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**United Nations Development Programme
GLOBAL PROJECT
PROJECT DOCUMENT**

Project title: The Climate Aggregation Platform for Developing Countries	
Management Arrangements: Direct Implementation	Responsible Party: Climate Bonds Initiative
UNDP Strategic Plan Output: <u>Output 1.4:</u> Scaled-up action on climate change adaptation and mitigation cross sectors which is funded and implemented <u>Output 1.5:</u> Inclusive and sustainable solutions adopted to achieve increased energy efficiency and universal modern energy access (especially off-grid sources of renewable energy)	
UNDP Social and Environmental Screening Category: <u>Global offer:</u> low risk. <u>In-country offer:</u> moderate risk. Screening to take place before implementation	UNDP Gender Marker: 1- Contributes to gender equality
Atlas Project ID/Award ID number: 100219	Atlas Output ID/Project ID number: 103267
UNDP-GEF PIMS ID number: 5749	GEF ID number: 9309
Planned start date: January 2017	Planned end date: December 2019
LPAC date: [Insert date]	
<p>Brief project description: The Climate Aggregation Platform (CAP) will promote the scale-up of financial aggregation for small-scale, low-carbon energy assets in developing countries. The project aims to help build in-country pipelines of high-quality, standardised low-carbon energy assets and to develop new low-cost sources of financing, building awareness and trust with investors in this new asset class. In so doing, the project can contribute to improving the lives of citizens in developing countries, bringing about affordable, reliable and clean energy.</p> <p>The CAP's activities and value proposition will be formulated in terms of a global offer and an in-country offer:</p> <ul style="list-style-type: none"> • <i>Global offer:</i> global awareness raising, knowledge management and working group • <i>In-country offer:</i> three in-country initiatives, each centered around (i) a showcase transaction, likely in partnership with a development bank and/or the private sector, and (ii) tailored market development activities from a menu of services, such as standardization efforts and addressing tax/regulatory barriers. <p>The project's central approach to achieving change - embedded throughout its design - is a <i>barrier-removal</i> approach. The project seeks to do this in different ways: addressing information barriers through the project's global activities; addressing first-mover barriers through its emphasis on first-of-a-kind transactions; and then, within countries, targeting specific barriers to scaling-up via tailored market development activities.</p> <p>The Global Environment Facility (GEF) is providing initial seed-funding to establish the CAP in the form of a USD 2 million, 3 year GEF project. UNDP and the Climate Bonds Initiative (CBI), as a Responsible Party to UNDP, will implement the project. The Inter-American Investment Corporation (IIC), a member of the Inter-American Development Bank (IDB) Group, is a founding partner of the CAP and is providing co-financing for the in-country initiatives.</p>	

FINANCING PLAN	
GEF Trust Fund	USD 1,950,000
(1) Total Budget administered by UNDP	USD 1,950,000
PARALLEL CO-FINANCING	
IIC (Latin America)	USD 50,000,000
MGM Innova Capital (Latin America)	USD 30,000,000
EESL (India)	USD 5,000,000
CBI	USD 200,000
UNDP	USD 150,000
(2) Total co-financing	USD 85,350,000
(3) Grand-Total Project Financing (1)+(2)	USD 87,300,000

SIGNATURES		
Signature:	Agreed by UNDP	Day/Month/Year:
[Insert Printed Name]		

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ACRONYMS

ABS	Asset Backed Security
C&I	Commercial and Industrial (solar power)
CAP	Climate Aggregation Platform
CBI	Climate Bonds Initiative
CO	UNDP Country Office
EIB	European Investment Bank
EESL	Energy Efficiency Services Limited (India)
ERC	UNDP Evaluation Resource Center
ESCO	Energy Service Company
GEF	Global Environment Facility
GONGLA	Global Off-Grid Lighting Association
IDB	Inter-American Development Bank
IEO	Independent Evaluation Office
IFC	International Finance Corporation
IIC	Inter-American Investment Corporation (part of the IDB Group)
IRENA	International Renewable Energy Association
KPI	Key Performance Indicator
MSP	Medium Sized Project
MTR	Mid Term Review
NDC	Nationally Determined Contribution
OPIC	Overseas Private Investment Corporation
PAYG	Pay-As-You-Go
PIF	Project Identification Form
PIR	GEF Project Implementation Report
PPA	Power Purchase Agreement
SAPC	Solar Access to Public Capital
SDG	Sustainable Development Goal
SE4All	Sustainable Energy for All
SEIA	Solar Energy Industries Association
SGA	Sales, General and Administrative
tCO ₂ e	Tonne of carbon dioxide equivalent
TE	Terminal Evaluation
UNDP	United Nations Development Programme
UNDP-GEF	UNDP Global Environmental Finance Unit

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1. DEVELOPMENT CHALLENGE

CONTEXT AND GLOBAL SIGNIFICANCE

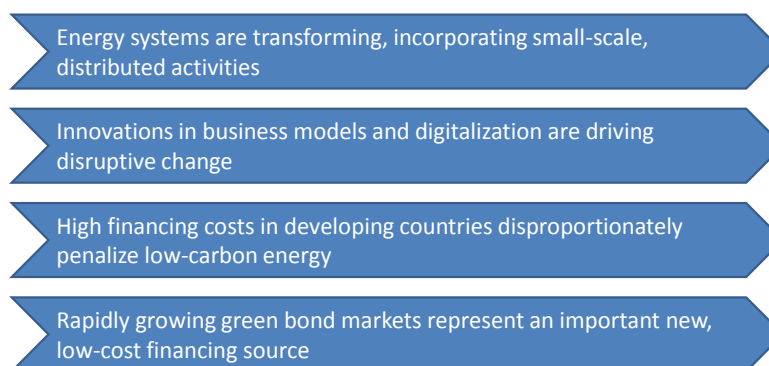
1. Developing countries are facing an urgent development challenge, seeking to advance their economic and human development, while simultaneously contributing to global efforts to mitigate climate change. The 2030 Agenda for Sustainable Development has set out ambitious development goals for the global community. The Paris Agreement, in turn, has called for urgent climate action to stabilize global average temperatures. Advancing these agendas will require unprecedented financing needs, together with the development of new and innovative sources of finance.

2. In energy, developing countries are experiencing rapidly increasing energy demand and, in many cases, energy access shortfalls. Global energy demand is projected to increase by 56% between 2010 and 2040, nearly all of which will occur in developing countries¹. In many developing countries there is similarly an urgent need to increase energy access, targeting the 1.1 billion people globally who lack electricity to light their homes or run their businesses². Given energy's central role in human development, if this energy demand can be met, this can advance a range of co-benefits, spurring economic growth, creating jobs and raising living standards

3. A large financing gap for investment in energy in developing countries needs to be bridged. Sustainable Energy for All (SE4All) estimates that by 2030, USD 660 billion per year in investment in developing countries will be needed to meet the SE4All objectives (energy access; renewable energy; energy efficiency). This compares to a current (2012) baseline of USD 141.9 billion per year in investment. This amounts to an annual financing gap of USD 518.1 billion as compared to the required 2030 figures³.

4. A number of recent trends have created the conditions in which financial aggregation for small-scale, low-carbon energy assets will be critical to meeting the energy financing challenge. Energy markets around the world are in the midst of a fundamental transition, incorporating large volumes of distributed renewable energy generation and consumer-driven energy efficiency measures. Traditional models for financing large centralized energy assets, such as bank lending, project finance and utility-based financing, will have less applicability going forward. This will be especially so as the scale of renewable energy development will stretch the balance sheets of banks and utilities, limiting their ability to finance. To address these challenges, new aggregative models of financing small-scale, low-carbon energy assets need to be developed and scaled-up. The trends and drivers behind the need for financial aggregation are shown in Figure 1, and analysed in technical annex A.

Figure 1. Four key trends for financial aggregation of small-scale, low-carbon energy in developing countries



¹ US Energy Information Administration (2013): *International Energy Outlook*

² World Bank (2015): SE4ALL Global Tracking Framework Report

³ World Bank (2015): SE4ALL Global Tracking Framework Report

BASELINE, BARRIERS AND ASSOCIATED BASELINE PROJECTS

5. Financial aggregation is a process in which multiple assets are bundled together, and which then receive financing, or refinancing, from investors on the basis of their future cash flows. This project will promote financial aggregation for small-scale, low-carbon energy assets in developing countries. This will bring about lower cost financing and longer debt maturities due to the ability of financial aggregation to access new, lower-cost sources of capital, as well as to de-risk through portfolio diversification. Financial aggregation for energy assets with a third-party ownership model⁴ brings the further benefit of eliminating upfront costs for end-users, enabling wider take-up amongst end-users with limited or no capital resources.

6. While holding great potential, financial aggregation for small-scale, low-carbon energy is at a nascent stage and faces a range of barriers. Markets for financial aggregation will require innovation and time to reach maturity, viability and scale. A typical financial aggregation transaction is complex, involving numerous steps and multiple stakeholders. Financial aggregation transactions for low-carbon energy currently face a range of barriers: from a lack of credit information on end-users, to varying underwriting standards and hence portfolio quality, to differing approaches to SPV structures, to a lack of investor appetite and awareness. An introduction to financial aggregation, including key considerations, an overview of an asset-backed bond transaction, and a list of common barriers is set out in technical annex B.

7. In the absence of financial aggregation, business-as-usual approaches to financing will likely result in a more costly approach to investment in small-scale, low-carbon energy activities in developing countries. In such a scenario, uptake of small-scale, low-carbon energy measures by end-users (individuals and businesses) will face existing challenges in the form of high upfront capital needs, high financing costs and short loan tenors. Financing will rely more heavily on equity than on debt. Rather than scaling deployment of low-carbon energy resources, deployment will under-perform and fail to reach the levels necessary to meet the sustainable development needs of developing countries.

8. The first financial aggregation transactions for small-scale, low-carbon energy are now occurring. The US has led the way, closing a number of public bond deals, including by SolarCity and Restore America (energy efficiency). In developing countries there are pockets of nascent activity: in East Africa, solar home kit companies including BBOX and Lendable have closed on small aggregation transactions, using a variety of different models; in India, the IFC, with the India Innovation Lab for Green Finance, and OPIC are developing warehouse vehicles for C&I solar, and domestic development banks are currently exploring various aggregative approaches; in Latin America, IIC is supporting a range of aggregative transactions for solar and energy efficiency, including a multi-country programme funded by the GCF. While these initial transactions are a positive step, many efforts still face challenges, there is limited sharing of lessons learnt, and an overall need to greatly increase scale and volume.

9. A small number of initiatives are seeking to promote the development of financial aggregation markets. In the US, NREL's Solar Access to Public Capital (SAPC) working group, which ran from 2012 to 2015, was a domestic US initiative focused on small-scale solar, promoting standardization of contracts and performance indicators. SAPC's work is now being continued by US industry associations, such as with the SEIA Finance Initiative. Also in the US, the Rocky Mountain Institute has been active in advancing solutions on credit information for C&I solar, including supporting BeEdison's cloud-based risk analytics solution. Internationally, a number of activities are underway, typically focusing on discrete areas and which, directly or indirectly, can link to financial aggregation. In 2016, IRENA and the Terrawatt Initiative launched an effort, in collaboration with international law firms, to standardize power purchase agreements, with a focus on C&I and utility-scale solar. In 2016, WHEEL launched an initiative for warehouse vehicles for building energy efficiency in Brazil, China and India, seeking to replicate its successful US pilot. Also in 2016, GOGLA and the World Bank Group have established an industry working group to standardize

⁴ Third-party ownership models for low-carbon energy are arrangements by which a household or business hosts a low-carbon energy asset, for example solar PV, which is owned, as well as operated and maintained, by a separate energy service company. The household or business receives the energy generated by the asset, and enters into a lease (monthly payments) or PPA (per kWh payments) with the energy service company to pay for this service.

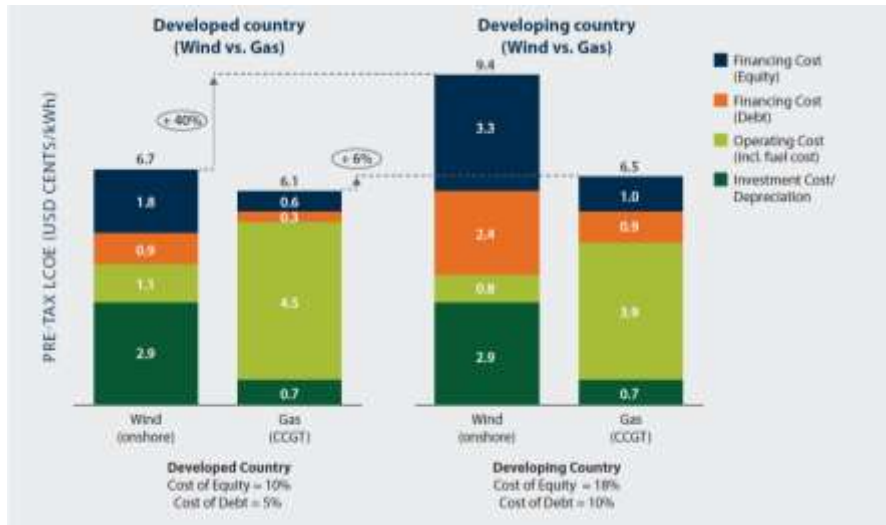
industry-wide key performance indicators (KPIs) for solar home kits, an important building block and pre-requisite for scaling of financial aggregation in this technology sector. The project will seek to actively collaborate with related initiatives.

2. STRATEGY

Please read this Section 2 ('Strategy') in combination with Section 3 ('Project Objective, Outcomes and Outputs'). Section 2 sets out the project's strategic principles; section 3 sets out the operational aspects of its strategy.

10. **The project has a clear goal: to increase access to low-cost financing for low-carbon energy.** The project's theory of change, drawing from UNDP's 2013 report, *Derisking Renewable Energy Investment*⁵, posits that, while technology costs for low-carbon energy have seen dramatic decreases in recent years, financing costs for low-carbon energy in developing countries typically remain high. These high financing costs disproportionately penalize low-carbon energy due to low-carbon energy's high capital intensity. Figure 2 below illustrates this, showing how financing costs dominate the life cycle costs of low-carbon energy in developing countries (here representing 61% of the life cycle costs of utility-scale wind energy). For policymakers, the implication of this is that a key opportunity is to seek to lower these high financing costs. By lowering financing costs, life-cycle costs will come down, making low-carbon energy more competitive with conventional energy. This can divert private sector investment flows to low-carbon energy. With lower financing costs, the end result is that developing country citizens can benefit from more affordable, reliable and clean energy.

Figure 2: Comparison of life-cycle costs for wind vs gas utility-scale energy generation in a developed and developing country financing cost environment.



Source: UNDP, *Derisking Renewable Energy Investment* (2013). See Annex A of the report for full assumptions. All assumptions (technology costs, capital structure etc.) except for financing costs are kept constant between the developed and developing country.

11. **Working with its partners, the project will seek to remove barriers to financial aggregation, in this way promoting its overall goal of increasing access to low-cost financing.** The project's central approach to achieving change - embedded throughout its design - is a *barrier-removal* approach. The project seeks to do this in different ways: addressing information barriers through the project's global activities; addressing first-mover barriers through its emphasis on first-of-a-kind transactions; and then, within countries, targeting specific barriers to scaling-up via tailored market development activities.

⁵ UNDP (2013): *Derisking Renewable Energy Investment*

12. The project design seeks to leverage UNDP’s and CBI’s comparative advantages, to incorporate lessons learnt from existing initiatives, and to create a clear niche for the project. The design of the project involved careful consideration. This includes:

- *Comparative advantages.* Within the project, each actor has a clear and complementary role. UNDP’s comparative advantage lies in its on-the ground government relationships and in policy instruments. CBI’s lies in its network of investor contacts and awareness-raising. Development bank partners bring comparative advantages in financial instruments.
- *Lessons learnt.* The project design phase involved detailed research on what has and hasn’t worked with existing initiatives, as well as broad consultations with a range of relevant stakeholders. Findings have been incorporated throughout the project design, including an overall shift in the design to a more country-level transaction-oriented model. This is further described in paragraph 16 in Section 3.
- *Clear niche.* Distinct from other initiatives, the project is focused on *developing countries* and *small-scale*, low-carbon energy activities. A comparative advantage of the project will be its global reach, and the project’s scope covering *both* renewable energy and energy efficiency, with the ability to draw lessons learnt from around the world and across technology sectors.

3. PROJECT OBJECTIVE, OUTCOMES AND OUTPUTS

OVERVIEW

13. The objective of this project is to promote the scale-up of financial aggregation for small-scale, low-carbon energy assets in developing countries. In so doing, the project can contribute to improving the lives of citizens in developing countries, bringing about affordable, reliable and clean energy.

14. The project will seek to advance both the supply and demand sides of financial aggregation transactions. On the supply side, the project will assist in **building pipelines of high-quality, standardized, small-scale low-carbon energy assets.** On the demand side, the project will **engage investors (institutional investors, commercial banks), to build awareness, interest and trust in this new asset class.**

15. The project will establish the Climate Aggregation Platform (“CAP”). The CAP’s activities and value proposition will be formulated in terms of a *global offer* and an *in-country offer*:

- **Global offer:** global awareness raising, knowledge management and a global working group
- **In-country offer:** three in-country initiatives, each centered around (i) a showcase transaction, likely in partnership with a development bank and/or the private sector, and (ii) market development activities from a menu of services, such as standardization efforts or addressing tax/regulatory bottlenecks.
 - Based on a preliminary assessment, three initial in-country initiatives have been identified as promising opportunities. The selection of countries and technology sectors will be further scrutinized and confirmed early in project implementation.
 - *Kenya* (East Africa): solar home systems
 - *Mexico, Brazil, Panama or Colombia* (Latin America): commercial & industrial (C&I) solar or ESCO energy efficiency
 - *India*: solar renewable energy or energy efficiency
 - Over time, with additional funding, the intent is to add further in-country initiatives, beyond these initial three

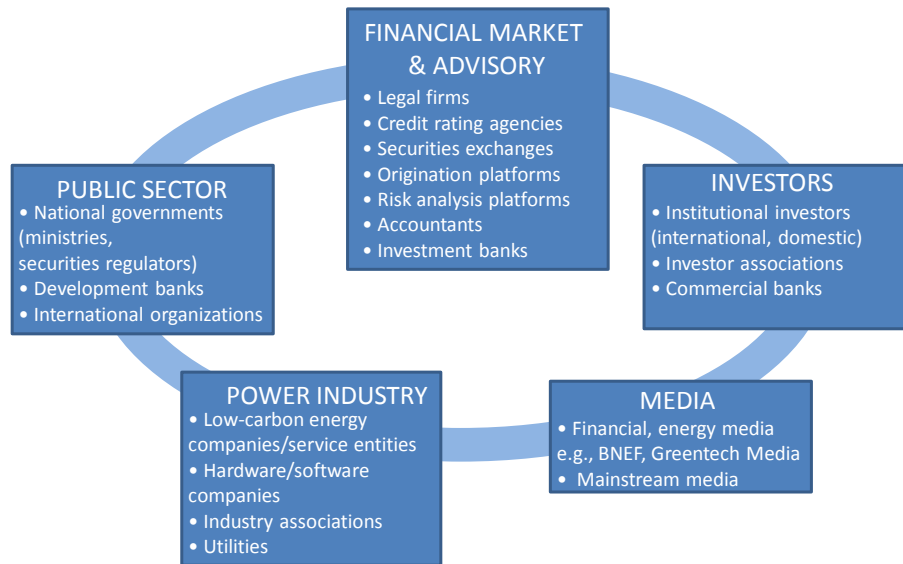
Throughout, the CAP’s activities will be demand-driven, seek to give full credit to partners, and to operate under the principle of being supportive, not prescriptive.

16. The CAP’s design is centered around a country-level, transaction-driven model. Feedback gathered in the project’s design phase repeatedly identified the importance of local context (technology, jurisdiction) in financial

aggregation transactions. This has guided the prominence of the in-country initiatives in the CAP’s design. Within each in-country initiative, the aim is that showcase transactions can create a concrete objective around which domestic stakeholders can engage and be incentivized. Such transactions can also provide information-discovery on domestic market barriers, for example regulatory or tax issues. The CAP’s menu of market development activities can then assist in targeting identified barriers, working with local partners to create the conditions for replication and scale-up. Finally, the lessons learnt and good practice from the in-country initiatives can be shared regionally and globally.

17. The CAP will seek to systematically engage and partner with financial aggregation stakeholders. Figure 3 below sets out a categorization of the typical stakeholders in a financial aggregation transaction along five main stakeholder groups - public sector, financial market and advisory, investors, power industry and media - each of which is then composed of multiple stakeholder types. The CAP will seek to engage with these stakeholder groups in both its global and in-country activities. Technical annex D sets out an initial analysis of the CAP’s value proposition to each of these stakeholder groups.

Figure 3: Stakeholder groups relevant to the CAP



18. The CAP will have a defined scope. Table 1 below provides a summary of key areas.

Table 1: Scope of the CAP.

Countries	<p>The CAP will expressly be open to <i>all</i> developing countries, both middle income and lower income countries.</p> <p>The CAP will also engage with actors from developed countries to learn from their low-carbon aggregation practices, as well as exploring the potential to tap into developed economies’ investor base for low-carbon asset-backed securities in developing countries.</p>
Technologies	<p>The CAP will focus on distributed, small-scale low carbon energy assets. This is understood as:</p> <ul style="list-style-type: none"> • Distributed renewable energy: on-grid solar PV (residential, C&I), off-grid solar PV, and mini-grids • Distributed energy efficiency: energy efficient buildings, lighting, industrial and agricultural

	energy efficiency, and transport In the design phase, feedback was received with interest in expanding the CAP's scope into other areas ⁶ . This may be explored in future phases of the CAP.
Sources of low-cost financing	The CAP will focus on debt aggregation transactions. The CAP will exclude equity aggregation transactions (e.g., yieldcos). Sources of financing may be both international and/or domestic. When international, options to address relevant issues, such as currency risk, will also be explored. A key end objective will be to exit to the public capital markets via asset-backed bonds. Recognising that many developing countries do not yet have sophisticated capital markets, intermediate financing sources, such as an exit with commercial bank debt, will also be supported.

19. **The CAP will promote the uptake of digitalization and smart data throughout its activities.** A cross-cutting theme that emerged during the project's design phase is the importance and potential around digitalization and smart data. This is a function of two, related factors. First, as identified in technical annex A, the uptake of small-scale, low carbon energy is in large part being driven by new business models, in which digitalization is often a central innovation. Second, financial aggregation inherently involves large volumes of relationships with end-users; a key challenge is to gather, analyse and share the data related to these relationships, whether it be the credit-worthiness of end-users, the terms of receivable contracts, or the operational performance of energy assets. Recognising this, the CAP will seek to promote solutions in digitalization and smart data across its support to stakeholders. The CAP will also seek to 'walk the talk' in its own operations, using digital platforms and, subject to confidentiality, making data accessible and transparent.

20. **The CAP's activities are structured and budgeted under 4 components.** UNDP and CBI will share the implementation of these 4 components, leading components where they have a comparative advantage. The 4 components are summarized below in Table 2 and described in more detail in the rest of this section.

Table 2: Summary of the project's 4 components, implementation arrangements and budget.

Component	Implementation	Budget
1. Global offer: awareness raising, knowledge management and working group	CBI	USD 650,000
2. In-country offer: showcase transactions (3 countries)	UNDP	USD 570,000
3. In-country offer: market-development activities (3 countries)	UNDP/CBI	USD 480,000
4. Mid-term and terminal evaluation	UNDP	USD 73,000
	Sub-total	USD 1,773,000
	Project Management Costs	USD 177,000
	Total	USD 1,950,000

GLOBAL OFFER: AWARENESS RAISING, KNOWLEDGE MANAGEMENT AND WORKING GROUP

Component/Outcome 1: Increased awareness, exchange of information and engagement in financial aggregation for small-scale, low-carbon energy activities in developing countries.

GEF funding: USD 650,000

Co-financing: USD 250,000 (UNDP (in-kind), Climate Bonds (in-kind))

Implementation: Climate Bonds Initiative

21. **Component/outcome 1 concerns the CAP's global offer.** This is the CAP's general offer to all stakeholders (government, financial market, investors, power industry, media) who are interested in financial aggregation in developing countries. This component is an important to making the CAP inclusive to all developing countries, not only the three developing countries in the CAP's initial in-country initiatives. This component combines three mutually reinforcing outputs: (i) awareness raising, (ii) knowledge management and (iii) a global working group.

⁶ Potential interest was expressed regarding larger-scale renewable energy, as well as potential applications in forestry/land management.

22. **In (i) awareness raising, the CAP will maintain a high-profile and engaging global public presence.** This activity will be modeled on the Climate Bond Initiative’s successful approach to awareness raising. The aim will be to disseminate the findings and lessons learnt from the (ii) knowledge management and (iii) working group activities, and in turn to draw from the CAP’s in-country initiatives. Mechanisms for awareness-raising will include an active online and social media presence, media outreach (interviews etc.), and the organization of regular high-profile events.

23. **In (ii) knowledge management, the CAP will act as a centralized, global depository for high-quality technical data and research.** Financial aggregation transactions are currently characterized by a lack of information and transparency on latest practices, deal structures, and deal pricing. Information is typically fragmented and hard to come by. The CAP will seek to address this in a number of ways:

- It will produce a flagship, annual ‘State of the Low-Carbon Aggregation Markets’ report.
- It will commission specialized research, for example on good practice in SPV structuring.
- It will develop a global database of financial aggregation transactions.
- It will develop a library of case studies and tool-kits, both in-house and from relevant third party activities. In-house materials will draw from CAP’s own showcase transactions and in-country initiatives.

Where possible, partnerships, for example with academic institutions, will be pursued on research and data gathering. This output will also link with cross-cutting knowledge management outputs from the in-country initiatives in components 2 (showcase transactions) and 3 (market development activities).

24. **With the global working group, the CAP will constitute a flagship group of key industry and finance stakeholders, providing the CAP with visibility, and facilitating networking and information exchange.** The global working group will seek a broad and high-profile international/multinational membership, including: investors, financial market and advisory, power industry, public sector and media communities. Please see technical annex E for illustrative members. The global working group will include both developed and developing country actors, reflecting the opportunity to tap into experiences in developed countries, as well as developed country investor bases. Regional and technical committees and sub-groups may be formed. The CAP will act as a secretariat to the global working group.

Table 3: Component 1’s outcome and outputs.

Component	Outcome	Outputs/Activities
1. Global offer: awareness raising, knowledge management and working group	1. Increased awareness, exchange of information and engagement in financial aggregation for small-scale, low-carbon energy activities in developing countries.	<p>1.1 <i>Awareness raising</i>: stakeholders are aware of the opportunity for financial aggregation and of the CAP’s products and services. <u>Activities:</u></p> <p>1.1.1 Online presence is developed and maintained (website, social media, blogs, webinars)</p> <p>1.1.2 Media outreach (opinion pieces, interviews) with relevant media outlets</p> <p>1.1.3 High-profile CAP events and panels at international meetings</p> <p>1.2 <i>Knowledge management</i>: knowledge products and toolkits are developed for use by stakeholders, addressing information barriers in financial aggregation. <u>Activities:</u></p> <p>1.2.1 A flagship annual report, ‘State of the Small-Scale, Low-Carbon Aggregation Markets’, is published</p> <p>1.2.2 In-depth research pieces, e.g. lessons learnt in SPV structuring, are published</p> <p>1.2.3 Library of case studies and tool-kits are made available, both in-house and from relevant third party activities. In house materials will draw on information from CAP’s showcase transactions and in-country initiatives</p> <p>1.2.4 Global database of green aggregation transactions is populated and maintained, including where possible, deal terms, structures, investors etc.</p> <p>1.3. <i>Global working group</i>: international and national stakeholders in financial aggregation are enabled to network, coordinate and exchange information at the global level.</p>

		<p><u>Activities:</u> 1.3.1 A global working group, consisting of high-profile members, is established, regularly convened and supported.</p>
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IN-COUNTRY OFFER: SHOWCASE TRANSACTIONS, WITH TAILORED MARKET DEVELOPMENT ACTIVITIES TO PROMOTE SCALE-UP

25. Components/outcomes 2 and 3 concern the CAP's in-country offer. This will consist of the CAP's in-country initiatives. Each in-country initiative will include a showcase transaction (component 2), typically led by a development bank and/or private sector partner. The show-case transaction will be complemented by tailored market development activities (component 3) to create the conditions for replicability and scale.

26. The CAP will support an initial three in-country initiatives, selected to represent a range of country contexts, technologies and aggregation models. The CAP will seek to be focused, selecting a specific sector (e.g. C&I solar) in each country. Potential countries/sectors will be assessed on the following criteria: (i) macroeconomic outlook; (ii) power/energy market outlook (e.g. tariff structure, regulations); (iii) potential for securitization and green bonds; (iv) potential aggregation market size; (v) current activity/champions in financial aggregation. Three initial in-country initiatives have been preliminarily identified as promising in the design phase of this project. Overviews of the first three proposed in-country initiatives are found in technical annex C. The selection of countries and technology sectors will be further scrutinized and confirmed early in project implementation. The three promising in-country initiatives are as follows:

- *Kenya* (East Africa): solar home systems
- *Mexico, Brazil, Panama or Colombia* (Latin America): commercial & industrial (C&I) solar or ESCO energy efficiency
- *India*: solar renewable energy or energy efficiency

Component/Outcome 2: Financial closure of three financial aggregation transactions for small-scale, low carbon energy activities in developing countries

GEF funding: USD 570,000

Co-financing: USD 20,000,000 (IIC, LatAm, debt; MGM Innova Capital, LatAm, equity; EESL, India, debt)

Implementation: UNDP

27. Component/Outcome 2 concerns the CAP's showcase transactions for its in-country offer. Each in-country initiative will include one CAP showcase transaction. Showcase transactions are central to the CAP's design, creating a concrete objective around which national stakeholders can engage and be incentivized. Such transactions can act as information discovery on domestic market barriers, such as regulatory or tax issues, which can help guide the CAP's activities in component 3. They will provide 'learning by doing' experience to be presented as case studies to be disseminated more widely.

28. The CAP will partner with development banks and/or the private sector on showcase transactions. The CAP will contribute financial assistance for transaction costs. Each in-country initiative's national working group (see Component 3) will assist in proposing and identifying suitable show-case transactions. It is envisaged these will typically be existing first-of-a-kind transactions, often supported by a development bank, which take an innovative approach to financial aggregation in the particular country. Potential showcase transactions will be assessed against objective criteria to determine their likelihood of success, value-for-money and how the CAP's financial assistance will be impactful. First-of-a-kind transactions often face high transaction costs in addressing first-mover barriers, such as legal costs relating to SPV structuring, or regulatory matters. The CAP will be able to contribute up to \$100,000 to each showcase transaction towards offsetting such costs. For the avoidance of doubt, the CAP will not be investing directly into the financial asset generated by the showcase transaction.

Table 4: Component 2's outcome and outputs.

Component	Outcome	Outputs/Activities
2. In-country initiatives: showcase transactions	2. Financial closure of first-of-a-kind financial aggregation transactions of small-scale, low carbon energy activities in three developing countries	<p>2.1 <i>Showcase transactions</i>: partner transactions in each in-country initiative are provided with CAP financial support of up to \$100,000, addressing first-mover transaction and/or structuring costs</p> <p>2.2 <i>Knowledge management</i>: Information from showcase transactions is extracted, analysed and developed into suitable knowledge products, ready for dissemination to stakeholders at national, regional and global level.</p>

Component/Outcome 3: The market architecture and environment for replication and scale-up of financial aggregation transactions for small-scale, low-carbon energy is enhanced in three developing countries

GEF funding: USD 480,000

Co-financing: USD 65,000,000 (IIC, LatAm, debt; MGM Innova Capital, LatAm, equity)

Implementation: UNDP and Climate Bonds Initiative

29. **Component/outcome 3 concerns the CAP's tailored market development activities for its in-country offer.** In order to maintain focus, these will be performed for the particular technology sector (e.g. C&I solar) where the CAP is working. This will be composed of three inter-related activities (i) a national working group, (ii) a market assessment and (iii) tailored CAP services. Overall, the CAP will have a structured, but flexible, approach to its activities in each in-country initiative.

30. **National working groups will guide CAP activities and act as a broader forum to engage stakeholders.** Each in-country initiative will establish a country-level working group, composed of key stakeholders - financial market, power industry, investor, public sector, media - in the particular technology sector (e.g., C&I Solar) where the CAP is working. The working group will then guide and inform the CAP's in-country initiative activities, including proposing suitable showcase transactions (component 2), and providing inputs into the market assessments, CAP action plans and CAP market development activities (this component 3). The working group will also act as a broader forum to facilitate networking, coordination and sharing of information amongst national actors.

31. **Market assessments will provide an in-depth analysis and vision for financial aggregation.** Informed and guided by the national working groups, a detailed market assessment will be performed for the particular technology sector (e.g. C&I solar) targeted in each in-country initiative. Elements of the market assessment will include: (i) analysis of recent track record of financial transactions (equity, debt) in the particular sector, (ii) a systematic analysis of barriers to aggregative transactions (see technical annex B)), (iii) mapping of other initiatives (international, domestic) supporting the particular sector, and (iv) developing a vision (near, medium, long term) for the evolution of financing and aggregative transactions in this market. The market assessment will also include UNDP requirements including (i) a gender analysis and (ii) social and environmental standards (SESP) screening of the particular sector. Information discovery from the showcase transaction will feed into the market assessment. The market assessment will then be used to guide the CAP's action plan. The market assessment will also be made publicly available. The market assessment will be updated annually during the course of the CAP project.

32. **Tailored CAP barrier-removal activities will enable broader replication and market scale-up.** Following the market assessment, a CAP action plan will be developed, setting out specific barrier-removal activities that the CAP will pursue in the particular market. The aim of the CAP action plan will be to systematically address the barriers that may be holding back market development. The CAP will develop and maintain a 'menu' of possible barrier-removal activities, which can then be tailored to the particular country context. Figure 4 below sets out an

illustrative set of barrier removal activities that the CAP may engage in. The action plan will be a *de-facto* workplan, identifying activities, partners, budgets and timelines. It will clearly define how the CAP will act, and how it will fit in with any other domestic initiatives. Like the market assessment, the CAP action plan will be updated annually during the course of the CAP project.

Figure 4: Illustrative CAP barrier-removal activities

CAP Barrier-Removal Activity	Target Barrier
<ul style="list-style-type: none"> Pilot/promote technology innovations in credit information 	<ul style="list-style-type: none"> Lack of data on credit-worthiness of end-users (individuals, unrated businesses)
<ul style="list-style-type: none"> Work with developers and industry associations on standardization of contracts, KPIs and data sets Test cloud based risk assessment tools 	<ul style="list-style-type: none"> Lack of high quality origination assets Fragmented approach to underwriting, contracts, installation and O&M
<ul style="list-style-type: none"> Share information on successful SPVs, promoting good practice and standardization 	<ul style="list-style-type: none"> Lack of information on well-designed SPVs Fragmented approach to SPVs, resulting in lack of overall liquidity in market
<ul style="list-style-type: none"> Financial intermediary education Mock-filings with local securities regulators, credit rating agencies. 	<ul style="list-style-type: none"> Lack of experience and familiarity by financial intermediaries in low-carbon securitization
<ul style="list-style-type: none"> Explore and develop approaches to managing FX (currency) risk 	<ul style="list-style-type: none"> FX (currency) risk arising from mismatch of local-currency receivables when securitization is in hard currency
<ul style="list-style-type: none"> Discussion papers, capacity building and dialogue with regulators for securities and tax reform 	<ul style="list-style-type: none"> Burdensome securities and tax regulations for low-carbon securitization
<ul style="list-style-type: none"> Awareness-raising and networking with institutional investors and banks 	<ul style="list-style-type: none"> Lack of institutional investor and commercial bank demand for low-carbon financial aggregation

Source: UNDP

Table 5: Component 3's outcome and outputs

Component	Outcome	Outputs/Activities
3. In-country initiatives: tailored market development activities	3. The market architecture and environment for replication and scale-up of financial aggregation transactions for small-scale, low-carbon energy is enhanced in three developing countries	<p>3.1 <i>National working groups</i>: national and international stakeholders in financial aggregation in each in-country initiative are enabled to network, coordinate and exchange information. <u>Activities:</u> 3.1.1 National working groups in each in-country initiative, consisting of key national and international stakeholders, are established, regularly convened and supported.</p> <p>3.2 <i>Market assessments</i>: The CAP and stakeholders in each in-country initiative are informed by an accurate, up-to-date understanding of the supported financial aggregation market <u>Activities:</u> 3.2.1 A detailed market assessment is performed for each in-country initiative. The market assessment is updated at the mid-point and end of the project. Subject to confidentiality, the market assessment is made publicly available.</p> <p>3.3. <i>Tailored CAP market development activities</i>: Stakeholders benefit from targeted CAP activities that remove barriers to financial aggregation, contributing to an enabled market environment <u>Activities:</u> 3.3.1 A CAP action plan – identifying targeted and coordinated barrier-removal activities for the CAP to implement - is developed for each in-country initiative.</p>

		<p>3.3.2 Specified CAP barrier-removal activities are implemented. Example barrier-removal activities include: standardizing contracts and outputs; financial intermediary education (mock filings); tax/regulatory reform</p> <p>3.4 <i>Knowledge management</i>: Information gained from the CAP's market development activities in each in-country initiative is extracted, analysed and developed into suitable knowledge products, ready for dissemination to stakeholders at national, regional and global level.</p>
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Component/Outcome 4: Mid and Terminal Evaluations

GEF funding: USD 73,000

Implementation: UNDP

33. **The project will undertake mid and terminal evaluations.** This will be part of the project's Monitoring & Evaluation approach set out in Section 6.

Table 6: Component 4's outcome and outputs

Component	Outcome	Activities
4. Mid and Terminal Evaluations	NA.	<p>4.1 Independent mid-term review to be commenced at 15 months into the project</p> <p>4.2 Independent terminal evaluation performed after completion of major outputs and activities.</p>

PARTNERSHIPS

34. **Partnership is central to the project's design and success.** For the CAP, a collaborative endeavour, the concept of partnership is closely related to stakeholder engagement. As set out in paragraph 17, and in figure 3, above, the CAP will seek to engage and partner with five main stakeholder groups - public sector, financial market and advisory, investors, power industry and media - each of which is then composed of multiple stakeholder types. Key areas of partnership for the CAP will include partnerships with development banks and/or the private sector in the show-case transactions, and more broad partnerships across stakeholder groups in the global and in-country working groups.

GENDER

35. **Gender considerations impact investment risks for small-scale, low-carbon energy in developing countries.** Women can play an important role in small-scale, low-carbon energy: first, at the household level, as the recipients of energy services, and as energy managers in the home; second, at the business and finance level, where women can act as entrepreneurs in energy companies, and/or be employed in the finance industry. UNDP's *Derisking Renewable Energy Investment*⁷ framework, as one of its current work-streams, has analysed how gender can affect investment risks for small-scale energy activities. For example, issues related to gender can impact *credit risk* (where women end-users in households may have lower creditworthiness, for example due to a lack of property rights, or a lack of consumer banking products for women) and *financing risk* (where female entrepreneurs in low-carbon energy may face challenges in closing on financing for their businesses due to gender bias where women are perceived by investors as less able entrepreneurs).

36. **Gender equality has been incorporated into the project design.** The project manager will be the designated focal point for gender in the project, accountable for all project matters related to gender. The Climate Bonds Initiative will support the project manager on gender issues. The project activities will address gender as follows:

⁷ UNDP (2013): Derisking Renewable Energy Investment

- **Activities.**
 - *Global offer:* The CAP will develop and disseminate at least one knowledge product on gender and financial aggregation
 - *In-country offer:* In each in-country initiative, the CAP will perform a gender analysis as part of the market assessments and CAP action plans. Where appropriate gender will then be incorporated into the CAP's selected barrier-removal activities.
- **Monitoring.**
 - Tracking of participants in global and national working groups and CAP events, with a target that at least 20% of participants are women
 - As per the Project Results Framework in section 5, one of the project objective indicators – the number of individuals and/or businesses benefiting from low-carbon energy as a result of financial closed CAP showcase transactions – will be monitored on a gender-disaggregated basis.
 - Additional M&E budget has been allocated for gender considerations

ANTICIPATED ECONOMIC AND ENVIRONMENTAL BENEFITS

37. **The project will generate both economic and environmental benefits.** Economic benefits from financial aggregation can be assessed in terms of the savings that will arise from lower financing costs for low-carbon energy assets. Lower financing costs will translate to lower tariffs and energy costs for end-users. Environmental benefits from financial aggregation can be assessed in terms of the reduced greenhouse gas emissions that will flow from the low-carbon energy measures, as compared to a baseline of conventional, fossil-fuel based generation. Modelling - under which a number of assumptions have been made⁸ - has been performed to estimate these benefits.

38. **Direct benefits:** Direct activities under this project are considered to be the three showcase transactions. For the purpose of *ex-ante* estimates, each showcase transaction is assumed to total, on average, USD 10 million. In practice, showcase transactions will only be identified during implementation. Benefits will then be calculated *ex-post* based on the empirical transaction size and type.

- On this basis of three showcase transactions at an average of USD 10 million, direct benefits are estimated to have the following impact.
 - Total financial aggregation of small-scale, low-carbon energy of USD 30 million
 - Total economic savings due to lower financing costs of USD 3.171 million.
 - Total emission reductions (lifetime) of 266,118 tCO₂e.

39. **Indirect benefits:** the project's modelling estimates indirect benefits using a top-down analysis. The analysis is based on SE4All projections of the annual SE4All investment needs in developing countries until 2030, as set out in paragraph 3. To model benefits, it is estimated that financial aggregation will represent 10% of the SE4All annual incremental investment needs – for example, if the SE4All investment gap is USD 518.1 billion per year, financial aggregation will provide USD 51.8 billion of this gap. The CAP's causality for these benefits is then estimated via a range – with a lower bound of 1% and a higher bound of 10%. On this basis, over the 10 year time horizon after the project is completed, the CFA Initiative would result in the following indirect benefits:

- Total financial aggregation for low-carbon energy assets over 10 years of USD 3.6 billion (1% causality) to USD 36.0 billion (10% causality)
- Total economic savings due to lower financing costs over 10 years of USD 380.3 million (1% causality) to USD 3.8 billion (10% causality)

⁸ The following assumptions have been used in the modelling. Economic benefits assume investment in solar PV, where financial aggregation reduces the cost of debt from 8% to 6%. Environmental benefits assume investment in solar PV in comparison to a baseline of fossil-based generation (combined cycle gas), with an existing baseline grid factor of 0.45 tCO₂e/MWh and system efficiency of 52.7%. Other assumptions: capital structure 30% equity/70%; cost of equity 15%; tax rate 25%; cost of installed capacity USD 1.6/W; capacity factor: 18%; asset lifetime 20 years. Economic savings are presented in real terms (2017 USD), discounted back to today using a 5% public discount rate. Source of assumptions: IRENA, Power to Change (2016); UNDP, DREI Tunisia (2014).

- Total annual emission reductions over 10 years of 31.9 million tCO₂e (1% causality) to 319.2 million tCO₂e (10% causality)

4. FEASIBILITY

RISK MANAGEMENT

40. **The project faces a number of external risks that may prevent the project's objectives from being achieved.** Table 7, below, summarizes the project's risk management approach. The table sets out 6 initially identified risks; a current estimate of the probability and impact of each risk; proposed mitigation measures for each risk; the 'risk owner' within the CAP accountable for monitoring each risk; and the current status of the particular risk. Additional project risks may be added during project implementation.

41. **The project will seek to actively monitor and mitigate risks.** As per standard UNDP requirements, the Project Manager will monitor risks quarterly and record progress in the UNDP ATLAS risk log. Risks will be reported as critical when the probability is rated at 3 or higher, and the impact is rated as 4 or above, or for any risk where the impact is rated as 5. Management responses to risks will also be reported to the GEF in the annual PIR.

Table 7. The project's risk mitigation plan

Risk Category	Rating (1 to 5)	Risk Mitigation Measures	Risk Owner	Current Status
<p><i>Political will</i></p> <p>Political will and buy-in from domestic governments for the CAP will be an important factor in its success. There is risk if governments are unable to provide this political support.</p>	<p>Prob.: 3 Imp.: 3</p>	<p>(i) At the global level, a number of international actors – G20, the Clean Energy Ministerial, SE4All- have identified financial aggregation as a priority area. These can assist in building political will in-country. The CAP will seek to support such global initiatives.</p> <p>(ii) At the in-country level, the CAP will screen potential in-country initiatives for the status of power market regulation. The CAP will only proceed with an in-country initiative if the power market regulatory context is <i>already</i> favourable. If there is an adverse policy change after proceeding with a country, the CAP will seek, with partners, to engage the domestic government.</p>	<p>Project manager</p>	<p>There is currently a good level of interest in financial aggregation. The proposed in-country initiatives all have favourable regulatory contexts.</p>
<p><i>Market risks – fuel prices</i></p> <p>There is risk in global fuel price volatility. The underlying uptake of small-scale, low-carbon energy may be negatively impacted by lower conventional fuel prices. Fuel prices may also be impacted by subsidies.</p>	<p>Prob: 2/3 Imp.: 3</p>	<p>The CAP will screen potential in-country initiatives for the financial viability of the proposed technology, including the impact of possible lower fuel prices. Related mitigating factors against this risk, such as the realization of non -financial co-benefits, e.g., electrification needs and rising energy demand, will also be considered.</p>	<p>Project manager</p>	<p>Global energy prices are currently low. Downside risk to prices is low.</p>
<p><i>Market risks – general securities market downturn</i></p> <p>There is risk in securities market volatility. The performance of securities markets tends to be cyclical in nature. The appetite of investors in financial aggregation transactions may be diminished by</p>	<p>Prob: 3/4 Imp: 3</p>	<p>The CAP will identify in-country initiatives representing a diversity of country contexts, and by association security market contexts. If the CAP is active in distinct regions, this can provide a natural hedge against market downturns. The CAP will also seek to build in flexibility in terms of the proposed take-out for financial aggregation transactions, for example, if need be, substituting a capital</p>	<p>Project manager (with CBI inputs)</p>	<p>Some current risk. Securities markets, particularly in developed countries, may be overpriced and due a correction.</p>

a securities market correction or downturn.		<p>markets exit with a bank debt exit.</p> <p>More generally, pricing on financial aggregation assets will adapt to new market conditions. Irrespective of market conditions, in general, financing costs from financial aggregation will still be preferable to conventional alternatives.</p>		
<p><i>Market risks – triggering of a financial crisis</i></p> <p>Securitisation in sub-prime mortgages was a key contributing factor to the financial crisis of 2008. Securitisation of mortgages and low-carbon energy assets share similarities, with the risk that the underlying issues which existed with sub-prime mortgage securities may be replicated with low-carbon energy securities.</p>	<p>Prob.: 1 Imp.: 4</p>	<p>While aggregation of low-carbon energy and mortgages do share similarities, there are also a number of clear reasons why it is unlikely that low-carbon energy assets could trigger a similar financial crisis. Low-carbon energy is not likely to reach the market size and origination volume to become a systemic risk to the financial system. New regulations, such as Basel-III, have placed constraints on bank leverage and proprietary trading, further reducing risk in these areas.</p> <p>The CAP's market development activities expressly address – through standardization in contracts, data sets and due diligence -- the very issues of transparency of information and robust risk assessment which were lacking with sub-prime mortgages.</p>	<p>Project Board</p>	<p>Low-carbon financial aggregation is currently too small to present systemic risk.</p>
<p><i>Data privacy risks</i></p> <p>New business models for financial aggregation of small-scale, low-carbon energy assets can involve gathering and analysing of end-user data. For example, solar home kit companies may gather usage and mobile money data on end-users. There is a risk that private data may be breached or abused. This in turn could create reputational risk in the sector.</p>	<p>Prob.: 2/3 Imp.: 3</p>	<p>The CAP's market assessment, and corresponding market development activities, for each in-country initiative will assess the issue of data privacy risks and the extent to which the CAP can be involved. If the risk exists, a number of potential risk mitigation approaches exist including developing common industry guidelines on treatment of data, and establishing balanced regulations on consumer data protection.</p>	<p>Project manager</p>	<p>Evolving and dependent on the particular technology sector. The first examples of data breaches have occurred in solar home kit sector.</p>
<p><i>Climate change risks</i></p> <p>Climate change may bring about increased frequency of extreme weather events and natural disasters. This may pose a physical risk to the infrastructure and hardware necessary for small-scale, low-carbon energy assets.</p>	<p>Prob.: 2/3 Imp.: 2</p>	<p>This risk is several steps removed from the core activities of the CAP and will be primarily addressed by the private sector developers offering small-scale, low-carbon energy assets. Developers typically manage this risk as part of their regular business planning, and may mitigate it through, for example, the use of remote cellular monitoring of hardware, or the use of insurance.</p> <p>Small-scale, renewable energy solutions also provide electricity systems with resilience to climate change risks, and thereby provide a natural hedge in this area.</p> <p>The CAP will nonetheless monitor this risk. If private sector developers are not addressing</p>	<p>Project manager</p>	<p>Currently tends to be addressed by private sector developers.</p>

		this risk, the CAP can seek to engage these stakeholders.		
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COST EFFICIENCY AND EFFECTIVENESS

42. **The project's design seeks to maximize its cost efficiency and effectiveness.** This is achieved in a number of ways. At the global level, the CAP's services – such as awareness raising and information exchange - can have large economies of scale with potential broad applicability across developing countries. This is particularly so given the very large future funding needs for low-carbon energy in developing countries. Many of the CAP's activities, in particular the working groups, are inherently collaborative, lending the CAP to coordination and the avoidance of duplication. At the in-country level, the CAP's emphasis on showcase transactions is designed to bring about concrete results. Taken together, the direct and indirect economic benefits of the project are set out in paragraphs 37 to 39. This estimates direct benefits in terms of transaction volumes of USD 30 million, and indirect benefits over 10 years of USD 3.6 billion to USD 36.0 billion.

SUSTAINABILITY AND SCALING UP

43. **The CAP's design and activities are inherently replicable and scalable in nature.** Financial aggregation, in its various forms, is applicable to all developing country contexts, and has the potential to account for an increasing share of low-carbon investment. In the CAP's global offer, the CAP's services, such as knowledge products and tool-kits, are expressly designed to have broad replication applicability across country contexts. In the CAP's in-country offer, the CAP's market development activities are designed to contribute to the creation of an enabled environment for in-country replication of showcase and other transactions.

44. **The intent is that the CAP will gain further funding and operate indefinitely, past the initial funding provided by this project.** The activities set out in this project document are envisioned as an initial phase of the CAP, with the GEF providing seed-funding. Subsequent phases, for example, could include the addition of further in-country initiatives beyond the initial 4 funded by the project. The architecture of the CAP, with a global 'chapeau', is well suited to scaling in this way. As the CAP proves its value-add, the possibility of funding the CAP in part by private sector contributions, such as a membership fees, will be explored. This is a similar model to that taken by CBI.

SOCIAL AND ENVIRONMENTAL SAFEGUARDS

45. **The project's global offer is low-risk. The project will apply UNDP's Social and Environmental Screening Procedure (SESP) in each in-country initiative.** The CAP's activities are structured as a global offer (component 1) and an in-country offer (component 2 and 3). The CAP's global offer, given it is comprised of awareness raising, knowledge management and a global working group, is rated as low risk. The selection of countries and technology sectors for the CAP's in-country initiatives will be confirmed during implementation. A full SESP will be completed at the time each in-country initiative is confirmed, and the Project Manager will ensure that potential social and environmental issues are identified and addressed.

5. PROJECT RESULTS FRAMEWORK

Table 8: Project results framework

This project will contribute to the following Sustainable Development Goal (s): <i>SDG 7: Affordable and Clean Energy</i>					
This project will be linked to the following output of the UNDP Strategic Plan: Output 1.5: Inclusive and sustainable solutions adopted to achieve increased energy efficiency and universal modern energy access (especially off-grid sources of renewable energy)					
	Indicator	Baseline	End of Project Target	Source:	Assumptions
Project Objective: <i>To promote the scale-up of financial aggregation for small-scale, low-carbon energy assets in developing countries</i>	<i>Direct impact:</i> USD value of financially closed CAP showcase transactions	0 CAP showcase transactions	USD 30 million ⁹	Transaction documentation	Showcase transactions will be advanced in partnership with the private sector/and or development banks.
	<i>Direct impact:</i> Lifetime GHG emission reductions from financially closed CAP showcase transactions	0 CAP showcase transactions	266,118 tCO ₂ e ⁹	Transaction documentation	
	<i>Direct impact:</i> number of individuals or businesses benefiting from low-carbon energy as a result of financially closed CAP showcase transactions. Disaggregated by gender.	0 CAP showcase transactions	31,250 individuals, of which 15,625 are women <u>or</u> 60 businesses ⁹	Transaction documentation	
Component/Outcome 1 <i>Increased awareness, exchange of information and engagement in financial aggregation for small-scale, low-carbon energy activities in developing countries.</i>	Survey score conveying stakeholders' assessment of CAP's awareness raising	0 CAP awareness raising activities	75% of stakeholders state 'satisfied' or 'very satisfied'	Online surveys	
	Survey score conveying stakeholders' assessment of CAP's global knowledge products	0 CAP global knowledge products	75% of stakeholders state 'satisfied' or 'very satisfied'	Online surveys	
	CAP global working group meetings	0 meetings annually	4 well-attended meetings held annually	Meeting minutes	
Component/ Outcome 2 <i>Financial closure of three financial aggregation transactions for small-scale, low carbon energy activities in developing countries</i>	Financially closed CAP showcase transactions	0 CAP showcase transactions	4 showcase transactions supported	Transaction documentation	
Component/ Outcome 3 <i>The market architecture and environment for replication and scale-up of financial aggregation transactions for small-scale, low-carbon energy is enhanced in three developing countries</i>	CAP national working groups	0 meetings annually	4 well-attended meetings held annually in each in-country initiative	Meeting minutes	
	Endorsement letters by relevant stakeholders conveying positive assessment of impact of CAP's market development activities	0 CAP market development activities	3 endorsement letters in each in-country initiative	Endorsement letters	

⁹ Project objective targets presented here are based on assumptions. Showcase transactions for each in-country initiative will only be identified later during project implementation. This will determine the size of transactions, low-carbon technology types and associated baseline technologies. Beneficiaries will also be a function of the low-carbon technology type. The USD 30 million project target shown in the table is for a total of 3 showcase transactions, with a conservative assumption that each transaction amounts to an average USD 10m in size. The tCO₂e target used here is based on a number of assumptions, including a solar PV technology and a combined cycle gas baseline. The individual or business beneficiaries assumes average household rooftop solar PV systems of 3kW, and average C&I rooftop solar PV systems of USD 500,000 per system. Average household size of 5 individuals. All of these estimates will be replaced with empirical data during project implementation. Sources: IRENA, Power to Change (2016); UNDP, DREI Tunisia (2014).

6. MONITORING AND EVALUATION (M&E) PLAN

OVERVIEW OF MONITORING & EVALUATION

46. **M&E will be performed in compliance with UNDP and GEF policies.** The project results as outlined in the project results framework, Section 5, will be monitored annually and evaluated periodically during project implementation to ensure the project effectively achieves these results. Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the [UNDP POPP](#) and [UNDP Evaluation Policy](#). While these UNDP requirements are not outlined in this project document, UNDP will work with the relevant project stakeholders to ensure UNDP M&E requirements are met in a timely fashion and to high quality standards. Additional mandatory GEF-specific M&E requirements (as outlined below) will be undertaken in accordance with the [GEF M&E policy](#) and other relevant GEF policies¹⁰. In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report.

M&E OVERSIGHT AND MONITORING RESPONSIBILITIES

47. **Project Manager (UNDP):** The Project Manager is responsible for day-to-day project management and regular monitoring of project results and risks, including social and environmental risks. The Project Manager will ensure that Project Management Unit staff maintain a high level of transparency, responsibility and accountability in M&E and reporting of project results. The Project Manager will inform the Project Board and the UNDP-GEF Energy Finance Specialist of any delays or difficulties as they arise during implementation so that appropriate support and corrective measures can be adopted.

48. The Project Manager will ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality. This includes, but is not limited to, ensuring the results framework indicators are monitored annually in time for evidence-based reporting in the GEF PIR, and that the monitoring of risks any plans/strategies developed to support project implementation occur on a regular basis. The Project Manager will additionally ensure: the UNDP Quality Assurance Assessment during implementation is undertaken annually; regular updating of the ATLAS risk log; and, the updating of the UNDP gender marker on an annual basis based on gender mainstreaming progress reported in the GEF PIR and the UNDP ROAR. Any quality concerns flagged during these M&E activities (e.g. annual GEF PIR quality assessment ratings) must be addressed by the Project Manager.

49. **Project Board:** The Project Board will take corrective action as needed to ensure the project achieves the desired results. The Project Board will hold project reviews to assess the performance of the project and appraise the feasibility of the Annual Work Plan for the following year. In the project's final year, the Project Board will hold an end-of-project review to capture lessons learned and discuss opportunities for scaling up and to highlight project results and lessons learned with relevant audiences. This final review meeting will also discuss the findings outlined in the project terminal evaluation report and the management response.

50. **Climate Bonds Initiative:** Where CBI is implementing the project's components and activities, CBI is responsible for providing any and all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary and appropriate.

51. **UNDP-GEF Unit:** Additional M&E and implementation quality assurance and troubleshooting support will be provided by the UNDP-GEF Energy Finance Specialist and the UNDP-GEF Directorate as needed. The UNDP-GEF unit will retain all M&E records for this project for up to seven years after project financial closure in order to support ex-post evaluations undertaken by the UNDP Independent Evaluation Office (IEO) and/or the GEF Independent Evaluation Office (IEO).

¹⁰ See https://www.thegef.org/gef/policies_guidelines

52. **Audit:** The project will be audited according to UNDP Financial Regulations and Rules.¹¹

ADDITIONAL GEF MONITORING AND REPORTING REQUIREMENTS

53. **Inception Workshop and Report:** A project inception workshop will be held within one month after the project document has been signed in order to:

- Re-orient project stakeholders to the project strategy and discuss any changes in the overall context that influence project strategy and implementation;
- Discuss the roles and responsibilities of the project team, including reporting and communication lines and conflict resolution mechanisms;
- Finalize the first year annual work plan;
- Plan and schedule Project Board meetings;
- Review the results framework and finalize the indicators, means of verification and monitoring plan;
- Discuss reporting, monitoring and evaluation roles and responsibilities
- Update and review responsibilities for monitoring the various project plans and strategies, including the risk log; the Environmental and Social Management Plan and other safeguard requirements;
- Review financial reporting procedures and mandatory requirements, and agree on the arrangements for the annual audit;

54. The Project Manager will prepare the inception report no later than one month after the inception workshop. The inception report will be cleared by the UNDP-GEF Energy Finance Specialist and will be approved by the Project Board.

55. **GEF Project Implementation Report (PIR):** The Project Manager, Climate Bonds Initiative, and the UNDP-GEF Energy Finance Specialist will provide objective input to the annual GEF PIR covering the reporting period July (previous year) to June (current year) for each year of project implementation. The Project Manager will ensure that the indicators included in the project results framework are monitored annually in advance of the PIR submission deadline so that progress can be reported in the PIR. Any environmental and social risks and related management plans will be monitored regularly, and progress will be reported in the PIR. The PIR submitted to the GEF will be shared with the Project Board. The quality rating of the previous year's PIR will be used to inform the preparation of the subsequent PIR.

56. **GEF Focal Area Tracking Tools:** The GEF Climate Change Tracking Tool will be used to monitor global environmental benefit results. The baseline/CEO Endorsement Tracking Tool – submitted as administrative annex A to this project document – will be updated by the Project Manager (not the evaluation consultants hired to undertake the *MTR* or the *TE*) and shared with the mid-term review consultants and terminal evaluation consultants before the required *review/evaluation* missions take place. The updated GEF Tracking Tool(s) will be submitted to the GEF along with the completed Mid-term Review *report* and Terminal Evaluation report.

57. **Independent Mid-term Review (MTR):** An independent mid-term review process will begin 15 months into project implementation, with the aim that it is completed at the very latest at 18 months. It will be submitted to the GEF on completion. The MTR findings and responses outlined in the management response will be incorporated as recommendations for enhanced implementation during the second half of the project's duration. The terms of reference, the review process and the MTR report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the [UNDP Evaluation Resource Center \(ERC\)](https://info.undp.org/global/popp/frm/pages/financial-management-and-execution-modalities.aspx). As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. Relevant stakeholders will be involved and consulted during the evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate. The final

¹¹ See guidance here: <https://info.undp.org/global/popp/frm/pages/financial-management-and-execution-modalities.aspx>

MTR report will be available in English and will be cleared by the UNDP-GEF Energy Finance Specialist, and approved by the Project Board.

58. Terminal Evaluation (TE): An independent terminal evaluation (TE) will take place upon completion of all major project outputs and activities. The terminal evaluation process will begin three months before operational closure of the project allowing the evaluation mission to proceed while the project team is still in place, yet ensuring the project is close enough to completion for the evaluation team to reach conclusions on key aspects such as project sustainability. The Project Manager will remain on contract until the TE report and management response have been finalized. The terms of reference, the evaluation process and the final TE report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the [UNDP Evaluation Resource Center](#). As noted in this guidance, the evaluation will be ‘independent, impartial and rigorous’. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. The GEF Operational Focal Point and other stakeholders will be involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate. The final TE report will be cleared by the UNDP-GEF Energy Finance Specialist, and will be approved by the Project Board. The TE report will be publically available in English on the UNDP ERC. Once uploaded to the ERC, the UNDP IEO will undertake a quality assessment and validate the findings and ratings in the TE report, and rate the quality of the TE report. The UNDP IEO assessment report will be sent to the GEF IEO along with the project terminal evaluation report.

59. Final Report: The project’s terminal PIR along with the terminal evaluation (TE) report and corresponding management response will serve as the final project report package. The final project report package shall be discussed with the Project Board during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.

M&E REQUIREMENTS & BUDGET:

Table 9: M&E requirements and budget

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget ¹² (US\$)	Time frame
Inception Workshop	Project Manager	None	Within two months of project document signature
Inception Report	Project Manager	None	Within two weeks of inception workshop
Standard UNDP monitoring and reporting requirements as outlined in the UNDP POPP	Project Manager	None	Quarterly, annually
Monitoring of indicators in project results framework	Project Manager, CBI	None	Annually
GEF Project Implementation Report (PIR)	Project Manager, CBI and UNDP-GEF team	None	Annually
Monitoring of environmental and social risks, and corresponding management plans as relevant	Project Manager	None	On-going

¹² Excluding project team staff time and UNDP staff time and travel expenses.

Table 9: M&E requirements and budget (continued...)

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget ¹³ (US\$)	Time frame
Project Board meetings	Project Board Project Manager	None	At minimum annually
Independent Mid-term Review (MTR) and management response	Project Manager and UNDP-GEF team	USD 24,000	Start: 15 months into implementation. End: 18 months
Terminal GEF Tracking Tool	Project Manager	None	Before terminal evaluation mission takes place
Independent Terminal Evaluation (TE) included in UNDP evaluation plan, and management response	UNDP Country Office and Project team and UNDP-GEF team	USD 40,000	At least three months before operational closure
TOTAL indicative COST		UNDP 64,000	

7. GOVERNANCE AND MANAGEMENT ARRANGEMENTS

OVERVIEW

60. **Project implementation:** The project will last three years. UNDP will implement the project using the direct implementation modality. UNDP will be responsible for the overall implementation and delivery of the project, and will ensure that the project objectives are met. CBI has been selected as a 'Responsible Party' to UNDP, entering into a Responsible Party Agreement with UNDP. In this role, CBI will perform pre-designated components and activities. When CBI is acting as a Responsible Party, all activities will be carried out in compliance with UNDP and GEF procedures. The sharing of the project's activities is as follows:

- CBI will perform component 1 (global offer) and 50% of component 3 (in-country market development).
- UNDP will perform component 2 (in-country showcase transactions), 50% of component 3 (in-country market development) and component 4 (mid term and terminal evaluation).
- The total project budget is split approximately 50/50 between UNDP and CBI.

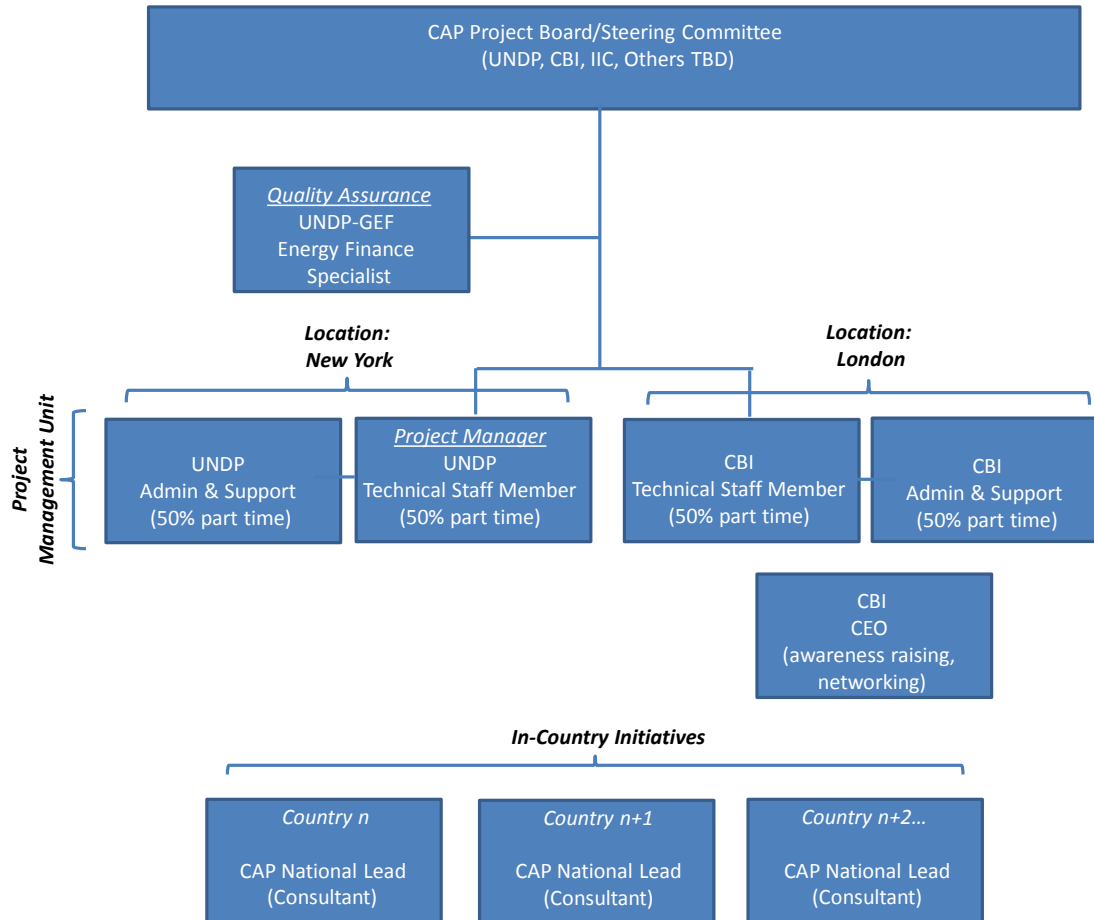
Overall, these arrangements seek to maximize UNDP and CBI's comparative advantages: UNDP as an established development actor with an on-the-ground presence across developing countries; CBI as a fast growing NGO with a strong network and proven awareness-raising capabilities

61. **Human resources:** Human resources for the CAP will be composed of dedicated staff at both UNDP (New York) and CBI (London), together with country leads in each in-country initiative. At UNDP, based in New York, there will be a technical staff member and an admin/support staff member. At CBI, based in London, this structure will be mirrored, with another technical staff member and an admin/support staff member. The target profile of UNDP and CBI technical staff members will be mid-career professionals with a finance background. All UNDP and CBI technical and admin staff will be 50% part time. CBI's CEO will also contribute staff time to the CAP, with a focus on awareness raising, networking and high-level events. The project's HR structure is expressly designed to be responsive to rapidly evolving financial markets. The New York and London locations will situate the CAP in key financial centers, and will provide flexibility across time zones and geographies. UNDP and CBI staff will then be complemented by a CAP national lead for each in-country initiative. Each CAP national lead will be closely familiar with financial aggregation in the target sector, and have good local networks. Terms of references of UNDP

¹³ Excluding project team staff time and UNDP staff time and travel expenses.

positions are found in administrative annex B. An overall organigram of the CAP management and human resources structure is found below in figure 5.

Figure 5: Organigram of the CAP’s management and human resources structure.



ROLES AND RESPONSIBILITIES

62. **Project Board:** The Project Board will provide the overall strategic oversight for the project and will serve as the project’s decision making body. The board will ensure that the project remains on course to deliver the desired outcomes of the required quality. The board will also liaise and seek inputs from the CAP global working group and where appropriate, CAP national working groups. The board will be chaired by UNDP (the ‘Executive’). Initial members will include Climate Bonds (the ‘Senior Supplier’) and the Inter-American Investment Corporation (a ‘Senior Beneficiary’). Further members will be identified at the Inception Workshop, and may be added during project implementation. Members of the board will not be paid from the project funds, but will represent in-kind contributions to the project.

63. The Project Board will have regular six monthly meetings, including via conference call, held in New York, London or Washington DC. The Project Management Unit will prepare board materials which will be circulated one week before meetings. Dates of meetings will be agreed by a consensus of members. Each organization will designate one person to serve on the board. If the designate is unavailable to attend, the organization may identify an alternate. Decisions of the board will be taken by consensus. In case a consensus can not be met at the board,

the final decision shall rest with the project manager. See administrative annex B for the board's full terms of reference.

64. Project Management Unit: The day-to-day operations of the project will be carried out by a Project Management Unit (PMU), comprising the UNDP technical staff member (as Project Manager), the UNDP admin/support staff member, the CBI technical manager and the CBI admin/support staff member. The Project Manager has the authority to run the project on a day-to-day basis, within the constraints laid down by the Project Board. The Project Manager's responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. The Project Manager is accountable to the Project Board for the quality, timeliness and effectiveness of the activities carried out, as well as for the use of funds.

65. The Project Management Unit (PMU) will produce Annual Work and Budget Plans (AWP&ABP) to be approved by the Project Board at the beginning of each year. These plans will provide the basis for allocating resources to planned activities. The PMU will further produce quarterly operational reports and Annual Progress Reports (APR) for review by the Project Board, or any other reports at the request of the PAB. These reports will summarise the progress made by the project versus the expected results, explain any significant variances, detail the necessary adjustments and be the main reporting mechanism for monitoring project activities.

66. Project quality assurance: The UNDP-GEF Energy Finance Specialist will provide oversight and quality assurance to the project.

67. UNDP country offices: UNDP COs in each in-country initiative will assist by providing the necessary contacts and links to Government partners as necessary, and to advise on the CAP's activities complementing national priorities. UNDP COs may also assist, on a case by case basis, in the administration of the CAP's activities, for example the organization of a workshop. The PMU will liaise and consult closely with UNDP COs.

OTHER

68. Use of logos: In order to accord proper acknowledgement to the GEF for providing grant funding, the GEF logo will appear together with the UNDP and CBI logo on all promotional materials, other written materials like publications developed by the project, and project hardware. Any citation on publications regarding projects funded by the GEF will also accord proper acknowledgement to the GEF. Information will be disclosed in accordance with relevant policies notably the UNDP Disclosure Policy¹⁴ and the GEF policy on public involvement¹⁵.

8. FINANCIAL PLANNING AND MANAGEMENT

OVERVIEW

69. The total budget administered by UNDP for this project is USD 1,950,000. This is financed by the GEF. UNDP, as the GEF Implementing Agency, is responsible for the execution of these GEF resources.

70. Parallel co-financing for this project is estimated at USD 85,350,000. This represents investment co-financing related to two of the proposed in-country initiatives, in Latin America and India, as well as in-kind co-financing from UNDP and CBI. It is anticipated that the CAP's third initial in-country initiative will generate additional investment co-financing. The actual realisation of parallel co-financing will be monitored during the mid-term

¹⁴ See http://www.undp.org/content/undp/en/home/operations/transparency/information_disclosurepolicy/

¹⁵ See https://www.thegef.org/gef/policies_guidelines

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review and terminal evaluation process and will be reported to the GEF. Table 10 below sets out the estimated parallel co-financing.

Table 10. The project's anticipated parallel co-financing

Co-financing source	Co-financing type	Co-financing amount	Planned Outcomes/Outputs
Inter-American Investment Corporation	Loans	USD 50,000,000	Outcome 2 and 3 : In-country offer (Latin America)
MGM Innova Capital	Equity	USD 30,000,000 ¹⁶	Outcome 2 and 3 : In-country offer (Latin America)
Energy Efficiency Services Limited	Loans	USD 5,000,000	Outcome 2 and 3 : In-country offer (India)
Climate Bonds Initiative	In-kind (staff time)	USD 200,000	Outcome 1 : Global offer Project Management Costs
UNDP	In-kind (staff time)	USD 150,000	Outcome 1 : Global offer Project Management Costs

FINANCIAL MANAGEMENT

71. **Budget revision and tolerance:** As per UNDP requirements outlined in the UNDP POPP, the Project Board will agree on a budget tolerance level for each Annual Work Plan allowing the Project Manager to expend up to the tolerance level beyond the approved project budget amount for the year without requiring a revision from the Project Board. Should the following deviations occur, the Project Manager and UNDP Country Office will seek the approval of the UNDP-GEF team as these are considered major amendments by the GEF: a) Budget re-allocations among components in the project with amounts involving 10% of the total project grant or more; b) Introduction of new budget items/or components that exceed 5% of original GEF allocation.

72. **Budget over expenditure:** Any over expenditure incurred beyond the available GEF grant amount will be absorbed by non-GEF resources (e.g. UNDP TRAC or cash co-financing).

73. **Refund to donor:** Should a refund of unspent funds to the GEF be necessary, this will be managed directly by the UNDP-GEF Unit in New York.

74. **Project closure:** Project closure will be conducted as per UNDP requirements outlined in the UNDP POPP.¹⁷ On an exceptional basis only, a no-cost extension beyond the initial duration of the project may be sought, subject to approval from the UNDP-GEF Executive Coordinator.

75. **Operational completion:** The project will be operationally completed when the last UNDP-financed inputs have been provided and the related activities have been completed. This includes the final clearance of the Terminal Evaluation Report (that will be available in English) and the corresponding management response, and the end-of-project review Project Board meeting. At this time, the relevant parties will have already agreed and confirmed in writing on the arrangements for the disposal of any equipment that is still the property of UNDP.

76. **Financial completion:** The project will be financially closed when the following conditions have been met: a) The project is operationally completed or has been cancelled; b) UNDP has closed the accounts for the project; c) UNDP and Climate Bonds Initiative have certified a final Combined Delivery Report (which serves as final budget revision). The project will be financially completed within 12 months of operational closure or after the date of cancellation. Between operational and financial closure, UNDP will identify and settle all financial obligations and prepare a final expenditure report.

¹⁶ MGM Innova Capital's co-financing letter indicates co-financing in the range of USD 30 to 60 million. Taking a conservative approach, this is being treated in the project as USD 30 million.

¹⁷ see <https://info.undp.org/global/popp/ppm/Pages/Closing-a-Project.aspx>

9. TOTAL BUDGET AND WORK PLAN

TOTAL BUDGET AND WORK PLAN			
Atlas[1] Proposal or Award ID:	100219	Atlas Primary Output Project ID:	103267
Atlas Proposal or Award Title:	Climate Aggregation Platform For Developing Countries		
Atlas Business Unit	UNDP 1		
Atlas Primary Output Project Title	Climate Aggregation Platform For Developing Countries		
UNDP-GEF PIMS No.	5749		
Responsible Party	Climate Bonds Initiative		

GEF Component/Atlas Activity	Atlas Implementing Party	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Total (USD)	See Budget Note:
COMPONENT/ OUTCOME 1: <i>Global offer: awareness raising, knowledge management and working group</i>	Climate Bonds Initiative	62000	GEF	71200	International Consultants	50,000	50,000	50,000	150,000	1
				72100	Contractual Services-Companies	78,000	70,000	70,000	218,000	2
				74200	Audio Visual&Print Prod Costs	6,000	6,000	6,000	18,000	3
				75700	Training, Workshops and Confer	25,000	25,000	25,000	75,000	4
				71600	Travel	25,000	25,000	25,000	75,000	5
				73100	Rental & Maintenance-Premises	4,000	4,000	4,000	12,000	6
					Sub-total CBI	188,000	180,000	180,000	548,000	
	UNDP	62000	GEF	71200	International Consultants	20,000	20,000	20,000	60,000	7
				71600	Travel	8,000	8,000	8,000	24,000	8
				73100	Rental & Maintenance-Premises	6,000	6,000	6,000	18,000	9
				Sub-total UNDP	34,000	34,000	34,000	102,000		
					Total Outcome 1	222,000	214,000	214,000	650,000	
COMPONENT/ OUTCOME 2: <i>In-country initiatives: showcase transactions</i>	UNDP	62000	GEF	71200	International Consultants	30,000	40,000	40,000	110,000	10
				72100	Contractual Services-Companies	121,000	220,000	20,000	361,000	11
				71600	Travel	15,000	15,000	15,000	45,000	12
					Sub-total UNDP	166,000	275,000	75,000	516,000	
	Climate Bonds Initiative	62000	GEF	71200	International Consultants	10,000	10,000	10,000	30,000	13
71600				Travel	8,000	8,000	8,000	24,000	14	
				Sub-total CBI	18,000	18,000	18,000	54,000		
					Total Outcome 2	184,000	293,000	93,000	570,000	

Cont...

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COMPONENT/ OUTCOME 3: <i>In-country initiatives: tailored market development activities</i>	UNDP	62000	GEF	71200	International Consultants	40,000	45,000	45,000	130,000	15
				72100	Contractual Services-Companies	20,000	20,000	20,000	60,000	16
				75700	Training, Workshops and Confer	4,000	5,000	5,000	14,000	17
				71600	Travel	12,000	12,000	12,000	36,000	18
				Sub-total UNDP implementation		76,000	82,000	82,000	240,000	
COMPONENT/ OUTCOME 4: <i>Mid and Terminal Evaluations</i>	UNDP	62000	GEF	72100	Contractual Services-Companies	-	24,000	40,000	64,000	23
				74100	Professional Services	3,000	3,000	3,000	9,000	24
				Total Outcome 4		3,000	27,000	43,000	73,000	
				Total Outcome 3		152,000	164,000	164,000	480,000	
				PROJECT: SUB-TOTAL (OUTCOMES 1-4)		561,000	698,000	514,000	1,773,000	
PROJECT MANAGEMENT COSTS	UNDP	62000	GEF	71200	International Consultants	30,000	35,000	35,000	100,000	25
				74598/64398	Direct Project Costs	8,000	7,000	5,000	20,000	26
				73100	Rental & Maintenance-Premises	5,000	5,000	5,000	15,000	27
				72800	Information Technology Equipmt	3,000	-	-	3,000	28
				Sub-total UNDP implementation		46,000	47,000	45,000	138,000	
COMPONENT/ OUTCOME 3: <i>In-country initiatives: tailored market development activities</i>	Climate Bonds Initiative	62000	GEF	71200	International Consultants	10,000	10,000	10,000	30,000	29
				73100	Rental & Maintenance-Premises	3,000	3,000	3,000	9,000	30
				Sub-total CBI implementation		13,000	13,000	13,000	39,000	
Total Project Management		59,000	60,000	58,000	177,000					
SUB-TOTAL UNDP IMPLEMENTATION		325,000	465,000	279,000	1,069,000					
SUB-TOTAL CBI IMPLEMENTATION		295,000	293,000	293,000	881,000					
PROJECT: GRAND TOTAL		620,000	758,000	572,000	1,950,000					

Budget notes:

1. Pro-rated CBI project staff costs for technical inputs
2. Third party contractors for various outputs (website designer; knowledge product drafting/research, designers, translation.)
3. Printing for publications
4. Awareness raising and global working group events
5. Travel for CBI project staff
6. Pro-rated CBI project staff office rental costs for technical inputs
7. Pro-rated UNDP project staff costs for technical inputs
8. Travel for UNDP project staff
9. Pro-rated UNDP project staff office rental costs for technical inputs
10. Pro-rated UNDP project staff costs for technical inputs. Pro-rated CAP country lead staff costs
11. Third party contractors for various outputs: \$100k for each of 3 showcase transactions in yr 1 and yr 2 (procurement modality is contractual services); remaining costs for knowledge products (research/drafting, design, translation)
12. Travel for UNDP project staff and CAP country lead consultants
13. Pro-rated CBI project staff costs for technical inputs
14. Travel for CBI project staff

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15. Pro-rated UNDP project staff costs for technical inputs. Pro-rated CAP country lead staff costs
16. Third party contractors for various outputs (barrier removal services (e.g., standardization of contracts; financial intermediary education); research/drafting; design; translations)
17. Awareness raising and national working group events
18. Travel for UNDP project staff and CAP country lead consultants
19. Pro-rated CBI project staff costs for technical inputs. Pro-rated CAP country lead staff costs
20. Third party contractors for various outputs (barrier removal services (e.g., standardization of contracts; financial intermediary education); research/drafting; design; translations)
21. Awareness raising and national working group events
22. Travel for CBI project staff and CAP country lead consultants
23. Mid-term review and then terminal evaluation
24. Annual audits
25. Pro-rated UNDP project staff costs for project management costs
26. Direct project costs for UNDP HQ involvement in project management costs
27. Pro-rated UNDP project staff office rental costs for project management costs
28. IT for UNDP staff
29. Pro-rated CBI project staff costs for project management costs
30. Pro-rated CBI project staff office rental costs for project management costs


10. LEGAL CONTEXT

See separate attachment.

11. ADMINISTRATIVE ANNEXES

- A. GEF Tracking Tool at baseline
- B. Terms of Reference for Project Board, UNDP Project Manager, UNDP Admin/Support Staff, CAP National Leads.
- C. UNDP Social and Environmental and Social Screening Template (SESP)
- D. Results of the capacity assessment and HACT micro assessment of the Climate Bonds Initiative
- E. Responsible Party Agreement with Climate Bonds Initiative

ADMINISTRATIVE ANNEX A: GEF TRACKING TOOL AT BASELINE

 Tracking Tool for GEF 6 Climate Change Mitigation Projects (At CEO Endorsement)		
Special Notes: Projects need to report on all indicators that are included in their results framework		
<p>Reporting on lifetime emissions avoided</p> <p>Lifetime direct GHG emissions avoided: Lifetime direct GHG emissions avoided are the emissions reductions attributable to the investments made during the project's supervised implementation period, totaled over the respective lifetime of the investments.</p> <p>Lifetime direct post-project emissions avoided: Lifetime direct post-project emissions avoided are the emissions reductions attributable to the investments made outside the project's supervised implementation period, but supported by financial facilities put in place by the GEF project, totaled over the respective lifetime of the investments. These financial facilities will still be operational after the project ends, such as partial credit guarantee facilities, risk mitigation facilities, or revolving funds.</p> <p>Lifetime indirect GHG emissions avoided (top-down and bottom-up): indirect emissions reductions are those attributable to the long-term outcomes of the GEF activities that remove barriers, such as capacity building, innovation, catalytic action for replication.</p> <p>Please refer to the following references for Calculating GHG Benefits of GEF Projects.</p> <p>Manual for Energy Efficiency and Renewable Energy Projects</p> <p>Revised Methodology for Calculating Greenhouse Gas Benefits of GEF Energy Efficiency Projects (Version 1.0)</p> <p>Manual for Transportation Projects</p> <p>For LULUCF projects, the definitions of "lifetime direct and indirect" apply. Lifetime length is defined to be 20 years, unless a different number of years is deemed appropriate. For emission or removal factors (tonnes of CO₂eq per hectare per year), use IPCC defaults or country specific factors.</p>		
Section A. General Data		
	At CEO Endorsement	
Project Title	Climate Aggregation Platform	
GEF ID	9309	
GEF Agency	UNDP	
Agency Project ID	5749	
Country	Global	
Region		
Date of Council/CEO Approval		Month DD, YYYY (e.g., May 13, 2014)
GEF Grant (US\$)	1,950,000	
Date of submission of the tracking tool		Month DD, YYYY (e.g., May 13, 2014)
Is the project consistent with the priorities identified in National Communications, Technology Needs Assessment, or other Enabling Activities (such as Technology Action Plans, Nationally Appropriate Mitigation Actions (NAMA) under the UNFCCC?		Yes = 1, No = 0
Section B. Quantitative Outcome Indicators		
	Target At CEO Endorsement	
Indicator 1: Total Lifetime Direct and Indirect GHG Emissions Avoided (Tons CO₂eq)		Identify Sectors, Sources and Technologies. Provide disaggregated information if possible. see Special Notes above
Lifetime direct GHG emissions avoided	266,118	See UNDP project document, paras 37 to 39, and Section 5 for assumptions
Lifetime indirect GHG emissions avoided	31,915,770	See UNDP project document, paras 37 to 39, and Section 5 for assumptions. Figure reflects lower bound of 1-10% range.
Indicator 2: Lifetime Energy Saved (Million Joules)		IEA unit converter: http://www.iea.org/stats/unit.asp Fuel savings should be converted to energy savings by using the net calorific value of the specific fuel. End-use electricity savings should be converted to energy savings by using the conversion factor for the specific supply and distribution system. These energy savings are then totaled over the respective lifetime of the investments.
Direct	4,039,741,935	See UNDP project document, paras 37 to 39, and Section 5 for assumptions
Indicator 3: Increase in Renewable Energy Capacity and Production		Disaggregate by type (Wind, Biomass, Geothermal, Hydro, solar, Photovoltaic, Marine power etc)
Increase in Installed RE capacity per technology (MW)		
Lifetime RE production per technology (MWh)		(IEA unit converter: http://www.iea.org/stats/unit.asp)
Indicator 4: Number of Users of low GHG systems (Number, of which female)		Identify Sector, describe the low GHG system and technologies and explain methodology for estimation
Direct	31,250 individuals (of which 15,625 women) or 60 businesses	See UNDP project document, paras 37 to 39, and Section 5 for assumptions
Indicator 5: Number of Hectares under Low GHG Management Practices (Ha.)		Identify source (conservation, avoided deforestation, afforestation/reforestation), type of low GHG Management Practice and describe methodology used for estimation
Indicator 6: Time Saved in adoption of low GHG technology (Percentage)		For technologies and practices to be supported under the project (i) estimate baseline time to deployment (without project support), (ii) estimate expected time to deployment with project support and (iii) calculate % of time saved.
Indicator 7: Volume of Investment mobilized and leveraged by GEF for low GHG development (co-financing and additional financing) of which		Expected additional resources implies resources beyond co-financing committed at CEO endorsement.
Public	15,000,000	
Private	15,000,000	
Domestic		
External		
Indicator 8: Identify specific GHG reduction target (percent), if any, under any national, sectoral, local plans		Specify plan, area/sector (if subnational), and baseline from which reduction is expected

Cont..

Section C. Qualitative Indicators			
<p>Indicator 9: Degree of support for low GHG development in policy, planning and regulations</p>	<p>Baseline Rating (1-10)</p>	<p>Target Rating (1-10)</p>	<p>Identify the policy/regulations (national, sectoral, City) relevant to and supported by the project and provide rating. Baseline indicates current status (pre-project), Target is the rating level that is expected to be achieved due to project support. For guidance for qualitative ratings (in comment) move cursor over box or right click to show comment.</p>
<p>National/Regional/Sectoral/City Plan</p>			
<p>Indicator 10: Quality of MRV Systems</p>	<p>Baseline Rating (1-10)</p>	<p>Target Rating (1-10)</p>	<p>Provide details of coverage of MRV systems - area, type of activity for which MRV is done, and of Reporting and Verification processes. Baseline indicates current status (pre-project), Target is the rating level that is expected to be achieved due to project support. For guidance for qualitative ratings (in comment) move cursor over box or right click to show comment.</p>
<p>Activity</p>			
<p>Indicator 11: Degree of strength of financial and market mechanisms for low GHG development</p>	<p>Baseline Rating (1-10)</p>	<p>Target Rating (1-10)</p>	<p>Provide details of the financial mechanisms and identify the sector and the type of low GHG technology or development activity it supports. Baseline indicates current status (pre-project), Target is the rating level that is expected to be achieved due to project support. For guidance for qualitative ratings (in comment) move cursor over box or right click to show comment.</p>
	<p>1 or 2</p>	<p>7</p>	

ADMINISTRATIVE ANNEX B: TERMS OF REFERENCE FOR PROJECT BOARD AND UNDP CAP STAFF

B.1. PROJECT BOARD

The Project Board will meet after the Inception Workshop and every six months thereafter. Specific functions will include:

At the initiation of the project:

- Appraise the overall project multi-year work plan;
- Review and approve the Annual Work Plan and budget for the first project year;
- Delegate any project assurance function as appropriate.

After the initiation of the project:

- Provide overall guidance and direction to the project, ensuring planned activities are in line with the project objectives and timeframe;
- Address project issues raised by the PMU for the Project Board's attention and guidance;
- Appraise Annual Project Review Reports and offer recommendations for the subsequent Annual Work Plan;
- Review and approve Annual Work Plans and budgets;
- Commission the internal Mid-term Review of the project, appraise the MTR Report and provide direction to the project to address the recommendations emanating from the MTR Report;
- Review project progress reports submitted by the PMU and notify, or provide guidance to, the PMU for corrective actions should they find any issue with the project progress.

At the close of the project:

- Review whether all project deliverables have been produced satisfactorily;
- Commission the Terminal Evaluation of the project, and appraise and endorse the TE Report;
- Provide recommendations for follow-up actions.

B.2 UNDP CAP TECHNICAL STAFF MEMBER/PROJECT MANAGER

Location	Office-based, New York
Type of contract	Individual contract
Post level	International Consultant
Duration of contract	1 yr, renewable for an additional 2 yrs; part time 50%
Languages required	English

Duties and Responsibilities

The UNDP Project Manager will ensure the successful delivery of the CAP project. The position has both administrative and technical components: administratively, the Project Manager will lead the day-to-day running of the project; technically, the Project Manager will draw on her/his expertise in finance to guide the project's direction and activities. The UNDP Project Manager will manage the UNDP Project Assistant, and will work closely with the Climate Bonds Initiative technical and administrative staff.

Responsibilities will include:

- Administratively
 - Ensure close coordination with the Climate Bonds Initiative
 - Manage and coordinate the implementation of the project activities in accordance with the Project Document, Annual Work Plans and budgets
 - Manage and coordinate the project's M&E plan

- Organize Project Board meetings, including the preparation and notification of agenda and circulation of documents necessary for these meetings at least a week in advance
- Manage staff and consultants assigned to the project
- Liaise with UNDP GEF on day-to-day project management matters
- Technically
 - Develop an up-to-date, technical understanding of financial aggregation for small-scale, low-carbon energy. Stay abreast of latest developments.
 - Provide guidance and insights into the CAP's overall strategic direction
 - Provide guidance, oversight and set high standards for the CAP's technical activities and products
 - Develop and manage relationships with the CAP's partners, for example development banks.
 - Represent the CAP at industry meetings and events

Qualifications:

Education

- Master's or equivalent degree in finance, international affairs, or other closely related field

Experience:

- At least 7 years or more professional experience in the area of finance (e.g. banking, asset management)
- Experience in finance for low-carbon energy
- Experience working in developing country contexts preferred
- Experience working with multilateral organizations and the UN system preferred
- Proven ability to work effectively with teams and senior managers

B.3 UNDP CAP ADMINISTRATIVE STAFF MEMBER/PROJECT ASSISTANT

Location	Office-based, New York
Type of contract	Individual contract
Post level	International Consultant
Duration of contract	1 yr, renewable for an additional 2 yrs; part time 50%
Languages required	English

Duties and Responsibilities

The UNDP Project Assistant will assist in the day-to-day running of the project. She/he will report to the UNDP Project Manager, and will work closely with the Climate Bonds Initiative technical and administrative staff.

Responsibilities will include:

- Consolidate and prepare technical and financial progress reports in accordance with standard reporting policies and procedures set by UNDP and GEF
- Coordinate with UNDP on timely release of funds required for planned project activities, and ensure timely expenditure reporting to trigger fund releases
- Keep records of project funds and expenditures
- Ensure project funds are used in compliance with the Project Document and UNDP's financial rules and procedures;
- Provide necessary financial information as and when required for project management decisions; provide necessary financial information in the event of Project Audit by the Audit Authority.

Qualifications:

Education

- A Bachelor's degree, preferably in the field of business management

Experience:

- At least three years of work experience preferably in a project management setting involving multi-lateral funding agency
- Demonstrated experience in financial accounting and financial reporting
- Good language skills in English (writing, speaking and reading)
- A good team-player
- Proficiency in the use of computer software applications such as MS Word, MS Excel, and accounting software.

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**ADMINISTRATIVE ANNEX C: UNDP SOCIAL AND ENVIRONMENTAL AND SOCIAL SCREENING
TEMPLATE (SESP)**

See separate attachment.

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**ADMINISTRATIVE ANNEX D: RESULTS OF THE CAPACITY ASSESSMENT AND HACT MICRO
ASSESSMENT OF THE CLIMATE BONDS INITIATIVE**

See separate attachment.

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ADMINISTRATIVE ANNEX E: RESPONSIBLE PARTY AGREEMENT WITH CLIMATE BONDS INITIATIVE

See separate attachment.

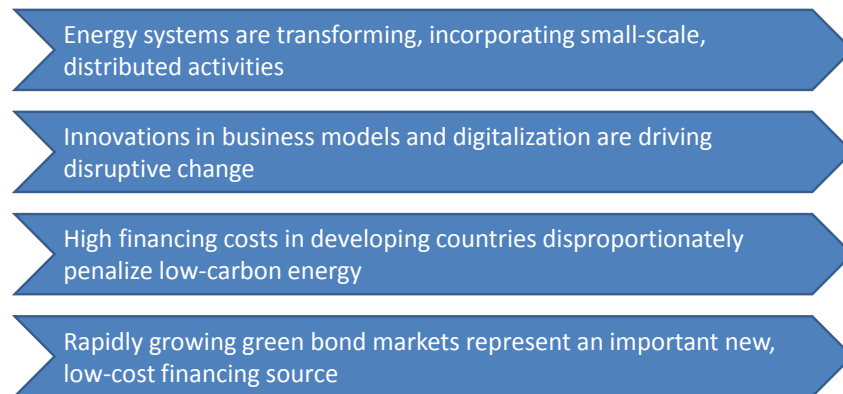
12. TECHNICAL ANNEXES

- A. Trends leading to financial aggregation in developing countries
- B. Overview of financial aggregation transactions
- C. Preliminary assessment of three in-country initiatives: Kenya, LatAm, India
- D. CAP value proposition for different stakeholders
- E. Illustrative membership of global working group

TECHNICAL ANNEX A: TRENDS LEADING TO FINANCIAL AGGREGATION IN DEVELOPING COUNTRIES

The convergence of a number of recent, interconnected trends has created the conditions which are driving the need for financial aggregation in small-scale, low-carbon energy in developing countries. These four trends are set out in Figure 6 and described below.

Figure 6: Four key trends driving financial aggregation for small-scale, low-carbon energy in developing countries.



Energy systems are undergoing a fundamental transformation.

Countries' energy systems around the world are in the midst of a fundamental transformation, incorporating large volumes of small-scale, low-carbon energy measures. This transformation will reflect a move from centralised generation to more decentralised generation (renewable energy), and the increasing integration of demand-side management (energy efficiency). The resulting energy systems of the future will be more cost-effective, more resilient, and more environmentally friendly. Small-scale energy solutions will engage end-users – households, businesses and communities - in unprecedented ways. In parallel to these changes, financing for energy systems will change. The financing needs for this transition will be enormous. Traditional financing models for centralised energy assets, such as project finance and utility-based balance-sheet financing, do not apply to small-scale energy. Instead, new aggregative approaches to financing small-scale, low-carbon energy assets need to be developed and scaled-up.

Disruptive innovations in business models and digitalization.

A key factor opening the door to greater deployment of small-scale, low-carbon energy measures are recent disruptive innovations in business models and digitalization. Third-party ownership¹⁸ business models are offering end-users compelling new value propositions, and now account for over 70% of residential solar PV installations in the US¹⁹ (GTM, 2015). In parallel, the successful integration of smart software, as well as internet and wireless connectivity, is enabling new classes of products and allowing for improved, real-time performance monitoring. In East Africa, energy service companies such as *M-KOPA Solar* and *Off Grid: Electric* have experienced rapidly increasing sales with pay-as-you-go solar home system (SHS) service offerings, incorporating smart metering, mobile payments and remote shut-off. Looking further ahead, these innovations are set to continue, as small-scale energy assets integrate with other emerging trends, including the sharing economy, the internet of things and electric vehicles.

¹⁸ Third-party ownership models for low-carbon energy are arrangements by which a household or business hosts a low-carbon energy asset, for example solar PV, which is owned, as well as operated and maintained, by a separate energy service company. The household or business receives the energy generated by the asset, and enters into a lease (monthly payments) or PPA (per kWh payments) with the energy service company to pay for this service.

¹⁹ Greentech Media (2015): *U.S. Residential Solar Financing 2015-2020*

The need to reduce high financing costs in developing countries.

Low-carbon energy has benefited from dramatic reductions in technology costs in recent years. However, financing costs for low-carbon energy in developing countries are typically high, disproportionately penalising low-carbon energy measures due to their frontloading of investment costs. As an example, UNDP estimates that up to 60% of renewable energy generation life-cycle costs (LCOEs) in developing countries can be attributed to financing costs²⁰ (UNDP, 2013). Reducing these high financing costs in developing countries represents an important opportunity for policy-makers. A key feature of financial aggregation for small-scale, low-carbon energy assets is its potential to tap new financing sources and investor bases which offer large volumes of low-cost financing. The bond markets, in particular, hold the promise of accessing the most abundant, lowest-cost source of financing.

Green bond markets represent an important, new source of low-cost financing.

Taken as a whole, the global bond markets are estimated to currently stand at about USD 90 trillion²¹. Global bond markets thus have the volume and liquidity to be an essential tool for financing the transition to a low-carbon economy. Labelled green bonds – defined as bonds where proceeds are earmarked to finance activities with environmental benefits – represent a small and fast growing niche in the global bond markets, with large upside potential. The first green bond was issued in 2007 by EIB and the World Bank, and the market began to grow rapidly in 2013, with the first corporate green bonds. 2015 was a record year with over USD 42bn issued, 2016 is estimated to reach up to USD 100bn²². Green bonds cover a range of sectors (energy, buildings, industry, transport, etc.), different issuer types (development banks, commercial banks, corporate, municipalities, asset-backed) and currencies (25 currencies as of end 2015). The opportunity is for asset-backed bonds based on small-scale, low-carbon energy in developing countries to tap this growing market.

²⁰ UNDP (2013): *Derisking Renewable Energy Investment: A Framework to Support Policymakers in Selecting Public Instruments to Promote Renewable Energy in Developing Countries*

²¹ Bank for International Settlements (2016): Quarterly Review, June 2016

²² Climate Bonds Initiative (2016): The State of the Market in 2016

TECHNICAL ANNEX B. OVERVIEW OF FINANCIAL AGGREGATION TRANSACTIONS

Key characteristics of financial aggregation transactions

Financial aggregation can be generally understood as a process in which multiple assets are bundled together, which then receive financing, or refinancing, from investors on the basis of the future cash flows from the assets.

Financial aggregation for small-scale, low-carbon energy can take a variety of different forms. The CAP will seek to take a flexible approach to financial aggregation, tailoring its activities to the particular market context and market maturity in the developing country.

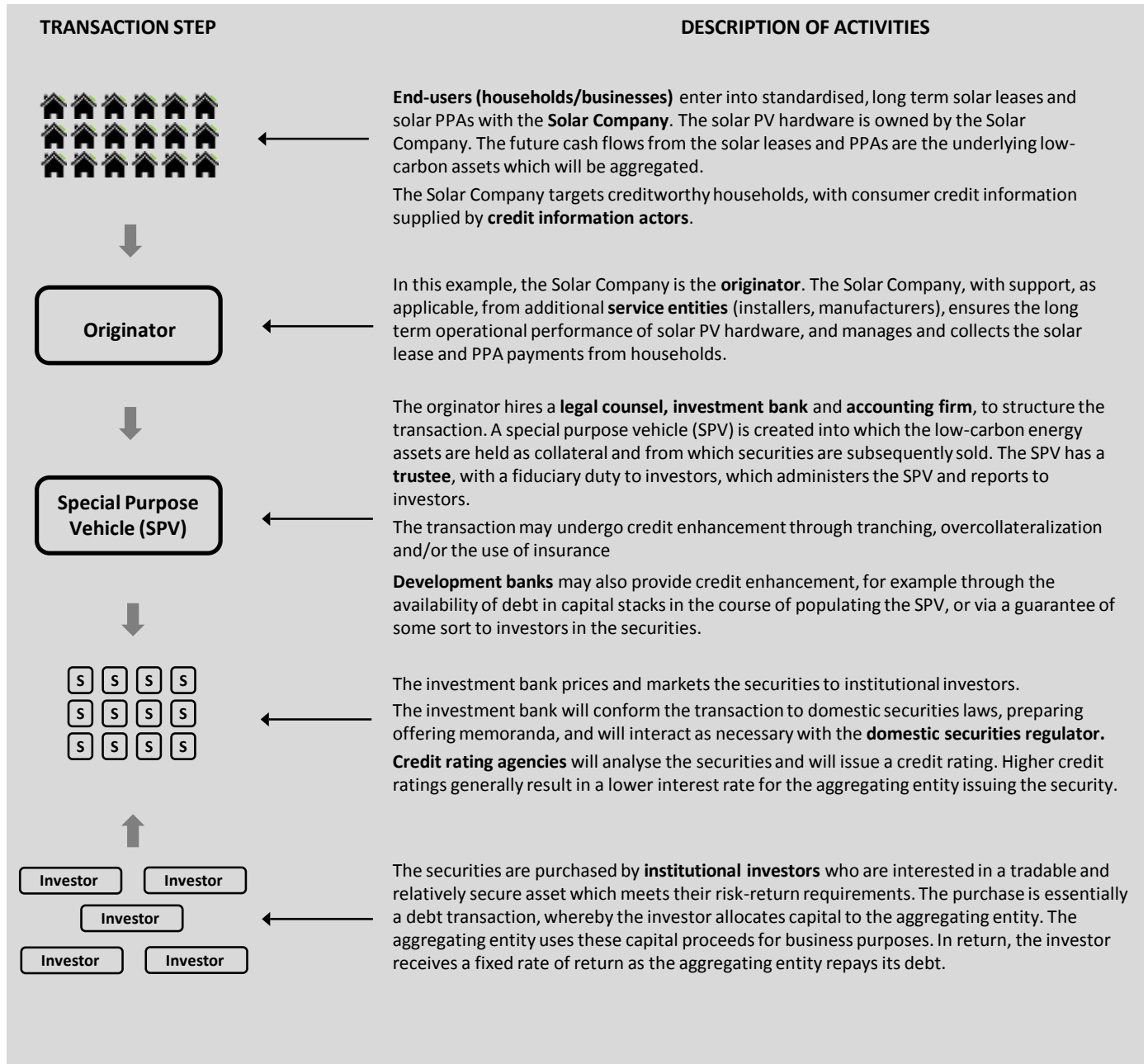
Some key aspects and considerations – though not exhaustive - around financial aggregation transactions include:

- **Underlying low-carbon energy asset.** The underlying low-carbon energy asset is typically a receivable in the form of a loan, lease or agreement with the end-user of the asset. This asset generates a set of future cash flows. When assets are subsequently bundled together, the quality of the asset (underwriting standards), the legal specificities of the contract with the end-user, and the transparency and data available for ongoing performance, are all key to successful financial aggregation transactions. Illustrative examples of underlying assets for low-carbon energy include, but are not limited to:
 - A third party ownership solar lease or solar PPA supplying electricity via rooftop solar PV
 - An ESCO loan or an ESCO contract with an SME for an energy efficiency upgrade
 - A lease-to-own contract with a household for a 20 watt solar home kit in a small developing country
- **Originators.** Originating entities can be a range of different actors who in some way offer or finance small-scale, low-carbon energy services. Such entities include, but are not limited to:
 - Renewable energy and energy efficiency developers (assets: solar PPAs, solar leases, ESCO contracts)
 - Financial actors and commercial banks (assets: solar and energy efficient loans; green mortgages)
 - Municipalities (assets: PACE-type loans)
 - Utilities (assets: on-bill financing receivables).
- **SPV structures.** Financial aggregation transactions typically involve an SPV of some sort. The particular structuring and terms for the SPV, its relationship to the originator, investors and trustees, and related forms of financing (such as an intermediate capital stack in a warehouse vehicle), are all important design aspects in a successful financial aggregation transaction. To bring eventual liquidity to markets in financial aggregation assets, there needs to be standardization and transparency across SPV structures.
- **Exits, investors and currencies.**
 - The end objective for developing financial aggregation markets is to tap public bond markets. In many developing countries with less sophisticated financial markets, exits or take-outs such as commercial bank debt, or private bonds placements, will be important intermediate stepping stones on the way to public bond markets.
 - The currency of a financial aggregation transaction is a further important consideration. Over time, in order to best manage currency risk, the objective is to develop local-currency transactions targeting the domestic investor community.

Overview of a financial aggregation transaction with a public bond market exit

In order to give a sense of the process steps and stakeholders in financial aggregation, Box 1 below, illustrates a generalised outline of an asset-backed bond transaction for rooftop solar PV.

Box 1: Generalised outline of a residential solar PV asset-backed bond transaction



Source: UNDP, adapted from NREL (2013).

Barriers to financial aggregation in developing countries

A typical financial aggregation transaction in an early-stage market will face a range of barriers. Table 11, below, provides a summary of these barriers, together with matching public interventions.

Table 11: Typical barriers to financial aggregation of small-scale, low-carbon assets in developing countries

Barrier	Barrier-Removal Activity
<ul style="list-style-type: none"> ▪ Lack of data on credit-worthiness of end-users (individuals, unrated businesses) 	<ul style="list-style-type: none"> ▪ Pilot/promote technology innovations in credit information
<ul style="list-style-type: none"> ▪ Lack of high quality origination assets ▪ Fragmented approach to underwriting, contracts, installation and O&M 	<ul style="list-style-type: none"> ▪ Work with developers and industry associations on standardization of contracts, KPIs and data sets ▪ Test cloud based risk assessment tools
<ul style="list-style-type: none"> ▪ Lack of information on well-designed SPVs ▪ Fragmented approach to SPVs, resulting in lack of overall liquidity in market 	<ul style="list-style-type: none"> ▪ Share information on successful SPVs, promoting good practice and standardization
<ul style="list-style-type: none"> ▪ Lack of experience and familiarity by financial intermediaries in low-carbon securitization 	<ul style="list-style-type: none"> ▪ Financial intermediary education ▪ Mock-filings with local securities regulators, credit rating agencies.
<ul style="list-style-type: none"> ▪ FX (currency) risk arising from mismatch of local-currency receivables when securitization is in hard currency 	<ul style="list-style-type: none"> ▪ Explore and develop approaches to managing FX (currency) risk
<ul style="list-style-type: none"> ▪ Burdensome securities and tax regulations for low-carbon securitization 	<ul style="list-style-type: none"> ▪ Discussion papers, capacity building and dialogue with regulators for securities and tax reform
<ul style="list-style-type: none"> ▪ Lack of institutional investor and commercial bank demand for low-carbon financial aggregation 	<ul style="list-style-type: none"> ▪ Awareness-raising and networking with institutional investors and banks

Source: UNDP

TECHNICAL ANNEX C. PRELIMINARY ASSESSMENT OF THREE PROPOSED IN-COUNTRY INITIATIVES: KENYA, LATAM, INDIA

This annex provides a brief, introductory overview for the three proposed in-country initiatives, each of which represents a promising opportunity to promote financial aggregation. Each of these three proposed in-country initiatives will be further developed, scrutinized and subject to confirmation during project implementation.

The information in this annex was gathered during the project design phase, primarily through interviews and dialogues with actors in these markets (originators, investors, development banks), and supplemented by desk research.

C.1. KENYA –SOLAR HOME SYSTEMS

General country data

Table 12: Kenya country indicators²³

Indicator	Kenya
Population	46.1 million (2015)
GDP	USD 63.4 billion (2015)
GDP growth (annual)	5.6% (2015)
GDP/Capita (PPP)	USD 3,082/capita (2015)
Sovereign Rating (S&P)	Non-inv. grade, B+(2016)
Power Installed Capacity	2,295 MW (2015)

Market context

The proposed in-country initiative will focus on PAYG solar companies. These companies provide households with an energy service based on solar home systems to power basic appliances. Their addressable market is the 1.1bn people without access to the power grid²⁴. PAYG companies use a third-party-ownership model, requiring a small upfront payment followed by regular lease payments. Digitalization is central to the PAYG service offering, which typically incorporates mobile money and cellular monitoring (including remote shut-off for non-payment).

PAYG companies have particularly taken off in East Africa. This is a function of several local factors including a lack of kerosene subsidies, widespread uptake of mobile money, and network effects from an innovative business and investor community. Collectively PAYG companies currently serve approximately 700,000 customers as of September 2016²⁵. Prominent PAYG companies include, but are not limited to, M-KOPA, Off-Grid Electric, BBOXX and Mobisol. Companies' offerings can differ. M-KOPA, for example, has a lease-to-own model with small systems and short paybacks, typically less than 18 months; Mobisol, as another example, offers larger systems, vertically integrated with energy efficient appliances, targeted towards the middle-class, and with longer terms, up to 48 months.

Evolution and vision for financing

Financing for PAYG solar has grown rapidly to USD 360 million over the last five years, including USD 158 million in 2015 and USD 120 million so far in the first 9 months of 2016 (BNEF). The first investments tended to be in the form of grants, equity from impact funds and family offices, and some limited concessional debt. Having started with small funding rounds, (USD 1-5m), in the last 12 months a number of actors have closed on larger rounds (USD 10-40m range). In interviews during the CAP project design phase, PAYG companies commented that they are top-heavy in equity. If they are to scale, they need to

²³ Sources: EIU for economic indicators; S&Ps; USAID

²⁴ World Bank (2015): SE4ALL Global Tracking Framework Report

²⁵ BNEF (2016): How can pay as you go solar be financed?

tap commercial debt financing, targeting infrastructure investors (such as those that invested in cell networks in Africa) and big institutional debt investors, the 'Blackrock's of this world'.

Financial aggregation models

A number of initial financial aggregation transactions in the PAYG space have now closed. An interesting aspect of the transactions which have closed so far are that different approaches are being taken.

The first transaction was in 2014, when M-KOPA received a USD 10 million loan from Commercial Bank of Africa (CBA) in a simple financial aggregation transaction. The collateral for the CBA loan was the cash flows from M-KOPA's contracts. No SPV was established, but customer lease payments were channeled directly to a dedicated bank account at CBA.

More recently, transactions can be viewed as falling into one of three SPV models, which we term 'originator specific SPV', 'co-mingled SPV' and 'standardized SPV'.

- **BBOXX (2015) – 'originator specific' SPV model.** The BBOXX transaction was a local-currency refinancing for KES 50 million (approximately USD 500,000). BBOXX created its own dedicated SPV for the transaction. The transaction was for 2,500 3 year leases. The notes had a maturity of 2.5 years. It is estimated it was 30% over-collateralized. The implied local currency (KES) interest rate was 21%. This transaction was the first ever securitization, of any sort, registered with the Kenya securities exchange. The investor was a Dutch impact investor Oikocredit. BBOXX was advised by Persistent Energy Capital²⁶
- **SunFunder (2016) – 'co-mingled' SPV model.** SunFunder's model involves one overall SPV, in which it then co-mingles the receivables of multiple originators, and can then offer investors a diversified portfolio. Notes are USD denominated. Interest rates are typically 3% to 9%. One SunFunder asset-backed product is the 'Structured Asset Financing Instrument' (SAFI). In May 2016, SunFunder announced a SAFI USD 2 million credit line to SolarNow in Uganda to provide working capital to SolarNow to acquire new customers. In October 2016, SunFunder announced its biggest funding round yet for its SPV with USD 50 million in investment from investors including OPIC and the Rockefeller Foundation²⁷
- **Lendable (2016) - 'standardized SPV' model.** Lendable is an aggregation platform that works with multiple originators and investors. Unlike the SunFunder model, receivables of different companies are not co-mingled, but instead a single standardized SPV, each a separate legal entity, is established for each investor and portfolio. Ultimately Lendable envisages having hundreds of these standardized SPVs, creating transparency and liquidity in the market. Lendable also has a risk analytics/modelling arm analysing each SPV, to assess portfolio quality. In October 2016, Lendable announced its first receivables transaction in East Africa, a USD denominated note, with a total value of USD 600,000, for 500 leases, and a note maturity of 24 months. The interest rate was 14%. Investors included Deutsche Bank Foundation and CeniARTH²⁸

Market barriers to financial aggregation

In initial interviews during the CAP project design phase, a number of barriers were raised by PAYG developers

- *Lack of standardized metrics for assessing portfolio quality.* This is in part being addressed by initiatives such as the IFC/GOGLA programme on developing key performance indicators for PAYG.
- *Unclear tax treatment.* PAYG companies reported struggling with domestic tax regulations, which can be unclear and/or prohibitive for financial aggregation transactions. There is an opportunity to enter into a dialogue with policymakers.
- *Foreign exchange risk.* There is a need to explore and pilot approaches to managing currency risk for hard currency denominated transactions.

²⁶ Sources for this paragraph: BBOXX and Oikocredit press releases; BNEF (2016)

²⁷ Sources for this paragraph: SunFunder press releases; BNEF (2016)

²⁸ Sources for this paragraph: Lendable press releases

Securitization and green bond markets

Although there haven't been any issuances of green bonds from the Kenyan market, Climate Bonds Initiative has been active in Kenya and has begun work on building a green bond market in the country with partner organisations such as the Nairobi Securities Exchange, Kenyan Bankers Association and the Sustainable Finance Initiative. With in-country partners, CBI has also started drafting an initial prospectus for the development of a fundraising facility, which would have an SPV structure for financing "the green economy". Work on this facility is very closely aligned with the aims of the CAP and the Kenyan partners are keen on building a collaborative relationship with the project

C.2: LATIN AMERICA: ROOFTOP SOLAR

General country data

Table 13: Mexico, Brazil, Panama and Colombia country indicators²⁹

Indicator	Mexico	Brazil	Panama	Colombia
Population	127.0 million (2015)	204.5 million (2015)	3.9 million (2015)	48.2 million (2015)
GDP	USD 1.144 trillion (2015)	USD 1.772 trillion (2015)	USD 52.4 billion (2015)	USD 292.1 billion (2015)
GDP growth (annual)	2.5% (2015)	-3.8% (2015)	5.8 % (2015)	3.1 % (2015)
GDP/Capita (PPP)	USD 17,267/cap (2015)	USD 15,610/cap (2015)	USD 22,261/cap (2015)	USD 13,801/cap (2015)
Sovereign Rating (S&P)	Inv. grade, BBB+ (2016)	Non-Inv. grade, BB- (2016)	Inv. grade, BBB (2016)	Inv. grade, BBB- (2016)
Power Installed Capacity	64 GW (2014)	138.4 GW (end 2014)	2.8GW (end 2014)	15.5GW (end 2014)

Market context

The proposed CAP in-country initiative will seek to partner with IIC to advance financial aggregation for rooftop solar in the C&I or residential sector. While rooftop solar has been identified as the primary focus, energy efficiency involving ESCOs, including municipal scale efforts such as public street lighting, will also be explored.

Within Latin America, Brazil, Mexico, Panama, and Colombia are currently the most promising markets in rooftop solar. This is a function of a combination of factors including high insolation levels, generally attractive tariffs, favorable regulations (in-place or in development), and low-installation costs. In practice, numerous details (e.g., specific rate design, net metering caps, bankability of power, treatment of PPAs vs leases) can impact the financial viability and business case, and need to be closely assessed on a case-by-case basis. The C&I sector (big box stores, hotels etc.) with systems between 50 kW to 1MW, and sometimes 5MW, has the potential to reach attractive volumes for aggregation.

More broadly, there is a compelling case for scaling-up rooftop solar in Latin America. The region's energy demand is expected to double by 2030, there is a need to diversify beyond hydropower to hedge against the impacts of climate change, and rooftop solar can help offset the region's high transmission losses and limited transmission capacity.

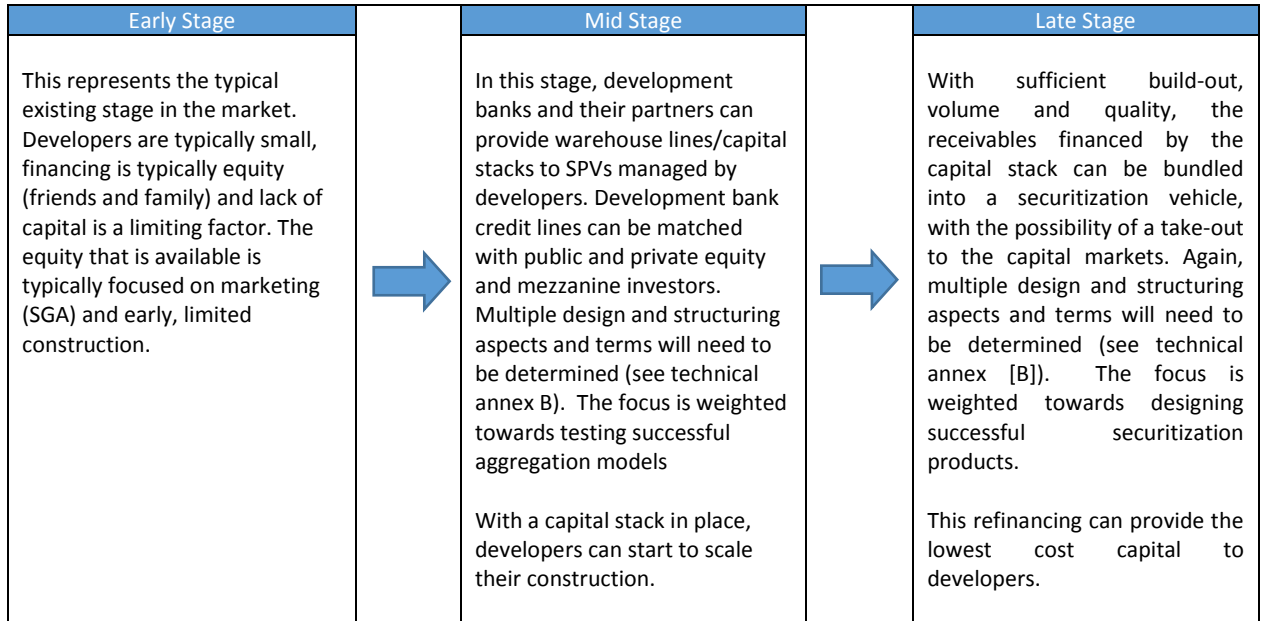
Evolution and vision for financing

There is an overall need to shift to low-cost, commercial debt financing for solar PV and energy efficiency. With this objective, IIC is exploring the provision of warehouse lines/capital stacks for rooftop solar developers and ESCOs. The CAP is looking to support IIC in these activities.

Conceptually, in broad strokes, the evolution of financing for rooftop solar in Latin America can be envisaged in terms of an early, mid and late stage, as represented in Figure 7 below. The mid and late stages are aggregation transactions.

²⁹ Sources: EIU for economic indicators; S&Ps;

Figure 7: Illustrative market development stages for financing of rooftop solar in Latin America



Market barriers to financial aggregation

In initial interviews during the CAP design phase, a number of potential barriers were raised by developers and investors:

- *Unrated end-users.* Lack of credit information can be a real challenge, particularly in the C&I space.
- *Variable contracts.* There is currently a lot of tailoring of contracts, for example inserting tailored clauses on performance. There is a need to find practical ways to move to standardized contracts, or to creating incentives and devices which can bring about standardization.
- *Financial intermediaries and investor education.* There is the opportunity to work with local stakeholders, including banks, local credit rating agencies etc., to raise awareness around aggregation.
- *Operation risk from originators.* There is a risk that originator/manager of the subprojects needs to be replaced due to an inability to continue the ongoing operation and maintenance of the subprojects. There may not always be other qualified service providers available to take over the portfolio.
- *Bankruptcy Laws.* Not all jurisdictions have clear bankruptcy laws related to Special Purpose Vehicles (SPVs). In addition, procedures and timing for asset recovery may be a challenge.

Securitization and green bond markets

The broader securitization market in Latin America has its origins in Argentina in 1993. The aggregate size of the most active markets is estimated to be in the range of US\$65 billion. The largest securitization market in Latin America sized as a percentage of its GDP is Brazil with 2.5%, followed by Mexico 1.4%, Argentina 0.6%, Colombia 0.4% and Chile 0.3%. Even on this relative basis, this activity pales in comparison to that of United States at 55.3% of GDP. There is still ample room for development of the securitization market in the region and an opportunity to introduce new asset classes such as green asset-backed securities.

The green bond market in Latin America remains underdeveloped. There are only seven issuances in the region, most by national and multilateral development banks and three (non-aggregation) project bonds.

IIC has made aggregation structures its focus, in order to promote the expansion of low carbon technologies and energy efficiency and to develop the asset backed security market. It is pursuing both bottom-up and top-down approaches, with

several loan facility aggregation pilots to test specific regulatory and business models (bottom-up), and three aggregation platforms expected to be refinanced through green asset-backed securities in 2018 (top-down).

Scope of cooperation between the CAP and IIC

The initial focus of the CAP and IIC's collaboration will be on rooftop solar, where IIC is working on aggregation facilities principally in Mexico, Panama, and Colombia. IIC is also working on a number of other innovative financial aggregation transactions, including both building-scale and municipal-scale energy efficiency projects. As these innovative and first mover solar and energy efficiency projects work to address those market barriers (and others) itemized above, they have received support from the Green Climate Fund, the Clean Technology Fund, and/or the Canadian Climate Fund for the Private Sector in the Americas. This opens the opportunity for a broader partnership between the CAP and IIC, assisting IIC in drawing lessons learnt and preparing and disseminating knowledge products from these activities.

C.3 INDIA – SOLAR POWER AND ENERGY EFFICIENCY

General country data

Table 14: India country indicators³⁰

Indicator	India
Population	1.311 billion (2015)
GDP	USD 2,072 trillion (2015)
GDP growth (annual)	7.5% (2015)
GDP/Capita (PPP)	USD 6,086/capita (2015)
Sovereign Rating (S&P)	Inv. grade, BBB (2016)
Power Installed Capacity	307.3 GW (2016)

Market context

India is the fastest growing BRICS economy at present and is seen as being on the forefront of efforts to address climate change. The government has set itself ambitious electrification targets including a target to build 175GW of renewables capacity (100GW solar, 60GW wind and 15GW other) by 2022. With solar PV costs falling by 12% year on year in the country and current solar projects outcompeting coal on price the target is becoming more realistic, however remains challenging. India today has roughly 39GW of renewable energy capacity installed (2015), meaning that the country will require an investment of USD 18-22 billion per year to achieve its target (BNEF). Although India has the second cheapest solar power in the region (after Australia) it has the highest cost of debt and equity, making financing costs a key target for improvement.

In parallel to India's renewable energy targets, and with rapidly increasing energy demand, Prime Minister Narendra Modi has emphasized efficient energy use to conserve resources and help curb environmental damage from fossil-fuels. To this end, he has established the largest energy service company (ESCO) in the world – Energy Efficiency Services Limited (EESL) which is rolling out projects relating to LED residential and municipal lighting, energy efficient appliances, efficient solar powered water pumps for the agricultural sector.

Securitization overview

The securitization market in India is relatively small and nascent compared to developed country markets and compared to general loan activity in India. Securitization market issuance volumes have fallen year on year since 2007/08.

³⁰ Sources: EIU for economic indicators; S&Ps; India Central Electric Authority

The majority of current securitization activity is driven in order to meet the needs of government-mandated “priority sector lending” (PSL) targets of banks, which are significant as they cover 40% of their loan-book. Foreign banks are buyers of ABS to meet their PSL targets, as they often lack capacity to originate the loans themselves. PSL sectors include agriculture, infrastructure, microfinance and small-scale renewable energy, which lend themselves well for low-carbon investments.

The range of originators and investors is narrow:

- The main originators are non-bank finance companies (NBFCs). Asset Finance Companies in the SME and Transport financing segments and Micro Finance Institutions are very active as originators.
- The main investors are private sector banks. Domestic public sector banks, insurance companies, pension and mutual funds (which between them hold the remainder of institutional capital) also have few investments in ABS.

In 2016 the government moved to encourage the development of the securitization market by introducing a new Finance Act that changed the way receivables were taxed, by switching from a distribution tax to a withholding tax system. Clarifying this tax issue opened the doors for insurance, pensions and banks to invest in securitized assets. The Finance Act also lifted the ban on foreign investors investing in securitized debt.

Barriers for a green securitization

The demonstration bonds will have to overcome a number of barriers in the market. These include:

- Low demand for long tenor receivables
- Still relatively small domestic investor base and absence of secondary ABS market to inform pricing (most transactions are still ‘Over the Counter’)
- Preference of AA+ and above securities

Although these barriers may seem prohibitive, market participants we have held consultations with have confirmed that the current regulatory environment is already conducive to market growth.

The current mismatch between demand and supply of securitized paper stems from two main sources: tenure mismatch and credit rating requirements. Asset managers we spoke with (e.g. ICICI Prudential AMC, which is currently the largest Indian asset management company) have indicated that the market would be ready to accept securitised paper if it was of sufficient rating (minimum AA+) and had a tenor of 5-7 years. As the common practice is to ‘buy-and-hold’, liquidity is of a lesser concern, although issuances of over USD 100 million dollars would attract a liquidity pricing benefit.

Potential supported transactions

Dialogues have begun with a number of potential issuers in India, creating an opportunity to advance the green asset backed bonds agenda swiftly. In recognition of potential challenges to getting projects off the ground, options for projects to come online are presented in a phased approach and the feasibility of projects undertaken will be subject to review milestones.

Table 15: Potential CAP supported transactions in India

Name	Company description	Possible assets to be securitized	Likelihood of securitisation
YesBank	Yes, Bank is one of India’s largest private banks with a loan-book of nearly USD 15 billion.	The bank has lent c. \$400 million to RES	YesBank is keen to lead on green initiatives and has experience in novel and structured products.
EESL	Energy Efficiency Services Limited is the largest public “Energy Services Company” (ESCO) in the world and is fully owned by the government of India.	Nearly all receivables on its ESCO business could comply as they are done on large scale and	EESL has identified a set of assets consisting of solar powered agricultural pumps as well as 15-20 street light LED projects (c. USD 15-30 million each) as well as residential LED programmes

Name	Company description	Possible assets to be securitized	Likelihood of securitisation
		standardised.	which it believes could be securitised for the total issuance of around USD 100 million over the next few years.
IDBI	Formerly known as Industrial Development Bank of India, IDBI is a public sector universal bank.	Perhaps the most interesting from a landmark issuance point of view will be IDBI's solar power irrigation pumps lending programme for small farmers for Maharashtra and Andhra Pradesh states.	The bank is aware of the possibility of reaching exposure limits to the power sector and has begun identifying assets which could potentially be securities.
Indian Renewable Energy Development Agency (IREDA)	IREDA is a State-owned lender to the renewable energy in India.	IREDA's entire loan-book of USD 1.2 billion consists entirely of renewable energy assets.	IREDA's management has expressed its interest in pursuing the project.

TECHNICAL ANNEX D: CAP VALUE PROPOSITION TO DIFFERENT STAKEHOLDER GROUPS

Table 16: CAP value proposition to stakeholders participating in an in-country initiative (the 'in-country offer').

Stakeholder	CAP's value proposition to the stakeholder
Public Sector #1 - National governments	<ul style="list-style-type: none"> • Overall: national governments further their objectives in energy investment • Energy/infrastructure ministries can access information/learn about benefits of innovative low-cost financing for low-carbon energy • Financial sector regulators and tax authorities can access balanced information and best-in-class practice for financial sector reform, disclosure requirements, tax treatment etc.
Public Sector #2 -International organizations / initiatives - Development banks	<ul style="list-style-type: none"> • Overall: the CAP allows the stakeholder to further its objectives in market development (i.e. the stakeholder and CAP's objectives on aggregation for low-carbon energy are aligned). • For development banks, CAP can have a complementary set of qualities – addressing non-transaction structuring related issues, such as dialogues on standardization and regulatory reform, or awareness raising with investors. • CAP can shine a favourable light and publicise the organization's/development bank's achievements.
Financial market and advisory - Investment banks - Legal firms - Accountants - Credit rating agencies - Exchanges	<ul style="list-style-type: none"> • Overall: stakeholders can position themselves and gain new business for aggregation transactions. • Stakeholders can have access to information. Certain stakeholders can learn about new asset classes, transaction structures. • Stakeholders can network with power industry actors through national working groups.
Investors - Investor associations - Commercial banks - Institutional investors	<ul style="list-style-type: none"> • Overall: stakeholders can get access to new asset classes which meet their risk/return preferences, diversifying and greening their investment portfolio. • Stakeholders can influence the transparency and data that issuers provide on assets (through the standardization efforts), getting better data and reduced due diligence costs • Stakeholders can source/originate investment opportunities with originators through the working groups and tailored introductions.
Power industry -Project developers/ service entities - Manufacturers - Utilities	<ul style="list-style-type: none"> • Overall: stakeholders can access and create demand for their services/assets, driving down their cost of financing • Stakeholders can benefit from CAP's convening capacity and organizational skills in running working groups and standardization efforts • Stakeholders can gain access to information and good practice in standardization approaches (contracts, data sets, deal structures) • Stakeholder can network with interested institutional investors to raise capital. • Stakeholders involved in showcase transactions can benefit from direct subsidization of soft transaction costs.

TECHNICAL ANNEX E: ILLUSTRATIVE MEMBERSHIP OF GLOBAL WORKING GROUP

The global working group will be open to all relevant industry actors and stakeholders. The aim of the working group will be to promote engagement and coordination amongst members, providing a forum for sharing feedback and expertise on key issues of relevance to members. Working group members can be categorised into four main practices: (i) public sector; (ii) financial market and advisory; (iii) investors; and, (iv) power industry.

The tables below set out potential members for the working group. CBI and UNDP have been reaching out to potential members on an informal, *ad hoc* basis.

Public Sector:

Type of Member	Potential members	
<ul style="list-style-type: none"> - International organisations/ initiatives - Development banks - National governments (ministries; financial market regulators) 	<ul style="list-style-type: none"> International development banks <ul style="list-style-type: none"> European Investment Bank⁺⁺ Inter-American Development Bank[*] Asian Development Bank[*] National development banks <ul style="list-style-type: none"> BNDES (Brazil)[*] BDMG (Brazil)[*] Nacional Financiera (Mexico)[*] IREDA (India)^{**} IDBI (India)⁺⁺ FMO (Netherlands)⁺⁺ 	<ul style="list-style-type: none"> International Solar Alliance[*] TerraWatt Alliance⁺⁺ National Solar Energy Federation of India (NSEFI)[*] G20 IPEEC[*] Green Climate Fund[*] IRENA^{**} OECD SE4All[*] US DOE NREL[*] Regulators <ul style="list-style-type: none"> Capital Markets Authority of Kenya[*] Securities & Exchanges Board of India[*]

Financial Market and Advisory:

Type of Member	Potential members	
<ul style="list-style-type: none"> - Commercial banks - Legal firms - Accountants - Credit rating agencies - Exchanges 	<ul style="list-style-type: none"> Associations <ul style="list-style-type: none"> Kenya Bankers Association^{**} International underwriting banks <ul style="list-style-type: none"> Credit Suisse⁺⁺ Standard Chartered Bank⁺⁺ HSBC⁺⁺ Standard Chartered Bank⁺⁺ Citibank⁺⁺ Regional banks <ul style="list-style-type: none"> YES Bank (India)^{**} National Australia Bank⁺⁺ ANZ Bank⁺⁺ Axis Bank^{**} Stock Exchanges <ul style="list-style-type: none"> Bombay Stock Exchange[*] National Stock Exchange of India[*] Nairobi Stock Exchange^{**} Casablanca Stock Exchange[*] Shenzhen Stock Exchange[*] Shanghai Stock Exchange[*] London Stock Exchange⁺⁺ Luxembourg Stock Exchange⁺⁺ Bolsa Mexicana⁺⁺ Sustainable Stock Exchanges Initiative (UNCTAD)⁺⁺ 	<ul style="list-style-type: none"> Advisory firms <ul style="list-style-type: none"> PwC^{**} Pegasus Capital Advisors[*] EY⁺⁺ Rating agencies <ul style="list-style-type: none"> Standard & Poor's[*] Moody's^{**} ICRA (India)[*] HR (Mexico)[*] Liberum (Brazil)^{**} Fitchs[*] Climate Bonds Legal Working Group <ul style="list-style-type: none"> Baker & McKenzie NortonRose⁺⁺ Shearman & Sterling⁺⁺ Allen & Overy⁺⁺ White & Case[*] Crowell & Moring^{**}

Investors:

Type of Member	Potential members																		
- Investor associations - Institutional investors	<table border="0"> <tr> <td>Associations</td> <td>Investors</td> </tr> <tr> <td>International Cooperative Mutual Insurers Federation⁺⁺</td> <td>Mirova⁺⁺</td> </tr> <tr> <td>Principles for Responsible Investment⁺⁺</td> <td>Axa IM⁺⁺</td> </tr> <tr> <td>Ceres Investor Network on Climate Risk⁺⁺</td> <td>Aviva AM</td> </tr> <tr> <td></td> <td>LGIM</td> </tr> <tr> <td></td> <td>ICICI Prudential AM (India)</td> </tr> <tr> <td></td> <td>BlackRock⁺⁺</td> </tr> <tr> <td></td> <td>AB Global⁺⁺</td> </tr> <tr> <td></td> <td>Allianz Global Investors⁺⁺</td> </tr> </table>	Associations	Investors	International Cooperative Mutual Insurers Federation ⁺⁺	Mirova ⁺⁺	Principles for Responsible Investment ⁺⁺	Axa IM ⁺⁺	Ceres Investor Network on Climate Risk ⁺⁺	Aviva AM		LGIM		ICICI Prudential AM (India)		BlackRock ⁺⁺		AB Global ⁺⁺		Allianz Global Investors ⁺⁺
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Power Industry:

Type of Member	Potential members								
- Project developers/service entities - Manufacturers - Utilities	<table border="0"> <tr> <td>Energy Efficient Services Limited (India)^{**}</td> <td>Solar Century*</td> </tr> <tr> <td>Lendable^{**}</td> <td>Calcef CEO (and Sungevity co-founder) Danny Kennedy*</td> </tr> <tr> <td>Hannon Armstrong (EE financing) ⁺⁺</td> <td></td> </tr> <tr> <td>M-KOPA Solar (Kenya)</td> <td></td> </tr> </table>	Energy Efficient Services Limited (India) ^{**}	Solar Century*	Lendable ^{**}	Calcef CEO (and Sungevity co-founder) Danny Kennedy*	Hannon Armstrong (EE financing) ⁺⁺		M-KOPA Solar (Kenya)	
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⁺⁺Current Climate Bonds Partners

^{**}Confirmed

*Have indicated interest to CBI/UNDP