social safeguards management aspects of the Program. A detailed presentation of the actions to be taken are in Annex 8.

- **Technical aspects.** The technical assessment concluded that together with improving the capacity of the utility to undertake the scale-up of the connections and the expected load growth to be experienced over the next few years due to increased domestic demand as well as exports, the sector would also need to plan for the reinforcement of the network in the future years. In this regard, the technical assessment recommended a nation-wide distribution network strengthening plan and costing be carried out (at the individual feeder level) such that there is no impediment to enable the rapid scale-up of densification of customer connections (2018–2023). The technical assessment also recommended that the sector prepare a comprehensive off-grid strategy to further enhance the off-grid service provision in the future years. The technical assessment also recommended that a low-cost standards study and a connection policy study be carried out, which would support the scaling-up of electrification programs.

- **Fiduciary aspects.** Key actions to augment fiduciary capacity of EEU are included in the Program Action Plan and the DLIs. These actions focus on strengthening EEU's capacity for improved planning and budgeting processes, ensuring transparency and improved corporate governance, efficient treasury management and flow of funds, establishing and maintaining high standards of accounting and financial reporting, as well as strengthening internal and external audit functions, improving capacity of

procurement staff and transparency, fairness and competitiveness of procurement processes.

- **Environmental and social aspects.** The ESSA findings indicated that Ethiopia has an adequate legal framework for managing safeguards risks, including associated environmental and social regulations. However, implementation of existing provisions of the environmental, social, and safety regulations varies among agencies and from region to region. The ESSA recommended (a) maintaining key environmental, social, and safety personnel in the EEU at the corporate and the regional levels; (b) conducting annual performance reviews, including social and safety audits, which would confirm sound implementation of agreed guidelines and procedures; (c) including safety and protection material and tools in all contractual agreements under subprojects of the Program and its implementation; (d) conducting briefings and awareness campaigns for communities related to environmental, social, and safety impacts in subprojects areas; (e) establishing GRM and associated guidelines; and (f) providing timely and appropriate consultation, compensation, and resettlement of PAPs. Further details for the recommended actions are outlined in the ESSA summary (see Annex 6).

87. While these risk mitigation measures will help strengthen country systems, key institutional and technical elements are already in place that will allow for the timely implementation of the NEP. An interim 'Task Force' comprising the MoWIE and EEU representatives is already in place and is leading the preparation, planning, coordination, and launching activities of the NEP and ELEAP. The interim Task Force will be amalgamated into the DoE upon effectiveness of the Program.

88. The EEU's Modernization Team has prepared the Program's first-year (2018) grid connection rollout plan. The EEU has also identified a set of KPIs, which integrate the Program indicators. The Task Force is overseeing the development of the GIS platform (launched in July 2017) for the sector, which would form the basis of the least-cost expansion plan as well as the sector M&E framework (incorporating the EEU's KPIs). The Task Force has also reached preliminary agreements with the CSA with regard to the Program verification protocols, and draft ToRs have been prepared.

89. The Task Force is preparing draft ToRs for the development of key analytical studies identified in the Program Action Plan, such as the off-grid strategy, low-cost standards study, and the connection policy and affordability study.

90. FM and procurement specialists have been hired to strengthen the fiduciary capacity of the implementing agencies. With support from the World Bank experts, as well as the FM and procurement specialists, the Task Force is already preparing the POM, which would include details for implementing the Program Action Plan and related activities (draft version was submitted in January 2018).

Annex 1: Detailed Program Description

Background and Context

1. **The past decade has witnessed a major turnaround in Ethiopia's electricity sector.** In 2005, the GoE launched the UEAP, which constitutes one of the most significant grid expansion programs in Sub-Saharan Africa. Under the UEAP, between 2005 and 2015, electricity grid was spread to about 6,000 towns and villages from the initial 667 and grid coverage reached 60 percent of the towns in the country (see Box 1.1). The GoE significantly expanded power generation capacity to respond to a growing energy demand (10 percent on average per year). As a result, generation capacity nearly quintupled within a decade, from about 850 MW in 2005 to 4,256 MW at the end of 2016. However, the on-grid household electrification rate remains quite low at less than 20 percent.

Box 1.1. The Universal Electricity Access Program

The focus of the GoE's electrification efforts has been mainly in expanding the country's network outreach. To do so, the GoE established the UEAP in 2005 with the mandate to electrify rural towns and villages through extension of the grid. The initial objective of the UEAP was to electrify approximately 50 percent of rural towns within five years, with a long-term goal of connecting virtually all towns and villages to the grid within ten years. The rural villages and towns range in size from about 300 to 15,000 inhabitants. The estimated budget for the first five-year period starting in 2005 was ETB 8.8 billion (about US$1.0 billion). The joint GoE and EEPCo financing plan declared that 80 percent would be contributed by the GoE and the remaining by EEPCo. The GoE successfully raised funds from other DPs to finance its rural electricity access expansion program through the UEAP. Some of the prominent financiers included the African Development Bank (AfDB), the Saudi Fund, the Organization of the Petroleum Exporting Countries Fund for International Development, the Islamic Development Bank, and the Kuwait Fund. The World Bank has supported the ambitious plans of the GoE with two IDA operations: (a) the US$133.4 million Accelerated Electricity Access (Rural) Expansion (EAREP, P097271) approved in FY06, which expanded electricity access to 452 villages (exceeding its target of 382 villages by 18 percent); and (b) the US$130 million Electricity Access (Rural) Expansion Project Phase II (EAREP II, P101556), approved in FY08, which nearly achieved the town electrification target of 365 with 304 towns being reached. In addition, two operations under implementation, the ENREP and the ENREP-AF, are supporting the UEAP in rehabilitation of the existing network to improve the network reliability in 13 towns and provide electricity connections to 150,000 customers.

However, while impressive results have been achieved in a short time in terms of infrastructure development with the expansion of the transmission infrastructure (MV lines) across the country, last-mile connections to households, businesses, schools, and clinics and connections for service delivery to end beneficiaries have not kept pace with the network expansion and the corresponding targets set by GTP-I for connectivity were, unfortunately, not met as expected.

Household connections have lagged for several reasons, including the absence of (a) adequate coordination between the UEAP and EEU for related planning, procurement, and construction works; (b) a programmatic approach to service delivery; and (c) financial resources proportional to the new customers' targets sought and earmarked for social institutions such as schools and clinics.

2. **The sector also went through a significant institutional restructuring.** In 2013, the GoE unbundled the vertically integrated utility, EEPCo into two public enterprises: (a) EEP, responsible for the generation and transmission sub-sectors; and (b) the EEU responsible for power distribution and sales. The implementation of the UEAP moved from EEP to the EEU in January 2016. In addition, the GoE established an independent regulator, the EEA. While strategic focus on various

segments of the electricity sector's value chain has improved, as new agencies, EEP and the EEU are continuing to encounter significant challenges related to implementation of numerous large-scale projects, as well as ongoing internal administrative and operational issues.

3. **Despite major strides in the past decade, Ethiopia's electricity sector continues to fall short of the promise of effective service delivery, with the second highest energy access deficit in Africa.** GTP-I (2010-2015) included clear sector targets, most notably that of doubling the number of household electricity connections from 2 million connections to 4 million. While significant improvements have been achieved under GTP-I in transmission infrastructure, last-mile connections to households have not kept pace with the rapid network expansion, posing a binding constraint to economic and social growth**.** Expanded, affordable, and reliable access to electricity is instrumental to the structural transformation of Ethiopia's economy and society, including massive poverty reduction and a shift toward higher productivity rates and industrialization.

4. **Access expansion has lagged for several reasons, including the absence of a least-cost, nationwide, and comprehensive connections rollout program.** In addition, there is a severe lack of dedicated resources to provide electricity access to all households, economic centers, schools, and health centers. There are also capacity constraints at the utility level in planning for access expansion and handling a growing customer base.

5. Rolling out household connections is a top priority; it is also a high-impact, low-hanging fruit to be reaped in areas already served by the network, given that Ethiopia now has enough generation capacity to support domestic access expansion to complement its regional aspirations. Customers' capacity to pay for the connection charges has not been a significant impediment to expansion until now, as the constraints have been mostly on the supply side, as explained earlier.

6. **With GTP-II (2016-2020), the GoE has shifted the country's energy access paradigm from network access to actual connectivity.** The GoE now recognizes the need to focus on connecting households. Under GTP-II, the GoE has put strong emphasis on the need of a rapid scale-up of electricity connections in areas that are already within the immediate and short-term reach of the network and increasing connections to almost 7 million.

7. GTP-II has also put forward ambitious off-grid targets, which would continue the success achieved in the distribution of SAS under a program of the REF and a credit line of the DBE. The GoE intends to achieve universal electrification in Ethiopia by 2025 (see Table 1.1).

Table 1.1. Energy Sector Related GTP-II Targets (2016–2020)

Indicator	Unit of Measurement	Baseline (2015)	GTP-II Targets (by 2020)
Electricity service coverage (towns/villages)	Percent	60	90
Installed power generating capacity	MW	2,386	17,347
Length of power transmission system	Km	16,018	21,728
Number of customers connected to grid power	Number	2,310,000	6,955,000
Annual per capita electricity consumption	kWh	86	1,269
Improved cookstoves and biogas plants	Number	8.9 million stoves and 11,618 biogas plants	11.45 million (including 31,400 improved biogas digesters, 20,000 households' biofuel stoves)
Solar appliances	Number	2 million	3.6 million
Household solar systems	Number	40,000	400,000

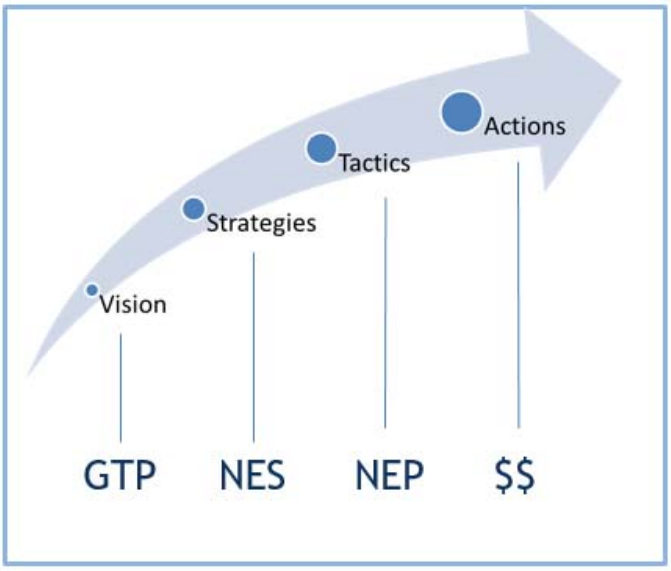
The National Electrification Program

8. **Despite tangible results in other segments of the electricity sector, the household electrification rate remains quite low at about 20 percent**, with over 60 million people left without access to electricity (second highest access deficit in Africa), posing a binding constraint to economic and social growth.

9. **In this context, the GoE initiated the NEP, which supports the GTP-II electrification expansion/connection targets.** The NEP is based on the Government's NES, endorsed by the GoE in June 2016, which defined the strategic priorities for sustainable energy sector development and scaling up electrification. The NES was supported under Phase 1 of the World Bank's three-year programmatic technical assistance, the ESMAP-funded ESRSP.

10. The NEP-Implementation Roadmap (IRM), launched in November 2017, is the centerpiece for the physical implementation of the connections rollout—a comprehensive and coordinated program of grid and off-grid rollout—in an effective, efficient, and sustainable manner. The IRM also includes a prospectus for mobilizing financing (syndication) of investments and technical assistance needs for grid and off-grid access scale-up for the first phase of the program. The least-cost NEP-IRM is based on the best technical information available. The Government is currently launching a nationwide GIS least-cost rollout plan, which will accurately geo-locate demographic and economic load centers as well as the existing distribution network to inform the optimal connections sequencing, whether grid or off-grid. The NEP-IRM will be updated based on the findings of the geospatial analysis, as well as the inputs and policy decisions stemming from the Program implementation support provided under the Program, including studies for the adoption of a connection policy, lowering network design and construction standards, adoption of demand-side management measures, and a detailed distribution technical design investment program.

Figure 1.1. Delivery of Electricity Services - From Plans to Implementation



11. **The NEP is organized into three pillars addressing the dominant challenges and needs in the sector:** (a) Pillar 1: On-grid electrification; (b) Pillar 2: Off-grid service provisioning; and (c) Pillar 3: Sector capacity and institutional reform. The IRM also outlines a detailed financing prospectus for the next five years, from 2018 to 2023 to support these three pillars.

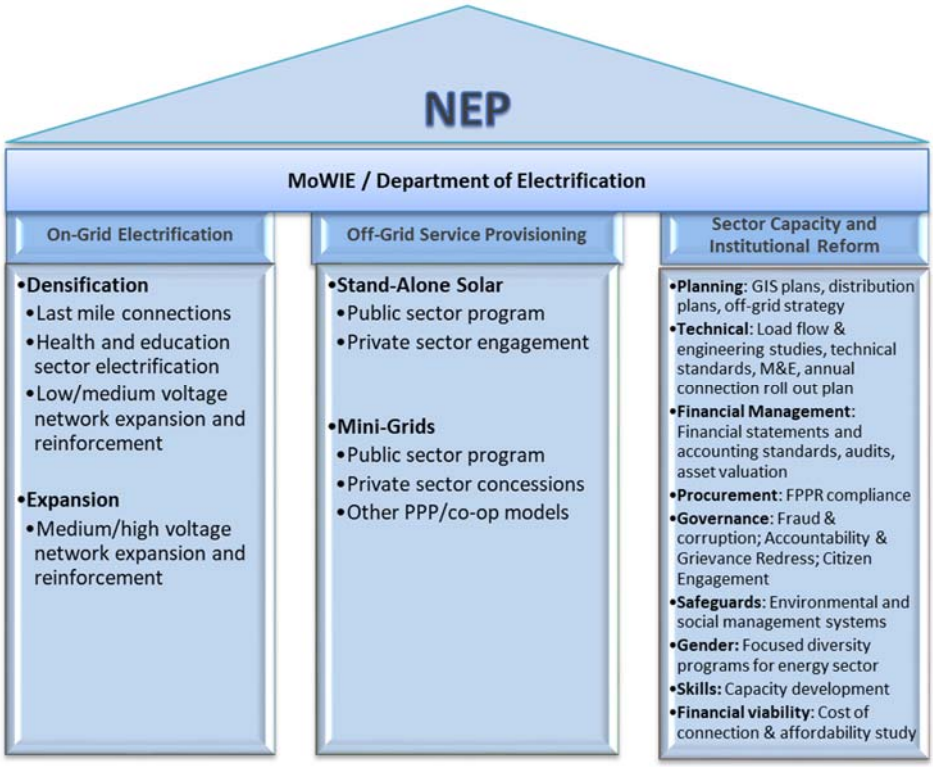
12. Overall, the estimated financing requirements for the first phase implementation of the program mentioned earlier, grid and off-grid together, is about US$1.4 billion; of which, slightly over 3 percent is for Program implementation support and technical assistance directly related to accomplishing the target objectives and outcomes.

13. For the first phase of NEP—target of 4.5 million connections—connection costs range from US$150 to US$300. These cost variations represent professionally informed estimates broadly consistent with the technical experience of many other countries with similar spatial settlement patterns in respect of densification. The total capex estimates for nearly 5 new million connections is about US$1 billion.

Table 1.2. Summary of NEP Financing Requirements

	Investment (US$, millions)	**Immediate Technical Implementation Support (US$, millions)**	**Subtotal (US$, millions)**
On-grid	975.0	42.0	1,017.0
Off-grid	382.5	6.0	388.5
Total	**1,357.5**	**48.0**	**1,404.5**

Figure 1.2. Comprehensive Electrification Approach under the Three Pillars of the NEP



Source: NEP-IRM.

14. **Pillar 1.** Given the unique situation of the electricity sector in Ethiopia (sufficiency of supply, relying on renewable sources, and vast network footprint), the core of the NEP in the early years will be around on-grid access expansion entailing a fast-paced ambitious grid connections rollout program implemented by the EEU starting in 2018 and designed for scaling up household connectivity nearly fivefold from today to over 14 million households by 2025 (equivalent to about 65 percent of the population in 2025 of about 22 million households). Pillar 1 is underpinned by a two-phase least-cost rollout strategy for implementation, comprising the following:

- **Densification.** Targeting last-mile connections to nearly 5 million households that are in the vicinity of the existing network infrastructure of the EEU. The initial connections mostly require short LV service drops and metering. The densification program will target connections in a balanced manner across the 15 regions of the EEU, to the extent technically feasible. Specifically, the connections will be selected not only in the proximate urban and peri-urban areas—where a substantial waiting list of paid customers exists and expectations are that this list can be readily augmented with promotion—but will in particular accord priority as well to densification in the vicinity of the outer reaches of the UEAP program network, in communities where the MV network has been extended but connectivity still remains limited after several years of waiting and the network can support new connections (and/or require limited upgrading). It is estimated that, overall, about 350,000 households are currently waiting for electricity services to be delivered. In addition, to immediate 'low-hanging' fruits of electricity connections, the first phase of the NEP also targets to achieve universal access for all social services delivery institutions, especially in the health and education sector.

- **Expansion.** Targeting connection of new customers outside of the existing vicinity of the network (about 8 million households not proximate to the grid), which will require both MV and LV extensions (as well as possible reinforcement of the transmission network and energy generation). Detailed design and preparation of the implementation of program will be informed by completion of the geospatial least-cost rollout plan.

Table 1.3. Grid and Off-Grid Connections Program and Electricity Access Targets (2018–2025)

Period		Households (millions)	New On-grid Connections (millions)[a]	Cumulative On-grid Connections (millions)	On-Grid Access Rate (%)	Off-Grid Access Rate (%)	Total Access Rate (%)
GTP-II	2016	18.0	0.1	3.6	20[b]	11[c]	31
	2017	18.5	0.2	3.8	21	11	33
	2018	19.0	0.5	4.3	23	11	34
	2019	19.5	0.7	5.0	26	11	37
	2020	20.0	0.8	5.8	29	13	42
GTP-III	2021	20.4	1.0	6.8	33	16	49
	2022	20.8	1.5	8.3	40	20	60
	2023	21.2	2.0	10.3	49	24	73
	2024	21.6	2.0	12.3	57	29	86
	2025	**22.0**	**2.0**	**14.3**	**65**[d]	**35**	**100**
GTP-IV	2026	22.6	2.0	16.3	72	28	100
	2027	23.2	2.0	18.3	79	21	100
	2028	23.8	2.0	20.3	85	15	100
	2029	24.4	2.0	22.3	91	9	100
	2030	**25.0**	**2.0**	**24.3**	**97**[e]	**3**	**100**

Note: a. Population estimates: United Nations Statistical Office, Ethiopia. Assumes 5.5 people per household (*Source:* CSA). 2016 population (estimate): 100 million (18 million households); 2020 population (estimate): 110 million (20 million households); 2025 population (estimate): 120 million (22 million households); 2030 population (estimate): 140 million (25 million households)

b. The 20 percent grid connection indicated for 2016 is representative of the estimates reported in other reports, which include meter lords, which by inference implies about 3.6 million grid connections (instead of the 2.4 million figure recorded in the EEU's customer account records). The following rows in this table are projected on the baseline of 20 percent.

c. The baseline for 2016 is based on about 2,046,000 stand-alone solar (including lanterns) and 8,000 mini-grid customer connections. For subsequent years (2017, 2018, and 2019) the rate for off-grid does not change because increases in off-grid solutions are not expected to greater than population growth.

d. To achieve the NEP's goal of universal access by 2025, the off-grid rollout program will target the remaining 5.7 million households not grid connected in 2025. The off-grid strategy and the IRM will further detail the targets for off-grid technologies and the institutional and implementation arrangements.

e. The table reflects the expectation, pending confirmation by the detailed geospatial planning study, that the grid is expected to be a least-cost solution for the overwhelming majority of Ethiopia's population (of the order of 97 percent). Depending upon the implementation rates achieved beyond 2020 and availability of financing, least-grid connectivity can be achieved even before that. The residual 4 percent reflects the share of population for which the grid is not projected to be the least-cost solution.

15. **Pillar 2.** Understanding that the expansion of on-grid service is a multi-decade undertaking, support for sustainable and affordable off-grid service provision (SAS for homes and institutions or mini-grid system for remote communities) will be carried out under the NEP, to be developed concurrently with on-grid expansion. Pillar 2 of the NEP targets the off-grid segments that are not included in Pillar 1 and cannot be reached by the grid within the next 5–10 years. The two main sub-programs are the following:

- **Stand-alone solar systems.** Targeting the rollout of stand-alone systems through a combination of public and private sector-led approaches. The private sector would be supported by a combination of market development support and access to finance programs (such as credit facilities provided by the DBE). In remote areas of the country where the private sector has not established distribution networks, public modalities (for instance, through the MoWIE and EEU) will be incorporated.

Box 1.2. Private Sector Initiatives Supported by the DBE

MFIs and PSEs have been important players in the provision of solar lighting and charging products and solar home systems. Through credit lines at the DBE (serving as a financial intermediary for funding provided by the World Bank), over 1,000 solar home systems and 779,514 Lighting Global certified solar lanterns have been distributed to the Ethiopian population.

Training was provided to ensure proper appraisal of technologies, products, and services, as well as to set and adhere to quality standards of the sector. Supplemental capacity-building activities to strengthen the capacity of MFIs in administering their credit line as well as their coordination with other stakeholders (that is, REBs), business development, and community engagement are ongoing.

Approved MFIs provide affordable financing to rural communities entering tripartite agreements with the REBs and selected PSEs to procure and install off-grid products for the customer. The DBE has been mostly working with 5 MFIs, within a network. The eight PSEs involved are approved retailers who can access credit and foreign exchange to import and commercialize products. The enterprises have already sold about 530,000 units, out of which 600 solar home systems (6–12 Wp) and the remaining are lanterns and mobile charging units. About 100 technicians have been trained to provide after-sales services in support to PSEs.

- **Mini-grids.** Targeting the rollout of micro-/mini-grids with local LV networks and powered by appropriate renewable energy resource, implemented through a combination of public and private sector-led approaches. The private sector would participate using the new PPP concession framework which will be established under revised Energy Regulation. There would also be areas in the country, to a limited extent, which would be prioritized for public sector-led implementation (for instance, through the MoWIE and EEU).

Box 1.3. Isolated Mini-grids: Achievements to Date

The EEU operates a number of isolated diesel generation-distribution systems where grid power is not yet available. Out of 37 mini-grids constructed, five have been successfully connected to the grid and the remaining are mostly located in the Somali region. About 35 percent of the mini-grids have an installed capacity of 100 kW, with one site at 520 kW and the remaining between 150 kW and 360 kW, and about 8,000 connections are estimated to be currently provided through these existing installations.

Table 1.4. Installed Capacity and Number of Connections Provided by the EEU Diesel Mini-grids

Installed kW	No Sites	%
100 & 150 kW	14	39%
200 & 250 kW	8	22%
320 & 360 kW	8	22%
520 kW	1	3%
grid connected	5	14%

Connections	No Sites	%
no data	17	47%
1-250	11	31%
251-500	4	11%
501-750	2	6%
1,001-1,250	1	3%
1,251-1,500	1	3%

Source: NRECA, EEU 2016.

The Government is also collaborating with DPs for the piloting of mini-grids powered by renewable energy sources. The United States Agency for International Development (USAID) is conducting a feasibility analysis for the conversion of the EEU's diesel mini-grids to renewable energy power, five hydroelectric sites identified by Water Works Enterprise, and several clusters of un-electrified villages to evaluate mini-grid solutions for access provision. The European Union is financing five hydro mini-grids implemented by *Deutsche Gesellschaft für Internationale Zusammenarbeit*, testing a model for renewable energy distributed generation that is currently based on cooperatives, but aims at scaling up the market for private or public agencies, as well as by a combination of both. In collaboration with the Korean International Agency Cooperation, the UEAP will also launch two hydro mini-grids in 2017.

16. Table 1.5 depicts an illustrative rollout trajectory of the two main technical delivery modalities for off-grid access scale-up. The investment requirements are based on available information on the average cost for stand-alone solar solutions (US$250, for systems up to 130 Wp) and mini-grids unit cost per connection (averaged at US$1,500).

17. These numbers are not intended to pre-allocate targets by technology or delivery modality or by sub-program, but they only serve as initial guides for undertaking a detailed operational design of the four operational subcomponents outlined in the following paragraphs. With unfolding implementation experience and results achieved in the field in relation to the target expectations, adjustments in the Program's subcomponent design along the way, as and when warranted, will be proposed to the Government for review, guidance, and, as necessary, approvals.

Table 1.5. Indicative Off-grid Connections Rollout

Year	SAS	Mini-grids	Total
2019	250,000	100,000	350,000
2020	400,000	250,000	650,000
2021	550,000	250,000	800,000
2022	750,000	350,000	1,100,000
Sub-total	1,950,000	950,000	2,900,000
Financing requirements (US$, millions)	**97.5**	**285**	**382.5**

18. **Pillar 3.** This pillar focuses on providing the necessary technical assistance and capacity-building support that is required for sector institutions to achieve the ambitious targets set under

Pillars 1 and 2. This includes a comprehensive program with a focus on utility reform and improvements in the following areas: (a) planning capabilities; (b) technical capacities (including commercial efficiency, see Box 1.4); (c) FM functions; (d) streamlining procurement; (e) transparency, accountability, and governance; (f) environmental and social safeguards; (g) gender equity; (h) overall skill development of the sector; and (i) long-term sector financial viability. The Government recognizes that capital investments alone will not be sufficient to enable effective implementation of the NEP-IRM program. Table 1.6 provides summary highlights of the immediate priority technical assistance support components—studies, directly supporting the detailed design of operational implementation plans on-grid, off-grid, and related capacity strengthening.

Table 1.6. NEP - Implementation Support Activities, To Be Completed by End-2018

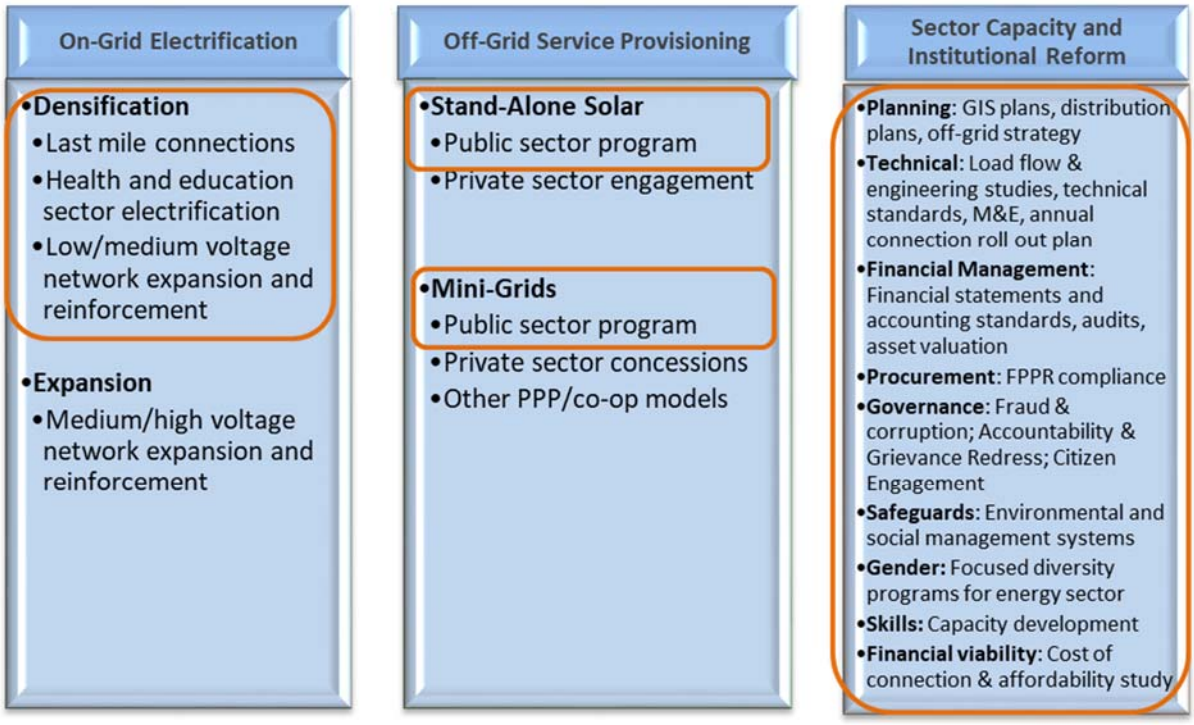
Activity	Scope	US$, millions	Leading Agency
1. Technical, operational, and management plan for the 4.5 million customer connection program (2018–2022)	Detailed network design and costing of 4.5 million connections, staged across regions and feeders by quarter for each year; corresponding procurement, warehousing and logistics plan, construction works, and technical services mobilization	5.0	EEU
2. Distribution rehabilitation master plan (2018–2025)	Distribution network technical design and investment program—feeder level—for all 15 regions to support the NEP connections rollout; assess adequacy of demand-supply power balance at each bulk power delivery substation via the transmission grid	4.0	EEU
3. GIS least-cost rollout plan for grid and off-grid and high-level investment financing prospectus	Optimal modality (grid and off-grid) for access provision, taking into account technical and economic viability, geo-referenced demand centers, and load forecasts; anchoring yearly rollout plans and targets, as well as the financing prospectus and financing gap	1.5	EEU
4. Off-grid operational program strategy and design for stand-alone solar systems and mini-grids (2018–2025)	Operational strategy for off-grid pre-electrification program for scale-up of stand-alone solutions and mini-grids through public, private, and PPP delivery systems (complementing grid rollout); informed by the GIS least-cost plan	6.0	DoE
5. Comprehensive NEP-IRM performance monitoring and tracking system	Monitoring of KPIs for efficiency, effectiveness, and progress against NEP-IRM targets and for course adjustments as and when appropriate	5.5	DoE
6. Cost of connection study	Design of an affordable connection policy for achieving universal access	1.0	DoE/ EEU
7. Social institutions priority connection implementation program design	Detailed assessment of numbers and types of facilities (including water points), mapping, and dimensioning of key end uses requiring electricity for service delivery (cold chain, simple vaccine and medicine refrigeration, lighting, and sterilization); for off-grid solar powered facilities, assessment of service quality, reliability, power equipment, and maintenance standards; detailed design of targeted implementation rollout to achieve Program targets	2.0	DoE
8. Sector financial viability study	Analysis of sector revenues and cost structures with ongoing and planned revenues allocation to the Program	1.5	DoE

Activity	Scope	US$, millions	Leading Agency
9. Special topical studies: **a. Low-cost technical standards** **b. Manufacturing capacity** **c. Productive uses**	a. Lowering of network design and construction and demand-side management measures b. Development of local manufacturing for network and service equipment c. Design of a program for productive uses of electricity services	1.5	a. EEU b. DoE c. DoE
10. Sector-wide capacity building	Capacity building and financial support to sector stakeholders for the NEP implementation, informed, among others, by the immediate and key needs identified for the successful ramp-up of grid connections and pre-electrification program	20.0	DoE/ EEU
Total		**48.0**	

Program Boundaries

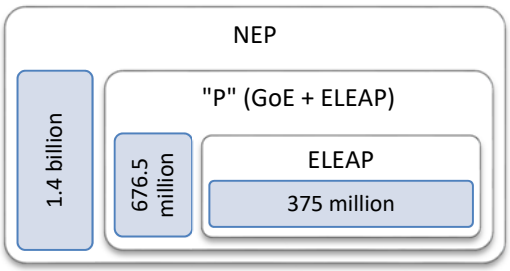
19. The Program will support the implementation of the NEP, with focus on scaling up electricity connections in areas within the network reach under Pillar 1 (densification) as well as increasing access to specific targeted off-grid technologies under Pillar 2 (public programs supporting SAS and mini-grids). Strong emphasis will be given to Pillar 3 (sector capacity and institutional reform) as this pillar plays a crucial role in achieving the ambitious targets with regard to grid electrification and off-grid.

Figure 1.3. Program Boundaries



Source: NEP-IRM.

Figure 1.4. Program Financing (in US$)



20. **Activities under Results Area 1: Increase access to electricity connections to households in areas covered by the power grid through large scale and programmatic densification of electricity connections, including installation of LV extensions, service drops, metering and limited installations or rehabilitation of MV lines.** Densification of consumer connections in areas that have been recently electrified will allow to increase connection rates at a more rapid pace and maximize the impact of the ongoing process of geographic expansion of distribution coverage. Densification will result in improved cost-efficiency of the electrification program and significantly increased economic benefits in the targeted areas. While a comprehensive access program over the medium term and beyond will be more systematically defined with geospatial planning resources, substantial progress can be made on an immediate basis by implementing densification activities in areas where the network can support new connections (expected to be over a million connections per year) and a significant waiting list already exists. The World Bank and other DPs are also supporting the GoE with technical assistance activities to develop a nationwide geospatial least-cost plan, which will guide the optimal strategy for sequencing the rollout of on- and off-grid connections to achieve universal access. Activities for the initial connections will mostly include installation of service drops (that is, short LV and metering), while a few connections might require limited MV extensions.

21. **Activities under Results Area 2: Increase access to off-grid electricity through provision of support for pilot-scale off-grid service delivery activities, including off -grid electrification of communities using renewable energy mini-grids (such as solar and hybrid), as well as installation of SAS for beneficiaries in these communities.** While the ongoing private sector-led off-grid market development activities and off-grid service delivery will continue (and be scaled up), the GoE, under the NEP, is also planning on scaling up public sector-led off-grid programs. This includes mini-grids and SAS for remote areas of the country, where the grid will not reach in the near term and where the private sector will not serve. While the comprehensive off-grid strategy is under development, the proposed ELEAP will support pilot-scale off-grid service delivery activities, that is, off-grid electrification of up to five communities using renewable energy mini-grids (solar or hybrid), as well as SAS for households in these communities which cannot be viably connected through mini-grids.

22. **Activities under Results Area 3: Strengthen sector capacity and institutional reform.** Support under ELEAP will address the key elements of Pillar 3 of the NEP, which focuses on supporting sector capacity and institutional reform in the Government's electrification program, specifically improving the planning capacity of EEU and MoWIE to implement the Program through, inter alia, (a) preparation of annual connection and roll-out plans; (b) establishment of the DoE and an integrated M&E system; (c) production of International Financial Reporting Standards Compliant Audited Financial Statements (without disclaimer opinion); (d) performance

improvements of procurement processes; (e) production of reports on F&C allegations; (f) preparation of reports on CE and gender; (g) improvement of customer satisfaction; and (h) establishment and maintenance of an ESMS.

23. **Excluded activities.** The Program will not support activities that are likely to have significant adverse impacts that are sensitive, diverse or unprecedented on the environment and/or affected people. The Program will also exclude activities that involve the procurement of (a) works, estimated to cost US$50,000,000 equivalent or more per contract; (b) goods estimated to cost US$30,000,000 equivalent or more per contract; (c) non-consulting services, estimated to cost US$20,000,000 equivalent or more per contract; and (d) consulting services, estimated to cost US$15,000,000 equivalent or more per contract.

24. **Program Development Objective**. The objective of the Program is to increase access to electricity in Ethiopia and to enhance institutional capacity for planning and implementation of the Government's electrification program.

25. The following outcome indicators will be used to measure the achievement of the PDO:

- **PDO Indicator 1:** Number of people provided with on-grid electricity services
- **PDO Indicator 2:** Number of people provided with off-grid electricity services
- **PDO Indicator 3:** Improved planning and implementation capacity of the electricity sector

Implementation Arrangements

26. As illustrated in Figure 1.5, the line ministry for achieving the targets under the NEP will be the MoWIE. The DoE, to be established under the MoWIE, will be the entity responsible for Program oversight and monitoring progress. The DoE will oversee the electrification program and facilitate successful implementation of the goals and objectives of the NEP through the implementation agencies, including the UEAP, EEU, and REF. In addition, the MoWIE (through the DoE) will be an implementing agency under Results Area 3 and will be responsible in achieving some of the policy-related results. Because the overall burden of Program oversight will fall to the DoE, the Program, through a DLI under Results Area 3, incentivizes the strengthening of the DoE's capacity with regard to FM, procurement, M&E, and verification. In addition, a Steering Committee comprising cross-sectoral members and other experts will be formed to provide sector oversight and interagency coordination. The implementing agency for activities under Results Area 1 and 2 will be the EEU. For Results Area 1, activities will be implemented jointly by the Retail and Wiring Unit (under the Distribution Department), as well as the UEAP Unit. The Retail Unit is very well presented across the country on a district level. Results Area 2 will be implemented by the UEAP. As the technical assessment pointed out, close coordination between these three entities within the EEU will be required to facilitate a smooth transition from building the infrastructure to taking over additional customer base. The connection procedures are currently being reviewed and simplified.

27. To facilitate the carrying out of the Program implementing agency's respective parts of the Program, MoFEC will sign a subsidiary agreement with EEU, which will include the following: (a) the principal amount of the financing made available under the subsidiary agreement; and (b) EEU's responsibility in (i) carrying out the Program Action Plan; (ii) implementing EEU related activities under the Program; (iii) ensuring that none of the excluded activities mentioned in

paragraph 23 are carried out under the Program; (iv) providing necessary information to GoE to comply with reporting requirements; (v) taking actions necessary to achieve DLIs.

28. Technical aspects, FM, procurement, and environmental and social aspects of the proposed operation fall under the responsibility of both implementing agencies—MoWIE and EEU—while program monitoring and audits lie with the MoWIE, that is, the DoE.

29. A POM will be developed setting out detailed institutional, administrative, financial, technical and operational guidelines and procedures for the implementation of the Program and Program Action Plan, including (i) detailed safeguards (including ESMS guidelines prepared in accordance with the legal agreements), (ii) FM (including fund flow and budgeting) and procurement arrangements; and (iii) a monitoring and verification system for the Program. The adoption of the POM is a dated covenant under the Program and will have to be adopted by EEU one month after the Effective Date. Any changes to the POM are subject to no-objection from the World Bank.

30. Skill development within the sector institutions is a core aspect of the sustainability of the NEP and is, therefore, a key focus of ELEAP. The continual and rapid expansion of electrification in Ethiopia will require extensive capacity-building support not only for the electricity sector institutions, MoWIE and EEU, but also for the broader sector participants such as academic institutions (universities and vocational training center) and community and other local stakeholders. The NEP activities will be supported by ELEAP or associated World Bank operations.

(a) **Sector institutions (EEU and MoWIE).** Currently, EEP is conducting on-the-job trainings for newly recruited staff of both utilities. In the near future, the EEU will be setting up a training center of excellence providing necessary additional industry-specific trainings to university, college, and TVET graduates. Under ELEAP, comprehensive training, technical assistance, and capacity-building support will be provided for sector institutions for technical and planning skills development, program management, M&E, and fiduciary systems and safeguards management, as well as for transition to customer-oriented business processes.

(b) **Academic institutions.** Twice a year, the EEU offers two- and four-month apprenticeships, providing on-the-job training for up to 100 college and university students, respectively. Graduate students in electrical engineering and information and communication technologies are provided with a six-month training before being placed in remote areas for two years, mainly being responsible for maintenance of the existing mini-grids. In addition, the EEU has established collaboration with TVET institutions across the country that shall attract more technicians. However, quality of the university, college, and TVET education and the limited number of graduates provide a challenge in meeting the utility's demand for both high-skilled labor and technicians. Deeper interlinks will be supported (under the pipeline regional IDA skills development project) with relevant local universities and TVET programs to prepare a pipeline of skilled labor force for the electricity sector.

(c) **Community and local stakeholders.** Capacity development support will also be provided (under ELEAP) to broader stakeholders in the electricity sector, such as community groups, local industry participants, women, and civil society organizations.

Support for Sector Institutions (EEU and MoWIE)

(i) **Sector-wide capacity-building activities for sector institutions.** Training and capacity building will be provided across sector institutions, including the MoWIE (DoE and REF), REBs, Woreda administrations, EEU, and EEA, for the successful implementation of the NEP and establishment of an enabling environment for grid and off-grid connections rollout. Capacity-building activities for the DoE will include FM, procurement, M&E, and verification and will strengthen the capacity of the new staff in the DoE to effectively administer the Program on a day-to-day basis and support the work of the Steering Committee. With the shift in focus toward electricity service delivery, concerted efforts are also under way at the EEU to optimize its commercial processes through (i) upgrading of systems and tools (installation of a comprehensive ERP system and implementation of a GIS); (ii) review of organizational structure (departmental reorganization, revaluation of the EEU-regulated asset base and shifting from Generally Accepted Accounting Principles (GAAP) to IFRS, and so on); and (iii) reengineering of policies and business process with a focus on service quality (see Box 1.4).

(ii) **Establishment of a comprehensive performance monitoring and tracking system for the NEP-IRM.** Establishment and monitoring of KPIs for efficiency, effectiveness, and progress against grid and off-grid targets and for course adjustments as and when appropriate by relevant actors (for example, the EEU, DoE). The system will include regular reporting (for example, quarterly and annual) of program progress, analysis of impacts, and the creation of a performance-based dashboard with inputs from relevant ministries (for example, Health and Education) and will appropriately interface with GIS information and the management information system.

(iii) **Detailed technical design and operational management plan for the implementation of the connections program (2018–2022)** in synergy with the EEU's Modernization Team.[22] The technical network and operational design will also support the EEU's procurement, warehousing, logistics, construction works, and retail. The plan will be prepared by distribution engineers and consultants supporting and building planning capacity for the EEU and will be characterized by different time coverages, reflecting a realistic and grounded approach to implementation opportunities and challenges (prioritizing the current waiting list where the network can support new connections and move further informed by the results of the distribution rehabilitation master plan, connection policy, and results of the GIS least-cost plan).

(iv) **Nationwide power system distribution master plan,** including the update of the already existing plan for the four Addis Ababa area regions. Led by the EEU, a nationwide distribution network strengthening plan and costing plan will be devised (at the individual feeder level) to enable the rapid scale-up of densification of

[22] The Modernization Team has been recently established as the focal point to assess and address current bottlenecks for connections rollout and work with DPs. It is composed of the Chief Technical Adviser to the EEU CEO, the heads of the UEAP, as well as of the EEU Corporate Planning, Corporate Retail, and Information and Communication Technology Departments. Most members of the team previously worked on the BPR that led to the unbundling of the sector.

customer connections in the next five years. This technical and investment plan should be largely completed by mid-2018 and no later than July 2019 to inform, in sufficient detail, the preparation of the business and implementation plan for 2020, 2021, 2022, and beyond. This will enable preparation of procurement specifications and bidding documents for major categories of equipment and materials required to undertake the physical program of connections rollout and secure adequate investment financing.

(v) **Off-grid strategy and implementation plan.** The GoE will adopt an off-grid operational program design for 2019–2022 and beyond to be implemented alongside and complement grid developments for the achievement of universal access by 2025. The off-grid program will target rural and deep rural beneficiaries, incrementally shifting the geographic focus from current peri-urban beneficiaries. The program will serve (i) pre-electrification—transitional—needs and (ii) where the grid is not projected to be the least-cost solution due to remoteness, isolation and scattered household patterns. The program will have two main drivers: public sector and private sector-led efforts, to ensure scale and speed of program delivery and comprehensive geographic outreach of electricity services (deep rural areas).

(vi) **Affordable connections study.** Led by the DoE, the study should be conducted in 2017–2018 with recommendations drafted by the end of 2018 to allow for the GoE's consideration and adoption of a connections policy by early 2019. The policy will provide a key input for access provision for 2020 onwards, when the electrification program will start providing connections beyond the paid and unpaid waiting list (for whom the connection is affordable). The study will focus on front-end affordability measures (for example, connection payment through installments) and demand-side management mechanisms and will be informed by the Multi-Tier Framework (MTF) analysis, the geospatial least-cost plan, and other best information available (leveraging on triangulation of sources) to provide recommendations to the GoE for the design of a connection cost policy.[23]

(vii) **Social institutions connection program.** A detailed design and operational implementation plan for the achievement of the NEP targets for the priority social facilities connection program. The study will include a geo-referencing of social facilities (schools and clinics); a detailed dimensioning of key end uses that require electricity for service delivery (cold chain, simple vaccine and medicine refrigeration, lighting, sterilization); and an assessment of the current performance of electricity services provided, whether grid or off-grid, and the upgrading required at existing facilities classified as having some access. For off-grid solar powered facilities, the assessment will include power equipment and maintenance standards and provide options for standardized solar packages appropriate for supporting service delivery and informed by the United Nations Children's Fund, the World Health Organization and other appropriate guidelines. The consultant will also assess the 10,000 water supply points identified for the development of for example, water pumps. Finally, the consultant will work with counterparts in the Federal Ministries of Education and

[23] The study could identify information gaps (that cannot be filled by triangulation of available sources) that might require conducting further surveys in the frontier areas of the rollout to geospatially detail the affordability of connection fees and energy consumption by decile. This effort would constitute a separate analysis.

Health, as well as with the MoWIE and EEU. The study should be completed by the end of 2018 for implementation to be launched at the beginning of 2019.

(viii) **Long-term sector financial viability study.** Analysis of sector revenues and cost structures (inflows and outflows) with ongoing and planned revenues allocation to the Program, including export revenues, and cost reduction resulting from private sector engagement in the sector. More specifically, the study will include (i) power supply costs, reflecting future shifts in the bulk power supply generation mix and cost structure; (ii) revenue generation projected from regulated cost recovery-based electricity tariffs on the basis of commercial principles and best practices of the sector to encourage competition, efficiency, and economical use and maintain reliability and system security; and (iii) the growing stream of revenue inflows from projected power surplus export revenues in the coming years. The study will provide recommendations for the Government's consideration on choices to ensure the long-term financial viability of the sector.

(ix) **Special topical studies: low-cost technical standards, manufacturing capacity, and productive uses.** The analysis will inform the adoption of efficient network design and development of the local manufacturing capacity to produce low-cost materials and conduct a rapid appraisal of entrepreneurship in Ethiopia and current challenges encountered with the arrival of the grid to inform the scope and design of a specific program. The study will be conducted in 2018 for the rapid adoption of low-cost construction standards and improved construction works efficiency and the productive uses program to start implementation in 2019.

Box 1.4. Optimizing Commercial Processes of the EEU

With the shift in focus toward electricity service delivery rather than just electricity infrastructure development, concerted efforts are now under way at the EEU to optimize its commercial processes and become a world-class, customer-centric utility. This process was started with unbundling of the vertically integrated utility, EEPCo, into EEU and EEP, to allow for greater strategic and operational control over different segments of the power sector value chain. On its part, the EEU has been planning to improve the commercial processes in three buckets of interrelated activities:

(i) **Upgrading systems and tools.** The EEU has embarked on a multiyear, multifaceted process of comprehensively modernizing its back-office information technology (IT) systems, tools, and resources, to allow it to become a much more efficient corporation. Under this effort, a US$50 million flagship program, supported by the World Bank (ongoing ENREP), is preparing to install a state-of-the art Enterprise Resource Planning (ERP) system at the EEU. This Oracle- and SAP-based ERP system will not only allow automation of the EEU's day-to-day workflow (corporate functions, such as, finance and internal controls, human resources, payroll, procurement, inventory, quality management, project management, asset management) but will also include commercial processes and activities (Customer Relationship Management) and will allow for integration of billing, accounting, and maintenance systems (customer care, meter, and device management). In addition, these systems will allow the EEU to improve its strategic planning and management activities through business intelligence and data warehouse applications. A comprehensive GIS is also under development, supported by the World Bank (ongoing ESMAP technical assessment), which will allow for digitization of the EEU's network and assets under management. This will not only revolutionize the EEU's technical planning capabilities but will also improve the reliability of information on customers and the infrastructure used to serve them.

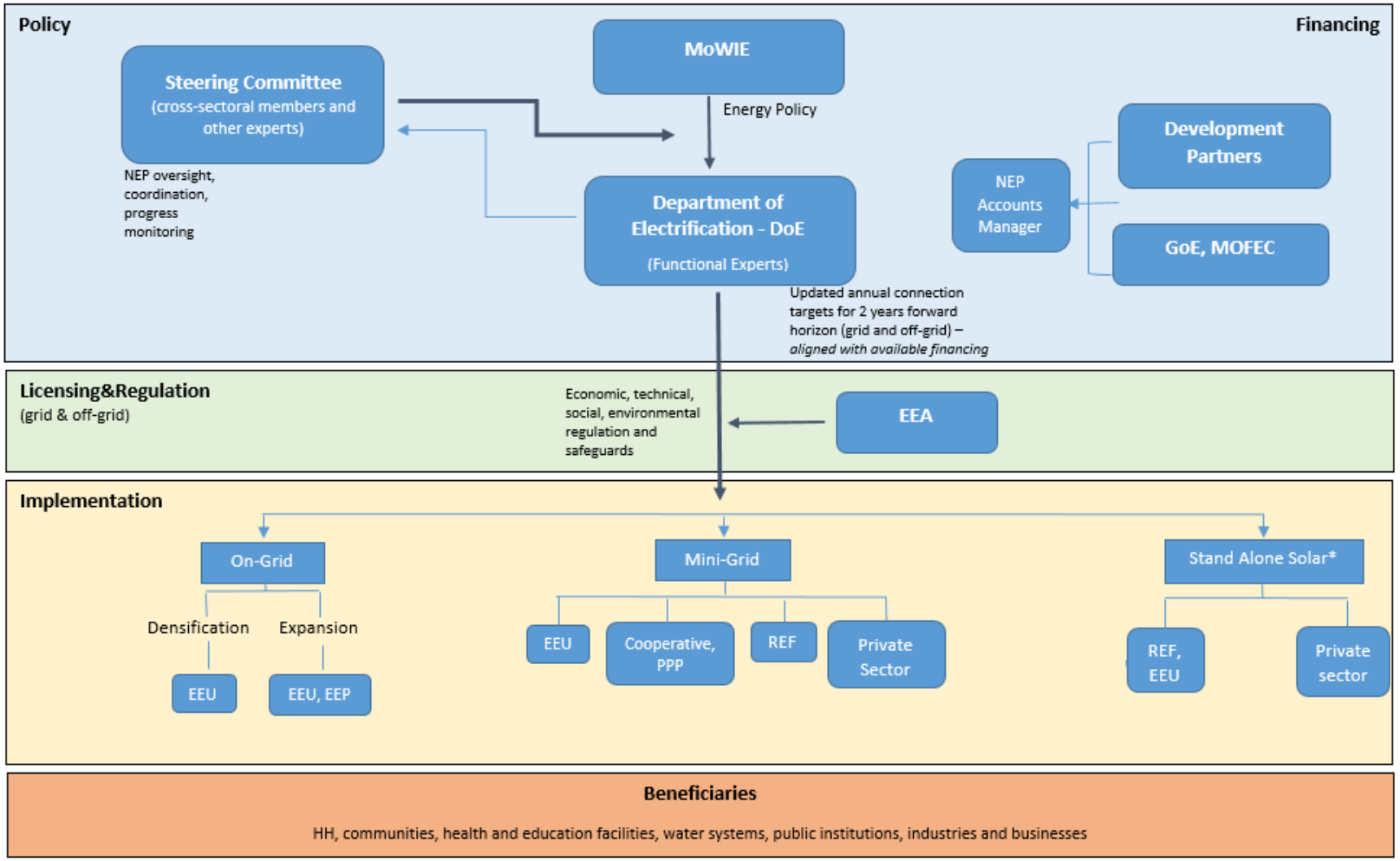
(ii) **Reviewing organizational structures and policies.** The EEU is not only upgrading its systems and tools but is also carrying out a deep diagnostic exercise to isolate bottlenecks in its organizations structure and policies which may be preventing it from scaling up electrification rates significantly. This includes a detailed process of departmental reorganization, as well as revaluation of its regulated asset base, which will take a complete inventory of the EEU's assets for the first time since its unbundling. Furthermore, the

EEU is also reviewing its policies in handling financial and accounting functions, which would assist it in preparing for more globally accepted benchmarks, such as shifting from Generally Accepted Accounting Principles (GAAP) to IFRS. Overall, the motivation behind this exercise is to provide focus to its core business processes and activities, such as registering new users in its customer database; conducting regular activities of the revenue cycle (metering, billing, collection, management of unpaid bills, and so on); and attending to customers both in aspects related to electricity supply and commercial issues.

(iii) **Business Process Reengineering.** Finally, based on the outcomes of the above two steps, the EEU is undergoing a BPR exercise to improve and streamline delivery functions, improve the supply chain, and address past delivery delays related to planning, procurement, warehousing, and so on. One of the major outcomes of the BPR exercise has been the EEU's focus on further strengthening its quality of service delivery to its customers. The utility is currently in the process of improving its complaint-handling mechanisms—the national rollout of the '905 Call Center' is ongoing and is being complemented by 'integrated utility kiosks' at a Woreda level across the country. These kiosks are designed for customers to pay their bills and submit complaints.

These actions being undertaken by the EEU will have a substantial impact on the utility, requiring strong continued support from the leadership; customization of these tools, processes, and practices for local context; and intensive training of staff and eventually focusing on behavior changes in the organization to adapt to the new functionalities. The optimized commercial processes and activities will ensure efficient, transparent, and accountable execution of all commercial functions with the support of the EEU leadership.

Figure 1.5. Implementation Arrangements



*Financial intermediaries, such as the Development Bank of Ethiopia (DBE) will also provide financing to public and private implementation agents.

Note: HH = Household.

Annex 2: Results Framework Matrix

Results Areas Supported by the PforR	PDO/Outcome Indicators	Intermediate Results (IR) Indicators	DLI #	Unit of Measurement	Baseline (Year)	End Target (Year)
Results Area 1: Increase access to on-grid electricity in areas covered by the power grid	PDO Indicator 1: Number of people provided with on-grid electricity services			Number	0 (2017)	5,400,000 (2023)
		IR Indicator 1.1: Cumulative number of residential grid electricity connections made under the Program	1	Number	0 (2017)	1,080,000 (2023)
		IR Indicator 1.2: Cumulative number of non-residential grid electricity connections made under the Program		Number	0 (2017)	54,000 (2023)
		IR Indicator 1.3: Households connected to the grid under the Program that are female-headed		Percentage	n.a. (2017)	24 (2023)
Results Area 2: Increase access to off-grid electricity	PDO Indicator 2: Number of people provided with off-grid electricity services			Number	0 (2017)	255,000 (2023)
		IR Indicator 2.1: Households provided with electricity through mini-grids and SAS		Number	0 (2017)	51,100 (2023)
		IR Indicator 2.2: Cumulative number of mini-grids installed	2	Number	0 (2017)	5 (2023)
		IR Indicator 2.3: Cumulative capacity of renewable energy installed through mini-grid projects under the Program		kW	0 (2017)	300 (2023)
		IR Indicator 2.4: Cumulative number of stand-alone solar PV systems installed	2	Number	0 (2017)	50,000 (2023)
Results Area 3: Strengthen sector capacity and institutional reform	PDO Indicator 3: Improved planning and implementation capacity of the electricity sector			Yes/No[a]	No (2017)	Yes (2023)

Results Areas Supported by the PforR	PDO/Outcome Indicators	Intermediate Results (IR) Indicators	DLI #	Unit of Measurement	Baseline (Year)	End Target (Year)
		IR Indicator 3.1: Strengthen sector institutional capacity	3	Milestones [a]	No milestone achieved (2017)	All milestones achieved (2023)
		IR Indicator 3.2: Improved cost-effectiveness of Program		Milestones [a]	No milestone achieved (2017)	All milestones achieved (2023)
		IR Indicator 3.3: Strengthen sector planning capacity	4	Milestones [a]	No milestone achieved (2017)	All milestones achieved (2023)
		IR Indicator 3.4: Strengthen fiduciary systems	5	Milestones	No milestone achieved (2017)	All milestones achieved (2023)
		IR Indicator 3.5: Improve gender and CE systems	6	Milestones [a]	No milestone achieved (2017)	All milestones achieved (2023)
		IR Indicator 3.6: Women in STEM: Percentage women's employment at EEU		Percentage	20 (2017)	30 (2023)
		IR Indicator 3.7: Strengthen safeguards systems	7	Milestones [a]	No milestone achieved (2017)	All milestones achieved (2023)
		IR Indicator 3.8: Number of EEU and MoWIE staff trained under the Program		Number	0 (2017)	200 (2023)

Note: a. Milestones for indicators are described in the 'Indicator Description' table.

Indicator Description

Indicator Name (#)	Description	Frequency	Data Source	Methodology for data collection	Responsibility for Data Collection	Responsibility for Data Verification [c]
Results Area 1: Increase access to on-grid electricity in areas covered by the power grid						
1.0	**PDO Indicator 1: Number of people provided with on-grid electricity services** [a]	Annual	EEU monitoring reports	EEU customer database	EEU	
1.1	Cumulative number of residential grid electricity connections made under the Program	Annual	EEU monitoring reports	EEU customer database	EEU	CSA
1.2	Cumulative number of non-residential grid electricity connections made under the Program	Annual	EEU monitoring reports	EEU customer database	EEU	
1.3	Households connected to the grid under the Program that are female-headed	Annual	EEU monitoring reports	EEU customer database	EEU	
Results Area 2: Increase access to off-grid electricity						
2.0	**PDO Indicator 2: Number of people provided with off-grid electricity services**	Annual	EEU monitoring reports	EEU database	EEU	
2.1	Households provided with electricity through mini-grids and SAS	Annual	EEU monitoring reports	EEU database	EEU	
2.2	Cumulative number of mini-grids installed	Annual	EEU monitoring reports	EEU database	EEU	CSA
2.3	Cumulative capacity of renewable energy installed through mini-grid projects under the Program	Annual	EEU monitoring reports	EEU database	EEU	
2.4	Cumulative number of stand-alone solar PV systems installed	Annual	EEU monitoring reports	EEU database	EEU	CSA
Results Area 3: Strengthen sector capacity and institutional reform						
3.0	**PDO Indicator 3: Improved planning and implementation capacity of**	Annual	EEU/MoWIE monitoring reports	EEU and MoWIE databases	MoWIE/EEU	

Indicator Name (#)	Description	Frequency	Data Source	Methodology for data collection	Responsibility for Data Collection	Responsibility for Data Verification [c]
	the electricity sector, as per achievement of below indicators.					
3.1	*Strengthen sector institutional capacity:* DoE is established and has put in place integrated M&E system, that is maintained throughout the Program.	Annual	EEU/MoWIE monitoring reports	EEU and MoWIE databases	MoWIE/EEU	IVA
3.2	*Improved cost-effectiveness of Program:* Finalization and implementation of affordable connections study and long-term financial sustainability study	Annual	EEU/MoWIE monitoring reports	EEU and MoWIE databases	MoWIE/EEU	
3.3	*Strengthen sector planning capacity:* Annual connection rollout plans adopted by EEU	Annual	EEU/MoWIE monitoring reports	EEU and MoWIE databases	MoWIE/EEU	IVA
3.4	Strengthen fiduciary systems	Annual	EEU/MoWIE monitoring reports	EEU and MoWIE databases	MoWIE/EEU	IVA
3.5	*Improve gender and CE systems:* Gender and CE work program approved in first year of Program; Gender and CE report updated annually; Annual customer satisfaction in key aspects of the Program was equal or higher than last year's, as per annual surveys (between July 8, 2019 through July 7, 2022)	Annual	EEU/MoWIE monitoring reports	EEU and MoWIE databases	MoWIE/EEU	IVA
3.6	*Women in STEM:* Increase women's employment at EEU	Annual	EEU monitoring reports	EEU	EEU	

Indicator Name (#)	Description	Frequency	Data Source	Methodology for data collection	Responsibility for Data Collection	Responsibility for Data Verification [c]
3.7	*Strengthen safeguards system:* ESMS established and operational according to the adopted guidelines. ESMS being established includes (a) environmental and social safeguards guidelines (in compliance with Ministry of Environment, Forest, and Climate Change, MoEFCC) are prepared; and (b) environmental and social safeguards specialist (minimum 1) as well as occupational health and safety specialist (minimum 1) are recruited at national level and EEU's regional offices. ESMS being operational means: (a) screening of subprojects; (b) systematic preparation of safeguards documents and measures; (c) systematic and timely implementation of recommendations; and (d) GRM operational	Annual	EEU/MoWIE monitoring reports	EEU and MoWIE databases	MoWIE/EEU	IVA
3.8.	*Number of EEU and MoWIE staff trained under the Program:* Cumulative number of staff in EEU and MoWIE receiving training under the Program	Annual	EEU/MoWIE monitoring reports	EEU and MoWIE databases	MoWIE/EEU	

Note: a. The target ('Yes') for PDO Indicator 3 is achieved upon achievement of IR Indicators 3.1 through 3.8.

b. Improved fiduciary systems: achievement of FM, procurement, and governance milestones, as described in DLI 5 and Program Action Plan. c. Only applicable for DLIs.

Annex 3: Disbursement Linked Indicators and Verification Protocols

	Total Financing Allocated to DLI (in US$, millions)	As % of Total Financing Amount	DLI Base line	Indicative Timeline for DLI Achievement					
				Year or Period 1 (January 8– July 7, 2018)	**Year or Period 2 (July 8, 2018– July 7, 2019)[24]**	**Year or Period 3 (July 8, 2019– July 7, 2020)**	**Year or Period 4 (July 8, 2020 –July 7, 2021)**	**Year or Period 5 (July 8, 2021 –July 7, 2022)**	**Year or Period 6 (July 8, 2022– -July 7, 2023)**
DLI 1: Establish on-grid electricity connections			0	50,000	150,000 On-Grid Electricity Connections established (cumulative)	300,000 On-Grid Electricity connections established (cumulative)	500,000 On-Grid Electricity connections established (cumulative)	750,000 On-Grid Electricity Connections established (cumulative)	1,080,000 On-Grid Electricity Connections established (cumulative)
Allocated cumulative amount (US$, millions)	324.0	86.40		30.0	80.0	140.0	200.0	258.0	324.0
DLI 2: Establish off-grid electricity access			0	0	0	2.1. Two mini-grids installed (cumulative) (US$1.5 million per mini-grid)	2.1. Three mini-grids installed (cumulative) (US$1.5 million per mini-grid)	2.1. Four mini-grids installed (US$1.5 million per mini-grid)	2.1. Five mini-grids installed (US$1.5 million per mini-grid)
						2.2. 20,000 SAS installed (cumulative) (US$140 per SAS)	2.2. 30,000 SAS installed (cumulative) (US$140 per SAS)	2.2. 40,000 SAS installed (cumulative) (US$140 per SAS)	2.2. 50,000 SAS installed (cumulative) (US$140 per SAS)
Allocated cumulative amount (US$, millions)	14.5	3.87		0	0	5.8	8.7	11.6	14.5
DLI 3: Strengthen			0	3.1. DoE is established,	3.2. DoE and the Integrated	3.3. DoE and the Integrated	3.4. DoE and the Integrated	3.5. DoE and the Integrated	3.6. DoE and the Integrated

[24] Fiscal Year (FY): July 8 through July 7 of the following year.
Stand Alone Systems (SAS)

	Total Financing Allocated to DLI (in US$, millions)	As % of Total Financing Amount	DLI Base line	Indicative Timeline for DLI Achievement					
				Year or Period 1 (January 8– July 7, 2018)	**Year or Period 2 (July 8, 2018– July 7, 2019)[24]**	**Year or Period 3 (July 8, 2019– July 7, 2020)**	**Year or Period 4 (July 8, 2020 –July 7, 2021)**	**Year or Period 5 (July 8, 2021 –July 7, 2022)**	**Year or Period 6 (July 8, 2022– -July 7, 2023)**
sector institutional capacity				and has in place an integrated M&E system (US$1 million)	M&E System are maintained through July 8, 2018 – July 7, 2019 (US$900,000)	M&E System are maintained through July 8, 2019 – July 7, 2020 (US$900,000)	M&E System are maintained through July 8, 2020 – July 7, 2021 (US$900,000)	M&E System are maintained through July 8, 2021 – July 7, 2022 (US$900,000)	M&E System are maintained through July 8, 2022 – July 7, 2023 (US$400,000)
Allocated cumulative amount (US$, millions)	5.0	1.33	0	1.0	1.9	2.8	3.7	4.6	5.0
DLI 4: Strengthen sector planning capacity			0	4.1. Annual connection rollout plan for July 8, 2017 – July 7, 2018 adopted [a] (US$1 million)	4.2. Annual connection rollout plan for July 8, 2018 – July 7, 2019 adopted by July 7, 2018 (US$1 million)	4.3. Annual connection rollout plan for July 8, 2019 – July 7, 2020 adopted by July 7, 2019 (US$1 million)	4.4 Annual connection rollout plan for July 8, 2020 – July 7, 2021 1 adopted by July 7, 2020 (US$1 million)	4.5. Annual connection rollout plan for July 8, 2021 – July 7, 2022 adopted by July 7, 2021 (US$1 million)	4.6. Annual connection rollout plan for July 8, 2022 – July 7, 2023 adopted by July 7, 2022 (US$687,500)
Allocated cumulative amount (US$, millions)	5.7	1.50		1.0	2.0	3.0	4.0	5.0	5.7
DLI 5: Strengthen fiduciary systems **Financial Management**					5.1. Submission of EEU audited financial statements for the period of July 8, 2017- July 7, 2018 by January 7, 2019 (US$1.2 million)	5.2. Submission of EEU IFRS-compliant audited financial statements for the period of July 8, 2018- July 7, 2019 by January 7, 2020	5.3. Submission of EEU IFRS-compliant, audited financial statements for the period of July 8, 2019- July 7, 2020 with no disclaimer by	5.4. Submission of EEU IFRS-compliant audited financial statements for the period of July 8, 2020- July 7, 2021 with no disclaimer by	5.5. Submission of EEU IFRS-compliant audited financial statements for the period of July 8, 2021- July 7, 2022 with no disclaimer by

	Total Financing Allocated to DLI (in US$, millions)	As % of Total Financing Amount	DLI Base line	Indicative Timeline for DLI Achievement					
				Year or Period 1 (January 8– July 7, 2018)	Year or Period 2 (July 8, 2018– July 7, 2019)[24]	Year or Period 3 (July 8, 2019– July 7, 2020)	Year or Period 4 (July 8, 2020 –July 7, 2021)	Year or Period 5 (July 8, 2021 –July 7, 2022)	Year or Period 6 (July 8, 2022– -July 7, 2023)
						(US$1.2 million)	January 7, 2021, (1.2 million)	January 7, 2022. (US$1.2 million)	January 7, 2023. (US$1.2 million)
Procurement				5.6. Establishment of 'minimum entry conditions' by July 7, 2018 [b] (US$1 million)	5.7. Minimum entry conditions [b] maintained during July 8, 2017-July 7, 2018 and internal and external procurement audits completed by January 7, 2019. (US$0.8 million)	5.8. Acceptable performance [b] of procurement processes and (internal and external) audit system during July 8, 2018-July 7, 2019 (US$0.8 million)	5.9. Acceptable performance [b] of procurement processes and (internal and external) audit system during July 8, 2019-July 7, 2020 (US$0.8 million)	5.10. Acceptable performance [b] of procurement processes and (internal and external) audit system during July 8, 2020-July 7, 2021 (US$0.8 million)	5.11. Acceptable performance [b] of procurement processes and (internal and external) audit system during July 8, 2021-July 7, 2022 (US$0.8 million)
Governance					5.12. MoWIE provides, and FEACC verifies, report on F&C allegations related to the Program for the period of July 8, 2017-July 7, 2018 by January 7, 2019 (US$1 million)	5.13. MoWIE provides, and FEACC verifies, report on F&C allegations related to the Program for the period of July 8, 2018-July 7, 2019 by January 7, 2020 (US$1 million)	5.14. MoWIE provides, and FEACC verifies, report on F&C allegations related to the Program for the period of July 8, 2019-July 7, 2020 by January 7, 2021. (US$1 million)	5.15. MoWIE provides, and FEACC verifies, report on F&C allegations related to the Program for the period of July 8, 2020-July 7, 2021by January 7, 2022 (US$1 million)	5.16. MoWIE provides and FEACC verifies report on F&C allegations related to the Program for the period of July 8, 2021-July 7, 2022 by January 7, 2023 (US$1 million)

	Total Financing Allocated to DLI (in US$, millions)	As % of Total Financing Amount	DLI Base line	Indicative Timeline for DLI Achievement					
				Year or Period 1 (January 8– July 7, 2018)	Year or Period 2 (July 8, 2018– July 7, 2019)[24]	Year or Period 3 (July 8, 2019– July 7, 2020)	Year or Period 4 (July 8, 2020 –July 7, 2021)	Year or Period 5 (July 8, 2021 –July 7, 2022)	Year or Period 6 (July 8, 2022– -July 7, 2023)
Allocated cumulative amount (US$, millions)	16.0	4.27		1.0	4.0	7.0	10.0	13.0	16.0
DLI 6: Improve gender and CE				6.1. EEU adopts a 5-year CE and gender work program in priority areas[c] identified under the Program by July 7, 2018 (US$500,000)	6.2. EEU publishes a report on CE and gender for the period of July 8, 2017- July 7, 2018 in priority areas identified under the Program and conducts customer satisfaction survey in key aspects[d] by January 7, 2019 (US$500,000)	6.3. EEU publishes a report on CE and gender for period July 8, 2018 through July 7, 2019 in priority areas identified under the Program and conducts customer satisfaction survey in key aspects by January 7, 2020 (US$500,00)	6.4. EEU publishes a report on CE and gender for period of July 8, 2019 through July 7, 2020 in priority areas identified under the Program by January 7, 2021 (US$500,000) 6.7. During period July 8, 2019 through July 7, 2020, customer satisfaction in key aspects was equal or higher than last year's, as per survey completed by	6.5. EEU publishes a report on CE and gender for period of July 8, 2020 through July 7, 2021 in priority areas identified under the Program by January 7, 2022 (US$500,000) 6.8. During period July 8, 2020 through July 7, 2021, customer satisfaction in key aspects was equal or higher than last year's, as per survey completed by	6.6. EEU publishes a report on CE and gender for period of July 8, 2021 through July 7, 2022 in priority areas identified under the Program by January 7, 2023 (US$500,000 6.9. During period July 8, 2021 through July 7, 2022, customer satisfaction in key aspects was equal or higher than last year's, as per survey completed by

	Total Financing Allocated to DLI (in US$, millions)	As % of Total Financing Amount	DLI Base line	Indicative Timeline for DLI Achievement					
				Year or Period 1 (January 8– July 7, 2018)	**Year or Period 2 (July 8, 2018– July 7, 2019)[24]**	**Year or Period 3 (July 8, 2019– July 7, 2020)**	**Year or Period 4 (July 8, 2020 –July 7, 2021)**	**Year or Period 5 (July 8, 2021 –July 7, 2022)**	**Year or Period 6 (July 8, 2022– -July 7, 2023)**
							January 7, 2021 (US$500,000)	January 7, 2022 (US$500,000)	January 7, 2023 (US$500,00)
Allocated cumulative amount (US$, millions)	4.5	1.20		0.5	1.0	1.5	2.5	3.5	4.5
DLI 7: Strengthen safeguards systems				7.1. ESMS established at the national and regional levels not later than one month after the effective date (US$1.4 million)	7.2. ESMS maintained during period July 8, 2018 through July 7, 2019, as per adopted guidelines (US$1.4 million)		7.3. ESMS maintained during period July 8, 2019 through July 7, 2021, as per adopted guidelines (US$1.2 million)		7.4. ESMS maintained period July 8, 2021 through July 7, 2023, as per adopted guidelines (US$1.0 million)
Allocated cumulative amount (US$, millions)	5.0	1.33		1.4	2.8	2.8	4.0	4.0	5.0
Capitalized front end fee	0.3								
Total	***375***	**100**							

a. Prior Results.
b. Procurement: Minimum entry conditions and performance criteria: as defined in POM.
c. Priority areas set out in the POM, including employment, training, sex-disaggregated data collection, customer grievances, media and communication.
d. Key aspects set out in the POM, including the areas of service provision, handling of grievances, and transparency and dialogue.

DLI Verification Protocol Table

#	DLI	Definition/Description of Achievement	Scalability of Disbursements (Yes/No)	Protocol to Evaluate Achievement of the DLI and Data/Result Verification		
				Data Source/Agency	Verification Entity	Procedure
1	Establish on-grid electricity connections	Number of new grid electricity connections (at quality standards acceptable to the World Bank) within 3 kilometers of the existing grid	Yes	EEU	CSA	Program Verification Report prepared by CSA after completion of survey with sample size agreeable to the World Bank
2	Establish off-grid electricity access	2.1. Number of mini-grids commissioned 2.2. Number of SAS installed	Yes	EEU	CSA	Program Verification Report prepared by CSA after completion of site visits to all commissioned mini-grids and a sample size (agreeable to the World Bank) of installed SAS.
3	Strengthen sector institutional capacity	3.1. DoE is established (designate team with technical, FM, procurement, and M&E skills), and has in place integrated M&E system 3.2–3.6. DoE and the integrated M&E system maintained from July 8, 2018 through July 7, 2023.	No - Disbursements made on achievement of each annual deliverable described	MoWIE	IVA	Program Verification Report prepared by the IVA
4	Strengthen sector planning capacity	4.1. Annual connection rollout plan for period July 8, 2017 through July 7, 2018 adopted by EEU Board. 4.2-4.6: Annual connection rollout plans	No - Disbursements made on achievement of each annual deliverable described	MoWIE	IVA	Program Verification Report prepared by the IVA

#	DLI	Definition/Description of Achievement	Scalability of Disbursements (Yes/No)	Protocol to Evaluate Achievement of the DLI and Data/Result Verification		
				Data Source/Agency	Verification Entity	Procedure
		for subsequent years, starting July 8, adopted by July 7, of the same calendar year (for the period July 8, 2018 through July 7, 2023).				
5	Strengthen fiduciary systems	5.1. Submission of EEU audited financial statements for period July 8, 2017 through July 7, 2018 by January 7, 2019 5.2. Submission of EEU IFRS-compliant audited financial statements for period July 8, 2018 through July 7, 2019 by January 7, 2020 5.3–5.5. Submission of EEU IFRS–compliant annual audited financial statements with no disclaimer from July 8, 2019 through July 7, 2022 by January 7 of the following year of audited period. 5.6. Establishment of 'minimum entry conditions' by July 7, 2018: Minimum entry conditions will be established in the POM to ensure satisfactory	No - Disbursements made on achievement of each annual deliverable described	EEU	IVA based on audit prepared by independent auditor	Program Verification Report prepared by the IVA

#	DLI	Definition/Description of Achievement	Scalability of Disbursements (Yes/No)	Protocol to Evaluate Achievement of the DLI and Data/Result Verification		
				Data Source/Agency	Verification Entity	Procedure
		performance of the procurement system (including award committees, complaint-handling mechanism, monitoring system operational) 5.7. Minimum entry conditions maintained during period July 8, 2017 through July 7, 2018 and internal and external procurement audits completed by January 7, 2019 5.8–5.11. Acceptable annual performance (according to criteria set out in POM) of procurement processes and (internal and external) audit system maintained through July 7, 2022. 5.12. MoWIE, provides and FEACC verifies, annual report on F&C allegations related to the Program for period July 8, 2017 through July 7, 2018 by January 7, 2019 5.13–5.16. MoWIE provides and FEACC				

#	DLI	Definition/Description of Achievement	Scalability of Disbursements (Yes/No)	Protocol to Evaluate Achievement of the DLI and Data/Result Verification		
				Data Source/Agency	Verification Entity	Procedure
		verifies annual reports for the period of July 8, 2018 through July 7, 2021 on F&C allegations related to the Program by January 7 of the following year				
6	Improve gender and CE systems	6.1. EEU adopts 5-year CE and gender work program in priority areas identified under Program (employment, training, customer grievances, and so on), by July 7, 2018 as indicated in EEU Board meeting minutes 6.2–6.3. EEU publishes annual reports for the period of July 8, 2017 through July 7, 2019on CE and gender in priority areas identified under the Program (employment, training, GBV, sex-disaggregated data collection, customer grievances, media and communication, and so on) and conducts customer satisfaction survey in key aspects (service, grievance, transparency, and dialogue) by January 7 of the following year	No - Disbursements made on achievement of each annual deliverable described	EEU	IVA	Program Verification Report prepared by the IVA

#	DLI	Definition/Description of Achievement	Scalability of Disbursements (Yes/No)	Protocol to Evaluate Achievement of the DLI and Data/Result Verification		
				Data Source/Agency	Verification Entity	Procedure
		6.4–6.6. EEU publishes a report on CE and gender reports for the period of July 8, 2019 through July 7, 2022 in priority areas identified under Program by January 7 of the following year. 6.7–6.9. Between July 8, 2019 and July 7, 2022 annual customer satisfaction in key aspects of the Program was equal or higher than last year's according to annual surveys completed by January 7 of the following year.				
7	Strengthen safeguards systems	7.1. ESMS[a] established at the national and regional levels not later than one month after the effective date 7.2. ESMS maintained during period July 8, 2018 through July 7, 2019, as per adopted guidelines 7.3. ESMS maintained during period July 8, 2019 through July 7,				

#	DLI	Definition/Description of Achievement	Scalability of Disbursements (Yes/No)	Protocol to Evaluate Achievement of the DLI and Data/Result Verification		
				Data Source/Agency	Verification Entity	Procedure
		2021, as per adopted guidelines 7.4. ESMS operational during period July 8, 2021 through July 7, 2023, as per adopted guidelines				

Note: a) ESMS includes: (i) policy and procedural guidelines, prepared in accordance with terms of reference (ToR) acceptable to the Association, and finalized taking into account the Association's comments thereon (finalized guidelines to be annexed to the POM); and (ii) having in place staff, and other resources, satisfactory to the Association.

World Bank Disbursement Table

#	DLI	World Bank Financing Allocated to the DLI	Deadline for DLI Achievement	Minimum DLI Value to be Achieved to Trigger Disbursements of World Bank Financing	Maximum DLI Value(s) Expected to be Achieved for World Bank Disbursements Purposes	Determination of Financing Amount to be Disbursed Against Achieved and Verified DLI Value(s)
1	Establish on-grid electricity connections	US$324 million	July 7, 2023	n.a.	1,080,000 connections	On average: US$300 per connection US$600 for first 50,000 connections US$500 for next 100,000 connections US$400 for next 150,000 connections US$300 for next 200,000 connections US$232 for next 250,000 connections US$200 for final 330,000 connections
2	Establish off-grid electricity access	US$14.5 million	July 7, 2023	n.a.	2.1. 5 mini-grids commissioned 2.2. 50,000 SAS installed	US$1.5 million per mini-grid US$140 per SAS
3	Strengthen sector institutional capacity	US$5 million	July 7, 2023	n.a.	3.1. DoE is established and has in place an integrated M&E system 3.2–-3.5. DoE and integrated M&E system maintained annually from July 8, 2018 through July 7, 2022 3.6 DoE and integrated M&E system maintained from July 8,	US$1 million US$0.9 million per year US$0.4 million

#	DLI	World Bank Financing Allocated to the DLI	Deadline for DLI Achievement	Minimum DLI Value to be Achieved to Trigger Disbursements of World Bank Financing	Maximum DLI Value(s) Expected to be Achieved for World Bank Disbursements Purposes	Determination of Financing Amount to be Disbursed Against Achieved and Verified DLI Value(s)
					20222 through July 7, 2023.	
4	Strengthen sector planning capacity	US$5.7 million	July 7, 2023	n.a.	4.1. EEU annual connection rollout plan for July 8, 2017 through July 7, 2018 prepared and adopted by EEU Board* 4.2-4.6. Annual connection rollout plans for subsequent years, starting July 8, 2018 through July 7, 2023, adopted by July 7 of the same calendar year	US$1 million for plan US$1 million per annual plan for the period July 8, 2018 through July 7, 2022, US$687,500 for Plan for period July 8, 2022 through July 7, 2023
5	Strengthen fiduciary systems	US$16 million	July 7, 2023	n.a.	5.1. Submission of EEU audited financial statements for the period July 8, 2017 through July 7, 2018 by January 7, 2019 5.2. Submission of EEU IFRS-compliant audited financial statements for the period July 8, 2018 through July 7, 2019 by January 7, 2020 5.3–-5.5. Submission of EEU annual IFRS-	US$1.2 million per annual audit US$1.2 million per annual audit

#	DLI	World Bank Financing Allocated to the DLI	Deadline for DLI Achievement	Minimum DLI Value to be Achieved to Trigger Disbursements of World Bank Financing	Maximum DLI Value(s) Expected to be Achieved for World Bank Disbursements Purposes	Determination of Financing Amount to be Disbursed Against Achieved and Verified DLI Value(s)
					compliant audited financial statements with no disclaimer for the period July 8, 2019 through July 7, 2022 by January 7 of the following year	US$1.2 million per annual audit
					5.6. Establishment of 'minimum entry conditions' by July 7, 2018	US$1 million
					5.7. Minimum entry conditions maintained during period July 8, 2017 through July 7, 2018 and internal and external procurement audits completed by January 7, 2019.	US$0.8 million
					5.8–5.11. Acceptable annual performance (according to criteria set out in the POM) of procurement processes and (internal and external) audit system maintained from July 8, 2018 through July 7, 2022. by January 7 of the following year	US$0.8 million/year

#	DLI	World Bank Financing Allocated to the DLI	Deadline for DLI Achievement	Minimum DLI Value to be Achieved to Trigger Disbursements of World Bank Financing	Maximum DLI Value(s) Expected to be Achieved for World Bank Disbursements Purposes	Determination of Financing Amount to be Disbursed Against Achieved and Verified DLI Value(s)
					5.12. MoWIE provides, and FEACC verifies, EFY18 annual report on F&C allegations related to the Program by January 7, 2019 5.13–5.16. MoWIE, provides and FEACC verifies, annual reports for the period of July 8, 2018 through July 7, 2022 on F&C allegations related to the Program by January 7 of the following year.	US$1 million for FEACC verified report. FEACC verification will be evidenced by a cover letter from FEACC attached to the report. US$1 million for FEACC verified report. FEACC verification will be evidenced by a cover letter from FEACC attached to the report.
6	Improve gender and CE systems	US$4.5 million	July 7, 2023	n.a.	6.1. EEU adopts 5-year CE and gender work program in priority areas identified under the Program by July 7, 2018 (employment, training, customer grievances, and so on) 6.2–6.3. EEU publishes annual reports on CE and gender for the period of July 8, 2017 through July 7, 2019 in priority areas identified under the Program and	US$0.5 million for adoption of work program US$0.5 million for publication and completion of customer satisfaction survey per year

#	DLI	World Bank Financing Allocated to the DLI	Deadline for DLI Achievement	Minimum DLI Value to be Achieved to Trigger Disbursements of World Bank Financing	Maximum DLI Value(s) Expected to be Achieved for World Bank Disbursements Purposes	Determination of Financing Amount to be Disbursed Against Achieved and Verified DLI Value(s)
					conducts customer satisfaction survey in key aspects by January 7, 2019 and January 7, 2020. 6.4–6.6. EEU publishes annual reports on CE and gender the period of July 8, 2019 through July 7, 2022 in priority areas identified under the Program 6.7–6.9. Between July 8, 2019 and July 7, 2022, customer satisfaction in key aspects was equal or higher than last year's according to annual surveys.	US$0.5 million/annual report over the period US$0.5 million/annual customer survey over the period
7	Strengthen safeguards system	US$5 million	July 7, 2023	n.a.	7.1. ESMS established for national and regional levels one month after the effective date of the Program 7.2. ESMS maintained during the period of July 8, 2018 through	US$1.4 million for establishment of the system US1.4 million

#	DLI	World Bank Financing Allocated to the DLI	Deadline for DLI Achievement	Minimum DLI Value to be Achieved to Trigger Disbursements of World Bank Financing	Maximum DLI Value(s) Expected to be Achieved for World Bank Disbursements Purposes	Determination of Financing Amount to be Disbursed Against Achieved and Verified DLI Value(s)
					July 7, 2019, as per adopted guidelines. 7.3. ESMS maintained during the period of July 8, 2019 through July 7, 2021, as per adopted guidelines. 7.4. ESMS maintained during the period of July 8, 2021 through July 7, 2023 as per adopted guidelines.	 US$1.2 million US$1.0 million
	Total	**US$375 million***				

Note: * Includes US$312,500 for front-end fee.

Annex 4: Summary of Technical Assessment

1. **Strategic relevance.** Despite tangible results in other segments of the electricity sector, the household electrification rate remains quite low with about 20 percent, with over 60 million people left without access to electricity (second highest access deficit in Africa), posing a binding constraint to economic and social growth. While significant improvements have been achieved in the past in transmission infrastructure, last-mile connections to households have not kept pace with the rapid network expansion. In the coming years, the GoE intends to place last-mile electrification at the core of its development agenda.

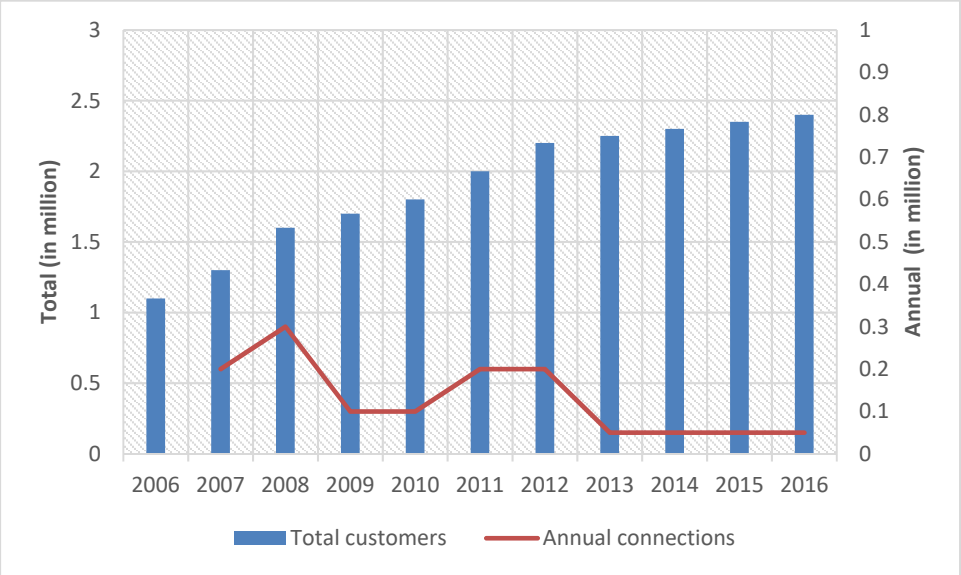
2. In this context, the GoE prepared the NES to identify persistent challenges and define and implement a road map for sustainable energy sector development and scaling up electrification in Ethiopia. Based on the NES, the GoE initiated the NEP, which is the centerpiece of the implementation of the electrification expansion strategy in a more effective and sustainable manner. Overall, the NEP supports the GTP-II electrification expansion/connection targets with a revised, more realistic timeline of 2017–2022. The NEP is organized into three pillars addressing the dominant challenges and needs in the sector: (a) Pillar 1: On-grid electrification; (b) Pillar 2: Off-grid service provisioning; and (c) Pillar 3: Sector capacity and institutional reform.

3. The proposed ELEAP is fully aligned with the GoE's NEP in scaling up electricity connections in areas within the network reach under Pillar 1, as well as increasing access to off-grid technologies in areas outside of the network under Pillar 2. Strong emphasis will be put on Pillar 3 as strengthening the capacity of the sector institutions will be crucial to achieve the ambitious targets with regard to grid electrification and off-grid.

4. **Technical soundness.** The Program features are not unique nor does the technical design include new or untested technology. The proposed operation will target an estimated 1,080,000 connections under the time frame of the Program. There is a total of 46,782 customers waiting for a connection, who have already paid the connection fee, as well as an additional 280,046 registered customers. In total, 5,296,350 customers reside in the vicinity of the existing network immediately available for receiving a connection. Clearance of the waiting list has been declared as a priority by the GoE. As Figure 4.1 highlights, the utility was able to connect a much higher number of customers (up to 300,000 per year) before GTP-II, which draws the focus more on infrastructure development instead of service delivery and leads to significantly lower annual connection results (50,000 per year).[25]

[25] The relatively lower connections in 2009 and 2010 are due to the introduction of two regulations: (a) the moratorium on connections in response to the electricity supply crises and (b) the requirement of single source procurement for meters. The detailed description is included in the technical assessment.

Figure 4.1. Past Connection Achievements (2006–2016)



Source: EEU.

5. Building on the UEAP's proven experience, targeted support for planning will be needed in the immediate term to ensure the successful clearance of both the paid and unpaid waiting list, as well as the densification of proximate prospective customers through adequate network design (conducted at the feeder level) and analysis, ensuring that new connections are added where network capacity can support new consumption. In fact, as access to electricity services has been seen as a social issue, new connections have been so far provided without network analysis, with negative consequences for the reliability of services, as well as their availability, through an overloaded network.

6. The following major bottlenecks need to be addressed in the proposed operation to reach the envisioned targets:

a. **Planning.** The current annual connection rollout plans are aligned to the GTP-II targets; however, they are not aligned to the existing funding. Hence, all relevant information such as staffing requirements, material requirements, procurements, and so on are not based on realistic grounds and require continuous revisions. Furthermore, a project-by-project approach prevents benefiting from economies of scale. Under the operation, it is proposed to significantly revise these plans to a programmatic approach aligned with confirmed funding.

b. **The need to rehabilitate the existing network.** The Addis Ababa network is being rehabilitated based on an existing Addis Ababa distribution master plan. Although the utility has prepared a preliminary rehabilitation plan for the remaining 11 regions in the country, the plan needs to be further expanded to ensure that additional connections made under the Program do not put further burden on the network.

c. **Coordination.** The current electrification model includes three different units in the EEU mandated to connect customers: the UEAP, Retail, and Wiring Units, with bulk of the connections falling under the responsibility of the Retail Unit. This arrangement leads to delay in connecting the households. The EEU is in the process of revising the

implementation procedures and might task the UEAP in the future to also make the final service drop to households while building the LV infrastructure in its town electrification program. Coordination amongst various departments involved in handling connection needs to be strengthened. A proposed business development firm under the operation will assist in improving coordination among these units to speed up the connectivity rate.

d. **Affordability.** The backlog of customers on the waiting list who have already paid the connection fee and those who can afford the connection fee are sufficient for the targeted connections envisioned under the proposed operation. However, in the medium term, the utility needs to put a connection policy in place that allows for different payment schemes to cover the high up-front connection fee, for example, installment payments, subsidies, and so on. This will be included in an Affordable Customer Connection Study to be completed in the first year of the proposed operation.

7. **Planning and operational readiness for the Program.** In preparation for the implementation of the grid connections rollout component of ELEAP, especially connectivity targets for 2018 program, the EEU has already launched several initiatives ensuring that adequate planning, technical procurement, and operations measures are put in place by effectiveness of the Program, including the following:

a. **Establishment of a team devoted to connections' scale-up, including integrating the UEAP expertise.** The Modernization Team was established in the fall of 2016 with the mandate to improve the pace of connections and identify key bottlenecks to scaling up implementation, including effective coordination across the EEU. It is led by the technical advisor to the CEO and members representing both the EEU and recently folded-in UEAP, including Planning, Retail, and Information and Communication Technology. The Modernization Team is also represented in the task force established by the MoWIE for launching of the NEP.

b. **A nationwide MV feeder-level technical network analysis has been completed.** In early-2017, the Modernization Team launched a rapid technical and potential demand assessment of all MV feeders in the country—over 550—with active participation of the regional and district offices. For each feeder, data on the number of current customers, paid waiting list, registered customers, and potential new customers have been identified (household and commercial), as well as average energy demand per customer. Further, a simplified technical analysis has been completed to estimate the maximum number of customers that can be connected in the first year of the sector program (2018) without overloading transformers beyond 90 percent of their rated capacity and reflecting other technical design considerations that can otherwise limit the network carrying capability and reliability. The analysis was conducted through primary (surveys) and secondary information on energy demand collected at the EEU district office level.[26] The output of this rapid assessment of each MV feeder nationwide—customer demand and technical considerations—has led to an initial determination of the number of new connections that can added on each feeder.

[26] Such a comprehensive data collection, validation, and harmonization from the decentralized office was conducted for the first time by the EEU in preparation for ELEAP.

c. **Development of the 2018 Technical and Procurement Plan for the rollout of 500,000 connections**. Based on the analysis conducted, the EEU has identified the towns and villages to be targeted in 2018, mostly second- and third-tier cities and rural areas recently 'energized' by the UEAP. The available interim results indicate that about 500,000 new connections can be undertaken in 2018, provided adequate financing is made available, of which 78 percent of new connections will be in rural areas whereas 24 percent in urban areas. Additionally, the team has prepared the corresponding Procurement Plan for the 500,000 connections (by major equipment category), identifying the number of items (i) available in warehouses; (ii) to be procured in-country; and (iii) to be imported with related costing in foreign currency). The EEU has estimated MV, LV, and service drop material requirements in accordance with rural and urban standards, to be procured though the list of preselected vendors developed in 2017. The EEU is also drafting a plan for the number of connections to be rolled out on a daily basis for the identification of overall staff requirements, as well as detailing of workforce to be (i) trained through the EEU Academy (training modules are already available) or (ii) outsourced to the list of preselected contractors.

8. With the funding provided under ENREP and ENREP-AF, the DBE is currently sufficiently funded to provide loans to MFIs and PSEs under the two credit lines. With additional support, the DBE will be able to upscale the provision of solar systems. Additionally, revenue from certified emission reduction (US$20.17 million) will be used for incentives for training of more technicians, introducing of a warranty tracking system, and proper battery replacement. A marketing campaign (US$300,000), technical assistance for MFIs (US$50,000), and a collateral support facility (US$4.5 million) are included in the ENREP-AF to stimulate the renewable energy and energy efficiency market. The recent market introduction of pay-as-you-go systems (for example, Azuri Technologies) will further advance the sector and address some of the challenges mentioned earlier. These systems do not require SIM cards and hence contractual agreements with Ethiopian Telecom are not needed.

9. With regard to SAS provided under REF, the MoWIE initiative will have to identify more sustainable modalities to serve the deep rural areas according to its mandate. Currently, the grant and direct procurement-based system does not lead to the numbers required to achieve the ambitious GTP-II targets. The mini-grid program is promising given the UEAP's experience of building and operating mini-grids in the past. Yet the program will require detailed countrywide feasibility studies and concrete implementation modalities.

10. Apart from the off-grid investments to be financed under the proposed operation, ELEAP will strengthen the enabling environment. The most urgent requirement is the definition of an off-grid strategy that lays out the modalities of implementing SAS and mini-grids targeted under the NEP.

11. **Institutional arrangements.** The UEAP is responsible for town electrification. Toward the end of GTP-I, the UEAP was decentralized into eight regional offices to improve coordination with the regional administrations and better tailor procurement of materials and workforce to local expansion plans. The UEAP has also supported the creation of 81 associations (mostly in the Addis Ababa regions) providing construction workers for the connection of condominiums. To counter the constraint posed by an inadequate size of the workforce, the UEAP has launched a training program for recent graduates of technical universities and technical vocational schools in January

2014, and about 2,000 workers have joined the existing 200 cooperatives for the extension of network coverage. To expand the production of LV concrete poles, the UEAP has supported the creation of 122 associations (cooperatives) and training of about 320 individuals since mid-2015. At the time of unbundling, the UEAP was initially based in EEP, but it was transferred to the EEU three years later, in 2016, to facilitate coordination on access expansion. Following the handover of the network extension, the EEU distribution department has the responsibility to undertake the downstream task of designing and rolling out the LV lines from the distribution transformer to connect households, shops, and social institutions, while the UEAP maintains its mandate of MV and LV extensions to towns. For the proposed operation, the EEU will be mandated to implement all grid-related and mini-grid-related capital expenditures, while the MoWIE has the overall oversight of the NEP and responsibility for M&E.

12. **Program expenditure framework.** The planned expenditures for on-grid and off-grid rollout (medium and LV lines and final connections, excluding upstream costs of generating and transmission, as well as off-grid expenditures for SAS and mini-grids) are estimated at about US$676.5 million. Table 4.1 provides the detailed list of expenditures eligible under the Program. Expenditure categories are aligned to the EEU's chart of accounts. Under the Program, 'service drops' are fully embedded in the budget line item 5118 of the EEU's chart of account 'Material for customer connection', which includes all expenditures for meters, poles, and other immediate service drop material. The technical assessment concluded that, on average, the connection cost under this category will be around US$300. The later connections under the Program may also require a certain level of MV extension and rehabilitation included under budget line items 1500–1519[27] of the EEU's chart of accounts. This line item includes the EEU's expenditures for the remaining works in progress, which after completion will be moved to assets in the utility's accounting system. There is no disaggregation between works and material expenditures for MV lines extension/rehabilitation and mini-grids. Because the upstream costs of generating and transmission fall under EEP's chart of accounts, there is no risk connected to this joint expenditure category as expenditures will include only MV lines and mini-grids. The operating expenditures for 'service drops' and 'MV extension/rehabilitation and mini-grids' were estimated based on international experience: 8 percent of capital expenditures for 'service drops' and 7 percent of capital expenditures of 'MV extension/rehabilitation and mini-grids'. Because the utility has not yet engaged in the distribution of SAS, this will be a new category that will be added to its chart of accounts. The MoWIE will treat expenditures related to the Program as separate budget line items and disaggregation is not seen as a risk.

Table 4.1. Program Expenditures Under ELEAP (US$, millions)

Allocation for 2018–2023	
Cost Items (corresponding account codes)	**Amount**
Service drops	
(i) Material for customer connection (5118)	300.0
(ii) Salaries, wages, and other allowances (5200–5299)	24.5
LV/MV extension/rehabilitation and mini-grids	

[27] Expenditures can include (a) Local Purchases - Direct Purchases (1501), (b) Foreign Purchases - Direct Issues and Goods held by Central Stores for Project (1502), (c) Stores Issues - Stock Items (1503), (d) Freight - local transport (1504), (e) Vehicle Rentals (1505), (f) Contracted construction and services (1506), and (g) Benzine/Gasoil/Oil/Grease (1507).

(i) Material and equipment (1500–1519)	300.0
(ii) Salaries and wages (1520–1529)	20.0
(iii) Training (5302)	5.0
(iv) Other costs (1530–1539)	10.0
Stand-alone solar systems (new)	7.0
Operating expenditures (MoWIE)	
(i) Operational and consultancy costs[a]	10.0
Total	**676.5**

Source: World Bank task team.
Note: a. Includes material and equipment.

13. **Funding predictability.** Infrastructure investments in Ethiopia have totaled more than US$127 billion over the last 15 years, where US$33 billion was spent on social infrastructure, US$27 billion on water, US$23 billion on electricity, and US$21 billion on roads. From the total investment budget of US$13 billion for 2016–2017, priority is given to road development, as well as rural electrification and diversification of the energy sector. Overall, the GoE's GTP-II-related sector investments called for US$11 billion worth of new projects, out of which over US$8 billion has already been raised and committed. The financing plan for these public-sector projects includes a mix of funding sources, part of it coming from the GoE's self-financing and customer contributions, but most of it coming from new loans/bonds. Borrowing is sought from multilateral and bilateral partners, international donor agencies, and commercial banks, as well as domestic and diaspora bonds issued directly by the sector. The Government share of financing of the five-year Program (US$247.5 million) is in line with financing allocated over the past years, which averaged US$50–100 million per year.

14. **Adherence to budgeted Program expenditure and execution of NEP priorities.** As indicated in the PEFA assessments, the GoE has a well-functioning planning and budgeting system and the MoWIE prepares its plan and budget in line with this system. It follows the Federal Government budget calendar and manuals. On the other hand, the EEU uses the former EEPCo's planning and budgeting procedure manual. Physical plans are adequately costed and AWPBs are sufficiently detailed. The sources of funds of the EEU include budget from the Federal Government, sales of electricity (including connection fees), loans and grants, customer contributions, and other miscellaneous income. The Federal Government budget partly covers the cost of providing access to towns under the UEAP, while the customer contributions are charges collected from the customers for new connections. The GoE's contribution to the UEAP is included as part of the MoWIE's budget and proclaimed at the federal level. The EEU's consolidated AWPB, including UEAP's, is required to be approved by the Board of the EEU. Budget preparation by each process, consolidation of the EEU's AWPB, and review by the executive management usually adheres to the EEU's budget calendar and is concluded before the start of a fiscal year. However, approval by the Board of the EEU and subsequent notification to each process are delayed and usually provided after two to three months of the start of a fiscal year, which should be improved. The budget execution of the EEU is quite low, especially for capital budgets, due to shortage of finance, low supply of materials, and ambitious planning. The annual budget of the NEP as well as of this PforR program will have to be prepared on the basis of the realistic absorption capacity of the system and the capacities of the implementing entities. The annual Program budget will be prepared by both the MoWIE and EEU and consolidated by the MoWIE/DoE. The consolidated Program budget will be proclaimed at the MoWIE following

the Government budget calendar. The MoWIE/DoE and EEU will ensure that there is recording, accounting, and reporting on ELEAP sources and expenditures.

15. **Efficiency of Program expenditures.** The Program targets the 'very low-cost hanging fruits', which are the connections very proximate to the existing network infrastructure. As the Table 4.1 outlines, these connections require mostly LV network-related capital expenditure—such as service drops, household metering, and possibly shared pole top transformers. It has been estimated that the connection cost for these connections is, on average, US$300 if some MV extensions are involved. This is in line with international prices. The least-cost geospatial planning that will be undertaken in the first year of the operation helps ensure that all connections under the program are made at least cost.

16. **M&E.** The capacity to monitor results will be key to ensure Program success and effectiveness. Sector utilities have already put into place frameworks to monitor connections and distribution of off-grid products under their existing activities. The Results Framework has been established, with the MoWIE in charge of monitoring results at the national level through collection of data inputs on key tracking indicators of progress and performance of the implementing agents and intermediaries accountable for the NEP connection rollout.

17. The ongoing implementation of a new ERP system for the EEU and tracking framework for off-grid products will strengthen considerably monitoring capacity of the EEU in time for Program implementation. Specific support will be provided to build institutional capacity to track and report on sex-disaggregated data in the Program. Because there is no entity formally in charge of independently monitoring the results of the GoE-supported programs, the implementing agency will hire a third-party entity (e.g. CSA) to verify Program results during implementation.

Economic Analysis

18. **Program economic evaluation.** The World Bank team has carried out an economic assessment of the proposed operation. The rationale for public sector financing and World Bank value added are presented through a quantitative and qualitative assessment.

19. **Rationale for public provision and financing.** There is a strong rationale for public financing and provision of the activities supported by the NEP. Aside from providing increased connections and access to electricity for citizens at a more rapid pace (including low-income households), the Program maximizes the impact of the ongoing process of geographic expansion of distribution coverage. Densification will result in improved cost efficiency of the electrification program and significantly increased economic benefits in the targeted areas.

20. **World Bank added value.** World Bank financing in support of the NEP would add comparative value given the World Bank's position to draw upon a wealth of global experience and expertise in areas directly related to Program investment and technical assistance. Achievements from the successful implementation of the ongoing World Bank-supported operations focused on energy access also provide a strong background for the proposed ELEAP operation.

21. **Background.** Although having high rates of grid expansion under the UEAP over the past decade, Ethiopia's electricity sector has not provided an equal focus on increasing household

connectivity. An MTF survey[28] was launched in 2017, which aims to provide information about the prevailing status of energy access in Ethiopia.

22. **Access in Ethiopia is mostly a rural challenge.** The vast majority of tier 0 households[29] live in rural areas. Rural households also tend to have lower-tier access, suggesting mostly that the grid is likely not accessible in rural areas, and therefore, as an alternative, rural households are adopting off-grid solutions. According to the MTF survey preliminary data, about 80 percent of rural households rely on fuel-based light sources, predominantly kerosene used with wick lamps or hurricane lamps. Nearly 22 percent of the Ethiopian households use off-grid solar products (solar lantern, solar lighting system, or solar home system) as their main light source. Other sources of electricity such as mini-grids and individual diesel systems are insignificant.

23. **Affordability analysis.** While detailed current consumer data from the MTF survey are under finalization, data from the Ethiopia Market Intelligence Report conducted by World Bank Lighting Africa Program show that rural households[30] spend 4.5 percent on lighting from all sources, including kerosene and dry-cell batteries. Households in the highest expenditure quintile spend 2.5 percent of their total expenditure on purchased electricity for lighting against 7.2 percent for households in the lowest expenditure quintile. Thus, the share of household expenditures spent for lighting declined as household income rose. Rural households in the lowest expenditure quintile spend an average of US$2.35 per month on lighting and those in the top quintile spend US$3.29 per month on lighting.

24. Affordability of electricity service does not appear to be an issue in Ethiopia, with 99 percent affordability under the assumption that the cost of standard consumption package of 365 kWh per year is equal to 5 percent of disposable expenditure, according to the preliminary results of the MTF survey. The preliminary data also show that the weighted-average monthly disposable expenditure is about US$107 per household. Grid-connected households spend, on average, US$2.61 per month on electricity (US$3.21 for 149.69 kWh per month in urban areas and US$1.05 for 45.13 kWh per month in rural areas), about 2.4 percent of monthly expenditure. From a 'subsistence consumption' point of view, under the current tariff structure in Ethiopia,[31] US$2.61 would allow approximately a level of consumption of 136 kWh per month for a household, higher than the 'subsistence' level of 30 kWh per month. The amount of US$2.61 is also lower than the average monthly expenditure on lighting by all rural households. This suggests that the expected monthly payment is affordable to non-connected households.

[28] The survey includes 4,292 households from 300 analytical domains evenly distributed across urban and rural areas in Ethiopia.

[29] According to MTF definition, tier 0 refers to no electricity being available or being available for less than four hours per day (or less than one hour every evening). Households use various coping mechanisms such as using candles, kerosene lamps, or dry-cell battery powered devices (flashlight or radio).

[30] Nearly 92 percent of the sample households was smallholder farmers with landholdings of 1.3 ha and 3.2 cattle, on average.

[31] The first 50 kWh usage is charged at ETB 0.273 per kWh (roughly 1.2 cents) and the next 50 kWh at ETB 0.3564 per kWh (about 1.6 cents) and a monthly fixed charge of 14.8 cents. For this analysis, the current tariff structure was used with no tariff increases assumed in the whole project period.

Table 4.2. Monthly Values (US$)

	Monthly Disposable Expenditure	Monthly Bill Paid	Electricity/Monthly Expenditure (%)
Total	**107**	**2.61**	**2.4**
Rural	95	1.05	1.1
Urban	144	3.21	2.2

25. However, if household affordability of the connection fee is considered, a one-time payment of US$50 remains as a key challenge for non-connected households. The backlog of customers on the waiting list who have already paid the connection fee and those who can afford the connection fee is sufficient for the targeted connections envisioned under the proposed operation. In the medium term, the utility needs to put a connection policy in place that allows for different payment schemes to cover the up-front connection fee, for example, installment payments, subsidies, and so on. This will be included in an Affordable Customer Connection Study to be completed in the first year of the proposed operation.

Box 4.1. Mechanisms to Address Affordability Issues

Overcoming the affordability problem has been partially achieved in different countries using a variety of approaches, including the following:

(i) **Subsidy programs,** such as the World Bank Output-based Aid program in Uganda, where connections are essentially subsidized in their entirety.

(ii) **Bundling the connection cost with the tariff.** This option can be found in countries such as Bangladesh and the Philippines, where connection charges are included in the overall distribution system development costs; except for a modest service connection fee, the actual capital costs of providing a new electricity service are expected to be recovered through the price of electricity.

(iii) **Financing schemes** that provide loans to pay for the connection, which can be made available through a revolving fund.

(iv) **Including a rural electrification component in the tariff** of all consumers, which can be channeled toward financing connections (among other possibilities); examples of rural electrification charges can be found in Benin, Côte d'Ivoire, Ghana, Kenya, Lesotho, and Tanzania.

Deciding on a particular scheme will depend on factors such as resource availability, access objectives, fairness considerations, and the responsibilities allocated to different participants in the process. The subsidy approach is probably the most effective in getting large numbers of homes connected, but it is also a burden on public finances. Recovering the connection costs through the power tariff is a feasible option when electricity prices are regulated in such a way as to focus on cost recovery. The question of fairness comes into play when cost recovery is introduced through tariffs that favor some consumers at the presumed expense of others. In the case of connections, such a situation could arise if the cost is recovered through a tariff that is also paid by consumers who paid for their own connection, and who end up paying twice for it.

Source: World Bank report: Rural Electrification Connections Fund in Uganda, June 2016.

26. **Cost benefit analysis.** Based on the analysis of available documentations (power sector master plans, data from Ethiopia Electricity Utility, MTF survey, and so on) and technical working sessions with program's stakeholders, a model was built to carry out the economic evaluation (or standard cost-benefit analysis) for Results Area 1 which includes 1,080,000 grid connections and for Results Area 2 which includes off-grid investment for 50,000 solar home systems and 5 PV/diesel mini-grids. The results are presented to demonstrate the economic impacts in a medium-case scenario, which totals US$335 million in a five-year period between 2018 and 2023.

27. The capital costs considered in the analysis are Program costs associated with grid densification and household solar systems and mini-grids—amounting to US$335 million.[32] The associated O&M costs are also accounted for. Other costs associated with grid densification are the cost of generation of the additional electricity needed to supply the new connections, estimated to be US$0.084 per kWh.

28. The economic benefits of grid densification and SAS are assessed by calculating the avoided costs that would occur in the 'without project' scenario. The estimated economic benefits for households are conservatively defined by the amount that they actually pay today for electricity services that can be substituted by electricity. The total cost for lighting, mobile phone charging, and radio combined is estimated to be US$7.31 per month[33] among non-connected households.

29. The additional economic benefits from grid connections include improved health services and education, improved communications and connectivity, better lifestyle and reduced gap in quality of life between city and rural residents, potentially more business and income-generating opportunities, and so on. These benefits are commonly recognized and yet difficult to quantify. A World Bank Impact Evaluation[34] on worldwide electrification programs suggests that including these benefits would raise total consumer benefits of electrification for an average household consuming 30–40 kWh a month to about US$60 a month.[35]

Table 4.3. Key Assumptions for the Economic Analysis

Variable	Unit	Value
Household Grid Connections	Number	1,080,000
Average grid consumption	kWh/month	45.1
Avoided cost of electricity service (on-grid)	US$/household/month	7.31
O&M cost	%/year	2%
Average cost of generation	US$/kWh	0.084
SAS	Number	50,000
Average system size and cost	Wp / US$	10 / 190
Battery replacement	Cost (%)/4 years	30%
Mini-grid (60 kW)	Number	5
Unit capital cost	US$/kW	4,500
OPEX	Cost (%)/year	5
Households connected	#/unit	220
Other		
CO_2 value	US$/$tCO_2$	30

30. **Avoided GHG emissions.** GHG accounting is undertaken for different results areas. Results Area 1 of 1,080,000 grid connections are projected to reduce GHG emissions by an estimated net total of 10,633,383 tCO_2e over 30 years (2018–2047) or 0.38 tCO_2e per household

[32] Expenditures under the Program related to strengthening and rehabilitating the MV network were not included because these activities will not directly lead to the connections made under the Program but will potentially further increase connection results.

[33] The expenditure is calculated following guidance from the Independent Evaluation Group's welfare impact assessment of rural electrification, with data reference from the 2013 Ethiopia Market Intelligence Report conducted by the World Bank Lighting Africa Program.

[34] The Welfare Impact of Rural Electrification: A Reassessment of the Costs and Benefits. An Independent Evaluation Group Impact Evaluation, Washington, 2008.

[35] The additional assumptions made for the analysis are outlined in the main technical assessment document.

per year. This estimate is based on the following assumptions: (a) 1,080,000 household connections by 2023; (b) a service level of 586 kWh per year per household; (c) Program emissions associated with grid connections of 1,507,013 tCO_2e from generation and associated distribution loss over 30 years;[36] and (d) avoidance of diesel-based generator emissions of 12,140,396 tCO_2e over 30 years, which are assumed would occur without grid densification. SAS under Results Area 2 will not generate GHG emissions in the Program scenario given the use of solar technology. Therefore, total avoided GHG emissions from 50,000 SAS are estimated to be 62,546 tCO_2e from 2020 to 2032, with assumption of avoided emissions of 0.13 tCO_2e per system per year. This assumes (a) 50,000 household SAS; (b) 10 watt-peak rated capacity of solar panels per system; and (c) 21 percent availability (equivalent to five hours of operation per day).

Table 4.4. GHG Impact over Program Lifetime

Component	Period of Impact	Emissions Avoided
Grid densification	2018–2047	10.6 $MtCO_2e$
Household solar home systems	2020–2032	62,546 tCO_2e
Mini-grid	2020–2039	6,617 tCO_2e

31. **Economic rate of return.** At a discount rate of 6 percent, the economic NPV of the Program is US$372.9 million and the benefit-cost ratio is 1.5. The EIRR is estimated at 18.3 percent. The Program is economically viable. The discounted payback period is 10 years.

Figure 4.2. Program's Net Economic Benefits (Including CO_2)

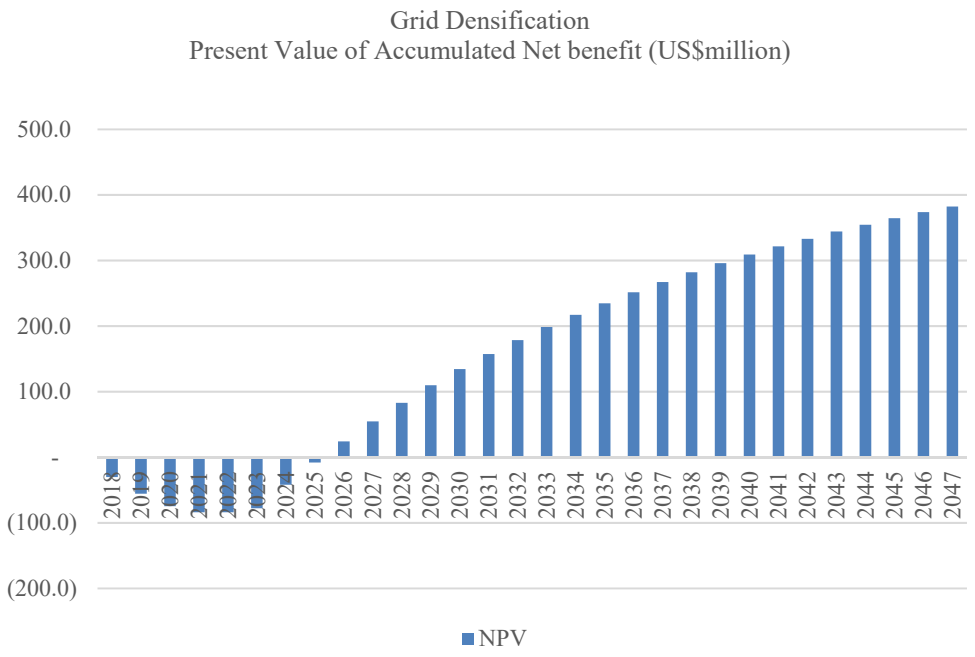


Table 4.5. Program NPV and EIRR

EIRR	18.3 percent
NPV	372.9 US$, millions

[36] Grid-related emissions are calculated based on a national grid emission factor of 0.118 tCO_2e per MWh reflecting Ethiopia's energy source mix for power generation (primarily hydropower).

32. **Sensitivity analysis.** A sensitivity analysis is performed to test the robustness of economic returns to the changes in underlying parameters. A switching value analysis shows the sensitivity of economic returns to capital cost and total Program costs and benefits. The switching value of capital cost is estimated at US$687 million (205 percent increase), above which the investment would not be economically viable. The analysis also shows that economic return remains at or above 6 percent until a 33 percent decrease in total Program benefits or a 150 percent increase in total Program costs. The economic viability is also preserved under a scenario of two-year delays of grid connections (EIRR of 21.6 percent) and excluding CO_2 benefits (EIRR of 14.4 percent).

Table 4.6. Sensitivity Analysis

Scenario	EIRR or Switch Value (so NPV = 0)
Scenario 1: Decrease in overall benefits	Switching value at 67% of original benefits
Scenario 2: Increase in overall project cost	Switching value at 150% increase
Scenario 3: Increase in capital cost	Switching value at US$687 million (205% increase)
Scenario 4: 2-year delay in start of connections	**EIRR:** 21.6%, **NPV:** US$447 million
Scenario 5: Excluding GHG benefits	**EIRR:** 14.4%, **NPV:** US$244 million

Financial Analysis

33. **The generation capacity is sufficient to meet domestic demand and exports.** The Ethiopian power sector is expected to witness robust demand growth both on the domestic and export fronts (see Figure 4.3). Under the moderate growth scenario[37] assumed, the residential demand is expected to increase almost threefold from the baseline (2016) value of 4,000 GWh to 11,368 GWh by 2025. A major source of future demand growth, and also a key financial driver for the sector in the future, is the unprecedented growth in exports expected over the next decade (expected to rise over tenfold from 1,445 GWh in 2016 to 15,968 GWh by 2025).

34. **Projection of financial performance of the sector.** Financial performance of the sector can be broken down into operational performance and investment program and debt service. Details on their future projections and key drivers for both are provided in the following paragraphs:

Operational Performance

35. **The sector is expected to witness a strong growth in revenues driven both by exports and domestic demand.** Revenues from sales of electricity are the only source of income for the sector and hence can make or break the sector's finances. Sector revenues could see a huge boost due to increase in domestic residential consumers[38] and rising domestic (industrial) and export demand. The following are the main drivers for future growth in revenues:

[37] The financial model assumes that 80 percent of new connections every year take place in rural areas and 20 percent in urban centers. Number of rural electrified households increases from 509,741 in 2015 to 7.7 million in 2025. The number of urban electrified households is assumed to increase from 2.03 million in 2015 to 3.83 million in 2025. An average monthly consumption rate of 149 kWh per urban household and 45 kWh per rural household is assumed with a moderate growth of around 1 percent till 2021.

[38] Average reported official collection rates in Ethiopia have been over 90 percent historically. If this trend holds, it could lead to a significant boost to sector revenue if the tariff charged is cost-reflective.

(a) **Export revenues** are expected to be the anchor revenues for the sector and rise from around US$100 million annually in 2016–2018 to around US$1,200 million by 2025. Export tariffs are assumed to be equivalent to US$0.07 per kWh.

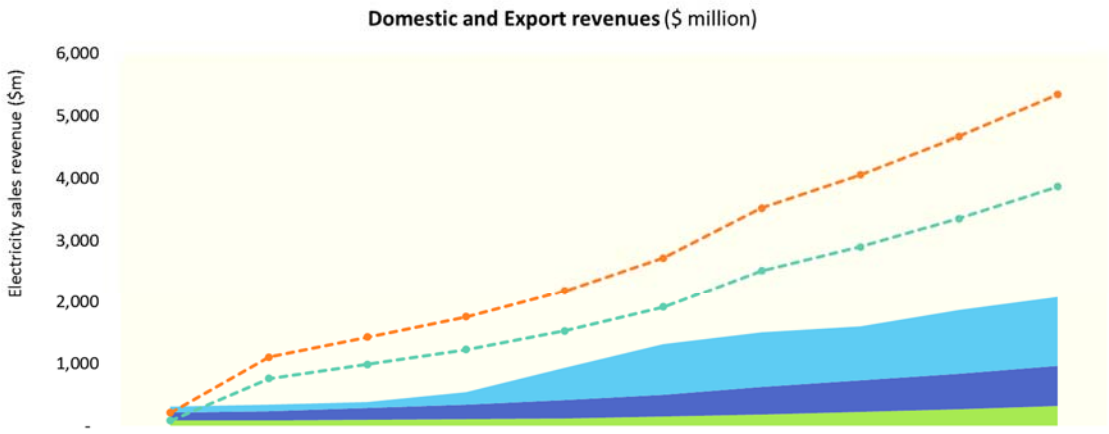
(b) **Domestic industrial revenues** are expected to rise significantly, but the actual revenue growth depends significantly on the domestic tariff rate. At the current tariff levels (average across categories of around US$0.03 per kWh) the domestic industrial revenues are expected to rise from US$128 million in 2016 to around US$649 million in 2025.

(c) **Domestic residential revenues are expected to rise significantly** but the actual revenue growth depends significantly on the domestic tariff rate, the consumption rate of the consumers, and the ability of the EEU to collect all the billed revenue. At the current tariff levels (average across categories of around US$0.03 per kWh) the domestic residential revenues are expected to rise from US$84 million in 2016 to around US$316 million in 2025.

(d) **Domestic tariff levels** in Ethiopia have remain unchanged since 2006 and remain significantly lower than most countries in the world (more detail on revenues in later sections). However, tariff levels can significantly affect future sector revenues as the industrial demand is expected to rise substantially. The impact of tariffs on sector revenues can be seen in Figure 4.5.

(e) **Exchange rate fluctuations** causing the U.S. dollar to become stronger against the ETB can result in higher export revenues (denominated in U.S. dollar).

Figure 4.3. Projected Domestic and Export Revenues at Different Tariff Levels



	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
(Revenue) Exports	101	101	101	205	523	811	872	872	1,026	1,118
(Revenue) Industrial at current tariff	128	152	193	233	286	351	445	510	577	649
(Revenue) Residential at current tariff	84	84	93	108	124	149	187	222	264	316
(Revenue) Industrial at $0.05/kWh tariff	128	345	438	529	651	799	1,011	1,160	1,312	1,475
(Revenue) Residential at $0.05/kWh tariff	84	763	990	1,227	1,528	1,916	2,512	2,896	3,353	3,863

36. **The sector will face significantly higher operating costs in the future as more power is procured through IPPs.** As Ethiopia shifts toward procuring power from IPPs in the future, the sector will face significantly higher operating costs (due to dollar-denominated power purchase costs of take-or-pay contracts with IPPs). However, to be financially sustainable in day-to-day

operations, the sector needs to generate sufficient revenues to cover their operating costs. Operating expenditures of the sector are expected to rise from US$278 million in 2016 to around US$1,758 million in 2025, with substantial increase in 2020 due to commissioning of IPP plants. Operating costs related to maintaining distribution network will largely be stable (around US$35 million annually). Operating costs related to maintaining the transmission network will range between US$30 million and US$70 million annually. Operating costs related to generation plants will increase from US$77 million in 2015 to about US$194 million in 2020 (due to commissioning of new hydro and wind plants) and then plateau.

37. **Even at the current tariff levels, the sector is projected to cover operating costs through operating revenues but the net income (profit/loss) of the sector is dependent on domestic tariffs.** Figure 4.5 captures the sector's financial position at the current tariff levels. Bars in various shades of green capture the different revenue segments, whereas bars in various shades of red capture the costs associated with the same years. The main takeaways for the sector financial projections are as follows:

a. Expected revenues from exports between 2016 and 2025 are expected to offset costs incurred in purchase of power through IPPs (see Figure 4.4).

b. Earnings before interest, tax, depreciation, and amortization (EBITDA) for the sector is positive for the entire projection period (that is, the sector can manage to cover operating costs through electricity sales even at the current tariff levels) (see Figure 4.4).

c. At the current tariff levels, the sector incurs net loss in all years except 2025 (due to increased export revenues due to Egypt/Sudan interconnector). Costs due to IPPs increase in 2020 and then in 2023 due to expected commissioning of plants.

d. However, the sector can break even and record profit much earlier depending on the tariffs (simulation of net income/profit/[loss] in the sector at different tariff levels are presented in Figure 4.5).

e. An increase in reduction of losses from 0.25 percent per year to 1 percent per year can result in an extra revenue of around US$80 million over the next decade.

Figure 4.4. Projected Financial Position of the Sector - Income and Costs

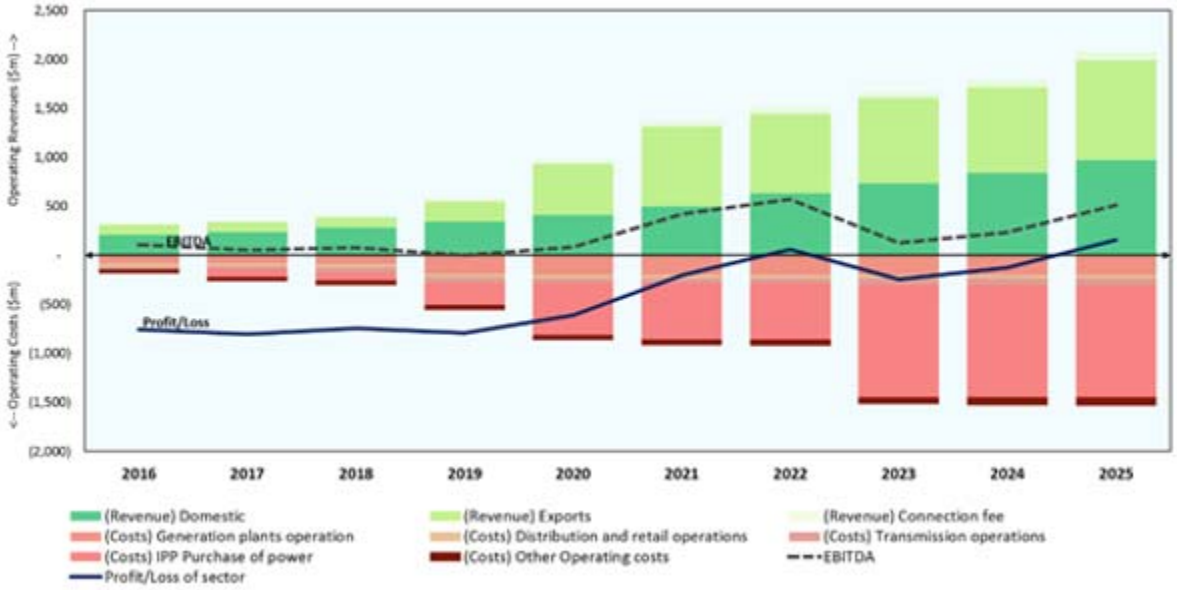
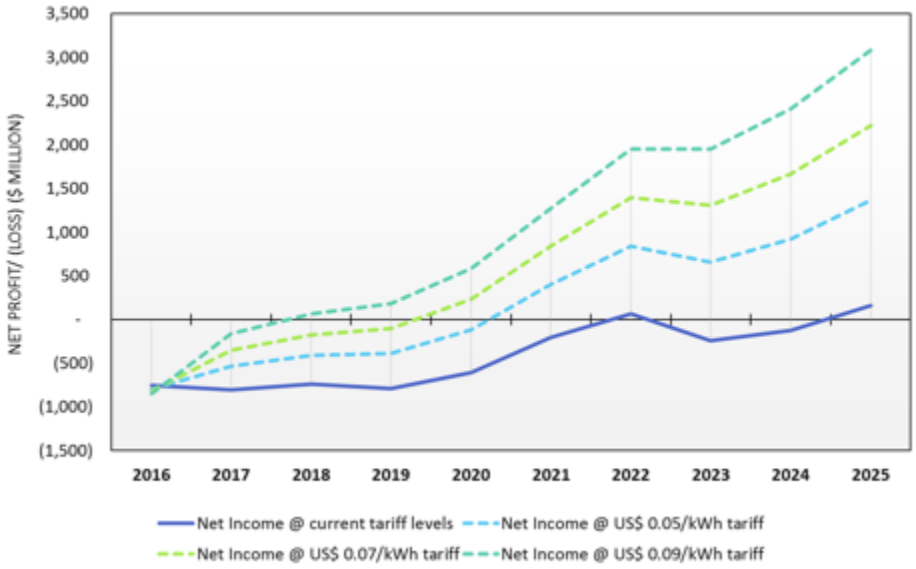
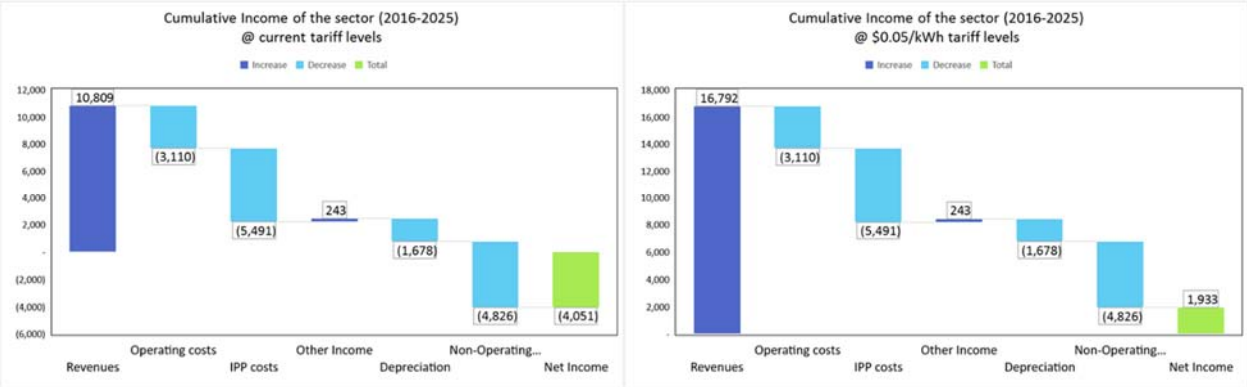


Figure 4.5. Net Income of the Sector at Various Tariff Levels



38. **Tariff levels and projected export revenues have a significant impact on the cumulative income that the sector earns.** With a significant rise in projected operating costs due to purchase of power anticipated from IPPs in the future, rise in revenues due to projected growth, domestic demand, and exports provide the balancing act for the sector revenues. At the current domestic tariff levels, the sector cumulatively loses around US$4.05 billion despite the inclusion of export revenues at US$0.07 per kWh tariff levels (left side of Figure 4.6). However, if the domestic tariff levels are at US$0.05 per kWh (and keeping the export tariff levels at the same level of US$0.07 per kWh), the sector makes a net profit of US$1.9 billion (right side of Figure 4.6). For both these scenarios, 100 percent of all interest payments for outstanding bond and loan obligations were considered to be made.

Figure 4.6. Cumulative Operating Performance of the Sector



Investment Program

39. **The sector with US$11 billion of identified sector investments has already raised and committed over US$8 billion, especially in the generation sector (mostly due to large hydro projects).** There also has been new investment in access expansion (network backbone), sector modernization, and other related projects. Overall, the GoE's GTP-related sector investments called for US$11 billion worth of new projects, out of which over US$8 billion has already been raised and committed. The financing plan for these public-sector projects includes a mix of funding sources, part of it coming from the GoE's self-financing and customer contributions, but most of it coming from new loans/bonds. Borrowing is sought from multilateral and bilateral partners, international donor agencies, and commercial banks, as well as domestic and diaspora bonds issued directly by the sector.

40. The current long-term liabilities (US$8.2 billion) which sits on the sector's balance sheets can be summarized in the following categories:

a. **Government to sector institutions on-lending.** The GoE (through MoFEC) signs loans with international finance institutions (such as IDA, AfDB, European Investment Bank, and so on) on concessional financing terms and on-lends them to the sector. Typically, these loans have a 20-year maturity with a 5-year grace period and charge interest rates of 3–6 percent to the sector. The current estimated portfolio of such loans is over US$1.3 billion.

b. **Commercial bank loans.** The sector has also been able to raise significant amount of money from commercial sources (mostly Chinese banks) for financing of large projects, especially hydropower. Typically, these loans have a 10-year maturity with a 3-year grace period and charge interest rates of around 6 percent to the sector. The current estimated portfolio of such loans is US$1.9 billion.

c. **Bonds issued by the sector.** The sector has been highly successful in raising financing from domestic and diaspora bonds. Many Ethiopians (nationally and internationally) have spent a month's worth of their salaries to purchase these bonds as part of the Government's campaign to promote sector investments. Typically, these bonds have a seven-year maturity with a 5 percent interest rate. The current estimated portfolio of these bonds is over US$4.7 billion.

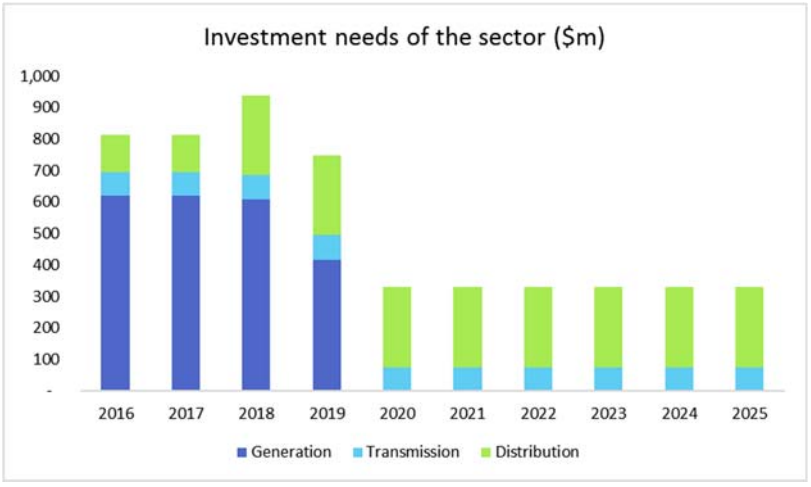
d. **Supplier's credits.** The sector also has long-term agreements with many suppliers for providing credit. Typically, these loans tend to be for two to four years with a one-year grace period and carry interest rates of 4–6 percent. The current estimated portfolio of these supplier's credit is around US$240 million.

Table 4.7. Long-term Liabilities

Borrowing Source	Loan Amount	Repayment Period	Grace Period	Interest Rate
	US$, millions	Years	Years	%
International financial institutions/Government On-lending	1,316	20	5	5.00
Commercial banks	1,909	10	3	6.00
Bonds	4,777	7	0	5.00
Supplier's credits	240	4	1	5.00
Total current estimate	**8,242**	[averages of categories used]		

41. **The sector still has approximately US$2.5 billion in investment needs to meet GTP targets (2018).** The sector would need an additional US$2.5 billion in investments till 2025. Most of the investment needs till 2019 are needed to complete the ongoing hydro and wind power generation projects. Because most new power will be procured through IPPs, no further investments in the generation sector will be required post 2019–2020. Relatively stable volume of investments (US$50 to US$75 million per year) will be needed for transmission lines within Ethiopia to connect to regional interconnectors. Relatively stable investments in the distribution network will be needed as 80 percent of the MV and LV backbone has already been constructed in Ethiopia. Around US$200 million per year of investments will be required for densification activities and last-mile connections (see Figure 4.7).

Figure 4.7. Sector Investment Needs



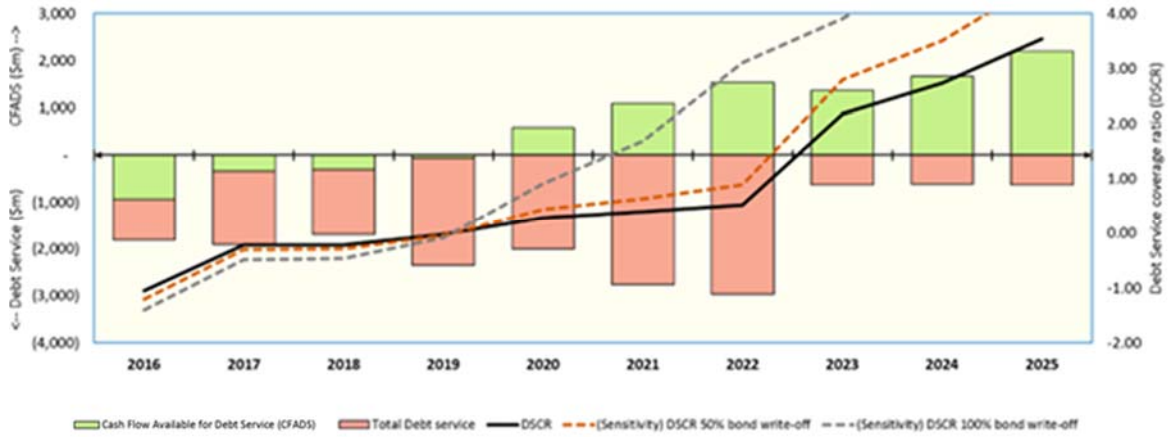
Debt Service

42. **Outstanding debt's repayment may be unsustainable at the current tariff levels, but at the cost-reflective tariff (US$0.06/kWh), the sector cash flow may be sufficient to start breaking even by 2025** (see figures 4.8 and 4.9). As many of these loans/bonds were taken on in

the recent past, the repayments have now started to become due and the repayment will significantly ramp up post-2016 and the sector at the existing tariff will be unable to generate enough cash to service future debt obligations (especially on principal/face value payments). Shown in Figure 4.9 is also simulation of two cases where only 50 percent and 0 percent of the bond obligations remain in the sector. This is reflected in the different debt service coverage ratio lines in the figure depicting scenarios of reduced bond obligations.

Figure 4.8. Outstanding Debt Repayment Schedule

Figure 4.9. Cash Flow Required for Debt Service and Debt Service Coverage Ratio



Financial Viability of the Program

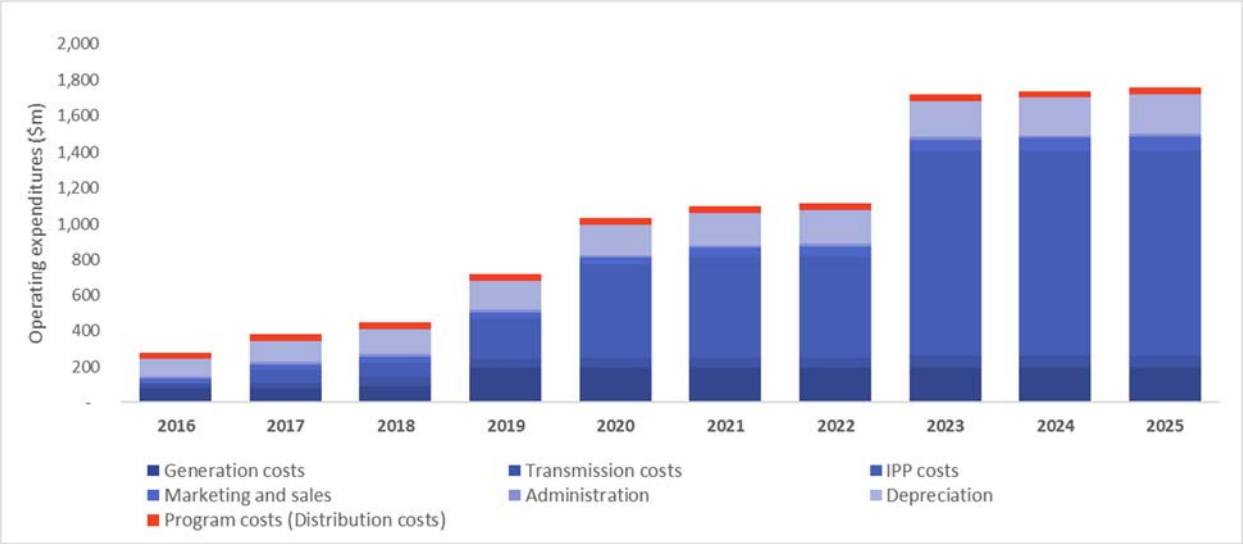
43. Densification activities under Results Area 1 (86 percent of Program funds) are not expected to negatively affect the EEU's financial situation. At the current tariff rate (US$0.03 per kWh), the NPV of the on-grid activities is positive at US$4.96 million. Assuming payback from the time after all the 1.08 million new consumers are connected in 2023, the Program breaks even in the next seven years at the current tariff levels and within one year if the tariff were to increase to US$0.05 per kWh.

44. The model assumes that the first 360,000 connections (one-third of the total) would cost the EEU an average of US$150 per connection. The next one-third of the connections are assumed to cost the EEU an average of US$300 per connection and the final one-third would cost the EEU an average of US$450 per connection. Hence the average cost of connection for the EEU to connect the total 1.08 million consumers is US$300 per connection. The EEU is assumed (based on its current operating model) to incur no more than US$100 per connection, and the difference

is paid by the consumer through an up-front connection cost (scaled up in the order of the connection cost incurred by the EEU) and the tariff paid over the lifetime of the connection.

45. **There will be no material impact of the Program's operating expenditures on the overall sector's operations.** Activities covered under the program include densification activities (last-mile household connections, community facilities electrifications, and LV network expansion) and MV expansion activities. Operating expenses related to these activities amount to US$36 million per year and are, on average, around 5 percent of the total operating costs. Figure 4.10 depicts the impact of the Program's operating expenditures on the sector's operating expenses. The biggest operating expenditures relate to IPP costs (post-2019) and operating costs related to generation and transmission. Program costs are depicted in red in the figure.

Figure 4.10. Impact of Electrification Program on Sector Operating Expenditures



Cash Position of the Sector

46. **The Ethiopian power sector is expected to have weak cash position due to their outstanding debt obligations.** Tariff reform and policy interventions from the GoE might be required to address it. Some pending capital expenditures in generation and outstanding debt obligations (both bonds and loans) will result in significant cash outflow in the next three to five years that will not be matched by dollar-denominated export revenues (which starts ramping up post-2019) and increased domestic residential revenue. Historically, the EEU/EEP have received the GoE budgetary support for such shortfall, but the exact quantity is undisclosed. A combination of tariff revision and the GoE policy action (restructuring of the short-term debt on books that was used to finance the long-term infrastructure) can address the issue, with positive cash flow as early as 2020–2021 and a net cash positive position by 2024–2025.

Fiscal Impact

47. There could be significant fiscal challenges to the Government ahead in sectorwide issues (which are not essentially Program related). To a lesser significant level, there may be loss of revenue to the Government if the sector appropriates all proceeds from customers added as part of the Program and is not required to pay taxes or dividends to the Government based on the benefits from the Program. On the other hand, the Government budget could benefit from the differential

between the concessional terms upon which the IDA Credit and other soft loans will be extended to the Government and the near-commercial terms on which part of the credit will be on lent to the sector.

48. **Ethiopia is in a unique position as over 63 percent of investments in the power sector have been financed through seven-year local and diaspora bonds issued in context of national development.** At present, the sector is directly responsible for the implementation of the Government's public policy goals for the sector. The financial health of the sector would be better served with assistance from the Government with regard to bearing the burden of some of the capital costs of the investment program. Policy makers in the Government could take the outstanding bond debt outside the sector and under the National Government to tackle the issue of US$2,000–3,000 million a year in-debt service obligation and potential shortfall that the sector faces in the future. The debt could also be restructured by pooling the short-term debt together and spreading it over a much longer (20+ year) horizon.

Tariff Structure Revision

49. **Increasing the average tariff rate to be able to recover costs would be the most financially prudent way to balance the investment program needs with the operational reality of the sector.** This would help ensure that there is adequate coverage for servicing the debt obligations. However, it is recognized that there are several sociopolitical challenges associated with tariff structure revisions, especially for a country where a significant portion of the population lives below the poverty line. The solution could lie in achieving the desired average tariff level using a tiered tariff structure that represents the economic reality of the various segments of the population.

GoE's Sector Financial Analysis

50. The financial analysis described earlier considers conservative assumptions related to demand growth, supply availability, and capital expenditure. Official assumptions used by the GoE in their estimates may vary related to these fields, which may result in a slightly different projected financial position of the sector. The following are the key differences in assumptions and the resulting differences in the sectorwide financial position:

- **Demand/supply.** Demand outpaces supply in 2019, but due to the IPPs coming online by end of 2019, the demand stays met till 2021. However, due to assumed growth in export demand (below), demand outpaces supply post-2021. The GoE might need substantially more generation to meet its assumed export target—which might put significant capital burden if done through public finance and significant operating cost burden if procured through IPPs. According to the GoE's estimates, export demand grows from 200 MW firm currently to 5,800 MW firm by 2025 (as opposed to 3,212 MW firm in the World Bank scenario). This difference is due to assumed exports to Somalia, Saudi Arabia/Yemen, South Sudan, and Eritrea.
- **Financial position.** Even at the current tariff levels, due to increased dollar-dominated exports revenue, EBITDA remains positive for the entire projected period (2017–2025) and net income becomes positive by 2020. With increase in tariff to US$0.05 per kWh equivalent, net income becomes positive by 2019. The utility also remains in a net cash positive position even at the current tariff levels, with full interest and loan payments—due to significantly increased exports revenues. Cumulatively, the

sector earns an income of US$5.25 billion (loses US$1.3 billion between 2016 and 2020 and makes US$6.5 billion between 2021 and 2025).

Conclusion of the Financial Analysis

51. In conclusion, it should be reiterated that the sector is able to control and meet its operating expenses from its operating revenues and will experience significant growth over the coming years through export-related revenues (balancing out IPP power purchase costs). The financial challenges related to the sector are more structural in nature (cash flow management of debt service obligation) than project oriented. Some fundamental reforms could be carried out by policy makers to ensure the financial health of the sector.

Gender

52. The GoE is explicitly committed to the achievement of gender equality. The Constitution clearly stipulates the rights of women and the Women's Policy of Ethiopia reiterates the Government's commitment to gender equality. The Ministry of Women, Children, and Youth Affairs contributes to policy development and supports gender mainstreaming in all Government ministries and bureaus.

53. To date, the Women's Affairs Directorates have been established in the EEU, EEA, EEP, and MoWIE and various gender-specific targets and goals have been set. However, Ethiopia suffers from some of lowest gender equality performance indicators in Sub-Saharan Africa, with the Global Gender Gap report of 2016 ranking Ethiopia at 109 out of 143 countries in the magnitude and scope of gender disparities. For example, in Ethiopia, 80 percent of the population resides in rural areas and women provide the majority of the agriculture labor in these communities.

54. However, women's access to resources and community participation are usually mediated through men, either their fathers or husbands, and their agricultural contributions often go largely unrecognized which limits productivity gains.[39] The median revenue of rural, female-owned enterprises is 3.5 times lower than that of female-owned enterprises in urban areas and 5.6 times lower than male-owned enterprises in rural areas.[40]

55. In GTP-I, bold measures were undertaken to ensure gender equity and GTP-II envisages increasing the economic benefit for women, growing the crop productivity of FHHs, increasing women's decision making, and increasing women's participation in building good governance, democratization, and development. Key targets which align with ELEAP include the following, among others:

- Average crop productivity of FHHs (quintal/ha): Target[41] 38.22 (baseline 19[42])
- Number of women who benefited from vocational adult education program: Target 1,311,658 (baseline 2,972,192)

[39] Head, Sara K., Sally Zweimueller, Claudia Marchena, and Elliott Hoel. 2014. Women's Lives and Challenges: Equality and Empowerment since 2000. Rockville, Maryland, USA: ICF International.
[40] Ethiopia. Unleashing the Potential of Ethiopian Women Trends and Options for Economic Empowerment. June 2009.
[41] For 2019–2020 (annual target).
[42] For 2014–2015.

- Number of institutions/organizations that institutionalized women's affairs: Target 22 (baseline 8)
- Number of women involved in building democratic system, development, and good governance: Target 8,263,939 (baseline 4,466,994)
- Decision-making role of women at the Federal Executive bodies (%): Target 40 percent by 2019–2020 (baseline 9.2)
- Number of women who benefited from micro and small enterprises: Target 826,004 for 2019–2020 (baseline 2,188,567)

56. To gain insights into key gender gaps in the electricity sector, an analysis was conducted for the overall electricity sector.[43] The aim was to summarize gender gaps in the electricity sector across multiple data sources available for Ethiopia and investigate the existence of a link between the gender of the head of the household and access to electricity and energy technologies. Likewise, the report outlines inequalities between men and women across other sectors such as education, income, employment, access to finance, entrepreneurship, and so on. Key findings include the following:

- **Men are more literate than women.** Overall, 71 percent of young male and 57 percent of adult males are literate versus 67 percent young female and 40 percent adult females. Male heads of households are more literate (41 percent) than female heads of households (21 percent).
- **Low levels of women in STEM.** Only 12 percent of women pursue research in natural sciences, 7 percent in engineering and technology, 26 percent in medical sciences, and 8 percent in agricultural sciences.
- **Varied gender gaps exist in connection rates with wealth being one proxy for access rates.** Overall 30 percent of FHHs versus 20 percent of male-headed households (MHH) have an electricity account (85 percent urban households have electricity versus 5 percent of rural households) and 85 percent of those with electricity are concentrated in the highest wealth quintile. Recent MTF data also show that in urban areas, electrification rates among FHH are higher than for MHH. On average, rural households are poorer than urban households and rural FHH are poorer then rural MHH (with a reverse difference in urban areas but not statistically significant). This points to a need to pay attention to varied gender gaps that may develop in rural areas and as poorer households are targeted for household connections, for example, through densification.
- **FHH rely on less clean off-grid energy sources.** Regarding off-grid alternative sources, MHH rely more on solar energy, lanterns, and electrical battery and FHH rely on biogas, kerosene, and firewood.
- **Women are the primary firewood and water collectors.** Rural female heads of households spend, on average, 39 minutes a day collecting water and 32 minutes collecting firewood or other fuel material and male heads of households spend, on

[43] Data Sources: Census, 2007, Welfare Monitoring Survey (2011), Demographic and Health Survey (2011), Enterprise Survey (2015), and Household Consumption and Expenditure Survey (2011) and other complementary data sources.

average, 5 minutes collecting water and 11 minutes collecting firewood. Spouses living in MHH, spend 50 minutes collecting water and 41 minutes collecting firewood.

- **Female-owned firm's experience and adoption of electricity services is different.** Female participation in entrepreneurship is lower than for men and female entrepreneurs seem to face more obstacles than male entrepreneurs to run their business (less access to credit, more delays to connect to the grid, and so on). Female-owned firms rely less on an alternative source of electricity to run their business: only 38 percent of firms with female owners own a generator versus 44 percent of firms with male owners.
- **Female employment low in electricity sector.** Within the EEU, women's participation is currently still low, with 80 percent of staff being male and only 20 percent of all positions held by women (target 30 percent by 2019). Female workers are more involved in the retail, general service, finance, and administration departments than male workers.

57. Based on the findings of the gender gap analysis and other country-level targets, the following key gender actions will form a core part of ELEAP:

- **Gender capacity building.** Capacity building will be undertaken in the EEU jointly by the World Bank and USAID/Power Africa with a focus on (a) gender mainstreaming capacity building for the EEU senior management; (b) a review of current and annual training plans and recommend gender-related content; and (c) training on gender-related concepts and the relevance in the workplace for 15 regional gender focal points.
- **Women in STEM.** A targeted initiative will be developed to foster women's interest in careers in the electricity sector and actions undertaken to help close gender gaps in employment in the sector through, for example, affirmative action measures and internships and so on in partnership with key educational institutions. Additional actions will focus on the gender gaps in management-level positions and showcasing women's careers and contributions to the electricity sector.
- **Childcare.** Provision of childcare has been identified as a competitive advantage and a strategic priority to attract and retain female staff. Technical assistance will be provided to do an initial baseline assessment for the EEU to provide child care.
- **Connection cost/assistance.** Attention will be paid to ensuring that the analysis conducted for the connection costs scenarios takes into consideration MHHs' and FHHs' ability to connect to the grid, especially in the context of rural areas where a gender gap could possibly arise as the grid is rolled out.
- **Productive uses of energy.** In the studies related to demand-side management mechanisms and productive uses of energy, specific focus will be placed on exploring how electricity services (off-grid and on-grid) can reduce the time and labor burden of women and how to enhance and create income-generating opportunities for women, for example, through entrepreneurship or enhanced productivity and agro-processing.

- **GBV.** The GBV-related risks under the Program are not expected to be substantial but the EEU staff capacity will be increased through a GBV clinic and other related activities focused on enhancing prevention and response to violence both at the Program and institutional level.[44]
- **M&E.** Sex-disaggregated data will be collected and designated officers will be trained to collect and analyze data at regular intervals enabling verification of predicted gendered impacts, examination of the effectiveness of mitigation measures, and real-time course correction. ELEAP progress reports will include gender disaggregated data.

Citizen engagement

58. The centrality of customer service is among the top four priorities of the EEU's strategic themes, as customer engagement is key for (a) new connections; (b) billing and collection; (c) maintenance; and (d) complaints management. The EEU has adopted a Citizen Charter which outlines the understanding between citizens and the EEU on the quality of service and the provision of grievance redress. The utility has also established various mechanisms for customers to voice input and grievances, including public forums, suggestion boxes, customer satisfaction surveys, call centers (recently doubled in size from 30 to 60 employees), and a vigilance office. In 2016, it hosted 408 public forums across the country with 48,000 participants,[45] mainly focused on access and reliability to electricity services.

59. The regional grievance readdress forum has been established in all the 15 business regions to handle customer complaints and escalate to various levels, that is, from the regional forum to the central grievance redress handling. The EEU has also been focused on public relations and communications activities through its Corporate Public Relations Department which has been working on mainly addressing concerns and questions related to service interruptions.

60. Based on consumer feedback, the EEU has mapped the following five key areas of customer dissatisfaction:

- Power outage and quality
- Delays in new connections
- Rent-seeking attitude and behavior
- Wrong billing
- Employee capabilities to deal with consumer complaints and customer interface

61. A workshop on CE was held, together with the EEU, in February 2017 to identify entry points for the sector. Based on in-country dialogue and sector analysis, the following CE engagement mechanism will be undertaken under the Program:

- **Establish/strengthen CE (community level).** Program activities will build on the CE mechanism in existence, outlined earlier. As a first step a comprehensive CE work program will be developed by the EEU under the Program, focused on ensuring that citizens and new customers are participants in electricity sector activities, against

[44] State and Peacebuilding Fund grant supporting initiation of these activities.
[45] Public forums are organized at each region and district level in collaboration with local government administrations.

annual reporting. The CE activities will include tracking the number of customer grievances received and the percentage addressed, an annual customer satisfaction survey, piloting community score cards in selected Program areas, and strengthening the social accountability aspects of existing public forums.

- **Community-based energy education program.** A community-based energy education program will be developed that will support community-based organizations to reach out to households and enterprises before electrification to educate them about electricity, its benefits, costs, safety issues, and productive uses of energy. The program will target both MHHs and FHHs but will pay particular attention to the poorer community members who may be reluctant to take advantage of the electrification opportunity or face barriers to access information.
- **Media campaign.** The success of achieving the overarching goals of ELEAP will rely on a well-planned public communication and outreach program. Communication will be multidimensional, ranging from sharing technical information to engaging stakeholders to raising awareness among communities and the public as a whole. This will help create an enabling environment for modernizing the electricity sector in the country through effective engagement with citizens, new customers (households and businesses), and existing customers.
- **Capacity building customer-centric approach EEU.** The focus on last-mile electrification for the EEU will require capacity building on customer-centric approaches which focus on the user's experience from the awareness stage, through the connection, and finally through the post-connection process, for example, bill payment. Capacity building will focus on staff from relevant departments and various levels of management.

Annex 5: Summary of the Integrated Fiduciary Assessment

1. An IFA of program fiduciary systems for the proposed Program—ELEAP was carried out on the MoWIE, EEU, UEAP, and a sample of participating regions and districts under the EEU, including the UEAP that will implement ELEAP consistent with 'Operational Policy, Bank Procedure, and Bank Directives and Guidance for Program-for-Results Financing'.

2. The IFA used the results of the 2014 PEFA reports that covered the Federal Government and six regions, CPAR that was carried out in 2002 and updated in 2010, the results of the entity audit reports, the lessons of the current operations of ENREP and ENREP-AF (IPF projects), including the FM and procurement management supervisions conducted for these operations, and the results of the field visits conducted for the Program. Teams of FM, procurement, and governance experts travelled to the main and selected regional offices between March and May 2017 for this assignment. The review assessed FM, procurement system rules and procedures and their application, and governance, including oversight mechanisms at the Program implementing entities, as well as F&C combating and complaint-handling mechanisms.

3. The fiduciary assessment entailed a review of the capacity of the sampled participating entities on their ability to (a) record, control, and manage all Program resources and produce timely, understandable, relevant, and reliable information for the Borrower and the World Bank; (b) follow procurement rules and procedures, capacity, and performance focusing on procurement performance indicators and the extent to which the capacity and performance support the PDO and risks associated with the Program and the implementing agency; and (c) ensure that implementation arrangements are adequate and risks related to F&C, as well as complaint-handling mechanism are reasonably mitigated by the existing framework.

A. FM

4. PFM reform in Ethiopia has registered satisfactory progress. The GoE has been implementing comprehensive PFM reform with support from DPs, including the World Bank, for quite some time through the Expenditure Management and Control sub-program of the Government's civil service reform program. This has been supported by the closed IDA-financed Public Sector Capacity Building Support Program, the ongoing Promoting Basic Services program, Enhancing Shared Prosperity through Equitable Services program, and other donor financing as well as the Government's own financing. These programs have focused on strengthening the basics of PFM systems, including budget preparation, revenue administration, budget execution, internal controls, cash management, accounting, reporting, and auditing. Recently, the Ethiopian financial proclamation was issued and the Accounting and Audit Board of Ethiopia was established. Institutionalized training has been implemented and to enhance internal auditors' independence, internal auditors at the federal and region levels will report to MoFEC and Bureau of Finance and Economic Development (BoFED), respectively. The 2014 PEFA assessment has been completed for the Federal Government, as well as for Tigray, Amhara, Southern Nations, Nationalities, and Peoples' Region (SNNPR), Oromia, Somali regions, and Addis Ababa City Administration. Improvement was noted in most of the Federal Government overall ratings although the rating differs among regions. Generally, the country's budget credibility remained good and was supported with continuing robust budget execution and internal control systems. Budget transparency and comprehensiveness has also been strengthened since the 2010 assessment. Good performances were noted on arrears management, access by public to fiscal information, and revenue administration. The tax audit function is gradually increasing focus

on risk assessment but capacity constraints remain. Budget execution systems appear to continue to work well. Robust internal control systems remain. Procurement systems have been strengthened since the 2010 assessment although publication of procurement information has not progressed as much. Furthermore, scrutiny has been strengthened given that the medium-term expenditure framework is being reviewed by the relevant legislation unit and procedure for the review of the draft budget strengthened. Legislative scrutiny of audit reports improved performance on depth of hearing and monitoring of implementation of recommendations. Although improvements are noted, strengthening internal audit function has proceeded at a slower pace than expected. The provision of electronic links between the Integrated Budget and Expenditure (IBEX) systems in BoFED and those in sector bureaus, where IBEX was being established on a stand-alone basis remains a constraint affecting the ratings on accounting and reporting. In addition, timeliness of the preparation of statements and coverage has progressed although regional reports are submitted to the federal level with delay.

5. Based on the assessment which has drawn results or inputs from the 2014 PEFA, the lessons of the current operations of ENREP, ENREP-AF in the electricity sector; current operations being led by the MoWIE; and the results of the FM assessment conducted for the Program, the following key findings/performance FM issues and risks are detailed in the following paragraphs.

6. **Planning and budgeting.** As indicated in the PEFA assessments, the GoE has a well-functioning planning and budgeting system. MoWIE prepares plan and budget annually in sufficient detail for its programs and units following the GoE's budgeting procedure and calendar. The consolidated budget, after consideration by the management and recommendation by MoFEC, is proclaimed as part of the federal budget. The budget preparation to approval processes of the MoWIE, including notification of the approved budget are usually performed on time. The consolidated budget includes sources from treasury, loans, and assistance. On the other hand, the EEU, including the UEAP, uses the former EEPCo's planning and budgeting procedure manual. Although, the same fiscal year (July 8 to July 7) is being followed, the budget calendar of the EEU does not strictly match that of the Federal Government. The EEU uses top-down and bottom-up approaches in preparing its AWPB where targets are provided from the head office and are subsequently matched with the implementation capacity and realities at the region/district and each working unit level. The targets are based the five-year plan (GTP). Physical plans are adequately costed and AWPBs are sufficiently detailed. The Government's contribution to the UEAP is included as part of the MoWIE's budget and proclaimed at the federal level. The EEU's consolidated AWPB, including the UEAP's, is required to be approved by the EEU Board. However, approval by the EEU Board and subsequent notification to each process are delayed and usually provided after two to three months of the start of a fiscal year, which should be improved. So, while the MoWIE budget preparation follows the budget calendar and is approved and proclaimed on time, there is approval delay on the EEU budget.

7. **Budget credibility/execution.** Budget credibility is an issue both at the MoWIE and EEU. Shortage of finance, low supply of materials, and ambitious planning are the key justifications attributed for the low level of budget execution.

8. **Transparency.** The budget breakdown by chart of accounts or Program activities, as well as in-year budget execution reports, and audit reports were not disclosed on the MoWIE's website or through other means of communications. Districts under the EEU posted their physical plans on their notice boards and performed public forums to discuss performances. Detailed customer

waiting lists are also posted at regions and districts. However, the EEU's consolidated annual plan and budgets, budget execution, and audit report were not disclosed on its websites or through other means of communication. To enhance transparency, the NEP budget and financial information need to be disclosed to the public through the MoWIE and EEU's website or through other means.

9. **Budget monitoring and control.** The MoWIE has a budget control section within the Finance Directorate responsible for monitoring budget both at the transaction processing and a reporting level. The unit uses the budget control module of IBEX and every payment passes through the unit to ensure budget availability. Monthly reports also include comparison of budget and actuals. At the EEU, approved budget data for both operating and capital budgets are entered in the Agresso accounting system. However, budget execution reports are extracted from the Excel spreadsheet where approved budget figures and subsequent disbursements are tracked. This practice is prone to errors. Budget execution reports are produced and submitted to the management, Board, and the MoWIE on a quarterly, semiannual, and annual basis. These reports are based on disbursements rather than actual expenditures and constitute estimated inventory consumption data, which adversely affect the quality and completeness of the budget execution reports. In addition, the budget execution reports are not according to planned activities (for example, meter reading, collections, maintenance, new connections, rehabilitation and upgrading, and so on) but rather per expenditure line item (expenditure types for example, material, salary, fuel and lubricant, and so on) as the basis for capturing the expenditures is by line item and the system is not able to produce reporting on major Program implementation activities/components. Hence, such practices must be amended, which may entail changes to the usage of the current chart of accounts structure as well as clearing of backlogs and resolving staffing issues for the EEU to be able to report according to the Program activities.

10. **Program budgeting arrangements.** The Program will use normal budget procedures of the GoE to prepare budgets. Implementing agencies (EEU/UEAP, MoWIE's REF/DoE) will prepare the annual program budget with sufficient detail and the program budget will be consolidated at the MoWIE/DoE. The Program budget will be reviewed/discussed with the Director of the DoE, the National Steering Committee for Electrification, and the sector working groups comprising DPs. The ELEAP budget will be reviewed by the management of the EEU and MoWIE, MoFEC, and then by the Council of Ministers. The final recommended draft federal budget which specifically shows the activities to be funded by ELEAP is sent to Parliament in early June and is expected to be cleared, at the latest, by the end of the Ethiopian fiscal year (EFY). The MoWIE's and EEU's chart of accounts will be enabled to accommodate budgets and expenditures for the Program by Program effectiveness. With regard to budget monitoring aspects, the implementing agencies (both the EEU and MoWIE) are expected to maintain a system-based budget control mechanism. The normal Government system requires monthly reporting from lower to higher levels. However, for this Program, quarterly interim financial reports to the management, EEU Board, World Bank, and other DPs will also incorporate budget monitoring reports where actual performances will be compared with the budget and explanations will be provided for significant or major variances.

11. **Treasury management and fund flow.** PEFA notes robust systems of treasury management and flow of funds. Funds flow from MoFEC to the MoWIE is based on cash flow forecast prepared and approved and daily zero balance account withdrawal limit. At the EEU there is a reasonable flow of funds. The EEU's source of fund constitutes the budget from the Federal Government for contribution toward the UEAP's capital budget to provide access to mainly rural

towns, sales of electricity, loans and grants, customer contributions, and other miscellaneous income. Funds from the Federal Government are released to the UEAP based on cash flow forecast and utilization reports and the assessment noted that the Government usually disburses the full annual budgeted amount in a fiscal period. Projects funded by DPs also usually obtain the allocated fund according to the specific agreements. Collections from sales of electricity, customer contributions, and miscellaneous income from each district and region are transferred from their respective accounts to the central main account at the head office on a daily/weekly basis according to the standing instruction provided to the banks. Disbursements to regions and project/program offices for operating and capital expenditures are usually made monthly based on the approved budget and utilization reports. The 15 regions under the EEU provide petty cash to the districts under them based on the approved budget and utilization reports. Similarly, the UEAP disburses monthly to its eight regions based on the approved budget and utilization reports. The system of treasury management and flow of funds are robust. However, the assessment revealed instances of unpredictability of funds. The total capital and operating expenditure planned for EFY 2009 was ETB 20.34 billion. From this amount, ETB 9.19 billion was identified as the financing gap to be filled by local loans through treasury bills. The EEU is unable to obtain these funds up to now, although the intended loan of ETB 9.19 billion was approved by MoFEC. It was also noted that the EEU has faced a challenge in contributing its major share of financing toward the implementation of the ERP system, IT infrastructure, and information security.

12. **The Program funds flow and disbursement arrangements.** The IDA funds of the Program will be channeled to the MoWIE and EEU from IDA. According to the consultations with the Government, it was agreed that separate foreign currency accounts denominated in U.S. dollars will be opened for both the MoWIE and EEU at the National Bank of Ethiopia. Separate local currency accounts can be opened to receive transfer from the U.S. dollar account and to also receive funds for the Program from other sources. Request for disbursement from IDA will be made by the MoWIE only and IDA funds will be deposited to the MoWIE and EEU foreign currency accounts upon the achievement of their respective DLIs. The MoWIE and EEU will use the resources to finance eligible expenditures under the Program. Upon achievement of the indicators, the MoWIE/DoE will present the Program RVR to the World Bank within three months of the end of each fiscal year. The World Bank will use the Program RVR to determine the amount of the eligible disbursements to be made based on the results achieved. In case of a scalable DLI, the task team will determine the amount to be disbursed based on the Program's progress report and DLI verification protocol. A notification will be sent to the Borrower to inform the amount to be disbursed against progress achieved toward the results of the scalable DLI. An advance of up to 24 percent of the total PforR is available for disbursement should the Government require one. It will be disbursed following the effectiveness of the Legal Agreement for the financing. When the DLIs against which the advance is disbursed are achieved (up to US$0.5 million equivalent for DLI 3 and DLRs 5.12–5.16 to be achieved by the MoWIE and up to US$60.5 million equivalent for DLIs to be achieved by the EEU), the amount of the advance will be deducted (recovered) from the total amount due to be disbursed under such DLIs. The advance amount recovered by the World Bank is then available for additional advances ('revolving advance'). The World Bank requires that the Borrower refund any advances (or portion of advances) if the DLIs have not been met (or have only been partially met) by the closing date. Disbursements for prior results will be made against the verification of the results following the effectiveness of the Credit. Details of the key disbursement issues will be spelt out in the Disbursement Letter. It is important to note that although PforR operations do not link disbursements to individual expenditure transactions, the

aggregate disbursements under such operations should not exceed the total expenditures by the Borrower under the Program over its implementation period. If, by Program completion, IDA financing disbursed exceeds the total amount of Program expenditures, then MoFEC is required to refund the difference to the World Bank. The World Bank shall then cancel the refunded amount of the withdrawn financing balance.

13. **Accounting.** PEFA notes a strong accounting and reporting system in the country, but performance is an issue especially on the links between BoFED and sector offices (despite good progress on rollout), delays in clearing suspense accounts, and failures in reporting commitments and incorporating reporting on/accounting for DP-financed Programs into IBEX. Capacity constraints caused by high staff turnover rates were a major root cause for the challenges in accounting and reporting. The MoWIE follows the Government's accounting policies and procedures under a double-entry bookkeeping system and modified cash basis of accounting, as documented in the Government's accounting manual. It uses IBEX for its treasury transactions while project transactions (financed from loan and assistance sources) are captured and reported using Peachtree accounting software. Budget control, Treasury, Capital Project Finance, Procurement, and Property Administration are the five subunits of Procurement, Finance and Property Administration Directorate of the MoWIE. The directorate is currently understaffed and capacity building/trainings provided to the existing staff are also noted to be limited. The MoWIE should resolve its staffing issue by filling the vacant posts and providing adequate trainings to build staff capacity. With regard to the EEU, including the UEAP, it follows its own manual. The Program will be required to use the Government's modified basis of accounting to report on sources and utilization of funds, while the EEU follows the accrual basis of accounting. The EEU's system should be enabled to report for both. The EEU is using the former EEPCo's FM procedure manuals based on approval from the EEU Board. These procedure manuals were available at the visited offices and appropriately used. The EEU planned to revise these manuals as part of preparation to transition to IFRS. The current chart of account (CoA) is not used to report major activities of the EEU and does not identify tariff (meter reading, collection, maintenance, and so on) and non-tariff costs/expenditures (new connections, investments, and so on). This could be challenging when a reporting by activities and or Program components is required. The EEU maintains the Agresso accounting system for general ledger, AS400 for inventory and payroll, Excel spreadsheet for fixed asset, and customer management system (CMS) for billing and customer-related transactions. The Agresso accounting system does not interface and has mapping problems with the ancillary systems maintained for billing, stock, payroll, and fixed asset. To resolve its system issues, the EEU has contracted an international firm to roll out the ERP system which is being financed by the World Bank (ENREP and ENREP-AF projects). Good progress has been made on the ERP system for the past year mainly in preparing the blueprint document; however, it is now lagging and the system is far from being operational. In general, it is important for the EEU to identify key bottlenecks and resolve them in due time. The assessment notes significant number of vacant posts at the EEU. The existence of vacant posts may create workload and dissatisfaction among the existing employees, which in turn may bring the risk of reducing quality of work and timely reporting. This is a critical problem which requires immediate solution from the EEU's management.

14. **Program accounting policies, systems, and procedures.** The Program will follow modified cash basis of accounting. The EEU will continue to use the accrual basis of accounting for reporting for their own purpose. However, the EEU will enable its system to be able to report by modified cash basis of accounting as well. A computerized accounting system will be used at

the MoWIE while Agresso accounting system will be used for the EEU (Upon successful roll out or implementation of ERP-SAP, the accounting system of the program will be migrated to the new ERP-SAP. However, the new system will be well tested to ensure that the program accounting, recording, and reporting will not be affected). The CoA of the EEU primarily (and the CoA of the MoWIE if needed) will be amended to accommodate the sources and expenditures of the Program activities. Both the MoWIE and EEU will account for Program sources and expenditures incurred at their respective entity, retain documentation, and produce reports. The MoWIE will recruit/assign adequate staff to oversee the FM functions of the Program. The EEU including the UEAP will also fill their vacant posts according to the structure to be able to manage the Program funds and the EEU will also dedicate a team to coordinate, report, and act as a point of contact for the Program activities. The MoWIE and EEU will monitor their level of staffing and ensure that there is adequate staff to manage ELEAP.

15. **Internal controls.** PEFA clearly acknowledges the internal control to be reasonably strong. The MoWIE uses the Government's internal control procedures while, as stated earlier, the EEU, including the UEAP, uses the former EEPCo's FM procedure manuals based on approval from the EEU Board. The MoWIE's internal control system was found to be satisfactory. There is proper segregation of duties on the payment approval cycle. The control over payroll process is good. Payroll is prepared on an Excel spreadsheet by the accountant assigned to the task. The MoWIE should consider applying software for processing payroll. Instruction to prepare payroll is issued monthly by the Human Resource Directorate based on staff attendance information. In addition, the directorate notifies the Finance Unit of any change that affects payroll as they occur. Employees are paid through the bank. Although the assessment did not reveal many problems in the internal controls at the ministry, there were internal control issues reported by the auditor of the ministry with regard to the EFY 2008 audit in long outstanding balances in appropriate payment to terminated staff and internal control issues in property management. The assessment also confirmed that a fixed asset register is not yet set up and depreciation computation is not yet commenced. The assessment also revealed a delay in preparing bank reconciliation for treasury bank accounts. The MoWIE should address all these findings in a systematic manner. With regard to the EEU, key internal control assessment summary issues for the EEU, including the UEAP, notes good controls on non-salary payment controls, including authorization, recording, and custody controls. However, delay in preparing bank reconciliation and failure to conduct regular cash count were noted at the head office and at most of the visited regions. Bank reconciliation for the EFY 2009 has not yet started at all the offices that were visited. There is a trend to perform bank reconciliations on an annual basis as part of the account closing tasks. Backlog transactions should be posted and backlog reconciliations should be immediately cleared. With regard to salary (payroll) controls, there is a robust control on payroll and payroll data are maintained and processed using the AS400 system maintained at the head office and at regional offices. With regard to property management, the assessment revealed inadequate property management control, including significant delay in recording stock transactions in the AS400. The assessment noted that the UEAP uses an Excel spreadsheet instead of the AS400 and the inventory data are updated. However, the Excel spreadsheet is prone to error and may lead to incorrect costing. The fixed asset register maintained by the EEU is incomplete and the physical count of fixed assets has not been performed for the past 15 years. Receivables and payables are also one of the repeated control inadequacies in the EEU's entity audit report and the former EEPCo relates to the receivable and payable balances which include unreconciling balances on suspense accounts, long outstanding balances, and various abnormal balances. In addition, the subsidiary ledgers were not maintained

for receivable and payable balances (except for customer data in CMS and staff data in the AS400) which led to extra work at the year-end trying to prepare detailed schedules, including age of the balances.

16. **Internal audit.** This is an area that is generally considered to be the weakest link in the PFM system. The MoWIE has an Internal Audit Directorate to conduct financial and property audit as well as performance audit. The directorate suffers from severe understaffing. The directorate conducts quarterly audit and report findings. There is a follow-up of audit findings using action plan though there is interruption. Issues raised include presence of unsettled advances, instances of wage payments without an attendance sheet, presence of payments that have no adequate legal supporting documentation, and presence of expired guarantees in connection of terminated contractors. For the EEU, its internal audit unit is accountable to the Board. Its audit charter is approved by the Board and working manuals are prepared by the chief auditor and distributed to staff. The oversight role of the Board is not strong (the previous Board had a Finance, Property, and Internal Audit subcommittee which was expected to provide oversight and was considered as an audit committee. However, the new Board does not have subcommittees yet). In addition, the audit unit is understaffed and has suffered from staff turnover. The assessment team noted that the EFY 2009 nine months' reports were compiled and submitted to the management. The unit was able to perform a total of 157 audit assignments and the report summarizes the key issues noted, actions taken, and remaining key issues that require management attention. The report identifies several issues and the key issues include instances of cash shortages mainly by dishonest cashiers, failure to strictly follow the estimation manual resulting in a significant amount of uncollected new connection fee and misappropriation of property, registering customers in an incorrect tariff category leading to understated billing, and existence of uncollected amounts from re-billing, wrong data from tariff change, wrong data of power improvement in the system, terminated customers, damaged meters, and other billing-related issues. The report noted a significant delay by management in taking corrective action. The EEU needs to strengthen staff capacity and improve audit coverage. The management needs to strengthen its implementation of recommendations of internal auditors.

17. **Program internal control and internal auditing.** The MoWIE will use Government FM systems and procedures for the Program, which are adequate to ensure that satisfactory internal controls are in place while the EEU/UEAP will use the FM manual that will be updated about the transition to IFRS, which is also expected to take account of the reporting requirements of the Program. The FM of the MoWIE and EEU have sufficient controls to ensure authorization, recording, and custody controls. Delay in preparing bank reconciliations, lack of a fixed asset register, and lack of a system for its payroll were noted as the MoWIE's inadequacies. For the EEU, the noted inadequacies were an incomplete fixed asset register, failure to conduct physical count of fixed assets, delay in recording inventory transactions, delay in preparing bank reconciliations and conducting regular cash count, unreconciling balances on suspense accounts; long outstanding balances in receivables and payables; long outstanding assets in transit, cash management issues, and various abnormal balances. The task force and the MoWIE will regularly follow the outstanding FM issues to resolve the challenges. The internal audit unit of the MoWIE and EEU/UEAP will develop separate annual risk-based audit plans that are the basis of their internal audit work. For any inadequacies in the operation of ELEAP, a report will be sent to the MoWIE within 30 days of completion of the audit together with a proposed action plan to deal with the identified risk. The EEU's internal audit reports are sent to the CEO of EEU and its Board. Strengthening the capacity of the internal auditors at all levels is required.

18. **Financial reporting.** The MoWIE follows Government reporting protocols and arrangements. According to the Government requirement, the MoWIE is required to prepare and submit to MoFEC monthly reports within 15 days after end of the relevant month and annual financial statements within three months after the end of the budget year. The content of the reports includes the trial balance, revenue details, receivable/payable details, transfer details, expenditure details, bank reconciliation with the bank statement, and monthly transaction details. Delay has been noted in submitting monthly reports to MoFEC. The MoWIE has finalized and submitted report for the month of February 2017 on April 18, 2017 (10/07/2009 E.C) with a two-month delay. The EEU is producing quarterly, semiannual, and annual reports for the management, Board, and the MoWIE from the data maintained in an Excel spreadsheet (cash transferred to regions based on approved budgets is maintained in an Excel spreadsheet and updated based on monthly utilization reports). The report basis the monthly utilization reports received from regions and uses past trends to estimate material consumptions (material/inventory is maintained in the AS400 and actual consumptions can only be identified upon recording the store issue vouchers in the system). Hence, the reports to the management may not show the EEU's actual status. Comprehensive reports based on actual data are produced at the year-end after closing all accounts and preparing the related schedules. Currently, the EEU has not closed and prepared financial statements for EFY 2008. The mission noted that the revenue data from CMS are not fully transferred to the Agresso accounting system (only three months' sales data were not yet transferred), which also adversely affects reconciliation tasks of other accounts. The key justification provided for the delay is a problem in the server, which is not yet resolved. This was discussed and will be given a high priority by the management because it also affects the timeliness of subsequent period reports. The assessment also noted that the EEU has not started recording/posting the EFY 2009 budget utilization reports from the districts and has not fully updated its inventory consumption records in the AS400 and has not transferred the revenue data from the CMS. The quarterly reports will be required to be produced for the Program. Materials/inventory items will constitute the major part of the Program expenditure and unless the EEU clears its backlog before the commencement of the Program, obtaining actual data on sources, uses, and financial positions (reconciled cash, receivable and payable accounts) will be a challenge and consequently, the EEU may be unable to issue quarterly reports.

19. **Financial reporting arrangements.** Both the MoWIE and EEU will submit quarterly consolidated unaudited interim financial reports, prepared based on actual expenditures for the Program within 60 days of end of the quarter. The formats of these interim financial reports will be produced from the accounting system of the MoWIE and EEU. Annual financial statements will also be prepared within three months of end of the fiscal year and will use a similar format as the quarterly reports. The annual financial statements need not be sent to IDA.

20. **External audit and oversight.** Audit at the MoWIE is up to date in that the Office of the Federal Auditor General (OFAG) has concluded an audit of the MoWIE's account for EFY 2008 (July 7, 2016). The OFAG has expressed an unqualified opinion on the financial statements of the MoWIE for the year ended July 7, 2016. Review of past audit reports notes some audit findings including presence of unutilized budget, late transfer at the end of the budget year of internal revenue, presence of long outstanding advance balances, and presence of payments that are not supported adequately and overpayments. The year ended July 7, 2016 audit report also notes weaknesses in internal controls noted in the Internal Control section above. On the other hand, the EEU has an audit backlog of one year (year ended July 7, 2016). The recent audit report for the year ended July 7, 2015 was issued with a disclaimer of opinion and contains significant internal

control findings similar to the previous report for the year ended July 7, 2014. Action plans were prepared to address issues of the July 7, 2014 report, and a high-level task force comprising MoFEC, the MoWIE, the EEU and EEP was established to ensure a credible follow-up of the implementation of FM actions plans. Despite this, the progress in resolving the issues has been slow and the majority of the issues were repeated in the July 7, 2015 report. The disclaimer issues noted on the July 7, 2015 audit report include weak internal control over revenue,[46] weak control over work in progress (WIP),[47] long outstanding advances for which the auditors could not ascertain whether their recovery is assured or should be considered doubtful, lack of policy/procedure to account for a reduction of stock to its net realizable value, existence of significant balance as a miscellaneous debtor,[48] wrong classification/representation of projects handled by the UEAP on behalf of EEP, weak internal control over advances received from customers for new connections,[49] and failure to comply with generally accepted accounting principles. The auditors also noted several areas of weaknesses in the internal control system, of which the majority of the findings relate to unresolved issues identified in the previous period report. While there are many internal control weaknesses reported, some of the key internal control weaknesses raised include unreconciling balances on suspense accounts, poor property (stock and fixed asset) management issues, long outstanding balances in receivables and payables, long outstanding assets in transit, cash management issues, and various abnormal balances. The EEU has prepared an action plan to address the disclaimer as well as the internal control issues noted in the July 7, 2015 reports, which it is implementing. In addition, it has established a project office comprising staff from relevant units, which will work with a consulting firm to be appointed to help transition to IFRS, perform asset valuation, and develop/update FM policies and procedures. The task force is not meeting regularly (quarterly) to review the implementation status of the planned actions. However, it has met recently after its November 2016 meeting on August 18, 2017 and had discussed the status of the planned actions. In general, the progress in resolving issues has been slow. Although the EEU entity audit reports are not required to be submitted under the World Bank-financed ENREP/ENREP-AF projects, the entity audit report for the year ended July 7, 2016 is overdue for several months and the assessment noted that the accounts are not yet closed and financial statements are not yet prepared. The delay in closing accounts is mainly attributable to the problem on the billing system (CMS) server and a staffing constraint. The mission was informed that the hardware problem of the server is under recovery and the EEU is currently waiting to obtain the outstanding three months' sales data of EFY 2008 to transfer to the accounting system (Agresso). Detailed action plans are prepared to close and audit the entity accounts of the EEU for the year ended July 7, 2016 (EFY 2008) and for the year ended July 7,

[46] The key issues raised by the auditors with regard to revenue include (a) existence of differences between income amount in CMS and Agresso accounting system as a result of system-related issues; (b) failure to reconcile the amounts of electric energy received from EEP against the amount of waste and the amount sold to customers; (c) instances of failure to bill customers who are connected to power line; and (d) errors in recording income accounts.

[47] The key issues raised in connection with the WIP include (a) incorrect recording of job completion resulting in abnormal balances; (b) several job accounts showing no movement; and (c) delays in transferring completed jobs to the proper accounts which may lead to understatement of depreciation.

[48] The miscellaneous debtor account represents the abnormal balance in the cash-on-hand account accumulated since the implementation of the current billing system (CMS) since EFY 1998.

[49] This account is expected to be settled when services are provided to customers. Such balances constitute long outstanding balances brought forward from previous years that need to be analyzed to identify whether service was rendered or not and to take appropriate action.

2017 (EFY 2009) and shared with the World Bank along with a status update of other FM issues. The EEU should resolve bottlenecks on time and adhere to these dates. In addition, the OFAG conducted performance audit for the year ended July 7, 2016 (EFY 2008) and the report revealed a number of issues with regard to the efficiency and effectiveness of service provisions to customers.

21. **Program external audit arrangements.** Both the MoWIE and EEU will be responsible for having their respective Program financial statements audited annually and submitting the audit report (audited annual Program financial statements and Management Letter). Annual audited financial statements of this Program will be submitted by the MoWIE and EEU to the World Bank within six months of the end of the Government fiscal year. The World Bank, in accordance with its Access to Information Policy, will request for public disclosure of the audit report. The audit will be carried out by an auditor[50] acceptable to the World Bank. The auditors will be appointed within six months of effectiveness. The auditor will express an opinion on the Program financial statements. The auditor will also issue a Management Letter highlighting internal control, compliance, and other inadequacies. In addition to the Program audits, the EEU's entity audit report remains essential given that most resources of the Program will be managed by the enterprise. The submission of EEU entity audit report backlog is proposed as a DLI against which disbursement will be made for its achievement.

22. **Conclusion.** The conclusion of the FM assessment was that at the MoWIE there are staff constraints both in numbers and capacity (at finance and internal audit), some internal control inadequacies are also noted at the MoWIE, budget preparations and control are reasonable, but there is lagging budget utilization. At the EEU, the main concerns are external financial audits, staffing constraints, and system issues. Although the EEU entity audit reports are not required to be submitted under the World Bank-financed ENREP/ENREP-AF projects, there is a backlog of one year for the entity financial audit (year ended July 7, 2016). The recent audit report for the year ended July 7, 2015 was issued with a disclaimer of opinion and contains significant internal control findings like the previous report for the year ended July 7, 2014. Action plans were prepared to address issues of the July 7, 2014 report and a high-level task force comprising MoFEC, MoWIE, the utility, and EEP was established to ensure a credible follow-up of the implementation of FM actions plans. However, the progress in resolving the issues has been slow, and the majority of the issues were repeated in the July 7, 2015 report. The disclaimer issues noted in the July 7, 2015 audit report include weak internal control over revenue, weak control over WIP, long outstanding advances for which the auditors could not ascertain whether their recovery is assured or should be considered doubtful, lack of policy/procedure to account for a reduction of stock to its net realizable value, existence of significant balance as a miscellaneous debtor, wrong classification/representation of projects handled by the UEAP on behalf of EEP, weak internal control over advances received from customers for new connections, and failure to comply with generally accepted accounting principles. The EEU has prepared an action plan to address the disclaimer as well as the internal control issues noted in the July 7, 2015 reports, which is being implemented. In addition, it has established a project office comprising staff from relevant units, which will work with a consulting firm to be appointed to help transition to IFRS, perform asset valuation, and develop/update FM policies and procedures. The assessment also noted that at the

[50] According to the Ethiopian Constitution, the OFAG is responsible for auditing all the financial transactions of the Federal Government and subsidies to the regions. The OFAG has regional offices. Each of the regions has a Regional Auditor General, who is responsible for the audit of Government financial transactions in the region.

EEU, the Finance and Control Unit at the head office and regions are highly understaffed, which may have contributed to significant backlogs in recording material consumptions in the AS400 and posting utilization reports from districts into the accounting system (Agresso). It was also noted that the Agresso accounting system is not interfacing/or has mapping problems with the systems maintained for billing, stock, payroll; and fixed asset. The EEU is also facing a problem on the billing system (CMS) server and as a result, three months' sales data of EFY 2008 are not yet transferred to the accounting system (Agresso). This is adversely affecting the time it takes to close entity accounts for EFY 2008 and will have a roll-on effect on subsequent periods' and will require the management's urgent attention. To resolve its system issues, some time ago, the EEU contracted an international firm for the supply and installation of an ERP system. This project is fully financed by the World Bank. Good progress has been made mainly in preparing the blueprint document, but the system is far from being operational. The existence of considerable backlogs and staffing constraints may hamper a successful implementation of the ERP project. With regard to other challenges noted, the assessment revealed that although the physical plans are adequately costed and AWPBs are sufficiently detailed, the budget approval by the EEU Board is usually delayed. Budget controls are not performed using the Agresso accounting system, but are done off the system. Low budget executions were observed, raising concerns as to the credibility of the budget. In addition, the current chart of accounts is not set up to capture expenditures by activity in general and for this Program in particular. Despite the existence of robust treasury management and segregation of duty in the payment approval cycle, there are backlogs in the preparation of bank reconciliations. Rolling action plans are prepared to address issues and a task force is established to ensure a credible follow-up in the implementation of these action plans. However, it is important to note that the resolution of actions takes considerable time due to many reasons. Based on these observations, the FM risk assessed for this operation is classified as High. To mitigate the risks and inadequacies noted, specific actions are identified as shown in Program Action Plans and DLIs to target these challenges.

B. Procurement

23. **Country procurement assessment.** The Federal Procurement proclamation applicable is Proclamation No. 649/2009 issued on September 9, 2009. There are initiatives under way to amend the proclamation. A CPAR was carried out in 2002 and updated in 2010 mainly to respond to Ethiopia's progress in decentralization since 2002 and to also address the gaps identified during the 2002 CPAR. Though some improvements were achieved since the 2002 CPAR, the 2010 CPAR highlighted several risk areas and inadequacies in the legal, institutional setups, and procurement practices that include the following:

(a) The Federal Public Procurement Agency (FPPA) does not have regulatory and monitoring responsibility over Government-owned enterprises.

(b) The FPPA reports to MoFEC and the Regional Public Procurement Agencies report to their respective BoFED and cannot be considered independent of the executive bodies though it seems they have some level of management autonomy.

(c) The capacity of the FPPA and Regional Public Procurement Agencies to monitor procurement activities and carry out comprehensive procurement audits is inadequate.

(d) There are no formal oversight or complaint mechanisms at some regional states levels.

(e) There is lack of adequate recognition for the procurement profession and a shortage of capacity to effectively enforce and implement the procurement law.

(f) Procurement staff skills in understanding the procurement process management requirements of the Government's own system is low and the private sector is not organized and mature.

24. The 2010 CPAR also highlighted concerns with (a) the minimum time provided to bidders to prepare meaningful bids; (b) the local preferences given to MSEs; and (c) the legal framework allows a merit point system to be used for both goods and works procurement, and this may lead to diminished transparency in award of contracts. These inadequacies or situations may affect the implementation of the planned Program.

25. **Program procurement capacity assessment.** The World Bank carried out a fiduciary (procurement) system assessment for the proposed ELEAP PforR operation between March and May 2017. The review included applicable procurement systems, rules, and procedures, including oversight mechanisms at the program implementing agencies, MoWIE, and EEU. Since substantial amount of Program funds will be utilized by the EEU including the UEAP unit, the key focus of the procurement assessment was on the EEU. In addition to the MoWIE, and the EEU headquarters, out of the 19 regional offices of the EEU and 8 branches of the UEAP participating in the Program, 4 from the EEU and 2 from the UEAP were visited and assessed.

26. **Procurement organization.** The EEU is a Government-owned enterprise and is an entity whose procurement is not regulated under Ethiopia's Federal Government Public Procurement Proclamation of 2009. The EEU has prepared its own procurement guidelines and manuals based on the federal procurement law, World Bank procurement procedures, and other best practices. In the EEU, major procurements are managed by the head office, and the remaining are procured by the regional offices through their respective procurement units.

27. Under the MoWIE, there are three state ministers: irrigation and drainage sector, electricity sector, and water supply and sanitation sector. The state ministers' offices are responsible for managing 23 directorates. In addition, EEP, EEU, and EEA are positioned under the electricity sector state minister. For the Program, the DoE will be established directly under one of the state ministries, to coordinate and supervise the overall performance of the Program. In the MoWIE, the procurement function is decentralized, that is, each of the departments has its own procurement unit. It is, however, noted that approvals for proposed award of contracts from all departments are issued from a centralized Procurement Endorsing Committee (PEC). Thus, the new department will have a separate procurement unit to procure its own expenditures.

Procurement Manuals and Standard Bidding Documents

28. The EEU including the UEAP follows the procurement procedural manual *Works and Procurement Policy and Procedure (WPPP), Volume I (Pre-Award) - OP/EEU/04-026, Volume II (Post Award) - OP/EEU/04-027* and the *General and Financial Delegation of Power (GFDP) - OP/EEU/04-028*, which provide the procedures of the decision-making process and controlling of procurement transactions. The manual was formally approved by the EEU Board of Directors. Volume I of the document covers precontract award activities, whereas Volume II covers post-contract activities. These procurement policies and procedures govern all projects and non-project goods, services, and works supported by the business plan of the EEU; however, some regional UEAP offices still use old versions of EEPCo's procurement manual. The procurement policies

and procedures also have a provision according to which these may follow the Federal Government directive issued on proclamation No: 649/2009, whenever required.

29. The WPPP procedural manual was prepared based on previous procurement documents, regulations, governing laws, and guidelines, including the following:

(a) Ethiopian Electric power corporation procurement regulation and directives 1992 and 1996

(b) The World Bank Procurement of Goods 2001, January 2004/May 2007

(c) The Federal Public Procurement Proclamation and Directive 430/2005 and 649/2009

(d) Public Enterprise Proclamation No: 25/1992

(e) Ethiopian Electric Utility Regulation No: 303/2013

30. Through the WPPP, the EEU is mandated to blacklist a firm indefinitely or for a stated period after determining that the firm is engaged in corrupt or fraudulent practices during tendering or execution of the EEU contracts or after determining that the firm has repeatedly failed to perform in previously awarded contracts by the EEU or after determining that either during the construction stage or O&M stage the material supplied or the works executed are of substandard quality. The WPPP further stipulated that declaring a firm ineligible will be executed according to the EEU procedures and the communication in this regard shall be circulated within the EEU by the Planning and Wiring departments after approval by the competent authority. The CEO shall be the competent authority to approve such proposals. However, there is no independent due process in place for debarment. Furthermore, there is no provision in the procedures to consider the World Bank's debarment list or not.

- *Recommendation: Debarment under the Program shall be done following the Federal Public Procurement Rules and the firms debarred by the World Bank shall be ineligible to participate.*

31. The GFDP centralizes the National Competitive Bidding (NCB) and International Competitive Bidding (ICB) procurement transaction to the EEU headquarters. The reason for the centralization of the procurement to the head office was indicated to be economy of scale from packaging. The GFDP has a requirement for open competition and the conditions when other methods of procurement will be used.

32. The Procurement, Logistics, and Warehousing Department at the headquarter reports to the CEO. The procurement units in the regional offices fall under the respective regional managers. In implementing agencies, the Procurement, Logistics, and Warehousing office has four processes, namely, Internal Audit, Procurement, Logistics, and Warehousing Processes. Among these, the unit that is responsible for day-to-day procurement operation is the Procurement Process.

33. Procurement in the MoWIE is processed in accordance with the FPPA directives and standard bidding documents (SBDs).

34. **Staffing.** A review of the staffing levels in the agencies has shown that there are shortages of staff at the senior positions, those currently assigned have been there for less than three years on average, and there is high staff turnover. In most cases, the qualification for those in position was found to be a diploma level in accounting or purchasing. It was observed that the job level for procurement staff is much lower in general when compared to similar professions like technical

management and FM. In most cases, there are no established career structures for procurement experts. The team structure of regional procurement units shows differences across regions. Staff positions are not filled according to the structure in the headquarter and most regional offices. Given the work load and the number of sector offices these units serve, it is important to recruit and assign the required staffs.

- *Recommendation: The MoWIE and EEU should review the job level for procurement staff.*

Procurement Cycle Management

35. **Procurement Planning (PP).** Similar to the Federal Public Procurement Directive provisions, the WPPP procedural manual requires the preparation of annual procurement plans. The procurement plans are required to be prepared by each procuring unit and have to be approved by the CEO. The policy and procedures also indicate that no procurement shall be made if not included in the procurement plans, except for some exceptional cases; procurement in such circumstance shall be made after the approval of the CEO. The manual also includes a procurement plan template similar to that of FPPA. However, preparation and approval of the annual procurement plans are given inadequate consideration in all procuring units, including the federal EEU and UEAP offices. No information/evidence has been found that indicates that the procuring units use annually approved procurement plans by the CEO. Procurement is being carried out based on demand from the divisions and regions and financed by a pool budget. In practice, the implementing units have no approved procurement plans in their offices. PP has been a challenge with the EEU, and there is a lack of use of PP as a procurement management and project implementation monitoring tool. Lack of regular updating of project plans and record of actual information in the project plans as well as keeping contract registers/information has been noticed as weaknesses. Regarding the MoWIE, a procurement plan is prepared by each directorate and consolidated by the M&E unit of the ministry and approved by the PEC. Normally, a procurement plan is prepared using FPPA's template, and it was noted that the plan is not being updated regularly and also it is not being used as a procurement and implementation management tool.

- *Recommendation: The MoWIE, EEU, and UEAP unit shall ensure that procurements are handled according to approved annual procurement plans. The preparation of a realistic procurement plan and its update as required is critical for successful monitoring and implementation of projects. In addition, procurement plans should be used as a monitoring tool of all the procurement processes and cycles to achieve the milestones in the procurement plans.*

36. **Procurement methods and thresholds.** The EEU policy and procedures provide the applicable procurement thresholds for various procurement methods.

37. The most frequently used procurement method at the regional level is shopping. When an estimate is high and above threshold, the use of NCB is mandatory. However, instead of consolidating requests and going for an open bid method, most of the assessed regional offices conduct procurement activities frequently through the shopping method. Use of direct contracting is widely applied in regional UEAP offices, where transmission infrastructure procurement activities are directly outsourced to regional MSEs with fixed unit rates categorized under project site, weather condition, terrain, and availability of laborers. ICB method is not conducted in any of the assessed regional offices so far. Moreover, due to limited procurement capacity of regional offices, a single contract at a region is unlikely to reach the ICB threshold. Though there is a lack

of data in most regions visited; the maximum contract amount observed by the assessment is around ETB 7.7 million (US$320,000). Selection of consultants was also not observed at the regional office level. Consultants' selection, when required, is usually handled from the central EEU.

- *Recommendation: The impact on transparency, fairness, and value for money of awarding direct contracts to state-owned entities (SOEs) and MSEs should be revisited, and procedures should be agreed with the EEU in the POM.*

38. **Procurement notices.** For contracts procured through ICB and NCB procedures, it is noted that invitation for bids by all procuring units, including the MoWIE and EEU are issued on a national newspaper such as *Addis Zemen* and *The Ethiopian Herald*, which are widely circulated newspapers; the MoWIE in addition uses its website. It is also noted that for procurement under shopping procedures, notices are posted on the regional office notice board. Local and regional competitive biddings are not practiced in all the EEU and UEAP regional bureaus.

- *Recommendation: ICB contracts should also be published in international media like UNDB online.*

39. **Bidding documents.** The EEU has developed its own customized SBD using the FPPA's SBDs with minor modification for all procurements being made at the head office, whereas sample SBDs prepared in Amharic for the procurement of goods and works along with specifications are distributed from the EEU and UEAP head offices to all regional offices. Minor changes and adjustments as required are done at the regional level on the SBDs and specifications. Bidding document preparation takes one week to one month. For non-consulting services contracts, the main problem while preparing bidding documents is obtaining the right specifications of all machineries. The MoWIE uses the FPPA's SBDs for projects financed by the Government, and for those projects financed by DPs, the respective financier's SBDs are used. Apart from the use of SBDs, the critical challenge during the preparation of the bidding document is access to comprehensive specifications.

- *Recommendation: There is need to support the EEU through technical assistance in the preparation of bidding documents with basic information required to implement the procurement process, including provision of instructions to bidders, preparation of bid data sheet, evaluation and qualification criteria, and general and special conditions of contracts. In addition, the EEU requires support in the preparation of bidding documents and use of standardized documents and requests for quotation.*

40. **Evaluation and award.** Evaluation is done by the tender (bid evaluation) committee. Generally, the evaluation committee is composed of five members chaired by the Finance Head and the Procurement Officer as Secretary. When evaluating bids for goods, determining quality compliance of goods is a challenge. It is observed that there is no standard evaluation format to be used at the regional office level. All regions use different formats, which are below the standard required. Extracting information from the evaluation reports is time-consuming as the formats are not standardized. It is expected that the simplified directive and procedure will address this gap. At the EEU, including the UEAP head office level, evaluation reports are approved by the Board of Directors or CEO or relevant officers in line with the threshold limits specified in the GFDP document. However, at the EEU regions, approval is issued by the head of the regional office for procurements only up to ETB 350,000, and UEAP regional office heads are able to approve works

contracts up to ETB 8.0 million. The ministry follows the approval procedures stipulated in the directives of the FPPA, where the PEC gives the final approval for award of contracts.

- *Recommendation: All procuring units shall ensure that the necessary training is provided for staff engaged in the evaluation process on the use of standardized bid evaluation format. The EEU including the UEAP unit shall establish a contract award committee, which shall follow the Federal Public Procurement Rules.*

41. **Complaint handling.** The assessment revealed that procurement complaint mechanisms have not been addressed in the WPPP manual. Complaint handling requires proper organization, capacity, working procedure, and most of all trust from the bidding community. To improve the situation, the bidding community needs to be made aware of the mechanism, and the independence of the entities receiving complaints needs to be ensured. Whereas the MoWIE follows the complaint-handling mechanisms of the FPPA, it has been observed that complaints have not been properly recorded.

- *Recommendation: The EEU including the UEAP unit shall establish a clear complaint-handling mechanism, which shall follow the Federal Public Procurement Rules.*

42. **Contract management.** There is significant capacity limitation on contract document preparation and contract administration of both works and goods contracts. In most of the selected cases, there is no proper contract agreement document. The contract document lacks major sections of a standard contract format such as general conditions and special conditions of contracts.

43. The procurement units are responsible for administering all goods contracts. Inspection and acceptance of goods are done by the regional procurement units. All goods are expected to be checked and verified against the specifications in the contract or purchase order sent from the Finance Office. Particularly, the shopping method puts much of the responsibility and risk on the staff of the procurement unit. There are cases where procurement officers had to make payments at the stores of suppliers before delivery of goods. When doing so, cash or checks are carried by the procurement officers. Goods are then carried and delivered by the procurement staff.

- *Recommendation: To the extent practicable, payment to suppliers should be done through World Bank transfers.*

44. Works and engineering consultancy services are managed through the head office. The EEU's WPPP (Volume II - post award) has adequate guidance on basic contracts administration procedures. However, the awareness and implementation of the contract administration procedures is very low. The actual practice is haphazard, and this makes the contract administration unreliable and risky. It is noted that staff are not aware of what is provided in the policy and procedures manual, and most have no experience of contract administration. The signed agreements of most contracts are incomplete, and this again originates from incompleteness of the issued bidding documents that do not contain the correct and complete model contracts to be entered. In most cases, the bidding documents contain only Invitation for Bid and Bill of Quantities (BoQ). In addition, the contract agreements contain only the form of contracts and priced BoQs. As the result, there is no agreement-based formal contract administration practice, and all subsequent actions (monitoring and control of contracts' timeliness, quality delivery, and cost controls) are based on traditions and perceptions or unwritten understandings between the parties. This is a critical area to be addressed through the Program Action Plan.

- *Recommendation: The EEU through the technical assistance to be engaged shall ensure that the necessary training is provided for staff engaged in the contract management process.*

45. **Contractual dispute handling.** During the assessment, it was noted that contractual disputes are not dealt consistently with the provision of the contract or acceptable standards. The practice to resolve disputes contractually is low. In some cases, where there is a contractual provision in the contract agreement for disputes resolutions, contractual disputes are resolved following the mechanisms stipulated in the contract agreement. However, in most cases, the contract agreements do lack detailed contractual clauses and provisions, not only a dispute resolution mechanism, but also basic obligations and rights of the parties. Therefore, most cases are resolved following traditions and perceptions or unwritten understandings between the parties. For instance, one of the signed contracts with a supplier of a cargo crane has been cancelled after it has given four months' service with the reason that the company has no legal construction machinery rental trade license.

- *Recommendations: In this respect, all contract and procurement staff shall be given trainings on contract management and administrations through the technical assistance, regional public procurement agency, and other institutions, on the preparation of contract document and contract management. It is also recommended that contract management and administration manuals be prepared toward assisting staff engaged in contract management.*

46. **Facilities for procurement function.** While carrying out these activities, the assessment revealed that the basic facilities are not fulfilled to the units. Vehicles are not assigned to the procurement officers when travelling to do shopping, and officers use public transport to do the job. Not all regions have allocated office space to each procurement staff. At more than half of the visited regional offices, tables and chairs are not allocated for procurement staff. Regional offices do not provide adequate space for procurement record keeping. Unless basic facilities such as office space, chairs, computers, and printers are available, the procurement staff cannot prepare the required procurement plans, bidding documents, evaluation reports, contract agreements, and so on. Recognition should be given to the procurement function, and the basic required facilities should be fulfilled.

- *Recommendation: Facilities to procurement staff, such as office space, chairs, computers, and printers, and secured space for procurement records shall be provided.*

47. **Procurement oversight.** According to the country's public procurement law, the public procurement oversight and auditing function is supposed to be done by FPPA, but EEP is not governed under the federal procurement law and, therefore, FPPA has no jurisdiction over EEP. However, EEP's own internal technical and administrative controls system in the areas of performance audit and quality control and the oversight role of its Board of Directors on high-value contracts may reduce the risk expected in this regard. However, this will remain as a high-risk area. The Internal Audit units of some regional offices raised and addressed few issues on procurement and provided recommendations for better performance as part of the quarterly financial audit. On the other hand, involvement of internal auditors in most regional offices with regard to procurement is limited to an observance role of bid openings. Most regional offices do

not conduct procurement audit as part of the regular financial audit. Overall procurement oversight at the regional EEU is weak.

- *Recommendation: Internal and independent external procurement audit systems of the EEU and MoWIE shall be strengthened.*

48. The program procurement and contracts administration risks identified during the assessment include (a) the EEU not governed by national procurement proclamation and directives; (b) weak procurement capacity at the MoWIE and EEU, including the UEAP unit; (c) transparency and fairness issues related to the procurement process as the result of not implementing the applicable procedures available; (d) competitiveness issues as the result of direct contracting to the Government-owned enterprises' involvement in tenders and application of direct contracting and different preferential treatment to MSEs; (e) weak accountability, integrity, and oversight arrangements and complaint-handling and debarment setups and mechanisms; and (f) weak contracts administration and the inefficient resolution of contractual disputes.

49. There are three sets of risk mitigation measures that have been defined and proposed to be carried out. These measures are inherent in the design of the Program and will be part of DLIs and the Program Action Plan. These risk mitigation measures include the following:

- **Minimum conditions.** These will be entry conditions for the first year, which include (a) deployment of the required procurement staff, (b) establishment of well-functioning contract award committee and complaint-handling and debarment mechanisms, which shall follow the Federal Public procurement Rules, (c) strengthening internal and using external procurement audit systems, () establishment of a procedure for advance orientation of staff in procurement and contract management, and (e) establishment of procurement and contract management and monitoring system.
- **Performance measures.** An annual procurement and audit performance assessment will be carried out by an independent verification agent. The assessment will evaluate performance and compliance. The audit should be accompanied by the EEU and MoWIE management response (accountability), The procurement DLRs (5.6-5.11) will measure both performance of the internal and external procurement auditors (based on the time line and quality of the audit) and procurement performance of the EEU (including the UEAP unit) and MoWIE.
- In addition, the Program Action Plan includes activities that key stakeholders will carry out to prepare for implementation and during implementation

C. F&C Compliant-handling Mechanism

50. Ethiopia has a robust legal framework for addressing F&C risks. The principal institutions responsible for the fight against corruption are the FEACC established in 2001 and the Federal Attorney General formed in 2016.[51] The FEACC focuses on prevention, by expanding and promoting ethics and anticorruption education, while the Federal Attorney General is responsible for investigation and prosecution of allegations. Since 2007, all the nine regional governments have established their own Regional Ethics and Anti-Corruption Commissions (REACCs)

[51] Federal Attorney General Establishment Proclamation No. 943/2016, Federal Ethics and Anti-Corruption Commission Proclamation No. 880/2015.

according to the regional laws. However, the FEACC is responsible for coordinating efforts of anticorruption across regions and sectors and preparing a country report. Encouraging results have been witnessed in the performance of the FEACC and REACCs in the fight against corruption in all sectors at the country level.

51. The assessment revealed that despite the progress made in tackling F&C in the electricity utility, petty corruption is still widespread. Petty corruption is largely expressed in the form of bribery, fraud, theft, and embezzlement. However, the incidents are not systematically tracked, especially at the regional and district levels. No independent survey has been carried out on the extent of corruption since the formation of the EEU. During the past, EEPCo was labeled as one of the first five most corrupt service-providing intuitions.[52] This image, which prevailed long in the past, should change in ELEAP. Similarly, customer grievances on service are not addressed on time and many of the customers are threatened into not disclosing corruption. Thus, many become complacent and tend to choose other means for getting service.

52. The major grievances or complaints in the sector relate to (a) power drop or interruption, inaccessibility and delay of maintenance; (b) delay of line connection/installation of transformer for customers who pay, under the EEU wiring and retail businesses; and (c) delay of line connection for households or entity groups such as dwellers associations, firms, and Government projects in Kebele administration and towns covered under the UEAP and complaints of individuals or groups not included. In Addis Ababa, for example, the average calls received on power drop out of the 20,184 calls in queue in 24 hours is 66.1 percent. The rest of the calls are abandoned or not received. At the same time, the percentage of customers satisfied (that got response actions, maintenances) in a specific month was very low (9.8 percent). Similarly, the number of customers who lodged complaints on delay of installation of line connection per kWh meter was high and varied by region. Based on the data of the EEU and three regions, the share of complaints resolved to the total complaints filed on delay of installation of line connection per kWh reached 58.4 percent on average. More often the technical- and service delivery-related complaints are resolved. Maintenance, new connection, or installation of meter are not satisfactorily resolved.

53. There is a system and procedure for handling bidder's enquiries and complaints at the federal level for procurement in ELEAP and remedial actions are taken on Complaint Review Board decisions and observations made following appeals. The MoWIE follows up complaints and misconducts reaching the Board for Review and Resolution of Complaints in Public Procurement. At the same time, the EEU Board provides resolution to complaints. At the EEU, complaints were internally received from very small number of the bidders, partly because the larger portion is direct purchase. There is a need to ensure competitiveness for adequate and timely delivery of package of goods.

54. At the country level, systems to handle the risks of F&C, customer grievance-handling system, including checks and balances, have been established. The FEACC's Proclamation and Operational Regulation provides for the establishment and functioning of Ethics Liaison Units across public offices and public enterprises in the country with the objectives of preventing

[52] Survey on Perception of the Level of Corruption by Foreign Investors in Ethiopia, Federal Ethics and Anti-Corruption Commission in Collaboration with donors of the Joint Governance Assessment and Measurement, 2014. According to the survey conducted in 2014, among the service providers identified as the most corrupt, 18.9 percent of the respondents responded Ethiopian Revenues and Customs Authority, 8.3 percent responded Transport Authority, 7.4 percent responded land administration, 6.9 percent responded tax regulation, and 6.5 percent responded EEPCo.

corruption and impropriety and exposing and investigating offences for appropriate actions against the perpetrators. As required by the Proclamation and Operational Regulation, the scope of the FEACC and REACCs covers all sectors, including ELEAP from the EEU/UEAP Corporate to EEU Regional Center and District Service Center/District Coordination levels.

55. On the other hand, the F&C complaint-handling system has gaps that hinder adequate functioning, and it is necessary to strengthen the structure and capacity of complaint-handling staff and improve the tracking, recording, and reporting of F&C at the federal, ministry, EEU, and regional center and local levels. The gaps include the absence of a specifically assigned ethics and anticorruption officer in each EEU regional center/UEAP and the absence of a strong relationship in tracking and reporting allegations and grievances between the MoWIE and EEU, EEU, and Regional Centers.

56. The governance management risk is rated High. To mitigate the risks and inadequacies noted, carefully selected actions, as shown in the Program Action Plan and DLIs, seek to address these challenges. Three sets of risk mitigation measures have been defined and proposed to be carried out:

- **Staffing.** Increase the number of ethics and anticorruption staff in the EEU/UEAP and the MoWIE during the first year of implementation.
- **Reporting.** The MoWIE provides the FEACC a biannual report on F&C allegations related to the Program and conducts joint semiannual forum, which shows that the conviction rates of F&C allegations have increased. FEACC verification of the report is included as DLRs 5.12-5.16.
- **Complaint mechanism.** Responsiveness to the grievances of clients related to power drop/interruption are systematically tracked and disclosed to complainants. The CE DLI should help ensure that this action is implemented.

D. Fiduciary Risk Summary and Mitigation Measures

57. Based on the abovementioned reasons, the fiduciary risk assessed for this operation is classified as High. Overall, the fiduciary assessment concludes that the examined Program FM and procurement systems are adequate to provide reasonable assurance that the financing proceeds will be used for intended purposes, with due attention to principles of economy, efficiency, effectiveness, transparency, and accountability, and for safeguarding Program assets once the proposed mitigation measures have been implemented. Appropriate systems to handle fiduciary risks including the F&C and effective complaint-handling mechanisms, have been agreed on and established. Risk mitigation measures for the identified risks have been discussed and agreed with the Government. The risk mitigation measures have the following three approaches:

i. First, a DLI will be provided in the Financing Agreement to support the transparency aspects of the Program.

ii. Second, specific actions have been proposed that will support the DLI and help improve efficiency and performance monitoring as indicated in the Program Action Plan.

iii. Third, other interventions will be used. These include result indicators of the Program, use of other programs that are addressing the issues, and so on.

58. The summary of risks, mitigation measures, and action plan is presented in Table 5.1:

Table 5.1. Summary of Risks and Proposed Mitigation Measures

Risk Description	Proposed Mitigation Measures	Significance	DLI/Program Action Plan/Other
FM			
Planning and budgeting			
Approval by the EEU Board and subsequent notification to each process are delayed and usually provided after two to three months of the start of a fiscal year.	Align the budget calendar of EEU and Board regular meeting dates with that of the Federal Government	Substantial	Program Action Plan
Budget execution reports are based on disbursements rather than actual expenditures and constitute estimated inventory consumption data which adversely affects the quality and completeness of the budget execution reports. In addition, the budget execution reports are not according to planned activities. Budget controls are not performed using the Agresso accounting system, rather an Excel spreadsheet is used.	Clear backlogs and issue reports based on data from Agresso accounting system. Amend the CoA structure to capture expenditures according to Program activities and control/track budget using the Agresso accounting system.	Substantial	Program Action Plan
Transparency			
The EEU's and MoWIE's consolidated annual plan and budgets, budget execution, and entity audit report were not disclosed on its websites or through other means of communication. The MoWIE's reports are also not disclosed.	Disclose own and ELEAP budget and financial information to the public through the EEU's and MoWIE's website.	Substantial	Program Action Plan
Treasury management and fund flow			
Unpredictability of funds financing the annual budget of the EEU was noted: EFY 2009 budget constituting ETB 9.19 billion financing gap to be filled by local loans through treasury bills has not yet materialized.	MoFEC continues to commit on funding the EEU's funding gaps through various means In general, the unpredictable nature of the finances from the EEU under the Program should be carefully considered and addressed by the Government/MoFEC.	Substantial	Program Action Plan
Accounting and financial reporting			
Lack of updated FM manuals	Engage a consultant firm to assist the transition to IFRS and update the procedure manuals.	Medium	Program Action Plan
Lak of an integrated accounting system at the EEU: The Agresso accounting system does not interface and has mapping problems with the ancillary	For the short run, recruit temporary accountants to help in clearing the backlogs.	Substantial	Program Action Plan

Risk Description	Proposed Mitigation Measures	Significance	DLI/Program Action Plan/Other
systems maintained for billing, stock, payroll, and fixed asset. This has resulted in considerable backlogs. The EEU is currently installing ERP-SAP to resolve its system issues but staffing constraints, lack of financing contribution from the EEU, and existence of backlogs are causing delays in finalizing and operationalizing the system.	For the medium to long run, identify key bottlenecks and resolve them in due time to avoid delays in the 'go live' and successful rollout of ERP-SAP.		
Staffing: Finance units at both the MoWIE and EEU are highly understaffed and adequate capacity building is not provided to the existing staff.	Fill the vacant posts and design a capacity-building mechanism.	Substantial	Program Action Plan
Internal controls and internal audit			
The recent audit report of the EEU for the year ended July 7, 2015 contains significant internal control issues, and there are significant backlogs in recording material consumption in the AS400; there are delays in bank reconciliations, incomplete fixed asset register, and failure to conduct physical count of assets. The OFAG reports on the MoWIE revealed internal control inadequacies in property management, long outstanding receivables, and appropriate payments. Staffing: Internal audit units at both the MoWIE and EEU are highly understaffed.	(a) Engage a consultant firm as planned to assist on fixed asset count and valuation. Clear backlog of reconciliations. (b) Clear recording backlogs of material consumption data and bank reconciliations by program effectiveness and resolve issues noted in the audit report and report the status to the World Bank on a quarterly basis. (c) The MoWIE resolves the issues raised by the OFAG report and reports to the World Bank on its resolution. (d) Resolve staffing issues.	High	Program Action Plan
External audit			
There is external audit backlog for one year at the EEU. Accounts are not closed, and statements are not yet produced.	(a) The clearance of the backlog is essential to become up to date.	High	DLI 5

Risk Description	Proposed Mitigation Measures	Significance	DLI/Program Action Plan/Other
Financial statements do not comply with IFRS.	(b) Detailed and time-bound action plan should be prepared to clear backlog and address disclaimer issues and internal control weaknesses. Implementation should be closely followed up by the management and the task force to ensure issues are addressed according to the dates stated in the action plan.	High	Program Action Plan
Procurement			
Weaknesses in the procurement legal framework and procedures			
There are weaknesses in the procurement policy and procedures of the EEU.	The EEU will update its procurement policy and procedures.	High	Program Action Plan
	Debarment under the Program shall be done following the Federal Public Procurement Procedures, and the firms debarred by the World Bank shall be ineligible to participate.	High	DLI 5/Program Action Plan
Procurement capacity			
There are capacity limitations in skilled staff to handle procurement and contract administration (incomplete procurement plans, bidding documents, and bid evaluations and poor contract management system).	Ensure the availability of the minimum number of skilled procurement staffing.	High	DLI 5
	The program will provide intensive procurement contracts management training to the staffs of the regional offices as in the Program Action Plan.	Substantial	Program Action Plan
	Ensure the preparation of a comprehensive POM for day to day guidance of staff.	High	Program Action Plan and dated covenant
	EEU should review the job level for procurement staff.	Substantial	Program Action Plan
	Ensure the establishment of a procedure for advance orientation of staff in procurement and contract management.	Substantial	DLI 5
	Ensure the establishment of procurement and contract	High	DLI 5

Risk Description	Proposed Mitigation Measures	Significance	DLI/Program Action Plan/Other
	management and monitoring systems.		
	Provide technical assistance to support comprehensive improvement on procurement and FM issues.	High	Program Action Plan
Transparency and Fairness			
Limited advertisement of invitation to bids, use of incomplete bidding documents without preset qualification and evaluation criteria and complete conditions of contract for the tender which would affect transparency and fairness in bid evaluation and contract administration. Use of direct contracting without sufficient justifications and appropriate safeguards	ICB contracts should also be published in international media like UNDB online.	High	Program Action Plan
	The EEU will use bidding documents, adapted from the SBDs of FPPA, with preset evaluation and qualification criteria.	Substantial	Program Action Plan
	No direct procurement including MSEs and SOEs will be used without adequate justifications and safeguards as provided in the POM and the approval of the contract award committee.	High	Program Action Plan and dated covenant
Competitiveness			
There are some Government-owned enterprises in sectors of supply of goods, works, and services, and there have been observed preference to use them on direct contracting basis. High margin of preference is applied in bids evaluation, and in many regional offices, there are mandatory provisions to support MSEs through direct contracting and reservations or preferences. Though it was argued that this approach has a strategic benefit in sustainability, it has to be balanced with the principle of fairness to non-SOE and non-MSE competitors as well.	(a) The impact on transparency, fairness, and value for money of awarding direct contracts to SOEs and MSEs should be investigated and procedures agreed with the EEU and MoWIE and included in the POM. (b) The agreed procedures will be part of the POM.	High	Program Action Plan and dated covenant
Accountability, integrity, and oversight			
• There is a lack of use of committee systems for approval/endorsement of contract award.	The EEU will have a contract award committee.	High	DLI 5
• Do not have independent and effective institutional setup for handling of complaints.	The EEU will have an independent complaint-handling system, which shall follow the Federal Public Procurement Rules.	High	DLI 5

Risk Description	Proposed Mitigation Measures	Significance	DLI/Program Action Plan/Other
• Contract management, including contracts delivery quality and cost controls, and resolution of contractual disputes are not adequate.	Provide technical assistance to prepare Contract Management Guidelines.	High	Program Action Plan
• Procurement facilities and record keeping are poor.	The Program Action Plan will address the need to provide facilities for procurement staff and secured space for procurement records.	High	Program Action Plan
• There is a lack of internal and external audits for procurement.	Strengthen internal and establish external procurement audit systems.	High	DLI 5
• World Bank debarred firms are operating locally and may participate in bidding processes locally.	The EEU will establish a system to exclude World Bank debarred firms from participating in the program. Bidding documents will include provisions on exclusion due to World Bank debarment.	High	DLI 5/Program Action Plan
Framework and structural arrangement			
There is a lack of specifically assigned ethics and anticorruption liaison officer in the 15 EEU regional centers. for tracking, reviewing, and reporting of F&C allegations effectively. The structure for control of F&C at the MoWIE Ethics Follow-up Office, and the EEU Vigilance Office requires strengthening.	Assign ethics and anticorruption officers or vigilance officers in the 15 EEU regional centers, regional and state levels and UEAP and additional two experts at the MoWIE's Ethics Follow-up Office.	Medium	Program Action Plan
Capacity of recording/reporting/data and information sharing			
(a) Gaps related to low level of tracking, recording, investigating, prosecution, and reporting of F&C incidents; arrangement for reporting of F&C and customer grievance not streamlined (b) Low level of responsiveness to customer grievances related to power drop/interruption, installation of connection line/meter and transformer damages; specifically lack of a system for recording and responding to complaints/requests of power drops in the EEU regions (except in Addis Ababa regions)	(a) The MoWIE provides and FEACC verifies and submits to the World Bank quality and timely biannual report on F&C allegations and conviction rates related to the Program and conducts joint forum discussions semiannually. (b) Systematically track and disclose the responses to grievances of complainants related to power drop/interruption, line connection/meter; the recording of the responses of complaint is the initial action.	High	DLI 5

Risk Description	Proposed Mitigation Measures	Significance	DLI/Program Action Plan/Other
Lack of clarity on F&C management functional relationship and reporting arrangement of the EEU, regional centers, and lower levels (district service centers, district coordinators, and the MoWIE) The task of tracking, recording, investigating, and reporting of F&C is not clearly distinguished from the task of customer grievance handling within the vigilance office.	Introduce guideline on the F&C functional adjustment, relationship, and reporting arrangement from lower level to the EEU and MoWIE. There is also a need to distinguish the functional task of managing F&C from the task of customer grievance and reorganize the functional process within the vigilance office and regions.	Medium	Program Action Plan
Lack of information technology supported software module for systematic accessing, tracking, recording, organizing, and reporting of F&C incidents and grievances	Align the F&C template of tracking, recording, organizing, and reporting of F&C incidents and complaints to the ERP software modules and strengthen capacities.	Medium	Program Action Plan
Internal Control			
Nonexistence of accountable, independent focal person/committee for reviewing primary complaints at different levels in the EEU and UEAP Lack of transparency of procurement complaint-handling system	Ensure the formation of primary procurement complaint receiving expert unit/committee to control leakages.	Medium	Program Action Plan
	Establish the entry/website for the exchange of debarment lists and disclosure of complaint-handling and update data.	Medium	Program Action Plan
Public understanding and transparency/disclosure of complaint handling			
Low level of understanding on the systems of lodging F&C, complacency in disclosing F&C, and low level of understanding on execution of laws by the public	Provide awareness to the public through regular air media.	Medium	Program Action Plan
Lack of understanding and accountability of fiduciary personnel and employees on ethics and anticorruption and related technical skills	Develop adapted training module and provide cascaded training for the concerned staff at the ministry level, EEU, region, district, and satellite levels.	Medium	Program Action Plan

Proposed Fiduciary Inputs to the Program Action Plan

59. Refer to Annex 8 for the Proposed Fiduciary inputs to the Program Action Plan.

Implementation Support Plan

60. **Reviewing implementation progress.** The World Bank fiduciary team will review the implementation progress of the Program in the following areas:

(a) **Review of reports.** This can be quarterly financial reports, annual Program financial reports, and relevant progress reports on the implementation of the Program Action Plan and DLIs, and so on.

(b) **Conducting field visits.** A fiduciary specialist will participate in missions or supervision/implementation support field visits.

61. The objective is to understand the achievement of agreed actions and DLIs and the continuing adequacy of systems, to monitor risks and mitigation measures, to monitor covenants and agreements, and to understand the status of capacity.

62. **Monitoring fiduciary risk.** Building initiatives and devising ways to support in challenging areas. The frequency and breadth of fiduciary systems implementation support may be varied in accordance with changes in the risks to the Program. Given the risk profile shown above, this Program will be reviewed twice per year. With regard to fiduciary aspects, it is expected that as implementation progresses, substantial improvements in procurement and FM capacities will reduce the risk profile and may afford a reduced supervision schedule. This will be determined by the World Bank's fiduciary systems team in consultation with other pooling partners to monitor compliance with the Financing Arrangement and fiduciary provisions of legal covenants.

Implementation Support

63. The management structure and staffing at the MoWIE/EEU/UEAP assigned/recruited for the Program will manage the implementation of the PforR operation. The World Bank will provide support to the Program in addressing emerging implementation issues pertaining to fiduciary aspects. If needed, the World Bank will support the Program with technical assistance to develop long-term capacity.

E. Conclusion of the IFA

64. Overall, the fiduciary assessment for this Program concludes that the examined Program FM and procurement systems are adequate to provide reasonable assurance that the financing proceeds will be used for intended purposes, with due attention to principles of economy, efficiency, effectiveness, transparency, and accountability, and for safeguarding Program assets once the proposed mitigation measures have been implemented. Appropriate systems to handle the risks of F&C, including effective complaint-handling mechanisms, have been agreed on and established. The overall fiduciary risk for this Program is rated 'High'. The risk mitigation measures, including specific DLIs are identified for critical issues. Actions have been proposed, and detailed in the Program Action Plan, that will support the DLIs and help improve efficiency and performance monitoring. Other interventions include using result indicators for the Program, using other programs that are addressing the issues, and so on.

Annex 6: Summary of the Environmental and Social Systems Assessment

1. An ESSA of the proposed Program was undertaken by the World Bank to assess environmental, social, and safety management policies and practices in the field and identify potential environmental and social benefits, risks, impacts, and opportunities in the electricity sector.

2. The following methods were employed during the assessment period of February 13 to April 1, 2017:

(a) A comprehensive review of Government policies, legal frameworks and Program documents, and ESSA reports prepared for other PforR World Bank-financed projects was conducted.

(b) Interviews and consultations were carried out with relevant experts and officials from Addis Ababa, Oromia, Tigray, Amhara, SNNPR, Benishangul Gumuz regional and district-level EEUs' offices, and other regional-, zonal-, and Woreda-level bureaus, authorities, and offices, including water, mines and energy bureau, environment, forest, and climate change authority, land administration and use bureau, labor and social affairs bureau, municipalities, and MFIs. The ESSA team also conducted consultations with community members and beneficiaries from SNNPR and Benishangul Gumuz and Amhara regions.

(c) Site supervisions were conducted at specific sample construction and material storage areas.

3. The status, as observed in each region, focuses on the quality and performance of the existing capacity of the implementing institutions on environmental, social, and safety management practices in the electricity sector. The details are discussed in the following sections.

ESSA

4. The institutional arrangements for Program implementation will be with clear division of tasks and responsibilities from the Federal Government to local level according to the GoE structure and consistent with existing legal provisions, regulations, and guidelines. Centrally, the MoWIE will be responsible for the overall Program management and operations. The EEU will be responsible for implementing on-grid as well as most on-grid activities.

5. The regional energy and mines offices will be involved in providing support for the implementation of both on-grid and off-grid components of the Program. Regarding the management of environmental and social safeguards, regional environmental authorities and bureaus[53] will be responsible to supervise the safeguards management, review and clearance of all instruments prepared for projects at the regional level. At the local level, the zonal- and Woreda-level environmental authorities and bureaus will be responsible to monitor and provide support to the EEU district offices and energy and mines offices. The EEU and the energy and mines offices will implement the Program safeguards instruments and recommended environmental, social, and safety management actions with close support from regional and Woreda safeguards teams and

[53] Institutional arrangements for environmental management are different for each region.

land administration entities. The division of tasks will be clearly outlined in the POM to be prepared for the Program.

6. The country has legislative and regulatory basis and institutions to ensure consistency with the six core principles of the PforR as outlined in the World Bank Policy: Program-for-Results Financing guidelines: (a) Core Principle 1: General Principle of Environmental and Social Management; (b) Core Principle 2: Natural Habitats and Physical Cultural Resources; (c) Core Principle 3: Public and Worker Safety; (d) Core Principle 4: Land Acquisition; (e) Core Principle 5: Indigenous Peoples and Vulnerable Groups, and (f) Core Principle 6: Social Conflict. The ESSA provides an assessment of the current conditions of this system and proposes measures that are built into the Program to strengthen them.

7. An assessment of environmental and social regulations, policies, and procedures, including institutional capacity and practices indicate moderate environmental and social risks associated with Program implementation. Ethiopia has adequate legal framework, including environmental and social regulations. However, the implementation of existing provisions of the environmental and social regulations varies from region to region and is generally low. Albeit the legal basis are strongly established, the implementations are not consistently effective in the areas of environmental and social impact assessment preparation, review, and approval; Environmental and Social Management Plan implementation; preparation and implementation of safety management plan applicable to the respective activities of the Program; preparation and implementation of resettlement action plan, field supervision, monitoring, and enforcement on safeguards management; and stakeholder consultation, as required at all levels. The overall risk rating for the proposed ELEAP on the environmental and social safeguards and safety management perspective is Moderate.

8. The ESSA recommendations and actions seek to ensure that the risks identified in this assessment are mitigated adequately to deliver the results under ELEAP. The current gaps in the system will be addressed through a set of agreed actions to be adopted by the Government to strengthen the environmental, social, and safety management capacity and performance at the national, regional, and local levels. Based on the findings, the ESSA identified the following key actions to be proposed for the Program Action Plan (Table 6.1) necessary to strengthen the ESMS at the MoWIE and EEU, respectively.

Establishing the ESMS

9. A sound ESMS is needed during construction and operation of Program subprojects to ensure that the required environmental, social safeguard, health and safety (EHS) measures are applied and that the related EHS risks are mitigated under the Program. The MoWIE and EEU shall strengthen and establish this system through preparation and implementation of the required safeguards instruments, procedures, manuals, and guidelines[54] with support from the MoEFCC at the national level. At the regional, zonal, and Woreda levels, the implementing agencies would seek support from regional-, zonal-, and Woreda-level environmental authorities and offices and land use and administration bureaus to implement the required environmental and social safeguards and safety management measures, as applicable. All instruments, procedures, and guidelines shall be prepared and made available at the national-, regional-, and district-level EEU offices and relevant regional, zonal, and Woreda government offices to ensure sound

[54] Guidelines in compliance with the MoEFCC regulations are being prepared and will be attached to the POM.

implementation of the applicable instruments. The regional and Woreda environmental authorities and bureaus are responsible for providing regular support, and monitoring the compliance and effectiveness of the system on safeguards management. The ESMS will include procedures for due diligence, identification of potential environmental and social benefits and impacts, recommendation of the respective mitigation and enhancement measures, and implementation and monitoring plan, including an annual performance assessment, and so on. These will help the zonal and Woreda staff screen projects for their environmental and social effects and monitor the implementation of any mitigation and enhancement measure.

Capacity Building and Technical Assistance

10. The following capacity-building and technical assistance activities are required during Program preparation and implementation to ensure the implementing agencies' compliance with environmental and social safeguards and safety management practices:

- **Human resources.** Environmental, social, and safety experts are expected to be positioned at the EEU and MoWIE. As the implementing agency of main activities (on-grid electrification) under the Program, the EEU is required to have sufficient staff with expertise in environmental and social safeguards and safety at the national level. At the regional EEU offices, environmental, social, and safety units with relevant specialists (including at least one environmental and social development specialist and one health and safety specialist, who will be working with the existing regional EHS coordinators) shall be established. The specialists and EHS coordinator will work in close collaboration with the MoWIE's Environment and Climate Change Directorate and the MoEFCC at the national level and with regional- and local-level safeguards teams under environmental authorities and offices and other Government organizations. The unit shall also be equipped with all facilities, including logistics, budget, and safeguards monitoring tools and instruments.

- **Trainings.** During the assessment period, the ESSA team identified that the existing technical capacity with regard to environmental and social safeguards and safety management and implementation of related instruments in the EEU, energy bureaus, and environmental authorities and offices is limited. Therefore, it is proposed that a detailed training plan on environmental, social, and safety management be prepared by Program effectiveness. Based on the training plan, provision of an induction training will be conducted before commencement of each activity and consecutive on-the-job training will be provided throughout the Program implementation period for staff at all levels.

Annual Performance Review and Audit on Environmental, Social, and Safety Management

11. Annual performance review and assessment on environmental and social safeguards and safety management activities is essential to minimize and avoid the potential impacts anticipated during Program preparation, as well as to confirm sound implementation of safety management, environmental, and social safeguards practices. In this regard, the EEU and MoWIE shall take full responsibility of ensuring the completion of the annual performance review and biannual technical review meetings that will be conducted with the participation of Program stakeholders, including the MoWIE; EEU; water, mines, and energy bureaus (WMEBs); World Bank; and other DPs.

Use of Safety Protection Material and Tools and Personal Protective Equipment

12. One of the potential concerns during the Program implementation period is the inadequate availability and use of safety protection material and personal protective equipment (PPE). The ESSA recommends that all contract documents and agreements include detailed health and safety articles. The Program should provide high priority to the availability of safety materials and tools and PPE for all staff and laborers at all levels before the beginning of the construction to ensure no or minimum safety impacts during Program implementation.

Increase Community Awareness on Social, Environmental, and Safety Impacts of ELEAP subprojects

13. The ESSA identified limited community awareness on environmental, social, and safety matters. The EEU will conduct trainings and briefings for communities affected by the Program's subproject activities on social, environmental, and safety impacts at all levels, throughout the Program implementation period.

Strengthen the Grievance Redress System

14. The GRM committee will be established at all levels to receive, review, and address complaints in line with the loss of livelihood, income, or assets; dissatisfaction of the services; and so on. In addition, GRM guidelines, in line with the EEU's customer service manual, will be developed for the off-grid activities and updated for the on-grid activities followed by orientation for implementers.

Timely and Appropriate Consultation, Compensation, and Resettlement of PAPs

15. The program is dedicated to conduct timely consultation with PAPs and ensure timely and appropriate compensation and resettlement handling of PAPs during the entire Program implementation period. In addition, the EEU and MoWIE will develop/adopt guidelines on resettlement that include grievance handling, protocol on voluntary contributions, mechanisms to accommodate squatters/illegal settlers, and consultation procedures before the commencement of the Program by Program effectiveness.

Consultations and Disclosure

16. The ESSA preparation involved extensive stakeholder consultations and disclosure of the ESSA report following the guidelines of the World Bank's Access to Information Policy. The World Bank safeguards team undertook meetings and consultations with different stakeholders, including relevant Government institutions at the national, regional, and Woreda level, EEU public forums, civil society organizations, nongovernmental organizations, MFIs, and local communities, PAPs, and beneficiaries likely to be affected or benefited from the Program activities. Stakeholder meetings and consultations were held in the form of one-on-one discussions, focus group discussions, and public meetings at all levels. The consultations with stakeholders identified existing knowledge and capacity associated with environmental and social safeguards and safety management and ensures that the proposed ELEAP has taken full account of the priority concerns of PAPs and other relevant stakeholders.

17. In addition to these meetings and consultations, a stakeholder consultation workshop was organized by the World Bank, MoWIE, and EEU held at the Capital Hotel, Addis Ababa, Ethiopia, on July 6, 2017. Fifty-six participants from the MoWIE, EEU, REBs, the Environmental Authority, MFIs, ETHIOSOP (customer society), public forum representatives, and other nongovernmental

organizations attended the consultation workshop to collect additional information and obtain feedback on the draft ESSA.

18. The draft ESSA was disclosed on June 23, 2017, before the stakeholders' consultation held at the national level on July 6, 2017. The World Bank disclosed the final ESSA on the World Bank's external website on August 22, 2017.

Table 6.1. Recommended Program Action Plan on Environment, Social Safeguards, and Safety Management

No.	Action Items	Activities	Progress Indicator	Level of Application	Responsibility	Schedule/Time Frame	Output
Environmental, Social, and Safety Management System (ESMS) - *ELEAP-ESSA Disbursement Linked Indicator (DLI)*							
1	ESMS	ESMS will be established at the regional and Woreda levels and strengthened at the national level (EEU and MoWIE)	Percentage (100%) of subprojects under the Program screened to identify environmental and social safeguards documentation requirements; Percentage (100%) of safeguards documentation completed; Percentage (100%) of actions according to prepared safeguards documents prepared	At all levels (national, regional, and Woreda levels)	MoWIE, EEU	The ESMS will be established and functioning one month after the Program's effectiveness The ESMS will be strengthened throughout the Program implementation period.	ESMS established and strengthened
2	Maintain positions on environment, social safeguards, and safety at national and regional levels	Environmental and social safeguards specialist and occupational health and safety specialist at the national level and in each EEU regional office will be recruited and maintained.	Minimum 1 environment and social safeguards specialist and minimum 1 occupational health and safety specialist is maintained at the national level and in EEU's regional offices.	National and regional level	EEU	During Program implementation (starting effectiveness of the Program)	Staff in place
3	Performance review and environment, social, and safety audit	1. Conduct biannual technical review 2. Undertake performance review and environment, social, and safety audit	1. Number of biannual technical review meetings 2. Reviewed and cleared performance review and audit report	At all levels (national and regional levels)	MoWIE, EEU, WMEB	1. Biannual 2. Annually at the end of each fiscal year	1. Biannual performance review report 2. Annual environmental and social safeguards and

No.	Action Items	Activities	Progress Indicator	Level of Application	Responsibility	Schedule/Time Frame	Output
							safety audit report
4	Use of safety protection material and tools; PPE	Detail health and safety considerations/articles will be considered in Program implementation and in the contact agreements, if any contract is procured. Safety materials and tools and PPE will be available to ensure no or minimum safety impacts during the Program implementation period.	1. Percentage (100%) of contract agreement with full consideration of health and safety regulation or articles 2. Percentage (0%) of incidents reported of lack of PPE and safety materials and tools in subprojects	At all levels (national, regional, and Woreda levels)	EEU, MoWIE	During Program implementation	1. Contract agreement with EHS consideration 2. Annual inventory and procurement reports 3. Safety notification report 4. Safety audit report
5	Increase community awareness of social, environmental, and safety impacts of subprojects	EEU will conduct trainings and briefings for communities affected by the Program's subprojects on social, environmental, and safety impacts of the subprojects.	Percentage of communities briefed on social, environmental, and safety impact of the subprojects	At kebele/Woreda level	EEU	During Program Implementation	Briefing note
6	Strengthen the GRM	GRM committee will be established to receive, review, and address complaints in line with loss of livelihood, income or assets, dissatisfaction of the services, and so on. Additional GRM guidelines in line with customer services will be developed for the off-grid component and updated for the on-grid component followed by orientation for implementers.	1. Established GRM committee 2. GRM guidelines prepared 3. Percentage (100%) of complaints addressed	At all levels (regional, and Woreda level)	MoWIE, EEU, Regional WMEB	1. The first year of the program 2. The first year of the program 3. Throughout the program	1. Developed and updated GRM guidelines 2. Report on GRM process

No.	Action Items	Activities	Progress Indicator	Level of Application	Responsibility	Schedule/Time Frame	Output
7	Timely and appropriate consultation, compensation, and resettlement for PAPs	1. Develop/adopt guidelines on resettlement that includes grievance handling, protocol on voluntary contributions, mechanisms to accommodate squatters/illegal settlers, and consultation procedures. 2. Annual review of performance	3. Percentage (100%) of people compensated	At all levels (regional and Woreda level)	EEU, MoWIE	Guidelines will be developed by Program effectiveness. Instruments will be prepared before commencement of the subproject.	1. Guidelines developed 2. Reports on safeguards

Annex 7: Systematic Operations Risk Rating (SORT)

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

1. **The overall risk rating for the proposed operation is Substantial**.

2. **Political and Governance: Substantial.** Ethiopia will hold its next general elections in 2020. Following demonstrations and unrest, the Government declared a state of emergency on October 9, 2016, which was lifted on August 4, 2017. Despite the respite, there is a risk that further tensions between the Government and civil society could negatively affect implementation of the Program due to lack of accessibility to rural areas, the Government's capacity to take strategic decisions on time, and civil society's acceptation of Program objectives. To mitigate this risk, the team developed a comprehensive CE strategy, with a focus on sharing information with the public on the Program design, including its objectives, selection criteria, and roles and responsibilities of national and regional entities in implementation. Consultations took place on July 6, 2017, to that effect. However, increased country risk mitigation is beyond the scope of the proposed Program. Another risk concerns the selection of beneficiaries: the EEU has selected subprojects based on geographical quotas after receiving proposals from the regional offices. This may lead to favoring some regions over others. This will be addressed through the distribution plan prepared under the Program, which will lay out the investments for the Program time frame.

3. **Macroeconomic: Moderate.** Ethiopia has experienced strong economic growth over the past decade, which helped reduce poverty substantially. As a commodity exporter, the country is subject to global price volatility and is vulnerable to external economic shocks. The country has also relied heavily on public borrowing to finance infrastructure. This poses a risk to the sustainability of economic growth in Ethiopia, particularly as the Government seeks to achieve middle-income status by 2025. In the context of the Program, this means that there is a risk to the availability of Government funds to support the Program and the electricity sector as a whole.

4. **Sector strategies and policies: Low.** The GoE continues to place electrification and service delivery as the core of its sector policies. The NES has defined the implementation of a densification program, the provision of off-grid service, increased support to utility capacity as three of its strategic elements. In addition, GTP-II includes targets for households' connections, and the Government will launch its IRM and financing prospectus for the NEP before the end of

the calendar year. The risk of a lack of consistency between sector policies and Program design is therefore low.

5. **Technical design: Moderate.** The Program features are not unique nor does the technical design include new or untested technology. The activities under Results Area 1 involve last-mile drop-off connections in the already electrified areas; this does not require any specialized technical capacity and can be done by in-house teams in the EEU or by contractors. Technical design will be informed by the ongoing on-grid and off-grid electrification activities in Ethiopia and around the world. The main risks lie in inadequate capacity and resources to adequately plan for and roll out new connections, ensure maintenance and quality services, and lack of customers' resources to afford connections costs. Mitigation measures include (a) continued capacity strengthening of sector utilities in fiduciary and technical aspects; (b) definition of uniform technical standards for equipment and monitoring of service quality; and (c) establishing a sustainable mechanism to ensure affordability of connections and financial viability of the sector. In addition, there may be technical risks related to the reliability of the existing network, including overloaded substations and feeders and high outage frequency, which may lead to inability to connect new customers and will increase the resources for technicians and maintenance. The Program supports the development of a power system rehabilitation plan (to include costing at the individual feeder level) to enable the rapid scale-up of densification of customer connections in the next five years. This technical and investment plan should be largely completed by mid-2018 and no later than July 2019 to inform, in sufficient detail, the preparation of the business and implementation plan for 2020, 2021, 2022, and beyond.

6. **Institutional capacity for implementation and sustainability: Substantial.** Key sector institutions, such as, the MoWIE and EEU will have major key responsibilities for implementing the proposed Program, under the MoWIE's supervision. While EEU is experienced in implementing activities under the operation, i.e. connection of households, its capacity may be stretched with the ambitious electrification expansion planned under the NEP. The Program supports the strengthening of the MoWIE's capacity to design and oversee implementation and improve the EEU's technical, financial, and operational capacity by enhancing planning and M&E capacity, cost effectiveness, and safeguards mitigation. Technical assistance provided under ongoing projects will help complement efforts to enhance the capacity of both institutions.

7. **Fiduciary: High.** The entity financial audit (year ended July 7, 2016) has not been carried out. The last available audit report (year ended July 7, 2015) was issued with a disclaimer of opinion and contains significant internal control findings. In addition, there is a general lack of adequate fiduciary capacity at the EEU and MoWIE could undermine implementation of the Program. Mitigation measures include (a) the ongoing implementation of an FM action plan, (b) technical assessment to support comprehensive improvement on procurement and FM issues, and (c) the implementation of the recommendations of the Program's IFA for enhancing fiduciary capacity (including FM and procurement), whose costs were integrated in the expenditure program. Key actions are included in the Program Action Plan and the DLIs.

8. **Environmental and social: Moderate.** Despite the anticipated limited social and environmental impacts of the Program and the country's experience in designing and implementing mitigation measures, the safeguards-related risks attributable to the Program activities are considered moderate, to take into account (a) inadequate staffing and technical capacity for management of environmental and social safeguards, especially at the regional, zonal, and Woreda levels; (b) lack of awareness and enforcement of health and safety standards during

the construction and operation; and (c) risk of loss of income and livelihood for the project affected people linked to land acquisition and resettlement. These risks will be mitigated through the strengthening (e.g. additional staffing, developing guidelines, and training) of the ESMS, including grievance mechanisms, at the federal, regional, and local levels.

9. **Stakeholders: Moderate.** The design of the proposed Program is being informed by consultations with various GoE entities, DPs, the private sector, and beneficiaries, to enhance ownership. Nevertheless, the risk remains that some constituencies may feel insufficiently consulted and those included may have higher expectations for ELEAP outcomes than can be supported. To mitigate this risk, transparent communication/grievance mechanisms will be strengthened (as described in the CE section), the NEP-IRM will include the requirements, procedures, and processes for accessing Program funds, as well as various stakeholders' roles and responsibilities, and a communication strategy will be designed to be implemented during implementation.

10. **Other - financial viability of the sector: Substantial.** The current domestic electricity tariff (US$0.03 per kWh), which is among the lowest in Sub-Saharan Africa, could represent a constraint to scaling up electricity access, particularly with regard to repayment of domestic debt obligations, as well as for raising new financing. This risk will be partly mitigated through ongoing efforts of the GoE to revise the tariff structure. While the domestic tariff regime forms an important element of financial sustainability, the GoE is also considering additional actions, such as, augmenting domestic revenue with revenue from power exports, possible restructuring and/or refinancing of existing debt, and finding innovative ways of reducing the public investment burden and introducing sustainable financing mechanisms (for example, increased private participation through IPPs). It is also important to highlight that the proposed ELEAP supports financial viability of the sector (that is, yielding positive financial investment returns for the utility).

Annex 8: Program Action Plan

Action Description	Due Date	Responsible Party	Completion Measurement
Technical aspects			
Power system rehabilitation plan	January 7, 2019	EEU	Plan adopted by EEU Board
Off-grid strategy	July 7, 2019	MoWIE	Strategy adopted by Minister MoWIE
Low-cost standards and affordability policy and Customer connections policy	July 7, 2019	EEU	Policy adopted by EEU Board
Fiduciary aspects			
Planning and Budgeting • Address the delay of annual budget approval by EEU Board - align the budget calendar of the EEU and Board regular meeting dates with that of the Federal Government. • Produce budget execution reports based on actual expenditure data and according to planned physical activities from the system regularly addressing current backlogs; • Amend the CoA structure to capture expenditures according to Program activities.	Continuous	EEU	Annual budgets are approved and disseminated on time; Budget execution reports and amended CoA structure
Transparency: Disclose entity and ELEAP budget and financial statements to the public through the MoWIE and EEU's website (this includes budgets, yearly budget execution reports, and audit reports).	Continuous	EEU and MoWIE	Disclosure of annual budget and financial statements including budget execution reports and audit reports
Treasury management and fund flow: Unpredictability of Program funds should be addressed - financing gap should be carefully considered and addressed by the Government/MoFEC.	Continuous	MoWIE and MoFEC	TBD [a]
Accounting and financial reporting: • Resolve lack of updated FM manual - engage a consultant firm to assist transition to IFRS and update the procedure manuals. • Engage a consultant firm as planned to assist on fixed asset count and valuation. Clear backlog reconciliations. • Fill the vacant posts and design a capacity-building mechanism.	June 30, 2018	EEU EEU EEU/MoWIE	TBD [a]
Internal controls: • The MoWIE and EEU resolve internal control inadequacies as reported in external audit reports and internal audit findings.	Continuous	EEU/MoWIE	TBD [a]

Action Description	Due Date	Responsible Party	Completion Measurement
• Clear recording backlogs of material consumption data and bank reconciliations by program effectiveness and resolve issues noted in the audit report and report the status to the World Bank on a quarterly basis. • Internal auditors conduct internal audits on the entity and on the Program and report to management on findings and follow up to have them resolved.	As per dates stated in action plans Continuous		
Legal Framework: • Update of the EEU's procurement policy and procedures	End of Year 1	EEU	Preparation and distribution of the revised version of the Policy to all regional offices
• Debarment under the Program shall be done following the FPPA's debarment procedures, and the firms debarred by the World Bank shall be ineligible to participate in a tender.	Continuous	EEU	The updated procurement policy and procedures and all bidding documents include provisions of the World Bank's and FPPA's debarment procedures.
Procurement Capacity: • Maintaining the minimum number of skilled procurement staffing	Continuous	MoWIE, EEU	Minimum three procurement managers, two senior procurement officers, and ten junior procurement officers in the procurement sections of the MoWIE, EEU, and UEAP unit headquarters and minimum two procurement officers in regional offices are available.
• Technical assessment to support comprehensive improvement on procurement and FM issues and to provide intensive procurement contracts management training to the staffs of the regional offices	Year 1	MoWIE	Signing of contract with the technical assessment, and all staffs engaged in procurement and contract management processes are trained.
• Preparation of a comprehensive POM for day-to-day guidance of staff	One month after effectiveness	MoWIE	Preparation and distribution of the manual to regional offices
• The EEU should review the job level for procurement staff.	Year 2	EEU	Reviewed job level for procurement staff.
Transparency and fairness:			
• The EEU will use bidding documents, adapted from the SBDs of FPPA, with preset evaluation and qualification criteria.	Year 1	EEU	Preparation of customized bidding documents
• No direct procurement including MSEs and SOEs will be used without adequate justifications and safeguards and the approval of the contract award committee.	Continuous	MoWIE/EEU	Submission of adequate justification for the proposed direct procurement and signing of contract

Action Description	Due Date	Responsible Party	Completion Measurement
• ICB contracts should also be published in the international media like UNDB online.	Continuous	EEU	Disclosures published on UNDB online
Competitiveness:			
• The procedures to ensure transparency, fairness, and value for money of awarding direct contracts to SOEs and MSEs should be agreed with the MoWIE and EEU and be included in the POM.	Beginning of Year 1	MoWIE/EEU	The percentage of contracts to be tendered out to new-entrant MSEs will be determined; non-MSEs with same level of capital and qualification with the existing MSEs will be allowed to participate in tenders along with the existing MSEs; Submission of impact assessment report; and inclusion of agreed procedures in the POM.
Accountability, integrity, and oversight:			
• Provide facilities for procurement staff and secured space for procurement record.	Year 1	EEU	Facilities are provided.
Governance: 15 ethics and anticorruption officers or vigilance officers assigned in the 15 EEU regional centers, regional and state levels, UEAP, and MoWIE. Additional two experts are recruited at the MoWIE's ethics follow-up office.	July 7, 2018	MoWIE, EEU	Contracts signed
Introduce guidelines on the F&C control and grievance-handling functional adjustment, relationship, and reporting arrangement from the lower level to the EEU and MoWIE.	July 7, 2018	MoWIE, EEU	Guideline issued
Establish the entry/website for exchange of debarment lists and disclosure of complaint handling and update data.	May 15, 2018	MoWIE, EEU	Website established
Develop adapted training module on F&C and complaint handling recording and follow-up and subsequently provide cascaded training for the concerned staff at the ministry level, EEU, region, district, and satellite levels.	January 7, 2019	MoWIE, EEU	Training manual and report on training provided
Improve recording and increase responsiveness to complaints/requests related to power drop/interruptions, installation of connection line/meter, and transformer damages, and so on.	Continuous	EEU	As part of annual complaint report
Safeguards aspects			
Maintain positions on environment, social safeguards, and safety at the national level and regional level.	Continuous (starting effectiveness of the Program)	EEU	Minimum 1 environmental and social safeguards specialist and minimum 1 occupational health and safety specialist is maintained

Action Description	Due Date	Responsible Party	Completion Measurement
			in EEU headquarters and regional offices.
Performance review and environment, social, and safety audit	July 7 of each year of Program operation	EEU	Annual performance review and environment, social, and safety audit completed.
Use of safety protection material and tools; PPE	Continuous	EEU	(a) 100 percent of contract agreements include full consideration of health and safety regulation or articles; and (b) 0 percent of incidents reported of lack of PPE and safety materials and tools in subprojects
Increase community awareness of social, environmental, and safety impacts of subprojects.	Continuous	EEU	Percentage of communities briefed on social, environmental, and safety impact of the subprojects
Establish GRM.	July 7, 2018	EEU	GRM committee is established and guidelines have been prepared.
Timely and appropriate consultation, compensation, and resettlement for PAPs	Continuous	EEU	All PAP-related actions according to prepared safeguards documents have been completed.

Note: a. To be agreed in the POM.

Annex 9: Implementation Support Plan

1. Implementation support will include (a) reviewing implementation progress and achievement of Program Results and DLIs; (b) supporting the client in resolving implementation issues, (c) carrying out institutional capacity-building activities; (d) monitoring performance of the Program system and implementation of the actions agreed in the Program Action Plan; and (e) monitoring changes in Program risks, as well as compliance with the provisions of the legal covenants, as required.

2. In addition, an annual fiduciary review will be conducted for the Program. Adequate budget will need to be allocated for this review. This review will be supplemented by on-site visits done by the World Bank's fiduciary staff at least once a year. Reliance will also be placed on the annual audit reports. In addition, desk reviews will be done for audit, financial, procurement, and any other reports received during the financial year. In-depth reviews may also be commissioned by the World Bank, whenever deemed necessary.

3. The proposed implementation plan is consistent with the PforR operational guidelines. Program implementation rests under the responsibility of the EEU, with targeted and continuous implementation support and technical advice from the World Bank and DPs.

Table 9.1. Implementation Support Plan

Time	Focus	Skills Needed	Resource Estimate
First 12 months	• Institutional capacity enhancement at the national level to strengthen country systems • Technical advice to support Program implementation	Technical, fiduciary, environment, and social	• Three implementation support visits by technical specialists focused on capacity building, continued technical assistance, and monitoring • Two implementation support visits by fiduciary specialists focused on capacity building • One implementation support visit by environment and social specialists focused on capacity building and reviewing/strengthening effectiveness of the redress mechanism
12–48 months	• Institutional capacity enhancement at the local levels to strengthen implementation capacity • Implementation monitoring • Technical advice to support Program implementation	Technical (including M&E), fiduciary, environment, and social	• Two implementation support visits by technical and fiduciary specialists focused on fiduciary support and implementation support • One implementation support visit by social and environmental specialists focused on strengthening local capacity and implementation support
Midterm review	• Implementation progress review and identification of necessary midcourse adjustments	Technical (including M&E), fiduciary, environment, social, and operational	• One implementation support visit including technical, fiduciary, social, environment, M&E, and operational specialists
48–72 months	• Implementation monitoring • Technical advice to	Technical (including M&E), fiduciary, environment, and	• Two implementation support visits by technical and fiduciary specialists focused on fiduciary support and implementation

Time	Focus	Skills Needed	Resource Estimate
	support Program implementation	social	support • One implementation support visit by social and environmental specialists focused on strengthening local capacity and implementation support

Table 9.2. Task Team Skills Mix Requirements for Implementation Support

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
Project management (Task team leader)	Ongoing	n.a.	Addis Ababa
Project management (Co-task team leader)	24	12	Washington, D.C.
Technical specialists	24	12	Addis Ababa, with support from Washington, D.C.
FM specialist	12	6	Addis Ababa, with support from Washington, D.C.
Procurement specialist	12	6	Addis Ababa, with support from Washington, D.C.
Environmental specialist	12	6	Addis Ababa, with support from Washington, D.C.
Social specialist	12	6	Addis Ababa, with support from Washington, D.C.
Administrative support	Ongoing	n.a.	Addis Ababa

Role of Partners in Program Implementation

4. The World Bank Group has already been providing comprehensive policy advice and technical support for the development of the NEP, as well as providing DP coordination support to the GoE. The NES was supported under Phase 1 of the World Bank's three-year programmatic technical assistance, the ESMAP-funded ESRSP. The NEP-IRM has been developed as part of Phase 2 of the ongoing ESRSP, while Phase 3 activities will support the development of a nationwide GIS platform for least-cost expansion planning. The World Bank Group has also prepared a Joint Implementation Plan to coordinate support to the NEP as well as the IPP development programs of the GoE. Specifically, the IFC is supporting the development of private sector-led SAS market development through the World Bank Group/IFC 'Lighting Africa Program', as well as supporting the development of the mini-grid market through advisory activities.

5. The World Bank Group has also been leading the coordination efforts with other DPs and assisting the GoE in coordinating and developing the electrification program in the country. Given the pace of the ongoing reform program and the increased engagement of the DPs with the GoE in the electricity sector, the World Bank has supported close coordination of the DPs through an Energy Sector Roundtable. This roundtable is proposed to be included as a subgroup under the official Donor Assistance Group of Ethiopia which is chaired by the World Bank.

6. The proposed ELEAP supports the NEP, by financing the first phase of grid intensification activities, building implementation capacity and creating a blueprint for scaling up electrification. The proposed ELEAP is also designed to create the framework for crowding in resources from other DPs. Using a PforR instrument, ELEAP would help establish a sectorwide programmatic

approach for financing electrification by demonstrating the viability of the NEP and ensuring good practices for access expansion. The GoE launched NEP-IRM on November 27, 2017.

7. Many DPs have expressed strong interest in supporting the NEP and becoming part of syndicated financial mobilization. The GoE is in discussions with many of the DPs and it is likely that in the coming years, the investment gap identified in the NEP-IRM would be, in part, financed by the DPs. The preliminary list of DPs is presented in Table 9.3.

Table 9.3. Possible DPs Support for the NEP

Institution	Role
AfDB	• Ongoing technical assistance support • Ongoing financing for on-grid connections • Ongoing financing for MV/LV expansion and rehabilitation • Possible future financing as part of NEP (for example, MV/LV expansion and rehabilitation, on-grid connections, and off-grid electrification)
Agence Française de Développement (AFD)	• Ongoing technical assistance support • Possible future technical assistance and/or financing as part of the NEP (for example, off-grid electrification)
China (China Development Bank, Export-Import Bank of China, or others)	• Ongoing financing for MV/LV expansion and rehabilitation • Possible future financing as part of the NEP (for example, MV/LV expansion and rehabilitation, on-grid connections)
Danish International Development Agency	• Possible future technical assistance and/or financing as part of the NEP (for example, off-grid electrification)
Department for International Development, United Kingdom	• Ongoing technical assistance support • Possible future technical assistance and/or financing as part of the NEP (for example, off-grid electrification)
European Union/European Investment Bank/*Deutsche Gesellschaft für Internationale Zusammenarbeit*	• Ongoing technical assistance support • Possible future financing as part of the NEP (for example, MV/LV expansion and rehabilitation, on-grid connections, and off-grid electrification)
Korean International Cooperation Agency	• Possible future technical assistance and/or financing as part of the NEP (for example, off-grid electrification)
Organization of the Petroleum Exporting Countries Fund for International Development/Arab Bank for Economic Development in Africa/Kuwait Fund	• Possible future financing as part of the NEP (for example, MV/LV expansion and rehabilitation, and on-grid connections)
USAID/Power Africa	• Ongoing technical assistance support • Possible future technical assistance as part of the NEP (for example, on-grid connections or off-grid electrification)

Annex 10: Map of Ethiopia