Digital Seminar 3

Drawing economic benefits from the use of energy

Maximizing Impacts from Energy Access

27 October 2022

WISIONS & ACCESS Coalition Seminar Series

Digital Seminar 2 | 27.10.2022 | 11:00 am GMT

Wuppertal Institut

WISIONS of sustainability

access
Alliance of Civil Society Organisations for Clean Energy Access

Drawing economic benefits from the use of energy

Maximizing Impacts from Energy Access

Moderator:

Dr. Willington Ortiz
Researcher at the Wuppertal Institute
Project collaborateur at WISIONS Initiative
Responsible for regional partnerships



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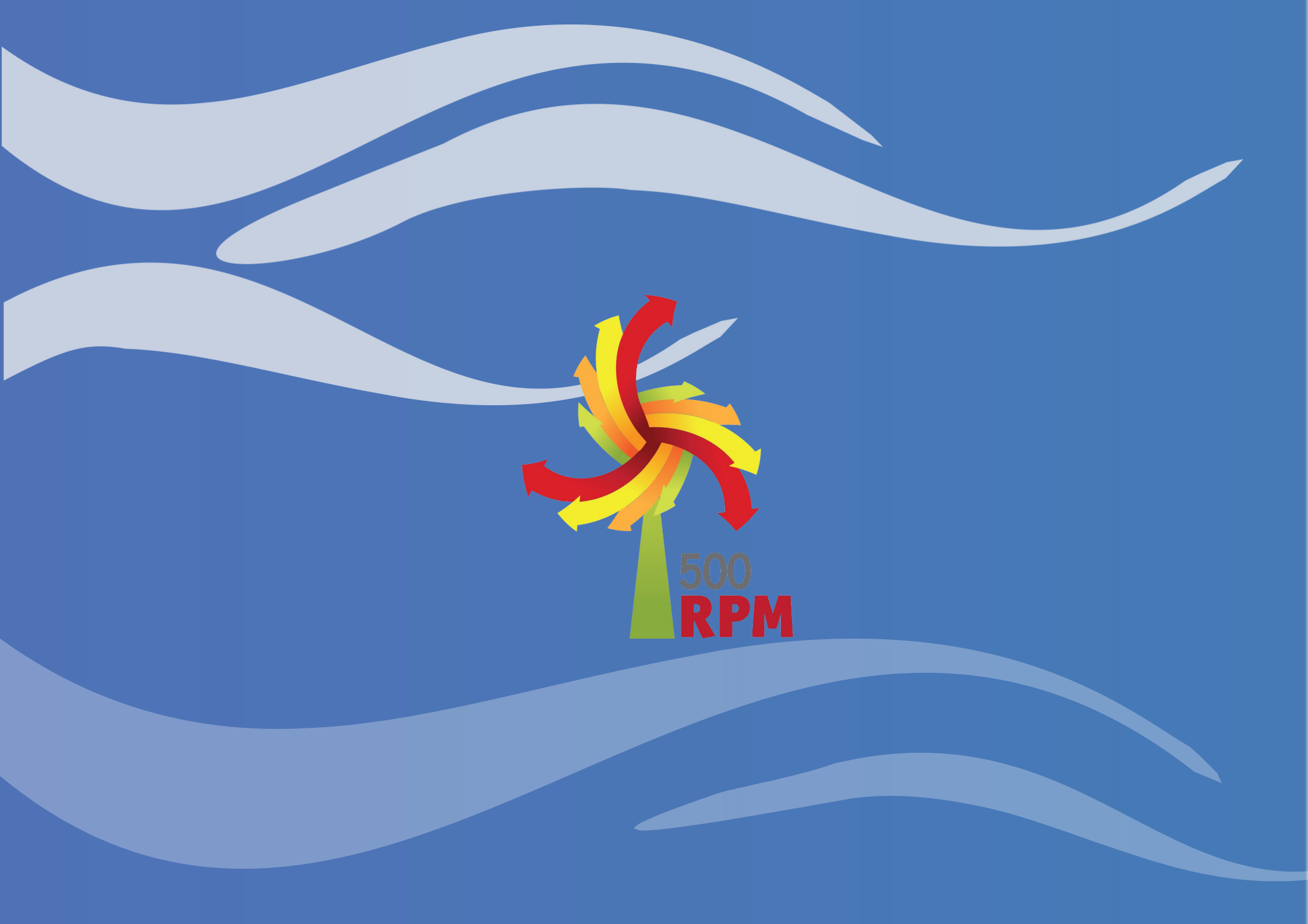
Maximizing Impacts from Energy Access

Panelist:

Luciana Proietti
Co-founder and President,
Foundation 500RPM

500 RPM




500
RPM

500RPM FOUNDATION

Mission: Make small wind energy a massive, accessible and local rural electrification technology in Argentina and Latam.

Actions:

- Education & Technology Transfer
- Rural development
- R&D



Strawberries of the Wind
“Kelleñ Kuruf”

Wind energy to promote the development of Mapuche communities in Patagonian Steppe: access to water for sustainable horticulture

Together with:

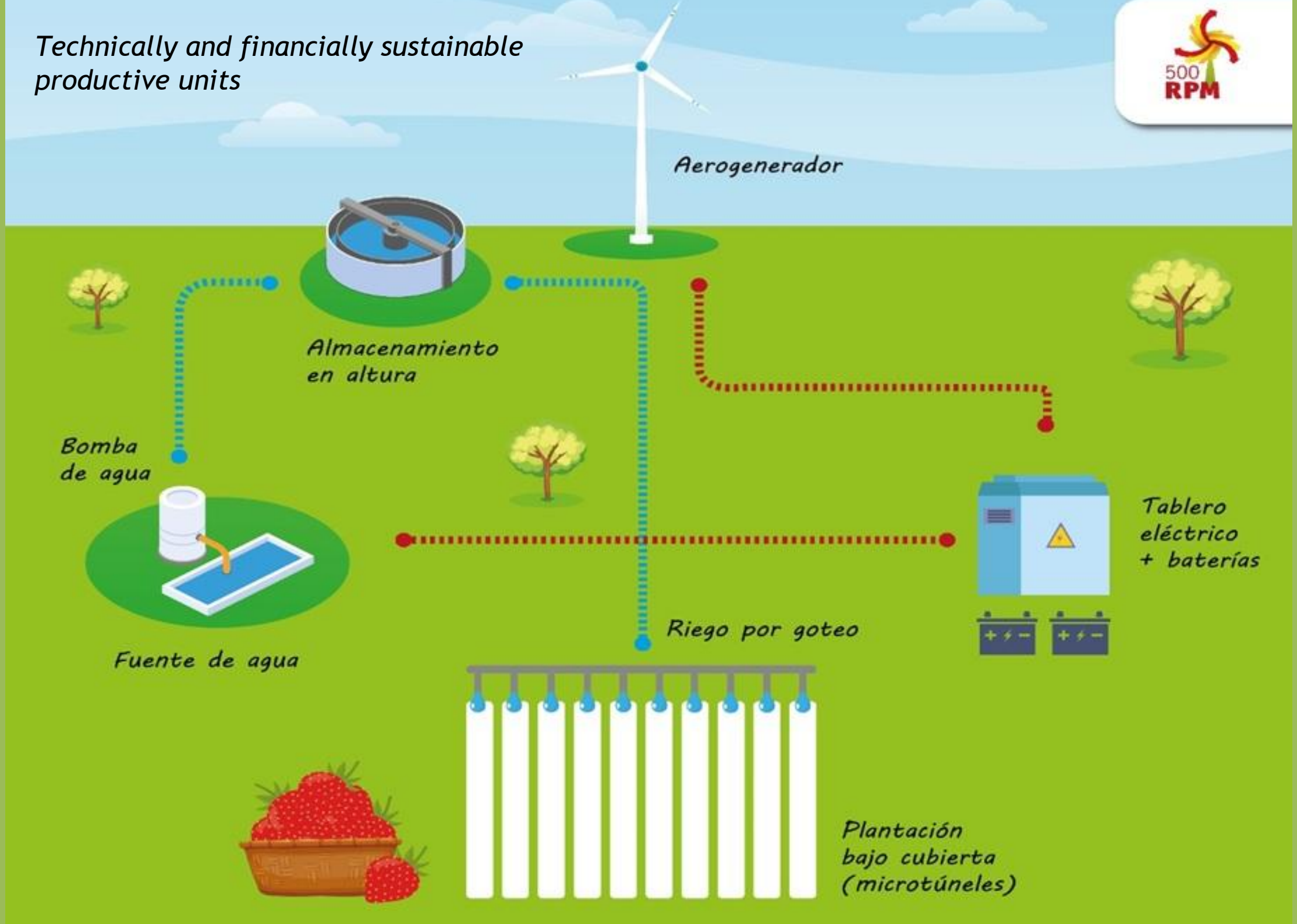
INTA

Ministerio de Agricultura, Ganadería y Pesca
Argentina

500 RPM



Technically and financially sustainable productive units



Project motivations

01 **Wind Energy = development vector**

02 **Horticulture = productive paradigm shift**
(sheep unprofitable and negative impact vs.
sustainable and profitable crops)

Dream **Productive Patagonia = Productive Pampa**

Challenge

Access to appropriate technologies and practices

Training **Investment** **Follow up**

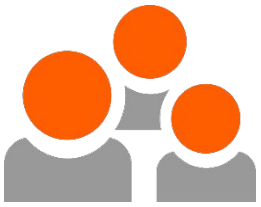
500RPM delivery model

Centralized management, diversified players



Initial investment: Companies, institutions, international cooperation, public calls (end users, finance system)

Actions:
- Wind turbines manufacturing (practical training)
- Installation of wind turbines and water pumping systems
- Dimensioning and training in the productive and irrigation system
- Working the land, production and sales (training)
- Marketing





Technical sustainability:
- Project management and monitoring
- Energy and water pumping system local maintenance
- Accompaniment and monitoring of production management



Financial sustainability:
- The profits generated by the project





Energy System



Energy System

500 RPM





Pumping and storage System



Productive System

500 RPM



Kelleñ Kuruf - Frutillas del Viento

Impulsado por 500RPM + INTA



ales and Marketing




Gualjaina
Esquel
Trevelin
Aldea Escolar
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¡Thank you!



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Maximizing Impacts from Energy Access

Panelist:

Victor Gathogo
Energy Advisor,
SNV



SNV

November 2022- Webinar Series 3

Drawing economic benefits from the use of energy

Maximizing Impacts from Energy Access

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SNV Global Overview

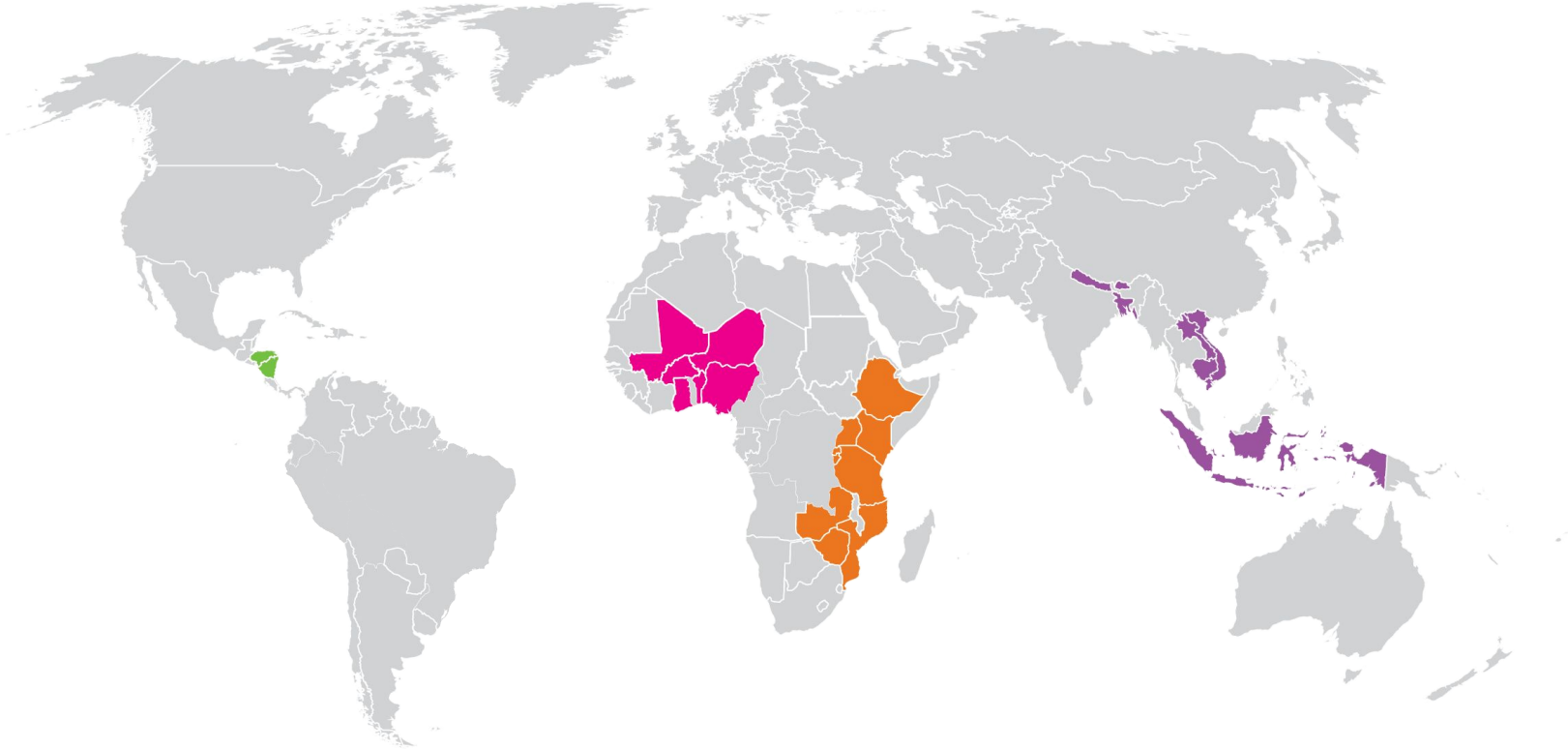
We make a lasting difference for millions of people living in poverty

We were founded in
1965

With a global team of
1,297 staff

88% of our professionals are nationals of the country in which we work

We work in more than
24 countries
Across THREE Continents



We focus on THREE sectors

Agriculture Energy WASH

endev

With 40% of the Kenyan population employed in agriculture and large untapped value in SWP & cooling technologies, it is easy to overlook the economic opportunities of other appliances

Market application	Appliance technologies (40+ categories)
Agricultural production	Solar water pump (SWP) , irrigation system, solar sprayer
Agricultural post-harvest processing and storage	Mill, huller, thresher, crusher, paste-maker, oil press Cold room, refrigerator
Dairy, poultry & livestock	Cold room, refrigerator, freezer, ice-making machine, milk tank, egg incubator, water pump, electric fence
Fisheries	Fishing light, water pump, ice-making machine, cold transport, electric boat motor
Light industry	Sewing machine, loom, drill, hammer, soldering iron, welder, compressor, tool kit
Small commerce	Electric boda / 3-wheeler, fan, TV, refrigerator, blender, juicer, electric pressure cooker, phone charger, internet router, printer, hair clipper, salon kit, public address system
Restaurants & hospitality	

Solar Supply Chains

What drives the "Plug-and-Play" Subsector in Kenya?

- OGS companies expanding into appliance space, capitalising on existing customer base + distribution networks
- PAYGo enables otherwise unaffordable purchases + valuable customer relationships for up-selling
- Large investments in OGS, limited $ for last mile distributors (LMD)
- Companies target high-volume sales, rendering larger & more productive appliances a mismatch
- Distribution through agent networks, LMDs + trade outlets (e.g. supermarkets)
- Connectivity (phone, wifi) is an enabler across the economy
- Kits are tax-exempt (2021) but appliances are not



Solar Supply Chains

Component Systems Sector Drivers

- Off-grid demand in agriculture, dairy, livestock & poultry, fishing
- Fuel replacement & new income generation value propositions
- Well-developed over-the-counter / trade sales networks
- Dozens+ of niche applications
- Improvements in efficient AC appliances + excitement about SWP, cooling + e-mobility
- Low consumer awareness of PUE opportunities
- Taxes add substantial cost + uncertainty at customs
- Electric offers OPEX savings but requires behaviour change
- Little consumer financing available – mostly cash upfront
- Difficulty ensuring the quality of 1000s of bespoke systems



Technology & Supply Chains

Mini-grid Sector Drivers

- Importance of daytime demand stimulation + revenue to mini-grid profitability
- Grants currently funding R&D on technologies (e.g. electric mill, e-bikes) + business models (e.g., appliance financing) = impact on revenue is still unclear
- Challenges = right PUE technologies, distribution & consumer financing
- Consumer financing an awkward fit for mini-grid operators
- Business training, ensuring water supply for optimized yields, facilitating market linkages = all potentially for mini-grid action

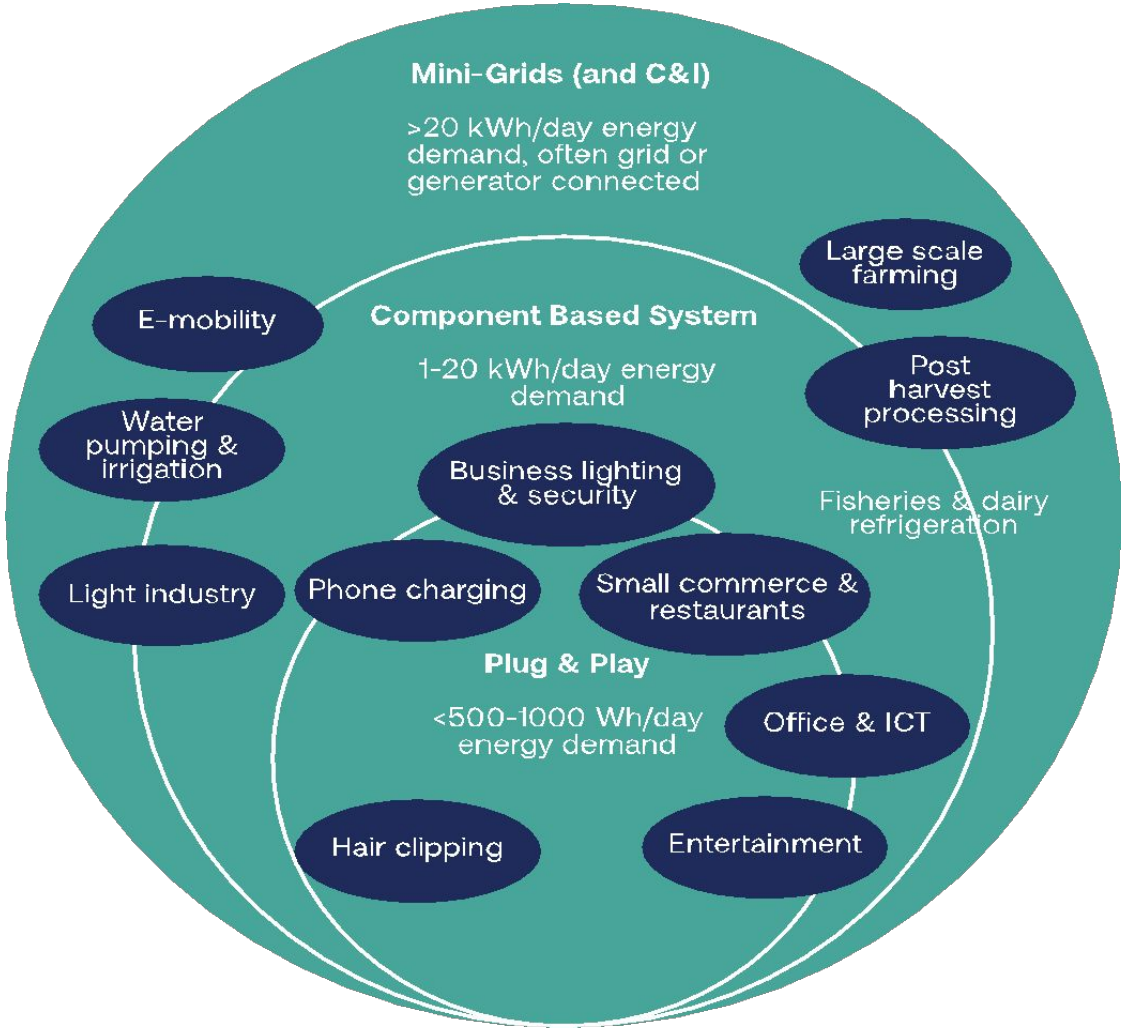


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Three categories of solar power supply represent different market dynamics

Power source structure / wattage	Appliance technology	Market application
Plug & play	Water pump	Agricultural production
Component-based systems	Refrigerator / freezer / cold room	Agricultural post-harvest processing
Mini-grid	E-bike / trike	Dairy, poultry & livestock
	Mill	Fisheries
	Workshop tools	Light industry
	Connectivity technology	Small commerce
	Etc.	Restaurants & hospitality

- Mechanisation (time savings, reduced drudgery)
- Fuel replacement (cost savings, reduced pollution)
- New business (income generation, value addition)



Policy & Regulation

Creating as enabling environment is broadly conducive to PUE

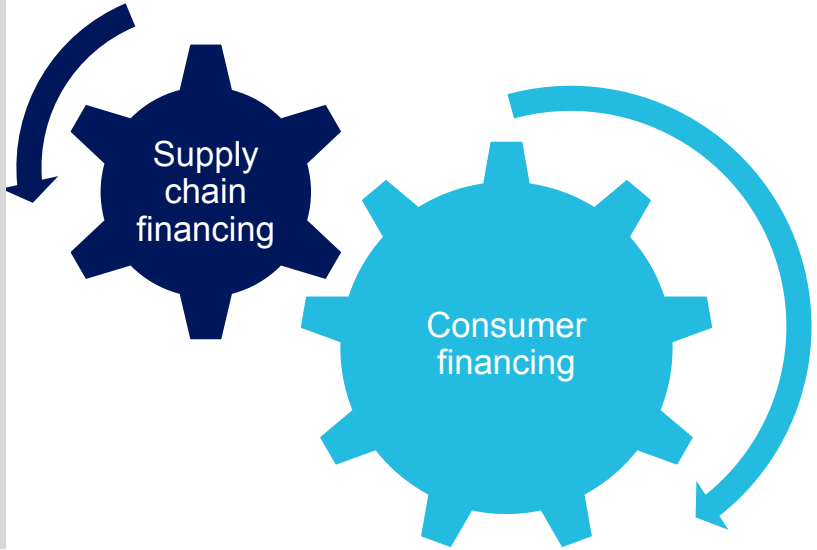
- Government supportive of the vibrant mobile money sector
- No regulation of PAYGo as lending
- Tiered technical certification process protects consumers + boosts quality
- Product performance standards in place
- Investor and business protections reassure foreign companies
- National EE strategy promotes PUE for agriculture
- Mini-grid regulations



Leverage on Financing

Kenyan PUE companies are financed by their own profits, grants, impact debt & venture capital…

- Investors are interested, but want to see scale, successful exits and strong unit economics that are yet to be proven
- Early-stage equity to some companies, but remains difficult
- Local banks not active
- Several companies have accessed crowdfunding
- LMDs struggle to finance a track record & attract working capital
- Development partners & NGOs providing essential funding for R&D and scale-up (not Kenya-specific)



- ‘Asset financing’ for PUE hasn’t been cracked
- Consumer finance for component-based PUE systems is severely constrained
- P&P suppliers offering PAYGo, mini-grid operators offering appliance financing
- Fintech companies lending to farmers for small-scale agriculture inputs
- MFIs not interested or able
- Companies de-risking consumer financing with tech & software innovations

Consumer financing is either in-house or non-existent with the opportunity to leverage climate finance

Understanding end-User perspectives

In order to prove a business case for a PUE technology, a number of conditions have to be met, including willingness to invest, ability to invest, and ability to derive benefits

A. End-User willingness to invest in technology	B. End-User ability to invest in technology	C. Ability to derive benefits from the technology
Awareness of technology	Financial institutions willing to provide financing	Any of the following, leading to a positive investment outcome: • Higher volumes sold • Higher prices obtained • Reduction in cost
Basic technical suitability (e.g. water availability)	Existence of suitable payment modalities	
	The commercial viability of the products (from the investor's perspective)	Knowledge on how to apply the technology
		Ability to repair and maintain the technology

Thank you for your attention!

Victor Gathogo
Lead Energy Advisor
vgathogo@snv.org

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Panelist:



Temitope Udo-Affia
Technical Assistance Coordinator for
Off-Grid Regulation and Market Development,
GET.transform

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Transforming Energy Sectors Globally

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Productive Use 2.0

New Scaling Opportunities and Innovations in the Sector

TEMITOPE UDO-AFFIA

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Ministry of Foreign Affairs of the Netherlands

Austrian Development Agency

What is GET.transform?

get-transform.eu

AIM Advancing **energy transitions** in partner countries and regions

APPROACH Global mandate implemented in **Africa** and **Latin America & the Caribbean**

Focus on **power sector** as the key enabler for energy transformation

Scaling-up and mainstreaming of **policy advisory that works**





PARTNERS

- **Regional Institutions (**AUC, AUDA-NEPAD, AFUR…..)
- **National institutions** (Energy and Finance Ministries, Regulators, Electric Utilities, System Operators, Electrification Agencies)
- **International organisations and peers** (IRENA, G-PST, UN-ECLAC, …)
- **Other TA initiatives** (EU-G-TAF, EUROCLIMA+, GIZ bilateral programmes, …)

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Transforming Energy Sectors Globally

TECHNICAL ASSISTANCE

- **Mobilising** energy system transformation **advisory services**
- **Providing country transition support** to **public sector partners,** energy ministries, regulators, electric utilities

Long-Term Energy Planning

On-Grid Regulation & Market Development

Off-Grid Regulation & Market Development

Renewable Energy Grid Integration

Regulatory and Technical Ecosystem for Energy System Transformation

Access to Sustainable Electricity

Partner Countries & Leveraged Partnerships*

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- Long-Term Energy Planning
- On-Grid Regulation & Market Development
- Off-Grid Regulation & Market Development
- Renewable Energy Grid Integration

*** GIZ Leveraged Partnerships:** GET.transform lends its advisory services to other European-funded technical assistance projects implemented by GIZ. GET.transform thereby increases its reach and capacity to mainstream and scale-up power system transformation through the network of GIZ commissioned energy programmes.

Off-Grid Energy Transition Services

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Mini-grid Framework

- Supporting Electricity Regulators in **defining roles and responsibilities** for electricity access.
- Developing **Mini-grid Regulations and Legal Instruments**
- Developing tools that support Regulators and Ministries in **implementing and electrification planning**

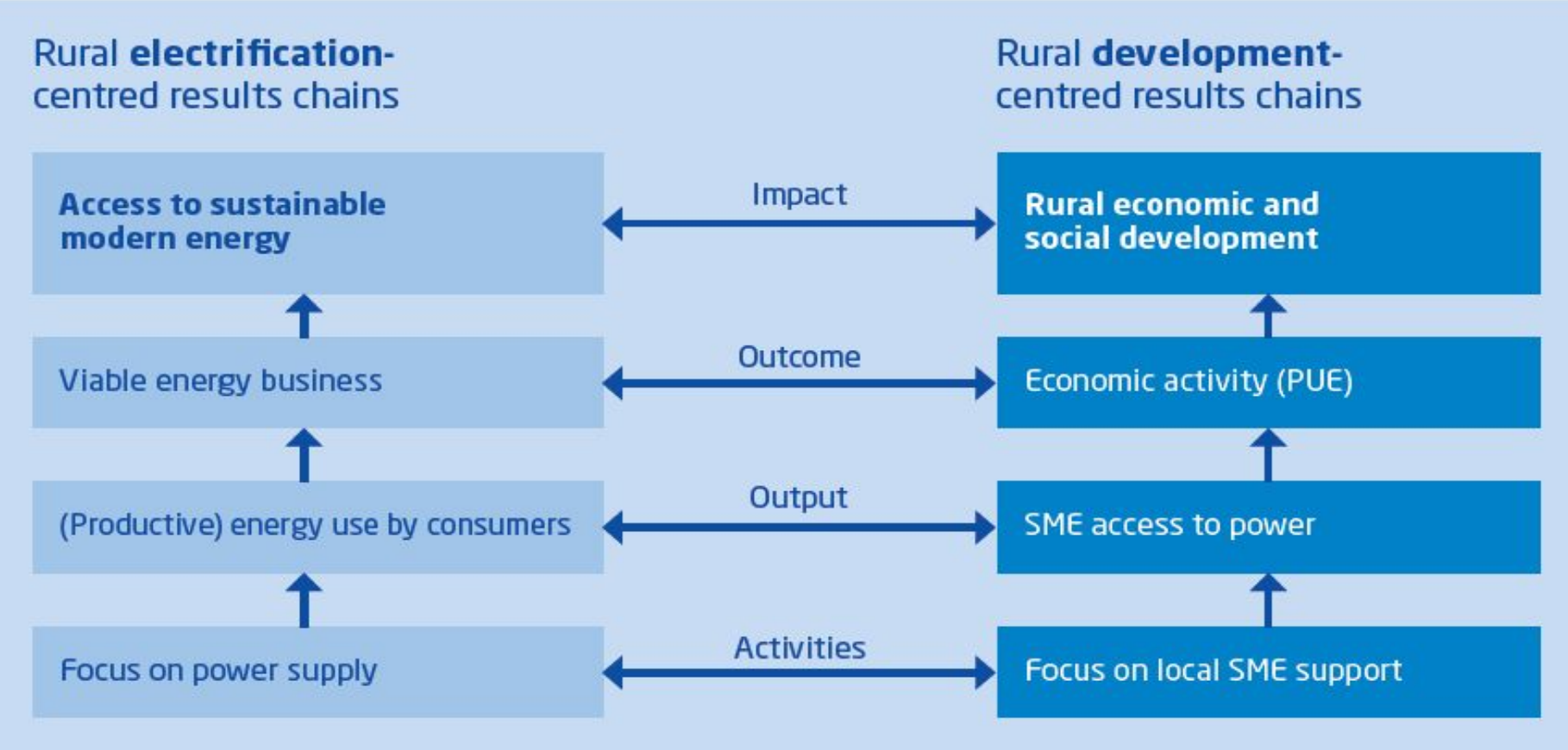
Mini-grid Public Incentives

- Designing and supporting the scale up and standardisation of **Auction Mechanisms** that allow for bundled mini-grid tenders.
- Designing **Public Risk Mitigation** Frameworks.
- Designing **tax and fiscal incentives** and streamlined customs processes.

Gender, Economic, and Social Impact Monitoring

- Designing tools and framework that support the **scale up of business models** for productive use of energy.
- Developing and implementing methodologies for monitoring **gender, economic, and social impact** of electricity access and productive use of energy projects.

New Definitions for PUE



Barriers to Scaling PUE

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End User Uptake Barriers

- Limited demand and poor market linkages
- Limited availability of PUE equipment
- High upfront equipment costs and low affordability
- Low access to consumer credit and high interest rates

Lack of flexible finance instruments

- Limited number and range of players in the market
- Over reliance on results-based disbursement
- Standard off-grid and SME financing instruments not well designed for rural businesses

Barriers to Scaling PUE

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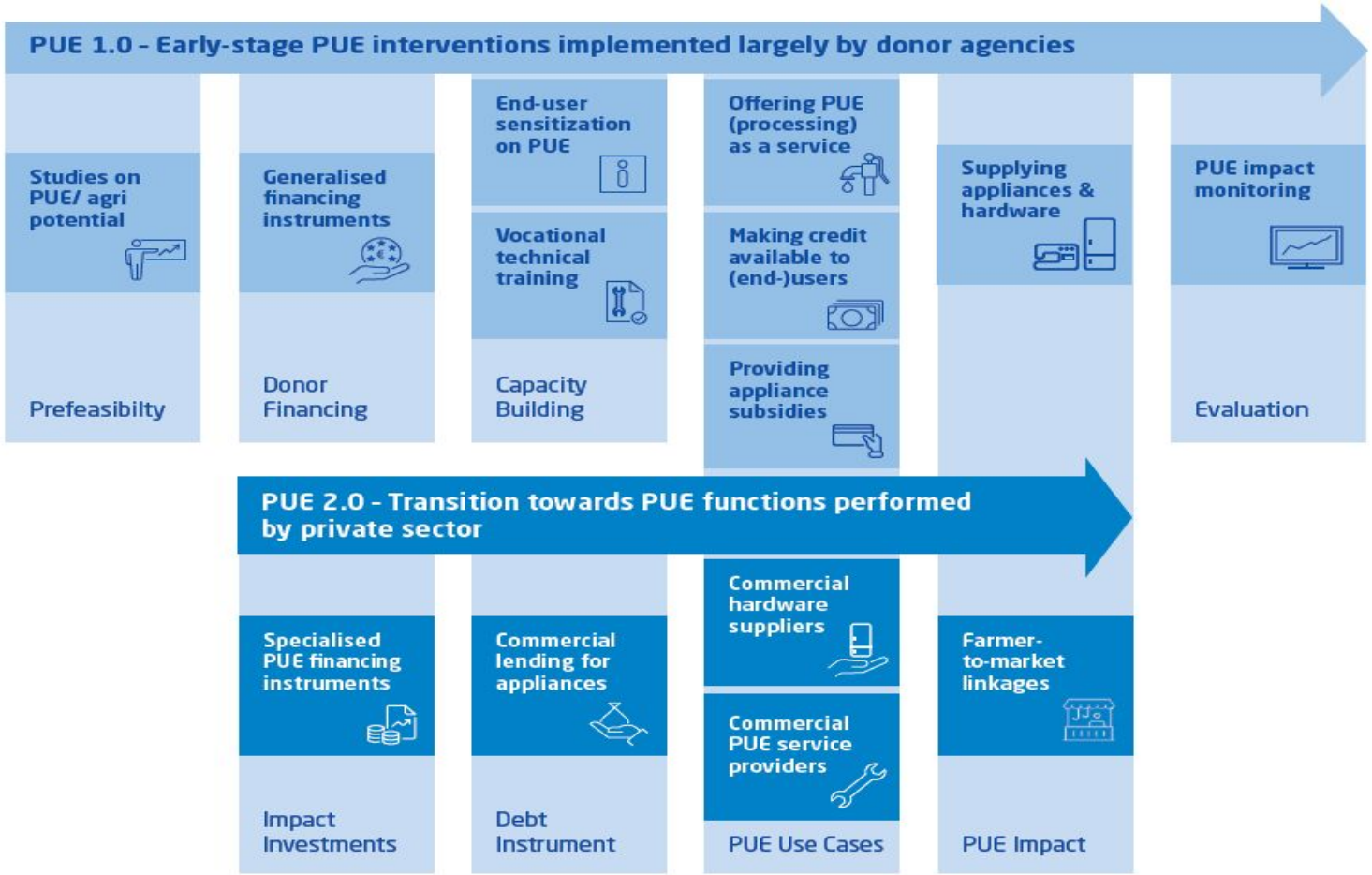
Technical and Capacity Challenges

- Use data and company performance benchmarks lacking
- Hesitancy in end-user adoption
- Poor suitability of available technologies
- Limited capacity for after sales services

Lack of Cross-Sectoral Approaches

- Need to look beyond technology lens and at: Productivity, market prices, access to markets, farmable land size etc. and nexus considerations are needed e.g. agriculture, health, finance, energy.

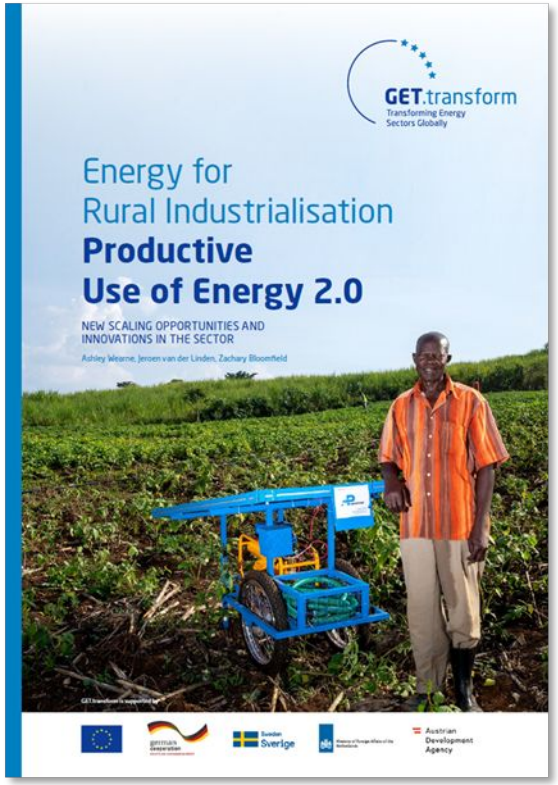
PUE 1.0 to PUE 2.0



Opportunities for a Dialogue

GET.transform publishes the study as part of a wider series on ***Energy for Rural Industrialisation***, which seeks to inspire a dialogue on PUE. Practitioners are invited to contribute their views through guest articles in Sun-Connect News or by using the hashtag ***#E4RI*** on LinkedIn and Twitter.

Through the dialogue, cases are made for a shift away from PUE as an **input to electrification** but rather as its own objective and input **into economic development and rural industrialisation**.



#E4RI

bit.ly/PUE2-0

Thank You for Your Attention!

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TEMITOPE UDO-AFFIA
Technical Assistance Coordinator
Off-Grid Regulation and Market Development
E-mail: temitope.udo-affia@get-transform.eu
Phone: +49 152 90016018

For more information visit **get-transform.eu**

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Discussion

–

Pose your questions in the chat!

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Recording of the session will be made available soon at:
wisions.net



Next seminars will dive into the topics:
- ***Energy access: tool for overcoming gender inequalities*** (November 2022)
- ***Planning energy for and with the people*** (December 2022)



Don‘t miss the next seminars, stay up to date on our channels

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Thank you for participating!

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Slides and recording will be made available on our website

www.wisions.net