

# Renewable Energy Challenge Fund (2016-2020)

Part of the UNCDF CleanStart Programme

Annual Progress Report #1 (January – Dec, 2017)<sup>1</sup>

## Executive Summary

In 2017, the Renewable Energy Challenge Fund (RECF) has become fully operational, completing the first challenge window on clean cooking solutions and initiating the second challenge window on solar PV.

In early 2017, UNCDF launched the RECF Clean Cooking Window. By end of 2017, UNCDF signed contracts with 6 companies<sup>2</sup>. The portfolio is diverse in terms of clean cooking solutions and the maturity of the companies. The companies will be distributing **efficient cookstoves, briquettes, biogas, and LPG** to approximately 40,000 households, businesses, and institutions such as schools, create over 700 jobs and income earning opportunities especially for women and youth, and off-set approximately 400,000 tons of CO<sub>2</sub> by 2020.<sup>3</sup> All 6 companies are incorporated in Uganda, either wholly owned and staffed by Ugandans or predominantly staffed by Ugandans. In total, RECF is committing US\$ 630,527 in grant funding, and leveraging US\$ 539,515 of private sector investment.

In November 2017, the RECF Solar Window was launched. The marketing of the Solar Window was successful. UNCDF received 65 applications/concepts. In February 2018, the Investment Committee (IC) met in Kampala to deliberate on which companies to short-list for the next round. IC Members recommended the 16 EOIs to the business plan development stage. The shortlisted companies represent a **balanced and diverse portfolio of solar power applications** for households, businesses, schools and health clinics, as well as lighting and productive uses such as irrigation and refrigeration.

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<sup>1</sup> This is the official reporting period, while the activity progress include updates until August, 2017

<sup>2</sup> The Investment Committee and Board approved investments in 7 companies. In early December, 2017, one of the 7 companies, Burn (efficient cookstoves), informed UNCDF that it would need to hold off on Uganda expansion due to working capital constraints. Both parties agreed to hold off on the contract signing and revisit the partnership in 2018. In early January 2018, Burn expressed interest to continue the partnership. This request is being reviewed by UNCDF.

<sup>3</sup> Although these are targets from the companies, these may be only partially achieved given companies are at different levels of maturity. UNCDF will provide mentorship to the companies.

One other achievement during this reporting period is having put in place the implementation and governance structure for RECF. RECF now has a seven-member Investment Committee (IC) with a diverse background, one that is well-grounded in the Ugandan market. The IC and companies are supported by an experienced Fund Management Team.

To sustain the impact of RECF beyond its initial investments, UNCDF has also invested time and resource in activities to improve the market system including:

- Collecting and analyzing data on supply-side risks/challenges and capacity development needs
- Structuring data to identify market gaps and raise sector visibility, especially among other funders
- Sharing and putting customer insights into action
- Building the capacity of the clean cooking and solar industry associations to level up the sector as a whole

In 2018, priority will be given to expanding the post-investment technical assistance team, including the recruitment of a National Project Coordinator. In addition, UNCDF will add non-grant instruments such as loans and guarantees to the financing mix to syndicate funds from a range of financiers. UNCDF’s LDC Investment Platform, to which Sida is a funder, will guide the implementation of non-grant financing instruments at the country-level.

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Key supporting documents are uploaded [on this LINK](#)

## 1. Background and objective

UNCDF, through the global CleanStart Programme, is managing the Renewable Energy Challenge Fund (RECF) in Uganda. RECF has been set up in partnership with the Embassy of Sweden in Uganda.

**The CleanStart Programme** supports low-income people to transition to cleaner, more efficient energy through access to finance. To this end, CleanStart promotes access to finance across the energy value chain from customer to enterprise by investing (currently, through grants) in early stage, innovative business ideas from SMEs, that have the potential to make a step-change in improving the accessibility, affordability, and reliability of modern energy for people, especially those at the last-mile. Business ideas should have the potential to become a scalable and commercially-viable model of selling energy products/services in last-mile markets.

The Renewable Energy Challenge Fund (RECF) in Uganda builds on the result of UNCDF's first Energy Access Challenge launched in 2015. RECF aims to fill in the "missing middle" in renewable energy SME financing by investing in early stage, high-risk ideas to set energy SMEs on a pathway for larger, more commercial-oriented capital. The following five principles are central to the RECF: 1) Additionality; 2) Sustainability; 3) Inclusiveness; 4) Results-orientation; 5) Co-creation.

The goal of RECF is to increase access to renewable energy for domestic, productive and social uses among underserved poor households especially in rural areas. By end of 2020, RECF aims to support **153,000 low-income customers transition to renewable energy**<sup>4</sup>, of which at least 50 percent are women and 50 percent are youth<sup>5</sup> (the two groups can overlap). RECF further aims to **create 1,000 new jobs**, of which at least 60 percent of these jobs are for women and 40 percent are for youth (the women and youth groups may overlap e.g. female youth sales agent).

Up to **160,000 tonnes of CO2 emissions is expected to be off-set** as a result. In terms of market development, RECF aims to support **a target of 15 renewable energy SMEs** which will continue to serve the community after the project period ends and demonstrate the viability of clean energy companies.

RECF supports innovations in three groups of energy solutions: 1) Clean cooking solutions; 2) Small solar power; and 3) Large solar power.

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<sup>4</sup> Renewable energy/clean energy includes technologies or practices that use renewable energy (e.g. solar, wind, hydro) or efficiently processes traditional fuels (e.g. efficient cook stoves, biogas, briquettes etc.). LPG is the only commercial hydrocarbon that could be included in the category.

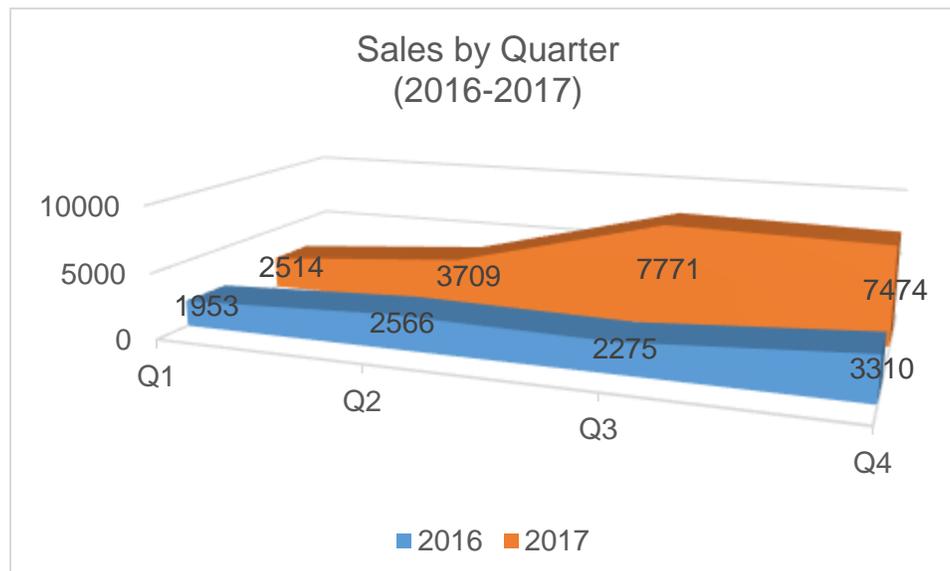
<sup>5</sup> For RECF, youth includes young adults under age 30

## 2. Results and lessons learned

### 1) UNCDF Energy Access Challenge

The *Energy Access Challenge* was the first window (from here on referred to as 'Window 1') that UNCDF launched in late 2015. The challenge to companies was to improve the affordability of clean energy solutions in a commercially viable way. UNCDF is reporting on this window given RECF is building on the results and learnings from this first investment.

As of end 2017, four companies<sup>6</sup> from Window 1 sold more than 31,000 clean energy solutions since UNCDF's co-investment started in late 2015.<sup>7</sup> In 2017, the four companies sold a little over 21,000 units. As of end 2017, 34 percent of the customers were women, and 72 percent were in rural areas.

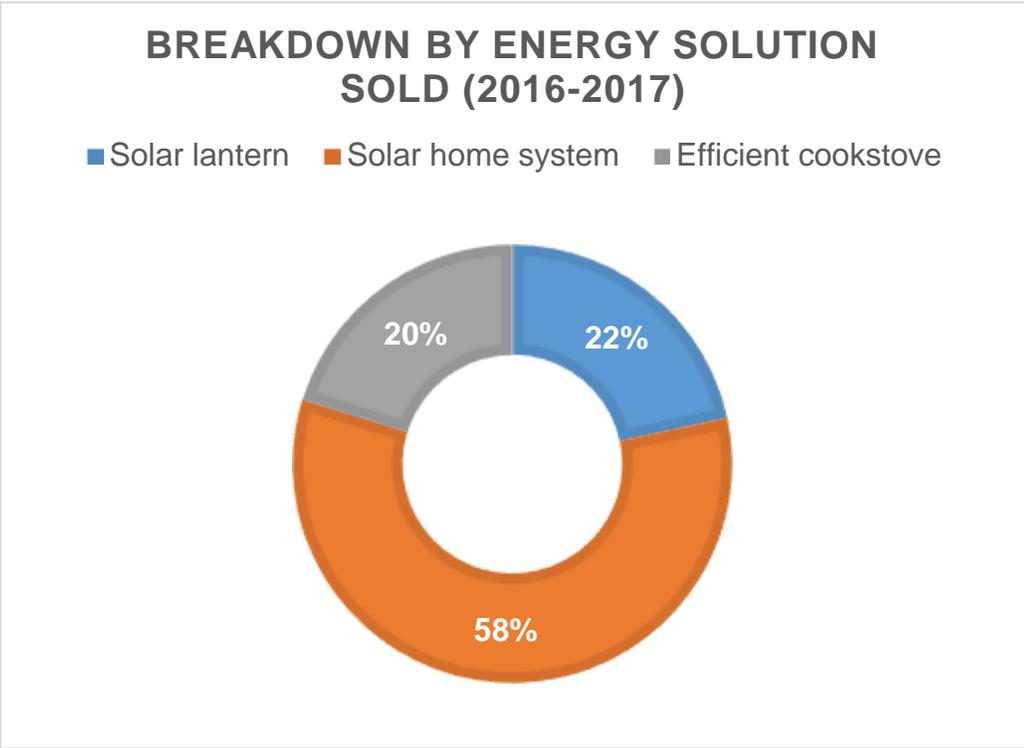
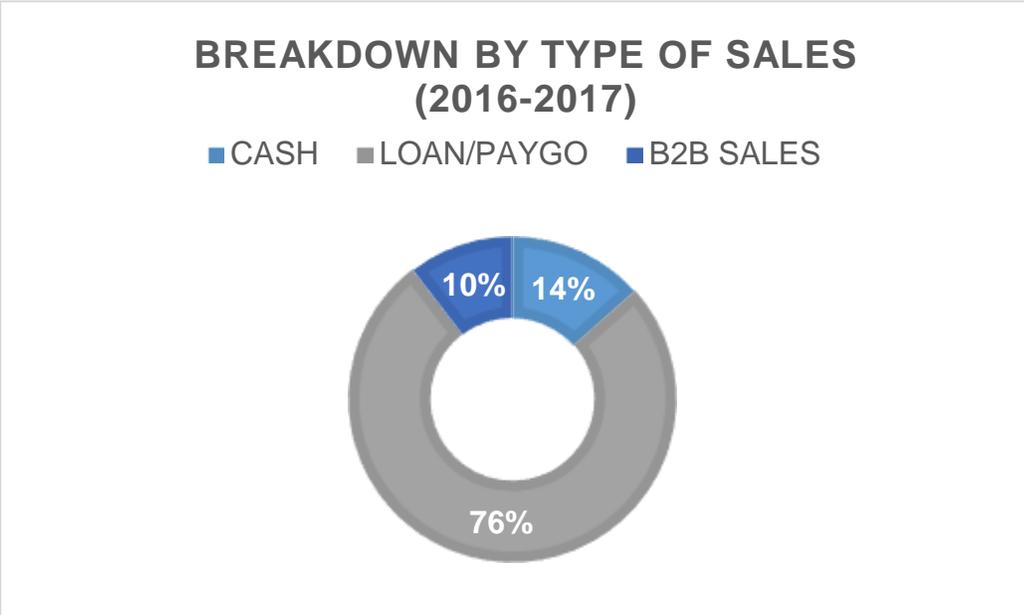


All four companies under Window 1 piloted PayGo with UNCDF's co-investment. Companies experimented with various distribution and financing models/partners to figure out the right combination of financing and product range to reach last mile customers. Moreover, UNCDF's funds have catalyzed overall business expansion. Companies have expanded **human resources** in key functional areas such as finance, marketing and sales, as well as **distribution infrastructure** such as sales outlets, in addition to adopting **digital solutions** such as mobile payments and sales management systems. This expansion of capacities helped to boost sales for all products and all financing mechanisms. Below is a breakdown of sales attributable to UNCDF by type of

<sup>6</sup> There are five companies that are funded under Window 1. Village Power is not counted in the sales (yet) given they are developing a solar PayGo data sharing platform intended to benefit the sector's capital raise efforts.

<sup>7</sup> Full-on implementation started in 2016

transaction and solution. PayGo sales is still 76 percent of all sales that are attributable to UNCDF's investment.



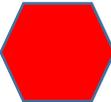
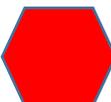
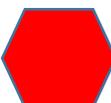
Notably, d.light Design achieved its sales target and milestones, and will soon be “graduating” from UNCDF’s grant investment. Through UNCDF’s seed capital, d.light established direct presence in Uganda and built out a nationwide footprint. It is

emerging as the third largest player in the plug-and-play solar PayGo market having sold more than 16,000 solar home systems on PayGo by end of 2017.

Overall, however, only 32 percent (31,572 units sold) of the original total sales target (99,700 units sold) has been achieved to date. Three of five partners (BioLite, Finca/Brightlife, Eco Group) have lagged considerably behind their sales targets. Targets were ambitious to start with. Companies spent at least 6 to 12 months before going to market with new product / financing model and this was not reflected more realistically in the planning. Also, companies should have built in more time / alternatives for contingencies. Some factors that contributed to delay (and thus under-achievement) include:

- Product production and import delays
- Mobile payments integration
- Finding / over-reliance on a distribution partner, and partnerships not coming through
- Lack of in-country personnel (especially sales)
- Product pricing
- Project managers' slow decision making to seek alternative options to drive sales

On a macro-level, companies were still affected by people's ability to pay, especially with the economy slowing down earlier in 2017, as well as unforeseen changes in the taxation regime (import, sales VAT) for both solar and cook stoves which inevitably affected product prices and company's operational costs and sales margins. Poor quality competing products are also cited as a challenge by companies.

ORIGINAL BUSINESS PLAN					RESULTS (2016-2017) <sup>8</sup>				STATUS		
#	Co.	Duration	Description	Sales	Unit	TOTAL SALES	CASH	LOAN/PAYGO	B2B SALES		
1	d.light	2016-2017 (2 years)	Set up directly managed operations in Uganda to launch solar PayGo business line.	12500	PayGo customers	16715	39	16676	0	Steady Progress on Milestones and Targets, as planned	
2	Eco Group	2016-2017 (2 years)	Commercialize PayGo for integrated cooking and solar power solution ( <i>Eco Pre-Pay</i> ). Expand core team, field operations, and channel partners. Operationalize factory to automate stove manufacturing.	10000	PayGo customers	1701	621	1080	0	Serious Project Delays, targets may not be reached by end of project	
3	Finca Uganda/ BrightLife	2016-2017 (2 years)	Use credit scoring algorithm to expand energy loans to non-Finca customers, especially the unbanked.	62500	Energy loan clients	9862	3585	6277	0	Serious Project Delays, targets may not be reached by end of project	
4	Biolite	2016-2017 (2 years)	Commercialize PayGo for integrated cooking and solar power solution. Take two pronged approach to sales : direct and through channel partners.	11700	PayGo customers	3294	0	0	3294	Serious Project Delays, targets may not be reached by end of project	
5	Village Power	2016-2017 (2 years)	Develop online platform for solar PayGo companies to share portfolio and other data to provide investors with birdseye view of market and semi-real time view of portfolio quality. VP to demonstrate use of platform in fundraising effort.	3000	Solar home systems (as a result of refinancing raised)	0	0	0	0	Minor project delays, targets remain realistic or adjusted	

<sup>8</sup> Sales attributable to UNCDF's investment

Despite the lackluster sales, most companies have still made meaningful pivots in their business models. Therefore, UNCDF has decided to restructure and extend the partnership by 9 months to September, 2018 with four out of five companies to build on the momentum. Below are the 2017 progress highlights by company.

### d.light

- **Steady expansion towards country-wide sales presence.** Country Manager and structured sales force/distribution network in place. Opened 120 retail outlets.
- **Shifted from outsourced to in-house call center** for closer management of delinquency; it is being operated with 36 agents.
- **Expanded product line** to include a solar TV. d.light is now offering a larger scale solar package (X850) and a solar TV in its Uganda product line.
- **Distribution partnerships/models developed;** these include:
  - Letshego – for penetration of the rural market through the microfinance channel. Letshego has 45 branches countrywide and over 25,000 active rural microfinance members and 100,000 that have completed previous loans in their database.
  - Super distributor model – for penetration in the Northern region. Commission-based personnel at 3-levels: Distributor (Regional Sales Manager equivalent) -Team Leader (Territory Sales Manager equivalent) - Team Supervisor (Territory Sales Executive equivalent) and lastly, the Solar Energy Promoters.

**Commentary:** d.light had a slow start in 2016, focused on setting up its own operations in Uganda. Sales started in Feb 2017. By end Dec 2017, d.light sold 16,676 solar home systems on PayGo, exceeding the project sales target of 12,500 units. d.light has been piloting solar PayGo in Kenya for over a year and transferred lessons learned to the Uganda market. d.light steadily expanded its sales force across the country, as well as diversifying its distribution channels. d.light is realizing operating efficiency and is keeping costs low.

**Risks:** ~20% delinquency ratio which d.light is monitoring closely through its in-house call center and improved customer vetting process; high turnover among commission-based sales agents; device tampering.

### Eco Group

- **Focused on selling Eco Pre-Pay through organized groups** to vet customers better and ensure repayment. Shifting from directly managed sales outlets to hiring commission-based sales agents from the organized groups who are also their customers.
- **Production facility mechanized and operational.** There were numerous delays; however, the factory is now commissioned and operating. This will provide the necessary infrastructure for EcoGroup to grow its sales. However,

EcoGroup needs more working capital to purchase large amounts of raw material for the new facility to produce at maximum capacity. Also needs to train up staff on how to use and maintain the machinery. (Mechanized production is supported by the Global Alliance for Clean Cooking. Increased production capacity was meant to create synergies with UNCDF's investments in operationalizing Eco Pre-Pay.)

**Commentary:** While Eco Group has encountered several challenges related to production facility and solar product certification, the team has persevered. While EcoGroup's targets needed to be revised and the project term extended, the company has established a local automated production facility, various distribution networks and finance models. Supporting a locally-based company will yield long term results. As with many of the pay-as-you-go companies, many lessons are being learned on how to manage the loan portfolio, collections and cashflow.

**Risks:** Delays and additional costs to getting EcoSolar certified by Lighting Global; tracking PayGo portfolio performance and managing cash flow; aligning production capacity and raw material resource purchases.

### Finca Uganda/BrightLife

- **Revised business model** whereby BrightLife on-boards unbanked customers through PayGo sales and graduates well-paying customers into FINCA Uganda (MFI) clients. UNCDF's initial investment leveraged support from other technical partners to harvest BrightLife customer repayment data to develop a credit scorecard and graduation product with Finca Uganda.
- **BrightLife came in first place at the pitching session that UNCDF organized with Mukwano**, one of the largest FMCG companies as well as tea & sunflower seed off-takers in Uganda. Mukwano's selected group of Site Coordinators ranked BrightLife and d.light first and second. As a result, BrightLife will develop a partnership model with Mukwano which includes devising a sales and incentive model with Mukwano's Site Coordinators who act as a gateway to Mukwano's 80,000 strong smallholder farmer base. In 2018, BrightLife will also be introducing solar-enabled Business-in-a-Box products such as salon sets, phone charging stations, water pumps, and maize grinders.

**Commentary:** Now, BrightLife itself can generate customer data through PayGo (as opposed to relying on a third party data provider); the same data can be used by FINCA Uganda to develop its own score to include unbanked clients. This has opened a wide range of new opportunities for the FINCA Uganda-BrightLife partnership in terms of customer outreach, data analytics, customer-centric product development and marketing.

**Risks:** While BrightLife/Finca Uganda may have figured out a way to address the data issue, it still needs to overcome the Know-Your-Customer requirements that Finca Uganda initially faced as a regulated financial institution. The cost of following through on KYC requirements made it prohibitively expensive for unbanked people to open an account with Finca Uganda. Even on the data front, it remains to be seen

whether BrightLife will have enough sales, and hence repayment data, to create a meaningful scoring algorithm.

## Biolite

- **Developed partnerships with third party finance/distribution partners.** Partnering with Finca/BrightLife (PayGo/distribution partner) and Africell (marketing/distribution partner) to focus on the pieces of the value chain where it has distinctive expertise (i.e. technology development, in-field marketing, and after sales service). Exploring a tripartite partnership between BioLite (product) – Finca/BrightLife (financing) – Africell (marketing/distribution). Despite the initial delays in launching the Solar Home 620, BioLite was able to leverage the distribution partnerships it has been building up for the HomeStove.
- **Confirmed the increased value of BioLite’s Solar Home 620** compared to both earlier prototypes and competitor lighting systems. Lighting Global Certification was received; a testament to the quality product. Piloted 200 products with Finca/BrightLife. Additional orders coming in from Finca/BrightLife.
- **Developed pay-as-you-go IT solution (i.e. built code-generating software) and integrated with Finca/BrightLife.**

**Commentary:** BioLite is demonstrating a B2B model which is still unique in the solar PayGo sector. Most, and especially the market leaders such as M-KOPA and Fenix, are vertically integrated. It will be interesting to see what value proposition the model will offer as an alternative to on-balance sheet financing by solar manufacturers, especially if the tripartite model takes off.

**Risks:** Commitment and success of distribution/financing partners.

## Village Power

- **Agreed on Market Database pilot roll-out with GOGLA** as part of their solar PayGo market data collection efforts in H1 2018 (supported by GIZ). Aligned on priority KPIs for incorporation in the Market Database and have been working with the World Bank to clarify some of their definitions. Uganda will be pilot country. Local stakeholder consultation co-organized with GOGLA and UNCDF.
- **Made improvements to platform functionality through specific use-case discussions with investors:** For example, an investor funding several PayGo companies is interested in running data in different ‘batches’ e.g. by companies, currencies.
- **Continued outreach and discussions** with PayGo companies and financiers to on-board other users.

**Commentary:** Village Power has a good team devoted to this project. GOGLA’s decision to use the market database for the first-ever solar PayGo sales data collection is a big achievement. Village Power’s industry changing database platform is dependent on robust data. During platform development, the Village Power Uganda team sold over 5,000 solar home systems on PayGo (10 – 300 watts) which

has helped with beta testing and validating the platform based on actual data. The sales demonstrate the commitment of Village Power to contribute to the growth of the sector, integrate lessons learned from on- the-ground sales and establish a profitable company. When the platform moves to a long- term home, Village Power will be a regular data contributor to the platform.

**Risks:** On-boarding large solar PayGo companies to share their data on the platforms and maintaining anonymity in a sector where a handful of companies dominate the market. Converting interests from financiers on the loan portfolio sharing functionality into actual adoption. Security and data transfer/collection methods need to spelled out clearly and convincingly to get other users on-board. Moreover, the pace of Village Power sharing its own sales data and ability to raise refinancing affected by a container shipment that was withheld at the border for several months. As of Q4 2017, VP has 6,448 data points uploaded on the market database.

## 2) RECF Clean Cooking Window

### **Result 1. More than 400,000 tons of CO2 expected to be off-set through new investees in the clean cooking sector in Uganda**

In early 2017, UNCDF launched the Renewable Energy Challenge Fund Clean Cooking Window. 64 concepts were received, out of which 7 companies were selected for investment following a rigorous selection process. By end of 2017, UNCDF signed contracts with 6 out of the 7 companies<sup>9</sup>. All 6 companies are incorporated in Uganda, either wholly owned and staffed by Ugandans or predominantly staffed by Ugandans. In total, RECF is committing US\$ 630,527 in grant funding, and leveraging US\$ 539,515 of private sector investment.

The portfolio is diverse in terms of clean cooking solutions and the maturity of the companies. The companies will be distributing **efficient cookstoves, briquettes, biogas, and LPG** to approximately 40,000 households, businesses, and institutions such as schools, create over 700 jobs and income earning opportunities especially for women and youth, and off-set approximately 400,000 tons of CO2 by 2020. Contracts with companies were signed in December 2017.

The Ambassador of Sweden in Uganda H.E. Per Lindgärde met with the six partners the same month and visited two companies Raising Ghabdho Foundation and Fenix International.

As of February 2018, companies have broadly made the following progress<sup>10</sup>:

- **Staffing:** On-boarded key staff such as project manager;
- **Production:** Procured/constructed machinery to boost production (e.g. briquette pressing machinery, drying racks);

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<sup>9</sup> In early December, 2017, Burn (efficient cookstoves) informed UNCDF that it would need to hold off on Uganda expansion due to working capital constraints. Both parties agreed to hold off on the contract signing and revisit the partnership in 2018. In early January 2018, Burn expressed interest to continue the partnership. This request is being reviewed by UNCDF.

<sup>10</sup> A more detailed account of progress made will be included in the 1H 2018 report after quarterly reports are submitted.

- **Marketing/sales:** Developed marketing materials, hired sales agents and opened sales outlets, made sales or on-boarded new business clients e.g. schools;
- **IT solution:** Sourced IT solution developers (e.g. sales management, smart meters) and developed prototypes;
- **Approvals/registration:** Sought Office of the Prime Minister approval to start operations in refugee settlements.

Companies also highlighted challenges they were facing:

- **Price point still too high for customers:** Companies will try reducing the price point, trade credit or using credit scoring;
- **Unforeseen/higher than expected costs** such as raw material price hikes or Phase 3 electricity extension;
- **Cost of transportation, connectivity and language barriers** were identified as challenges for operating in the refugee settlements.

Within Q1 2018, UNCDF will develop a technical assistance plan with the companies to provide mentorship and technical advice/linkages as needed.

**Read our blog:** [Clean Cooking Solutions in Uganda: Announcing 6 Exciting Innovations](#)

Table 1. RECF Clean Cooking Window Investees<sup>11</sup>

COMPANY & PARTNERSHIP DURATION	INNOVATION	INVESTMENT		Number of units to be sold	TARGETS		CARBON OFFSET <sup>12</sup> (Tonnes)	PEOPLE AFFECTED
		RECF Grant	Company cost-share		Type of Cooking Solution	Jobs for women and youth		
<b>1. Fenix International Uganda</b>  Dec 2017 – 30 June, 2020 (2 Y 6 M)	Fenix will credit score customers and make cookstoves affordable by offering financing using a PAYGO instalment method via MTN Mobile Money.	\$125,000	\$125,000	6,000	ICS	352	12,000	30,000
<b>2. Green Heat Uganda</b>  Dec 2017 – 30 Sept, 2020 (2 Y 9 M)	Green Heat works in partnerships with female-led distributors to sell its briquette products e.g. charcoal vendors. Youth will be hired as biogas digester masons.	\$140,000	\$112,000	1470	Briquettes (tonnes)	250	5,538	27,073
				400	Biogas		7,884	
<b>3. Simoshi Limited</b>  Dec 2017 – 30 Sept, 2019 (1 Y 9 M)	Simoshi will use schools to promote and sell efficient cook stoves for both institutional and household use.	\$100,000	\$96,780	13000	ICS	54	26,000	173,500
				140	IICS		13,300	
<b>4. Wana Solutions Uganda Limited</b>  Dec 2017 – 30 Sept, 2020 (2 Y 9 M)	WANA will deliver high-quality LPG supply at a low price point in underserved markets by using smart meters and PAYGO technology.	\$150,000	\$100,000	21600	LPG	23	369,263	108,000
<b>5. Josa Green Technologies Limited</b>	Josa Green will install in schools efficient cookstoves that use	\$52,027	\$34,895	30	IICS	16	2,850	25,389

<sup>11</sup> These figures are based on the signed contracts with companies.

<sup>12</sup> Improved Cookstove (ICS): 2 tons/year; Institutional ICS (IICS): 95 tons/year; Briquettes: 0.0104/kg; Biogas 10m<sup>3</sup>: 6 tons/year; LPG: 8235 tons/cooking

Dec 2017 – 30 June, 2020 (2 Y 6 M)	briquettes. Josa Green will innovate on the payment terms for stove installations through a long-term purchase agreement for briquettes.			255	Briquettes (tonnes)		96	
<b>6. Raising Gabdho Foundation (RGF)</b>  Dec 2017 – 30 June, 2020 (2 Y 6 M)	RGF currently works with an urban refugee community center in Kampala by providing stove and briquette production, sales training and jobs for urban youth refugees. RGF will expand its operations in the refugee settlements.	\$63,500	\$85,500	3300	ICS	32	6,600	24,389
				939	Briquettes (tonnes)		3,539	
		\$630,527 RECF investment	\$554,175 Company investment	See below			447,070 Tonnes carbon off-set	388,351 People affected

In 2018, UNCDF will match partners with mentors and experts to boost their chances of successfully implementing the funded business ideas, as well considering a financing trajectory for consolidation and scale-up. These would include:

- Transitioning from a quasi-informal to a formal, professionally managed business;
- Overcoming key-person risk by forming a multi-functional team;
- Having proper cash flow and credit management skills and systems in place; and
- Formalizing strategic partnerships, including roles and responsibilities and incentive structures.

**Result 2. RECF Solar PV Window launched and 11 companies short-listed by Investment Committee**

In November 2017, the RECF Solar Window Call for Expression of Interest (EOI) was launched. Preceding the launch, UNCDF engaged extensively with the market which included developing a database of 400+ solar companies and stakeholders that have an interest in promoting solar power solutions in Uganda and speaking with more than 25 companies and stakeholders which helped refine the Solar Window design. UNCDF also organized an information session in Kampala which was attended by over 140 people.

Key features of the RECF Solar Window (~\$2.5M) include<sup>13</sup>:

**The challenge:**

- What can be done to increase the adoption of off-grid solar PV solutions across Uganda?
- How can the most underserved regions of Uganda be reached?
- How can solar PV products become more accessible and affordable to the poorest Ugandans?
- How can Solar PV solutions for productive uses stimulate economic activity in Uganda and create employment opportunities for women and youth?

**Target market:** Underserved, low-income customers in rural and peri-urban areas – At least 50% of product sales (with RECF support) must be in rural areas.

**Acceptable solar PV solutions<sup>14</sup>:**

Decentralised Solar Energy Solutions							
Stand-alone Off-Grid Solar PV Svstems				Mini-grids (Isolated Grids) Including Hybrid Svstems			
Pico PV Svstems	Small Solar Home Svstems	Larger SHS and Single facilitv		Pico-Grid	Nano-Grid	Micro-Grid	Mini-Grid
DC			AC or DC				
Module Capacity	10Wp	100W	500W	1kWp	5kWp	100kW	1MWp+

<sup>13</sup> These design features have been reviewed and agreed with the Embassy of Sweden in Uganda and the Ministry of Energy and Mineral Development before the launch. UNCDF and the Embassy of Sweden agreed to combine the two separate solar power windows originally proposed in the RECF proposal under one window given many solar companies deal with both types of solutions and would lead to efficiency gains for the RECF fund management process.

<sup>14</sup> Adapted from IRENA (2015); IEA (2017); Africa Progress Panel (2017)

**Type of funding:** Cost-sharing grant, paid upon achievement of milestones.

**Grant Size:** US\$100,000 up to US\$500,000

**Project duration:** 24 months starting in June 2018.

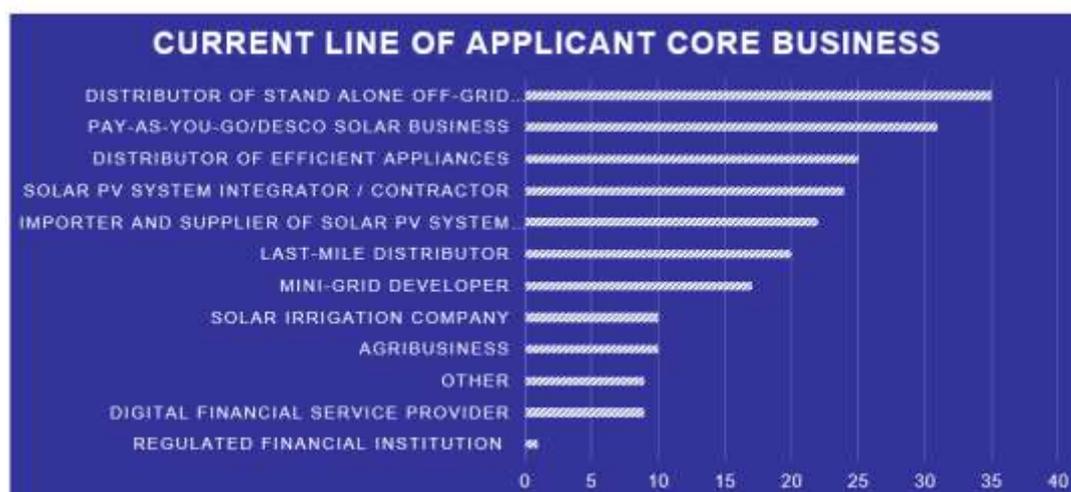
**Cost-Sharing Requirements:**

Grant Amount Requested [USD]	Minimum Cost-sharing [% of total budget]	Minimum Cash Contribution [% of total budget]	In-kind Contribution [% of total budget]
US\$100,000 < US\$250,000	40%	20%	20%
US\$250,000 < US\$350,000	50%	25%	25%
US\$350,000 - US\$500,000	60%	30%	30%

UNCDF has a very hands-on pipeline building process. Following the launch of the call, UNCDF organized an information session in Kampala with over 140 participants. The information session was opened by the Mr. Wilson Wafula Commissioner of Renewable Energy at the Ministry of Energy and Mineral Development. In addition to walking through the application process and answering questions, experts from UNCDF also made presentations on how solar can be used to improve agricultural productivity and different distribution/financing models that can be piloted with microfinance institutions. Finally, the World Bank Lighting Global team talked about the utility of data for solar companies. Furthermore, one-on-one technical assistance was provided to more than 40 companies before the Window closed.

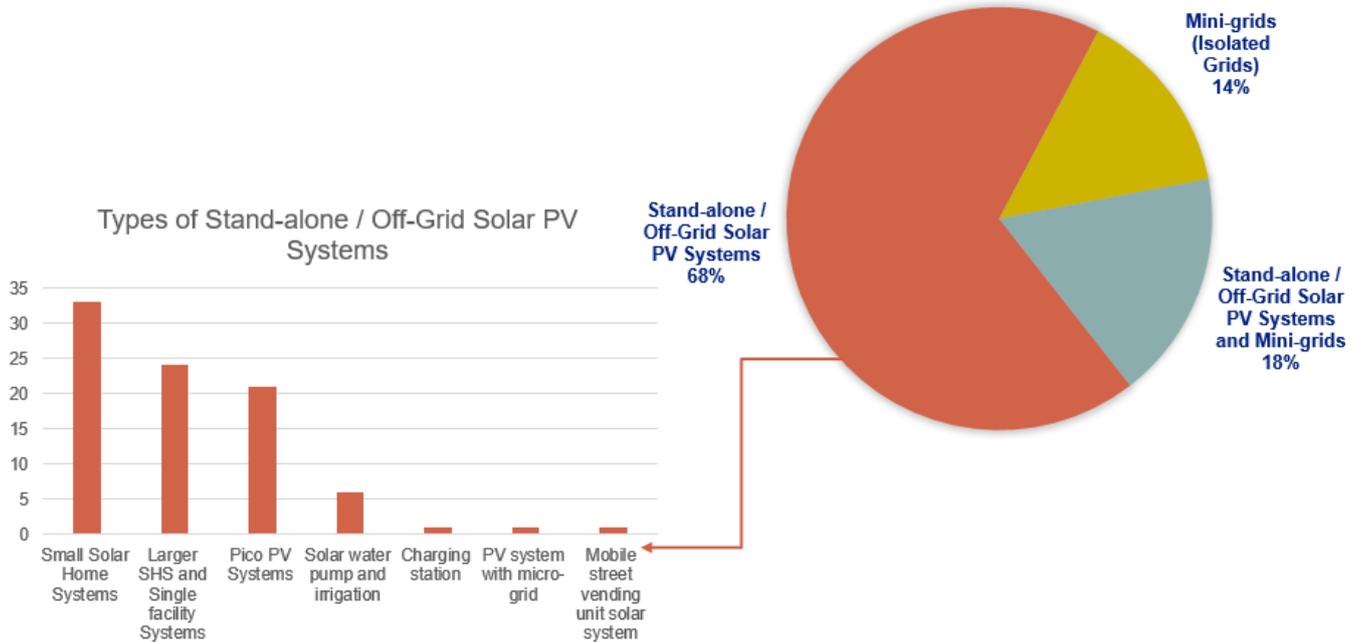
As a result, UNCDF received 65 applications/concepts which were first screened and evaluated by the RECF Fund Management Team, and subsequently handed-over to the independent Investment Committee (IC) to review and assess. Various types of businesses applied and proposed a variety of solar solutions and business models for funding.

**RECF Solar Window: Types of businesses that applied**



**RECF Solar Window: Types of solar solutions and business models proposed**

**SOLUTIONS PROPOSED**



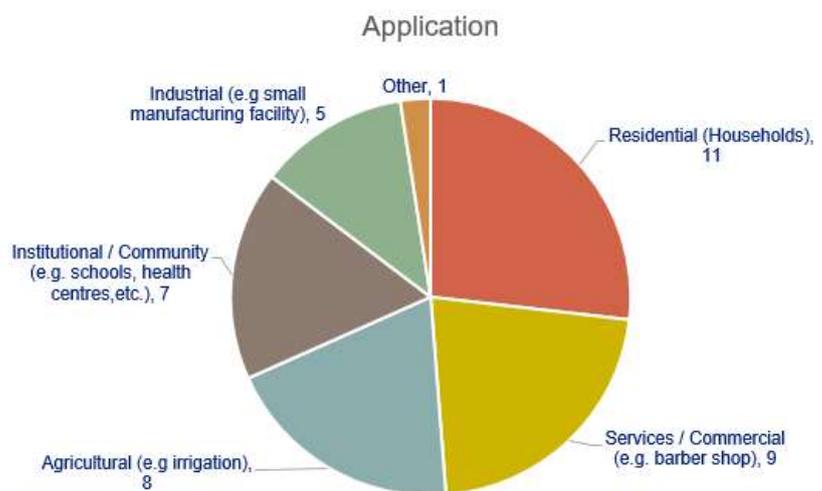
In February 2018, the IC met in Kampala to deliberate on which companies to short-list for the next round. IC Members recommended the 16 EOIs to the business plan development stage:

	<b>Lead Applicant</b>	<b>Title</b>
<b>1</b>	<b>Sun Culture</b>	Introducing SunCulture's highly-affordable solar irrigation to Uganda
<b>2</b>	<b>Azuri Technologies Ltd.</b>	Growfast Uganda
<b>3</b>	<b>Trans-African Supply Services Ltd.</b>	Solar-powered Information Access for Farmers in Kasomoro Village, Hoima District
<b>4</b>	<b>DGrid Energy, LLC</b>	Solar Cool Cube 3rd Party Logistics Initiative
<b>5</b>	<b>Greenlight Planet Uganda Limited</b>	Enabling Ugandan off-grid populace enter and move up the energy-access-ladder
<b>6</b>	<b>Empower Solar Ltd dba "Lumi"</b>	Restructured Rural Sales Model and Off Network Sales Technology
<b>7</b>	<b>BrightLife, LLC</b>	Financing Access to Solar Energy Solutions for Low-Income Ugandans
<b>8</b>	<b>M-KOPA Solar</b>	Solar-powered, PAYG refrigerators for Ugandan homes and MSMEs
<b>9</b>	<b>Village Energy</b>	PayGo Custom Solar Installations for Rural Businesses, Institutions & Agriculture
<b>10</b>	<b>Venture South Uganda Limited</b>	Lending to high-quality PAYG solar product distributor portfolio in Uganda
<b>11</b>	<b>Aptech Africa Limited</b>	PAY-N-PUMP

12	<b>ARED Uganda_SMC Limited</b>	Solar-Kiosk offering one-stop-point last-mile-connectivity and inclusive employment in rural/refugee areas
13	<b>Power Trust Uganda Limited</b>	Affordable, value adding, multipurpose solar milling machine for rural farmers
14	<b>Anuel Energy Uganda Limited</b>	Deploying solar powered irrigation pumps to improve agricultural output.
15	<b>GRS Commodities Limited</b>	Accelerating household access to Solar PV minigrid power for Bukasa
16	<b>United Health Distributors</b>	Community Solar Hubs in Refugee Areas

The shortlisted companies represent a **balanced and diverse portfolio of solar power applications** for households, businesses, schools and health clinics, as well as lighting and productive uses such as irrigation and refrigeration.

Currently, the RECF Fund Management Team is having kick-off meetings with short-listed companies to provide feedback from the Investment Committee and walk them through the business plan development process and requirements. The IC will re-convene in May 2018 to make investment recommendations to the Board. New partners are expected to be on board by mid-2018.



**Read our blog: Official Launch of RENEWABLE ENERGY CHALLENGE FUND (RECF): SOLAR WINDOW**

### **Result 3. Robust pipeline building process in place**

Another related outcome of having implemented two funding windows is that a solid governance structure, Fund Management Team, and process/tools have been put in place.

The Investment Committee (IC) members come from a diverse background from energy investment, energy distribution, digital/innovation financial services, investment promotion, SME banking, biomass/solar policy development, and development finance.

Over the course of the two funding windows:

- RECF has a database of over 500 companies;
- More than 200 participants attended the RECF information session;
- Close to 100 companies received pre-investment technical assistance from RECF; and
- Close to 130 concepts were submitted.

Five (5) out of seven (7) members are from Uganda, and three (3) are female. The same IC members have stayed on for the Solar Window, which is a sign of engagement and commitment. The *Clean Cooking Window* was chaired by Mr. Phil LaRocco, who was the Founder and CEO (through 2009) of the pioneering not-for-profit energy investment company E+Co operating in Sub-Saharan Africa, Central America and SE Asia. The Solar Window is being co-chaired by Ms. Hope Waira, Senior Investment Executive, Uganda Investment Authority and Mr. Phil LaRocco.

The Ministry of Energy and Mineral Development is involved at key stages of the RECF selection process, including as an IC member, and provides a no-objection to investment recommendations made by the IC. This is key to creating Government buy-in and support for the companies.

The RECF Fund Management Team has ranged from 7 to 10 depending on the funding window and stage of process (concept or business plan). This includes UNCDF core staff who worked closely with pre-investment technical assistance (TA) and three due diligence (DD) consultants. Three national consultants are part of the Fund Management Team.

As the interface between the companies and the IC, the TA and DD team's goal is to bring the companies to the "finish line" and provide the IC with supplementary, contextual insights on the companies and the market to complement the desk-analysis and deliberation that IC members make based on the business plans.

Companies also appreciate the accessibility and technical caliber of the RECF Fund Management Team, and in general, finds the application process relatively straightforward. Several companies fed back to RECF that, irrespective of the outcome, they gained from having prepared a thorough business plan with guidance from the Fund Management Team.

The ability of the Fund Management Team to assess companies and risks is also improving over time. For both funding windows, UNCDF incorporated aspects that would mitigate some of the mistakes/unforeseen circumstances that UNCDF's earlier-round investees have struggled with (e.g. partnership fall-outs, import delays).

UNCDF also has more robust, business-friendly templates and tools that tries to balance out RECF's data needs and applicants' time/resource investment needs, as well as automates data collection from and engagement with applicants.

"In the vast majority of cases, the success or failure of a decision can be traced to 1) the completeness of the origination process, 2) the thoroughness of the due diligence process, 3) the preparation, participation, and deliberation of the approval body or bodies, and 4) the execution and management post-approval. And, the success or failure of that Four Step process depended and depends on the quality of the team executing each of the four steps and the quality of the entrepreneurs selected."

*Mr. Phil LaRocco who has been sitting on ICs over three decades*

## What are we learning?

These are what we learning with our partners as they push ahead with their businesses, and also reflections we have about RECF.

### **Learning 1. Solar PayGo companies are investing in customer relationship management**

All five companies from UNCDF's first batch of investees<sup>15</sup> are offering their products on a PayGo basis. There were several common thread issues that came through quarterly reviews with companies, and further reinforced by findings from the UNCDF-Schatz Energy Research Center's *Energy Ladder Research*. The most prominent of the issues raised is how companies are handling customer relationship management.

Not surprisingly, the primary reason is to manage delinquency ratios better. Companies are mainly using sales agents and call centers to do proper customer education before and after purchase to make sure customers stay current on their payments. What are their objectives?

- Customers understand what to do if they perceive a problem with the operation of their system, when payments are due, and how to make payments.
- Systemically monitor the customer experience and detect any issues.
- Ensure that the customer is aware of the loan obligation (PayGo mechanism), has received the product in its entirety, understood product's functionality and the product is properly installed by the sales agent.

Second is the fact that first impressions really matter, and companies are in it for the long haul. What does this mean? According to UNCDF's *Energy Ladder Research*<sup>16</sup>, the predominant influence to purchase a solar product came from the sales agents. Moreover, the research found that customers usually bought from whichever company agent that he/she met first. So first impressions really matter. At the same time, one of the challenges that at least a couple of UNCDF's investees mentioned with regards to agents is high attrition rates due to the loose relationship commission-

based agents (CBA) have with companies (part-time) and high-level of competition in the market. Therefore, companies are looking at ways to provide long-

Key prior experiences or information that influenced users to purchase each of the solar products they own



Note: Respondents could report more than one influencing factor.

<sup>15</sup> UNCDF Energy Access Challenge launched in 2015

<sup>16</sup>

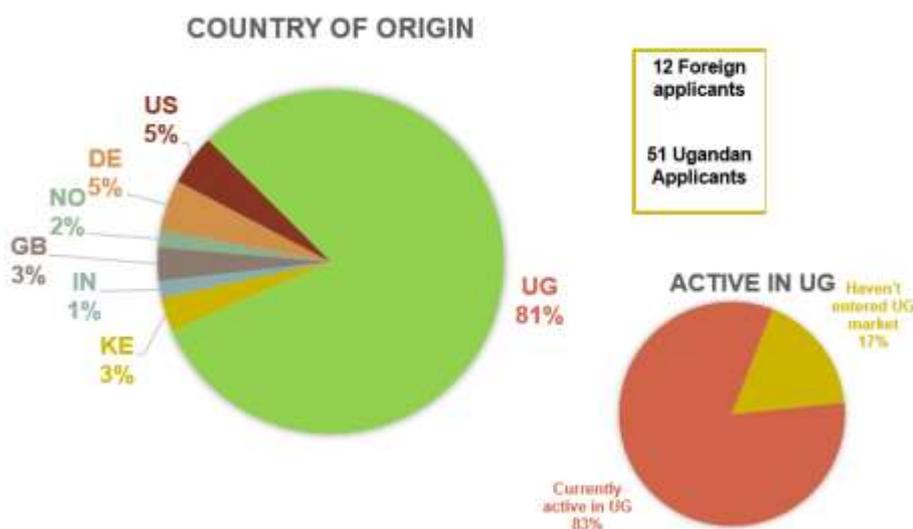
term benefits for CBAs like 2 wheelers, developmental trainings, and are simultaneously adding new CBAs to make up for the attrition. Companies are also doing mystery shopping or surprise audits to check the robustness and diligence towards set processes.

Customer relationship management is also important because companies want to upsell or cross-sell other products (e.g. TV, efficient appliances, financial services) to the same customers. The *Energy Ladder Research* shows that if respondents were to buy another energy product they prefer to buy it from the same company they bought the first one from. This ‘dealer stickiness’ was especially strong (more than 70 percent) among customers of solar companies that had a financing relationship (PayGo or loan). At the same time, however, more than 90 percent of respondents, which includes plug-and-play solar PayGo customers, preferred to make an upfront payment using personal savings if they were to buy another energy product, rather than entering into another long-term financing arrangement given the additional costs involved. This has interesting implications on how solar PayGo companies engage with repeat customers.

**Learning 2. How can we better embrace the small, local companies and still deliver results?**

The clean cooking sector in Uganda has few medium-sized enterprises, and predominantly made up of small, and often-times, informal enterprises that have weak business infrastructure and skills to build up their business on a pathway to scale. These small players know their business well, but are not well-equipped to attract funding for innovation or even working capital from banks.

Solar companies are relatively “better off” than the clean cooking providers in this respect. However, these resources are concentrated in only a few companies, and making it through innovation funds like RECF can be especially tough for home-grown companies. 80 percent of the applicants were Ugandan companies in the Solar Window.



RECF Solar Window applicants by geography

As a way of making RECF more inclusive, we included a ‘small grant’ category in the Clean Cooking Window for primarily small businesses that had less-established operations. The small grant applicants were assessed against a separate eligibility criteria. In the Solar Window, we also had 3 different tiers of funding to make the cost-sharing requirements more flexible for applicants.

The Investment Committee also takes a portfolio approach when making investment decisions. Local content (company), additionality, and scale are one of the most debated topics during IC meetings. The Clean Cooking Window investment portfolio, as a result, is a diverse mix of companies in terms of technology, maturity, and local content. All six companies are incorporated in Uganda, either wholly owned and staffed by Ugandans or predominantly staffed by Ugandans. The same goes for the 16 companies shortlisted in the Solar Window.

Still, we need to find additional ways to support small, local companies during and outside of the funding windows. If not, we – not only as RECF, but as a sector - risk inviting small and quasi informal companies to apply for funding but set them up to potentially fail. Close to 130 concepts have been submitted through the RECF Clean Cooking and Solar Windows. About 42 percent of the Clean Cooking Window applications, and 34 percent of the Solar Window applications were deemed ineligible and insufficient in terms of quality to be longlisted for further review by the RECF Fund Management Team and the IC<sup>17</sup>. Aside from those concepts that were not eligible at all, commonly identified weaknesses in the concepts included<sup>18</sup>:

- Misalignment with RECF’s mission and criteria;
  - Low innovation/business as usual
  - Inadequate use of RECF funds e.g. product subsidy, tech R&D
  - Unclear revenue model
  - Low commercial viability prospects post-RECF funding
- Readiness of product/service e.g. mini-grid projects with no license/permits;
- Unrealistic price points for target customer segment;
- Under/over-ambitious targets compared to track record;
- Incomplete/inconsistent application, especially budgets;
- Incomplete/outdated financials or weak financial viability.

The RECF Fund Management keeps a detailed record of scores and commentaries made about each concept and business plan. In 2018, these will be analyzed in more detail to inform UNCDF and other funders’ market development activities. UNCDF will also organize feedback/training sessions with companies that have applied to the Clean Cooking and Solar Windows.

### **3) Sector development activities**

UNCDF will continue to cultivate a relationship with and connect the dots for the companies that have applied to RECF, beyond our immediate investees, to facilitate more financing opportunities and join forces with other market facilitators in making market systems-wide improvements.

To do so, UNCDF will 1) use data collected through the challenge fund process and additional research to identify market gaps and challenges, and 2) build the capacity of national industry associations so that more companies can be on the path to becoming investment-ready and changemakers in the market.

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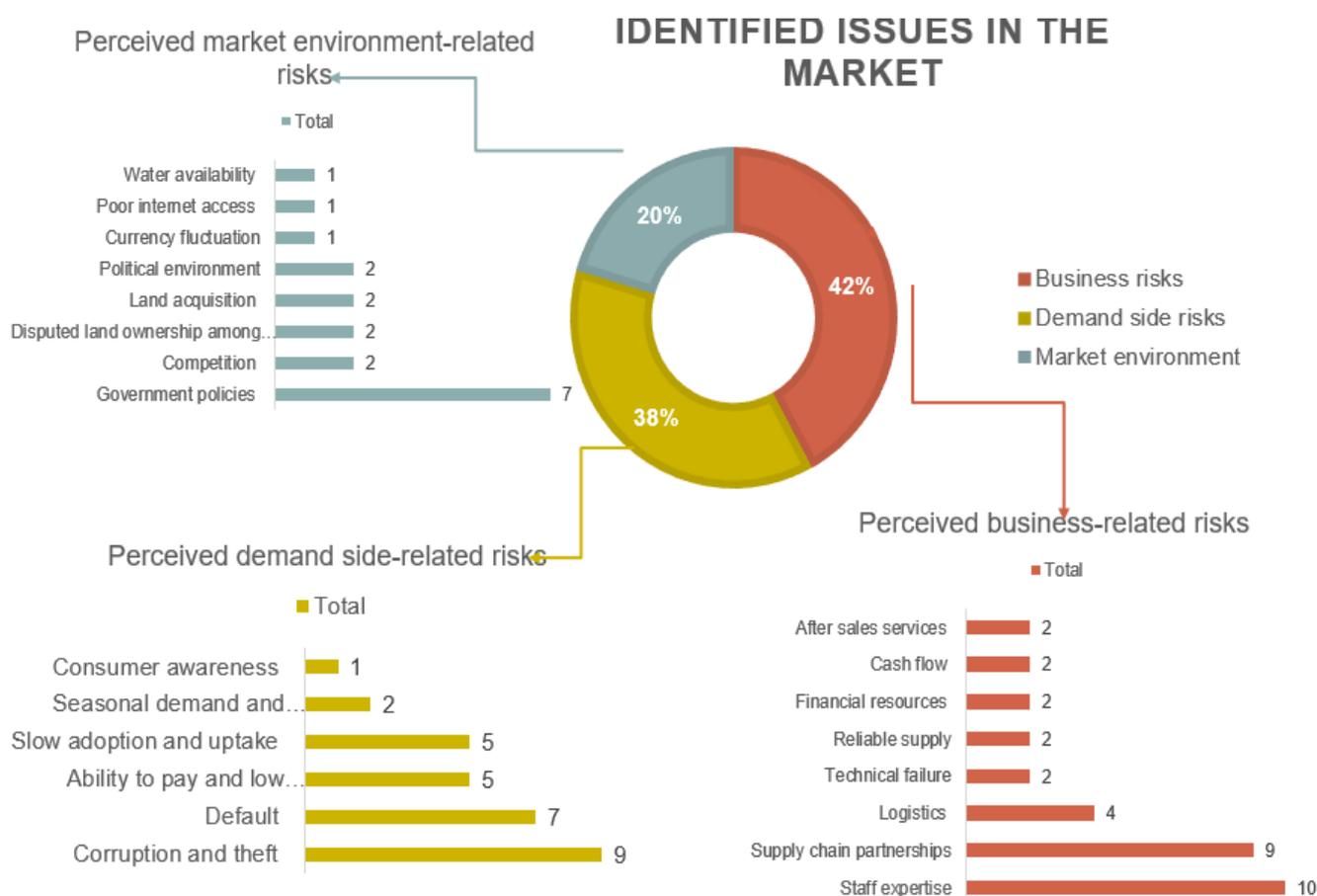
<sup>17</sup> Clean Cooking Window: 37 eligible out of 64 concepts submitted; Solar Window: 43 eligible out of 65 concepts submitted.

<sup>18</sup> This is based on the initial eligibility and concept quality check, as well as reviews that are done by the Fund Management Team.

Collecting and analyzing data on supply-side risks/challenges and capacity development needs

One of the biggest outcomes of the two funding windows has been the sheer number of data that UNCDF has been able to collect about the clean cooking and off-grid solar sector, especially individual companies, business models, and business development needs. Below is a snapshot of perceived risks that Solar Window applicants mentioned in their applications.

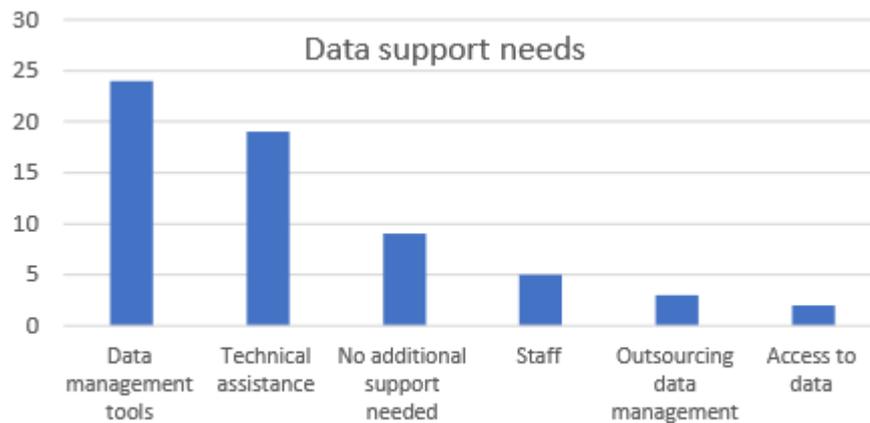
**RECF Solar Window: How applicant companies perceive market challenges**



Quarterly reviews with investees also reveal market environment related challenges such as unclear/prolonged importation processes; device tampering to bypass in-built PayGo mechanism; and competition undercutting prices.



Solar Window applicants also mentioned areas in which they need support on improving their data management capabilities.



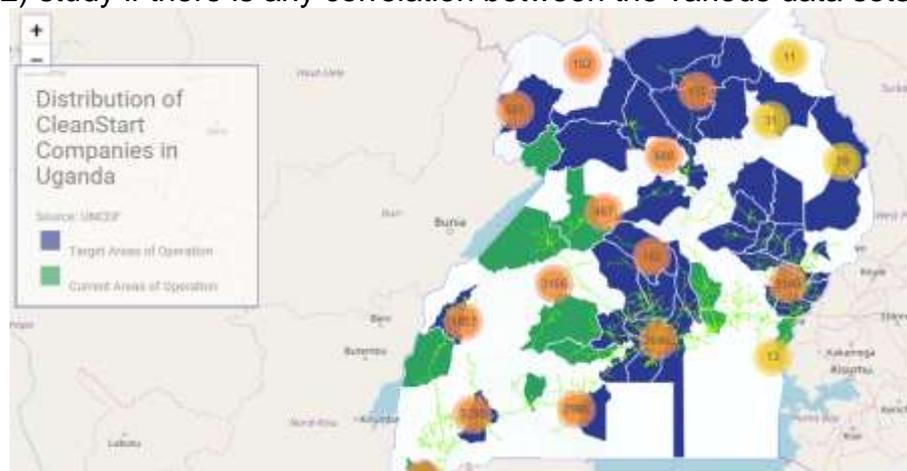
Finally, UNCDF is conducting a **Capstone Project** with the Columbia

University's School of International and Public Affairs (SIPA) Energy and Environment concentration in the U.S.A. to analyze and “diagnose” the business plans of a select number of clean cooking window applicants as well as develop company profiles, especially those of companies not funded by RECF, to boost their capital raising efforts.

*Structuring data to identify market gaps and raise sector visibility, especially among other funders*

UNCDF recognizes the need to analyze and share the data that has been collected through RECF (what is allowed to be shared) with other investors and market facilitators that want to invest or raise the capacity of these sectors. **The vision** is for RECF to do the initial analytical work on companies and the market, structure it in a shareable format/platform, and eventually hand it over to the industry associations, namely the Uganda National Alliance for Clean Cooking and the Uganda Solar Energy Association, so that the body of data will be kept current and accessible over time beyond the life of RECF.

As a first step, UNCDF has started to profile applicant companies on a **virtual map** which has data on companies' current and target areas of operation overlaid with data on grid availability and financial service access points. The intent is to 1) track expansion overtime, 2) study if there is any correlation between the various data sets and 3) identify market gaps. Both RECF's funded and non-funded company data will be on the map with a view to make it a supplementary analytical tool for other funders and market facilitators.



### Sharing and putting customer insights into action

On the customers insights front, CleanStart wrapped up a year-long research studying the way people in Uganda purchase household solar products, in particular, whether there is a so-called energy ladder effect and how financing models (loans or PayGo) contribute to the energy ladder movement. Key findings help to demystify what influences purchasing decisions and the extent of impact that PAYGO has on customer behavior. Three blogs have been released in 2017 with wide readership. The full research analysis will be available in early 2018. Key findings include:

- There is strong demand for larger PayGo products, as regular grid electricity is considered unsafe and unreliable.
- There is substantial reduction in use of traditional fuels with adoption of solar products. There is substantial reduction in use of traditional fuels with adoption of solar products. The level of full substitution of traditional fuels with solar technologies is high for large solar home systems owners at 82%, compared to mini-Solar home systems users at 51% and small portable lanterns at 40%.
- PayGo financing allowed low-income households to buy larger solar systems
- Three information and marketing sources were particularly influential in driving end-user uptake: 1) Direct Marketing by Solar Off-grid Organizations; 2) Demonstration Effect; 3) Referrals by Thought Leaders and Peers.
- PayGo did not yet appear to generate long term economic saving, but it did improve overall quality of life.
- People are interested in purchasing larger products and PayGo financing allowed low-income households to buy larger solar systems.
- Open question whether PayGo enables wider financial inclusion. For example PayGo customers valued mobile money as a savings tool as much as non-PayGo customers. Research did not see PayGo customers have more access to savings.

Three blogs have been released in 2017 with wide readership. The full research analysis will be available in early 2018. Study outcomes were presented at Off-Grid Lighting Global Conference in Hong Kong in Jan 2018 as well as shared with CleanStart partners in Uganda in February 2017. Study insights were also applied to direct the challenge fund design for the RECF Solar PV Window in Uganda.

In 2018, CleanStart will start a Big Data research in Uganda to understand who the solar customers are by collaborating with Big Data holders such as solar PayGo companies, mobile network operators, and/or Big Data research organizations such as the UN Global Pulse who can collect people perception data on specific topics by analyzing everyday conversations transmitted through radio stations.

#### **Read our blog:**

- Blog 1: [Why do low-income people adopt clean energy?](#)
- Blog 2: [How does marketing unlock solar energy growth?](#)
- Blog 3: [Does PAYGO unlock energy access and financial inclusion?](#)
- Blog 4: [How can businesses be customer-centric for clean energy growth?](#)

Convening multi-stakeholder discussions on trending topics and forging alliances with other financiers and market facilitators

UNCDF's **Thinkshops** have been critical in disseminating the results of CleanStart research and lessons from innovation partners, while also offering a venue to convene the sector and catalyse discussions on newly developing topics. In 2017, UNCDF organized two ThinkShops. One on 'Solar PayGo: Data Visibility for Investment' which discussed how to inject more local capital into the solar PayGo sector and the incentives to do so in a way that is a win-win for both solar companies, commercial funders, and ultimately the under-served customers in Uganda. The Uganda Energy Credit Capitalisation Company (UECCC) used the Thinkshop to solicit feedback from banks and solar companies on a working capital facility being designed at that time. The second on 'Powering Agriculture' through energy and digital financial services was organized with the USAID and DFID supported Scaling Off-Grid Energy Initiative.

Through RECF and the Thinkshop convenings, UNCDF is increasingly recognized in the off-grid solar and clean cooking space for its strong knowledge of and relationships with the local market actors. The World Bank's Lighting Global team is keen to collaborate with UNCDF on building the capacity of local banks to finance solar pay-go businesses as well as the developing the data management capabilities of off-grid solar providers. Furthermore, UNCDF is promoting its investment pipeline and pipeline development capacity to other funders and market facilitators "match-make" financing and other partnership opportunities for companies.

**Read our blog:**

- Blog 1: [Can solar energy be a powerful technology for agriculture?](#)
- Blog 2: [Spurring industry-led development for a better energy sector for Ugandans](#)

Building the capacity of the clean cooking and solar industry associations to level up the sector as a whole

Despite the strategic importance, the sector specific associations such as UNACC and USEA do not have proper governance structures and service offerings for member companies, and therefore unable to sustain its operations without donor support.

In December 2017, UNCDF entered into a new partnership with DFID Uganda to facilitate industry-led advocacy for off-grid solar market development in Uganda. Practically, this means working closely with the Uganda Solar Energy Association (USEA) to set up a functional and sustainable industry association which has proper staffing, strategy and workplan, and revenue generating activities towards sustainability. UNCDF will work with the Uganda Solar Energy Association to build up the evidence base and capacity of market actors to advocate for market improvements through better market intelligence, Big Data customer research, and business development training for solar companies. This partnership builds on the off-grid solar industry coordination activities initiated through the Uganda Energy Africa Compact, which was signed between the Ministry of Energy and Mineral Development, DFID, UNCDF and other industry supporters. UNCDF will also work

closely with the Private Sector Foundation Uganda and the Global Off-Grid Lighting Association in delivering this project. Below are high-level progress achieved to date:

- USEA governance and management capacity strengthening
  - MEMD informed about and on-board with UNCDF and PSFU supporting USEA;
  - UNCDF and PSFU join efforts in improving governance and management structure/capacity of USEA, and reach common understanding on roles and responsibilities;
  - USEA interim Steering Committee agrees to organize an Annual General Meeting to elect a new Board;
  - Other market facilitators such as Power Africa Uganda Electricity Supply Accelerator (PAUESA) and non-USEA members such as Tiger Power and M-KOPA accept UNCDF and PSFU's approach to organising an Annual General Meeting to kick-start structural change;
  - DFID and UNCDF's plans to support USEA shared among Energy Africa Compact Working Group members, and officially launched by the British High Commissioner at the Off-Grid Solar Expo hosted by USEA;
  - Online survey circulated among plus 300 members and non-members of USEA to inform restructuring process.
  
- USEA member service incubation
  - GOGLA proposes to work with USEA to develop a toolkit that associations can use to improve their governance, management and value proposition, as well as pilot a national-level sales data collection exercise;
  - Potential Big Data providers and research partners explored.

In 2018, UNCDF will also assess support areas for the Uganda Alliance for Clean Cooking. Read our press release on the DFID-UNCDF-USEA partnership: <https://spark.adobe.com/page/SkknCIXLo9aon/>

### **3. Plan for January to June, 2018**

The main priorities are as follows:

#### *1. Investments:*

- Clean Cooking Window: Develop TA plans with the new partners and assign TA providers/mentors; quarterly progress review; set in place an impact measurement process with partners; at least one blog published;
- Solar Power Window: Organize Investment Committee and Board meeting to approve new investments; initiate contracting process;
- Flexible funding (opportunistic investments identified outside of challenge funding windows): Continue exploring investment opportunities that have high demonstration potential, such as introducing solar to smallholder farmers in partnership with a large agriculture commodity off-taker such as Mukwano.

#### *2. Sector development activities:*

- Analyze and structure data collected through the Clean Cooking and Solar Windows to raise public awareness about the state and development needs of the two markets;
- Advise at least 20 companies that applied to the Clean Cooking Window on ways to improve their business development/fundraising efforts (Capstone Project with Columbia University);
- Organize a Thinkshop to help position off-grid solutions more prominently in the national rural electrification strategy;
- Scope ideas and experts for market awareness building strategy development;
- Assess potential collaboration areas with the Uganda National Clean Cooking Alliance;
- Scope out ways UNCDF can assist partners or banks to leverage climate change-related funds such as the Green Climate Fund;
- Set up advisory group with MEMD and organize meeting with MEMD.

### 3. *Project team*

- Hire National Project Coordinator (staff) with recruitment process aiming to be completed by Q2 2018, and, if needed, reinforce manpower through CleanStart global team (staff and/or consultants);
- Hire consultants with complementary skill sets e.g. women and youth employment, investment.

In 2017, Sida and UNCDF agreed to pilot loans and guarantees through UNCDF's LDC Investment Platform. UNCDF will invest in private companies that are in the energy access business, one to two deals are expected to be in Uganda. The RECF Fund Management Team's know-how about the Uganda market will help source the deals. This diversification of funding instruments will allow UNCDF to provide capital instruments that meet their growth trajectory, and help syndicate funding from elsewhere. UNCDF is keen to explore how this might potentially link with complementary de-risking instruments/partnerships that Sida and the Embassy of Sweden have in place.

#### 4. Progress against original workplan<sup>19</sup>

This section gives a brief status update based on the revised workplan submitted to the Embassy of Sweden in September, 2017 along with the RECF Half-Yearly Progress Report for January-June, 2017.

OUTPUT		MILESTONE ACTIVITIES		2016	2017		2018			Status update
				Q4	1H	2H	Q1	Q2	2H	
<b>Output 1: Finance for clean energy</b>	RE SMEs have seed capital to test an early stage or scalable idea	<b>1.1</b>	<b>2 challenge rounds designed and implemented</b>							<b>ON-TRACK:</b> <ul style="list-style-type: none"> <li>Clean Cooking Window: Signed contracts with 6 companies. First milestones were completed in December 2017, and USD \$89,500 was disbursed to 6 companies. Most companies used the first month of project to recruit new staff to support project implementation.</li> <li>Solar Window: Combined window launched in November, 2017. Investment Committee shortlisted 16 companies. Companies preparing business plans to submit by mid-March, 2018.</li> </ul>
		1.1.1	<i>Round 1. Clean cooking solutions (7 companies)</i>	Design	Call for EOI	Project kick-off	Grant disbursement #1			
		1.1.2	<i>Round 2 w/ 2 windows combined. Solar power round</i>			Design + Call for EOI	Review + Business Plan	Grant disbursement #1		
		1.1.3	<i>Co-investments made using flexible funding</i>							<b>ON-TRACK:</b> <ul style="list-style-type: none"> <li>Flexible funding (opportunistic investments identified outside of challenge funding windows) option will be explored after the Solar Window investees are selected and RECF has a better sense of overall portfolio.</li> <li>In the meantime, started to introduce UNCDF's investee solar</li> </ul>

<sup>19</sup> The cost-sharing agreement between the Embassy of Sweden and UNCDF was signed in November, 2016 and in effect activities started full force in January, 2017

										companies to Mukwano, an FMCG and large agri commodity off-taker with a large smallholder farmer base. Mukwano is partnering with UNCDF to introduce digital financial services to its farmers.
		<b>1.2</b>	<b>Fund Management Team configured</b>							<b>ON-TRACK:</b> <ul style="list-style-type: none"> <li>Fund Management Team has ranged from 7 to 10 depending on the funding window and stage of process. Three national consultants are part of the Fund Management Team.</li> <li>Advertisement for post-investment TA providers announced. Aiming to have contracts in place by end March/early April, 2018.</li> <li>Additional TA providers may be hired once all investees are on-board, and as the projects evolve.</li> </ul>
		1.2.1	<i>Pre-investment TA and DD: Challenge marketing &amp; preparations, business plan development, TA, due diligence</i>	Recruit ment	Recruit ment	Recruit ment				
		1.2.2	<i>Post-investment TA</i>	Recruit ment	Recruit ment	Recruit ment				
<b>Output 2: Technical Assistance for clean energy</b>	RE SMEs strengthen their business capacity to deliver on the early stage or scalable idea	<b>2.1</b>	<b>Post-investment TA team configured</b>							-
		2.1.3	<i>Consumer awareness building/marketing (1 national)</i>			Intiate recruit ment				<b>MINOR DELAY:</b> Will start consulting key stakeholders for ideas and alliance.  Will hire an expert by end March or early April. May expand recruitment scope to both international and national consultants depending on expertise available in the market.
		2.1.1	<i>Youth/women's economic empowerment consultant (1 national)</i>					Intiate recruitm ent		OK.

		2.1.2	<i>Investment advisor (1 international + 1 national)</i>						Intiate recruit ment	OK. Post-investment TA providers may also have investment expertise.
		2.2	Conduct research on youth and women roles in energy value chains ; research entry points for energy enterprises in value chains that have high women/youth employment such as agriculture, health, education							OK.
		2.3	RECF organizes regular progress/ TA meetings with partners							ON-TRACK: In February 2018, project status updates meetings done with 6 clean cooking window investees.
		2.4	RECF organizes training/networking events with youth & women-serving orgs, investors, financial institutions, digital financial service providers, etc.							ON-TRACK: UNCDF has been promoting the RECF portfolio to several investors. More effort will need to be focused on financial institutions and organizations that can support companies to reach/hire more women and youth as customers and employees/agents.
		2.5	Market awareness building strategy developed, and activities implemented and material developed (media and social media)					Strategy develop ment by 1H 2018		OK.
		2.6	RECF has regular progress meetings with investors and financial institutions							OK.

		2.7	RECF brokers deal between partner companies and follow-on capital providers							OK.
<b>Output 3: Knowledge and learning</b>	Greater awareness among public about the business case for financing decentralized, renewable energy	3.1	Grantee monitoring/results dashboard operational							SOME DELAY. UNCDF shared monitoring tools with Cooking Window investees and collected baseline data. We will start developing the dashboard in April 2018 once we receive Q1 2018 reports from investees.
		3.2	Case studies/impact research findings publicly shared (including learnings from CleanStart Energy Access Challenge partners)							ON-TRACK: UNCDF is scoping out lean impact measurement methods that other investors, such as the Acumen Fund, uses in order to build on already existing tools and also to raise the visibility of our investees to these other types of investors.
		3.3	Knowledge-sharing events organized/partners sponsored to share lessons learned between UNCDF CleanStart partners (e.g. Thinkshop/ CleanStart Connect)							ON-TRACK: UNCDF will organize a Thinkshop in end of March or April, 2018. UNCDF is also developing a schedule of Thinkshops and training for companies.
<b>Output 4: Advocacy and partnerships</b>	Partnerships are developed to scale RECF	4.1	UNCDF CleanStart contributes to GoJ and development partners' efforts to provide enabling ecosystem for energy enterprises (e.g. industry association capacity building, quality assurance, market intelligence)							ON-TRACK: UNCDF will support the Uganda Solar Energy Association to improve their management/governance structure and member service offerings. This is a partnership with DFID Uganda (1M GBP).

		<b>4.2</b>	Challenge window is co-designed and/or funded with another initiative/organization							UNCDF is exploring a funding partnership with another development partner to boost agriculture productivity through technology. The project has an energy access challenge fund included in the design.
<b>RECF governance</b>	RECF has implementation and governance structures in place	<b>5.1</b>	Update workplan and logframe							COMPLETED.
		<b>5.2</b>	Review environment and climate change risks and integration plans with Embassy of Sweden							DELAYED. Will be completed by end of Q1 2018.
		<b>5.3</b>	Investment Committee set-up							COMPLETED.
		<b>5.4</b>	National Project Coordinator hired (as staff)			Initiate recruitment				MINOR DELAY: Targeting job opening to be out in early April with staff on-board by summer 2018.
		<b>5.5</b>	Bi-annual review with Embassy of Sweden							ON-TRACK: Bi-annual reviews completed for 1H and 2H 2017.
		<b>5.6</b>	Audit							Scheduled for 2019.
		<b>5.7</b>	Mid-term review							Scheduled for 2019.

## 5. Financial Resources<sup>20</sup>

During the reporting period January to December, 2017, UNCDF spent USD 876,070 in achieving the results outlined in this report. This includes contributions from the Embassy of Sweden and the UNCDF CleanStart Programme<sup>21</sup>. The spending ratio between the two funds is as follows:

### RECF Total Expense (Jan – Dec 2017)

Total expense	Embassy of Sweden		UNCDF	
	<b>\$ 876,070</b>	\$ 598,411	68%	\$ 277,659

If we look at just the funding from the Embassy of Sweden in Uganda, a little over half (55 percent) of Tranche #1 funds have been spent. If we include Tranche #2, 20 percent of funds have been spent.

### Overall spending against Embassy of Sweden in Uganda funds received

Tranche   schedule	SEK <i>As per contribution agreement</i>	USD <i>Actual received</i>	USD <i>Spent Amount</i>	USD <i>Spent Period</i>	USD <i>Expense ratio</i>	Payment received date
Tranche 1   Nov 2016	10,000,000	1,086,838.39	\$ 598,411	Jan – Dec 2017	55%	29-Dec-16
Tranche 2   Sept 2017	15,000,000	1,844,791.54	-	-	-	27-Oct-17
Tranche 3   Sept 2018	10,000,000	-	-			-
Tranche 4   Sept 2019	5,000,000	-	-			-
<b>Total</b>	<b>40,000,000</b>	<b>2,931,629.93</b>	<b>\$ 598,411</b>	<b>Jan – Dec 2017</b>	<b>20%</b>	-

Most of the Embassy of Sweden expenses are related to:

- Management of the Clean Cooking and Solar Windows, including market scopings, information sessions, pre-investment technical assistance, due diligence, and Investment Committee deliberations;
- Disbursement of grants to 6 Clean Cooking Window investees;
- Analyzing and sharing supply and demand-side data on clean cooking and solar markets;

<sup>20</sup> See Annex for Certified Financial Statement and unofficial expense report following the budget format submitted to the Embassy of Sweden in Uganda

<sup>21</sup> At the global level, the UNCDF CleanStart Programme is funded by the Austrian Development Cooperation, the Government of Andorra, the Government of Liechtenstein, the Norwegian Agency for Development Cooperation, and the Swedish International Development Agency.

- Stakeholder engagement to expand RECF's TA and market linkage ability;
- Management of activities by the UNCDF core team.

Expenditure against Embassy of Sweden's fund is expected to pick up significantly in Q1-3 2018, facilitated by lumpy grant disbursements to companies. Anticipated expenditure rate by Q3 2018 is of 60 percent of Tranche 1 + 2 (\$2.9M). Some big ticket items to be expended in Q1-3 2018 include:

<b>Big ticket items</b>	<b>Estimated timing of disbursement</b>	<b>Estimate Amount (USD)</b>
RECF Fund Management Team expanded for Solar Window (8-9 consultants)	Q1-2 2018	\$ 200,000
Grant disbursement #2-3 made to Clean Cooking Window partners	Q2-3 2018	\$ 77,000
Grant disbursement #1 made to Solar Window partners	Q3 2018	\$ 150,000
At least one investment made using flexible funding (opportunistic investments outside funding window), and grant disbursement #1 made	Q2-3 2018	\$ 50,000
Post-investment TA team develops TA plan and mentors investees	Q1-3 2018	\$ 250,000
Women and youth economic empowerment consultant on-board and initiates strategy development	Q2-3 2018	\$ 30,000
Market awareness consultant on-board and identifies entry points for UNCDF	Q2-3 2018	\$ 50,000
Trainings for partners and other stakeholders	Q2-3 2018	\$ 60,000
Portfolio monitoring system operational; data analytics	Q2 2018	\$ 80,000
Follow-on research with Energy Ladder Research respondents; customer impact research for investment portfolio	Q2-3 2018	\$ 150,000
Support to Uganda National Clean Cooking Alliance or other national bodies to support sector development	Q2-3 2018	\$ 30,000
Global knowledge sharing event	Q3 2018	\$ 25,000
Communications	Q1-3 2018	\$ 20,000
UNCDF core staff and operational cost	Q1-3 2018	\$ 180,000
<b>Total</b>		<b>\$ 1,152,000</b>