

Energy Africa - Ethiopia


Compact development - Final Report



October 2016

This report and compact has been written by African Solar Designs Ltd (ASD) and produced by Evidence on Demand with the assistance of the UK Department for International Development (DFID) contracted through the Climate, Environment, Infrastructure and Livelihoods Professional Evidence and Applied Knowledge Services (CEIL PEAKS) programme, jointly managed by HTSPE Limited and IMC Worldwide Limited.

The views expressed in the report are entirely those of the author and do not necessarily represent DFID's own views or policies, or those of Evidence on Demand. Comments and discussion on items related to content and opinion should be addressed to the author, via enquiries@evidenceondemand.org.

Cover photos copyright .





Contents

1. Summary	5
2. Policy Compact context	6
3. Political environment & key stakeholders	8
4. Policy Compact goals	10
5. Support and accountability	14
6. Lessons learned	16

1. Summary

Energy Africa is a DFID-led initiative to accelerate the expansion of the household solar market in Africa, and help achieve universal energy access by 2030 instead of 2080 on current trends. It seeks to accomplish this by aligning supportive policy with co-ordinated donor support, to improve market conditions and increase investment. Ethiopia is one of 14 countries that has joined the Energy Africa campaign.

Ethiopia is fast becoming one of the largest markets for solar lighting products in Africa. Between 2003 and 2007, about 3 million solar lanterns and 150,000 solar home systems (SHS) were disseminated. In 2013, nearly 400,000 pico solar units were distributed and over 350,000 PV modules were sold in 2014, with market values of nearly US\$ 9.7 million and US\$ 9 million, respectively.

There have been several government-led initiatives for off-grid household solar technologies. Still, virtually all of the market is for low cost products driven by over-the-counter sales. The market has grown rapidly since 2014, at least partially due to price reductions in equipment. There is almost no experience with PAYGO-type financed PV sales.

The Government of Ethiopia is increasingly receptive to off-grid electrification approaches. As part of their objective of achieve universal electrification by 2030, they have included a number of off-grid actions. The Growth and Transformation Plan II includes dissemination of 3.6 million solar lanterns, 460,000 Solar Home Systems and 3,600 off-grid PV institutional systems.

However, some challenges remain to sector growth, including:

- Lack of a fully defined viable program to include off-grid approaches in rural electrification
- Delays and high costs in equipment importation
- Lack of effective quality control measures and enforcement
- Foreign exchange availability issues for importers
- Lack of finance for both consumers and companies
- Poorly defined implementation approaches in key market regions.

These challenges are surmountable. The Compact proposes the following actions, agreed by the Ethiopian government and key stakeholders build the household solar sector:

- Fully define the role of small-scale solar PV as part of a 'package' of solutions for electrifying off-grid and under-electrified consumers.
- Promote and develop Ethiopian solar supply chains through support for market-based commercial approaches
- Streamline and ease import procedures for approved off-grid solar equipment.
- Facilitate development of a light-handed regulatory environment which incentivises quality off-grid solar products.
- Incentivise local assembly and manufacture of solar products where feasible.
- Ensure foreign exchange availability for approved off-grid solar equipment imports.
- Encourage regional micro finance institutions to support and scale up off-grid electrification
- Develop common regional approaches to off grid electrification and provide support and capacity building in regional energy bureaus

This report presents these challenges and proposed actions in more detail, and outlines the main implementing partners. DFID will lead the implementation, working in close coordination with the Ministry of Water Energy and Irrigation (MOWIE) and alongside a core group of stakeholders who have endorsed the Compact.

2. Policy Compact context

Energy Africa Access Campaign

Launched in October 2015, Energy Africa is a DFID-led initiative to accelerate the expansion of the household solar market in Africa, and help achieve universal energy access by 2030 instead of 2080 on current trends. It seeks to accomplish this by aligning supportive policy with co-ordinated donor support, to improve market conditions and increase investment. The Campaign grew out of DFID's longstanding commitment to energy access, and its multi-sector country-level development experience.

The Campaign is both global – in advocacy, programs and mobilizing stakeholder partners – and local, in 14 countries in Africa where DFID have a presence on the ground. This document conveys the results, process and learnings from its intervention in Ethiopia. It describes a voluntary agreement between the governments of Ethiopia and the UK, regarding the policy changes, and co-ordinated support to accelerate the development of the household solar market.

National overview and energy sector

Ethiopia has the second largest population in Africa with an estimated 102 million people (of which 80.5% live in rural areas). Ethiopian is a one party democracy with a planned economy. The country is perceived as the eastern African financial, industrial and communications hub. It had a GDP growth has been steady at between 8 and 11% for over a decade, led by major investments in energy and transport infrastructure. Its low income rural population relies on agricultural incomes who are frequently affected by drought. At \$61.6 billion in 2015, the Ethiopian GDP is expected to pass that of Kenya to become the largest in East Africa.

Electricity access. The Growth and Transformation Plan II prioritises development of the manufacturing sector, focusing on products that the country has a comparative production advantage. Development of hydropower for local use and export is a major part of the plan. The plan also recognises universal electricity access as key to transforming the country. The national utility, the Ethiopian Electric Power Corporation (EEPCO) has achieved about 24% electrification. About 85% of the urban population and 10% of the rural population is electrified.

Solar domestic market trends. Ethiopia an extremely fast-growing market for small-scale solar PV. Potential demand is estimated to be at over 14 million pico and SHS units. Eight major Addis Ababa importer/wholesalers, 20 distributors and hundreds of regionally-based retailers participate in an active over the counter market. In 2013, nearly 400,000 pico solar units were distributed. In 2014, over 350,000 PV modules¹ were sold. These market values are nearly US\$ 9.7 million and US\$ 9 million, respectively. A majority of products were not certified by Lighting Global. Still, verifiable data of actual penetration rates of solar PV systems is not available.

¹ "Pico solar" refers to lanterns or small kits that are powered by solar modules and imported and sold as complete kits. "Solar modules" are the PV energy-generating units that are and imported and sold as separate components.

Innovative business models have emerged to address constraints around quality and up-front
Key features of the market include:

Fiscal incentives

- A generally positive tax framework, with duty and VAT exemptions for a range of solar products has been put in place.
- Implementation of the tax framework has caused problems because traders are unable to clear their products or source foreign exchange for equipment.

Financing

- The micro-finance sector is robust and active in target regions
- High distribution and logistics costs to reach dispersed populations
- Start-ups have difficulty growing because of import difficulties and lack of access to foreign exchange
- Low-income, remote consumers present a difficult market for local companies.
- Pilot WB/REA initiatives have demonstrated viable methods to build micro-finance approaches to product supply, but there is room for much more private sector participation in these projects.
- Thus far, micro-financing Pay-As-You-Go approaches are little known among finance players

Consumer protection & job creation

- A large part of the market is made up of very low priced products that avoid import procedures
- Consumer and company awareness are at much earlier stages than other east African countries.

3. Political environment & key stakeholders

Political environment

Off-grid solar electrification is receiving high level attention, especially considering that Ethiopia was among the first African countries to commit to low carbon development paths. Ethiopian power is presently over 85% reliant on renewable sources. However, Government power generation focus is largely on large scale projects, including the Grand Ethiopian Renaissance Dam. These projects receive central Government consideration because they will lead to export revenue as well as higher availability of power in the country.

The US\$ 275 million WB-supported Electricity Network Reinforcement and Expansion Project (ENREP) aims to improve reliability of the electricity network and to increase access to electricity services in the country. It consists of major on and off-grid investments.

Several issues were raised by stakeholders during conversations about approaches to off-grid electrification. They include:

- The Ethiopian Government has a tendency to support central procurement *by Government* of systems --- instead of more free market approaches.
- The Government tends to focus on local manufacture of hardware, but much investment in off-grid solar business in East Africa has more to do with business models than technology per se. Local manufacture is seen as extremely risky by private players because market demand is not yet adequately developed.
- There is a need for more inclusion of “tier-based” approaches in energy access planning.
- Better planning in financing of systems and developing of PAYGO programmes could help develop Base of Pyramid access.

Key stakeholders

The Ministry of Water, Irrigation and Energy (MOWIE) is the lead institution for energy policy development and planning. It also provides guidance and policy on implementation of the national energy plan. Planning approaches by MOWIE tend to prioritise grid expansion.

A list of the stakeholders included in the Ethiopia Compact process is attached (Annex A), but several groups are the most pivotal to the Compact and its implementation:

Affiliation	Institution	Role
National government	Ministry of Water Irrigation & Energy	Formulate energy policies and drive sector planning
	Ethiopian Electricity Authority	Regulate energy sub-sector and protect the interest of stakeholders
	Ethiopian Revenue & Customs Authority	Tax collection on solar products
	Ethiopian Standard Agency	Provide minimum requirements for solar PV products.
	Ethiopian Conformity Assessment Enterprise	PV product testing and certification
	Ministry of Finance and Economic Cooperation CRGE	Formulation of financial policy and prioritisation of finance for green projects,
	Rural Electrification Fund	Funding and implementing agency for Government rural electrification projects
	Development Bank of Ethiopia	Government development bank which channels loans to regional MFIs
Private sector / industry association	Solar Energy Development Association	Newly-formed membership organisation of private sector companies
	Ethiopia Climate Innovation Centre	World Bank-supported agency that helps incubate small green-focused businesses
	Global Off-grid Lighting Association (GOGLA)	Global industry association (not for profit)
Development partners	A list of relevant programmes is provided in Annex 2 of the Ethiopia Compact.	

4. Policy Compact goals

Key considerations in the implementation of the Compact policy actions are:

- **Coordination and championing the work.** Unlike other East African countries where the private sector and social entrepreneurs drive the agenda, off-grid electrification has no clear champion in Ethiopia. The industry association is at a formative stage. MOWIE, though clearly receptive, does not seem to be the clear leader, especially for market-based approaches.
- **Attention to gender impacts.** The household lighting sector has disproportionate impact on – and potential roles for – women. It is essential to set clear gender-disaggregated targets, consider the language of policy carefully, and make sure all stakeholders are educated on gender issues related to household lighting (and electricity more generally).
- **Recognition of cross-cutting issues.** Household solar overlaps a range of sectors, and Policy Actions should integrate important linkages. These include, for example: environmental issues (electronic waste, biomass and kerosene use, transport efficiency); job creation (within the supply chain and also through increased economic opportunity at the household level); climate change (mitigation and adaptation); education (children gaining access to night-time lighting for studies); health (reduced indoor air pollution from traditional lighting sources).

Policy framework

Policy Action 1: Fully define the role of small-scale solar PV in off-grid electrification.

MOWIE will update to the existing Growth and Transformation Plan II strategies and targets for off-grid electrification. Regional energy bureaus will be involved in the process so that they fully understand the implications of new off-grid strategies. It will include:

- Re-definition of “energy access” according to the “tiered” approach (i.e. aligned to the World Bank’s Multi-tier Framework (MTF)).
- Regular alignment of the GTP II document with new targets and .

This work may include a **baseline study to assess market for off-grid products** for government (for better planning) and commercial actors (as market information to guide their business strategy).

Policy documents should be stakeholder reviewed for potential gender bias and should include clear gender-disaggregated targets. Strategy and other planning documents should overtly acknowledge – with targets if possible – the impact of SHS / pico-solar on job creation and environmental sustainability.

Key Support:

- DFID Africa Clean Energy programme (ACE) and bilateral support
- WB Electricity Network Reinforcement and Expansion Project
- IFC Lighting Africa
- GIZ/ENDEV World Bank

Expected impact: Clear policies and strategies are created that define the role of off-grid solar PV in national rural electrification programmes. Off-grid PV is part and parcel of Ethiopia’s overall rural electrification strategy. National budgets include allocation amounts that match targets.

Policy Action 2: Promote and develop Ethiopian solar solar supply chains through support for market-based commercial approaches.

MOWIE, Ministry of Trade, Ethiopian Energy Authority and the Ministry of Finance and Economic Cooperation work together to create an attractive environment for commercial private sector off-grid solar PV market. Shifts in policy are made to build a role for commercial companies in off-grid energy access and the Government is increasingly seen as a facilitator of the sector (and not the main actor). International outreach is made to promote the Ethiopian market as a premium destination for off-grid suppliers and companies.

This will include a **study to recommend approaches to stimulate and support private sector innovation and expansion into rural areas**. The study will identify attractive business models, technologies and financing strategies that help reach base of the pyramid populations.

Key Support for these activities will come from

- IFC Lighting Africa
- DFID ACE
- ENDEV/GIZ
- Solar Distributors Association

Expected impact: A significant increase in the size and number of solar PV companies working all along the PV value chain in Ethiopia. International solar companies view Ethiopia as one of the top destinations to sell products in Africa.

Policy Action 3: Streamline and ease import procedures for approved off-grid solar equipment.

MOWIE coordinates the players involved in importation of off-grid PV equipment, including Ministry of Trade, Ethiopian Standards Agency, Ethiopian Energy Authority, Ministry of Finance and Economic Cooperation and Ethiopian Revenue and Customs Authority to streamline importation and approval procedures for dealers, importers and actors in the Ethiopian solar industry. This work continues work already underway with support from Lighting Africa programme.

Key Support for this activity will come from:

- World Bank Electricity Network Reinforcement and Expansion Project
- IFC Lighting Global
- DFID, ACE
- GOGLA
- Solar Distributors Association

Expected impact: Solar equipment players are able to quickly register and gain approval for companies and products according to clear established procedures. Waiting time for importation, clearing and approval of imported equipment is greatly reduced.

Policy Action 4: Facilitate development of a light-handed regulatory environment which incentivises quality off-grid solar products and dis-incentivises poor quality equipment.

MOWIE, Ministry of Trade, Ethiopian Standards Agency, Ethiopian Energy Authority, Ministry of Finance and Economic Cooperation, Ethiopian Revenue and Customs Authority and the Ethiopian Conformity Assessment Enterprise cooperate to create a strong but light-handed regulatory environment which improves quality in the market and to provide adequate

enforcement of standards. This work is based upon existing work by Lighting Global and Government of Ethiopia stakeholders. It includes a **study to recommend next stage actions** in market surveillance, standards marking system, institutional arrangements for standards enforcement, licensing of seller/importer, etc.

Key Support for these activities is provided by:

- IFC Lighting Global
- DFID, ACE
- GOGLA.

Expected impact: Consumer protection and market protection schemes are in place. Consumers are aware of quality products. Private sector companies are incentivised to provide equipment that meets national standards. Poor quality equipment is less prevalent in the market.

Policy Action 5: Incentivise local assembly and manufacture of solar products where feasible.

MOWIE, the Ministry of Trade, the Ethiopian Revenue and Customs Authority, the Ministry of Industry, and the CRGE Facility cooperate to create a conducive environment for local manufacture (and/or assembly of) solar equipment and associated components. The new incentives and regulatory framework are based on a **study to assess local assembly and manufacture potential** which provides concrete recommendations for development of local industry.

Key Support for this work is provided by:

- World Bank Electricity Network Reinforcement and Expansion Project
- IFC Lighting Africa
- DFID ACE

Expected impact: Manufacturing and assembly of solar equipment and balance of system equipment occurs profitably in Ethiopia. Local and international companies and investors are better informed about viable niches for local production and value added services.

Policy Action 6: Ensure foreign exchange availability for approved off-grid solar equipment imports.

MOWIE, Ministry of Finance and Economic Cooperation/CRGE Facility, National Bank of Ethiopia and the Development Bank of Ethiopia will work together to develop a plan that ensures there is enough foreign exchange available for approved companies to purchase the volumes of off-grid solar equipment targeted each year in PA 1 updated targets.

This work will include a **study to assess foreign exchange implications** of transition from kerosene/dry cell economy to 100% lighting with solar device. The study will also assess potential ways to raise forex for equipment import/

Key Support for these activities will come from:

- WB Electricity Network Reinforcement and Expansion Project
- IFC Lighting Africa

Expected impact: Foreign exchange is available in sufficient quantity to enable commercial players to import enough PV equipment to meet national targets.

Policy Action 7: Encourage regional micro finance institutions to support and scale up off-grid electrification

MOWIE, Ministry of Finance and Economic Cooperation, Development Bank of Ethiopia and Regional energy bureaus work together to make consumer financing of solar home systems, pico solar and PAYGO services a focus of the micro-finance sector. Together, they identify, create and greatly expand the niche for financing solutions for rural consumers who cannot afford the up-front costs of solar electric equipment.

This work includes a **study of consumer financing of off-grid systems and PAYGO models**. This study will examine Ethiopian MFI practice with the objective of identifying how existing rural finance programs can support off-grid energy access. It should pay particular attention to PAYGO opportunities that can be implemented with local Ethiopian MFIs.

Key Support for these activities will be sourced from:

- WB Electricity Network Reinforcement and Expansion Project
- IFC Lighting Africa
- DFID ACE

Expected impact: Affordability of pico-solar and PAYGO for lowest income groups. Rural MFIs significantly expand activities in off-grid solar.

Policy Action 8: Develop common regional off-grid approaches and support and build capacity of regional energy bureaus

MOWIE will coordinate the development of national norms for regional off-grid markets. It will work with regional energy offices, the Development Bank of Ethiopia and participating MFIs. It will be managed as a series of outreach workshops with regional energy officers that introduce the principles of market-based off-grid electrification.

Key Support for these activities will come from:

- IFC Lighting Africa
- WB Electricity Network Reinforcement and Expansion Project
- DFID ACE
- ENDEV/GIZ

Expected impact: A nationally-agreed common approach to the development of solar PV markets in rural areas that advocates a balanced playing field for companies and is commercially-oriented. The approach will discourage give-aways, inefficient subsidies and government procurement of equipment for household market.

5. Support and accountability

Mobilisation of core support

The Compact development process has involved engagement with a variety of stakeholders across government, industry, commercial players, donors and NGOs (see list below). The Government of Ethiopia was an active participant in meetings.

The process for Compact development included the following stages:

Date	Activity	Milestone
7 June 2016	Contract signing	Contract
7 th to 13 th June 2016	Desk research	Inception report
13 th to 29 th June	Field visit and consultations	Trip report, Powerpoint
30 th June to 20 th July	Preparation of initial draft Compact	First draft
21 st July to 12 th August	Comments on Draft Compact	
22 nd to 24 th August	Field visit and presentation of 2 nd draft	2 nd draft, Powerpoint
29 th August to 15 th September	Comments	
10 th October	Final draft Compact and report	Compact and Final Report

Initial Consultation Visit. During the initial June consultation visit meetings were held with Government, donor partners and private sector stakeholders. IFC Lighting Africa was the only donor player directly engaged in the support of market-based solar delivery models. The World Bank and the Government were supporting off-grid electrification of institutions and central procurement-based MFI delivery of PV for households. Other players such as GIZ and ENDEV peripherally supported the solar and off-grid sector but could not commit extra resources for the Compact without much more understanding of the programme.

At the end of the consultation visit, following DFID-arranged meetings, there was broad support for off-grid energy access by Government and donors. However, at the time donor partners were unable to provide definitive commitments for an energy access programmes that deviated from existing commitments.

Throughout the activity IFC Lighting Africa provided considerable guidance and support for the development of the Compact. They consider the Compact work to be complementary to and extension of the work that they have been undertaking.

Second Consultation Visit and Presentation of Compact Draft. During August, MOWIE co-hosted the presentation of the final draft with DFID. There was general agreement on the Compact draft among the attendees who included representatives of seven Government ministries and parastatals and ten development partner agencies. During these discussions, participation of Government and development partners in the Compact execution was discussed and particular responsibilities were assigned. Annex 2 of the Compact identifies these core stakeholders.

During the workshop, no formal arrangements were made on Compact implementing responsibilities. However, it was agreed that a steering committee on off-grid energy access should be formed with Government as secretariat. It would include members from Government, donors and key private sector stakeholders.

Power Africa noted that it has been calling informal monthly meetings to share activities and update partners on energy activities, but the meetings did not specifically target off-grid power.

Signing of the Compact is expected in the 4th quarter 2016. An event to mark the signing will be organised. Suggestions for a steering committee will be sought following the signing.

Accountability for progress

This Compact has been developed under the leadership of the MOWIE through collaboration with the private sector, core energy sector donors and NGOs, and with the support of DFID. The Champions of this Compact (DFID Head of Office and Permanent Secretary, MOWIE) have agreed to meet quarterly to review progress and take necessary actions.

Whereby DFID will act as Compact Champion, it is anticipated that a number of Government departments and development partners will have some role to play in monitoring and accounting for progress (see Compact). Formal contribution arrangements will to be determined during steering committee meetings.

6. Lessons learned

The lessons learnt below are, in some cases, similar to the experiences to date of other Energy Africa countries.

Government machinery moves slowly, even if the proposition is agreed. There was general agreement about the value of off-grid electrification among MOWIE and other government departments which had already been exposed to the idea. However, it takes more time for the off-grid electrification concepts to move horizontally and vertically among government departments. On-going government priorities and political realities affect the implementation of new ideas, so long term approaches to affect change are necessary. A critical part of interim activities following Compact signing is the involvement of a pro-active champion within government who can build momentum and help to encourage government departments to support Compact actions.

Recognise the roles of numerous government departments. For processes that seem as simple as changing customs and importation regulations, there are many players involved. For those that want to change policy, this bureaucracy must be considered.

Make use of partners with similar agendas. IFC's Lighting Africa has been engaged with the various government departments and the private sector for some time. It has created a number of channels of communication and working documents that help to carry out the Compact agenda. They are an important ally.

Engage in sustained and longer term donor coordination. Although consulting on developing the Compact provides initial focus, partners need to continue engagement over the longer term, around the goals of the Compact.

Note that budgets and commitments from development partners (and others) evolve at different speeds. Plans are not always clear and the process of getting other development partners to participate directly will require high level negotiation directly between DFID and the partners.

The mandate of the Compact needs elaboration and definition. During the consultations, it was clear that further explanation was often needed regarding the intended mandate and scope of the Compact. All relevant players will need to be kept updated and informed.

ANNEX A: Stakeholders consulted

Name	Organisation	Interview/ Document Input	August Final Consultative Workshop
Government			
Ato Asress	Alternative Energy Technology Development and Promotion Directorate, MOWIE	Met	Yes
Mulugeta Assefa	MOWIE M: +251 962150765 E: mulu.gy@gmail.com	Met	Yes
Dereje Yilma	MOWIE E: derejeyilma@y.com	Met	Yes
Belaynesh Bilhu	MOWIE CRGE Coordinator E: Yuibel_2008@yahoo.com	Met	Yes
Yiheyis Eshetio	MOWIE E: Yiheyisecos@yahoo.com	No	Yes
	Rural Electrification Fund	Met	
Tesh Belihu,	Director General, Ethiopian Conformity Assessment Enterprise M: +251 91 167 6491	Met	No
Zerihka Getu	MOFEC, CRGE E: zedget@yahoo.com	Yes	Yes
Ato Admasu	Director and Head of CRGE Facility)	Not Met	No
Moges Getahun	Ethiopian Electricity Authority Director	Met	No
Hailu Assefa	Ethiopian Electricity Authority M: +251 911480158 E: hailasse@yahoo.com	Met	Yes
Legesse Gebre	Ethiopian Standards Agency E: legesseqbr@gmail.com	Met	Yes
Wondimu Tekle (Eng),	State Minister, Ministry of Water and Irrigation & Electricity, M: +251 11 662 55 06	Met	No
MDA & Bilateral Development Partners			
Ciara Silke	DFID	Project Manager	Yes
Lars Ekman	Counsellor Climate Change and Energy Norwegian Embassy in Addis Ababa M: +251 911 52 49 52; +47 466 77 203	Met	No
Tsehay Hailemichael	Norwegian Embassy in Addis Ababa E: Tsehay.hailemichael@mfa.no	Met	No
Minh-Tien Nguyen	First Secretary, Development Embassy of Canada M: +251 911 20107 E: Minhtien.nguyen@international.gc.ca	Met	Yes
Gene Lin, P.E.	Senior Energy Advisor USAID Power Africa M: +251 91250 6886 E: glin@usaid.gov	Met	No
Samson Atsbha	Energy Specialist & Program Manager USAID Ethiopia M: +251 911 255369 E: satsbha@usaid.gov	Met	No
Yemisnach Mekonnen	Power Africa Yimekonnene@nexant.com	No	Yes

Alasdair Miller	Senior Energy Specialist Lighting Africa M +251 911 51 1558 E: Amiller5@ifc.org	Consultations, Review	Yes
Itotia Njagi	IFC Lighting Africa E: anjagi@ifc.org	Met	Yes
Wendwosen Keremenz	IFC Lighting Africa E: wagonafit@ifc.org	Met	No
Awetash Tesfaye	IFC E: ahabtemariam@ifc.org	Met	Yes
Samson Tolessa	GIZ-Endev E: Samson.tolessa@giz.de	Met	No
Rainer Hakala	Programme Manager GIZ — Energising Development Ethiopia M: +251 929 907343 E: rainer.hakala@giz.com	Met	No
Daniele Norbin	EU-DEL E: daniele.norbin@	No	Yes
Clement Boulzer	AFD E: boulierc@afd.org	No	Yes
Pelle Persson	SIDA E: Pelle.Persson@sida.se	Not Met	No
Issa Diaw	World Bank M: +251 915954729 E: idiaw@worldbank.org	Not Met	Yes
Rahul Kitchlu	World Bank M: +251 922720570 E: rkitchlu@worldbank.org	No	Yes
Patrick Balla	World Bank T: +254-721738994 E: pballa@worldbank.org	Consultation	Yes
Private Sector Support Agencies & NGO			
Tehut Tesfaye, Chief Executive Officer	Ethiopia Climate Innovation Center Email: tehutt@ethiopiatic.org T: +251 115 58 1718/33 Website: www.ethiopiatic.org Fitsum Abebe fitsuma@ethiopiatic.org	Met	Yes
Samson Tsegaye	Solar Distributors Association	Met	No
Nebil Kellow	Private Enterprise Partners Nebil_Kellow@enterprisepartners.org Helen_Teshome@enterprisepartners.org	Not Met. Read reports and documents	No
Saroj Rai	SNV M: +251 929135693 E: srai@snvworld.org	No	Yes
Melessaw Shanko	Megan Power Limited M: +251 911203097 E: mgp@ethionet.et	Met	No
Finance			
Eyob Agume, Energy Team Leader	Development Bank of Ethiopia	Met	No
Dr. Wolday Amba, Executive Director	Association of Ethiopian Microfinance Institutions M: +251 911 214005 E: woldayam@yahoo.com	Met	No

ANNEX B: REFERENCES

1. Bloomberg (2016). *Untangling investment opportunities in Ethiopia's expanding electricity industry*. EMEA Research note. Bloomberg The New Energy Finance. <http://about.bnef.com>
2. Cyrle Consulting and Sofies (2016). *Electronic waste (e-waste) impacts and mitigation options in the off-grid renewable energy sector* <http://www.cyrle.co.uk>
3. Dufsar Energy. (2016). *Dufsar Mobile Café Empowering Women Through Clean Energy Innovations*. Presented at Clean Energy Ministerial conference 2016. <https://dufsar.herokuapp.com>
4. Dufsar Energy. (2016). *Fixed off-grid solar system*. <https://dufsar.herokuapp.com>
5. Ethiopian Standard Agency (2015). First edition 2015. *Off-Grid Solar photovoltaic lighting- requirements. Compulsory Ethiopia standards*. Prepared by the Technical Committee for Electrical power supply systems and machines
6. Federal Republic of Ethiopia. (2011). *Ethiopia's Climate-Resilient Green Economy Green economy strategy*. Published by UNDP <http://www.undp.org/content/dam/ethiopia/docs/Ethiopia%20CRGE.pdf>
7. Kevin Kennedy, Clearcape Ltd for Enclude (2015). *Renewable Energy Initiatives for PEPE Solar Power in Agency Banking, and other projects*. Published by Kevin Kennedy
8. Lighting Africa. (2012). *Policy Note Report: Ethiopia*. prepared by Marge and Econoler. Reviews PP. 1-13. <http://www.lightingafrica.org>
9. Lighting Africa Program (2013) Ethiopia Market Intelligence. Prepared by Ethio Resource Group (June 2013). <http://www.lightingafrica.org>
10. Lighting Africa. (2016). *Proposed Regulatory Measures to Support the Growth of the Market for Pico-PV Products and Solar Home Systems in Ethiopia*. Lighting Africa Ethiopia Program <https://www.lightingafrica.org>
11. Ministry of Water, Irrigation and Energy Ethiopia (2015). Rural Electrification Fund. *Off-Grid Investment Plan for Ethiopia Assessment Report*. FICHTNER Stuttgart Germany. <http://fichtner.co.uk>
12. Ministry of Water, Irrigation and Energy Ethiopia (2015). Rural Electrification Fund. *Off-Grid Investment Plan for Ethiopia Final Report*. FICHTNER Stuttgart Germany. <http://fichtner.co.uk>
13. NRECA International (2016). *Ethiopia Beyond the Grid Program Technical Application for the Cooperative Development Program*. Prepared for USAID/E3/LS. <http://www.nreca.coop>
14. NRECA International. (2016). *Ethiopia National Electrification Strategy Project: Gap Analysis Report*. <http://www.nreca.coop>
15. ODI, GOOGLA, Practical Action, Solar Aid (2016). *Accelerating access to electricity in Africa with off-grid solar. The impact of solar household solutions. Full REPORT*. ODI: London. <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/10229.pdf>
16. ODI, GOOGLA, Practical Action, Solar Aid (2015). *The Market for solar household solutions*. Overseas Development Institute: London, UK. <https://www.odi.org>
17. ODI, GOOGLA, Practical Action, Solar Aid (2015). *Off-grid solar country briefing: Ethiopia*. <https://www.odi.org>