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Report No: 136433-ET

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROGRAM APPRAISAL DOCUMENT

ON

PROPOSED IDA GUARANTEES

IN THE AMOUNT OF US$10 MILLION

TO THE

FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

FOR THE

RENEWABLE ENERGY GUARANTEES PROGRAM - PHASE I

AS PART OF A MULTIPHASE PROGRAMMATIC APPROACH

FOR THE

ETHIOPIA RENEWABLE ENERGY GUARANTEES PROGRAM

WITH AN

OVERALL FINANCING ENVELOPE OF US$200 MILLION

April 29, 2019

Energy and Extractives Global Practice
Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective March 31, 2019)

Currency Unit = Ethiopian Birr (ETB)

ETB 28.47000 = US$1

US$1 = SDR 0.720331

FISCAL YEAR

July 8 – July 7

ABBREVIATIONS AND ACRONYMS

AC	Alternating Current
AFD	Agence Française de Développement (French Development Agency)
AfDB	African Development Bank
CE	Citizen Engagement
DFI	Development Finance Institution
DG	Directorate General
DP	Development Partner
DPO	Development Policy Operation
EAPP	Eastern Africa Power Pool
EEP	Ethiopian Electric Power
EEPCo	Ethiopian Electric Power Corporation
EEU	Ethiopian Electric Utility
EGP	Enel Green Power
EHS	Environment, Health, and Safety
EIB	European Investment Bank
EIRR	Economic Internal Rate of Return
ELEAP	Ethiopia Electrification Program
EMS	Environmental Management System
ENREP	Electricity Network Reinforcement and Expansion Project
EOI	Expression of Interest
EPC	Engineering, Procurement, and Construction
ESDP	Energy Sector Directions Paper
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMAP	Energy Sector Management Assistance Program
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
ESS	Environmental and Social Standards
FDI	Foreign Direct Investment
FM	Financial Management
FPIC	Free, Prior, and Informed Consent

GBV	Gender-based Violence
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIF	Global Infrastructure Facility
GoE	Government of Ethiopia
GMSP	Grid Management Support Program
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Service
GSA	Government Support Agreement
GTP	Growth and Transformation Plan
IBA	Important Bird Area
IBT	Increasing Block Tariff
IDD	Integrity Due Diligence
IFC	International Finance Corporation
IPF	Investment Project Financing
IPP	Independent Power Producer
JICA	Japan International Cooperation Agency
JIP	Joint Implementation Plan
LC	Letter of Credit
M&E	Monitoring and Evaluation
MFD	Maximizing Finance for Development
MIGA	Multilateral Investment Guarantee Agency
MoF	Ministry of Finance
MoWIE	Ministry of Water, Irrigation, and Energy
MPA	Multiphase Programmatic Approach
NDC	Nationally Determined Contribution
NEP	National Electrification Program
NGO	Nongovernmental Organization
NORAD	Norwegian Agency for Development Cooperation
NPV	Net Present Value
O&M	Operation and Maintenance
OHS	Occupational Health and Safety
PATRP	Power Africa Transactions and Reform Program
PDO	Project Development Objective
PrDO	Program Development Objective
PPA	Power Purchase Agreement
PPIAF	Public-Private Infrastructure Advisory Facility
PPP	Public-Private Partnership
PS	Performance Standard
PSRR	Power Sector Reform Road Map
PSSC	Power Sector Sub-Committee
PV	Photovoltaic
RAP	Resettlement Action Plan

REGREP	Renewable Energy Guarantees Program
RFP	Request for Proposals
RFQ	Request for Qualifications
RISE	Readiness for Sustainable Energy
RPF	Resettlement Policy Framework
SIDA	Swedish International Development Cooperation Agency
SOE	State-owned Enterprise
USAID	United States Agency for International Development
VAC	Violence Against Children
VDT	Volume Differentiated Tariff

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F

TABLE OF CONTENTS

DATASHEET

BASIC INFORMATION

Country	Program Name	
Ethiopia	Renewable Energy Guarantees Program	
Project ID	**Financing Instrument**	**Environmental Assessment Category**
P162607	Investment Project Financing	B - Partial Assessment

Financing & Implementation Modalities

[✓] Multiphase Programmatic Approach (MPA)	[ ] Contingent Emergency Response Component (CERC)
[ ] Series of Projects (SOP)	[ ] Fragile State(s)
[ ] Disbursement-linked Indicators (DLIs)	[ ] Small State(s)
[ ] Financial Intermediaries (FI)	[ ] Fragile within a non-fragile Country
[✓] Project-Based Guarantee	[ ] Conflict
[ ] Deferred Drawdown	[ ] Responding to Natural or Man-made Disaster
[ ] Alternate Procurement Arrangements (APA)	

Expected Approval Date	Expected Closing Date
23-May-2019	31-December-2025

Bank/IFC Collaboration

Yes

Program Development Objective (PrDO)

Increase renewable energy generation capacity through private sector participation in Ethiopia.

Project Development Objective (PDO)

Increase renewable energy generation capacity through private sector participation in Ethiopia.

Components

Component 1: Metehara Solar IPP

Organizations

Borrower:	Ministry of Finance
Implementing Agency:	Ethiopia Electric Power

MPA PHASE 1 (METEHARA SOLAR IPP): PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	120.0
Total Financing	120.0
Financing Gap	0

DETAILS

World Bank Group Financing

International Development Association Guarantee	10.0

Non-World Bank Group Financing (estimate)

Estimated Private Equity, representing 25 percent of Project Cost	30.0
Estimated Debt from Development Finance Institutions, representing 75 percent of Project Cost	90.0
Estimated Commercial Debt, representing 0 percent of Project Cost	0

Expected Disbursements (in US$, Millions)

Since the proposed REGREP Phase 1 project consists of IDA guarantees, there are no disbursements anticipated.

INSTITUTIONAL DATA

Practice Area (Lead)	Contributing Practice Areas
Energy & Extractives	Infrastructure Finance, PPPs, and Guarantees

Climate Change and Disaster Screening

The operation has been screened for long-term climate and disaster risks, which are categorized as 'Moderate'. Droughts and increased evaporation from reservoirs may reduce hydropower availability and hurt the financial performance of the Ethiopian Electric Power (EEP). These impacts may negatively affect the performance of the REGREP Phase 1 project. However, the supported infrastructure investments—non-hydro renewable energy power

plants—will increase the sector's resilience to hydropower supply shocks, and overall, the program will help build capacity in the Government of Ethiopia (GoE) for sector planning and project execution. Therefore, while exposure is Substantial, the moderate potential impacts and the risk-reducing effects of the project's activities mean that the overall risk is Moderate.

Gender Tag

Does the project plan to undertake any of the following?	
a. Analysis to identify project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF	Yes
b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment	Yes
c. Include Indicators in results framework to monitor outcomes from actions identified in (b)	Yes

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

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

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

Safeguard Policies Triggered by the Project (MPA Phase 1: Metehara Solar IPP)	Yes	No
PS 1. Assessment and Management of Environmental and Social Risks and Impacts	✓	
PS 2. Labor and Working Conditions	✓	
PS 3. Resource Efficiency and Pollution Prevention	✓	
PS 4. Community Health, Safety and Security	✓	
PS 5. Land Acquisition and Involuntary Resettlement	✓	
PS 6. Biodiversity Conservation and Sustainable Management of Living Natural Resources	✓	
PS 7. Indigenous People	✓	
PS 8. Cultural Heritage	✓	

Legal Covenants

In all project-based guarantees under the REGREP MPA program, the following legal covenants will be included:

- Continued implementation of the program-level ESMF and RPF
- Regular reporting on the following financial indicators:
  - Revenues billed and collected
  - Earnings before interest, taxes, depreciation, and amortization (EBITDA)
  - Interest charged (accrued)
  - Net debt
  - Receivables (gross change and write-offs)
  - Payables

For each individual project-based guarantee, usual and customary conditions precedent and covenants for project financing of this nature will be included in the legal agreements. These will include financial covenants regarding EEP's financial performance in the cooperation agreement.

Conditions

Usual and customary conditions to effectiveness for guarantee operations in support of project financing of this nature will be included in the legal agreements. Please refer to Annex 1.

I. STRATEGIC CONTEXT

1. **The proposed Ethiopia Renewable Energy Guarantees Program (REGREP) supports a remarkable transition from public sector led energy sector development to private sector driven expansion of solar and wind power in Ethiopia—representing what could be one of the largest independent power producer (IPP) programs in Sub-Saharan Africa.** The proposed REGREP will mobilize IDA guarantees to backstop certain obligations of the Government for the country's first set of competitively procured renewable energy (solar and wind) auctions to be developed as IPPs. The proposed REGREP will be the first instance of IDA Guarantees being deployed in Ethiopia and is well aligned with the World Bank's corporate priorities on climate change and maximizing finance for development. Overall, the proposed REGREP could mobilize over US$1.5 billion in investment for at least 1,000 MW of renewable energy (solar and wind) IPPs in Ethiopia in the coming years (subject to the readiness of the IPPs as well as the guarantee coverage requested by each IPP).

2. **The REGREP is structured as a Multiphase Programmatic Approach (MPA) for IDA Guarantees, with one front-runner solar IPP transaction (Metehara Solar IPP) supported in the first phase (REGREP Phase 1) and three future phases over a six-year period.** Structuring the REGREP as an MPA responds to the Government's need for long-term support to build a strong IPP program and track record of bankable transactions to attract credible private sector sponsors and financiers. First, the MPA allows for continuity and lessons learned to be incorporated into the process and investment framework. Second, the MPA signals a long-term Government commitment (backed by IDA Guarantees) to the private sector to develop IPPs in a transparent, affordable, and sustainable manner. Third, the MPA facilitates the implementation of the ongoing power sector reform program to maximize private sector financing through a longer-term, adaptive, and continuous engagement. Fourth, the MPA offers a more efficient and agile response to private sector investors, further improving the attractiveness of the investments.

3. **The program complements the ongoing Ethiopia Growth and Competitiveness Programmatic Development Policy Operation (DPO) series (P168566) to sustain the Government of Ethiopia's (GoE) ambitions and defined targets toward economic transformation, underpinned by reforms in the infrastructure sectors, including power.** The power sector reform program under the DPO series encompasses (a) the legal and regulatory framework to attract private sector financing from IPPs; (b) tariff reforms aiming at achieving cost recovery in the medium term: under the approved multiyear tariff reform, the average effective tariff would increase to US$0.07 per kWh by 2021;[1] (c) institutional reforms toward the unbundling of sector institutions and privatization of selected generation assets; (d) measures to improve the operational efficiency, service delivery, and customer service of the utilities; and (e) restructuring of the power sector utilities' existing debt obligations. The first operation in the DPO series was approved in 2018, and preparation of the second operation, including for the measures on the power sector side, is well under way.

4. **The REGREP is designed as a World Bank Group engagement to harness world-class solar and wind resources in Ethiopia's renewable energy led power system.** The first phase includes one IPP, the Metehara solar IPP (supported by the United States Agency for International Development [USAID] for advisory services), with all relevant World Bank Group instruments available to the selected sponsor. The

[1] Under the approved multi-year tariff framework, average tariff will increase from US$0.02 per kWh in 2018 to cost-recovery level of US$0.07 per kWh by 2021 in four annual increments.

second phase of this MPA encompasses two IPPs developed under the World Bank Group's Scaling Solar initiative, supported by International Finance Corporation (IFC) Advisory Services as transaction advisor and offers IDA guarantees, Multilateral Investment Guarantee Agency (MIGA) political risk insurance, and IFC blended finance to potential investors. The GoE has requested continued IFC Transaction Advisory Support in the development of future solar IPPs. The technical work for site selection and pre-feasibility of wind IPPs, in collaboration with the Government of Denmark, is ongoing and will be considered in the third and fourth phases of this MPA.

A. Country Context

5. **Ethiopia, a growing economy with a population of over 100 million located in the conflict-affected Horn of Africa region, is experiencing an unprecedented political and economic change.** A new Prime Minister came to power in April 2018, during one of Ethiopia's worst political and social crises in decades, which had forced the Government to declare a state of emergency twice in three years. Since his appointment, the Prime Minister has signed a peace agreement with Eritrea and reopened the border following two decades of conflict. The new administration has opened new political space for dialogue, released political prisoners, lifted bans on political parties and media outlets, actively engaged in regional diplomacy, and announced a range of economic reforms designed to revitalize the Ethiopian economy by expanding the role of the private sector. Given Ethiopia's size and location, this shift has transformed the economic and political landscape in the Horn of Africa and further afield.

6. **Over the past decade, Ethiopia has achieved substantial progress in promoting economic, social, and human development.** For the last 10 years, the Ethiopian economy has grown at an annual rate of over 10 percent in real terms, making Ethiopia one of the world's fastest-growing economies. This period of robust growth was driven by large-scale public investment in infrastructure and energy, which was made possible by favorable commodity prices and international debt-relief efforts in the mid-2000s. The poverty rate declined from 55.5 percent in 2000 to 26.7 percent in 2016,[2] and Ethiopia made significant progress on the Millennium Development Goals. The primary enrollment rate quadrupled, child mortality rate halved, and the number of people with access to clean water more than doubled. Average life expectancy has increased by about one year annually since 2000 and is now higher than the averages for both Sub-Saharan Africa and low-income countries worldwide.

7. **Ethiopia has initiated reforms in key strategic sectors currently dominated by state-owned enterprises (SOEs), opening telecommunications, energy, aviation, and logistics to foreign participation.** The implementation of these supported reforms can provide a significant impetus to the economy by strengthening the role of the private sector and moving toward a sustainable financing model for Ethiopia's continued growth trajectory and create jobs for its young and growing population with approximately two million new entrants joining the labor market each year.

8. **The World Bank is supporting the Government's economic reform program through a three-year DPO series (FY19–FY21)**. The DPO series is the first World Bank budget support operation to Ethiopia in over a decade. It supports the acceleration of the Government's economy-wide reform program by taking actions to open the private sector for competition and foreign participation, reform the SOE sector, and put the economy on a fiscally sustainable path. Reforms in the power sector are spearheading the

[2] The poverty rate is measured at the international poverty line of US$1.9 per day in 2011 purchasing-power parity terms.

overall economic transformation, with the objective of providing adequate and reliable power for new and existing domestic consumers and facilitating Ethiopia's emergence as a regional energy hub.

B. Sectoral and Institutional Context

9. **Following a recent restructuring, Ethiopia's power sector is operated by a power generation and transmission utility (Ethiopian Electric Power) and a distribution utility (Ethiopian Electric Utility).** In 2013, the original, 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 subsectors, and (b) the Ethiopian Electric Utility (EEU), responsible for power distribution and sales. The Ministry of Water, Irrigation, and Energy (MoWIE) continues to be responsible for coordination and oversight of the electricity sector. The GoE also established a regulatory agency (the Ethiopian Energy Authority), responsible for developing transparent and effective rules, directives, and standards to promote performance and investment in the sector (see reform program timeline in Figure 1).

10. **Ethiopia has vast and largely unharnessed clean energy resources.** Today, Ethiopia is one of the few countries in the world which generates almost all of its electricity from renewable resources (96 percent from hydropower and 4 percent from wind power). Furthermore, Ethiopia is endowed with significant unharnessed potential for further expansion of renewable energy supply—including solar power (5.5 kW/m^2/day), 30,000 MW of hydropower, 10,000 MW of geothermal power, and 5,000 MW of wind power. Investments to exploit these resources and transition to a more diversified mix of renewable energy resources are in line with Ethiopia's Nationally Determined Contribution (NDC) under the Paris Agreement, one of the few NDCs worldwide that is considered compatible with less than 2°C warming.

11. **Ethiopia's installed capacity has more than quadrupled since 2009, when it was last hit by a significant supply shortage that led to severe power outages.** The available generation capacity, mostly based on hydropower, reached about 4,500 MW in early 2019—the second highest available generation capacity in Sub-Saharan Africa—up from around 1,100 MW in 2009. However, memories are still fresh of the last supply shortage in 2009—triggered by drought conditions and demand outpacing supply—when the utility was forced to resort to countrywide load shedding, lasting 16–18 hours every day, expensive rental power, and instructions to industry to shut down their operations for one month or to use their own diesel generation.

12. **Domestic electricity demand is expected to continue growing in double digits—growth since 2010 has averaged 15 percent—driven by industrialization as well as a renewed focus on electrification, with a National Electrification Program (NEP) that aims to provide universal access to electricity by 2025.** The GoE has prioritized the development of industrial parks and export-processing zones and has enacted policies to encourage Foreign Direct Investment (FDI) and private investment in light manufacturing. This industrialization strategy of the GoE will further drive the demand for electricity in the domestic market. Further, in November 2017, Ethiopia, with support from the World Bank, launched its NEP to shift focus on delivery of adequate, reliable, and affordable electricity services and not just infrastructure development. At 33 percent on-grid electrification rate and 11 percent off-grid electrification rate, Ethiopia still has the second largest energy access deficit in Sub-Saharan Africa (after Nigeria), and the third in the world. Nearly 60 percent of the population still lives in the dark, and only 24 percent of primary schools and 30 percent of health centers have access to electricity services. An update to the NEP was launched in March 2019, laying out the implementation modalities for accelerating off-grid electrification

programs which complement the ongoing grid densification programs. The NEP is expected to contribute to double-digit growth in energy demand in the coming years. In addition, Ethiopia's annual energy consumption per capita (around 120 kWh) is still an order of magnitude smaller than that of countries such as India (806 kWh), Vietnam (1,411 kWh), and China (3,927 kWh). Economic growth leading to increasing per capita energy consumption would further require accelerated investment in energy infrastructure in the medium term.

13. **Recent investments in transmission interconnectors provide opportunities for Ethiopia's power sector to become an integral part of the growing regional integration agenda in the Horn of Africa and the East Africa Power Pool (EAPP)[3] countries.** Recently completed and ongoing investments in power transmission interconnections to neighboring countries enable exports to, among others, Djibouti, Sudan, Kenya, Tanzania, Uganda, and Rwanda already now or in the near future. While power trade in the EAPP region is based on bilateral agreements between countries, plans are underway for development of a trading platform which could enable more competitive power trade in the medium-term. In the long term, given its massive clean energy reserves, Ethiopia can become a cornerstone of the regional power trade in the EAPP, and even export into the Southern Africa Power Pool (SAPP). Ethiopia's renewable energy potential will also be crucial in addressing the electricity access deficit in East Africa. Just the Horn of Africa subregion accounts for nearly 25 percent of the total electricity access deficit in Sub-Saharan Africa. Until the regional power pools develop spot markets, this regional power trade would rely on Ethiopia erecting the remaining power transmission interconnections and getting into bilateral agreements with neighboring countries. Based on the Government's plans, by 2025, Ethiopia could export nearly 1,000 MW of power, generating over US$500 million in export revenue. The electricity sector can also become a major driver of the wider regional integration agenda.

14. **Least-cost generation expansion plans for Ethiopia foresee substantial additions of solar and wind to be commissioned by 2030 to meet up to around 10 percent of supply, as these sources contribute to meeting domestic and export demand at low cost, diversify sources of supply, and improve resilience to droughts and climate change.** By 2025, the required power production could reach up to 40,000 GWh (up from about 14,000 GWh in 2018), of which, nearly 25,000 GWh is expected to be from the domestic market. A probabilistic analysis carried out by the World Bank concluded that it is optimal for Ethiopia to build as much as 4,071 MW of new solar and wind power capacity between 2019 and 2030, providing about 10 percent of supply by the end of this period. This considers the (large) uncertainties around (a) the commissioning schedule of large hydro plants; (b) demand growth; (c) cost of solar and wind technologies; and (d) hydrology conditions. Even when ignoring the abovementioned uncertainties, the optimal generation mix by 2030 includes large amounts of wind and solar capacity. In fact, without the planned energy output made available from solar and wind capacity additions, there is a real risk of energy shortfalls in Ethiopia given the typically low load factor (due to the uncertainties mentioned above) of the entirely renewable energy power system.

[3]The EAPP was established in 2005 by seven Eastern Africa countries: Burundi, the Democratic Republic of Congo, Egypt, Ethiopia, Kenya, Rwanda, and Sudan. The EAPP was adopted as a specialized institution to foster power system interconnectivity by the heads of states of the Common Market for Eastern and Southern Africa region. Tanzania, Libya, and Uganda have joined the EAPP in March 2010, February 2011, and December 2012, respectively. Several major interconnections are under development or construction (including the Ethiopia–Kenya line, financed by the World Bank), and there are concerted efforts by development partners (DPs) to strengthen the EAPP Secretariat's leadership and strategic vision as well as develop adequate electricity trade regulatory framework and rules to support regional projects.

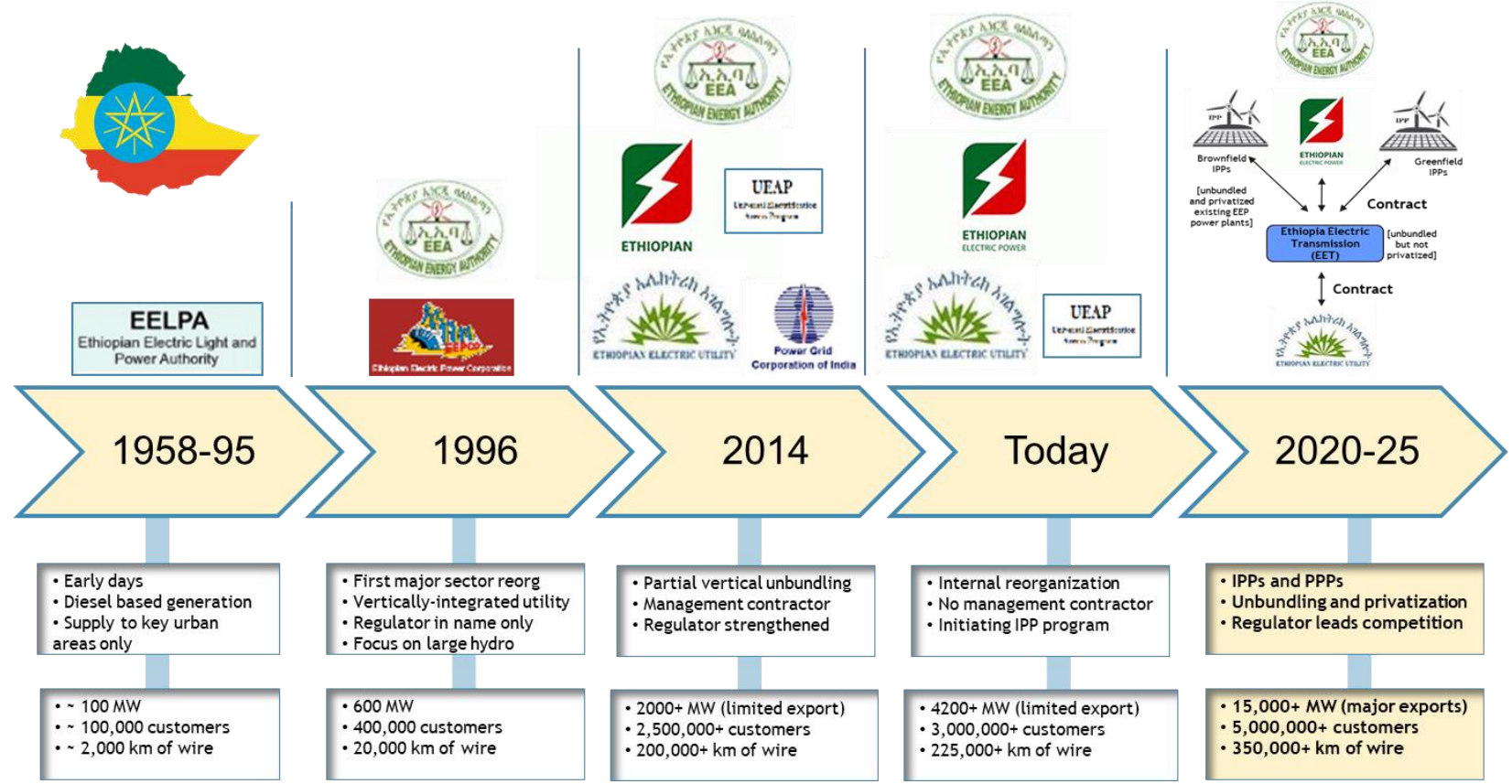
15. **Ethiopia's power sector is well positioned in the short-term to absorb significant amounts of variable renewable energy into the grid network**. The threshold for variable renewable energy installed capacity is significantly higher for systems with large shares of hydropower with reservoirs, as is the case in Ethiopia. Technical assessments by the World Bank concluded that several hundred MW of wind and solar can be connected to Ethiopia's network without the need for significant system reinforcements. Investments in network reinforcements and operational improvements, many of which are already planned or under way, will be needed to accommodate further investments. Continued revisions to the regulatory framework will also be necessary to enable efficient large-scale development of solar and wind; a detailed regulatory gap analysis for the power sector is currently under way.

16. **However, the power sector does not have the ability to continue self-financing its growth, as Ethiopia's traditional model of public financing for new investments in the power sector combined with exceptionally low tariffs has compromised the financial health of the two newly formed utilities.** Electricity tariffs have remained nominally constant over the past decade while the currency continued to depreciate against the U.S. dollar (average tariff before the current reform was initiated in December 2018 was about US$0.02 per kWh and was among the lowest in Sub-Saharan Africa). While the sector can currently maintain a slim operating profit margin, sector revenues have not kept pace with rapidly rising financing costs. Overreliance on short-term loans, used to finance long-term assets (mostly hydro power), has created a cash flow problem, as there is no prospect of repayment from electricity tariffs. As a result, 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.

17. **In this context, the Government is moving from public generation investments to IPPs, enabled by the landmark Public Private Partnership (PPP) Proclamation.** To provide an institutional framework for the development and procurement of PPPs across the economy, the GoE has adopted an 'umbrella' legislation. Under the new PPP framework, a dedicated PPP Directorate General (DG) has been established at the Ministry of Finance (MoF), which short-lists (based on clear selection criteria) and approves PPP transactions across all the sectors. The PPP DG coordinates with EEP's IPP development unit for power sector transactions. The PPP DG has also prepared procedures for selecting and procuring such projects in a transparent and competitive procurement process based on auction-based bidding procedures, which has become the default methodology for procuring IPPs.

18. **The transition toward private financing for power sector infrastructure is important for Ethiopia's macroeconomic outlook.** The future financing modality of the power sector is fundamental to the country's macro-fiscal stability. Public borrowing by the utilities over the past decade has created a growing debt service obligation. The two utilities' total combined liabilities of approximately US$10 billion account for about 15 percent of gross domestic product (GDP). In view of Ethiopia's debt distress level, which is considered "high", a continuation of public financing at a rate of billions of dollars a year will not only worsen the power sector financials but has the potential to drag the country to financial contagion and debt distress. The shift from relying on domestic state-owned banks to FDI for power sector infrastructure financing therefore represents a policy choice synchronous with macro-fiscal stability.

Figure 1. Government's Reform Program Timeline in the Power Sector



Source: World Bank staff.

19. **Encouraging private financing for power sector infrastructure development forms a core part of Ethiopia's transformative power sector reform program, supported by the DPO series, alongside measures to achieve sector financial viability.** The GoE has initiated a set of power sector reforms to put the sector on a path toward more accountability and efficiency, supported by the World Bank's DPO series (FY18–20). In December 2018, the GoE implemented the first tariff reform of a multiyear reform trajectory that will bring the average tariff to US$0.07 per kWh by 2021 (with continued adjustments expected each year through 2021). Alongside, the GoE is preparing a comprehensive debt restructuring plan for the sector utilities that have accumulated liabilities of nearly US$10 billion. An overall Power Sector Reform Road Map (PSRR) is being put together which aims at creating a more creditworthy, competitive, and efficient power sector through a series of further unbundling and possible privatizations in the sector (from the current vertically integrated SOE-led model). The Government is also focusing on improving utility performance, reducing losses, and improving collections (transmission and distribution losses are around 23 percent). The reform program is already having a measurable impact—the World Bank's 2018 assessment of the Regulatory Indicators for Sustainable Energy (RISE), Ethiopia was the fastest-improving country in Sub-Saharan Africa.[4]

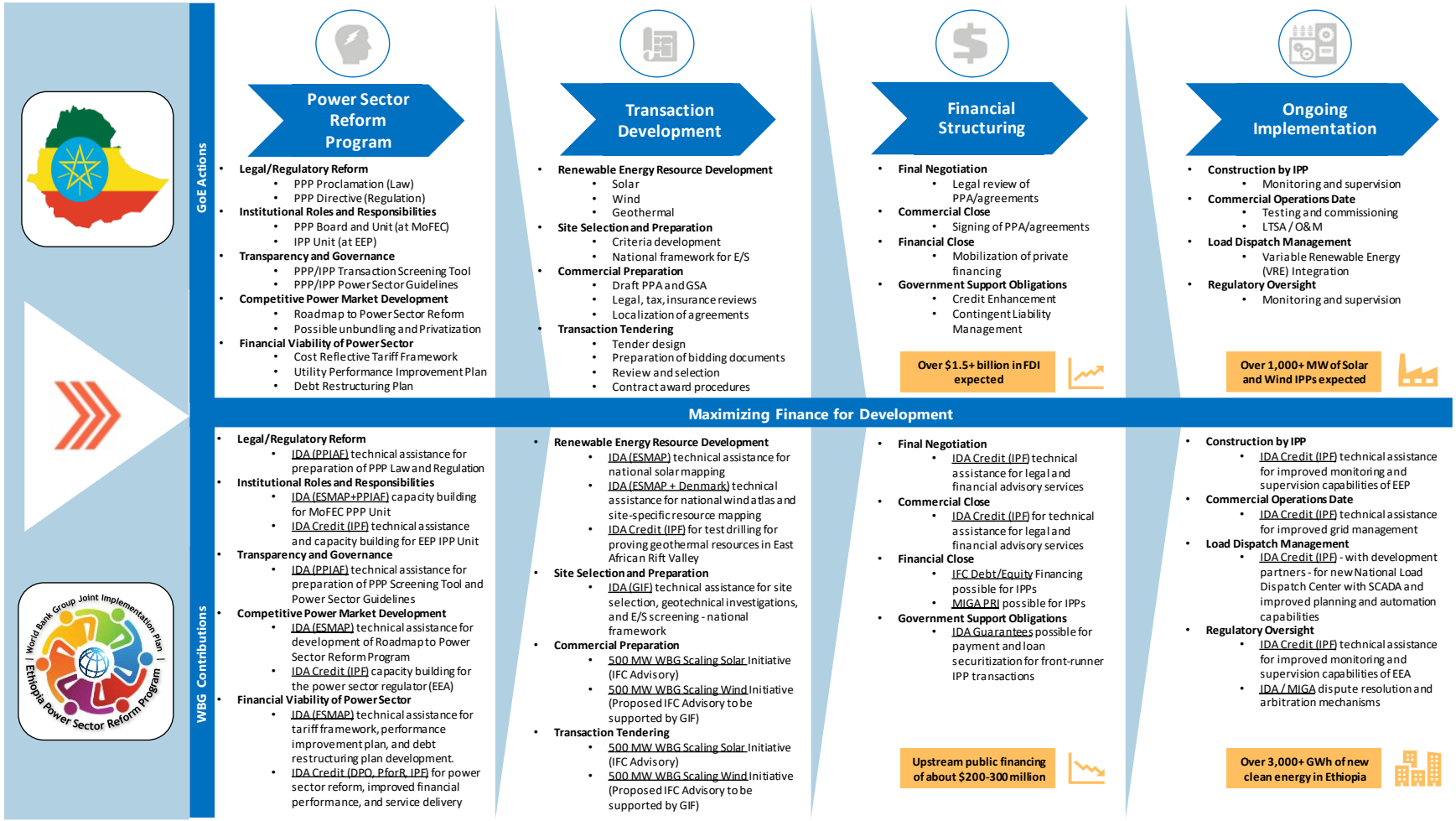
20. **The GoE has developed a pipeline of renewable energy IPP projects under the new PPP Proclamation[5], including transactions developed under the largest Scaling Solar initiative so far.** IFC is providing transaction and financial advisory services to develop up to 750 MW of solar IPPs, making Ethiopia the World Bank Group's largest country under the Scaling Solar initiative. The Scaling Solar initiative offers a suite of IDA, IFC, and MIGA instruments under a standardized umbrella aimed at creating viable markets for grid-connected solar photovoltaic (PV) power plants. It is an open, competitive, and transparent approach that facilitates the rapid development of privately owned, utility-scale solar PV IPPs. Recently, IDA, IFC, and the Government of Denmark also started collaborating to prepare 500 MW of wind IPPs using a similar approach.

21. **The proposed REGREP MPA program will support this pipeline of renewable energy IPP projects as part of a sector-wide World Bank Group engagement in Ethiopia that is closely aligned with the support from other Development Partners (DPs).** The REGREP MPA supported IPP pipeline is being prepared with the help of comprehensive policy advice and technical support from the World Bank Group and is a central part of the Joint Implementation Plan (JIP) between IDA, IFC, and MIGA (summarized in Figure 2). The World Bank Group's support includes IDA's multifaceted advisory assistance for policy enactment as well as legal and regulatory reform (PPP Proclamation as well as IPP procurement and commercial framework development), capacity development for the IPP Unit at EEP (including a new, dedicated training program for PPPs in the power sector), as well as continued technical assistance for utility reform and long-term financial sustainability of the sector. IDA supported projects are contributing to improvements across the energy sector value chain. Finally, the DPO series supports the GoE's ambitious power sector reform program.

[4] Rise.ESMAP.org

[5] There were two legacy IPP transactions (in the geothermal sector) which were directly negotiated and pre-date the PPP Proclamation. GoE and the sponsors of these two legacy IPP transactions are in discussion regarding satisfaction of conditions precedent for financial closure of these transactions. These transactions are not part of REGREP MPA.

Figure 2. Government Actions and World Bank Group Support for the Implementation of the Renewable Energy IPP Program



Source: World Bank staff.

22. **The proposed REGREP MPA will leverage private capital at an estimated rate of up to 1:4 and total investment at a rate of up to 1:8.** The REGREP MPA program will provide guarantees with a face value of up to US$200 million. These guarantees are expected to leverage in the order of US$750 million in private financing (equity and commercial debt) and a total of US$1.5 billion in investment (see Section II for details). In line with the Maximizing Financing for Development (MFD) approach, the World Bank Group's support to Ethiopia's IPP program follows a sequenced approach under which financing and technical assistance for policy reforms have unlocked significant opportunities for private sector participation in the power sector.

23. **Renewable energy IPP projects developed with support from the proposed REGREP MPA program are projected to serve domestic demand (which is expected to be about four-fifths of total demand by 2030) and export demand (one-fifth).** As is standard practice in markets that are not liberalized, the IPPs are expected to be developed under 'take-or-pay' contracts. Continued engagement by the World Bank with the GoE on system planning, including ongoing support to update the Power Sector Master Plan, will ensure that excess capacity will not be procured under such long-term contracts.

C. Relevance to Higher Level Objectives

24. **The proposed REGREP is aligned with the World Bank Group's twin goals of eliminating extreme poverty and boosting shared prosperity, Ethiopia's NDC under the Paris Agreement, Sustainable Development Goal 7, Sustainable Energy for All, and the World Bank's Energy Sector Directions Paper (ESDP).** The proposed REGREP will contribute to the GoE's agenda of expanding electricity access and will thereby contribute to poverty reduction and shared prosperity. The REGREP MPA program will also form a central element of Ethiopia's NDC under the Paris Agreement. It is also aligned with the World Bank's ESDP, which calls for increased focus to expand renewable energy by creating an enabling environment, promoting market solutions and increasing leverage of financial resources.

25. **The proposed REGREP is fully aligned with the World Bank Group's Country Partnership Framework for FY18—FY22 (Report No. 115135-ET) and the new Africa Regional Strategy.** The proposed MPA will support Focus Area 1 (Fostering Structural Transformation for Growth) by enhancing private sector financing of infrastructure projects and Focus Area 2 (Building resilience and inclusiveness), by contributing to increasing supply of electricity in a sustainable manner and managing the impact of climate change through diversification of sources of energy supply. Under the new Africa Regional Strategy, the proposed MPA will contribute to (a) Pillar 1 (Create Sustainable and Inclusive Growth), specifically the MFD agenda and the target to raise foreign direct investment from 1.5 percent to 4 percent of GDP by 2023, and (b) Pillar 3 (Build Resilience), specifically the climate change agenda and the target to raise renewable energy generation capacity in Sub-Saharan Africa from 28 GW to 38 GW by 2023.

26. **The proposed REGREP, together with the World Bank supported upstream policy reforms, will help maximize financing for the development of the power sector in Ethiopia.** In line with the MFD approach, the support of the World Bank followed a sequenced approach under which financing and technical assistance for policy reforms unlocked opportunities for private sector participation in the power sector. The entirety of the World Bank Group's support to the Government's renewable IPP program is summarized in Figure 2.

27. **The renewable IPP program supported by the proposed REGREP can serve as a role model for infrastructure sector reform in Ethiopia as well as other countries in Sub-Saharan Africa.** The IPP

program will be the pioneering program in Ethiopia's transition toward more private sector participation in infrastructure. This will be important as the GoE embarks on infrastructure sector reform across the economy, including in telecoms, aviation, and transport. Furthermore, Ethiopia's renewable IPP program, if successful, will be one of the largest such programs in Sub-Saharan Africa and provides an opportunity to develop best practices that can be implemented across the continent.

D. Multiphase Programmatic Approach

(i) Rationale for using Multiphase Programmatic Approach

28. **First, the programmatic approach to IPPs under the MPA allows for continuity and lessons learned to be incorporated into the process and investment framework.** A key rationale behind the use of the MPA is the potential that the program offers for incorporating lessons learned and improvements in the sequencing, procurement, and execution of transactions over time. This is expected even while allowing for partially overlapping phases and avoiding the possible disengagement and loss of capacity of resources between operations. In doing so, the MPA will enable an increasingly nuanced appreciation of risks within the program, as implementation yields lessons for all players and an experienced implementation team at the regional level. Feedback will allow the team to adjust program details while maintaining program objectives.

29. **Second, the MPA signals a long-term Government commitment to the private sector to develop IPPs in a transparent, affordable, and sustainable manner.** Through its size, vision, and programmatic nature, the REGREP MPA program of guarantees—the first IDA guarantee operation in Ethiopia—will send a strong signal about the Government's seriousness for private sector participation in infrastructure and will provide lessons which can be replicated across sectors. Once such reputation and track record are established, the need for guarantees will be limited and can be deployed only in specific cases.

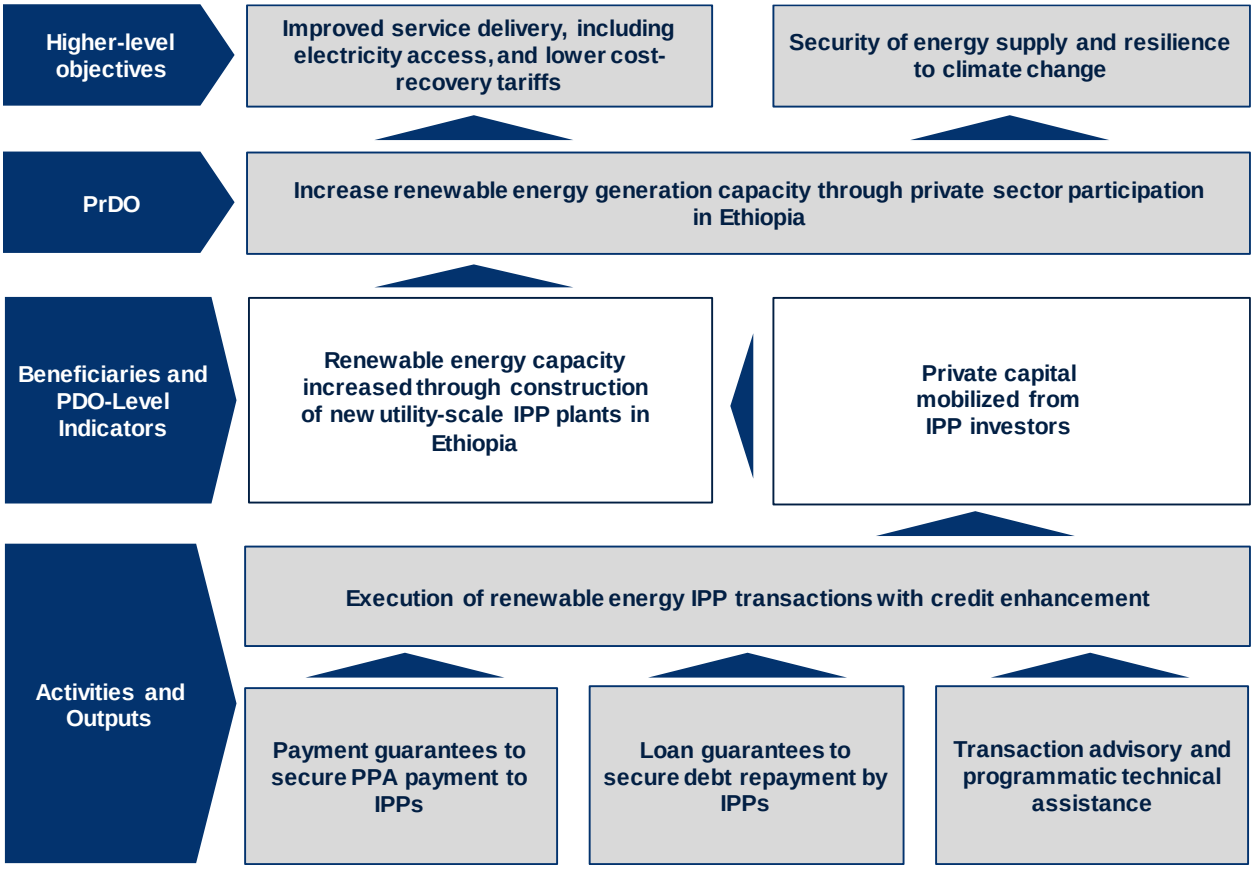
30. **Third, the MPA will facilitate the implementation of the power sector reform program to maximize private sector financing through a longer-term, adaptive, and continuous engagement.** The MPA places emphasis on the achievement of a longer-term vision and provides assurance to the Client to commit to a higher level of ambition from the outset. The MPA will help sustain a commitment to the GoE's reform agenda. Given the long list of IPP transactions that are being considered for guarantee support, the MPA is the optimal mechanism for channeling World Bank support to the IPP program. The World Bank's long-term commitment through this MPA will send a positive signal to investors building their confidence over the medium to long term, rather than for a single transaction.

31. **Fourth, the MPA offers a more efficient and agile response to private sector investors, further improving the attractiveness of the investment environment.**[6] The MPA instrument responds in part to the lack of a streamlined process for a series of power sector transactions involving the private sector. The MPA aims to offer a clearly understood procedure for approving subsequent phases for cases such as these, with streamlined documentation and approval, allowing a much more efficient and agile solution for approval and documentation.

[6] The World Bank, Multiphase Programmatic Approach; Operations Policy and Country Services Board Paper; July 2017 (page 16).

(ii) Program Results Chain

Figure 3. Results Chain of the Proposed REGREP MPA



Source: World Bank staff

(iii) Program Development Objective Statement for the REGREP MPA Program

32. The Program Development Objective (PrDO) is to 'increase renewable energy generation capacity through private sector participation in Ethiopia'.

(iv) Key PrDO Indicators with Baselines and End Targets

(a) Increased renewable energy generation capacity under the IPP program that has reached commercial operation, from 0 MW in 2018 to at least 1,000 MW by 2025

(b) Amount of private capital mobilized under the IPP program, from US$0 million in 2018 to at least US$800 million by 2025[7]

[7] Development Financial Institution (DFI) financing, such as IFC, does not count as private capital mobilized under the World Bank Group's MFD framework. Private capital would include private equity and purely commercial financing, including commercial financing benefiting from an IDA guarantee.

(c) Share of private capital (equity and debt) deployed in new IPPs, from 25 percent (2019) to 65 percent by 2025[8]

(v) Program Framework

33. **The proposed REGREP MPA would provide up to US$200 million (the MPA envelope) of payment guarantees to cover EEP's Power Purchase Agreement (PPA) payment obligations and loan guarantees for commercial lenders to support Ethiopia's strong pipeline of IPP transactions.** The REGREP MPA will be structured as a guarantees program applying the MPA, with a first phase of one transaction being submitted to the Board jointly with the overall program.

34. **The proposed REGREP MPA would support IPP transactions in four phases (see Table 1).** The total number of projects that can be supported under the MPA depends on the guarantee coverage requested by each IPP. The indicative structure and guarantee allocation are summarized below:

- **Phase 1** would support the most advanced solar IPP transaction, the Metehara Solar IPP (100 MW) and is being submitted for approval together with the REGREP MPA program in FY2019. Phase 1 is expected to include a payment guarantee with an estimated amount of US$10 million. The first IPPs are likely to finance themselves with private equity financing and Development Finance Institution (DFI) debt financing. The mix of financing sources will evolve as risks decline and total financing needs increase. Future transactions are therefore likely to attract private financing in both equity and debt.
- **Phase 2** would support two solar IPP transactions at Dicheto and Gad (250 MW in total) developed under the Scaling Solar Initiative, for which the Request for Proposal (RfP) has already been issued to the shortlisted bidders in April 2019. The estimated approval is in FY2020. Similar to Phase 1, the developers are expected to request only payment guarantees. The estimated guarantee amount is up to US$25 million.
- **Phase 3** will support an estimated 450 MW of solar IPPs and 100 MW of wind IPPs, with an estimated approval in FY2021 or FY2022. The Request for Qualification (RfQ) for the solar IPPs was issued in April 2019. Phase 3 may include loan guarantees for commercial debt in addition to payment guarantees, with an expected total amount of up to US$ 90 million.
- **Phase 4** could support an estimated 250 MW of solar IPPs and 200 MW of wind IPPs, with an estimated approval in FY2023 or FY2024. Similar to Phase 3, Phase 4 may include loan guarantees for commercial debt in addition to payment guarantees, with an expected total guarantee amount of up to US$ 75 million.

35. **To participate in a future phase of the program, transactions will have to meet the following requirements:**

(a) The feasibility studies have been completed.
(b) The environmental and social safeguards documents have been completed.
(c) The financing for implementing the Resettlement Action Plan (RAP) has been secured (if applicable).

[8] See previous footnote for the definition of private capital.

(d) The transaction has been prioritized and approved by the PPP Board and the tendering process has followed Ethiopia's PPP framework and guidelines (see Institutional and Implementation Arrangements for details).
(e) The winning bidder has been identified.

36. **The estimated duration of each Phase is about two to three years, spanning from approval (between bid award and financial close) to the commissioning of the IPP project.** The exact duration may vary due to time taken to reach financial close and differences in construction times but are expected to stay within the two to three-year range. The closing date of the MPA would be aligned with the commissioning of the last plant, expected no later than December 2025.

37. **Each guarantee would become effective upon financial closure of the IPP, while the lifetime of the guarantees will depend on the type and form of the coverage.**

Table 1. MPA Program Framework and Indicative Structure of Phases

PrDO/PDOs:		Increase renewable energy generation capacity through private sector participation in Ethiopia.			
Phase #	**Sequential or Simultaneous**	**Scope**	**Estimated Guarantee Amount (US$, millions)**	**Estimated Approval Year**	**Environmental Assessment Category / Estimated Environmental and Social Framework (ESF) Risk Level**[9]
1	Simultaneous / overlapping phases (guarantee lifetime of 20 years)	Metehara Solar IPP (100 MW)	10	FY19	B
2		Dicheto and Gad Solar IPPs (250 MW)	Up to 25	FY20	B / Moderate risk
3		Estimated to include 450 MW of solar and 100 MW of wind	Up to 90	FY21/22	B / Moderate risk
4		Estimated to include 250 MW of solar and 200 MW of wind	Up to 75	FY23/24	B / Moderate risk
Estimated total for the MPA program		At least 1,000 MW, up to 1,350 MW	**Up to 200**		

38. **The initial phases will apply standard allocation of risks between the Government and the private IPP developers, in line with best practice at this stage of the power market development.** The GoE is using PPAs and Government Support Agreements (GSAs) for the Metehara and Scaling Solar IPPs that are in line with international best practice for power markets that are not yet liberalized. Under this standard risk allocation, the IPP assumes the resource risk and commercial risks such as construction, financing, and proper operations and maintenance of the plant, while the Government assumes the demand risk, price risk and currency risk.

[9] The safeguards aspects of each phase of the proposed REGREP will be assessed independently. In case future transactions are screened at substantial/high risk under the Environmental and Social Framework or Category A under the World Bank Performance Standards, the approval will be sought at the World Bank Board of Executive Directors.

39. **The first three transactions supported under Phases 1 and 2 of the MPA—Metehara, Dicheto and Gad—are likely to attract private equity financing and DFI debt, with commercial debt likely to become part of the financing mix in later phases of the MPA.** Market sounding during the preparation of the REGREP MPA suggests that the first solar IPPs in Ethiopia are likely to attract private equity financing and DFI debt financing. Lenders' appetite to provide commercial debt to solar and wind IPPs in Ethiopia is expected to increase as the country builds a track record of successful IPP transactions.

40. **The exact form and allocation of the guarantee support for future transactions would be determined during appraisal of each MPA phase, as investor risk perception and the requested guarantee coverage are expected to evolve over the course of the MPA.** The solar IPPs being considered for World Bank guarantee support are also the first competitively procured IPPs in Ethiopia and therefore likely need a higher level of payment guarantee coverage to build investor confidence. Loan guarantees, on the other hand, are unlikely to be required for the first two phases as all debt financing is expected to come from DFIs. Over time, if EEP successfully performs its role as an off-taker for the first IPPs, investor risk perception of the country may decrease, and accordingly the need for payment guarantee support for new IPPs. However, the need for loan guarantees may increase as DFI debt is complemented by commercial debt. As a structuring principle, the World Bank only needs to cover the minimum required to make the IPPs bankable. The World Bank will also work actively with the Government under this program to crowd in private commercial capital (including local currency financing) while ensuring that such solutions remain affordable and sustainable for Ethiopia's energy sector.

41. **Several of the proposed transactions will be developed under the Scaling Solar Initiative, but participation in the World Bank Group's Scaling Solar initiative is not a prerequisite to qualify for REGREP.** Scaling Solar, which is currently developing over 1,000 MW of solar power in Sub-Saharan Africa (see Table 2), brings together a suite of IDA, IFC, and MIGA services and instruments under a single engagement aimed at creating viable markets for grid-connected solar PV power plants. It is an open, competitive, and transparent approach that facilitates the rapid development of privately owned, utility-scale solar PV IPPs in Sub-Saharan Africa and other parts of the world. As part of the Scaling Solar initiative, IFC Advisory Services supports governments in preparing a competitive and transparent solar auction based on template documents and processes. Based on the bid package, IFC Investment Services, IDA/IBRD, and MIGA then provide term sheets for financing, guarantees, and political risk insurance, respectively. Bidders can decide to use none, a combination, or all of these World Bank Group instruments. Scaling Solar is currently active in Zambia, Senegal, Madagascar, and Ethiopia in Sub-Saharan Africa.

Table 2. Scaling Solar Operations Status

Country	Round—Size	Status
Zambia	Round 1—up to 100 MW	Two projects awarded in 2016: 47.5 MW to Neoen-First Solar at US$0.06 per kWh (the lowest tariff for solar energy in Sub-Saharan Africa then) and 28.2 MW to Enel Green Power (EGP) at US$0.078 per kWh. Both are under construction.
Senegal	Round 1—60 MW	Awarded in 2018 to Engie-Meridiam at €0.038 per kWh for the Kahone plant and €0.04 per kWh for the Touba plant (about US$0.05 per kWh). Financial close is ongoing. This will be Senegal's cheapest utility energy source.
Madagascar	Round 1—25 MW with	RFQ completed; RFP under preparation

Country	Round—Size	Status
	storage	
Ethiopia	Round 1—250 MW Round 2—500 MW	RFQ completed; RFP issued in April 2019. RFQ issued in April 2019.
Zambia	Round 2—300 MW Round 3—200 MW	RFQ completed; RFP under preparation Preparation not started
Total: 1,185+ MW		

Source: World Bank Group.

(vi) Learning Agenda

42. **The learning agenda focuses on three main areas:**

(a) **First, the GoE's capacity and institutional setup to implement state-of-the-art solar and wind IPPs in the context of the transition and reform of Ethiopia's power sector.** Based on the lessons learned in each phase, the program will engage with the GoE in a joint learning agenda that includes (a) the gradual improvement of resource identification and candidate site selection, based on the experience with the technical, social and environmental assessments of each MPA Phase; (b) gradual refinement of the institutional process and development of implementation capacity and standard documents, which will also allow to refine and standardize implementation of the GoE's PPP framework more broadly; and (c) support from the transaction advisors to help the GoE set up its own Integrity Due Diligence (IDD) process and the capacity to implement it.

(b) **Second, the adequate design of the transactions to reflect the market's response to the risk profile of the country, the sector and the IPP transactions and to maximize the program's ability to mobilize private capital and attract world-class developers.** The initial risk allocation in the Metehara and Scaling Solar transactions is in line with standards in similar markets and with the original templates approved by WB, IFC, and MIGA including the private developers taking commercial risks such as construction, financing, and proper operations and maintenance of the plant. Jointly with the GoE, the program will regularly evaluate the market response to the tendering process and documents—including the risk allocation captured therein—and draw lessons for the choice of type and scope of IDA guarantees provided in concert with other WBG instruments to the IPPs. The evaluations will take the form of market soundings and be captured in short write-ups that are prepared for each phase.

(c) **Third, the integration of variable renewable energy into the transmission and distribution grid with minimal curtailment.** EEP is relatively well positioned to absorb significant amounts of variable renewable energy into a grid network thanks to the large share of hydro in the generation mix (96 percent in 2018) and has already gained experience with integrating two state-owned wind power plants (which provide the remaining 4 percent of the generation mix). However, further reinforcements and operational improvements will be needed after the first batches of solar and wind IPPs. Continued technical engagement by the World Bank and formal assessments for each MPA phase will evaluate the need for investments in network reinforcements, grid-scale storage investments, operational

improvements, and regulatory reforms. The findings from these assessments will feed into the technical assistance and capacity building engagement of the World Bank with the GoE.

43. **Lessons learned from each phase will be reflected in the gradual refinement of the IPP development and execution framework and the associated tendering and contract documents.** The lessons will be reflected in the design of each subsequent transaction including the risk allocation and standard tendering and contract documents. Thereby, the REGREP MPA will also contribute to the learning agenda of the World Bank Group's Scaling Solar initiative, as the Scaling Solar standard document templates and procurement framework were adapted to the context in Ethiopia. Documents and framework will continue to be refined over the course of the MPA, thus contributing to the global lessons learned under the Scaling Solar initiative.

II. PROJECT DESCRIPTION: REGREP PHASE 1 METEHARA SOLAR IPP

A. Project Development Objective

PDO Statement for the REGREP Phase 1 Project

44. **The PDO for REGREP Phase 1** is to increase renewable energy generation capacity through private sector participation in Ethiopia.

PDO-Level Indicators

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

(a) Increased renewable energy generation capacity under the IPP program that has reached commercial operation from 0 MW in 2018 to 100 MW by 2022

(b) Amount of private capital mobilized under the IPP program from US$0 million in 2018 to US$35 million by 2022[10]

B. Project Components

46. **The proposed REGREP Phase 1 consists of IDA guarantee support to the Metehara Solar IPP (100 MW), which is the most advanced IPP transaction.** The Metehara Solar IPP is expected to be operational by 2021. Under the IPP project, a consortium led by Enel Green Power (EGP) will be investing approximately US$120 million in the construction of the solar PV plant, with an estimated US$35 million of private capital mobilized. The power purchasing tariff, which has not yet been made public, is consistent with solar auction results observed in other SSA countries around the same time. The facility will generate approximately 280 GWh per year. This output will be sold under a 20-year PPA to EEP that covers all the energy generated by the plant. The IPP project's location is in the Oromia region, almost 200 km east of the capital Addis Ababa, an area that enjoys high levels of solar radiation. The power plant will cover an area of 250 ha.

[10] DFI financing, such as IFC, does not count as private capital mobilized under the MFD framework. Private capital would include private equity and purely commercial financing, including commercial financing benefiting from an IDA guarantee.

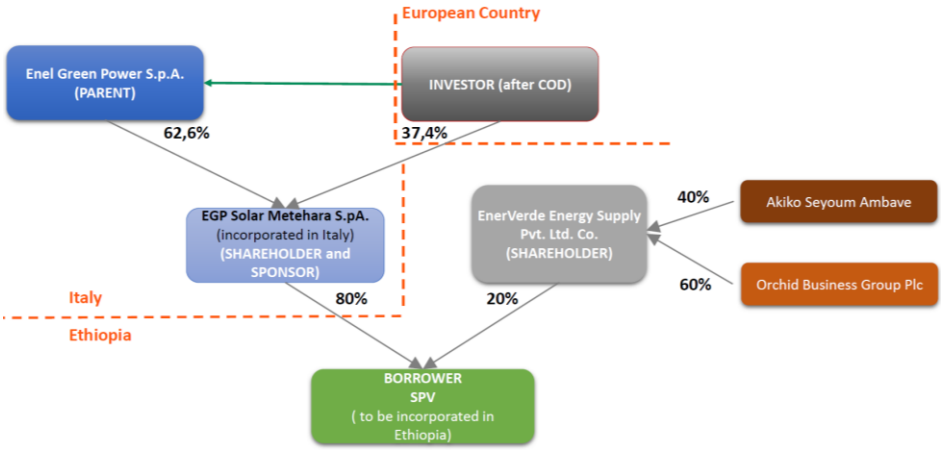
47. **Procurement of the IPP was supported by USAID and took about two years starting in 2016.** USAID's Power Africa Transactions and Reform Program (PATRP) provided transaction advisory assistance to the GoE and EEP for the development of the Metehara Solar IPP. PATRP supported EEP in its efforts to identify a qualified developer through a competitive bidding process to design, construct, own, operate, maintain, generate, and sell the energy produced. The RFP was first issued in May 2016 and revised in December 2016. The deadline for bid submission was in February 2017. The tender attracted more than 60 bidding companies. Five consortia submitted their offers. The bidding process has been completed and the Letter of Intent signed with the awarded consortium, led by EGP, in July 2018. Commercial agreements, geotechnical studies and surveys, implementation and connection agreements, and relevant safeguards instruments were prepared by EEP with support from USAID/Power Africa. Financial close is expected to be achieved by June 2020.

48. **EGP, headquartered in Rome, is one of the largest renewable energy developers/operators worldwide, and a prominent investor in Africa, including under the Scaling Solar initiative.** As of March 2019, EGP has over 1,200 active power plants on six continents, manages a total production capacity of over 42 GW from hydro, wind, solar, biomass, and geothermal (around 17 GW of which are owned by EGP). EGP is a subsidiary of Enel, an Italian multinational energy company that is active in the sectors of electricity generation and distribution, as well as in the distribution of natural gas. Enel is one of the largest energy companies in the world with revenues of EUR 75.6 billion in 2018 and an installed capacity of 90 GW.[11]

49. **The Metehara project company will be jointly owned by EGP and Orchid, a local partner.** Following the award of the contract to EGP, the project company, a Special Purpose Vehicle (SPV), was created. EGP owns 80 percent of the SPV while Orchid owns the remaining 20 percent. Orchid Business Group PLC is an Ethiopian infrastructure, construction and logistics company with subsidiaries operating in the import-export, agriculture, transportation and tourism. It employs between 2,000 and 3,000 people and has experience in the construction and maintenance of infrastructure projects such as the Gibe II Hydroelectric project, the Arba Minch Airport or the Addis Ababa-Jimma road. Figure 4 below illustrates the shareholding structure of the SPV that will raise financing and carry out the project's construction and operations and maintenance.

[11] Enel S.p.A. (Enel), the parent company of Enel Green Power S.p.A (EGP), is Italy's largest power company and Europe's second largest utility. Its renewable division, EGP, was formed in 2008 as a spin-off of Enel's renewable energy assets and rejoined Enel in 2016 through a strategic restructuring, in which EGP was delisted and brought under Enel's full ownership.

Figure 4. Metehara Project Financing Structure



50. **The technical parameters were defined in the bid and are common for similar solar plants**. The plant connects to the substation within the site, likely via a 230-kV double bus-bar switching station. The switching station will be handed over to EEP which will own and operate it. Besides, EEP is responsible for building, owning and operating a 2.5km transmission line to connect the plant at 230 kV via a loop in loop out connection with existing transmission lines. Deemed generation payment is available in case of delay. The private developers are responsible for ensuring that the plant complies with the applicable Grid Code requirements and directions, including for dispatching and permitting.

51. **The risk allocation in the agreements for the Metehara Solar IPP is in line with standards in power markets at similar stage of development.** The private developers are taking resource risks and commercial risks such as construction, financing, and proper operations and maintenance of the plant, while the Government assumes the demand risk, price risk and currency risk. Termination of the PPA by the project owner due to an off-taker event of default under the PPA entitles the seller to be compensated by the GoE.

52. **The consortium led by EGP submitted an offer with a tariff consistent with solar auction results observed in other SSA countries around the same time**. Payments to the Metehara project will be denominated in ETB but will be fully indexed to the USD and escalated every year by 2 percent. It will be the responsibility of the project to convert the ETB into USD, with GoE providing an ultimate backstop in case the project is unable to convert its ETB after a pre-agreed period of time.

C. Project Beneficiaries

53. **The ultimate project beneficiaries are electricity consumers in Ethiopia and the region as the newly added generation capacity will allow the GoE to pursue its ambitious agenda of electrification, service delivery, and regional trade.** Consumers will benefit from (a) improved service delivery, including electricity access, and lower tariffs, as solar and wind power are central to expanding generation capacity in Ethiopia to meet rapidly growing demand in a least-cost manner (see Section IV.A and Annex 5 for details), and b) improved security of supply and resilience to climate change due to the diversification of the source of power generation. Also, the consumers in the broader region could benefit from low cost power from Ethiopia.

54. **The macro-economic situation of Ethiopia will be positively impacted** as the proposed REGREP MPA Phase 1 will help attract private capital to diversify the generation mix, thereby supporting the GoE's efforts to limit the public debt burden, address risks of financial contagion, and improve sector financial sustainability.

55. **The national utility EEP, investors, and lenders are also beneficiaries.** The direct beneficiaries of the REGREP MPA Phase 1 are (a) EEP, as the proposed REGREP MPA will help raise private sector financing to expand renewable energy generation capacity, thus reducing the need for EEP financing, improving the supply-demand balance, and reducing the risks of climatic and hydrological variability; (b) the EGP-led consortium of IPP investors, who will benefit from the IDA payment guarantee, as applicable; and (c) any commercial banks extending debt finance to the EGP-led consortium, should they choose to be covered under the IDA loan guarantee.

D. Rationale for World Bank Involvement and Role of Partners

56. **The rationale for the World Bank's involvement is the need for a combination of credit enhancement and programmatic support to build a bankable IPP program.** The REGREP MPA will use credit enhancement instruments in the form of IDA guarantees to promote and leverage private sector investment/financing to support the GoE's efforts by mitigating perceived risks in the sector. The alternative to power generation through IPPs would be traditional public financing which Ethiopia has used until now, but it would not serve the GoE's objective of diversifying power sector financing sources and creating access for private investors and lenders, and it would prevent the GoE from allocating its scarce public resources to other sectors that may not be commercially financeable. As the GoE intends to attract private sector investment into energy generation to alleviate the pressure on the public borrowing budget, the use of IDA guarantees under Investment Project Financing (IPF) would be the appropriate instrument to support IPPs developed with commercial resources. Using IDA guarantees would also be an efficient use of Ethiopia's limited IDA allocation since the country has access to four times the amount of guarantees it would otherwise be able to borrow in the form of an IDA Credit.

57. **The World Bank Group's experience with IPP programs in Sub-Saharan Africa[12] and around the world can support the GoE in attracting world-class developers and low-cost capital by supporting the development of an enabling policy and regulatory framework.** The enabling conditions include policy, regulation, planning, and competitive procurement. Overall economic conditions and the legal framework are clearly relevant, as are policies that encourage private investment in general and in the power sector. Stable macroeconomic policies, investment protection, respect for contracts, capital repatriation, tax incentives, and further IPP investment opportunities will attract more capital at lower cost. A transparent, consistent, and fair regulatory oversight, with a commitment to cost-reflective tariffs, boosts the creditworthiness of off-takers and thus requires less risk mitigation. Least cost planning efforts and timely initiation of competitive tenders or auctions for new capacity are also important. Debt and equity finance must be appropriately structured and serviced through revenue guaranteed in a robust PPA and backed with the required credit enhancement and security arrangements, including guarantees, insurance, and other risk mitigation instruments.

[12] Summarized in: Eberhard, Anton Adriaan, Katharine Gratwick, Elvira Morella, and Pedro Antmann. 2016. "Independent Power Projects in Sub-Saharan Africa: Lessons from Five Key Countries (English)." *Directions in Development, Energy and Mining*. Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/795581467993175836/Independent-power-projects-in-Sub-Saharan-Africa-lessons-from-five-key-countries.

58. **The World Bank's rationale for a programmatic engagement in the form of an MPA is to develop a track record of IPP transactions so that the need for credit enhancement is limited.** The participation of the World Bank Group is critical in developing IPP projects, given the perceived country and sector risk and Ethiopia's limited track record in attracting private capital for infrastructure investments. The use of IDA guarantees is intended to improve investor confidence in the power sector by mitigating sector-related financial and institutional weaknesses and provide credit enhancement for the first set of IPPs to make the associated PPAs bankable. If it succeeds in building a good track record with the first IPP projects, Ethiopia would be expected to better attract private investments for similar IPP projects in the future. For each of the subsequent phases of the MPA, the World Bank will evaluate the need for guarantees, particularly for payment, and adjust the level of coverage offered to private investors.

59. **The World Bank Group has been leading the coordination efforts in Ethiopia with other DPs to assist the GoE in developing a strong pipeline of IPPs.** Key DPs supporting IPP development include USAID, through its PATRP, providing technical assistance and transaction advisory services for various IPP transactions, and Denmark, working with the World Bank Group, providing support for wind resource mapping as well as wind IPP framework development, which is expected to lead to the development of the first set of wind IPPs in Ethiopia. Given the pace of the ongoing reform program, and the increased engagement of the DPs with the GoE in the energy sector, IDA has supported close coordination of the DPs through an Energy Sector Development Partner's Forum. This forum is a subgroup under the official Donor Assistance Group of Ethiopia.

Table 3: WBG Partnerships with Development Partners and Complementary Engagements related to REGREP

IPP Project Development Phase	Partnerships with DPs and Complementary Engagements
Power sector reform program	• AfDB, AFD, DFID, USAID/Power Africa, EU, and World Bank are supporting the GoE on various aspects of PPP framework development and related capacity enhancement
Renewable energy resource assessments and site identification	• ESMAP, GIF, Denmark, and World Bank are supporting the GoE together with IDA on wind resource mapping and site selection, and wind IPP framework development
Transaction advisory	• USAID/Power Africa transaction advisory to Metehara Solar IPP (REGREP MPA Phase 1) • Denmark is supporting transaction development for wind IPPs
Project finance	• It is expected that other DFIs will provide support
Renewable energy integration	• AFD and Denmark are supporting capacity building, upgrades to the load dispatch center and automation capabilities, as well as system monitoring and forecasting tools • AfDB, AFD, EIB and JICA are financing transmission and distribution grid strengthening that will support renewable energy integration
Regional market development	• SIDA is supporting EAPP through a Multi-Donor Trust Fund managed by the World Bank • NORAD Is providing capacity building on regional power integration • USAID/Power Africa is supporting the regional network of electricity regulators in readiness for trade

60. **The joint engagement of the World Bank, IFC, and MIGA showcases the systematic engagement to maximize financing for the development of the power sector in Ethiopia.** In line with the MFD approach, the support of the World Bank Group combined upstream policy reforms that unlocked opportunities for private sector participation in the power sector with downstream transaction advisory and financing, thus covering the entire lifecycle from structural reforms to financial close. The entirety of the World Bank Group's support to the Government's renewable IPP program is summarized in Figure 2.

E. Lessons Learned and Reflected in the Project Design

61. **The global and regional experience with IPPs indicates that a competitive and transparent procurement process, especially if pursued through a programmatic approach, is one of the most important factors in achieving cheaper prices and more sustainable power generation.** The experience in the region so far, including under the Scaling Solar initiative, demonstrated that competitive procurement provides clear price advantages and ensures smoother processing of the transactions within the Government. This is also a lesson learned from two legacy IPP transactions in the geothermal sector in Ethiopia, which were directly negotiated and pre-date the PPP Proclamation, and where the GoE and the sponsors are still in discussion regarding satisfaction of conditions precedent for financial closure of these transactions. Further, the programmatic approach proposed in this operation with a systematic learning agenda can overcome one of the frequently used arguments against competitive procurement - that it requires a more complex and lengthy process in the beginning than directly negotiated IPP projects.

62. **Long-term engagement and a strong commitment from governments and the presence of a champion are needed to build a successful program and increase renewable energy generation.** International experience, among others in Kenya and Jordan, shows that building a framework and track record of IPP transactions requires a long-term engagement. Further, the transition toward a sustainable energy path requires governments to create an enabling environment through upstream policy and regulatory reforms. The most important enabling factors for an attractive investment climate for IPPs include:[13]

- **Clear and conducive energy sector policies, structures, and regulatory environment.** Establishing a predictable and transparent governance mechanism for IPP/PPP transactions reduces risk and improves conditions for private sector participation;
- **Systematic and dynamic power sector planning**, including the ability to accurately project future electricity demand; determine best supply or demand management options; and anticipate how long it will take to procure, finance, and build the required electricity generation capacity; and
- **Financial viability of the off-taker.** Given issues such as high losses and poor billing and collections, it will be important to mitigate risk through measures that include providing financial guarantees and security measures to assuage new investors.

63. **Guarantees are a vital risk mitigation tool to enable financial close in relatively nascent and risky environments.** IDA guarantees are provided in support of financially viable projects with clear development objectives, where IDA participation reduces the risk perceived by the private sector. IDA

[13] Eberhard, Anton, Katharine Gratwick, Elvira Morella, and Pedro Antmann. 2016. *Independent Power Projects in Sub-Saharan Africa: Lessons from Five Key Countries*. Directions in Development, Energy and Mining. Washington, DC: World Bank. https://openknowledge.worldbank.org/handle/10986/23970 License: CC BY 3.0 IGO.

guarantees can provide 'AAA' rated risk mitigation with respect to obligations due from the Government, political subdivisions, or government-owned entities to private investors (for example, equity, debt, and contractors) and to foreign public entities on cross-border projects. Risk mitigation is of a partial nature as payment guarantees are only expected to cover six months of payments while loan guarantees would only cover the overall commercial debt under specific events of default. The aim is to promote a balanced risk allocation between the Government and private investors, or between public entities in cross-border projects. The track record of the World Bank as a provider of guarantees in the power sector—which includes recent transactions in Zambia (solar PV, P157943), Jordan (gas-fired power, P094306), Kenya (thermal IPPs and utility refinancing, P162422), Nigeria (gas-fired power, P120207), and Ghana (gas-fired power, P152670), demonstrates that its involvement is a key factor of project success.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

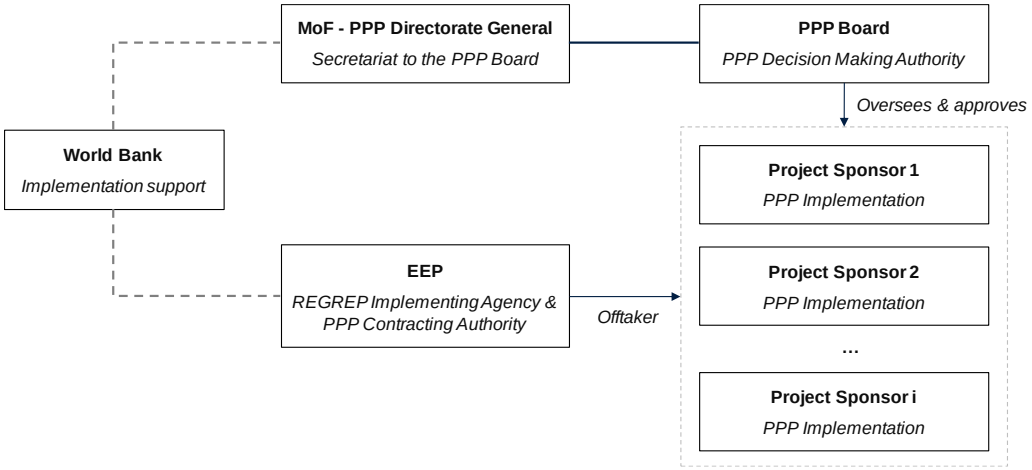
64. **The GoE has centralized the oversight of PPPs in the MoF's PPP DG, which will also oversee the implementation of the proposed REGREP.** The PPP Proclamation and PPP Directive together provide a new approval process that applies to all sectors and constitute the transparent governance framework that the Government needs to develop the PPP market. A PPP DG has been established in the MoF to serve as the secretariat of the PPP Board[14] that oversees the performance of the scheme, including PPP prioritization, preparation, procurement, and award selection. PPP implementation guidelines that establish the procedures and authorizations required for the commitment of the Government support obligations to PPP transactions—including sovereign guarantees—are expected to be passed by mid-2019. While the PPP legal framework addresses the need for sound Environmental and Social Impact Assessments (ESIAs), the establishment of a process and assignment of an independent authority for review, approval, and enforcement of ESIAs, which is crucial for the Government to account for environmental externalities and implement risk mitigation measures during the life of the IPP project, is expected by mid-2019. Both the PPP implementation guidelines and the ESIA authority are important future institutional steps for the REGREP MPA program.[15] Their establishment will ultimately help build confidence in the fairness and transparency of the process, leading to greater predictability of the pipeline project quality, instilling confidence in the public and investors, and thereby minimizing risks and increasing investments in infrastructure PPPs and ensuring long-term fiscal and environmental and social sustainability.

65. **The selection of PPP transactions is based on a screening tool prepared by the PPP DG of the MoF.** The tool includes transparent procedures and quantitative methodologies for selecting and prioritizing the PPP transactions based on initial feasibility assessments of potential infrastructure PPPs. The assessment methodology includes a balance of financial, economic, technical, environmental, and social factors. The key criteria for the screening and prioritization of potential PPPs have the following characteristics: value for money, affordability, public interest, private sector interest, sustainability, and

[14] The PPP Board is composed of representatives from the MoF, also chair of the board, the National Bank of Ethiopia, the MoWIE, the Ministry of Transport, the Ministry of Public Enterprises, the National Planning Commission, and the Ministry of Federal and Pastoralist Affairs and two others from the private sector.
[15] For the first three frontrunner transactions (Metehara, Dicheto and Gad), both guarantees and ESIAs are being approved on an exceptional basis.

institutional capacity to implement the project. The tool is used to review the transaction pipeline periodically to update the priority list of PPP transactions.

Figure 5. REGREP MPA Implementation Arrangements



Source: World Bank staff.

66. **EEP will be the implementing agency and contracting authority for the renewable energy IPPs supported through guarantees under REGREP, while the IPP project companies under their respective corporate mechanisms will be the primary implementing agencies for the power plants themselves.** Construction will likely be implemented through engineering, procurement, and construction (EPC) contracts. The operation and maintenance (O&M) of the facility may be contracted by the IPP to capable third-party contractors. EEP's role as the commercial off-taker of the IPPs is limited to running transparent tender processes (auctions) to procure the IPPs and negotiating the PPAs. EEP would also be responsible for providing any credit-enhancement mechanisms (such as letters of credit [LCs]) to the investors, possibly supported by IDA guarantees. Finally, EEP, either directly or through its contractual relationship with the IPP, would be responsible for ensuring that the World Bank Group's guidelines regarding fiduciary and safeguards management, results monitoring, and sustainability, as described in the IDA project agreements, are implemented. EEP has experience with World Bank guidelines, as the executing implementing agency of several IDA-financed projects. EEP has retained skilled technical and procurement staff. EEP has established an IPP Unit, with staff assigned from its strategic investment unit, to oversee the development of IPPs. However, the sector overall and EEP have limited experience with IPPs, specifically on commercial, legal, and financial aspects.

67. **The MoWIE and the Ethiopia Energy Agency (EEA) are providing policy and regulatory oversight of the energy sector.** MoWIE's role is to set the policies for the sector, including the targets for wind and solar development. EEA's role is to provide a license to the IPP and monitor of compliance with the generation license.

68. **Implementation is supported by extensive capacity building support to MoF's PPP DG and EEP.** This capacity building is supported by a Public-Private Infrastructure Advisory Facility (PPIAF) grant, IDA Credits, as well as Global Infrastructure Facility (GIF) and Energy Sector Management Assistance Program (ESMAP) grants and includes targeted technical assistance to support their due diligence on the transactions. In parallel, IFC advisory and USAID/Power Africa are providing transaction advisory support.

B. Results Monitoring and Evaluation Arrangements

69. **Monitoring of REGREP's progress, outcomes, and result indicators will be the responsibility of EEP, in close coordination with the PPP DG.** The IPP project companies developing the individual transactions will be responsible for preparing and submitting regular progress reports on the different IPP projects to EEP and to IDA as required under the IDA project agreements. EEP will consolidate this information from the various IPP project companies and report on the progress of the REGREP MPA overall. Section VI presents the Results Framework for the proposed Phase 1 project.

C. Sustainability

70. **The ongoing power sector reform program as well as its programmatic approach to IPPs under REGREP allows for continuity and lessons learned to be incorporated into the process and documents.** The objective of sustainability is incorporated into the REGREP MPA program's design through its programmatic nature. The long-term, efficient operation of the power plants supported by the program is the responsibility of the private sponsors of the supported transactions. Technical sustainability is based on the requirement that the PV plant is to be designed, constructed, installed, and commissioned according to the technical specifications and requirements set in the PPA, including the appropriate requirements of the grid code, technical limits, good engineering and construction practices, and prudent utility commercial practices. Maintenance of solar PV plants is less complex compared to construction, and with a credible and experienced O&M contractor, the risks to maintenance are considered low.

71. **The programmatic nature of the proposed REGREP MPA program will also help build the track record of EEP as a creditworthy off-taker.** The sustainability of a guarantee operation also needs to be judged by its ability to create conditions for future transactions' ability to attract private equity or debt finance with limited use of guarantees. With a track record of transactions under the REGREP MPA and successful implementation of the parallel reform program supported by the World Bank's DPO series (FY19–FY21), Ethiopia's renewable IPP program is expected to eventually be able to stand on its own without external credit enhancement.

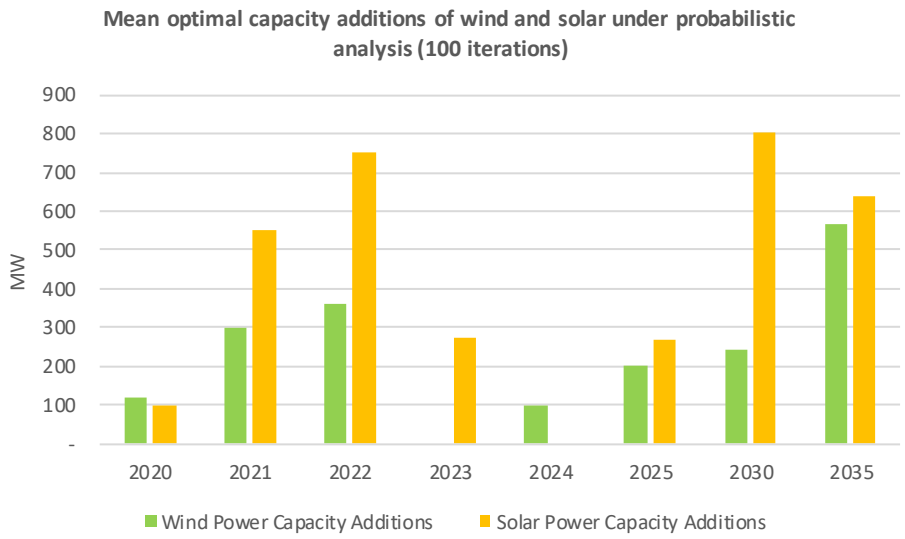
IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic, and Financial Analysis

(i) Technical Analysis

72. **The proposed REGREP will support the development of grid-connected renewable power plants to use Ethiopia's vast renewable energy resources.** An analysis based on a probabilistic least-cost generation expansion model carried out by the World Bank for Ethiopia suggests that there is abundant scope for solar and wind IPPs to contribute to the least-cost expansion of the power system (see Figure 6). Satellite-based resource assessments and maps of solar and wind have been prepared with support from the Energy Sector Management Assistance Program and the World Bank, and on-the-ground resource measurements for wind power are under way. Figure 7 is a map of solar resources in the country and shows the location of the three solar IPPs under Phases 1 and 2 at Metehara, Dicheto, and Gad. Figure 8 shows Ethiopia's wind resources as well as maps of the country's power grid and elevation profile.

Figure 6. Outcome for Wind and Solar Capacity Additions from Probabilistic Least-Cost Generation Expansion Model for Ethiopia



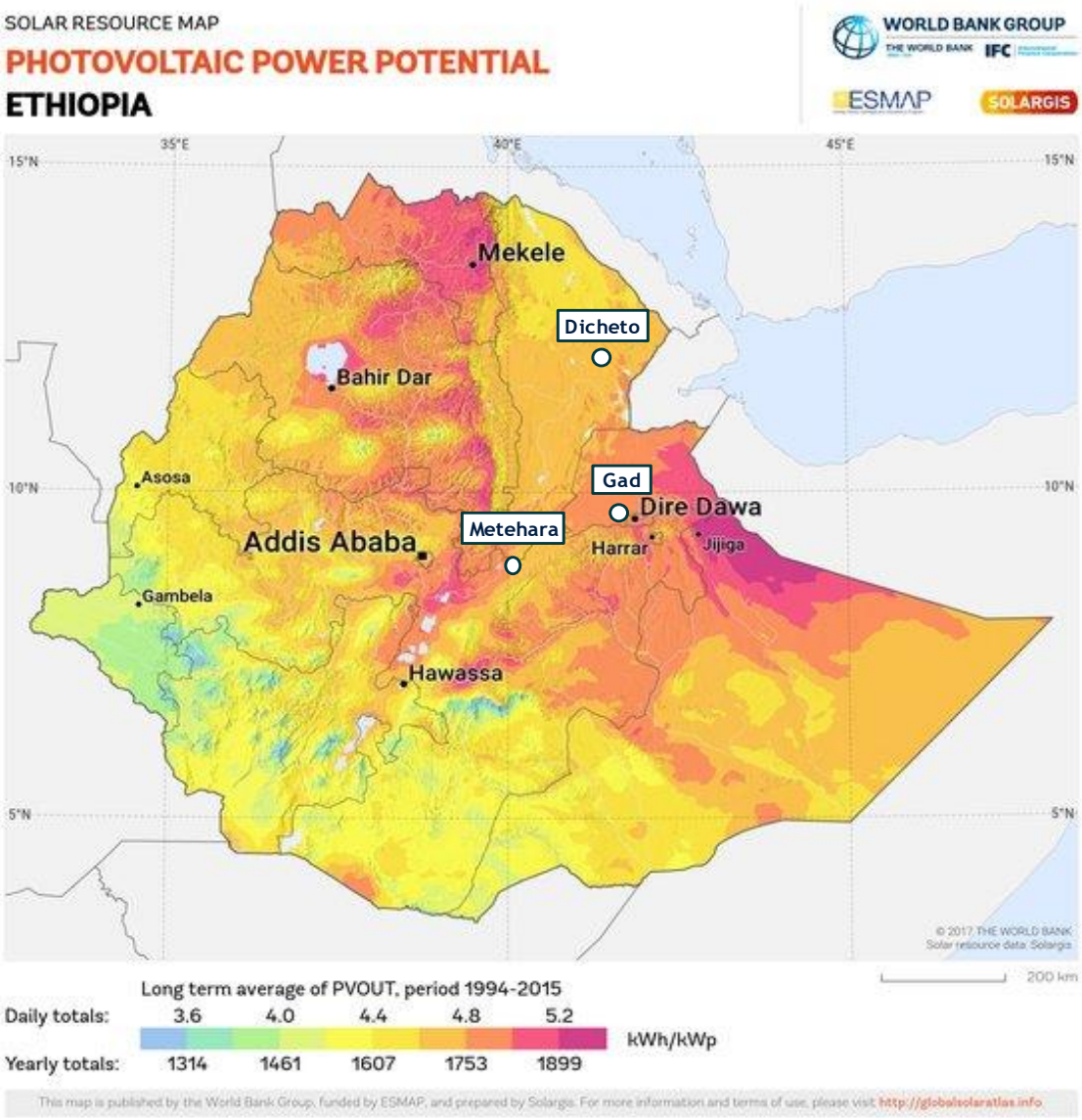
Source: World Bank Staff analysis.

73. **Solar and wind power feature prominently in recent least-cost generation expansion plans prepared for Ethiopia.** A probabilistic analysis carried out by the World Bank concluded that it is optimal for Ethiopia to build as much as 4,071 MW of new solar and wind power capacity between 2019 and 2030. A recent Power System Analysis and Planning modeling exercise completed in January 2019 under the Grid Management Support Program (GMSP), which does not include a probabilistic analysis, indicated that the optimal supply expansion plan includes the addition of about 2,150 MW in new solar and wind power capacity during 2020–30. As laid out in Section II, IPP projects supported under REGREP, including the Metehara Solar IPP supported under Phase 1, are expected to add at least 1,000 MW of solar and wind power capacity, thus aligning with the least-cost supply expansion plan.

74. **The renewable energy IPP program supported by REGREP will diversify sources of power supply and mitigate risks of supply shortages compared to domestic demand and export commitments, which may occur if commissioning of large hydro plants is delayed and in periods of drought.** The demand-supply balance in Ethiopia is expected to be tight in the short term, and the dominance of hydropower could result in large deficits under dry weather conditions and/or if the major hydropower projects are delayed. In that context, the REGREP-supported projects provide a flexible cushion against potential deficits. As about 80 percent of the new capacity addition is expected to be from hydropower plants, the supply-demand balance in Ethiopia is seriously exposed to the dual risks of commissioning delays and dry hydrology. Annex 5 outlines the electricity supply-demand balance in Ethiopia under different scenarios of hydrology (dry versus normal)[16] and commissioning of large hydropower projects which are under construction. Except for the worst-case scenario with dry weather conditions and large hydropower projects delayed beyond 2025, the REGREP-supported solar and wind power plants either help moderate or mitigate supply-demand deficit in the short and/or medium term. The program, thus, provides an important risk mitigation option to the power sector in Ethiopia.

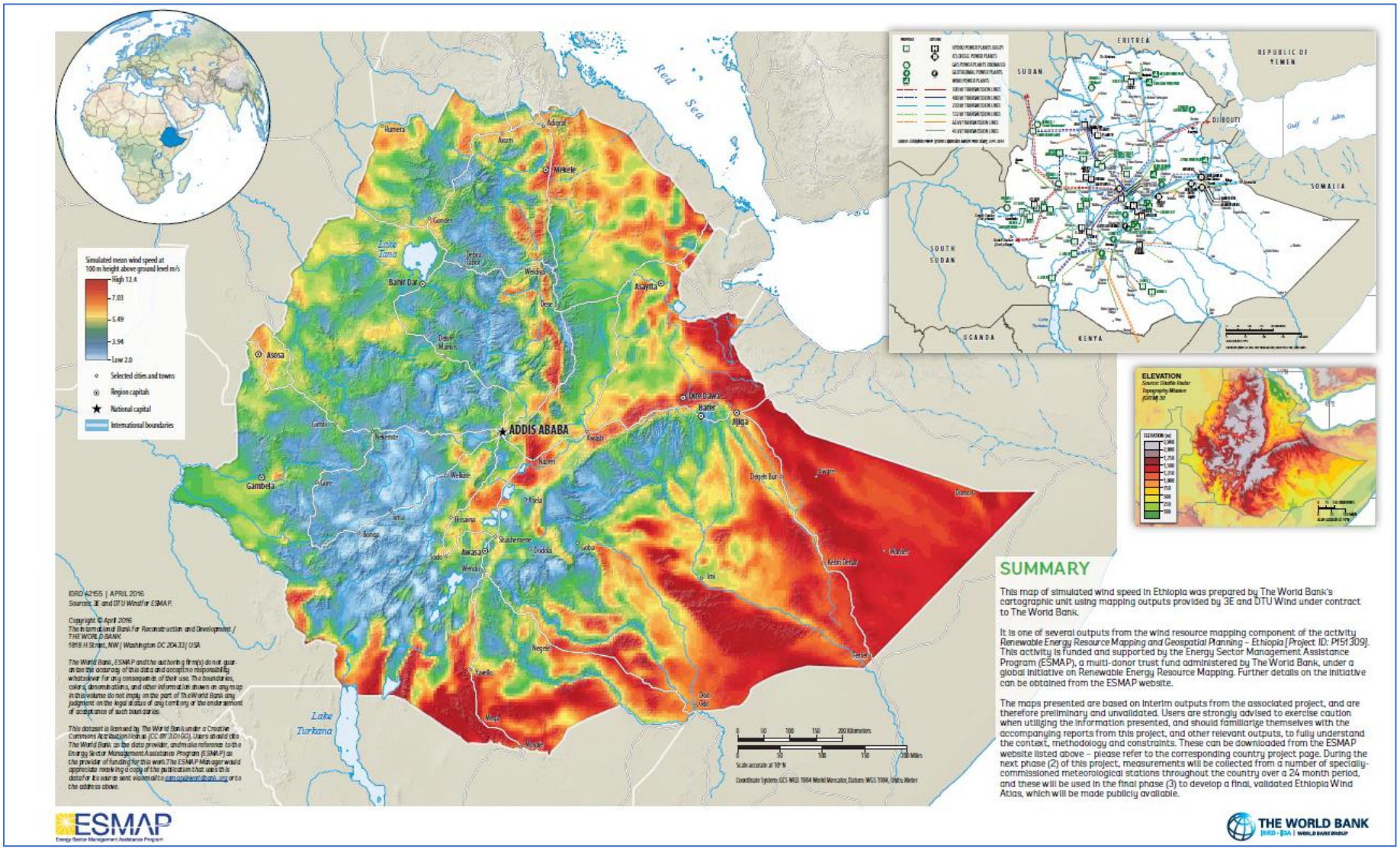
[16] Dry weather condition assumes that the hydropower plants operate at 80 percent of their average/estimated capacity factor.

Figure 7. Solar Resource Map including Locations of Frontrunner Solar IPPs



Source: World Bank Group.

Figure 8. Wind Resource Map, Power Grid, and Elevation Profile



Source: World Bank Group.

75. **EEP is well positioned to absorb significant amounts of variable renewable energy into a grid network, but further reinforcements and operational improvements will be needed after the first batches of solar and wind IPPs.** The threshold for variable renewable energy installed capacity is typically significantly higher for systems with large shares of hydropower with reservoirs, as is the case in Ethiopia. Agence Française de Développement (AFD), Denmark and the World Bank are supporting capacity building, upgrades to the load dispatch center and automation capabilities, as well as system monitoring and forecasting tools. Needs for further assistance for effective integration of variable renewable energy will be evaluated at each phase during the implementation of REGREP.

76. **The proposed sites for Phases 1 and 2 were selected based on solar resource and land availability.** First, EEP identified sites across its network which, based on its own high-level assessment, had resources and daily load profiles most suitable for solar PV supply. Second, based on this initial identification and the resource maps, EEP confirmed the availability of potentially suitable land at the selected site with local government authorities. For the Metehara Solar IPP, the land suitability was confirmed by USAID Power Africa. For Dicheto and Gad (Phase 2), the land suitability was confirmed by an assessment by IFC Advisory. The same overall methodology, that is, starting with suitable interconnection points in areas with good resources and then identifying availability, was followed for the other generation projects in the pipeline and will be followed for future IPPs. Because of this structured process, the resulting choice of sites for the first three solar IPPs supported by the first phase of the REGREP MPA program all combine excellent solar resources, suitable land, and proximity to transmission lines with enough evacuation capacity.

77. **The procurement arrangements ensure that only highly experienced bidders are prequalified and that they are incentivized to maximize the energy yield of the plants.** To guarantee that the plants would be of suitably high quality, a demanding set of technical requirements was developed to cover the key elements of the plants and the experience of the main contractors. For Phases 1 and 2, the technical requirements were set out in the RFP and the technical schedules in the PPA, which were incorporated into the RFP by reference. These requirements ensure high quality and suitability for the prevailing conditions at the site, while avoiding being overly prescriptive to give prequalified bidders the flexibility to innovate and propose technical configurations that offer an optimized solution in terms of energy charge.

78. **For each IPP transaction under REGREP, the World Bank carries out its own due diligence on technical, financial, economic, and other aspects.** Draft IDA guarantees term sheets will apply to the Phase 1 Metehara Solar IPP project as well as to the Phase 2 Scaling Solar IPP projects and, potentially, with modifications to other solar IPPs. Although Scaling Solar template documents have been designed to be bankable, the term sheets will be adjusted based on the PPAs for individual IPPs and to address specific commercial issues following consultations between the World Bank and the GoE. In the context of the candidate IPP projects under Scaling Solar, the guarantee term sheets (payment and loan guarantees) have been attached to the RFP (issued in April 2019), together with an IFC financing offer and a MIGA insurance proposal, for developers to consider those instruments as part of their bids.

(ii) Economic and Financial Analysis

79. **Development impact.** The proposed REGREP MPA is expected to support increased renewable energy generation capacity and diversify the generation mix by increasing the deployment of commercial capital in the energy sector. The REGREP MPA will lead to incremental energy production which can assist

in mitigating load shedding, as well as replace polluting sources of energy (such as diesel and kerosene) used during low-hydrology years. The REGREP MPA will assist the GoE in achieving its goals of investment promotion by the private sector by an economically suitable mechanism—the IDA guarantees will help preserve scarce public financing resources for other GoE infrastructure projects by leveraging private financing from lenders and investors for the REGREP.

80. **Economic cost-benefit analysis.** The net present value (NPV) of the economic benefits of the first IPP in the series is US$24.5 million and that of the whole series[17] is US$123.1 million. The corresponding economic internal rate of return (EIRR) is 9.8 percent and 7.5 percent respectively. To evaluate the economic value of the pipeline of IPP projects under REGREP, the cost of power generation from these IPP projects was compared to the cost of generation from the expected capacity addition to the power mix in Ethiopia between 2020 and 2025 based on least-cost generation expansion planning, excluding the IPP projects supported under REGREP. The opportunity cost of generation was calculated as the capacity-weighted average cost of generation by source type. The CO_2 mitigation benefits were also accounted for by multiplying avoided CO_2 emissions from counterfactual sources of power with the low and high estimates of the shadow price of carbon according to the World Bank estimates.

81. **Compared to the opportunity cost of power of US$0.065 per kWh, the NPV of the power from the Metehara Solar IPP project is estimated at US$24.5 million, with an EIRR of 9.8 percent (Table 4).** Accounting for the greenhouse gas (GHG) mitigation benefits increases the NPV of Metehara Solar IPP project to US$25.1 million and US$25.6 million under the low and high estimates of the shadow cost of carbon, respectively. The NPV of power from the series of IPP projects is US$123.1 million without GHG mitigation benefits and increases to US$130.6 million and US$138.1 million accounting for GHG mitigation benefits under the low and high cost scenarios, respectively. The respective EIRRs are 7.5 percent, 7.6 percent, and 7.6 percent. The EIRR of 7.5 percent for the series is lower than that of the Metehara Solar IPP project as the capital and O&M costs per MW for wind power are twice as high as that for solar power and are not completely compensated by a relatively higher capacity factor of 35 percent versus 20 percent (see Table 4; also see Annex 5 for more details).

82. **Financial cost-benefit analysis.** The series of IPP projects will offer a positive NPV to the utility if the weighted average PPA tariff of the solar and wind IPPs is lower than the average cost of power from the power plants to be added to the mix until 2025, which is estimated at US$0.072 per kWh. Since the solar and wind IPP programs invite commercial bidders in a transparent and competitive manner, each power plant is assumed to be financially viable to the bidders at their bid price. To analyze the financial benefit of the guarantee program, it is more relevant to assess whether the series of IPP projects make financial sense for the government-owned utility compared to the average cost of power from the alternative sources added to the power mix during the same time. The baseline PPA tariffs for solar and wind power have been assumed as US$0.06 per kWh and US$0.08 per kWh, respectively. These tariffs are consistent with recent auction results observed in other sub-Saharan African countries. Accounting for estimated PPA tariffs from IPPs (excluding REGREP-supported IPPs), instead of the economic cost of power, results in an estimated capacity-weighted cost of generation by source type of US$0.072 per kWh. Further, a discount rate of 6.625 percent is assumed, which is the current yield on the 10-year U.S. dollar denominated bonds issued by Ethiopia. Under these assumptions, the NPV of the Metehara Solar IPP project for the GoE is US$22.3 million and that of the series of IPPs is US$102.5 million (see Table 4; also

[17] It is assumed for this analysis that the REGREP MPA would support a total of 10 transactions currently in the pipeline.

see Annex 5 for more details). While the NPVs under baseline assumptions are positive, they strongly depend on the IPP-PPA tariffs and the prevailing cost of power.

Table 4. Economic and Financial Analysis of the IPPs Supported under REGREP

I. Economic Analysis of the IPPs Supported under REGREP						
	NPV (US$, millions)			**EIRR (%)**		
Comparison	**Avoided Cost of Power**	**CO_2 Co-benefits (Low)**	**CO_2 Co-benefits (High)**	**Avoided Cost of Power**	**CO_2 Co-benefits (Low)**	**CO_2 Co-benefits (High)**
Metehara Solar IPP	24.5	25.1	25.6	9.8	9.9	9.9
Full REGREP MPA	123.1	130.6	138.1	7.5	7.6	7.6
II. Financial Analysis of the IPPs Supported under REGREP						
	NPV Gain (US$, millions)					
Metehara Solar IPP	22.3					
Full REGREP MPA	102.5					

83. **Sector financial analysis**. EEP's finances have deteriorated over the past years but the GoE has developed a program of reforms, supported by the programmatic DPO series, to restore the financial viability of the power sector (see Annex 5 for details). The most important measures of this reform program—a four-year tariff reform and the debt restructuring—are prior actions and triggers under the DPO series, respectively. Implementation of these measures is expected to restore the sector's positive operating margin by 2021, when the first REGREP-supported IPP projects are expected to be commissioned. Further tariff adjustments (beyond the current reform) to account for foreign exchange rate variations and other cost adjustments will be required to ensure payments throughout the PPA lifetime. Regarding EEP's indebtedness, the Government has committed to restructuring a significant share of it to control the debt run-off and stabilize total sector debt in the medium term. The debt restructuring is needed because without such measures, the power sector may face a sustained increase in debt levels, rising to as high as US$17 billion from the current level of about US$10 billion, even as interest and principal payments on a large portion of the existing debt are continued to be deferred (see Annex 5 for details). Technical work for this measure, which is a trigger under the World Bank's DPO series, is well advanced.

84. **Financial covenants.** To ensure that necessary measures are being taken to restore sector financial sustainability, the following financial covenants will have to be reported every six months:

(a) Revenues billed and collected
(b) Earnings before interest, taxes, depreciation, and amortization (EBITDA)
(c) Interest charged (accrued)
(d) Net debt
(e) Receivables (gross change and write-offs)
(f) Payables

85. **GHG emission mitigation impacts.** Since the generation sources added to the power mix in Ethiopia under the counterfactual are non-fossil, the GHG mitigation is modest. The Metehara Solar IPP will mitigate about 22,548 tons of CO_2 over its lifetime at an average of about 1,074 tons per year, and

the series of IPP projects under REGREP will mitigate about 320,273 tons of CO_2 over their lifetime at an average of about 12,811 tons of CO_2 per year.

B. Fiduciary

(i) Financial Management

86. **Since the proposed REGREP Phase 1 consists of IDA guarantee(s), there are no disbursements anticipated and the requirements regarding financial management (FM) under the World Bank Directive for Investment Project Financing (formerly OP 10.00), specifically the provisions of Article/Paragraph 7, thus do not apply.** The proposed World Bank support under the REGREP MPA consists of IDA guarantees made available to IPPs, which are private entities/parties who will prepare, finance, and implement the underlying IPP projects. The overall FM of the transactions will be undertaken by the IPPs, according to commercial practices acceptable to the lenders. In addition, there are no disbursements anticipated to EEP and EEU. Hence, the fiduciary role of ensuring that funds are used for intended purposes, as in an IPF lending operation, is minimal.

87. **EEP and the IPP project sponsors will be the primary responsible parties for managing the finances of the REGREP MPA program of guarantees.** For the payment guarantees, EEP will be procuring an LC from a commercial bank to the benefit of the IPP. Following a drawdown under the LC, the payment guarantee will cover the LC repayment by the GoE and EEP to that commercial bank if neither the GoE nor EEP repaid the commercial bank within 12 months of the drawdown, in case of a draw on the LC. The IPP companies, typically special purpose vehicles, will have the primary responsibility for managing the finance of the IPP projects. They will install and maintain adequate FM systems, including the system of accounting, reporting, auditing, and internal controls, and relevantly qualified staff. The annual financial statements will be prepared in accordance with internationally accepted accounting principles. In addition, they will be audited in accordance with international auditing standards.

88. **EEP and its predecessor EEPCo have demonstrated their ability to successfully manage the finances of World Bank funded IPF projects.** Currently, EEP is managing the US$400 million Electricity Network Reinforcement and Expansion Project (ENREP and ENREP Additional Financing), the US$225 million Ethiopia Geothermal Sector Development Project (P133613), and the US$250 million Eastern Electricity Highway Project (P126579) which have adequate FM arrangements in place after recent improvements. The key financial management issues associated with EEP have been closely monitored and the following stated improvements have been noted: improved audit opinion at EEP, improved revenue sharing mechanism are now in place between EEP and EEU, and steps have been taken to perform fixed asset valuation and to start implementation of International Financial Reporting Standards. Therefore, the residual FM risk rating has been assessed as Low.

(ii) Procurement

89. **The MPA involves the identification and sourcing of renewable power plant investors through a competitive process in line with the PPP Proclamation.** Supported by the World Bank and other DPs, the GoE has prepared a strong legal, regulatory, and governance framework for the development of PPP/IPP transactions in the country. The framework is based on global best practices and includes the following:

(a) **PPP Proclamation (law).** The GoE approved an umbrella law on January 25, 2018, which governs legal and institutional arrangements pertaining to PPP transactions. The PPP Proclamation provides necessary preconditions for private sector participation under predictable and transparent principles, including making 'open international competitive bidding' the default procurement procedure for the PPP transactions in the power sector. Under the PPP Proclamation, PPP projects in all sectors require approval by a dedicated PPP Board—with representation from the MoF, the Ministry of Public Enterprises, the National Bank of Ethiopia, and the National Planning Commission—and their procurement and implementation is overseen by a dedicated PPP DG housed within the MoF.

(b) **PPP Directive (regulation).** The MoF issued a regulation whereby a PPP Unit was established at the MoF to work as the focal-point department for the PPP transactions, as well as to work directly with relevant units at each of the contracting authorities (for example, the IPP Unit at EEP). In addition, a PPP Board was established to provide a strong oversight mechanism to review and approve transactions in a coordinated and centralized manner.

(c) **PPP transaction screening tool.** The PPP Board approved a PPP transaction screening tool prepared by the PPP Unit with the World Bank's support. The tool includes transparent procedures and quantitative methodologies for selecting and prioritizing the PPP transactions based on initial feasibility assessments of potential infrastructure PPPs. The assessment methodology includes a balance of financial, economic, technical, environmental, and social factors.

(d) **PPP sector-specific guidelines.** With the World Bank's support, the PPP Unit is also preparing guidelines (to be approved by the PPP Board) for each of the priority sectors for PPP transactions (the priority sectors currently include energy and transport). The guidelines will detail stepwise procedures and administrative protocols for the development, approval, and monitoring of transactions.

90. **The responsibility for taking the IPP projects into bid processes and awarding contracts falls under the authority of the director general of the PPP DG.** The REGREP MPA program will work closely with the PPP DG to develop—and continuously improve—a standardized competitive bidding process for renewable power plants in Ethiopia.

91. **Given that the proposed World Bank support to the REGREP MPA consists of IDA guarantees, there is no World Bank financing of goods, works, or consulting/non-consulting services under the operation.** As such, the World Bank Procurement Regulations for IPF Borrowers (July 1, 2016, revised November 2017 and August 2018) are not applicable. However, the goods, works, and consulting and non-consulting services financed by the loan or payment obligation guaranteed by the World Bank and procured by IPPs for EPC and other contracts shall be carried out following prudent commercial practices with due attention to economy and efficiency. IPP projects supported by IDA guarantees are also subject to the World Bank's 'Anti-Corruption Guidelines for Guarantee and Carbon Finance Transactions'.

92. **The World Bank reviewed the IPP procurement bid documentation for the IPP projects under the proposed REGREP Phases 1 and 2, and the competitive process that was or is being followed is based on 'value for money' and 'economy and efficiency' criteria.** The individual IPP projects have been or are being procured through an open bidding process. IFC Advisory is the transaction adviser to the GoE on the Scaling Solar transactions and ensures high standards of transparency and competitiveness.

93. **The LCs backstopped by the payment guarantees will be procured by EEP.** Under the PPA, EEP is required to provide payment security of an amount equivalent to six months of the IPP's revenues. The security could be either through an escrow account or through an LC. The GoE has expressed preference for the LC option given its lower commitment of capital and lower costs. The IDA guarantee reduces the cost of procuring these LCs and avoids the requirement of posting a cash collateral.

C. Safeguards

(i) REGREP MPA Program Safeguards Overview

94. **Each phase of an MPA is assessed independently.** The determination will be made at the time of the preparation of subsequent phases whether the proposed operations meet the requirements of OP/BP 4.03 (World Bank Performance Standards for Private Sector Activities). It is expected that subsequent phases will be structured in the same manner as the first phase and would qualify to apply OP 4.03. All supported IPP projects will follow the requirements of applicable Ethiopian laws and relevant World Bank Performance Standards (PSs) or Environmental and Social Standards (ESSs) under the new Environmental and Social Framework (ESF), as may be applicable, based on detailed assessment of specific selected sites for the IPP projects and the impact area.

95. **The proposed REGREP will have substantial positive socio-environmental effects, as it is focused on the use of solar and wind energy; negative impacts are expected to be modest.** The conversion to solar and wind energy for electricity supply will reduce fossil fuel-based power generation and is identified as one of the most optimal solutions in terms of cost-benefits and socio-environmental needs. The program activities are expected to improve the existing power generation capacity that address more households, support the country's export power market, encourage the national economic growth, and make a contribution to improve access to clean energy. The REGREP MPA activities could also contribute to creating jobs for the locals and nearby community members, including youth and women, when the work is initiated and during construction, operation, and maintenance. It can increase local employment and hiring of skilled workers—masons, carpenters, building workers, plumbers, electricians, and others. Increased employment will help enhance the incomes of the local population, improve their living conditions, and contribute to the fight against poverty.

96. **EEP has prepared and monitors safeguard instruments at the program level for the REGREP MPA (ESMF and RPF) and will prepare and monitor project level-instruments for each supported IPP project.** The REGREP MPA supported IPP projects will be developed under the ESMF and RPF instruments. The ESMF and RPF guide the development of IPP project-specific safeguards instruments and apply to all pipeline solar and wind IPPs. The ESMF and RPF were disclosed in-country on April 23, 2019 as well as on World Bank website on April 23, 2019.[18] EEP is responsible for ensuring the implementation of the framework instruments, for instance for adequate site selection and preparation procedures, as well as by incorporating site-specific instruments prepared in accordance with the framework instruments into the IPP project agreements with the private investors.

[18] http://documents.worldbank.org/curated/en/docsearch/projects/P162607
http://www.eep.gov.et/index.php?option=com_content&view=article&id=148:draft-resettlement-policy-framework-rpf-for-ethiopia-scaling-solar-and-wind-development-program&catid=12&Itemid=249&lang=en
http://www.eep.gov.et/index.php?option=com_content&view=article&id=144:draft-resettlement-policy-framework-rpf-for-ethiopian-scaling-solar-and-wind-development-program&catid=12&Itemid=249&lang=en

97. **The IPPs will design and implement an Environmental and Social Management System (ESMS) for the construction and operations phase consistent with the World Bank Group PS requirements.** The ESMS for each IPP will define roles and responsibilities and other necessary elements (manual of procedures) to enable all operations to comply with Ethiopian laws and regulations and the World Bank Group PSs. Among other elements, the management system would include a policy, an updated ESMP, an emergency preparedness and response plan, an emission monitoring program, occupational health and safety (OHS), and an external grievance mechanism.

98. **All IPPs supported by REGREP, whether as part of Scaling Solar initiative or not, will be subject to thorough World Bank due diligence.** The World Bank will carry out a review of potential environmental and social impacts and ensure supervision of safeguards compliance and reporting in accordance with the legal covenant, building on due diligence of the World Bank Group PS requirements.

99. **Overall, as the technology is relatively simple with manageable impacts, and based on the experience of similar IPP projects, it is anticipated that each of the IPP projects—and each of the MPA phases—under REGREP would be classified as Moderate Risk (under the new ESF) or Category B (under World Bank PSs)**, as applicable, mainly to reflect the impacts associated with solar PV and wind towers and blades installation and operation. The environmental assessment classification is consistent with the categorization of other similar IPP projects within the energy sector. The risk categorization will be reviewed during the appraisal process of each of the subsequent phases of REGREP.[19]

(ii) Environmental Safeguards - REGREP Phase 1 (Metehara Solar IPP)

100. **Site-specific safeguard instruments—Environmental and Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP)—for REGREP Phase 1 (the Metehara Solar IPP) were prepared by EEP with the support of independent consultants.** The ESIA covers relevant environmental and social regulations and the key aspects of the World Bank Group PSs relevant to design, construction, operation, and decommissioning. The ESIA includes identification and assessment of environmental and social risks and impacts and measures to avoid, mitigate, or offset the impacts identified as well as socioeconomic baseline and impact assessment of the communities around IPP project sites. The ESIA includes an Environmental and Social Management Plan (ESMP) for the Metehara site. The RAP was prepared after detailed consultations with the affected community. The ESIA and RAP were disclosed in-country on April 23, 2019 as well as on the World Bank website on April 23rd and 24th, 2019, respectively.[20] As relevant, the ESMP will be updated with appropriate consultations before the start of civil works. Details of the environmental and social impacts of Phase 1, the Metehara Solar IPP are in Annex 4.

101. **Key issues. The Metehara Solar IPP project site will be implemented in an already degraded environment of low biodiversity value, but specific mitigation measures are included in the project design to address the site's proximity to a national park and an associated Important Bird and Biodiversity Area (IBA).** The site was selected by the local government together with the affected

[19] In case future transactions are screened at substantial/high risk under ESF or Category A under the WBPSs, the approval will be sought at the World Bank Board of Executive Directors.
[20] http://documents.worldbank.org/curated/en/docsearch/projects/P162607
http://www.eep.gov.et/index.php?option=com_content&view=article&id=147:metehara-solar-power-pv-plant-environment-and-social-impact-assessment-final-report&catid=12&Itemid=249&lang=en
http://www.eep.gov.et/index.php?option=com_content&view=article&id=143:ethiopian-renewable-energy-guarantee-program-regrep-environmental-and-social-management-framework-esmf-final-draft&catid=12&Itemid=249&lang=en

community and is as such considered as the most feasible location in terms of socioeconomic impacts. The site is generally characterized as a bare land which is mostly covered with the invasive and evergreen shrub species *Prosopis juliflora*. There are also some acacia tree species with no concern of conservation status. Nonetheless, clearing of vegetation for the solar PV installations, risks of contamination from accidental spills or improper storage/disposal of hazardous waste (including PV panels and oils of different purpose), potential collision of birds and bats with project infrastructure, encroachment of invasive species, and water consumption for cleaning of the PV panel are some of the issues. Despite the poor ecological status of the project site, the site is situated within proximity of an 'Important Bird and Biodiversity Area' (IBA) associated with the Awash National Park, which is categorized as "IBA in Danger", and specific mitigation measures have been specified in the ESIA to address the risks to biodiversity (see Annex 4 for details). They are derived from good practice guidelines on environment, health, and safety (EHS) as well as project-specific measures related to the most significant impacts. The implementation and monitoring of the mitigation measures are further described in the ESMP.

(iii) Social Safeguards - REGREP Phase 1 (Metehara Solar IPP)

102. **Key issues. The Metehara Solar IPP project is expected to cause physical and economic displacement of several households.** Physical displacement is expected to affect 38 households, which will be resettled in alternative sites. There will also be economic displacement of those living outside the project footprint but having agricultural and/or grazing land affected due to the project activities. In total, there will be 562 project-affected households. Some of the project-affected households comply with the criteria outlined in PS 7, and therefore, as described in the RAP, the project has asserted free, prior, and informed consent (FPIC) following good-faith negotiation in line with the respective requirements in PSs. The RAP also describes the valuation of compensation for losses, potential resettlement sites, income restoration strategies, and the social development plan. Labor influx, with approximately 500-700 directly and indirectly employed personnel at peak, will add pressure on public services including health, water supply, and sanitation and increase the risk of increased prevalence of HIV/AIDS, other infections/diseases, and gender-based violence (GBV). Other potential adverse social impacts include increased health risks for communities due to increased dust and traffic during construction and operation periods, malaria, and water-borne diseases; additional infrastructure and services due to population influx to the area; and possible conflicts between local people and migrants. EGP will develop an Employment Action Plan in line with the provisions outlined in the ESMP to maximize local participation in the direct and indirect employment opportunities provided by the project during construction, operation and decommissioning phases. A Community Health, Safety and Security Action Plan will be prepared addressing the following specific objectives: designing and implementing HIV/AIDS, road safety strategy, hazardous material management strategies, emergency response, developing and improving health services and health indicators in the project area. Based on the Gender Based Violence (GBV) Risk Assessment Tool, the overall GBV risk is found to be low. EGP will put in place mechanisms to prevent and minimize GBV and Violence Against Children (VAC). Such a mechanism should include working with the Contractors to prevent sexual harassment in the workplace and GBV and VAC in the project-affected communities (for example, through Codes of Conduct), strengthening grievance redress and other monitoring mechanisms to ensure safe and ethical reporting systems to alert cases of GBV and VAC and assure them to access adequate response. Additional details of mitigation and enhancement measures have been specified in the ESIA and the RAP for each of the key risks and impacts.

103. **The Metehara Solar IPP project is screened as a Category 'B' project due to the general nature of the solar PV projects which are considered to have low environmental and social risks and impacts**

compared to many other energy or industrial developments. This relates to their short construction phase and insignificant emissions to air, water, and soil during operation. However, grid-scale PV facilities require large areas of land for the installation of solar modules and associated infrastructure. Project siting is therefore the most important aspect related to impact avoidance and mitigation. Further details are included in Annex 4.

Table 5. Summary of PSs Applicable to REGREP Phase 1 (Metehara Solar IPP)

Performance Standards	Yes	No
PS 1: Assessment and Management of Environmental and Social Risks and Impacts	✓	
PS 2: Labor and Working Conditions	✓	
PS 3: Resource Efficiency and Pollution Prevention	✓	
PS 4: Community Health, Safety, and Security	✓	
PS 5: Land Acquisition and Involuntary Resettlement	✓	
PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	✓	
PS 7: Indigenous People	✓	
PS 8: Cultural Heritage	✓	

Source: World Bank.

D. Gender

104. **The World Bank has a strong engagement on gender in the power sector in Ethiopia.** Ethiopia suffers from some of the lowest gender equality performance indicators in Sub-Saharan Africa, but the GoE is committed to the achievement of gender equality. Women's Affairs Directorates have been established at the MoWIE, EEU, and EEP, and various gender-specific targets and goals have been set. The GoE envisages increasing the economic benefit for women; increasing women's decision making; growing the crop productivity of female-headed households; 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.[21] Based on the findings of the analysis and other country-level targets, the World Bank's Ethiopia Electrification Program (ELEAP) supports (a) capacity building for gender equity; (b) promoting women's interest in science, technology, engineering, and math careers; (c) baseline assessment of childcare provision; (d) gender-sensitive analysis of provision of connection cost subsidy; (e) increasing productive uses of energy; (f) implementing 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.

105. **EEP has recently undertaken a gender audit and based on it developed an action plan for the next three years.** The action plan is focused on addressing issues such as ensuring gender equality is embedded in its values and policies, a focus on reaching a target of 30 percent employment of women, and at the infrastructure project level ensuring enhanced participation of women in consultations and ensuring women who are affected by resettlement are compensated fairly for lost assets. Other plans include sensitization training for staff and senior management around gender equality priorities and the inclusion of 20 percent women among the professionals to receive second- and third-degree training

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

during initial years of Growth and Transformation Plan (GTP) II and an increase by 5 percent during the subsequent years.

106. **While the proposed REGREP MPA is a guarantees program and there are no direct investments to be financed using World Bank funds, gender considerations will be supported under PS 2: Labor and Working Conditions.** Through World Bank support in partnership with EEP and IPP developers and operators, close attention will be paid to ensure gender equality objectives are delivered in terms of employment opportunities, community consultation, livelihoods and land compensation, and GBV. Best-practice recommendations and potential actions will be shared with bidders for their consideration at the award stage and during construction and operation.

(a) **Employment.** The IPP's will be encouraged to explore employment opportunities for women, and attention will be paid to PS 2: Labor and Working Conditions, which requires the promotion of fair treatment, nondiscrimination, and equal opportunity.

(b) **Community consultation.** Both women and men will be consulted in community engagement processes during and after construction to ensure their views and concerns are captured through the IPP project's duration.

(c) **Livelihoods compensation.** Recognizing women's livelihoods and how they may be affected if land is utilized under the IPP project activities will be important, especially if they fall into the realm of subsistence use or informal economic activities and may not be noted in larger discussions or assessments.

(d) **Resettlement and land.** Gender equality in access to compensation under the resettlement plan will be assured by ensuring that not only the name and signature of the 'head of household' is required but both that of husband and wife as relevant. If land use certificates are issued, they should indicate the names of both husband and wife. Best practices from other regions indicate that land use rights held jointly by couples result in beneficial effects such as increased household expenditures and women's self-employment and lower household vulnerability to poverty.

(e) **GBV.** Based on the proposed project context (Metehara), Gender Based Violence (GBV) Risk Assessment Tool the overall GBV risk was screened and found to be low (project site is located three kms away from the Metehara town within proximity of a major Ethiopia-Djibouti road corridor and supervision can be effective in project foot print). EEP and subsequently the private sector, should put in place mechanisms to prevent and minimize GBV and Violence Against Children (VAC). Such a mechanism should include working with the contractors to prevent sexual harassment in the workplace and GBV and VAC in the IPP project-affected communities (for example, through codes of conduct), strengthening grievance redress and other monitoring mechanisms to ensure safe and ethical reporting systems to alert cases of GBV and VAC and assure them to access adequate response The Gender Based Violence (GBV) Risk Assessment result will be updated when the situation warrants. EGP will prepare a GBV action plan prior to initiating project site activities commensurate to the current risk level. EGP will also prepare a Community Health, Safety and Security Action Plan prior to initiating physical activities at project site to establish a system which ensures proactive engagement in the prevention of GBV (including appropriate setup of workers camps and the signing of Codes of Conduct by project staff and workers) as well as availability of referral services in case of raised grievances.

E. Citizen Engagement

107. **The PPP Proclamation, which provides the overarching framework for the IPP program, was subject to significant consultation and dialogue between the Government, civil society, and the population at large.** The GoE has recently embarked on a broader consultation at the federal and regional levels with stakeholders. The consultation involved reviewing the performance of the last two years in the context of the target for the end of the plan period and potential adjustments and changes required for the remaining plan period. The National Planning Commission has spearheaded the consultations with government institutions, academia, various civil society groups, and community representatives. This review is expected to be enriched with forward-looking policy changes and adjustments as announced recently by the Ethiopian Government. The PPP Proclamation and the PPP Directive, too, were subject to extensive consultations over the past year.

108. **The tariff reforms, supported by the DPO series, were built upon substantial stakeholder engagement by the Government.** To communicate the rationale for the tariff increases, and the modalities of the new tariff regime, the Government engaged with a broad range of public and private media entities to maximize public access to tariff-related information. Several discussion forums were also conducted with representatives from diverse customer categories, including industry representatives, representatives from the chamber of commerce, and professional associations. Widespread awareness trainings were held for the utility staff and encompassed the senior management, heads of district and service centers, team leaders, supervisors, and labor union representatives. The media outreach campaign also included the production of a documentary, radio discussions, and information campaigns through newspapers, flyers, and pamphlets. Consumer feedback indicated that the public sentiment was generally positive toward tariff hike, with expectation of an improvement in the quality of service.

G. Grievance Redress Mechanisms

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

V. KEY RISKS

110. **Overall risk: Substantial.** Key risks relate to overall macroeconomic environment as well as the sector financial viability, as described below.

111. **Political and Governance: Substantial.** There is a risk that further tensions between the GoE and civil society could negatively affect preparation and implementation of the IPPs as well as private sector involvement in the sector, due to perceived social risks, land allocation issues, and so on. To mitigate this

risk, EEP and the IPP are engaging communities throughout the IPP project development process under the REGREP's ESMF and RPF as well as site-specific instruments, and the GoE has developed a comprehensive CE and communications strategy, with a focus on sharing information to the public related to the new IPP/PPP projects.

112. **Macroeconomic: Substantial.** Ethiopia has experienced strong economic growth over the past decade, which helped reduce poverty substantially. However, as a commodity exporter, the country is subject to global price volatility and 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 lower-middle-income status by 2025. Even more importantly, in the context of the proposed REGREP, the country's high current account deficit and dwindling currency reserves could present risks relating to (a) the availability of foreign currency to pay the IPPs according to the PPAs and (b) the exchange rate, especially a rapid devaluation, as IPP tariff payments are paid in Ethiopian birr but indexed to the U.S. dollar. The foreign currency availability risk is partially mitigated by the World Bank's DPO series, which is addressing some of the structural mitigation measures, and the commercial structure for the IPPs, which will be designed to ensure appropriate risk allocation. The exchange rate risk is partially mitigated by the new electricity tariff framework, under which any exchange rate fluctuations are passed through to the consumer, thus (partially) mitigating the risk of EEP not being able to pay the IPPs. The risk of currency convertibility for the project sponsors is partially covered by the IDA guarantee.

113. **Institutional Capacity for Implementation and Sustainability: Substantial**. EEP and MoF have major responsibilities in the proposed program and have limited experience in IPP transactions, which require specialized technical, legal and financial skills. The implementation capacity risk is therefore considered 'Substantial' for Phase 1. The risk is partially mitigated by the fact that transaction advisers, financial advisers, and TA are being provided to the GoE authorities by various donors/multilateral institutions, and further support will be provided during implementation of REGREP to strengthen the GoE's capacity to design and oversee project preparation and implementation.

114. **Sector Strategies and Policies (including sector financial viability): High.** The Ethiopian energy sector underwent a major transformation in the past decade, with a successful expansion of the generation capacity, the unbundling of the national utility, and the decision to introduce the private sector in generation. However, significant challenges remain, especially relating to the utilities' financial viability, and a major reform program is under way. The risk of inadequacy of the current policy framework to support IPP development is being mitigated by (a) the World Bank's engagement with the GoE on the power sector reforms under the parallel DPO series which supports, among others, the implementation of the PPP Proclamation and Directive, and (b) the GoE's strong commitment toward IPPs and attracting private sector investment in the sector, as demonstrated by the involvement and mobilization of sector stakeholders in the development of the framework. A key ongoing reform is a new electricity tariff trajectory, which aims to achieve full recovery of the utility's cost of service. The approved tariff trajectory will take the weighted average tariff to US$0.07 per kWh by end-2021 (see Annex 5 for a detailed analysis of the impact of this tariff trajectory on cost recovery). Continued adjustments to the tariff would be necessary beyond this reform to ensure cost recovery. Complementary efforts to improve the financial viability of the sector include restructuring the liabilities of the sector utilities, reducing operating costs, and improving the operational efficiency of EEP and EEU. The REGREP MPA is also expected to support EEP's financial situation by promoting increased private sector participation.

115. **Other (Deemed Generation): Substantial**. In the near-term, the new capacity additions through IPPs are expected to be under 'take-or-pay' contracts. While the probabilistic analysis discussed in Section IV suggests that on average, Ethiopia will need a lot more renewables to meet supply shortage in the next five years, the take-or-pay contracts introduce a risk of deemed generation where the off-taker is obliged to make payments whether the energy is dispatched or not. However, no such payment is due if the private SPV fails to operate the plant adequately. There are ongoing improvements to variable renewable energy integration (for instance, a new national load dispatch center and power system automation tools) can mitigate the risk of curtailment of IPPs. Finally, the system planning tools being upgraded by the Government would further ensure that excess capacity will not be procured under such long-term contracts. Finally, the PSRR, that anticipates a move to a competitive wholesale market and creation of a regional spot market will further limit this risk.

VI. RESULTS FRAMEWORK AND MONITORING

Results Framework

Program Development Objective (PrDO): REGREP MPA Program

Increase renewable energy generation capacity through private sector participation in Ethiopia.

Project Development Objective (PDO): Metehara Solar IPP

Increase renewable energy generation capacity through private sector participation in Ethiopia.

PrDO/PDO Indicators	Unit of Measure	Baseline	End Target
Increased renewable energy generation capacity under the IPP program that has reached commercial operation	MW	0 (December 2018)	100 (December 2022) (Project) At least 1,000 (December 2025) (Program)
Amount of private capital mobilized under the IPP program[22]	US$ million	0 (December 2018)	35 (December 2022) (Project) 800 (December 2025) (Program)
Share of private capital (equity and debt) deployed in new IPPs[23]	Percent	25% (2019) (equity only; estimated)	65% (2025) (Program)

[22] DFI financing, such as IFC, does not count as private capital mobilized under the MFD framework. Private capital would include private equity and purely commercial financing, including commercial financing benefiting from an IDA guarantee.
[23] See previous footnote for the definition of private capital.

Intermediate Results Indicators by Components	Unit of Measure	Baseline	End Target
Annual greenhouse gas emission reductions	tCO_2	0 (December 2018)	1,000 (December 2022) (Project)
Increased renewable energy generation capacity under the IPP program that has reached financial close	MW	0 (December 2018)	100 (June 2020) (Project)
Total number of IPP plants that have completed construction	Number	0 (December 2018)	1 (June 2021) (Project)
Total number of IPP plants that have begun construction	Number	0 (December 2018)	1 (June 2020) (Project)
Standard documents for IPP procurement published online	Number	0 (December 2018)	4 (December 2020) (Project)
EEP's Gender Action Plan under implementation with regular progress reporting	Yes/No	No (December 2018)	Yes (December 2019) (Project)
Response rate under the project's GRM	Percentage	n/a (December 2018)	100 (December 2019) (Project)

Monitoring & Evaluation Plan: PDO Indicators	
Indicator Name	Increased renewable energy generation capacity under the IPP program that has reached commercial operation
Definition/Description	Grid-connected and fully commissioned generation capacity under the REGREP MPA program.
Frequency	Quarterly
Data Source	IPPs' progress reporting to EEP
Methodology for Data Collection	EEP's regular interactions with the IPPs
Responsibility for Data Collection	EEP
Indicator Name	Amount of private capital mobilized under the IPP program
Definition/Description	Private equity or debt financing for IPPs under the REGREP MPA Program
Frequency	Quarterly
Data Source	IPPs' progress reporting to EEP

Methodology for Data Collection	EEP's regular interactions with the IPPs
Responsibility for Data Collection	EEP
Indicator Name	Share of private capital (equity and debt) deployed in new IPPs
Definition/Description	Private equity or debt financing for IPPs under the REGREP MPA Program, as a percentage of total financing
Frequency	Quarterly
Data Source	IPPs' progress reporting to EEP
Methodology for Data Collection	EEP's regular interactions with the IPPs
Responsibility for Data Collection	EEP

Monitoring & Evaluation Plan: Intermediate Results Indicators	
Indicator Name	Annual greenhouse gas emission reductions
Definition/Description	Avoided greenhouse gas emissions compared to alternative source of power (oil-based) based on actual generation from power plants (annualized)
Frequency	Quarterly
Data Source	Estimates based on EEP's dispatching center
Methodology for Data Collection	Regular recording of dispatching data
Responsibility for Data Collection	EEP
Indicator Name	Increased renewable energy generation capacity under the IPP program that has reached financial close
Definition/Description	Projects/generation capacity under the REGREP MPA program that have signed agreements with financiers.
Frequency	Quarterly

Data Source	IPPs' progress reporting to EEP
Methodology for Data Collection	EEP's regular interactions with the IPPs
Responsibility for Data Collection	EEP
Indicator Name	Total number of IPP plants that have completed construction
Definition/Description	Number of IPP plants that have completed construction (pre-commissioning)
Frequency	Quarterly
Data Source	IPPs' progress reporting to EEP
Methodology for Data Collection	EEP's regular interactions with the IPPs
Responsibility for Data Collection	EEP
Indicator Name	Total number of IPP plants that have begun construction
Definition/Description	Number of IPP plants that have begun construction
Frequency	Quarterly
Data Source	IPPs' progress reporting to EEP
Methodology for Data Collection	EEP's regular interactions with the IPPs
Responsibility for Data Collection	EEP
Indicator Name	Standard documents for IPP procurement published online
Definition/Description	Publication of standardized bidding documents, power purchasing agreement, government support agreement and, grid interconnection agreement
Frequency	Quarterly
Data Source	Websites of PPP Directorate General and EEP

Methodology for Data Collection	n/a
Responsibility for Data Collection	EEP
Indicator Name	EEP's Gender Action Plan under implementation with regular progress reporting
Definition/Description	Budget for EEP's Gender Action Plan is approved and regular progress reports are submitted to EEP's Board
Frequency	Annually
Data Source	EEP's progress reporting
Methodology for Data Collection	n/a
Responsibility for Data Collection	EEP
Indicator Name	Response rate under the project's GRM
Definition/Description	Percentage of GRM complaints that have been responded to
Frequency	Quarterly
Data Source	EEP's progress reporting
Methodology for Data Collection	GRM data log
Responsibility for Data Collection	EEP

ANNEX 1: DRAFT TERM SHEETS (GUARANTEES)

SUMMARY OF INDICATIVE TERMS AND CONDITIONS OF THE PROPOSED IDA GUARANTEE IN SUPPORT OF GOVERNMENTAL PAYMENTS

This term sheet contains a summary of indicative terms and conditions of one or more proposed guarantees (the "Guarantees" and each a "Guarantee") by the International Development Association ("IDA"), in support of one or more independent power projects ("IPPs") under REGREP, for discussion purposes only and does not constitute an offer to provide a Guarantee or Guarantees. This term sheet is based on the versions of the World Bank Group Scaling Solar program documents developed for Ethiopia and is designed to support obligations in such documents. As REGREP contemplates support for IPPs also to be developed outside of the Scaling Solar framework, some of the standard Scaling Solar guarantee terms presented in this term sheet may need to be adjusted for those non-Scaling Solar projects. Such terms are highlighted in footnotes to this term sheet. The provision of the Guarantee(s) is subject, inter alia, to satisfactory appraisal by IDA of the relevant renewable power project(s) (each a "Project"), compliance with all applicable policies of the World Bank, including those related to environmental and social safeguards, review and acceptance of the ownership, management, financing structure (including in connection with shareholders, suppliers, equipment and Project design, and contracts proposed by the winning bidder), and project/transaction documentation by IDA, and the approval/commitment by the World Bank management and/or Executive Directors of IDA, as applicable, in their sole discretion. Without limiting the generality of the foregoing, IDA is highly selective with regard to the clients and beneficiaries it works with and is diligent with Know Your Customer requirements for all Project participants (equity investors, ultimate shareholders, lenders, contractors, advisors) and will undertake an appraisal of the Project(s) and the respective Project Company or Project Companies including an assessment on these parameters.

If the Guarantee-related legal agreements are not signed within 24 months following approval by the Board of Executive Directors of IDA or World Bank management, as applicable, IDA may withdraw the offer of the Guarantee.

TERMS SPECIFIC TO A PAYMENT GUARANTEE IN SUPPORT OF A STANDBY LETTER OF CREDIT (LC)

LETTER OF CREDIT ("LC")	
LC Applicants:	The "Purchaser" under a Power Purchase Agreement ("PPA") and the "Government" under the Government Support Agreement ("GSA", and together with the PPA, the "Relevant Project Documents"), each entered into with the Seller.[24]
LC Beneficiary:	The "Seller" under the Relevant Project Documents.
LC Bank:	A commercial bank acceptable to IDA, LC Applicants and the LC Beneficiary.

[24] It is to be determined if IPPs developed outside Scaling Solar will also require a Government Support Agreement, and whether the Government will also be an LC Applicant. Accordingly, the definitions of LC Applicants and Relevant Project Documents may also be different for those projects.

Maximum LC Amount:	The maximum amount available for draw under the LC shall be an amount to be agreed between the LC Beneficiary and LC Applicants (and acceptable to IDA) and in no event shall exceed US$[X] million, as such amount may be reduced from time to time in accordance with the terms of the LC and the Guarantee Agreement.
LC Effective Date:	A date to be agreed between the LC Applicants and LC Beneficiary (and acceptable to IDA), which is expected to be no earlier than financial close under the Financing Documents.
LC Validity Period:	Term to be determined and expected to be at least equal to the tenor of senior debt for the Project, subject to the availability of an acceptable LC for such duration.
LC features:	A letter of credit issued in favor of, and acceptable to, the LC Beneficiary by the LC Bank at the request of the LC Applicants to backstop certain payment obligations of the LC Applicants under the Relevant Project Documents. Any amounts drawn by the LC Beneficiary under the LC that are repaid to the LC Bank within the LC Reimbursement Period would be reinstated. The obligation of the LC Applicants to repay the LC Bank amounts drawn under the LC before the expiration of the LC Reimbursement Period would be guaranteed by IDA. Any amount paid by IDA to the LC Bank under the Guarantee would be deducted from the Maximum Guaranteed Amount, and thus from the Maximum LC Amount (in the case of principal amounts repaid by IDA), and those amounts would not be reinstated.
Permitted Drawdown under LC:	Purchaser's failure to make a payment (pursuant to articles [12.3.3 and 13.5.1] of the Scaling Solar PPA or the equivalent provision of the relevant PPA relating to payment of invoices)[25] when due and payable.[26] [Seller's inability to convert Ethiopian Birr into US Dollars (pursuant to clause [13.5.2] of the Scaling Solar PPA or the equivalent provision[27] of the relevant PPA relating to the Seller's right to draw down on the LC following a failure to convert local currency to US Dollars).][28]
LC Fees:	To be payable by the [LC Applicants / LC Beneficiary] to the LC Bank, and acceptable to the LC Applicants and IDA.
LC REIMBURSEMENT AND CREDIT AGREEMENT	
Borrower:	LC Applicants

[25] Generally, IDA does not provide termination coverage under its Payment Guarantee. However, under exceptional circumstances coverage under LC drawdowns due to termination (pursuant to clause [13.5.5] of the Scaling Solar PPA or an equivalent provision of the relevant PPA) may be offered, subject to IDA's due diligence, appropriate justification for a need for such cover, and the final financing plan including the suite of risk mitigation instruments deployed for the transaction.

[26] For IPPs outside of the Scaling Solar framework, drawdowns on the LC will be permitted in respect of amounts owing under unpaid invoices under the PPA.

[27] As referenced here and elsewhere in this term sheet, it is expected that the agreements for IPPs outside of the Scaling Solar framework will contain certain equivalent or analogous provisions to those in the agreements for IPPs under the Scaling Solar framework. As these agreements for non-Scaling Solar IPPs are yet to be drafted, these agreements will be subject to IDA's review and due diligence. As such, all references in this term sheet to equivalent provisions in non-Scaling Solar agreements are subject to such provisions being acceptable to IDA, following IDA's review and due diligence.

[28] Coverage of convertibility risk under the Payment Guarantee remains subject to: (i) approval of the foreign exchange structure in the PPA and GSA by the National Bank of Ethiopia, and (ii) IDA's review and approval of the structure and provisions relating to such coverage in the final documentation.

Lender:	LC Bank
LC Reimbursement Period:	Following a draw under the LC by the LC Beneficiary, LC Applicants would be obligated to repay the LC Bank the amount drawn under the LC together with accrued interest thereon within a period of [twelve (12)] months ("Reimbursement Period") from the date of each draw pursuant to a Reimbursement and Credit Agreement to be concluded between LC Applicants and the LC Bank. In the event of a timely repayment, the LC will be reinstated by the amount of such repayment. In the event of a non-payment on the due date, the LC Bank would have the right to call on the Guarantee for principal amounts plus accrued interest due by the LC Applicants under the Reimbursement and Credit Agreement.
Principal amount of the LC Bank Credit:	Amounts drawn down under the LC not to exceed the Maximum LC Amount.
Interest Rate on the LC Bank Credit:	An appropriate spread above LIBOR agreed by the LC Bank, the LC Applicants and acceptable to IDA. The maturity of the selected [LIBOR] base rate should ideally be 1 month.
GUARANTEE AGREEMENT	
Guarantor:	IDA
Guaranteed Beneficiary:	LC Bank
Guarantee Face Value:	The Maximum LC Amount, not to exceed USD [X] million
Guarantee:	IDA will backstop the obligations of the LC Applicants under the Reimbursement and Credit Agreement to the extent that said obligations result from Permitted Drawdown under the LC and the LC Applicants have failed to repay the LC Bank in respect of such Permitted Drawdown in accordance with the Reimbursement and Credit Agreement. That is, if the amount remains unpaid after the expiry of the LC Reimbursement Period, the LC Bank would have the right to call on the Guarantee for the principal amount (equal to the amount drawn under the LC) plus accrued interest due from the LC Applicants.
Maximum Guaranteed Amount:	The Maximum Guaranteed Principal plus Maximum Guaranteed Interest as below. Any amount paid by IDA to the LC Bank under the Guarantee would be deducted from the Maximum Guaranteed Amount and would not be reinstated.
Maximum Guaranteed Principal:	The Guarantee Face Value, i.e. the Maximum LC Amount, not to exceed USD [X] million.
Maximum Guaranteed Interest:	Scheduled interest due and payable on the amounts drawn under the LC. For the avoidance of doubt, IDA may cover compound interest but IDA will not cover penalty interest, default interest or charges of similar nature.
Maximum Guarantee Period:	LC Validity Period plus 14 months.
Exclusions, Withholding, Limitation/Suspension and Termination Events:	Standard exclusion, withholding, limitation/suspension and termination events for transactions of this nature.

Substitution of Guarantee:	If IDA exercises remedies against the LC Bank under the Guarantee Agreement for reasons attributable to the LC Bank, then IDA may enter into a new Guarantee Agreement with a substitute LC Bank in substantially the same terms and conditions as the Guarantee Agreement and for the remaining term of the Maximum Guarantee Period.
Conditions Precedent to the Effectiveness of the Guarantee:	Usual and customary conditions for financing of this type, including but not limited to the following: (a) Firm commitment for sufficient financing to complete the construction of the Project, including satisfactory contribution of equity; (b) Execution, delivery and effectiveness of all Project and financing agreements, in form and substance satisfactory to IDA, including the Indemnity Agreement and the Project Agreement; (c) Delivery of all relevant host country environmental approvals required for the operation of the Project, and compliance with all applicable World Bank requirements relating to environmental and social safeguards, including the World Bank Performance Standards and Sanctionable Practices; (d) Effectiveness of all required insurance (to include IDA as an additional insured on third-party liability insurance); (e) Satisfaction of all conditions precedent to first disbursement under the Financing Documents, save for any condition that requires the effectiveness of the IDA Guarantee Agreement to have occurred; (f) Provision of satisfactory legal opinions; (g) Payment in full of the Up-Front Fees and the first installment of the Guarantee Fee (if applicable); and (h) Satisfactory integrity due diligence of Project Company (and related parties) and guaranteed parties.
Subrogation:	If and to the extent IDA makes any payment under the Guarantee, IDA will be subrogated immediately to the extent of such unreimbursed payment to the LC Bank's rights under the Reimbursement and Credit Agreement.
Governing Law:	[English law/ New York Law].

GUARANTEE SUPPORT AGREEMENT[29]	
Support Agreement:	The LC Applicants would enter into a Support Agreement with the LC Beneficiary under which the LC Applicants would undertake to apply for and make available an LC that may be drawn by the LC Beneficiary following the occurrence of certain [Guaranteed Events], on the basis of drawdown and dispute resolution mechanisms and supporting documentation to be agreed between the parties and satisfactory to IDA and to be consistent with the provisions of the Relevant Project Documents.
INDEMNITY AGREEMENT	
Parties:	IDA and Federal Democratic Republic of Ethiopia ("Ethiopia").

[29] If needed. Provisions of the Guarantee Support Agreement may also be included in the PPA.

Indemnity:	Ethiopia will reimburse and indemnify IDA on demand, or as IDA may otherwise direct, for all payments under the Guarantee and all losses, damages, costs and expenses incurred by IDA relating or arising from the Guarantee.
Covenants:	Usual and customary covenants included in agreements between member countries and IDA.
Remedies:	If Ethiopia breaches any of its obligations under the Indemnity Agreement, IDA may suspend or cancel, in whole or in part, the rights of Ethiopia to make withdrawals under any other loan, credit or grant agreement with IBRD or IDA, or any IBRD loan or IDA credit to a third party guaranteed by the Member Country, and may declare the outstanding principal and interest of any such loan or credit to be due and payable immediately. A breach by Ethiopia under the Indemnity Agreement will not, however, forgive any guarantee obligations of IDA under the Guarantee.
Governing Law:	The Indemnity Agreement will follow the usual legal regime and include dispute settlement provisions customary for agreements between member countries and IDA
PROJECT AGREEMENT	
Parties:	IDA and LC Beneficiary
Representations and Warranties:	The LC Beneficiary will represent, among other standard and project specific provisions, that as of the effective date of the Guarantee, it: (i) is in compliance with applicable environmental laws and the applicable World Bank's guidelines, environmental and social safeguard requirements, including the World Bank Performance Standards and other applicable requirements; and (ii) neither it (including its direct and indirect shareholders and any other relevant parties, as determined by IDA), nor any of its affiliates has engaged in any Sanctionable Practice[30] in connection with the Project.
Covenants:	The LC Beneficiary will covenant, among other things, that it will: (a) comply with applicable laws, including environmental laws, and the applicable World Bank environmental and social safeguard requirements, including the World Bank Performance Standards; (b) provide annual audited financial statements and other reports; (c) provide certain notices and other information to IDA; (d) provide access to the project site and documentation; (e) not engage in (or authorize or permit any affiliate or any other Person acting on its behalf to engage in) any sanctionable practice in connection with the Project (f) comply with World Bank requirements relating to Sanctionable Practices regarding individuals or firms included in the World Bank Group list of firms debarred from World Bank Group-financed contracts; and (g) obtain IDA's consent prior to agreeing to any change to any transaction document to which it is a party which would materially affect the rights or obligations of IDA under the Guarantee Agreement or any other transaction document.

[30] Sanctionable Practices include corrupt, fraudulent, collusive, coercive, or obstructive practices, as defined in IDA's Anti-Corruption Guidelines.

Guarantee Fees (recurring)[31]:	75 basis points per annum. The Guarantee Fee is charged on that portion of the guaranteed amount that IDA has contractually committed and for which IDA has financial exposure under the guarantee. (i.e. the Maximum Guaranteed Principal). The Guarantee Fee must be paid in advance semi-annually on regular payment dates. The Guarantee will terminate in the event of nonpayment of any installment of the Guarantee Fee.
Upfront Fees[32]:	(a) An Initiation Fee of 15 bps of the Guarantee Face Value (but not less than US$100,000) payable by the LC Beneficiary. (b) Processing Fee of 50 bps[33] of the Guarantee Face Value payable by the LC Beneficiary. (c) Reimbursement of IDA outside legal counsel expenses by the LC Beneficiary.
Governing Law:	[English law/ New York Law].
COOPERATION AGREEMENT	
Parties:	IDA and Purchaser.
Covenants:	Purchaser will covenant, among other things, that it: (a) will comply with all its obligations under the transaction documents; (b) will obtain IDA's consent prior to agreeing to any change to any transaction document which would materially affect the rights or obligations of IDA under the Guarantee Agreement or any other transaction document; (c) will provide certain notices to IDA; (d) will take all action necessary on its part, in accordance with and as required by the terms of the project-related agreements to which it is a party, to enable the LC Beneficiary to perform all of the LC Beneficiary's obligations under the Project Agreement, and other relevant transaction documents; and (e) will cooperate with IDA and furnish to IDA all such information related to such matters as IDA shall reasonably request; and promptly inform IDA of any condition which interferes with, or threatens to interfere with, such matters.

[31] FY18 pricing. All fees will be updated based on the pricing applicable at the time of approval by IDA's board of directors.
[32] FY18 pricing. All fees will be updated based on the pricing applicable at the time of approval by IDA's board of directors.
[33] IDA may charge more if higher than usual internal costs are incurred during preparation.

SUMMARY OF INDICATIVE TERMS AND CONDITIONS
OF THE PROPOSED IDA GUARANTEE
IN SUPPORT OF DEBT MOBILIZATION

This term sheet contains a summary of indicative terms and conditions of one or more proposed guarantees ("Guarantees" and each a "Guarantee") by the International Development Association ("IDA"), in support of one or more independent power projects ("IPPs") under REGREP, for discussion purposes only and does not constitute an offer to provide a Guarantee or Guarantees. This term sheet is based on the versions of the World Bank Group Scaling Solar program documents developed for Ethiopia and is designed to support obligations in such documents. As REGREP contemplates support for IPPs also to be developed outside of the Scaling Solar framework, some of the standard Scaling Solar guarantee terms presented in this term sheet may need to be adjusted for those non-Scaling Solar projects. Such terms are highlighted in footnotes to this term sheet. The provision of the Guarantees is subject, inter alia, to satisfactory appraisal by IDA of the relevant renewable power project(s) (each a "Project"), compliance with all applicable policies of the World Bank, including those related to environmental and social safeguards, review and acceptance of the ownership, management, financing structure(including in connection with shareholders, suppliers, equipment and Project design, and contracts proposed by the winning bidder), and project/transaction documentation by IDA, and the approval/commitment by World Bank management and/or the Executive Directors of IDA, as applicable, in their sole discretion. Without limiting the generality of the foregoing, IDA is highly selective with regard to the clients and beneficiaries it works with and is diligent with Know Your Customer requirements for all Project participants (equity investors, ultimate shareholders, lenders, contractors, advisors) and will undertake an appraisal of the Project(s) and the respective Project Company or Project Companies including an assessment on these parameters.

If the Guarantee-related legal agreements are not signed within 24 months following approval by the Board of Executive Directors of IDA or World Bank management, as applicable, IDA may withdraw the offer of the Guarantee.

IDA-GUARANTEED LOAN AGREEMENT	
Borrower:	[Name of Borrower]
Guaranteed Lenders:	[Name of Bank], in its capacity as lender [and acting as Agent for other commercial lenders][34]
Loan Amount:	Expected to be US$[X] million
Term:	Expected to be [X][35] years.
Repayment Terms:	Expected to be annual or semi-annual
Loan Interest Rate:	Spread above [LIBOR] acceptable to the Borrower and IDA
Currency:	US Dollars[36]

[34] IDA loan guarantees may only be provided in support of commercial debt. For IDA guarantee purposes, commercial debt means debt provided by a lender that is wholly or predominantly privately owned, or a lender that is publicly owned but is an autonomous entity established and operating under commercial law for the purposes of pursuing profit.
[35] To be tailored on a project and country specific basis with a view to incentivize market to provide long tenors adequate with project duration.
[36] Or alternatively euros, in which case the interest rate would be EURIBOR-based instead of LIBOR-based.

Use of proceeds:	Proceeds to be used for the design, engineering, procurement, construction, and financing costs of the project, but excluding development fees and other costs typically included on the World Bank negative list (e.g., acquisition costs for nuclear, military, land or luxury items, or for goods or services from territories that are not a member of the World Bank, etc.)
Drawdown:	Pro rata with the other loans of the Project or in such other proportion acceptable to the IDA
IDA GUARANTEE AGREEMENT	
Guarantor:	IDA
Guarantee Beneficiaries:	The Guaranteed Lenders, as provided in the IDA-Guaranteed Loan Agreement.
Guarantee:	IDA will guarantee to the Guaranteed Lenders, up to the Maximum Guaranteed Amount, payment of principal and interest thereon that the Guaranteed Lenders would have otherwise received from the Borrower, but for the occurrence of a Guaranteed Event.
Guaranteed Events:	Government of Ethiopia's ("Government") failure to perform its obligations, including making a payment (pursuant to clauses [5.2 or 8.4] of the Scaling Solar GSA or the equivalent provision[37] of the relevant GSA relating to termination payments and other payment obligations] when due and payable, which results in the Borrower's inability to pay when due and payable any principal and interest on the IDA Guaranteed Loan Agreement.[38]
Maximum Guaranteed Amount:	The Maximum Guaranteed Principal plus Maximum Guaranteed Interest as below.
Maximum Guaranteed Principal:	The aggregate of the principal amount (i) committed, or (ii) at the end of the availability period ("Availability Period"), disbursed, in either case, under the IDA-Guaranteed Loan Agreement and not to exceed USD [X] million.
Maximum Guaranteed Interest:	Scheduled interest due and payable on the disbursed and outstanding principal amount pursuant to the IDA-Guaranteed Loan Agreement. IDA will not cover penalty interest, default interest or charges of similar nature.
Subrogation:	If and to the extent IDA makes any payment under the Guarantee, IDA will be subrogated immediately to the extent of such unreimbursed payment to the Guaranteed Lenders' rights.

[37] As referenced here and elsewhere in this term sheet, it is expected that the agreements for IPPs outside of the Scaling Solar framework will contain certain equivalent or analogous provisions to those in the agreements for IPPs under the Scaling Solar framework. As these agreements for non-Scaling Solar IPPs are yet to be drafted, these agreements will be subject to IDA's review and due diligence. As such, all references in this term sheet to equivalent provisions in non-Scaling Solar agreements are subject to such provisions being acceptable to IDA, following IDA's review and due diligence.

[38] For IPPs outside of the Scaling Solar framework, guaranteed events will be determined in discussion with the Government and in view of the relevant project documentation and may include failures to make termination payments and other relevant obligations.

Claims and disputes:	Claims by the Guaranteed Lenders must be made within [90] days of nonpayment with IDA paying within [60] days thereafter. If there is a dispute between the Government and the Borrower as to the Government's obligation to pay or the amount of its liability, the Guarantee would be callable only in respect of amounts that the Government is obligated to pay, and fails to pay. For the avoidance of doubt, IDA will pay only up to the Government's liability that has been determined, whether through expert determination, settlement agreement between the parties, arbitral award, or in accordance with contractual procedures acceptable to IDA, so long as such determination is final and binding (i.e., an arbitral award is not necessarily required).
[Provisional Payments]	[If required by the Guaranteed Lenders and subject to standard terms and conditions for these payments, IDA may make provisional payments to the Guaranteed Lenders.]
Guarantee Fee (recurring)[39]:	75 bps per annum, payable semi-annually in advance by the Borrower, on the disbursed and outstanding amount under the IDA-Guaranteed Loan Agreement. The Guarantee would lapse in the event of nonpayment of any installment of the relevant Guarantee Fee.
Up-front Fees[40]:	(a) An Initiation Fee of 15 bps of the Maximum Guaranteed Principal Amount (but not less than US$100,000) payable by the Borrower. (b) Processing Fee of 50bps[41] of the Maximum Guaranteed Principal Amount, payable by the Borrower. (c) Reimbursement of IDA outside legal counsel expenses by the Borrower.

[39] FY18 pricing. All fees will be updated based on the pricing applicable at the time of approval by IDA's board of directors.
[40] FY18 pricing. All fees will be updated based on the pricing applicable at the time of approval by IDA's board of directors.
[41] IDA may charge more if higher than usual internal costs are incurred during preparation.

Conditions precedent to the Effectiveness of the IDA Guarantee:	Usual and customary conditions for financing of this type, including but not limited to the following: (a) Firm commitment for sufficient financing to complete the construction of the Project, including satisfactory contribution of equity; (b) Execution, delivery and effectiveness of all Project and financing agreements, in form and substance satisfactory to IDA, including the IDA Indemnity Agreement and the IDA Project Agreement; (c) Delivery of all relevant host country environmental approvals required for the operation of the Project, and compliance with all applicable World Bank requirements relating to environmental and social safeguards, including the World Bank Performance Standards and Sanctionable Practices; (d) Effectiveness of all required insurance (to include IDA as an additional insured on third-party liability insurance); (e) Satisfaction of all conditions precedent to first disbursement under the Financing Documents, save for any condition that requires the effectiveness of the IDA Guarantee Agreement to have occurred; (f) Provision of satisfactory legal opinions; (g) Payment in full of the Up-Front Fees and the first installment of the Guarantee Fee (if applicable); and (h) Satisfactory integrity due diligence of Project Company (and related parties) and guaranteed parties.
Exclusions, Withholding, Limitation/Suspension and Termination Events:	Standard exclusion, withholding, limitation/suspension and termination events for transactions of this nature.
Non-Accelerability of Guarantee:	The Guarantee is non-accelerable. The Guarantee will cover payment of principal up to the Maximum Guaranteed Principal and scheduled interest thereon payable in accordance with the original payment schedule under the IDA-Guaranteed Loan Agreement.
Governing law:	[English law/ New York Law].
IDA INDEMNITY AGREEMENT	
Parties:	IDA and the Federal Democratic Republic of Ethiopia ("Ethiopia")
Indemnity:	Ethiopia will reimburse and indemnify IDA on demand, or as IDA may otherwise direct, for all payments under the Guarantee and all losses, damages, costs and expenses incurred by IDA relating or arising from the IDA Guarantee.
Covenants:	Usual and customary covenants included in agreements between member countries and IDA.
Remedies:	If Ethiopia breaches any of its obligations under the Indemnity Agreement, IDA may suspend or cancel, in whole or in part, the rights of Ethiopia to make withdrawals under any other loan, credit or grant agreement with IBRD or IDA, or any IBRD loan or IDA credit to a third party guaranteed by the Member Country, and may declare the outstanding principal and interest of any such loan or credit to be due and payable immediately. A breach by Ethiopia under the Indemnity Agreement will not, however, forgive any guarantee obligations of IDA under the Guarantee.

Governing Law:	The Indemnity Agreement will follow the usual legal regime and include dispute settlement provisions customary for agreements between member countries and IDA.
PROJECT AGREEMENT	
Parties:	IDA and the Borrower.
Representations and warranties:	The Borrower will represent, among other standard and project specific provisions, as of the effective date, that it (i) is in compliance with applicable environmental laws and the applicable World Bank guidelines, environmental and social safeguard requirements, including under the World Bank Performance Standards, and other applicable requirements and (ii) neither it (including, its direct and indirect shareholders and other relevant parties, as determined by IDA), nor any of its affiliates has engaged in any Sanctionable Practice[42] activity in connection with the project.
Covenants:	The Borrower will covenant, among other things, that it will: (a) use the proceeds of the disbursements under the IDA-Guaranteed Loan exclusively for the project and in accordance with the terms and conditions of the IDA-Guaranteed Loan Agreement; (b) comply with applicable laws, including environmental laws, and the applicable World Bank environmental and social safeguard requirements under the World Bank Performance Standards; (c) provide annual audited financial statements and other reports; (d) provide certain notices and other information to IDA; (e) provide access to the project site and documentation; (f) not engage in (or authorize or permit any affiliate or any other Person acting on its behalf to engage in) any sanctionable practice in connection with the Project; (g) comply with World Bank requirements relating to Sanctionable Practices regarding individuals or firms included in the World Bank Group list of firms debarred from World Bank Group-financed contracts; and (h) obtain IDA's consent prior to agreeing to any change to any transaction document to which it is a party which would materially affect the rights or obligations of IDA under the IDA Guarantee Agreement or any other transaction document.
Governing law:	[English law/ New York Law].
COOPERATION AGREEMENT	
Parties:	IDA and Purchaser.

[42] Sanctionable Practices" include corrupt, fraudulent, collusive, coercive, or obstructive practices, as defined in IDA's Anti-Corruption Guidelines.

Covenants:	Purchaser will covenant, among other things, that it: (a) will comply with all its obligations under the transaction documents; (b) will obtain IDA's consent prior to agreeing to any change to any transaction document which would materially affect the rights or obligations of IDA under the IDA Guarantee Agreement or any other transaction document; (c) will provide certain notices to IDA; (d) will take all action necessary on its part, in accordance with and as required by the terms of the project-related agreements to which it is a party, to enable the Borrower to perform all of the Borrower's obligations under the Project Agreement, and other relevant transaction document; and (e) will cooperate with IDA and furnish to IDA all such information related to such matters as IDA shall reasonably request; and promptly inform IDA of any condition which interferes with, or threatens to interfere with, such matters.

ANNEX 2: DETAILED PROGRAM DESCRIPTION

1. **The proposed REGREP MPA would provide up to US$200 million[43] (the MPA envelope) of payment guarantees to cover EEP's PPA payment obligations and loan guarantees for commercial lenders to support Ethiopia's pipeline of IPP transactions.** The REGREP MPA will be structured as a guarantees program applying the MPA, with a first phase with one transaction being submitted to the Board jointly with the overall program. Subsequent transactions in the pipeline will be appraised during the life of the REGREP MPA and approved by World Bank management.[44]

2. **The proposed REGREP MPA would support IPP transactions in four phases (see Figure 2.1 and Table 2.1).** REGREP Phase 1 will support the most advanced solar IPP transaction, the Metehara Solar IPP (100 MW). Phase 2 will support two 125 MW solar IPP transactions at Dicheto and Gad. Phases 3 and 4 of the REGREP MPA would support additional solar and wind IPPs, as summarized in Table 2.1.

3. **To participate in a future phase of the program, transactions will have to meet the following requirements:** (a) the feasibility studies completed; (b) the environmental and social safeguards documents completed; (c) the financing for implementing the RAP secured (if applicable); (d) the tendering process in line with the PPP framework and guidelines; and (e) the winning bidder identified.

4. **The exact form and allocation of the guarantee support for each transaction would be determined during appraisal.** The front-runner transactions are likely going to use about US$40 million in REGREP Phases 1 and 2 from the US$200 million allocated under the REGREP MPA. Overall, the proposed REGREP MPA could mobilize over US$1.5 billion in investment for at least 1,000 MW of renewable energy (solar and wind) IPP projects in Ethiopia. The exact number of IPP projects that can be supported depends on the guarantee coverage requested by each IPP.

5. **To accommodate various possible risk mitigation needs with the solar IPPs, the proposed REGREP will offer two types of guarantee instruments backstopping certain sovereign/sub-sovereign obligations in the context of renewable IPPs:**

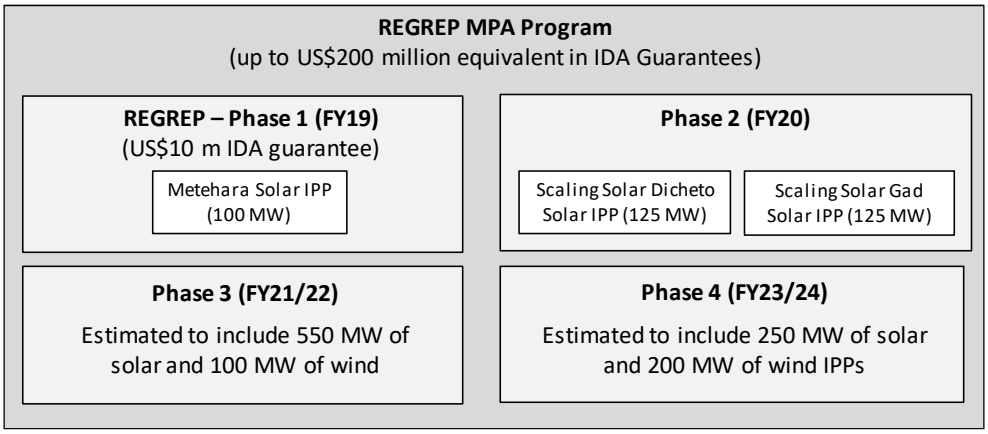
- **Payment guarantees are offered to enable EEP to provide adequate payment security requested by IPP project sponsors (expected in all phases of the REGREP MPA program).** The security is expected to cover up to six months of IPP revenues (to be agreed under the PPAs). The GoE's preference for the security would be an LC issued by an acceptable commercial bank and fully guaranteed by IDA. This option would be the most cost-effective solution for EEP. EEP would have to issue such payment security to each of the planned IPPs. Without IDA guarantees, it would be challenging for EEP to secure long-term LCs or to obtain them at reasonable costs. Preliminary market feedback during the Metehara Solar IPP bidding process has confirmed that a World Bank backstop on this payment security would be essential.

- **Loan guarantees would be offered if commercial banks provide debt financing to the IPPs** (most likely in later phases of the REGREP MPA program), mitigating risks of default under commercial loans because of actions or inactions from the off-taker or the Government.

[43] The overall MPA envelope of US$200 million in IDA Guarantees is equivalent to US$50 million from Ethiopia's IDA allocation.
[44] In case future transactions are screened at substantial/high risk under ESF, the approval will be sought at the World Bank Board of Executive Directors.

Such guarantees would only be made available to commercial lenders; that is, multilateral lenders such as IFC would not be eligible to access this type of credit enhancement support. Loan guarantees would be deployed with an objective of helping mobilize new sources of private financing for Ethiopia's energy sector in line with the World Bank Group's MFD/cascade principles. MIGA loan guarantees are an additional or alternative option for the project sponsors, including for financing from multilateral and bilateral financing institutions that cannot be covered by an IDA loan guarantee.

Figure 2.1. REGREP Structure



Source: World Bank staff.

Table 2.1. REGREP MPA Pipeline of IPP Transactions in Various Stages of Development (FY19–FY24)[a]

Indicative MPA Phase	Sl. No.	IPP Project	Stage	Indicative Investment Volume (US$, millions)	Indicative Private Financing (Debt + Equity; US$, millions)	Indicative IDA Guarantee (US$, millions)	Expected World Bank Approval
1	1	Metehara Solar IPP (100 MW)	Preferred bidder identified in October 2018	120	30	10	May 2019 (FY19)
2	2	Scaling Solar 1—Dicheto (125 MW)	RFP issued (PPP Board approved)	100–150	25–150	5–25	FY20
	3	Scaling Solar 2—Gad (125 MW)	RFP issued (PPP Board approved)	100–150	25–150	5–25	
3	4	Wolenchiti (estimated 125 MW)[b]	At EOI stage (PPP Board approved)	100–150	25–150	5–40	FY21/FY22
	5	Weranso (estimated 125 MW)[b]	At EOI stage (PPP Board approved)	100–150	25–150	5–40	

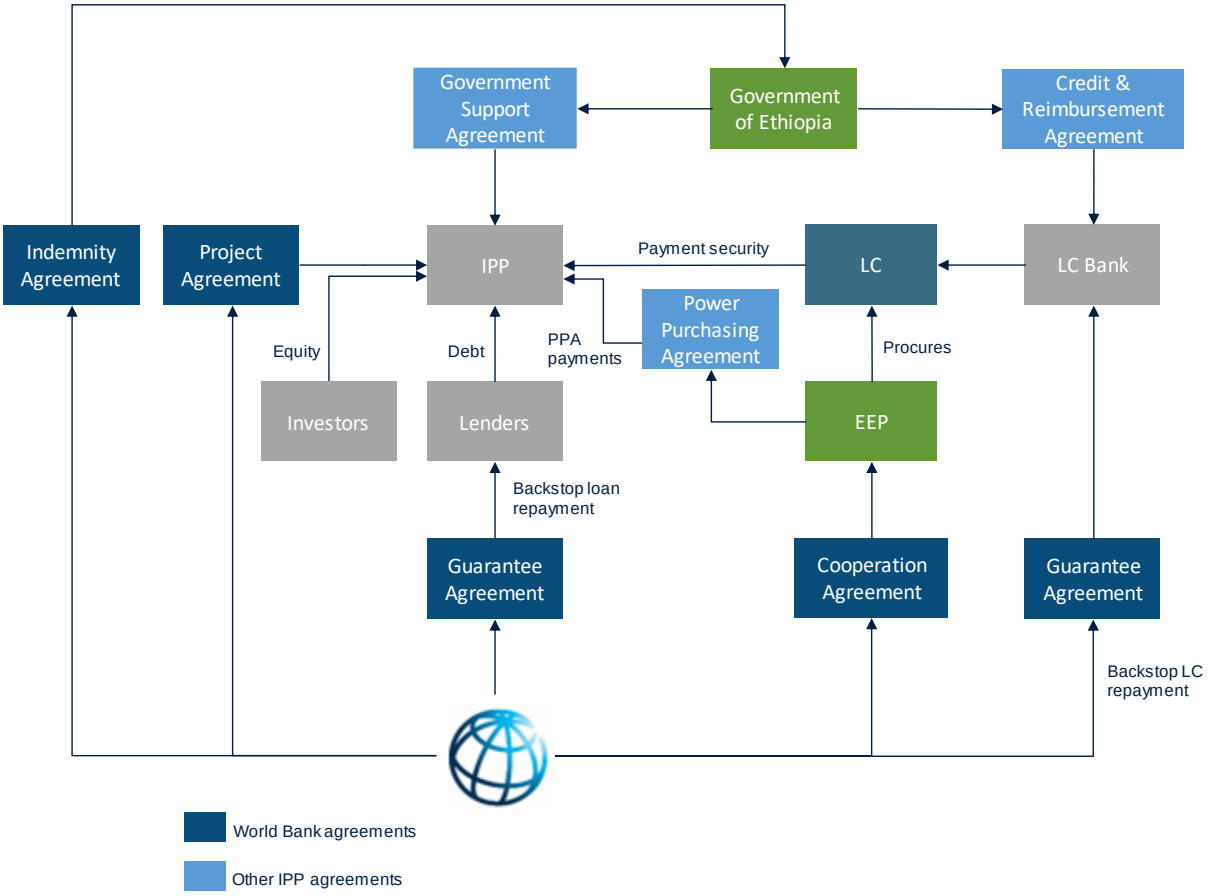
Indicative MPA Phase	Sl. No.	IPP Project	Stage	Indicative Investment Volume (US$, millions)	Indicative Private Financing (Debt + Equity; US$, millions)	Indicative IDA Guarantee (US$, millions)	Expected World Bank Approval
	6	Humera Solar (estimated 100 MW)[b]	At EOI stage (PPP Board approved)	100–150	25–150	5–40	
	7	Mekele Solar (estimated 100 MW)[b]	At EOI stage (PPP Board approved)	100–150	25–150	5–40	
	8	Wind Transaction 1 (estimated 100 MW)	At resource development stage	100–200	25–200	5–40	
4	9	Hurso Solar (estimated 125 MW)	At EOI stage (PPP Board approved)	100–150	25–150	5–40	FY23/FY24
	10	Metama Solar (estimated 125 MW)	At EOI stage (PPP Board approved)	100–150	25–150	5–40	
	11	Wind Transaction 2 (estimated 100 MW)	At resource development stage	100–200	25–200	5–40	
	12	Wind Transaction 3 (estimated 100 MW)	At resource development stage	100–200	25–200	5-40	
		Estimated total: At least 1,000 MW, up to 1,350 MW		**1,220–1,920**	**305–1,800**	**Up to 200**	

Source: GoE.
Note: EOI = Expression of Interest.
a. The exact number of IPP projects that can be supported depends on the guarantee coverage requested by each IPP.
b. The solar transactions of Phase 3 will be supported by Scaling Solar.

6. **Guarantee requirements for a typical 100–125 MW solar power plant in Ethiopia are estimated at US$5–40 million (see Table 2.2).** Payment guarantees for six months of PPA payments are expected to be around US$10 million. In addition, required loan guarantees for such a plant could reach US$20–30 million. However, as the World Bank allocates only 25 percent of its IDA envelope for Ethiopia for each dollar of guarantee provided, Ethiopia would only need to use US$2.5–10 million of IDA allocation to support one IPP, using illustrative assumptions.

7. **Guarantee allocation between IPP projects and terms will be finalized during preparation of subsequent MPA phases and guarantee negotiations, reflecting the market's need for risk mitigation.** Some IPP projects could use only payment or loan guarantees, whereas others could use a combination of both. Winning bidders will have the option, but not the obligation, to opt for the guarantee(s). The final arrangements would be reflected in the legal structure for each IPP.

Figure 2.2. Illustration of Possible Guarantee Structures and Related Agreements



Source: World Bank.

8. **Investor risk perception and the requested guarantee coverage are expected to evolve over the course of the REGREP MPA.** The solar IPP projects being considered for World Bank guarantee support are also the first competitively procured IPPs[45] in Ethiopia and may therefore need a higher level of guarantee coverage to build investor confidence. Over time, if EEP successfully performs its role as an off-taker for the first IPPs, investor risk perception of the country may decrease, and accordingly the need for guarantee support for new IPP projects. As a structuring principle, the World Bank only needs to cover the minimum required to make the IPP projects bankable. The World Bank will also explore ways to structure the various IPP projects under this program that would allow for crowding-in private commercial

[45] There were two legacy IPP transactions (in the geothermal sector) which were directly negotiated and pre-date the PPP Proclamation. GoE and the sponsors of these two legacy IPP transactions are in discussion regarding satisfaction of conditions precedent for financial closure of these transactions. These transactions are not part of REGREP MPA.

capital resources while ensuring that the infrastructure solutions pursued remain affordable and sustainable for Ethiopia's energy sector.

Table 2.2. Breakdown of Estimates of IDA Guarantee Amounts under the REGREP

	Average per IPP	Approximate REGREP
IPP project characteristics		
IPP plant size	100–125 MW	1,000+ MW
Power generation per year	200–300 GWh	2,000–3,000 GWh
IPP project finance structure (indicative) (US$, millions)		
IPP project cost	150	1,500
Security package (payment guarantee)	5-10	50-75
Total project cost	155-160	1,550-1,575
Private equity at 30%	45	450
Debt at 70%	105	1,050
Of which, possible commercial borrowing	25	300
Of which, possible concessional/development finance institution borrowing	80	750
Estimated private capital mobilized	75-80	800-825
Guarantee structure (indicative) (US$, millions)		
PPA payments per year	10–20	100–150
Payment guarantee	5–10	50–75
Loan guarantee	20–30	125–150
IDA support (US$, millions)		
Estimated total guarantee provided (maximum)	40	200
IDA country allocation at 1:4 of guarantee	10	50

Source: World Bank estimates.

9. **The draft term sheets of the IDA guarantees (see Annex 1) have been prepared based on the Scaling Solar template commercial documents.** Although Scaling Solar template documents have been designed to be as bankable as possible, the term sheets will need to be adjusted based on the PPAs for individual IPPs and to address specific commercial issues following consultations between the GoE and the World Bank. In the context of the candidate IPP projects under Scaling Solar, the guarantee term sheets (payment and loan guarantee) have been attached to the RFP (issued in April 2019) together with an IFC financing offer and a MIGA insurance proposal (excluding breach of contract), for developers to freely consider those instruments as part of their bids. The same term sheets will apply to the non-Scaling Solar IPP projects, with the appropriate modifications as required.

ANNEX 3: DETAILED DESCRIPTION OF REGREP PHASES

REGREP Phase 1: Metehara Solar IPP

1. **The most advanced IPP outside of the Scaling Solar initiative is the Metehara Solar IPP.** The IPP project is a PV power plant with an installed capacity of 100 MW alternating current (AC). USAID's PATRP, under the Power Africa initiative, provides transaction advisory assistance to the GoE and EEP since 2016 and supported them to identify a qualified developer. EEP initiated a competitive bidding process for international IPPs to design, construct, own, operate, maintain, generate, and sell energy. The RFP was first issued in May 2016 and reissued in December 2016. The deadline for bid submission was in February 2017. The tender attracted more than 60 bids, out of which in September 2017 five consortia were short-listed. A preferred bidder has been selected and the Letter of Intent was signed with the awarded company EGP in July 2018. Commercial close is expected by mid-2019. Financial close is expected to be achieved by June 2020.

2. **The EGP-led consortium will be investing approximately US$120 million in the construction of the solar PV plant**. The Metehara Solar IPP project is expected to be operational by 2021. Once it is up and running, the facility will be able to generate approximately 280 GWh per year. This output will be sold under a 20-year PPA to EEP that covers all the energy generated by the plant.

3. **The IPP project location is in the Oromia region, almost 200 km east of the capital Addis Ababa, an area that enjoys high levels of solar radiation.** The power plant will cover an area of 250 ha. Administratively, the IPP project site belongs to Benti and Gelcha kebeles in Fentale woreda of East Shoa Zone, Oromia Regional State. The site has no settlements but is used for rainfed farming in the rainy season and some livestock grazing in the dry season. The topography is generally flat, and the vegetation consists of grassland with scattered trees. The site is dry for most of the year, but the western portion is subject to flooding after heavy rains.

REGREP Phase 2: Dicheto and Gad Solar IPPs

4. **The World Bank Group's Scaling Solar brings together a suite of World Bank (IDA, IBRD), IFC, and MIGA services and instruments under a single engagement aimed at creating viable markets for grid-connected solar PV power plants**. It is an open, competitive, and transparent approach that facilitates the rapid development of privately owned, utility-scale solar PV IPP projects in Sub-Saharan Africa and other parts of the world. It is capable of rapid implementation and offers a 'one-stop-shop' package of advisory services and WBG instruments. As part of the Scaling Solar initiative's design, IFC Advisory Services supports governments in preparing a competitive and transparent solar auction based on template documents and processes. Based on the bid package, IFC Investment Services, IDA/IBRD, and MIGA then offers term sheets for financing, guarantees, and political risk insurance, respectively. Bidders can decide to use none, a combination, or all of these World Bank Group instruments. Bidders that meet the technical and financial criteria are then ranked based on the offered tariff.

5. **EEP and IFC Advisory Services have signed a Financial Advisory Services Agreement, and the tendering of the first two sites—Dicheto and Gad—is in process.** The Expression of Interest (EOI) for the two sites generated strong interest from world-class developers. In total, 140 EOIs were submitted and 11 firms were short-listed. The RFP was issued to short-listed companies in April 2019. The winning bidders are expected to be selected by the fall of 2019. The World Bank will carry out its own due diligence

on technical, financial, economic, and other aspects in parallel to IFC Advisory, coordinating on data collection and analysis with IFC Advisory as appropriate. The draft term sheets (see Annex 1) have been prepared based on the Scaling Solar template commercial documents and will apply as such to Scaling Solar candidate IPP projects and, potentially, with modifications to other solar IPPs. Although Scaling Solar template documents have been designed to be bankable, the term sheets may need to be adjusted based on the PPAs for individual IPPs and to address specific commercial issues following consultations between the GoE and the World Bank. In the context of the candidate IPP projects under Scaling Solar, the guarantee term sheets (payment and loan guarantee) have been attached to the RFP, together with an IFC investment financing offer and a MIGA insurance proposal (excluding breach of contract), for developers to freely consider those instruments as part of their bids.

REGREP MPA Phases 3 and 4

6. **There are several potential solar IPPs in the transaction pipeline at early stages of development, which are expected to become part of REGREP MPA Phases 3 and 4.** These include Wolenchiti (estimated 125 MW), Weranso (estimated 125 MW), Humera (estimated 100 MW), Mekele (estimated 100 MW), Hurso (estimated 125 MW), and Metema (125 MW). The RfQ for four of these sites was issued in April 2019 under the Scaling Solar initiative. All solar IPPs being developed, whether as part of the Scaling Solar initiative or not, will be subject to thorough World Bank due diligence. The World Bank team will conduct due diligence on them depending on their development beyond the pre-feasibility stage and their relative priority in the GoE's solar IPP development strategy. While the Scaling Solar IPP projects can, to some extent, build on due diligence being prepared by IFC Advisory, the World Bank will still independently vet all IPP candidates following its standard appraisal practices, including analysis of the IPP projects' technical, financial, and economic merits and a review of potential environmental and social impacts. The World Bank will also lead the interaction with the market on guarantee structuring for all IPPs, coordinating with IFC Advisory on the Scaling Solar IPP projects.

7. **There are also several wind IPPs in the transaction pipeline at early stages of development, which are expected to become part of REGREP MPA Phases 3 and 4.** The World Bank, in collaboration with the Government of Denmark, has been supporting EEP in wind resource assessment, site-specific resource measurement, as well as development of first set of wind IPP transactions in Ethiopia. Based on the results of site selection and development process, tendering would follow the overall procedures that the predecessor solar transactions followed.

ANNEX 4: PHASE 1: METEHARA SOLAR IPP ENVIRONMENTAL AND SOCIAL ASSESSMENT

Overview

1. **The assessment of the REGREP MPA focused on the implementation of solar PV grid by selected IPPs.** The choice of IPPs will consider the eligibility criteria set out in OP 4.03 to ensure that the private entity is fully responsible for identifying, assessing, and managing the environmental and social risks associated with the IPP project activity. In addition to the construction and installation activities of the solar PV plant, the IPP project will have associated facilities, transformers, access roads, water points (surface and ground water), camp, buffer zone, and so on.

2. **All specific locations for the implementation of the proposed REGREP MPA are not yet known; the final sites will be identified during the preparation of each MPA phase.** At this stage, the potential sites for the Metehara Solar IPP project (MPA Phase 1) and the Dicheto and Gad Scaling Solar IPPs (MPA Phase 2) are identified.

3. **For the Metehara Solar IPP (REGREP MPA Phase 1), EEP intends to enter into a PPA with EGP to construct and operate a PV power plant and installed capacity of 100 MW AC outside Metehara town in Fentale woreda.** The project will become the first utility-scale solar PV plant in Ethiopia connected to the national grid.

4. **The Metehara Solar IPP project involves the design, development, and operation of solar power PV plant that will occupy 250 ha of land at Gelcha kebele of Fentale woreda in Oromia National Regional State, immediately east of Metehara town and south of the main road between Addis Ababa and Djibouti.** The facilities for the project comprise a large number of PV modules (solar panels), inverters, transformers, and a new substation. The required infrastructure includes internal access roads to the different parts of the PV facilities, fencing of the site, and a CCTV system. Different light structures such as an operation and administration center, security posts, storage place for spare parts, and different commodities for the O&M teams (toilets, break room, and so on) will also be built.

5. **EEP has developed program-level instruments in the form of an ESMF and an RPF that have been prepared to establish a mechanism to assess and address environmental and social impacts of all projects under the REGREP MPA.** These program-specific instruments were disclosed in-country on April 23, 2019 and on the World Bank website on April 23, 2019.[46]

6. **Safeguards documents for the Metehara Solar IPP project were developed and disclosed in-country by EEP, with support from its transaction adviser, and will be finalized by the IPP project developer.** The ESIA and RAP were disclosed in-country on April 23, 2019 and on the World Bank website on April 23, 2019 and April 24, 2019, respectively.[47]

[46] *http://documents.worldbank.org/curated/en/docsearch/projects/P162607*
http://www.eep.gov.et/index.php?option=com_content&view=article&id=148:draft-resettlement-policy-framework-rpf-for-ethiopia-scaling-solar-and-wind-development-program&catid=12&Itemid=249&lang=en
http://www.eep.gov.et/index.php?option=com_content&view=article&id=144:draft-resettlement-policy-framework-rpf-for-ethiopian-scaling-solar-and-wind-development-program&catid=12&Itemid=249&lang=en
[47] *http://documents.worldbank.org/curated/en/docsearch/projects/P162607*

Key Issues

7. **The Metehara Solar IPP project will provide solar PV grid-based electrification to households and commercial enterprises and deliver positive environmental and social impacts.** Grid electricity service is expected to improve and replace the existing lighting systems that are either fossil fuel based such as diesel generators and kerosene lamps or woody biomass based that has a negative impact on the biophysical and social environment.

8. **Environment and social safeguards-related risks attributable to the Metehara Solar IPP project activities are considered Moderate because impacts are anticipated to have limited, site-specific, and manageable social and environmental impacts.** World Bank OP/BP 4.03 (Performance Standards for Private Sector Activities) will be applied to the Metehara Solar IPP project. Based on the experience of similar solar project activities, Metehara Solar IPP project is screened as a category B project. The proposed investment under this IPP project is expected to have limited environmental and social impacts, which are site specific, temporary, and localized with manageable impacts. Those impacts can be avoided or mitigated by adhering to applicable PSs, procedures, guidelines, and design criteria. The categorization is consistent with categorization of other similar IPP projects within the energy sector.

9. **Apart from the social and environmental benefits anticipated from the implementations of the IPP projects, the anticipated construction and installation activities under the Metehara Solar IPP project and the associated facilities would require land.** The IPP project will also generate potential adverse environmental and social impacts on the nearby biophysical and social environment. The anticipated negative impacts related to the IPP project activities could be due to construction and installation of solar PV grids, access roads, workers camp, distribution lines and networks, water points, buffer zone, and so on. These impacts include temporary air emissions (dust and vehicle emissions), noise related to excavation, land acquisition, clearing of vegetation, abstraction of water (surface and ground water), health and safety of workers and community members residing nearby, access to land and water sources, and generation of solid and liquid waste. Measures related to chance finds and cultural heritage will need to be well addressed in the safeguards documents to protect the cultural resources.

10. **As required by the GoE and the World Bank Group, an ESIA (including an ESMP) and a RAP were prepared to minimize and/or avoid the negative environmental and social impacts and to enhance the positive impacts that benefit the communities at large.** EEP has prepared an ESIA (including an ESMP) and a RAP for the Metehara Solar IPP project. The ESIA and RAP include identification and assessment of environmental and social risks and impacts and measures to avoid, mitigate, or offset the impacts identified, socioeconomic baseline, and impact assessment of the communities around IPP project site(s). The key aspects of the World Bank Group's PSs that are relevant to the IPP project design, construction, operation, and decommissioning are discussed in the ESIA. The ESMP will be updated and consulted upon before the start of civil works by the IPP, as appropriate.

11. **EGP will put in place an ESMS for the Metehara Solar IPP once the project company is established, before the start of any works.** Although EGP is committed to environmental sustainability and corporate social responsibility in all their operations, an ESMS is needed during construction and

http://www.eep.gov.et/index.php?option=com_content&view=article&id=143:ethiopian-renewable-energy-guarantee-program-regrep-environmental-and-social-management-framework-esmf-final-draft&catid=12&Itemid=249&lang=en
http://www.eep.gov.et/index.php?option=com_content&view=article&id=147:metehara-solar-power-pv-plant-environment-and-social-impact-assessment-final-report&catid=12&Itemid=249&lang=en

operation of the proposed activities under the Metehara Solar IPP project. EGP is adopting an integrated safety and environmental management system and applying the international standards ISO 14001 and OHSAS 18001. However, based on the World Bank requirement OP 4.03, a sound implementation of the ESMS is needed during construction and operation of the proposed IPP project activities to ensure that the required EHS measures are applied and that the related EHS risks are mitigated under the IPP project. Therefore, EGP is required to design and implement an ESMS in the establishment and operation of the IPP project facilities and comply with national and local permitting requirements, World Bank Group PS requirements, and the company's engagement with local communities regarding EHS performance. The system will define roles and responsibilities and other necessary elements (manual of procedures) to enable all operations to comply with Ethiopian laws and regulations and World Bank Group PSs and EHS guideline. Among other elements, the management system would include a policy, an updated ESMP, an emergency preparedness and response plan, an emission monitoring program, OHS, and an external grievance mechanism.

12. **Considering the significance and nature of the aforementioned impacts, all of the PSs are relevant for the Metehara Solar IPP project (REGREP MPA Phase 1):**

- PS 1: Assessment and Management of Environmental and Social Risks and Impacts
- PS 2: Labor and Working Conditions
- PS 3: Resource Efficiency and Pollution Prevention
- PS 4: Community Health, Safety, and Security
- PS 5: Land Acquisition and Involuntary Resettlement
- PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- PS 7: Indigenous People
- PS 8: Cultural Heritage

Environmental and Social Categorization Rationale

13. **This is a category B project according to the World Bank Procedure for Environmental and Social Review of Projects,** because a limited number of specific environmental and social impacts may result and can be avoided or mitigated by adhering to generally recognized PSs, guidelines, or design criteria.

Potential Environmental and Social Risks with Aligned PSs Applicable to the Metehara Solar IPP Project and Designed Mitigation Measures

14. **A detailed Environmental and Social Impact Assessment (ESIA), incorporating an Environmental and Social Management Plan (ESMP) and a Resettlement Action Plan (RAP), were prepared by qualified independent international consulting firms**. The ESIA and RAP were submitted to the Ministry of Water, Irrigation & Energy, approved on April 15, 2019 and disclosed in-country on April 23, 2019. The documents

are disclosed also on the EEP website.[48] In identifying, assessing, and managing environmental and social risks and impacts, the ESIA and the RAP take into consideration both national laws and regulations and the World Bank's Performance Standards. A site visit by the World Bank's environmental and social team confirmed that the ESIA and the RAP have adequately identified likely impacts and risks in the project's area of influence. The ESIA, ESMP, and RAP are designed at a level commensurate with the assessed risks.

15. **Environmental and Social Assessment and Management System.** As this is a greenfield project, the EGP currently has no specific ESMS in place for the construction or operation of the project. For its international operations, the company has a generic ESMS, which the EGP for each specific project will review, update, and adopt for the project. EGP has developed and adopted an integrated safety and environmental management system in accordance with the international standards ISO 14001 EMS and OHSAS 18001 for its international operations. It is structured on a risk-based assessment of project-related activities and tasks, identifying appropriate risk mitigations and management actions for each activity or task, as well as assigning responsibilities for implementation. It also includes a grievance tracking and management system. Enel disclosed that the Environmental Management System adopted by EGP, which was assessed in the new ISO 14001 certification, places sustainability at the center of environmental management, evaluating not only the actions that aim to protect the ecosystem, but a company's attention to the interests and needs of administrators, stakeholders and local authorities with respect to production sites. In its policy, EGP considers compliance with the standards and the laws in force, in each of the countries in which it operates, a prerequisite for successful implementation of the Integrated Management System.

16. **EGP is required to develop and implement the ESMS for construction and operation of this project suitable to its scale and meeting the requirements of applicable Ethiopian laws and WB Performance Standards.** The ESMS will include policies, plans, manuals and procedures aligned with ISO 14001. The ESMS will incorporate the Environmental and Social Management Plan (ESMP) developed for the project as well as aspects related to construction covered in the WBG General Environmental Health and Safety (EHS) Guidelines. The ESMS will be updated to reflect the Equator Bank Performance Standards. The ESMS, as noted above, identified responsibilities for managing identified risks for each of the specified tasks and activities. This has allowed the project enterprise to identify training needs for all staff, either at the "awareness" or "competency" level and develop training schedules. EEP with local authorities will complete a security risk assessment before construction begins. Mitigation measures to be formulated accordingly will be included in the Community Health, Safety and Security Action Plan, and resources will be made available for implementing these measures. All components of the RAP and ESMP will be detailed and updated as necessary.

17. **Regarding the resettlement and livelihood impacts, social and economic surveys were carried out on 19 March – April 4, 2019 to establish the baseline data. April 4, 2019 is therefore considered the cut-off-date, which has been disclosed to the local community**. Households moving into the project area

[48] *http://www.eep.gov.et/index.php?option=com_content&view=article&id=148:draft-resettlement-policy-framework-rpf-for-ethiopia-scaling-solar-and-wind-development-program&catid=12&Itemid=249&lang=en*
http://www.eep.gov.et/index.php?option=com_content&view=article&id=147:metehara-solar-power-pv-plant-environment-and-social-impact-assessment-final-report&catid=12&Itemid=249&lang=en
http://www.eep.gov.et/index.php?option=com_content&view=article&id=144:draft-resettlement-policy-framework-rpf-for-ethiopian-scaling-solar-and-wind-development-program&catid=12&Itemid=249&lang=en
http://www.eep.gov.et/index.php?option=com_content&view=article&id=143:ethiopian-renewable-energy-guarantee-program-regrep-environmental-and-social-management-framework-esmf-final-draft&catid=12&Itemid=249&lang=en

after the cut-off-date are not eligible for project benefits. In case households claim to have been left out from the census prior to the cut-off-date, they have to raise their case via the grievance redress mechanism.

18. **Stakeholder Engagement Plan.** The development of the proposed solar PV facility will require the involvement of a range of stakeholders in project planning, land acquisition, grievance management, construction works, and operation and maintenance. In addition, the implementation of the proposed environmental and social mitigation measures will require a multi-sectoral approach to be able to achieve the intended objectives. For this reason, a stakeholder engagement plan has been prepared as a guiding framework for ensuring proper coordination and management of all the stakeholder interests and concerns. The stakeholder engagement strategy will apply to the planning, construction and operation phases and to all project components.

19. **Grievance Redress.** Consultations with the affected communities in the project site revealed that community-based systems for grievance redress are already existing. These structures are through the Kebele leadership and council of elders. However, not all cases will be resolved within the traditional system; so, judicial system will be used as a last resort for the unresolved cases. Priority will be given to the community-based approach, and efforts will be made to ensure that all complaints are resolved at that level. A Project GRM with a register of resettlement/compensation-related grievances and disputes will be established, with well-defined conditions of access to this register prior to commencement of compensation payments and civil works construction. The GRM will also address grievances that may arise such as access to resources and community benefits or gender-based violence. On the other hand, for workers participating in project-related activities, the contractor will provide a grievance mechanism for workers to raise reasonable workplace concerns and ensure that all workers are informed about the grievance mechanism and that it is accessible. EGP will provide respective resources to ensure functioning of the Project GRM. Statistics on the GRM will be provided as part of the quarterly progress reporting.

PS 2: Labor and Working Conditions

20. **Key issues.** During construction, EGP's contractor will employ approximately 500-700 personnel at peak construction period comprising both direct and indirect workers. A permanent staff of 70 people are expected during the operation of the power plant. EGP will develop an Employment Action Plan in line with the provisions outlined in the ESMP to maximize local participation in the direct and indirect employment opportunities provided by the project during construction, operation and decommissioning phases. The plan shall be in compliance with national labor regulations including proclamation No. 377/2003: Labor Proclamation and PS2 requirements. A Code of Conduct shall be prepared covering the main rules of interaction with local communities and the rules of conduct in case of conflict situations, including prevention and strong sanctions on gender-based violence (GBV), sexual abuse and exploitation of child labor in the workplace, especially related to project affected communities. A Workplace Health and Safety Plan will be developed consistent with PS 2 and relevant guidelines, covering all workers and subcontract labor involved in the project for the construction and operation phases. EGP will contract an occupational health and safety team to assess occupational health and safety risks at the project site and evaluate compliance with occupational health policies and health assessments periodically. The OHS team will have the mandate to stop site-specific works at any time in case of immediate risk of harm towards workers, community, or nature.

21. **Incidents reporting and investigations.** EGP and the Contractors are required to identify, investigate, record and report all incidents including accidents, near misses, diseases, and environmental incidents. The findings and conclusions of every investigation shall be reported to the site manager without delay. The contractor shall notify the site manager immediately when any accident occurs whether on site or off site in which the contractor is directly involved which results in any injury to any person whether directly concerned with the site or a third party. Such initial notification may be verbal and shall be followed by a written comprehensive report within 24 hours of the accident. The purpose of this requirement is to comply with PS 2 and to determine the cause of the accident and make recommendations to prevent further re-occurrence. All reports of injury must be filed.

PS 3: Resource Efficiency and Pollution Prevention

22. **Water and energy use.** The project will make arrangements for water supply that are independent from the public utility in order to avoid exerting additional pressure on such services. The project's water storage facility will be designed to minimize the loss of stored water to evaporation and percolation. The design shall include recognized international industry practice as found in relevant WBG EHSGs. Another potential source of water pollution is from the workers' camp. It will generate sanitary effluents which are potential sources for microbiological and organic pollution of surface and ground water. Details will be outlined in the site-specific ESMP which shall follow the guidelines outlined in the ESMP. Energy for the construction phase of the project will be supplied by diesel/petrol generators. During operations, the energy supply will be drawn from the energy generated by the project.

23. **Contaminations.** The project will ensure that any localized areas of soil contamination with heavy metals and other chemicals will be processed and properly disposed of in a secure storage facility, as described in the ESIA. In addition, the project should make arrangements for water supply that are independent from the public utility in order to avoid exerting additional pressure on such services and may look additional alternative water sources from nearby Awash River.

24. **Emissions and noise pollution.** The Metehara Solar IPP is expected to mitigate about 22,548 tons of CO_2 over its lifetime at an average of about 1,074 tons per year. Dust emissions may emerge as the scarcity of water discourages widespread use of water in dust control and will be closely monitored. Noise pollution is expected from the project during construction and operation phases and measures to minimize noise impacts have been identified in the project ESMP. During operations, available data from similar projects indicates noise levels at the source of up to 60dB. With attenuation, noise impacts from operations are expected to be minimal.

25. **Waste Management.** Waste shall be removed on a regular basis in order not to store more than 100 m3 of non-hazardous waste and no more than 20 m3 of hazardous waste, and if not exceeding this quantity, no more than 3 months for hazardous and 6 months for non-hazardous waste. Broken PV panels must be segregated and collected as waste of electric and electronic equipment (WEEE) paying particular attention to avoid dispersion in the environment of any fragments.

26. **Decommissioning.** Decommissioning and removal of all equipment and materials will restore the affected land to its pre-project state. A significant quantity of material needs to be disposed of at the end of the life of the modules, and EGP will prepare a decommissioning plan before the start of the decommission operations, taking the applicable legislation and baseline conditions prevailing at that time into account.

PS 4: Community Health, Safety, and Security

27. **Key issues**. The project will require the transportation of construction materials and equipment, fuel, reagents, and other supplies from Djibouti to the project site. Increased traffic associated with the project, in particular during the construction phase, which may pose some safety risks to the community. The local community will be exposed to the risk of traffic accidents involving project vehicles and trucks on public roads. Exposure to dust, water related diseases, malaria, HIV and other sexually transmitted diseases due to labor influx (in-migration of workers and job seekers) pose health risks to communities. Gender-based violence is a risk in the project context; of specific concerns are labor influx and increased local income differences in case male workers are hired over-proportionally.

28. **A Community Health, Safety and Security Action Plan will be drafted, including the following specific objectives/components:** (i) designing and implementing a HIV/AIDS strategy; a road safety strategy; hazardous material management strategies; and a plan for emergency response; (ii) developing and improving health services and health indicators in the project area in connection with the Community Action Plan; and (iii) ensuring the project facilities are operated in accordance with relevant occupational health and safety guidelines. The Community Health, Safety and Security Action Plan will also establish a system which ensures proactive engagement in the prevention of GBV (including appropriate setup of workers camps and the signing of Codes of Conduct by project staff and workers) as well as availability of referral services in case of raised grievances.

29. **GBV/SEA Risk Assessment Result.** Based on the proposed project context (Metehara), Gender Based Violence (GBV) Risk Assessment Tool, the overall GBV risk is found low (project site is located three kms away from the Metehara town within proximity of a major Ethiopia-Djibouti road corridor and supervision can be effective in project foot print). EGP will put in place mechanisms to prevent and minimize GBV and Violence Against Children (VAC). Such a mechanism should include working with the Contractors to prevent sexual harassment in the workplace and GBV and VAC in the project-affected communities (for example, through Codes of Conduct), strengthening grievance redress and other monitoring mechanisms to ensure safe and ethical reporting systems to alert cases of GBV and VAC and assure them to access adequate response. The Gender Based Violence (GBV) Risk Assessment result will be updated when the situation warrants. A GBV action plan will be developed commensurate to the current risk level.

30. **Security Personnel.** Site security will be managed by a private security firm who will provide trained, unarmed security personnel. EGP will assess the risks posed by its security arrangements to communities near the project site and ensure that the security contractor operates in a manner which meets the requirements of this Performance Standard. In making such arrangements, EGP and its EPC contractor will be guided by the principles or proportionality and good international practice in relation to hiring, rules of conduct, training, equipping and monitoring of such workers, and by applicable national law. Security arrangements shall comprise but not be limited to necessary watchmen and other security staff for access control, site guarding and traffic regulations. The site shall be restricted by fencing or otherwise secured to prevent illegal or unauthorized access. Access control to the site shall be arranged to ensure that all personnel can be accounted for. The security measures and operation shall be in accordance with the Voluntary Principles on Security and Human Rights.

31. **Energy Services for the surrounding community.** As part of the Community Development Plan developed in the project's RAP, PAPs and local authorities requested electrification of their Kebele and

project affected communities in particular. In this regard, The RAP recommended that GoE can and shall do two things in response to rural electrification demands of project affected communities. First, appreciate the community demand for rural electrification and give a priority to these communities during separate and on-going rural electrification programs (e.g., UEAP, Light for All). Second, even though, it is difficult to speculate the time when the rural electrification programs mentioned above would reach the project woredas, as an interim solution, EGP will provide for the procurement and distribution of basic solar lighting kits (two or three light points with a phone charging option) to all PAPs in all project implementation locations.

PS 5: Land Acquisition and Involuntary Resettlement

32. **Land use.** The proposed site (250 ha) has 38 residential structures along its north boundary and in the south-east corner. The land is used for rain-fed farming (mainly teff) and livestock grazing (cattle, sheep and goats) in the rainy season. It encompasses 217.7 ha of farm land, and 32.17 ha of grazing land. This land has not been cultivated for at least two years because of the persistent drought conditions. This has contributed to the invasion of Prosopis juliflora, an exotic weed that has formed almost impenetrable thickets in parts of the project site. One grave/ burial place will be affected as a result of the project's land take. A short section of a 15-kV distribution line from Metehara substation (2.2 km north of the site) to Metehara Sugar Factory (1.5 km south of the site) intersects the project site in the north-west corner near Metehara town. The project area may also restrict access to the irrigation waste water for other pastoralists from other Kebeles.

33. **Resettlement Action Plan (RAP).** Which also incorporates livelihood restoration plan, has been prepared by EEP. Results of the census enumeration and property registration surveys revealed that a total of 38 residential houses and related structures with an approximately estimated 228 people are currently located within the project site will have to be relocated/resettled. Out of the 38 households, eight households are physically displaced (lose only their houses) and 30 households are displaced both physically and economically. In addition, out of the total 562 households, 524 households who live outside the project footprint but have livelihood sources, will solely be displaced economically. Based on results of the census enumeration (RAP) a total of about 199 PAPs are identified as vulnerable groups in all project affected households. Resettlement principles, policies, procedures, and rates were determined by a multidisciplinary team of the Woreda Valuation Committee (VC). Resettlement options/packages were discussed and agreed on with VC. The project affected house owners will be provided with new houses on residential plots at the designated resettlement sites. A title to these plots will be given in the form of legal document.

34. **Livelihood restoration**. Based on the asset inventory and compensation data from the Rural Land Administration and Use Office a livelihood restoration plan including a target budget has been prepared and integrated into the RAP. The underlying principle is the Bank's requirement of livelihood restoration and measures to be implemented by EGP are scope-based. Accordingly, the livelihood restoration activities shall be continued until it has been verified that the livelihoods of all displaced persons have been restored to pre-project levels.

35. **Monitoring mechanisms.** As a basic requirement, it is expected that the contractors shall self-monitor their compliance with the ESMP and their EHS Plan. The contractors will perform routine monitoring inspections using pre-established checklists and prepare monthly reports to the EGP's Environmental and Social Management Unity (ESMU) describing the implementation of the mitigation

measures, including key performance indicators, as well as any deviations, incidents or accidents and corrective measures taken. When a non-conformance is detected and is not, or cannot be, immediately resolved, then a corrective action process will be initiated by the contractor. On completion of the corrective or preventive action, EGP's Environmental and Social Management Unit (ESMU) will confirm and record all the necessary details. A Valuation Committee (VC) will be setup which will involve in internal monitoring and A Panel of Experts (PoE) will be formed to advise the project enterprise on the livelihood restoration strategies and the resettlement action plan, and to monitor the implementation of the resettlement and livelihood restoration strategies for external monitoring. In line with the Project Agreement with the World Bank, EGP will report any significant environmental or social incident within the timeframe agreed in the agreement.

36. **Community development efforts.** EGP is committed to provide social and physical infrastructure at resettlement sites not worse than the existing ones, and possibly better. Also, HIV/ AIDS awareness and literacy programs already started are appreciated by the project affected people. Community development strategies will be developed through needs assessment and communities' participation. Water supply and sanitation facilities for the new resettlement sites will significantly improve the living conditions of the project affected people. In addition to water, education is among the priorities.

PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources.

37. **Land use**. The project is located in Oromia region immediately east of Metehara town in the rural areas of Gelcha kebele, Fentale woreda. There are no dominant landscape features within the project boundaries. The only view points from where the whole site can be observed are on the slopes of Mount Fentale with its summit located about 8 km to the north. The vegetation originally consisted of grassland with scattered trees but has in recent years been invaded by the exotic Prosopis juliflora forming almost impenetrable thickets in parts of the project site. As per the site assessment and consultation with local authorities, there are no identified ecologically sensitive areas or any protected area with high biodiversity value such as, wetlands, riparian zones, undisturbed natural forests and important wildlife parks and wildlife corridors that would be affected by the proposed solar power project.

38. **Water resource.** Lake Beseka, located less than 1 km west of the project site, is a saline lake i.e., 10.7 dS/m. It has grown significantly in the past half century, from 3 km^2 in the 1950s to more than 40 km^2 at present. The reason behind this growth has been attributed to tectonic processes and inflow from irrigation canals and rain water runoff. The main source of water for irrigation and drinking in Metehara is the Awash River located 2.5 km south of the project site. It originates west of Addis Ababa and flows for about 1,200 km before emptying into a chain of interconnected lakes on the border with Djibouti. The Awash basin is thus the drainage basin which has no outflow but converges into lakes that equilibrate through evaporation. The river is affected by water abstraction for irrigation and by pollution, mainly from industries in the upper catchment and also from Metehara Sugar. The water supply for Metehara town is sourced from the Awash River, and local herders from around the project site also take their livestock to the river for drinking. All surface water in the project area is seasonal. Aquatic life, therefore, consists predominantly of species that emerge, grow, and reproduce swiftly upon commencement of the first rains, but then quickly form resistant eggs, seeds, or other life stages towards the end of the short rainy season that remain dormant until the next rainy season. Because of the high clay content in the soils, small, perched shallow aquifers are present in the project area. Drainage canal has been excavated from Lake Beseka to the Awash River in order to limit the rise in lake water level. There are no permanent water bodies within the boundaries of the project site.

39. **Wildlife biodiversity.** With the proximity of the project site near a large urban setting, wildlife biodiversity is generally low, decreasing and stressed. On the other hand, being close to a biodiversity-rich national parks, the project site could observe occasional incursion of wildlife. The Awash National Park is categorized as an "Important Bird and Biodiversity Area (IBA) in Danger" due to human/livestock encroachment into the park, pollution of the Awash River and Lake Beseka, and the presence of the highway road and railway which bisect the park. Based on the IBA criteria assessment done in 1996 (Bird Life International 2018), the Awash National Park IBA has 53 IBA trigger bird species, including one endangered (EN) bird species (Yellow-throated Seedeater Crithagra flavigula) and five near threatened (NT) species. While the park is essentially an IBA by virtue of its protected area status, it also fulfils standardized criteria including the presence of biome assemblages and threatened species within its bounds. With the proximity of the park to the project site, it is presumed that threatened fauna shares the similar ecosystem. Awash and its environs are categorized as Somali-Masai Biome and the birds found in this kind of biome would be the most likely to cross over and use the similar environment found at the project site.

40. **The project site is outside the IBA and the national park.**[49] However, as the project is 3.5 km away from the national park, it is a borderline case to be categorized as a critical habitat. The consultation with Ethiopian Wildlife and Natural History Society (EWNHS) informed that IBA also marked the surrounding area out of the IBA boundary with an interest to conservation in relation with the Park and Beseka Lake in which many species of conservation are found.

41. **EGP is required to conduct a baseline avifauna survey/ assessment during the preliminary project design mainly at the rainy season (July-August) and bird migration period (September) to serve as a benchmark for monitoring and to give a guide on the development of bird management plan before the construction commences, which also will continue throughout for the project operation.** EGP shall also apply all the mitigation options indicated in the ESIA to reduce the impact on avian biodiversity and enhance conservation activity. Based on the WB PS 6 and IFC GN 6 (Biodiversity Conservation and Sustainable Management of Living Natural Resources), the assessment on risks and impacts during the project initial and construction stage which EGP is required to implement should be ongoing as part of the Environmental and Social Management System (ESMS). EGP should refer to good practice guidelines and other relevant reference documents on biodiversity baselines, impact assessment, and management. Flexibility should be built into the EGP's ESMS so that the mitigation and management approach can be adapted based on its performance over time. As the project is located close to critical habitat, i.e. IBA in this case, EGP is required to identify competent professionals who are able to be involved in the bird impact assessment and propose appropriate mitigation and management options.

PS 7: Indigenous People

42. Based on the information from the ESIA and RPF for the Metehara Solar IPP project, the primary ethnic groups in Gelecha kebele (where the IPP project activities will be implemented) are the 'Karrayu' and 'Ittu' Oromos. As per the agreement of the Ethiopian Government with the World Bank joint screening in 2013, the 'Karrayu' ethnic group is recognized under the category of indigenous/underserved people, meeting the criteria of World Bank PS 7, and thus requires the application of this PS to the proposed Metehara Solar IPP project. The RAP therefore includes the documentation of the process of Free Prior

[49] Based on the updated assessment from Birdlife international data zone 2013, the boundary of IBA was identical with the boundary of Awash National Park (75,240 ha) and the project site is outside of this area.

and Informed Consent (FPIC). Site-specific social impact assessment and consultations conducted as part of the ESIA, as well as the identified mitigation actions, will be incorporated in the project design as a Social Development Plan. This plan will ensure that the activities and the implementing IPP (EGP) will respect the dignity, rights, and culture of groups meeting the PS 7 requirements and ensure that these people participate and benefit from the project in a sustainable manner.

43. **Free Prior and Informed Consent (FPIC).** The project applied the standard of FPIC to the Metehara Solar PV Plant project activities in the design and implementation stages as they result in adverse impacts on lands and natural resources that are owned and used by people who meet the criteria of WB PS 7. FPIC is also applied as project activities result in the relocation of these groups from lands of the groups in question. FPIC has been established in any given locality through good faith negotiations between EEP and affected communities. The FPIC process has resulted in a documented agreement reflecting the outcome of the negotiation. The FPIC process has been carried out concurrently with the development of the formalized Community Development Plan and other mitigation and compensation packages.

PS 8: Cultural Heritage

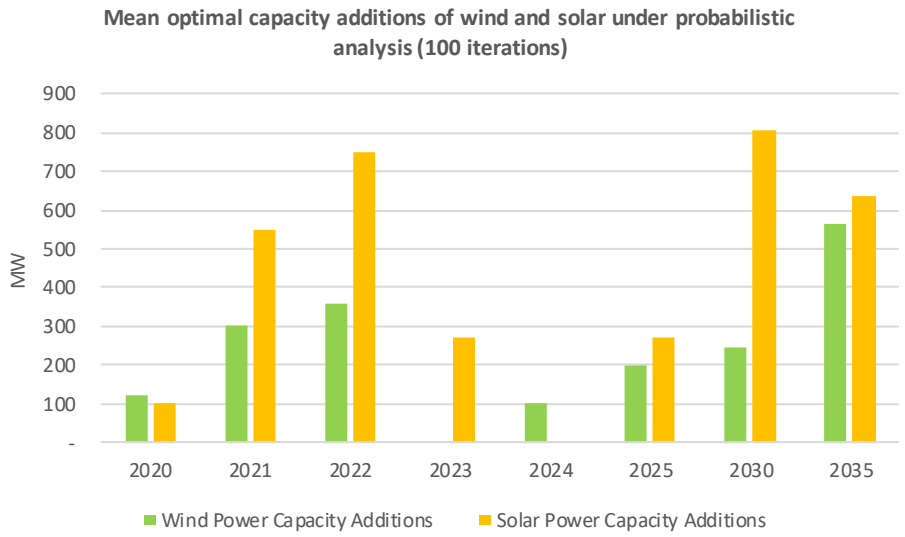
44. **The natural features in Awash National Park as those heritage resources nearest to the project site**. These include Mount Fentale, the Awash River gorge and waterfalls, and the hyena cave on the foot southern of Mount Fentale. Lake Beseka is also considered as a unique natural feature. The inventory of affected property during the resettlement action plan study has identified one graveyard site (with only one grave) which potentially require the relocation or removal. Iterative consultations have been held with the family members of the grave yard and a negotiated agreement reached. The negotiation with the family members has considered earlier experiences of grave yard removal in the project area. The RAP indicated a negotiated compensation budget with the family members that is estimated considering (i) the costs for removing the grave stones; (ii) preparing other burial-ground; (iii) transferring and relocating the corpse; and (iv) conducting religious and cultural ceremonies. The procedures followed are consistent with Ethiopian Legislation and WB PS 8 provisions and in consultation with the family members. “Chance Find Procedures” of WB PS 8 will apply during the construction phase and will be incorporated in contractor and subcontractor bidding documents.

ANNEX 5: MPA PROGRAM ECONOMIC AND FINANCING ANALYSIS

Economic Analysis

1. Under the least-cost expansion of generation capacity in Ethiopia until 2025, about 1,900 MW of new solar and about 1,100 MW of new wind capacity can be added. There is considerable uncertainty regarding the initiation and completion of several large hydropower projects that are at different stages of procurement and development in Ethiopia. Delays in the projects could result in unmet demand while completion of large generation capacities ahead of a comparable increase in demand could result in stranded IPP assets with substantial payment obligations. As solar and wind IPP projects can be established at relatively smaller scales in shorter time frames, they provide considerable flexibility in matching supply and demand. This is illustrated in a World Bank analysis of the least-cost expansion of the generation capacity in Ethiopia, which simulates 100 scenarios with uncertainties in domestic and exports demand growth, hydrology, commissioning of large hydropower projects, and capex of solar, wind, and new hydro, and indicates that a mean of 1,942 MW of new solar and a mean of 1,081 MW of new wind capacity can be added in the generation mix between 2020 and 2025 to meet rising demand (Figure 5.1).[50] The proposed pipeline of solar and wind IPP projects under REGREP falls well within the mean addition suggested by the least-cost expansion plan.

Figure 5.1. Outcome for Wind and Solar Capacity Additions from Probabilistic Least-Cost Generation Expansion Model for Ethiopia



Source: World Bank staff analysis.

2. Compared to the counterfactual power generation mix, the series of IPP projects to be supported under REGREP have a positive NPV and offer robust EIRR. To evaluate the economic value of the pipeline of IPP projects under REGREP, the cost of power generation from these IPP projects was compared to the cost of generation from the expected capacity addition to the power mix in Ethiopia between 2020 and

[50] Further, according to the Power Africa Grid Management Support Program System Integration Study also, the optimal supply expansion plan includes the addition of about 1,950 MW of new solar and about 544 MW of new wind power capacity until 2025. REGREP supported pipeline falls well within this range.

2025, excluding the IPP projects supported under REGREP. The opportunity cost of generation was calculated as the capacity-weighted average cost of generation by source type (Table 5.1). The CO_2 mitigation benefits, which are modest owing to a fully non-fossil generation counterfactual fleet, were also accounted for by multiplying avoided CO_2 emissions from counterfactual sources of power with the low and high estimates of the shadow price of carbon according to the World Bank estimates.[51] Compared to the opportunity cost of power of US$0.065 per kWh, the NPV of the power from the Metehara Solar IPP project is estimated at US$24.5 million, with an EIRR of 9.8 percent (Table 5.2.). Accounting for the GHG mitigation benefits increases the NPV of the Metehara Solar IPP project to US$25.1 million and US$25.6 million under the low and high estimates of the shadow cost of carbon, respectively. The NPV of power from the series of IPP projects is US$123.1 million without GHG mitigation benefits and increases to US$130.6 million and US$138.1 million accounting for GHG mitigation benefits under the low and high cost scenarios. The respective EIRRs are 7.5 percent, 7.6 percent, and 7.6 percent (Table 5.2.). The EIRR of the series is lower than that of the Metehara Solar IPP project as the capital and O&M costs per MW for wind power are more than twice that of solar power and are not completely compensated by a relatively higher capacity factor of 35 percent versus 20 percent.

Table 5.1. Expected Cost of Power Generation under the Counterfactual

Type	Expected Capacity Addition (MW)	Share in the Added Capacity (%)	Expected Cost of Power Generation (US$ per kWh)
Hydropower	11,338	90.5	0.064
Geothermal	352	2.8	0.077
Wind (excluding REGREP)	340	2.7	0.086
Biomass	496	4.0	0.055
Weighted average cost of power under the counterfactual			**0.065**

Table 5.2. NPV and EIRR of the IPP Projects Supported under REGREP

	NPV (US$, millions)			EIRR		
Comparison	**Avoided Cost of Power**	**CO_2 Co-benefits (low)**	**CO_2 Co-benefits (high)**	**Avoided Cost of Power (%)**	**CO_2 Co-benefits (low) (%)**	**CO_2 Co-benefits (high) (%)**
Metehara	24.5	25.1	25.6	9.8	9.9	9.9
Series	123.1	130.6	138.1	7.5	7.6	7.6

3. The economic value of the Metehara Solar IPP project is positive and robust to several scenarios of costs and benefits. Table 5.3. lists the baseline assumptions underlying the economic analysis of the Metehara Solar IPP project. A discount rate of 6 percent is used according to the World Bank's economic analysis guidance note. The capital cost is assumed as US$0.8 million per MW and annual O&M cost are assumed as US$21 per kW per year. The incremental costs associated with grid integration and intermittency are assumed to be negligible. The opportunity cost is obtained from the cost of generation from power plants expected to be commissioned between 2020 and 2025, as the capacity-weighted

[51] For more information, see 'Guidance Note on Shadow Price of Carbon in Economic Analysis'; http://documents.worldbank.org/curated/en/621721519940107694/Guidance-note-on-shadow-price-of-carbon-in-economic-analysis.

average cost of generation by sources type. Table 5.3. also lists the values of individual assumptions (ceteris paribus) at which the combined NPV of the project turns negative.

Table 5.3. Assumptions for Economic Analysis of Metehara Solar IPP Project

	Baseline	Threshold
General		
Project lifetime	20 years starting 2020	n.a.
Discount rate (%)	6	10
Costs		
Capital cost	US$0.8 million per MW	US$1.1 million per MW
Annual O&M cost	US$21 per kW per year	US$44 per kW per year
Benefits		
Opportunity cost of power	US$0.065 per kWh	US$0.05 per kWh
Capacity factor (%)	20	16

4. The economic value of the overall series is also positive and robust to various scenarios, with a higher sensitivity to the discount rate, owing to higher up-front investment in wind power plants. Additional assumptions for the economic analysis of the series are outlined in Table 5.4. With these assumptions, the NPV and EIRR of the series of IPP projects are US$123 million and 7.5 percent, respectively (Table 5.1). Importantly, the NPV of the series turns negative at and above a discount rate of 7.5 percent. This is likely because of the higher up-front investment requirement of wind power plants compared to solar power plants.

Table 5.4. Assumptions for Economic Analysis of the Series of IPP Projects Supported by the Program

	Baseline	Threshold
General		
IPP project commissioning	Solar: One year after bid award Wind: Two years after bid award	n.a.
Discount rate (%)	6	8
Costs - Solar		
Capital cost	US$0.8 million per MW	US$1 million per MW
Annual O&M cost	US$21 per kW per year	US$37 per kW per year
Costs - Wind		
Capital cost	US$1.9 million per MW	US$2.5 million per MW
Annual O&M cost	US$46 per kW per year	US$96 per kW per year
Benefits		
Opportunity cost of power	US$0.065 per kWh	US$0.059 per kWh
Capacity factor -Solar (%)	20	17
Capacity factor -Wind (%)	35	25

Financial Analysis

5. **The series of IPP projects will offer a positive NPV if the weighted average PPA tariff of the solar and wind IPPs is lower than the average cost of power to the utility from the power plants to be added to the mix until 2025, estimated as US$0.072 per kWh.** Because the solar and wind IPP programs invite commercial bidders in a transparent and competitive manner, each power plant is assumed to be financially viable to the bidders at their bid price. To analyze the financial benefit of the guarantee program, it is more relevant to assess whether the series of IPP projects make financial sense for the government-owned utility compared to the average cost of power from the alternative sources added to the power mix during the same period. The baseline PPA tariffs for solar and wind power have been assumed as US$0.06 per kWh and US$0.08 per kWh, respectively. The tariff is consistent with recent auction results observed in other SSA countries. Accounting for estimated PPA tariffs from IPPs (excluding REGREP-supported IPPs), instead of the economic cost of power, results in an estimated capacity-weighted cost of generation by source type of US$0.072 per kWh (see Table 5.5.). Further, a discount rate of 6.5 percent is assumed, which is the current yield on 10-year US$-denominated bonds issued by Ethiopia. Under these assumptions, the NPV of the Metehara Solar IPP project and the whole series are mentioned in Table 5.7.. While the NPVs under baseline assumptions are positive, they strongly depend on the IPP-PPA tariffs as illustrated by the threshold values for different assumptions (ceteris paribus) in Table 5.6..

Table 5.5. Tax and PPA Tariff-adjusted Average Cost of Power Generation under the Counterfactual

Type	Share in the Added Capacity (%)	PPA Tariff-adjusted Cost of Power (US$ per kWh)
Hydropower	90.5	0.070
Geothermal	2.8	0.089
Wind (excluding REGREP)	2.7	0.080
Biomass	4.0	0.100
Weighted average cost of power under the counterfactual		**0.072**

Table 5.6. Assumptions for Financial Analysis of the IPPs Supported Under REGREP

Assumptions	Baseline	Threshold
PPA tariff for the series of solar power plants	US$0.06 per kWh	US$0.07 per kWh
PPA tariff for the series of wind power plants	US$0.08 per kWh	US$0.10 per kWh
Opportunity cost of power	US$0.072 per kWh	US$0.066 per kWh
Discount rate (coupon rate of 10-year US$-denominated international bond issued in 2014) (%)	6.5	n.a.[a]

Note: a. As long as the weighted average PPA tariffs are lower than the cost of emergency power or the export tariffs (as they are in the baseline), the discount factor does not play a determining role.

Table 5.7. NPV Gain of the Metehara Solar IPP and the Series of Solar and Wind Power Plants

	NPV (US$, millions)
Metehara Solar IPP project	22.3
Complete series of IPPs supported by REGREP	102.5

Climate Co-Benefits

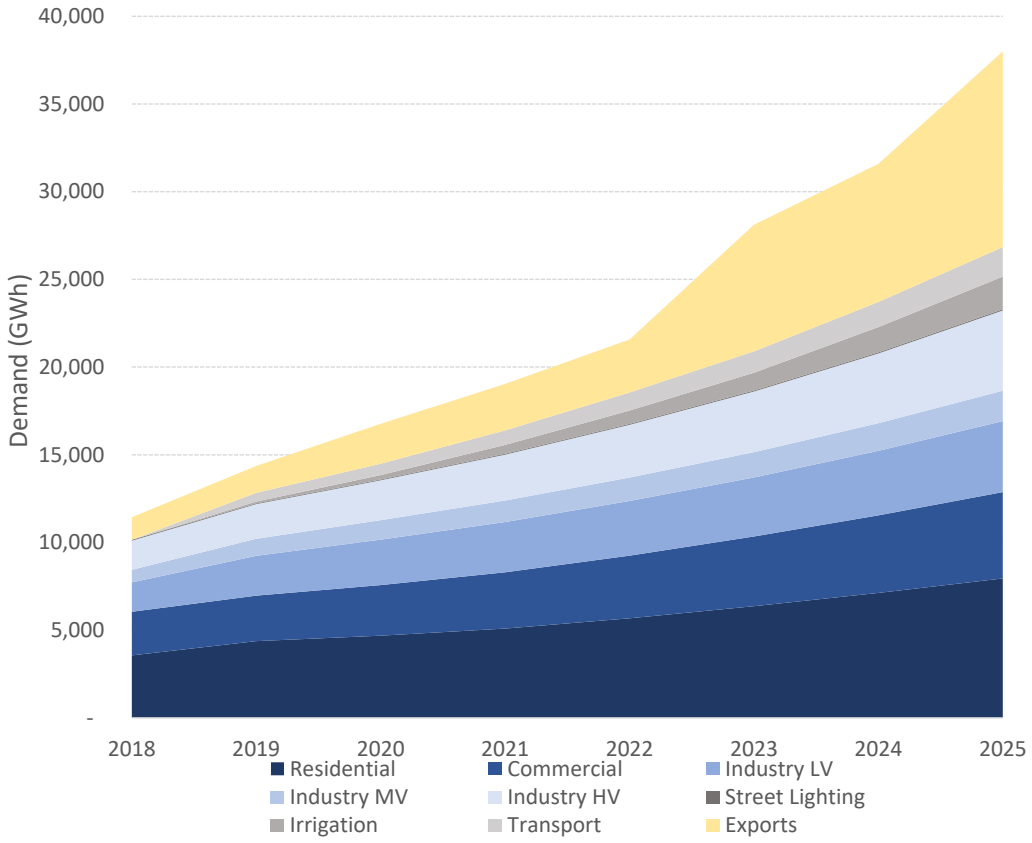
6. **GHG emission mitigation impacts.** Because the generation sources added to the power mix in Ethiopia under the counterfactual are non-fossil, the GHG mitigation is relatively modest. The Metehara Solar IPP project will mitigate about 22,548 tons of CO_2 over its lifetime at an average of about 1,074 tons per year, and the series of IPP projects under REGREP will mitigate about 320,273 tons of CO_2 over their lifetime at an average of about 12,811 tons of CO_2 per year.

Sector Economic Projections: Supply-Demand Balance

7. **Driven by access expansion, industrialization, and exports, the electricity demand in Ethiopia is poised for rapid growth.** Electricity demand in Ethiopia is expected to grow at an average of about 17 percent between 2018 and 2025, with rapid industrialization and rising exports driving the bulk of the demand. Overall, demand is expected to more than triple from about 11,000 GWh in 2018 to about 37,000 GWh in 2025 (Figure 5.2). These demand estimates are based on the base case forecast from the Power Africa Grid Management Support Program System Integration Study, which are the latest officially endorsed demand forecasts for Ethiopia. The high voltage industry demand and exports projections have been adjusted to relatively modest growth rates compared to the GMSP projections: high voltage industry demand is assumed to grow at an average of 15 percent per year compared to 35 percent in GMSP, export peak demand is assumed as 500 MW instead of 1,000 MW assumed in GMSP, and export peak demand for Kenya is expected to gradually grow from 100 MW in 2020 to 400 MW in 2023 as against starting from 400 MW in 2020 in GMSP.

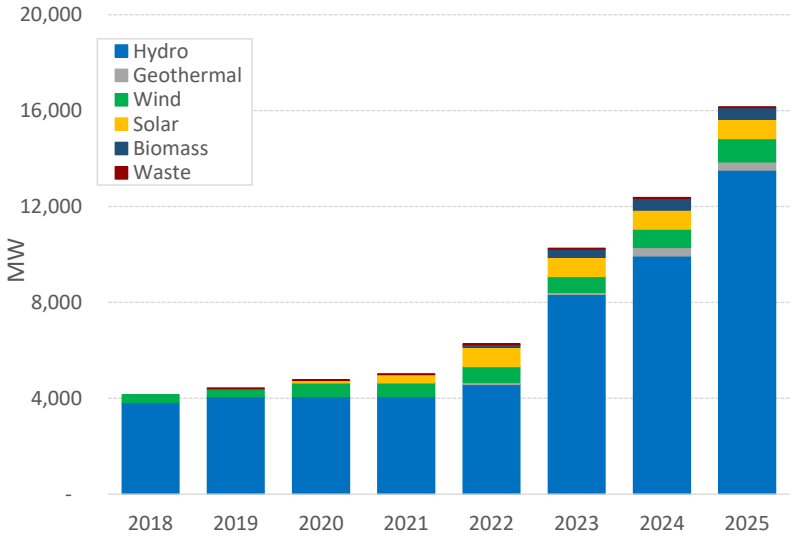
8. **The generation capacity in Ethiopia is expected to grow by about fourfold between now and 2025, with the growth driven by both government-owned and independent power plants.** If about 80 percent of the total capacity of the ongoing large hydropower projects is commissioned by 2025, new generation capacity addition between 2018 and 2025 may add up to about 12,000 MW (Figure 5.3). The solar and wind IPPs supported under REGREP also constitute part of the overall 1,440 MW pipeline of solar and wind capacity generation expansion. Further, about 350 MW of geothermal capacity and about 500 MW of biomass capacity is also expected to be brought in the power mix. Notably, the power generation mix in Ethiopia is opening to the private sector and IPPs are expected to contribute about 20 percent of the installed capacity as well as generation by 2025 (Figure 5.4).

Figure 5.2. Projected Electricity Demand Growth



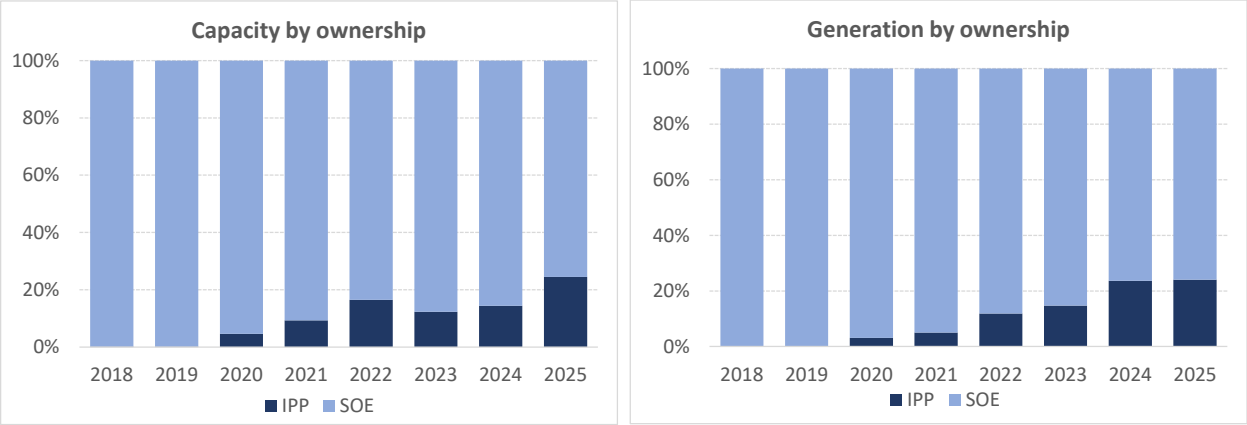
Source: World Bank staff estimates based on Ethiopia GMSP.

Figure 5.3. Projected Growth in Installed Electricity Generation Capacity



Source: World Bank staff estimates based on data provided by EEP/EEU.

Figure 5.4. Installed Capacity and Electricity Generation by Ownership



Source: World Bank staff estimates based on data provided by EEP/EEU.

9. **The renewable energy IPP program supported by REGREP will diversify sources of power supply and mitigate risks of supply shortages compared to demand and export commitments, which may occur if commissioning of large hydro plants is delayed and in periods of drought.** The demand-supply balance in Ethiopia is expected to be very tight in the short to medium term and the dominance of hydropower could result in large deficits under dry weather conditions and/or if the major hydropower projects are delayed. In that context, the REGREP-supported wind and solar IPP projects provide a flexible cushion against potential deficits. As about 80 percent of the new capacity addition is expected to be from hydropower plants, the supply-demand balance in Ethiopia is seriously exposed to the dual risks of commissioning delays and dry hydrology.

Sector Economic Projections: Revenue and Cost of Supply

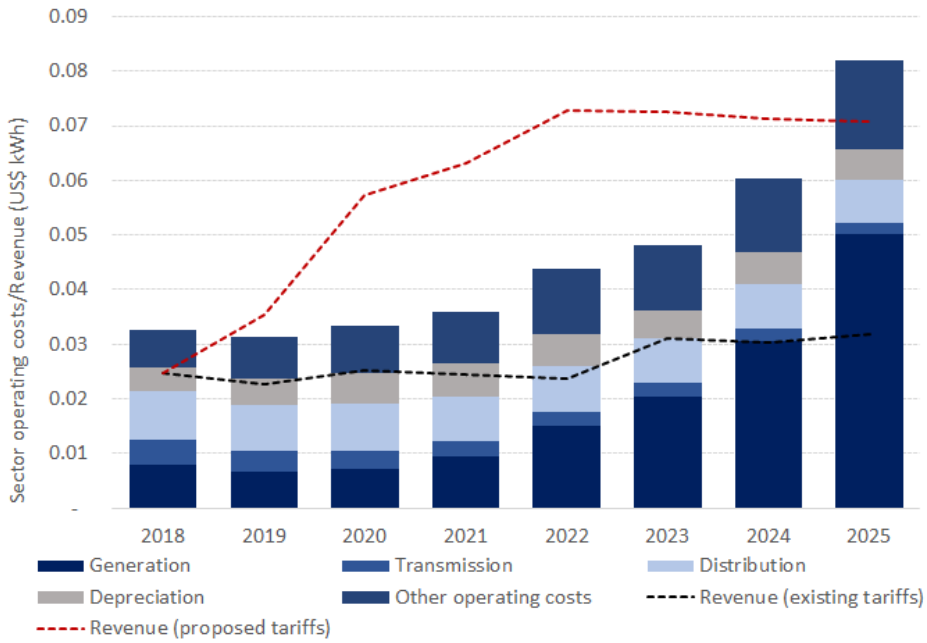
10. **The cost of supply of electricity in Ethiopia is poised for an increase as IPPs integrate in the power system.** The per unit cost of supply of electricity in Ethiopia is expected to hover between US$0.03 and US$0.08 until 2025 (Figure 5.5). Generation costs see a steady increase as large IPPs start integrating in the power system from 2021 onward.[52] Overall, the cost of supply of electricity in Ethiopia will still be among the lowest in the region because low-cost hydropower plants will continue being the mainstay of the power supply.

11. **Implementation of the proposed tariff structure of 2018, with regular foreign exchange adjustments, will be important to move the sector toward operational profitability.** At existing tariff levels, the sector will not be able to recover operating costs. The proposed tariff structure, expected to be implemented in a phase-wise manner between 2019 and 2022, if adjusted for foreign exchange fluctuations to keep it at about US$0.07 per kWh from 2022 onward, will enable operating cost-recovery in the short to medium term (Figure 5.5). However, if tariffs stagnate beyond 2022, even as operating costs continue increasing with the addition of IPPs, the revenues will subsequently fall short of recovering operating costs. Furthermore, as the subsequent sections will show, the sector revenues will always fall

[52] The future cost of supply depends upon the following assumptions about the PPA tariffs for IPPs belonging to different power sources: US$0.06 per kWh for solar; US$0.08 per kWh for hydro; US$0.10 per kWh for geothermal, biomass, and waste; and US$0.08 per kWh for wind.

substantially short of recovering the nonoperating costs and financing costs for the existing and future debt.

Figure 5.5. Sector Operating Costs and Revenue (including Demand Charges), per kWh

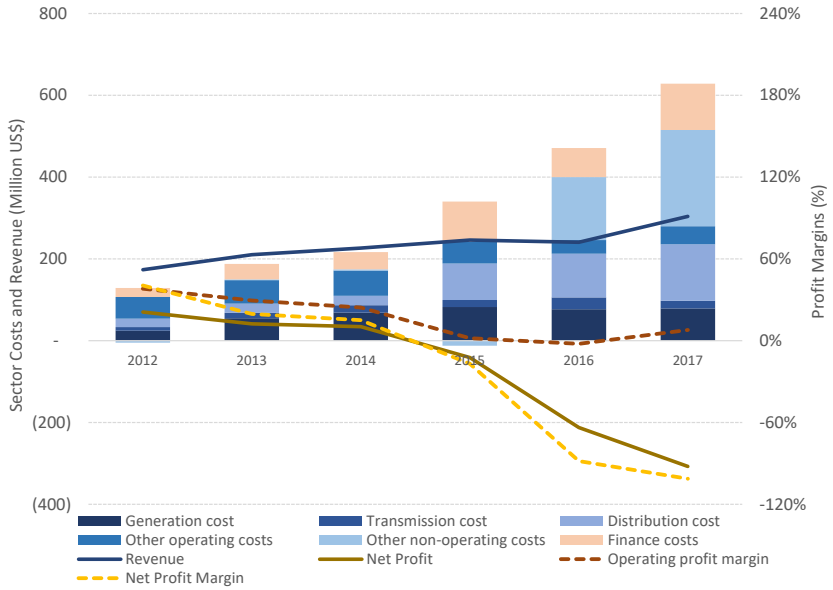


Source: World Bank staff estimates, based on data provided by EEP/EEU.
Note: This excludes non-operating costs and financing costs which are a substantial component of the overall cost of supply as indicated below in Figure 5.8

Sector Financial Performance: Historical Data for EEP and EEU (Consolidated)

12. **While the operating profits of EEP and EEU have generally been positive, the profitability has declined over time.** Owing to very low cost of sales, EEP and EEU have observed positive operating profits at a consolidated level in five out of the six years between 2011 and 2017, with the operating profit margin being as high as 38 percent in FY11–12 (Figure 5.6). However, with cost of sales rising at an average of 28 percent per year between 2011 and 2017 and revenues rising only at about 16 percent per year, the profit margins have declined, resulting in a negative operating margin in FY15–16 and a small positive operating margin in FY16–17.

Figure 5.6. Revenue, Cost of Sales, and Profit Margins of the Power Sector

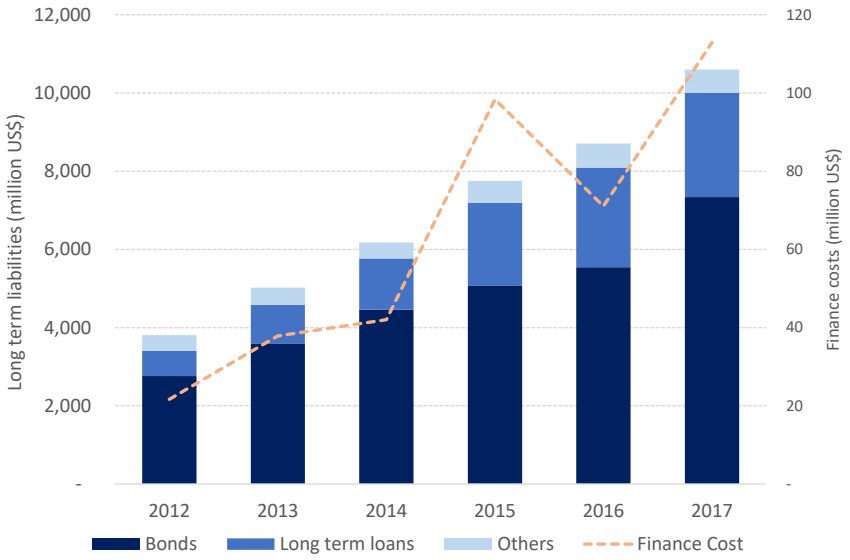


Source: Financial statements of EEP and EEU.
Note: 'Other nonoperating costs' are primarily foreign exchange losses.

13. **To finance capital investments for sector expansion, the utilities have raised large volumes of debt, especially as short-term bonds.** The GTP had envisaged investments worth about US$11 billion in generation, transmission, and distribution for expansion of the power sector. The utilities have so far raised finances worth about US$10 billion, out of which about US$7.3 billion is through domestic bonds, and the remaining is through concessional and commercial loans. Because of the rapid scale-up of debt, the utilities' consolidated noncurrent liabilities have tripled from about US$3.8 billion (ETB 68 billion) in 2012 to about US$10.6 billion (ETB 190 billion) in 2017 (Figure 5.7). The largest share of this increase is through the short-term bonds (seven-year maturity, 6 percent coupon rate) issued by the utilities. These bonds, issued across several years, started reaching maturity in 2014–15 but no face value payment has been made so far and the grace period has been repeatedly extended. The currently outstanding bonds, worth about US$7.3 billion (ETB 176 billion) as of 2017, are expected to be repaid in full between 2019 and 2029.

14. **Accumulation of debt has rapidly raised financing costs and debt obligations of the sector which, accompanied by falling operating profits, have put the sector finances on an unsustainable trajectory.** As the sector debt has grown, financing costs have risen six-fold from about US$20 million in 2012 to about US$120 million in 2017 (figure 5.7). This has resulted in sharply declining net profits with net profit margins falling as low as −101 percent in 2016 (figure 5.6). With bonds starting to reach maturity, and with negative or negligible operating profits, the utilities are left with insufficient cash to service debt. The dual trends of stagnating revenues under rising cost of sales and an accumulation of large volumes of bonds reaching maturity with insufficient cash to pay interest make it imperative for the power sector stakeholders to consider options to restore sector financial health.

Figure 5.7. Noncurrent Liabilities of the Power Sector



Source: Financial statements of EEP and EEU.
Note: The financing costs reported here may not be reflective of the 'true' financing costs for the year as EEP/EEU have been deferring coupon payments on bonds raised by the sector.

Table 5.8. Historical Financial Performance of EEP and EEU (consolidated)

Item	Unit	2012–13	2013–14	2014–15	2015–16	2016-17
Income Statement						
Revenue	US$, millions	210	227	246	241	304
Cost of sales	US$, millions	(91)	(110)	(189)	(213)	(236)
Gross profit/(loss)	US$, millions	119	117	58	28	68
Gross margin	%	57	52	23	12	22
Operating profit	US$, millions	62	55	5	(5)	24
Finance cost	US$, millions	(38)	(42)	(98)	(71)	(113)
Net profit (loss) before tax	US$, millions	41	34	(41)	(212)	(307)
Net profit margin	%	20	15	−17	−88	−101
Balance Sheet						
Total assets	US$, millions	7,781	9,346	11,353	12,746	13,927
Noncurrent assets	US$, millions	7,401	8,849	10,875	12,251	13,445
Current assets	US$, millions	380	497	478	495	482
Noncurrent liabilities	US$, millions	5,021	6,176	7,750	8,705	10,596
Long-term loans	US$, millions	989	1,313	2,114	2,548	2,667
Bonds	US$, millions	3,595	4,456	5,080	5,543	7,341
Current liabilities	US$, millions	332	669	1,167	1,851	1,551
Long-term loans: current maturity	US$, millions	80	72	133	230	281
Bonds: current maturity	US$, millions	—	0	515	1,042	4

Item	Unit	2012–13	2013–14	2014–15	2015–16	2016-17
Equity	US$, millions	2,427	2,501	2,435	2,190	1,780
Current ratio	Ratio	1.14	0.74	0.41	0.27	0.31
Cash Flow Statement						
Net cash generated from/(used in) operating activities	US$, millions	(32)	505	(234)	(416)	384
Net cash generated from financing activities	US$, millions	1,445	1,406	1,485	1,292	1,362
Net cash used in investing activities	US$, millions	(1,358)	(1,900)	(1,256)	(872)	(1,720)
Net increase (decrease) in cash and cash equivalents	US$, millions	55	11	(5)	5	25
Cash and cash equivalents at the beginning of the year	US$, millions	63	113	117	109	98
Cash surplus (deficit) at the end of year	US$, millions	119	124	113	114	124

Source: World Bank staff estimates based on data from EEU and EEP.

15. **The GoE has developed a program of reforms, supported by the programmatic DPO series, to restore the financial viability of the power sector.** The most important measures of this reform program—a four-year tariff reform and the debt restructuring—are prior actions and triggers under the DPO series, respectively. Implementation of these measures is expected to restore the sector's positive operating margin by 2021, when the first REGREP-supported IPP projects are expected to be commissioned. The scenario analysis presented below looks in detail at the impact of these reform measures.

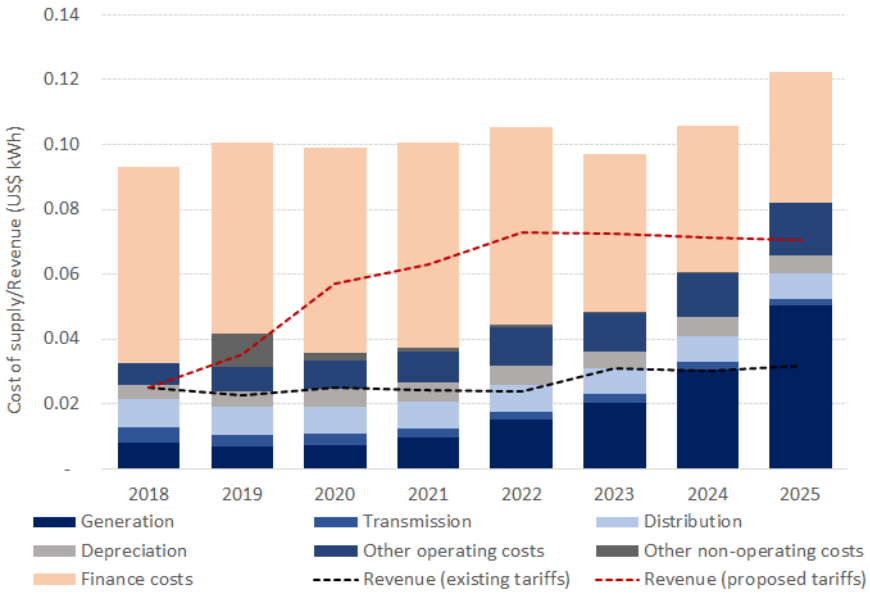
Sector Financial Performance: Projections for EEP and EEU (Consolidated)

16. **Without the implementation of the new tariff trajectory or the debt restructuring, EEP/EEU would face large and increasing operating losses, despite increases in export revenues, a scenario that is clearly financially unsustainable and underpins the rationale for the measures supported by the DPO series.** Figure 5.8 shows the projected trajectory of revenues per kWh with and without tariff adjustments, showing how operating cost gradually increase to around US$0.07 per kWh while revenues stay in the order of US$0.03/kWh. The scenarios presented below show how the approved tariff trajectory (prior action for DPO1) and the debt restructuring options under consideration (trigger for DPO2) together provide sufficient financial relief to restore substantial positive cash flow for EEP/EEU.

17. **In the following, the baseline scenario assumes that going forward, electricity tariffs will be annually adjusted in line with the approved tariff trajectory and that all interest, coupon, and principal payments on all existing and new loans and bonds will be made on time.** The approved tariff trajectory foresees annual adjustments (see Annex 6) and adjustments for foreign exchange fluctuations. The baseline scenario assumes that beyond 2022, tariffs will only be adjusted for any further devaluation of the currency to keep them constant at about US$0.07 per kWh in real terms from 2022 onward. On the financing side, because the domestic bonds are long overdue, the following analysis assumes that bond service payments are made when due. Any annual cash deficit in the sector is assumed to be financed by raising additional local commercial debt at 7 percent interest and 10-year repayment.

18. **While the revised tariff structure to be implemented between 2019 and 2022 will improve the operational profitability of the sector, revenues will continue being substantially short of covering sector financing costs.** The timely payment of interest on existing bonds, as well as payment of interest on any new debt for financing capital investment and cash deficit, will lead to financing costs which will be more than double of the operating costs in the short term (Figure 5.8). Revenues generated from the proposed tariff hike will, therefore, not be enough to recover the full cost of supply of electricity, even as they recover operating costs in the short term.

Figure 5.8. Baseline - Cost of Supply of Electricity and Revenues

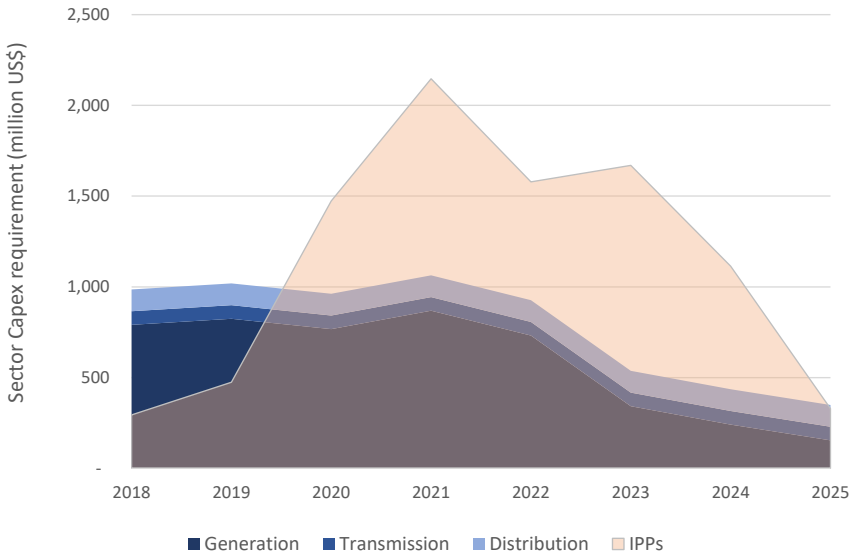


Source: World Bank staff estimates.

19. **Public sector investment requirements will decline as ongoing public investments in generation projects near completion and future generation investments shift to IPPs.** A total of about US$4.7 billion is needed to meet the remaining public generation investment plans through 2025 (figure 5.10). Investments beyond generation include transmission investments worth about US$75 million per year for expanding the grid and connecting the regional interconnectors and distribution investments worth about US$120 million per year to expand electricity access. These investment requirements add up to a total of US$6.9 billion over 2018–2025, or US$1 billion per year on average, and are assumed to be met by additional financing raised as a mix of 40 percent concessional loans and 60 percent bonds.[53] Notably, the electricity sector in Ethiopia will see a structural shift in generation investments as the private sector starts developing the bulk of new generation projects (Figure 5.9). Estimates suggest that over 2018–2025, private investments worth about US$9 billion will be made in generation projects in Ethiopia, an amount almost double that of public generation investments over the same period.

[53] All future loans and bonds are assumed in local currency. Concessional loans are assumed to be available at 3 percent interest rate, zero grace period, and 20-year repayment. Bonds are assumed to be issued every year as required at the existing terms of zero grace period, seven-year repayment, and 6 percent coupon rate.

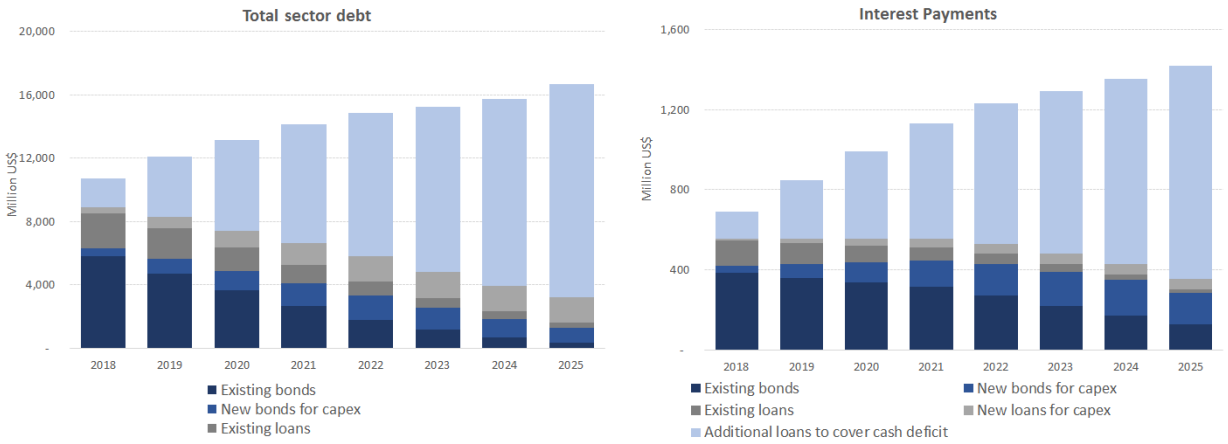
Figure 5.9. Power Sector Investments



Source: World Bank staff estimates, based on available project data.

20. **Even with declining public investment requirements, as tariffs continue to be substantially below full cost recovery, servicing the existing and future long-term loans and bonds will require raising additional debt, and may further magnify the burgeoning debt crisis of the sector.** As sector revenues are substantially below cost recovery, in the absence of other measures, additional debt will have to be raised to service the principal and interest payments on existing and future debt. Contrary to sustainable financing conditions, wherein a utility's revenues are enough to pay interest, allowing the principal payments to be rolled over to new debt, the under-recovery of financing costs of EEP/EEU will require raising ever more new debt to service interest payments on existing debt and would perpetuate the debt runaway observed in recent years. Assuming that new commercial loans at 7 percent interest rate and 10-year repayment are raised to cover cash deficits of EEP/EEU (the bulk of which arise because of insufficient cash to service debt), the sector debt is likely to rise from about US$11 billion in 2018 to US$17 billion in 2025, or about 10 percent of the GDP, with a proportional increase in interest payment obligations (figure 5.10).

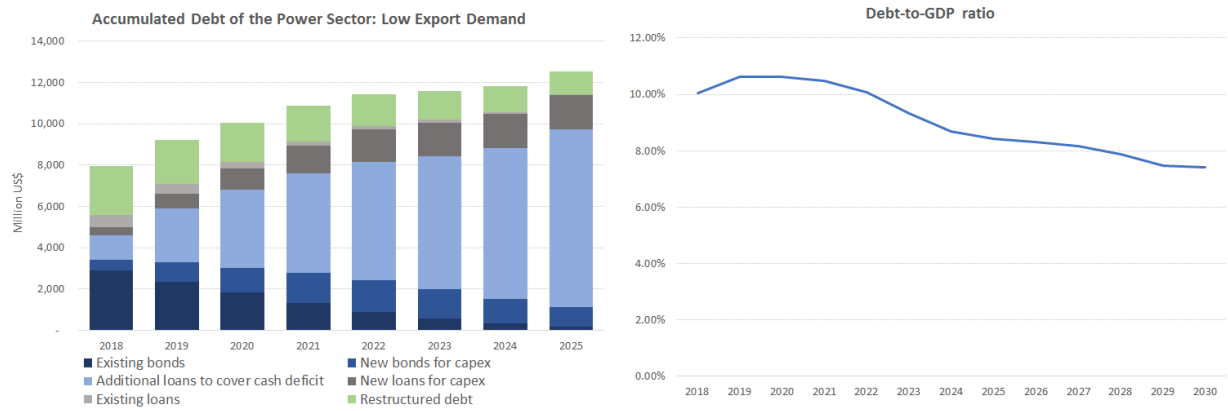
Figure 5.10. Baseline - Total Sector Debt and Interest Payments if Debt Is Serviced when Due



Source: World Bank staff estimates.

21. **Recognizing the crisis, the Government is planning to undertake measures such as debt-to-equity swap and restructuring debt to more favorable terms, to restore sector finances on a sustainable path.** Approval of the debt restructuring is a trigger under the DPO series, the first operation of which was approved in 2018. As the proposed tariff increases will also not reach full cost recovery levels, and owing to unsustainable levels of current sector debt, a mix of measures that combine tariff adjustments with some form of debt write-off/restructuring are under consideration by the Government. As an illustration, if the MoF onlend loans to the sector (about US$926 million) are converted to MoF equity, a further 20 percent of the existing debt is taken over by the MoF and converted to MoF equity, and another 30 percent of the existing debt is restructured to more favorable terms of 4 percent interest and 20-year repayment. The increase in sector debt will slow down and stabilize around US$12 billion by 2025, while also decreasing and stabilizing as a percentage of the GDP (Figure 5.11). Technical preparation of the implementation of this debt restructuring, the approval of which is a trigger under the World Bank's DPO series, is well advanced and implementation is expected within 2019.

Figure 5.11. Projections - Restructured Sector Debt: Absolute and as a Percentage of GDP

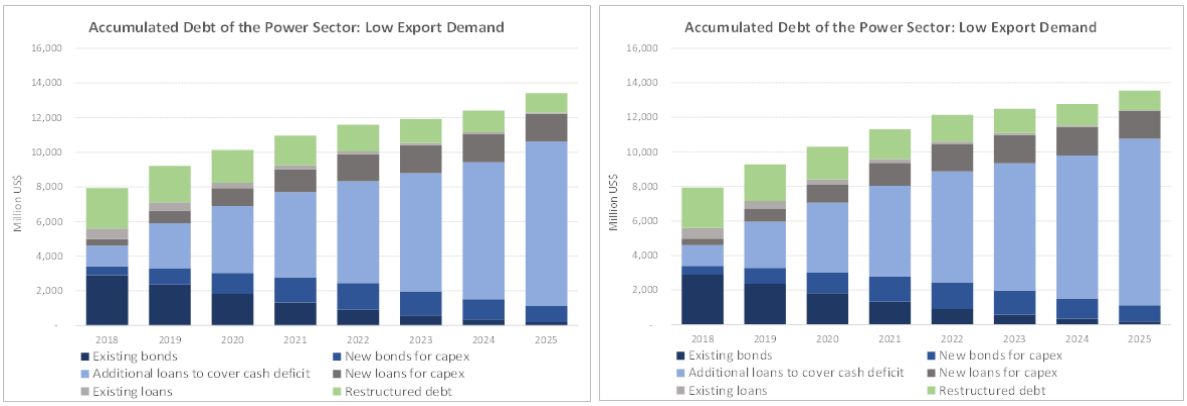


Source: World Bank staff estimates.

22. **The measures under consideration will enable the sector financial trajectory to be resilient against possible risks, such as the risks of low demand growth and droughts, which may otherwise cause**

the debt stock to escalate significantly beyond the baseline scenario. Taking out part of the sector debt from the balance sheets of EEP/EEU, along with ensuring appropriate tariff adjustments, will ensure that the total sector debt stock remains manageable even in the face of risks. Figure 5.12 illustrates that the total debt stock of the sector will stay between US$12 billion and US$14 billion by 2025, even in the face of low export demands (average export capacity utilization of 50 percent compared to baseline 77 percent) and under dry weather conditions (capacity factor of hydropower plants reduced by 20 percent).

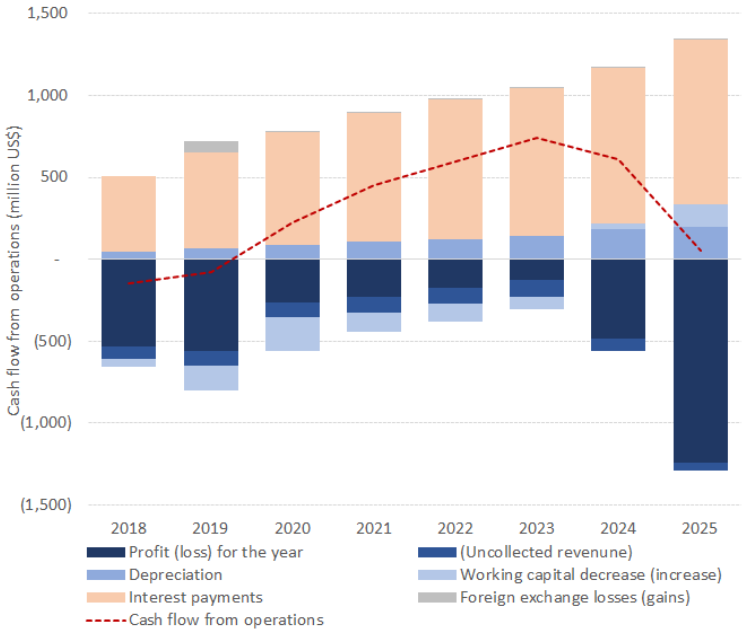
Figure 5.12. Projections—Total Power Sector Debt Stock under Low Export Demand and Drought



Source: World Bank staff estimates.

23. **The approved tariff reforms and the debt restructuring measures under consideration will together restore the sector's positive operating margin and provide enough cash flow to serve IPP payment obligations.** If IPP payment obligations take precedence over interest payments, maintaining positive cash flows from operations will allow EEP/EEU to meet IPP payment obligations, as the PPA tariffs are included in the operating costs. The measures under consideration, including tariff adjustments against foreign exchange fluctuations, will result in positive operating cash flows between 2020 and 2025 (Figure 5.13), when the REGREP-supported projects are expected to be commissioned. It is thus expected that tariff payments to the REGREP-supported projects can be timely made in the short term. Further tariff adjustments beyond 2025 may be required to ensure payments throughout the PPA lifetime.

Figure 5.13. Projections - Cash Flow from Operations



Source: World Bank staff estimates.

Table 5.14. Financial Projections for EEP and EEU (consolidated)

Item	Unit	2017–18	2018–19	2019–20	2020–21	2021–22	2022-23
Income Statement							
Revenue	US$, millions	284	509	895	1,125	1,475	1,932
Cost of sales	US$, millions	(294)	(341)	(386)	(470)	(644)	(967)
Gross profit/(loss)	US$, millions	(9)	168	510	655	832	965
Gross margin	%	−3	33	57	58	56	50
Operating profit	US$, millions	(90)	59	373	484	590	648
Finance cost	US$, millions	(461)	(584)	(688)	(785)	(859)	(902)
Net profit (loss) before tax (bonds—baseline)	US$, millions	(533)	(560)	(266)	(231)	(173)	(127)
Net profit margin	%	−188	−110	−30	−20	−12	−7
Balance Sheet							
Total assets	US$, millions	13,074	13,398	13,676	13,996	14,196	14,144
Noncurrent assets	US$, millions	12,675	12,840	12,919	13,111	13,152	12,923
Current assets	US$, millions	399	557	757	885	1,044	1,221
Noncurrent liabilities	US$, millions	8,447	9,677	10,510	11,287	11,819	11,956
Long-term loans	US$, millions	4,527	5,909	7,025	8,084	8,972	9,597
Bonds	US$, millions	3,407	3,287	3,033	2,778	2,447	1,977
Others	US$, millions	514	482	452	425	400	381
Current liabilities	US$, millions	1,065	939	821	734	691	709
Equity	US$, millions	3,560	2,779	2,342	1,972	1,684	1,476
Cash Flow							

Item	Unit	2017–18	2018–19	2019–20	2020–21	2021–22	2022-23
Statement							
Net cash generated from/(used in) operating activities	US$, millions	(148)	(82)	227	452	596	739
Net cash generated from financing activities	US$, millions	1,026	1,101	735	612	330	(202)
Net cash used in investing activities	US$, millions	(986)	(1,019)	(962)	(1,063)	(926)	(537)
Net increase (decrease) in cash and cash equivalents	US$, millions	(108)	0	0	0	0	0

Source: World Bank staff estimates.
Note: These projections assume the following: All interest and principal payments on debts are made when due. Future capex is financed through a mix of 40 percent concessional debt (3 percent, 20-year repayment) and 60 percent bonds (6 percent, seven-year repayment). Additional commercial financing (7 percent interest, 10-year repayment) is raised to meet any cash deficits. Tariffs are adjusted annually for foreign exchange fluctuations to keep them constant in real terms at US$0.07 per kWh from 2022 onward. The MoF onlend loans to the sector (about US$926 million) are converted to MoF equity. Further 20 percent of the existing long-term loans and bonds are taken over by the MoF and converted to MoF equity, and another 30 percent of the existing long-term loans and bonds are restructured to more favorable terms of 4 percent interest and 20-year repayment.

ANNEX 6: SECTOR REFORM OUTLOOK

1. **Ethiopia has commenced a transformative reform program in the power sector, supported by the World Bank's multisectoral, three-year DPO series.** The GoE has initiated a multipronged reform program to improve the operational and financial performance of the power sector. The reform program, supported by the three-year DPO series and complementary technical assistance and investment projects, includes five main areas of reform: (a) the legal and regulatory framework to attract private sector financing from IPPs; (b) tariff reforms aiming at full cost recovery in the medium term; (c) institutional reforms toward unbundling of sector institutions and privatization of selected generation assets; (d) measures to improve the operational efficiency, service delivery, and customer service of the utilities; and (e) restructuring of the power sector utilities' liabilities. Table 6.1 lists the specific measures supported by the DPO series. The reform program is already having a measurable impact—in the World Bank's 2018 assessment of RISE (forthcoming), Ethiopia was the fastest-improving country in Sub-Saharan Africa (from a score of 25 to 42). In the medium term, as Ethiopia's energy sector reforms progress through the transitional phase, and the market matures, it is expected that the need for risk mitigation approaches (such as IDA guarantees) will decrease, evolve[54], and eventually disappear. At the same time, demonstrating a track record of successful IPP transactions will be critical to attract the required investments in the sector.

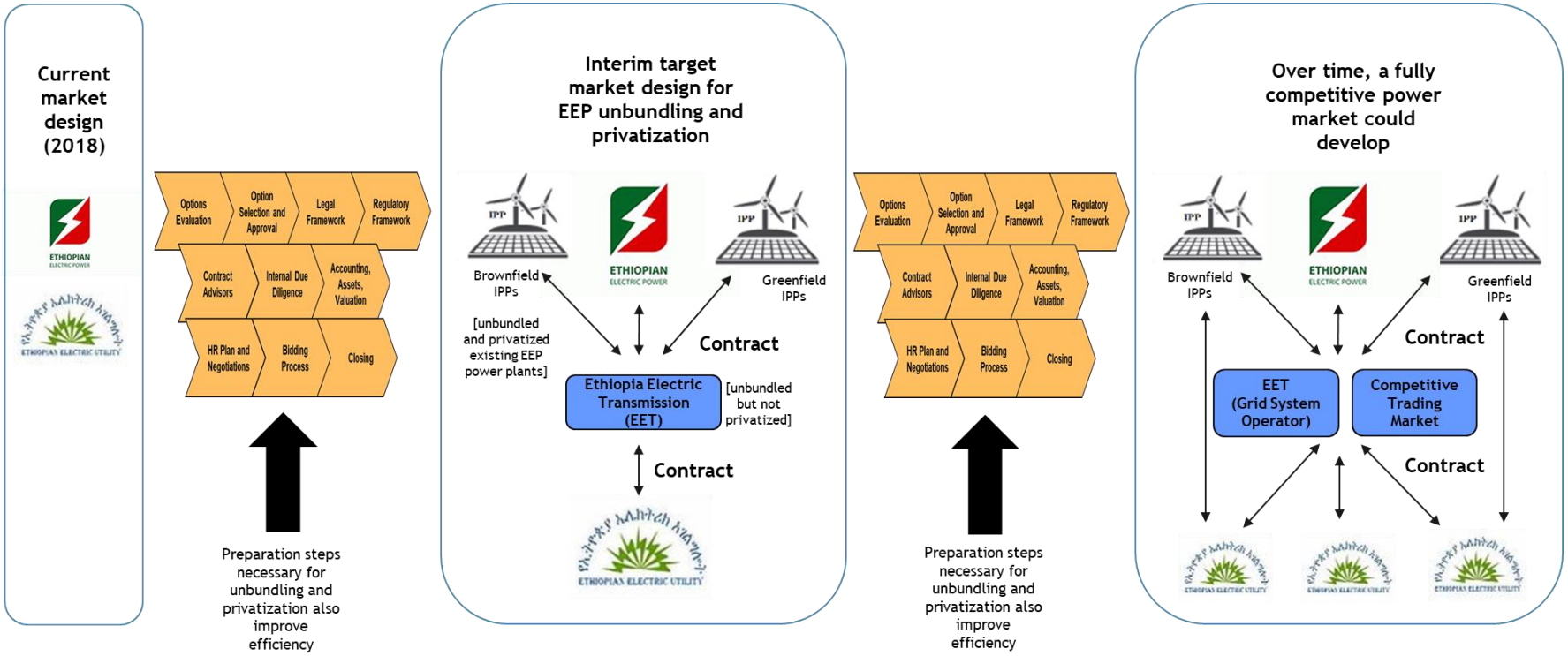
2. **Pillar I: Maximizing private sector financing for new power sector infrastructure through IPP development.** Following decades of self-managed and self-financed investments in the energy sector, the GoE is now aggressively crowding in the private sector. Historically, all electricity infrastructure development has been centrally planned and publicly financed. This has caused significant macro-financial constraints which are widely seen as unsustainable in the long run. In addition, the utilities have also struggled to keep up with the pace of upgrades required (systems, tools, and human resources) to match the growth in the sector. While the utilities have generally performed well on the technical aspects of designing and executing large-scale infrastructure development projects, much more needs to be done to develop skills for newer renewable technologies. Consequently, the GoE is inviting the private sector to participate in the power generation segment (as IPPs) and to bring in commercial capital and sustainable financing structures, augment technical know-how, and improve the implementation speed of the energy sector. The GoE has recently adopted an 'umbrella' regulation which paves the way for PPPs. Following the 2018 PPP Proclamation, the private sector will take a central role as financier and implementer of new renewable energy generation plants and could participate in a complementary role in the rest of the sector value chain as well as off-grid service delivery. The GoE is also preparing a transparent and competitive procurement framework (auction-based bidding procedures, for relevant technologies, 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 the development of IPPs in the country. Finally, a dedicated IPP Unit has been established at the MoF, which short-lists and approves frontline PPP transactions across the sectors.

[54] For instance, possibly with IDA guarantees to facilitate utilities' access to commercial capital or for specific sectors where commercial capital is notoriously difficult to mobilize in early phases of development.

Table 6.1: Power Sector Prior Actions under the parallel Growth and Competitiveness Programmatic DPO Series (P168566; FY19-21)

Prior Actions and Second Tranche Release Conditions under DPF1	Indicative Triggers under DPF2	Indicative Triggers under DPF3
Pillar 1. Maximizing finance for development		
1.1 Promoting public-private partnerships		
Prior Action #1: Parliament has approved the PPP Proclamation and MoFEC has issued the PPP Directive to establish a regulatory framework and institutions that manage fiscal risks, enhance transparency, fairness and long-term sustainability in implementing privately financed projects	***Indicative Trigger #1.1:*** The PPP Directorate General issues PPP Implementation Guidelines with the required procedures and authorizations to undertake PPP transactions, including an assessment of the contingent liabilities related to the sovereign contractual obligations.	***Indicative Trigger #1.2:*** The Government promulgates procedures and assigns independent authority to review, approve and enforce Environmental and Social Impact Assessments.
1.2. Improving efficiency and restoring financial sustainability in the power sector		
Prior Action #2: The Recipient's Council of Ministers has approved a multi-year electricity tariff increase framework with a detailed implementation schedule to improve cost recovery while protecting the poor.	***Indicative Trigger #2.1:*** (i) The Government's Macroeconomic Committee has established a Power Sub-Sector Committee to oversee the development and implementation of an institutional reform roadmap in the power sector; (ii) The Ministry of Water, Irrigation and Electricity is implementing a performance improvement plan for improving operational performance in all business areas and with a focus on customer service, optimization of billing, improved collection rates, and loss reduction. (iii) Under the supervision of the EEA, the EEU and EEP carry out reform measures for a second year under the tariff framework.	***Indicative Trigger #2.2:*** (i) The Government's Macroeconomic Committee has approved a reform roadmap for institutional reform in the power sector including recommendations for potential unbundling and privatization of selected power companies; (ii) Pursuant to the reform roadmap, EEU and EEP carry out the restructuring of EEU's and EEP's liabilities; (iii) Under the supervision of the EEA, the EEU and EEP carry out reform measures for a third year under the tariff framework.

Figure 6.1. The GoE's Anticipated Power Sector Program



Source: World Bank staff.

3. **Pillar II: Raising domestic and export revenues through tariff reforms and export agreements.** Reestablishing a strong revenue base is a critical step to restoring the sustainability of the power sector. As an immediate step, the GoE has recently approved multiyear electricity tariff reforms toward medium-term cost recovery. The tariff reform will be implemented over the course of four years, leading ultimately to a final average tariff of US$0.07, which is aligned with cost recovery. The first tariff change, increasing the average tariff to US$0.032, was implemented by December 2018. This is expected to increase cost recovery from the current 40 percent to 80 percent by 2021. In addition, increased electrification will spur consumption rates. Under the newly approved tariff trajectory, electricity pricing for households and commercial users will be restructured from Increasing Block Tariffs (IBTs) to Volume Differentiated Tariffs (VDT). Table 6.2 and Figure 6.22 present the existing tariffs alongside the proposed final tariff structure, as it will stand after four iterations of tariff increases. The first iteration of tariff increases will take place in 2018, and the final iteration will take place in 2021. Moving from an IBT toward a VDT structure means that heavily using consumers will no longer be subsidized implicitly. Under the IBT structure, all consumers were benefiting from subsidies—for example, a consumer in Block 4 (201–300 kWh) would receive the cumulative subsidies of the first three blocks in addition to the Block 4 subsidy. Under the VDT system, extremely low-income consumers (corresponding to those who are consuming in Block 1) will not have any reduction in their subsidy level. Heavy users, however, will see sharp reductions in subsidies. Users in Block 4 will pay the assumed cost of production of ETB 2 per kWh, while those consuming in Blocks 5, 6, and 7 will pay above the cost of production to cross-subsidize those in Blocks 1, 2, and 3.[55]

4. **Overall, Ethiopia's reforms to reduce electricity subsidies are expected to have a positive effect on economic growth and employment, and a net positive impact on the poor and the bottom 40 percent in the medium-run.** This is because the pre-reform pricing structure had resulted in subsidies that are heavily skewed towards the top end of the distribution of consumption. The average per capita subsidy benefit under the preform tariff structure was around ETB 13 for the poorest quintile and over ETB 121 per capita per month for the richest quintile. A detailed poverty and social impact assessment (PSIA) for the tariff reforms is part of the DPO Program Document (Report No. PGD55-ET).

Table 6.2. Existing and Proposed Final Electricity Tariff Structures for Residential Consumers (ETB)

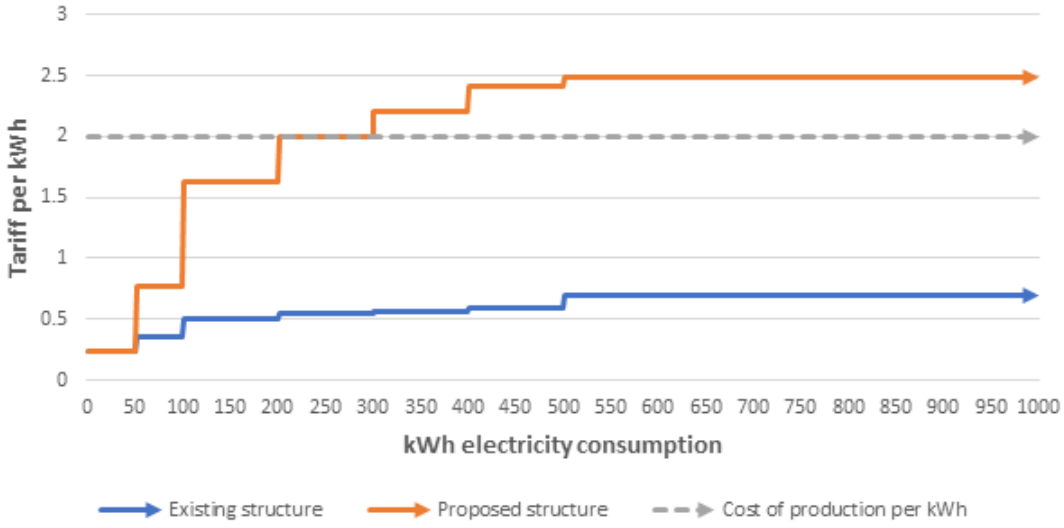
	Consumption Range (kWh)						
	0–50	**51–100**	**101–200**	**201–300**	**301–400**	**401–500**	**>500**
Existing tariff	0.273	0.356	0.499	0.550	0.567	0.588	0.694
Proposed final tariff	0.273						
	0.767						
	1.625						
	2.000						
	2.200						
	2.405						
	2.481						

Source: EEP and EEU.

[55] Under the final tariff structure, there will be no change to Block 1 pricing, and so the subsidy level remains the same. Around 75 percent of the cost increase for the second block will be subsidized and 25 percent of the cost increase for the third block will be subsidized. The fourth block will be charged at the cost of service. The fifth, sixth, and seventh blocks will subsidize 10 percent, 15 percent, and 75 percent of the total required subsidy amount, respectively.

Note: Prices are in Ethiopian birr, and the proposed final tariff structure represents the structure after the full four-year tariff reforms have been completed.

Figure 6.2. Existing and Proposed Final Electricity Tariff Structures for Residential Consumers (ETB)



Source: EEP and EEU.
Note: Prices are in Ethiopian birr, and the proposed final tariff structure represents the structure after the full four-year tariff reforms have been completed.

5. **Pillar III: Institutional reforms toward unbundling of sector institutions and privatization of selected generation assets.** The Government is preparing a PSRR that will set out the high-level vision for the sector and institutional reforms to achieve the vision. The general policy direction and the vision of the new administration of the GoE are to promote competition and private sector participation in the power sector. It is also envisioned that gradually, the monopolistic role of the power sector SOEs will be reduced. However, appropriately, the GoE plans to analyze all feasible options available to it, before deciding on specific near-term and long-term actions. These critical institutional reforms will be led by a high-level Power Sector Sub-Committee (PSSC), as set out in the Privatization Guidelines of the SOEs. The PSSC will oversee the preparation of a PSRR, which will be based on international best practices and the sector/country relevance. The PSRR options to be investigated would include vertical and/or horizontal unbundling of sector utilities (EEP) and privatization of selected power generation assets. The successor power companies following the unbundling process, just like the new power companies (IPPs), would increase wholesale competition in the power market. The retail end of the market (EEU) could also be unbundled in due course to focus on specific geographic areas. The role of the regulator as an independent market development entity would be strengthened. The PSRR will also articulate a phased approach to minimize any potentially disruptive impacts of the power sector restructuring.

6. **Pillar IV: Modernizing sector institutions and operations to reduce the cost of service delivery.** Improvement of the operational performance of the sector utilities will significantly contribute to revenue enhancement. Currently, technical losses are at about 18 percent, commercial losses are at 5 percent, and collection losses are at 10–15 percent. The GoE has already started undertaking a variety of activities to improve the sector's operational performance. First, EEU is implementing a full-fledged Enterprise Resource Program, which will go live in 2019. Second, a distribution Supervisory Control and Data

Acquisition system is currently being installed, which is one of the key system improvers to ensure enhanced distribution system management. Third, restructuring of EEU is currently ongoing, aiming at improved autonomy of regional operation offices, which can be considered as a stepping stone for future decentralization and creating multiple distribution companies. Fourth, several projects are ongoing, aiming at improving rehabilitation of the existing network, which will lead to reduced system losses including the World Bank financed ENREP (P119893) and its Additional Financing (ENREP AF, P155563). Fifth, the utility is currently procuring and installing smart energy meters for bulk energy sales by EEP and EEU. Finally, compliance activities under the recently approved ELEAP (P160395) target improvements regarding procurement, FM, and governance system of EEU, including the compliance with International Financial Reporting Standards. Going forward, the GoE is putting in place a performance improvement plan to enhance operational performance, with a focus on customer service, optimization of billing, improved collection rates, and loss reduction.

7. **Pillar V: Restructuring EEP's balance sheet to optimize financing cash flows.** Most of EEP's debt is domestically held and short term. The utility is now actively looking into options to restructure the short-term domestic debt and convert it into longer-term liabilities. As part of the reform agenda, a task force is being established to prepare and implement a restructuring plan of the utilities' liabilities. In addition, some of the generation (roughly amounting to around US$8 billion) and potentially transmission assets are being privatized. The GoE is in the process of establishing a high-level PSSC (within the Privatization Advisory Council) to oversee the preparation of a PSSR, including unbundling of sector institutions and privatization of selected generation assets.

ANNEX 7: TASK TEAM

Name	Title	Unit	Responsibility/Specialty
Rahul Kitchlu	Senior Energy Specialist	GEE01	Task Team Leader
Arnaud Braud	Senior Infrastructure Finance Specialist	GIPFS	Co-Task Team Leader
Joern Huenteler	Energy Specialist	GEE01	Co-Task Team Leader
Abdulhakim Abdisubhan	Energy Consultant	GEE01	Team Member
Abiy Demissie Belay	Senior FM Specialist	GG025	Financial Management
Arsh Sharma	Financial Analyst	GEE08	Team Member
Arun Singh	Energy Consultant	GEE01	Team Member
Ayalew Kebede Belew	Senior Procurement Specialist	GG001	Procurement
Bogalech Admasu Berhane	FM Specialist	GGOAE	Financial Management
Chita Obinwa	Senior Program Assistant	GEE01	Program Assistant
Hanna Ketselamaryam Hailu	Senior Program Assistant	AFCE3	Program Assistant
Inka Schomer	Operations Officer	GEEES	Team Member
Jukka-Pekka Strand	Senior Infrastructure Finance Specialist	GIPFS	Team Member
Million Legesse Gelagle	Consultant	GEE01	Team Member
Olayinka Bisiriyu	Financial Analyst	GEE07	Team Member
Rhonda Lenai Jordan Antoine	Energy Specialist	GEE01	Team Member
Samuel L. Demsash	Social Development Specialist	GSU07	Social Safeguards
Selam Tarkeghn Neda	Consultant	GEE01	Team Member
Simon Sottsas	Senior Social Development Specialist	GSU07	Social Safeguards
Shingira Masanzu	Counsel	LEGSG	Counsel
Vincent Launay	Infrastructure Finance Specialist	GIPFS	Team Member
Yacob Endaylalu	Senior Environmental Specialist	GENA1	Environmental Safeguards

ANNEX 8: MAP OF IPP PROJECT LOCATIONS (REGREP MPA PHASES 1 AND 2)