



PAYGO TECHNOLOGY AND BUSINESS MODELS

Gerald Mwega/ Waweru Gichimu

June, 2018

Accra, Ghana

Day 1 Program

Time	ACTIVITY	Method/Requirements
8.00 -9.00	Registration of Participants	<ul style="list-style-type: none"> Attendance Register
	Welcome Opening Remarks- ECREEE Representative	
	Introduction/Levelling of expectations of the participants	<ul style="list-style-type: none"> Facilitation
	Climate Setting – Individual Activity – Joining the dots	<ul style="list-style-type: none"> Activity/Ice Breaker
9.00- 10:30	Entrepreneur Profiling – Understanding the Enterprise	<ul style="list-style-type: none"> Participant Led Presentations
10.30- 11:00	Tea and Coffee Break	
11.00– 1.00	Understanding PAYGO, The basics Various Applications for PAYGO	<ul style="list-style-type: none"> Facilitator presentation Case Studies/Scenarios
	Market Entry/Current Trends and Competitive Landscape	
1:00 -2:00	Lunch Break	
2.00 -3.00	PayGo Technologies	<ul style="list-style-type: none"> Group discussion Facilitator Presentation
3:00-3.30	Health Break	
3.30-4.30	Challenges and Benefits of Paygo	<ul style="list-style-type: none"> Group Discussion Facilitator presentation
4.30 -5.00	Group Take Away Assignment – Take away assignment	<ul style="list-style-type: none"> Customer Profiling Group Exercise

MEET THE FACILITATORS

Gerald Mwegu/ Waweru Gichimu

June, 2018
Accra, Ghana

Gerald Mwega

Logistician – geraldmwega@gmail.com

Years of Experience

20+

Languages

English, Swahili

Biography & Education Credentials

Gerald is a solutions focused individual with over 20 years of supply chain and logistics experience within Middle East and Africa. He has a wealth of experience in managing 3PL, sourcing, inbound logistics inventory and warehouse operations, retail operations, first and last mile distribution, field logistics operations cutting across several industries.

He has been involved in successful implementation of warehouse & logistics projects in more than 30 countries in Africa and the Middle East in telecommunications, technology, e-commerce and renewable energy among other industries.

He is a Director of Lafayette Resources a business solutions/talent solutions company and serves on the boards of Express Parcel (a local courier company) and Kamahuha Kenya Limited, a (Kenyan beverage distribution company) where he is responsible for supply chain advisory. He is also a member of the management team of the Alzheimer's and Dementia Organization of Kenya a local NGO creating awareness about dementia. Gerald has also been involved in Supply Chain consulting work providing independent ad-hoc consulting services to business professionals and private equity firms around the globe.

Education

- Jomo Kenyatta University of Science and Technology, Kenya Executive MBA, 2010
- University of Nairobi, Kenya Bachelor of Arts (BA), Economics & Government, 1998

Expertise

Industry	Representative Clients
Logistics	• DHL Express, DHL Global Forwarding, DHL Supply Chain, Express Parcel Limited,
ICT	• IBM, HP, Oracle, Alcatel
Telcoms	• Safaricom, Vodacom, MTN, Airtel, Ericsson, MSN, Huawei, Orange, Intercel, ZTE
Pay go	• M-KOPA, Azuri Technologies
Development Partners	• US Embassy, WFP
Consulting	• GLG Research, Alpha Sights
FMCG	• Samsung, LG, Multichoice
Retail	• Kamahuha

Waweru Gichimu

Business Consultant /Rural Retail Expert – gichimupwaweru@gmail.com

Years of Experience

25+

Languages

English, Swahili

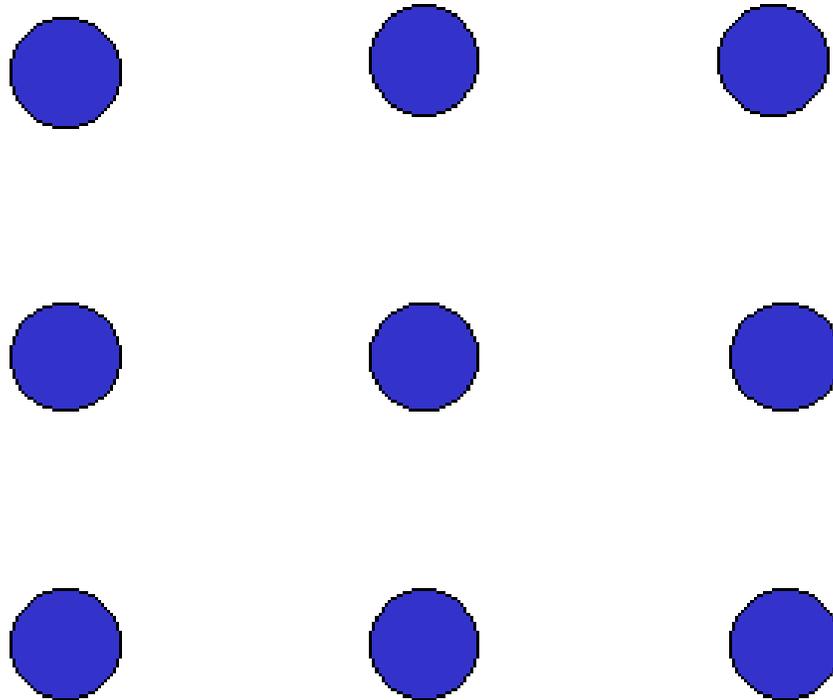
Biography & Education Credentials

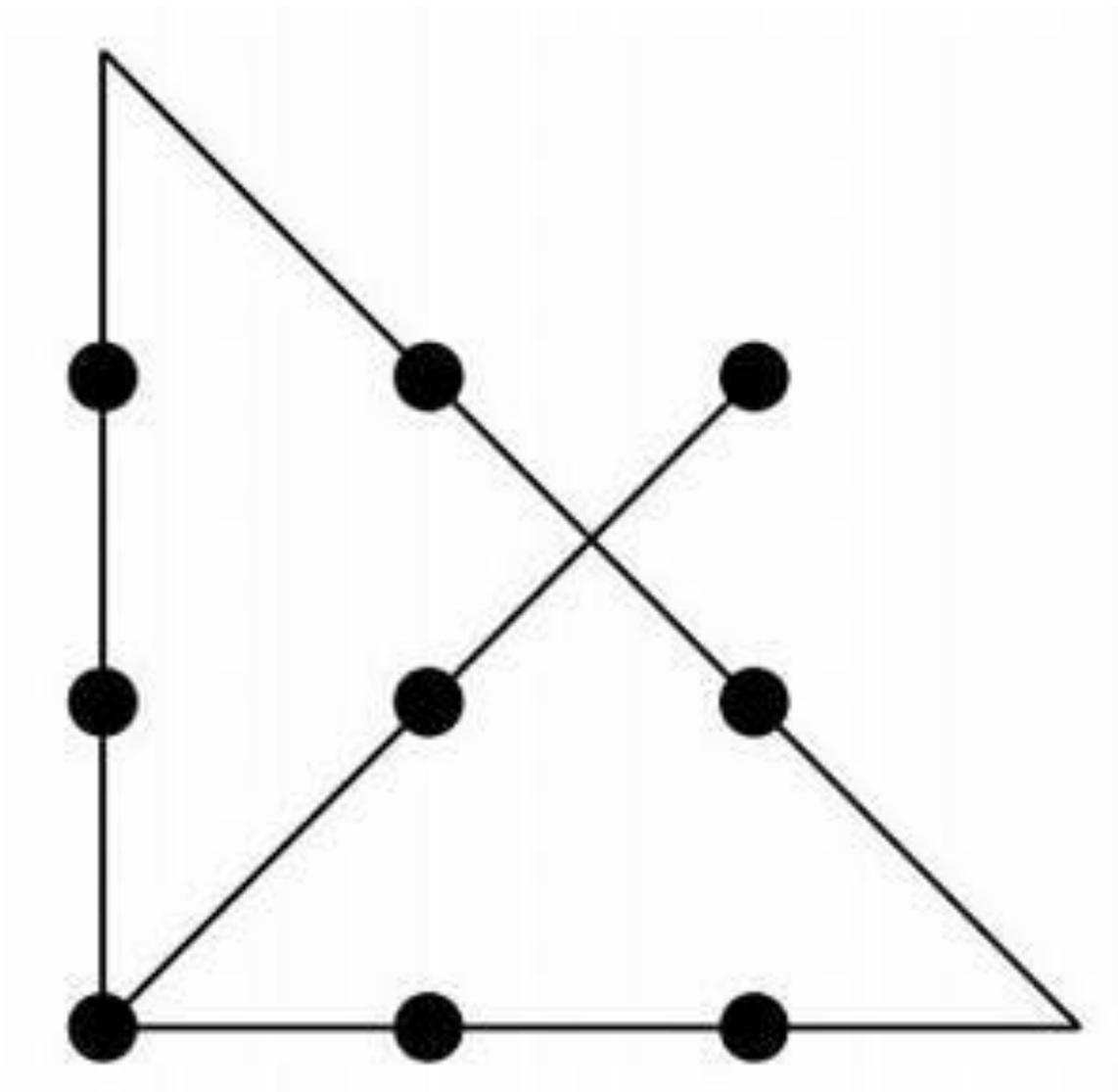
Waweru Gichimu is a seasoned professional with over many years of solid leadership experience in Sales, Marketing in microfinance and renewable energy. He has wide exposure in BoP interventions in over 15 developed/developing markets. He has extensive experience in product development, rural retail strategy and execution including design of business models and routes to market. He is currently the founder and managing consultant of Mak5 business hub a business support firm that works mainly with financial institutions, NGOs, SACCOs, Small and medium term enterprises supporting them with sales and market entry strategy, capacity building among others. His current work involves providing leadership in all aspects of research, product development, training and marketing. developing market entry strategies for enterprises. Waweru worked at M-KOPA where he revamped the entire sales structure by introducing a new business model that was behind the company's exponential growth. He introduced the DSR model that brought in over 800 direct sales reps improving sales from 4000 per month to over 12000 systems per month in a short span of 5 months. Separately he has strong interests in agribusiness and hospitality where runs a holiday resort.

Consultancy/Training Expertise

Industry	Representative Clients
Logistics	• Globeflight Limited, iProcure
Microfinance	• Musoni, Juhudi Kilimo, Technoserve, Kenya Women Finance Trust, SMEP,CTS (sharia compliant)
Not for profit	• Unicef, World Vision, ILO
Renewable Energy	• M-KOPA, Kenital Solar, Sun transfer, Orb, Sun culture, Angazia Maisha, Biolite, Ecozoom, Envirofit, Burn Manufacturing
Development Partners	• USAID, GTZ, MESPT, SNV, Habitat for Humanity

**Without lifting your pen, use 4 straight lines to
join ALL the 9 dots**





East Africa has become a global hub for PAYG, although expansion into West Africa, Asia, and Latin America is gathering steam, with deployments in 35+ countries tracked in 2017

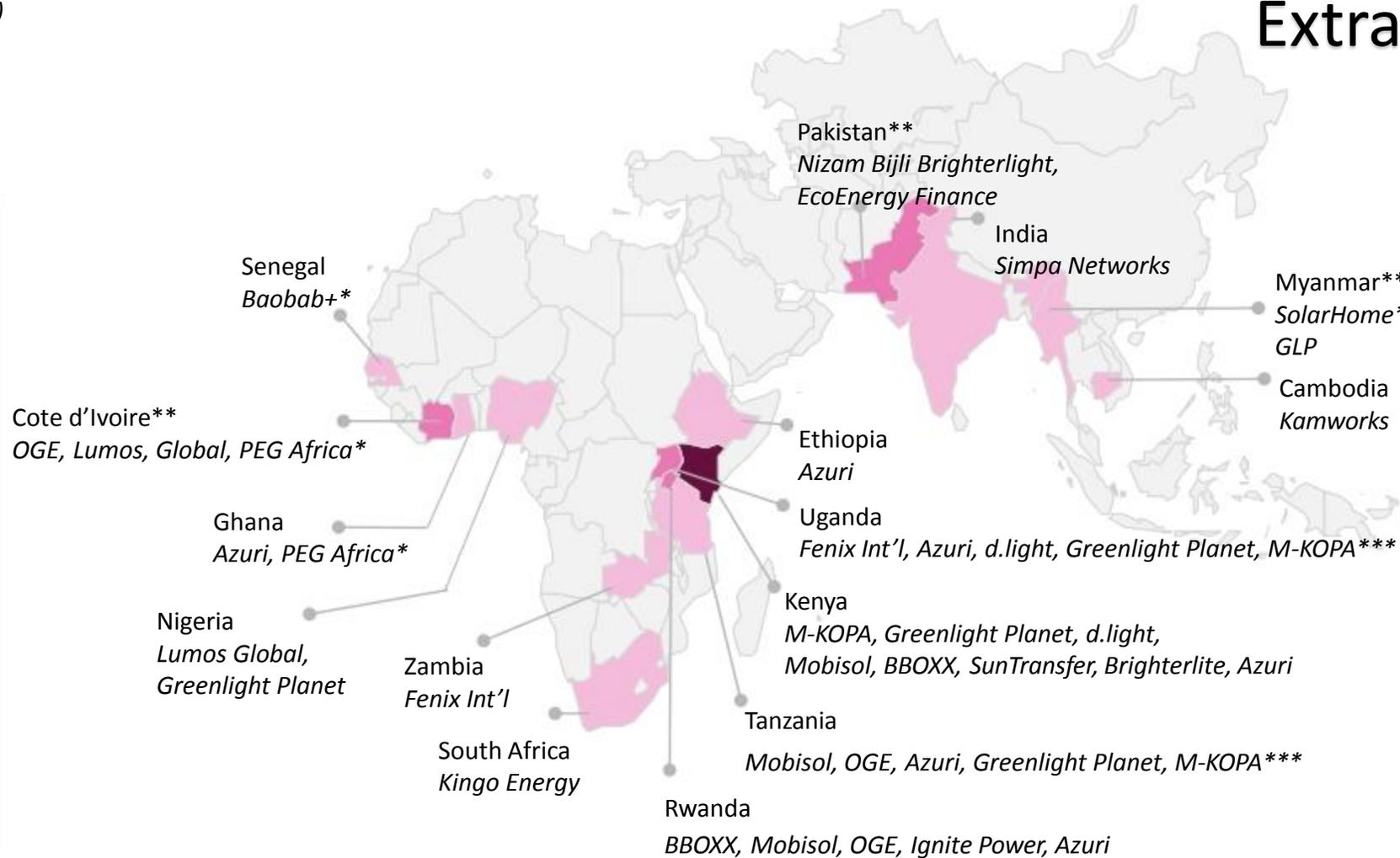
Presence of PAYGO players by country (not exhaustive)

Number of players (2017)

- 1-2 suppliers
- 3-5 suppliers
- 5+ suppliers

Extract

- Other Africa deployments/pilots**
- Zimbabwe
 - DRC
 - Sierra Leone
 - South Sudan
 - Benin
 - Cameroon
 - Malawi
 - Ethiopia
 - Namibia
 - Madagascar
 - Mali
 - Burkina Faso





Day 1 PAYGO

Understanding PAYGO

Combining sales and Consumer Loans



PAYGO Basics

**Affordable
and
appropriate
payment
channels**

**DIY or
technician
installation**

**Requires
reasonably
priced
products-
price sensitive
target market**

**Capital Intensive
to cover upfront
costs**

**Payment
Flexibility**

**Requires
moderate to
high density
population**

**Requires
population
with regular
income**

PAYGO

Business Models

Business Models

RETAIL/OVER THE COUNTER

Over the counter sales is the oldest approach to selling solar PV. However, in the past, few businesses were dedicated to marketing only solar PV products. Solar PV was typically sold as an additional product with revenues from sale of solar products and services only representing <10% of the total business turnover. In recent times a large number of dedicated solar retailers have emerged and their survival and success is dependent on the development and implementation of effective marketing, supply and distribution models.

PAY-AS-YOU-GO (PAYG) CONSUMER FINANCING

This is effectively a consumer financing model for solar PV systems that takes advantage of mobile money transfer systems and remote monitoring and control of solar systems (that enable the solar business to remotely disconnect a system in the event of default). Ownership of the system is transferred once the customer finalizes their repayments. The model offers customers flexibility of making repayments (i.e. can opt for daily, weekly or monthly) and enables the business to easily and effectively manage a large portfolio of dispersed borrowers. As the repayment duration typically ranges from 6 months - 3 years, this typically creates a significant cash flow burden for businesses which have the role of product and service supplier as well as financier.

CONSUMER FINANCING (VIA PARTNER FINANCIAL INSTITUTION)

A consumer financing model based on a partnership between solar PV supplier and Financial Institution (e.g. MFI, Savings & Credit Cooperative, Companies/Agricultural Estates/ Rural Based Industries with large rural staff); the PV supplier provides products and associated services while the Financial Institution provides the consumer financing and collects repayments.

Business Models

MINI/MICRO-GRID

Mini-grids are expected to have a key role in expanding energy access to rural and peri-urban areas and in recent years there has been a lot of investment from development partners and the private sector in to develop business models and an enabling environment to make mini/micro grids a commercially viable venture. Their main advantage over stand-alone solar systems is they enable connected customers to increase their power and energy consumption without having to invest in additional capacity. They are technically most effective when a large number of customers can be connected within a short radius of typically 1 km.

FEE-FOR-SERVICE

Customers pay a monthly fee for electricity services, similar to a utility model, but using standalone systems (as opposed to mini/micro-grid systems) Ownership of the system is not transferred to the customer and the business/project is entirely responsible for maintenance/replacement of the system. The model is well suited to providing reliable and affordable electricity to dispersed communities, where large distances between customers make mini/micro-grids unviable. However, a significant upfront cost has to be borne by the business and the payback period is relatively long

Market Entry – Emerging models



Integrated service providers



Hardware specialists



Software/data platform



PAYG distribution specialists



After Sales Support



Hardware mfg and software platform



Emerging models

PAYGO Activation Technology

Backbone of every PAYGO model stands the system that manages loans and ensures customer is incentivized to pay even after the sales person has left. This can be manual or through GSM which is most common. The per unit cost plus data transmission costs are absorbed into full system cost. Some models require set ups for manual credit checking and regular credit control

Technologies include;

GSM enabled – Sim card in device. Payment via money money

Features of GSM enabled with mobile money

- ✓ Allows 24hr real time remote monitoring
- ✓ Remote payments by relatives
- ✓ Relatively costly and tends to require mobile money infrastructure
- ✓ Requires network coverage signal
- ✓ Used on SHS
- ✓ Examples are : M-KOPA, Bbox, Mobisol. Solar Panda, Solar Now, Omni Sun transfer



PAYGO Activation Technology

Bluetooth or cable connection

Features of Bluetooth/Cable Connection

- ✓ Payment made in cash/mobile money and confirmed on phone which unlocks the device via Bluetooth/cable
- ✓ Cheaper than GSM and allows various payment methods
- ✓ Allows application by third parties eg Kiosk owners
- ✓ Allows for remote performance measurements
- ✓ Requires a network of on ground agents to operate
- ✓ Mainly used in solar lanterns

Examples: Angaza



PAYGO Activation Technology

System Code

Unlock code generated via SMS after payment through recharge cards or mobile money. Code entered manually in device or through infrared remote control to unlock

Features of system code

- ✓ Its less costly
- ✓ Does not require transport of any physical devices to unlock
- ✓ Can be used anywhere even where there is no network coverage
- ✓ Prevents remote system monitoring without physical visit
- ✓ Mainly used on SHS
- ✓ Examples: Fenix, Azuri technologies, Brighterlight, SunTransfer



PAYGO Activation Technology

Remote battery charging

Charging unit separate from lighting

Features

- ✓ Solar device battery detachable from unit which remains with vendor and device returned for charging
- ✓ Used for very small lanterns where digital technologies are costly
- ✓ Low cost and creates local employment
- ✓ No mobile phone required
- ✓ Requires local payment
- ✓ Inconvenient for customers

Mostly applied on solar lanterns

Examples: Karibu Solar, Jazasolar



PAYGO Activation Technology

Manual

Loan with regular payments via a microfinance

Features

- ✓ Used on small or large home systems
- ✓ No technology costs
- ✓ Leverage on existing finance solutions
- ✓ Low security
- ✓ Limited potential client pool
- ✓ High transaction costs for microfinance company

Examples: Orb, Biolite, Sun transfer, Ecozoom

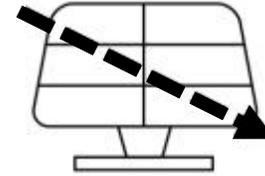


PAYG business model challenges and risks



Four businesses in one

Most PAYGO players make/ assemble their own product, distribute it, create a technology platform, and run an effective lending bank. It is challenging to achieve excellence across all four



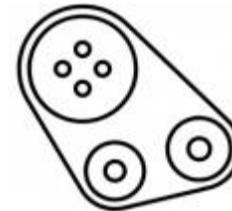
Deteriorating asset quality

Rapid customer acquisition has, at times, led to expansion into segments that have increased bad-debt ratios



Increasing competition

Pico leaders have entered the PAYGO market with strong product heritage and distribution relationships. Specialist hardware and software providers have lowered entry barriers for other new entrants



Limited economic engine

Companies are competing for a limited share of wallet. Financing has helped address affordability concerns, but has yet to put money back into consumer wallets



Increasing policy scrutiny and risks

Industry no longer below the radar for policymakers, so facing increasing scrutiny with potential for greater regulations (fin reg./KYC, licensing requirements, VAT/tariffs), also increasing risks and concerns on data privacy

Challenges of PAYGO

- Long Lead Times – it requires long lead time due to the infrastructure being built. Takes more time building before scaling the business
- Hacking of systems- Fraud or opportunistic hacking
- Paygo is a financing model managed by non finance personnel
- Late payment follow up challenges
- Grid Expansion subsidized in some markets
- Inefficient bureaucracies in the country of deployment
- Cost of building operational capacity is high eg platform prohibitive
- BoP incomes, literacy level low
- Sparsely populated and remote targets markets
- Last mile challenges- Capacity to efficiently distribute across country while maintaining tens of thousands of systems
- Geography – Business environment has to be friendly
- Lack of established telecoms and mobile money infrastructure
- Debt financing to fund paygo business expansion a challenge. Financiers rely a lot on historical data so no track record will slow down uptake in new markets

Future Outlook of PAYGO

- We expect that PAYGO will continue to attract new entrants and investments in the years to come
- Manufacturing space will be overcrowded soon – focus on downstream therefore;
- More focus on last mile distribution, sales, financing and building customer relationships while outsourcing manufacturing to experts
- Less barriers to entry. Market more accessible as solar kits and back end software becomes available off the shelf.
- Platform developers can scale rapidly across different regions. Eg Angaza
- Customers are now aware of the paygo business models reducing cost of customer acquisition
- Countries without existing offerings now seeing benefits in other markets and are warming up to PAYGO companies
- Cross synergies and partnerships that overlap with other players in other industries eg (beverage, health, education, entertainment, financial services like banking) attracting mega bucks to support industry eg CocaCola and solar kiosk for refrigeration. Off grid is a door opener.

Opportunities Landscape for Paygo

- **Opportunities for risk based financing- rebate system**
- **Expanding the product line-up, consumer appliance opportunities** – rapid migration to expand product set to bigger systems and in-demand appliances beyond televisions (refrigeration, water heating, irrigation systems, connectivity devices, cooking, etc) move into new types of financial services
- **Productive use appliances** – increasing interest in productive use appliances, growing interest and some momentum from productive use funders and off-takers, particularly around the agriculture use case, but also small scale industrial Uses. This includes other financial services to good payers eg water tanks, education loans and other consumer loans tied to the parent device loan.
- **Data analytics and monetization opportunity** – large and untapped value in PAYG data, in immediate term likely much more valuable for internal operations optimization and upsell/cross-sell
- **Results based financing** – upside scenarios from government partnerships and donor mechanisms designed to extend PAYG reach into new geographies and poorer/harder to access consumer segments
- **Under-electrified opportunity** – 50/50 off-grid vs. under-electrified globally, with under-electrified segment growing quickly, already tapped by a number of PAYG players but opportunity for more exists
- **Mini-grid + off-grid PAYG bundling** – opportunities for synergies in customer acquisition, payments, after sales support, appliance eco-system access

End of Day 1