# IRENA INNOVATION WEEK

## IRENA Youth Talk: Entrepreneurship and Innovation for the Green Energy Agenda

Organised in partnership with Initiate! and SDG 7 Youth Constituency

Thursday, 08 OCTOBER 2020 • 10:00 - 12:30 (CEST)







## Welcoming remarks



**Dolf Gielen** 

Director IRENA Innovation and Technology

# IRENA INNOVATION WEEK







If you have questions for our panelists, please use the Q&A

lf you encounter
any technical
issues, please
write your issue
to Cisco WebEx
Events



This session will be recorded and recording along with the slides will be available on the Innovation Week website



## Agenda

Panel I: Renewable Solutions for Transport		
10:00 –10:05	Setting the Scene	
10:05 - 10:40	Innovation Showcase	
10:40 - 11:15	Panel Discussion Supporting Youth Innovation in Decarbonising Transport	
Panel II: Renewable Solutions for Industry and Buildings		
11:15 – 11:20	Setting the Scene	
11:20 – 11:55	Innovation Showcase	
11:55 – 12:30	Panel Discussion:	
	Supporting Youth Innovation In Decarbonising Industry & Buildings	

# IRENA INNOVATION WEEK



## Panel I: Renewable Solutions for Transport

10:00 - 11:15 (CEST)



### **Panel I: Setting the scene**



### Arina Anisie

Associate Programme Officer, Renewable Energy Innovation, IRENA Innovation and Technology Centre







### **Emerging innovations for wind and solar PV integration**





### **Innovation Landscape Report**

- granularity in electricity granularity in electricity
  - Re-designing capacity
  - of distributed energy resources
  - Net billing schemes 24

#### SYSTEM OPERATION

- Future role of distribution 25 system operators
- Co-operation between 26 transmission and distribution system operators
- Advanced forecasting 27 of variable renewable power generation
- Innovative operation 28 of pumped hydropower storage
- Virtual power lines 29
- Dynamic line rating 30

Source: IRENA (2019), Innovation landscape tor a renewable-powered tuture: Solutions to integrate variable renewables

Renewable mini-grids

Flexibility in conventional

Supergrids

power plants

9

10

11

## **Digital Innovation Toolbox**

### Innovation Toolbox



Rapidly integrating solar and wind power to cut emissions and meet key climate goals poses technical and economic challenges.

**Innovation Toolbox** offers **30 innovations** emerging across four key dimensions: enabling technologies, business models, market design and system operation.

These innovations can be mixed and matched as needed to create solutions. While the combinations could be endless, the Toolbox outlines **11 solutions** as examples of how to achieve system-wide synergies.

Explore the Innovation Toolbox based on your own technical, economic or societal requirements:

- Select from the 30 innovations on the left to discover each in more detail.
- Select a solution to see how different innovations can work together.
- 📪 Access tutorial to learn how to use to the Toolbox.

more >

< 💷

### Flexibility solutions



### https://www.irena.org/innovation/Toolbox

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## **Electrification of the transport sector**



Source: IRENA Global Energy Transformation: A roadmap to 2050 (2019 edition)

## Uptake of EVs - the battery bank of the future

Growth in EV deployment between 2010 and 2050 in a Paris Agreement-aligned scenario





By 2050, potential storage capacity to provide grid services:

~ 14 TWh EV batteries vs ~ 9 TWh stationary batteries



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## **Innovation Showcase**



## **Moderator**



### Noortje van Heijst

Investment Associate, Unknown Group & VenturesOne

### **Innovation Showcase**



### Jorg van Heebeen

CBO, Jedlix

The Netherlands



### **#IVIW2020** 14

# JEDLIX

**DRIVING RENEWABLES FORWARD** 

- CER

n Lasfer

⊕ 88.e € #%

Aug. 1 1 1 1 1 1

## Taking control of charging is critical for MASS EV adoption





**REDUCE TCO** 



OPTIMIZE EV BATTERY USAGE



AVOID GRID BACKOUTS



SOURCE CLEAN ENERGY





Jedlix aggregates electric vehicles with its Vehicle to Grid Integration (VGI) platform

and pays out OEMs, CPOs, eMSPs and/or drivers in return for the EVs flexibility monetization with the energy industry



## **Vehicle-Grid Integration for Energy & E-Mobility Partners**





## **The JEDLIX Business Model and Key Figures**





## **User Interfacing Support Various Distribution Models**















### **Innovation Showcase**



### Kim Chepkoit

Founder & CEO, Ecobodaa

Kenya



### #IVIW2020 21

# **Our Innovation**

**ECOBODAA** is Solving the Last-mile connectivity problem in African cities by Leveraging on Data and Rider Behavior to build Africa's First Connected, Datadriven Electric Motorcycle Taxis (BodaBodas) Designed & Assembled in Nairobi, Kenya for Africa's Cities





## **The Problem**



Motorcycle taxis are the **biggest** polluter in Kenya's transport sector



Riders spend more than **25%** of their daily income on fuel & **3-days income** on servicing every 14 days



Lack of access to **capital** for purchasing a motorcycle taxi



Less than 3% of motorcycle taxi riders in Kenya are women





# Why Cities?

- Rapid rates of Urbanization in Africa
- Cities are Major Contributors of **GHG** Emissions within the Transport Sector
- **Easy** to Build Charging/Swap Infrastructure





Eng. Kim Chepkoit Founder & CEO ECOBODAA KENYA kim@ecobodaa.bike

hailonal Rend



### **Innovation Showcase**



### Sasiranga de Silva

Founder & Lecturer, Electric Tuk Tuk

**#IVIW20** 

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Sri Lanka



Energy efficient commodity

First mile last mile connectivity

Nearly 1.1 Million tuk tuks

300,000 Two strokes



# Problem

Increasing fuel prices/Higher maintenance cost

Potential to ban 2-Strokes

Difficulty in passing emission testing

Difficulty in meeting global emission standards

Noise pollution



Tuk tuk as good as new

Save 1000\$ annually

65% CO2 reduction per unit

1 Million ton annual CO2 reduction



### **Customer Demands**







## Novel conversion method

Locally assembled battery pack

Unique electronics

Regenerative braking





Sasiranga De Silva ThermalR Industries Pvt Ltd sasiranga@uom.lk +94777358765

ank

\$ QW - 7182

SP YC - 6562

### **Innovation Showcase**



Isaac Oyedokun

CEO & Co-founder

Trekk Scooters

Nigeria



**Esther Ehindero** 

COO



## **About Trekk Scooters**

### Trekk Scooters is transforming today's mobility trend across Nigeria and Africa.

- Trekk Scooters is a Nigeria-based modern transportation company solely leveraging improved and eco-friendly technology to redefine the traditional and arduous means of people's movement within closed communities
- > Trekk is the pioneer of e-scooters sharing service in Nigeria, paving the way for micro mobility in Africa
- Trekk Scooters is redefining communities' access to smart and affordable mobility. Using an efficient, fun and environmentally friendly means of transport, we're building better people, communities and a greener earth. From one community to another, we're making the world a better place to live in



Campuses Residential Estates



"To revolutionize and innovate transportation system in Nigeria and beyond."



"To create one of the fastest, eco-friendly means of mobility within communities hence reducing traffic congestions and enhancing the quality of life of an average commuter."

### We are in line with the United Nations Sustainable Development Goals 7, 11&13





"Make cities and human settlements inclusive, safe, resilient and sustainable."





"Take urgent action to combat climate change and its impacts."

## **Our Differentiators**

- **Trekk Technology**
- **Our Product Electric Scooters (Modern Alternatives)** 2
- **3** Zero CO2 Emission, No Pollution & Lower Emission Trip 6

- **Promotes a Fit & Healthy Lifestyle**
- **Pioneer of Micro-mobility in the Nigeria**
- **Our Passionate & Dedicated Team**

## **Humans of Trekk!**





Issac Oyedokun CEO & Co-founder



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**Esther Ehindero** COO & Co-founder



Praise Sakanwi



Jean Noel Bayi CTO & Co-founder CFO & Co-founder



## **Our Decarbonisation Goals**


## **Our Impact**

### **Figures Don't Lie!**



#### **The Problem**

- Only half (53%) of urban residents have convenient access to public transport
- 9 out of 10 urban residents breathe polluted air

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- The global mean temperature in 2018 is approximately 1°C above the preindustrial baseline
- Climate-related and geophysical disasters claimed an estimated 1.3 million lives between 1998 and 2017
- To limit global warming to 1.5° C, global carbon emissions need to fall to 55% of 2010 levels by 2030 and continue a steep decline to zero net emissions by 2050



- Environmental Impact: Zero emission, noise pollution reduction, cleaner & safer communities
- Economic Impact: Job creation, skill-set and capabilities building of employees, nation building
- Social Impact: Educating the populace on micro mobility, Driving renewable energy among young entrepreneurs
  - Techpreneurship Ideation: DIY

### Trekk's Community Impact



Concerted efforts with the government and policy makers to reduce CO2 emission in Nigeria and other African countries by 2030

### **Global Impact**



Sources:

The Sustainable Development Goals Report 2019

https://www.worldometers.info/co2-emissions/nigeria-co2-emissions/

## **Our Advice**



- Passion: Engage in a project that you are passionate about. Passion is the fuel needed for stormy days.
- Research: Ensure to conduct a thorough research on the project and society you wish to launch. Understand the politics, regulatory framework, economic and social life of such community.
- Creativity: Aim at a project that seeks to solve a problem that is particular to that society
- Consider scalability of the Idea
- Build and Nourish Networks



# **THINK GLOBALLY!**

# **TREKK LOCALLY!**

www.trekkscooters.com



## **Innovation Showcase**



**Bhaskar Deol** 

Co-Founder & CEO

eDRV (Netherlands)





# $\triangleright$ = DRV

# Our Mission is to enable the rapid electrification of transportation to help achieve the goals of the Paris agreement



# **Meet today's Electric Vehicle charging entrepreneurs**



Aaron

Ali

Gaelle

**Sharat** 

Across the world, entrepreneurs are developing ambitions to own and operate electric vehicle charging as a service for business, cities and regions

## eDRV Innovation SaaS for electric vehicle charging network operations



### Differentiators



### Plug & Go Zero Touch Charging

Tesla Supercharger-like plug and go experience to drivers of all electric vehicles



### World's First Public EV Charging API

First widely available public API for EV charging, with more coming soon











## eDRV Paves the Way for Integration of EVs, Storage and Renewables



eDRV combines **vehicle and charging endpoints** to provide 360° integration of EV charging with demand response, building management, fleets and consumer applications

# IRENA INNOVATION WEEK



Questions





# IRENA INNOVATION WEEK



## Panel Discussion: Supporting Youth Innovation in Decarbonising Transport



## **Supporting Youth Innovation in Decarbonising Transport**



**Moderator** 

Noortje van Heijst

Investment Associate, Unknown Group



Philippe Vangeel

Secretary General

The European Association for Electromobility (AVERE) Panellists



Alexander Körner

Programme Officer

UNEP, Sustainable Mobility Unit



Bhaskar Deol Co-Founder & CEO eDRV



Sasiranga de Silva

Founder & Lecturer

Electric Tuk Tuk

#IVIW2

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# IRENA INNOVATION WEEK



## Panel II: Renewable Solutions for Industry and Buildings 11:15 –12:30 (CEST)



## **Panel II: Setting the scene**



### **Elena Ocenic**

Associate Programme Officer, Innovation Networks, IRENA Innovation and Technology Centre

## **Decarbonisation pathways to 2050**



#IVIW2020 50

## **Innovations for increased renewables in buildings**



## **Technological pathways for increased renewables in industry**



# Thank you very much for your attention!



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# IRENA INNOVATION WEEK



## **Innovation Showcase**



## **Moderator**



Joyce Mendez

Latin American Observatory of Geopolitics of Energy

## **Innovation Showcase**



#### Vaitea Cowan

Co-Founder, Enapter

(Germany)







# **The AEM Electrolyser**

**Replacing fossil fuels with green hydrogen.** 













# **Global Energy Consumption**



 Only 30% of energy is consumed in the form of electricity (electrons)

 70% are used in industry, transport and heating sector (molecules)











# **How is Enapter different?**



Think of an electrolyser as a commodity!





# The products today







# **Hydrogen Application**







# One Advice: Cooperation





## **Innovation Showcase**



Dwi Rizky Rachmadhani & Ilham Gucci Founders, Okham

(Indonesia)











We bring one stop end-to-end solutions to instalation owner, government, resident for the abovementioned problems with our professional staffs and hi-tech equipment for providing Inspection, Supervision, Testing, and Training Services







# **Professional**, Futuristic and Affordable Renewable Energy Services



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Testing materials, installation and battery storage of RE system to comply with regulation

Training and capacity building for solar PV & other RE system's manpower

#### SEMons, Smart Energy Monitoring System



# **Decarbonization**



#### Co2 intensity of Gross Domestic Product



More people invest in Renewable Energy



**Public Engagement** 





Massive utilization of Renewable Energy







# **Success - Challenge**







## **Innovation Showcase**



Energy Business Mentor, Energy 4 Impact

(Kenya)





Non-profit organisation working with local businesses to extend access to energy in Africa. Supported over 5,000 energy access businesses in the last 12 years. Deep insight into energy access and markets across Sub-Saharan Africa.

#### **Our Services include:**





#### About S-WIRE Project.

- Taking advantage of technology, resources and science to build more sustainable and resilient businesses for women entrepreneurs.
- Energy 4 Impact conceptualized, designed and developed Jiko Smart.
- Jiko smart has superior performance characteristics over majority of locally developed and produced stoves models and is fairly priced for affordability.
- Energy 4 Impact supported its dissemination through selected groups of entrepreneurs from Central, Kisii and Kisumu clusters.

Technical and Business training Mentorship and monitoring Market Development
Mentorship and monitoring Market Development
Market Development




Outcome Objective	Indicator	Target
Increased access to clean energy through adoption of clean energy products	Number of individuals served by the entrepreneurs supported by the project	103,000
Enhanced environmental sustainability	Tonnes of CO <sub>2</sub> mitigated (computed based on the 4-year average life expectancy of the expected cookstoves sold)	62,000
Scaled up dissemination and distribution of improved cookstoves	Number of improved cookstoves distributed (all types)	34,500
	Number of improved Jiko Smart cookstoves distributed (additional)	10,300
Employment Creation	Number of jobs created (skilled and unskilled labour)	
Cookstoves enterprises supported to manufacture and distribute improved cookstoves	Number of women entrepreneurs supported	150
	Number of trained on production of Jiko Smart	100
	Number of work plans developed	150



Indicator
• 457 people employment, 47% of whom are women.
<ul> <li>Total value of goods sold UC\$482,894,</li> <li>Monthly sales increased by \$7,787.</li> </ul>
167 entrepreneurs supported.
• 166,901 tonnes of CO2.
<ul> <li>212,613 people benefiting from clean cooking, 106% above target. 388 units of solar lanterns.</li> <li>1002 units of solar home systems.</li> <li>47,250 kilograms of briguettes.</li> </ul>







### Challenges

- Finance- As innovations involve risk, finding capital to support research and development, pilot studies or field trials can be challenging, particularly in emerging markets.
- Illiteracy- Due to the age factor and illiteracy, most trainings took longer time.
- Business models- Poor business models.
- Lack of government support and unfavorable operating environments.

### **Proposed Interventions**

- Innovative financing models for energy service delivery & access.
- Technical advisory (TA) and capacity building to energy Energy access as an enabler to address other challenges in the community.
- Enterprise & livelihood support in energy intensive value chains.
- Leveraging on existing institutions/ infrastructure to improve last mile delivery (LMD) of clean energy services.

# Advice



- > Existence of opportunities to leverage on e.g. market development and distribution.
- Proposal development for funding.
- > Bridging the illiteracy gap through building the capacity of local entrepreneurs.
- Youths should take advantage of the available business incubation opportunities in their localities.
- Role to play in promoting most efficient and cost-effective technologies and business models in off-grid markets.
- Productive use of Energy in creating strong food systems.
- Entrepreneurship plays a key role in accelerating deployment of Renewable Energy technologies.
- Benchmark and exchange- programs.





# Thank you for listening

Contact information: Esther Wanza Energy Business Mentor, Energy 4 Impact. Esther.Wanza@energy4impact.org +254726451127.

For more information visit: https://www.energy4impact.org/what-wedo/what-we-do



### **Innovation Showcase**



### Peter Paul van Voorst

Founder, Skoon Energy

(Netherlands)





# SKOON

# **Clean Energy On Demand**

The mobile energy platform

# We Enable Mobile Clean Energy on Demand



### **SKOON**

# **Leading Software Solutions to Enable Decarbonisation**





#### **SKOON SUITE**

**SKOON SHARING** 

Rental Management Software

The Clean Mobile Energy Marketplace



# **Our Impact Stretches Local and Global Communities**



Reduce local emissions by replacing diesel generators

Saving 14.000 tons of CO2 on a short term

Provide scalable software to enable growth of clean energy storage

Facilitating management of hundreds of clean energy storage assets

Empower people and business to attract investment in clean energy projects

Attract millions of funding



# What Experts Have Adviced Me To Do



resources are out there, all that's needed is your limitless energy.

liking and interacting on- and offline.

opportunities and business cases.



## Help us Accelerate the Transition

# We are looking for strategic investors to scale our software development, sales and marketing teams.

We look forward to speaking with you!



Peter Paul van Voorst peterpaulvanvoorst@skoon.world +31617745012

in

**SKOON** 



Daan Geldermans daangeldermans@skoon.world +31643690879



## **Innovation Showcase**



### Jeremiah Thoronka

Optim Energy

(Rwanda/Sierra Leone)

# **OPTIM** ENERGY

We are Optim Energy. We are an innovative energy start-up that uses kinetic energy and vibration in bringing clean and affordable electricity to homes in rural areas.

Our piezoelectric devices harnesses energy from pressure, heat and vibrations all which naturally occur in the environment in making energy accessible to residence in rural areas.



Our business model and social impact strategy aims to promote the transition to an emission-free energy market. Our decarbonisation goals are aligned with the sustainable goals, OE aims to:

- Maintaining a 100% carbon free emissions from our generating capacity;
- Promoting circular economy in our areas of operation and among consumers; and
- Promoting the use of the optim energy online calculator as a tool to help our consumers in making energy efficient decisions.



# Impact

- One hundred and fifty (150) households and fifteen (15) schools electrified free of cost during our prototyping phase.
- Over one thousand five-hundred (1500) residences and over nine thousand (9,000) kids provided with electricity.
- Facilitated a 5% efficiency and a 70% growth in energy service continuation and voltage stability where we operate.
- Decrease in greenhouse gas (GHG) from the local community through awareness and a collaborative effort towards protecting the remaining forest cover.
- Decrease in health issues among students and young people caused by Photochemical smog.
- Increase in economic activities in the local community





# **Youth Action**

# As youths our future "will be what we make out of it"

Take time to build on your skills, knowledge, and the people around you. Whatever solution you'll be bringing it should help in promoting the circular economy concept and in getting us closer to achieving the SDG's.

*"The future is green, let me it stay that way"* 





# Jeremiah Thoronka Founder: Optim Energy (Sierra Leone) Email:<u>jeremiahthoronka1@gmail.com</u> Phone: +250780226589 Twitter: @JeremiahThoron



# IRENA INNOVATION WEEK



# Questions





# IRENA INNOVATION WEEK



# **Panel Discussion:**

# Supporting Youth Innovation in Decarbonising Industry and Buildings



# Supporting Youth Innovation in Decarbonising Industry and Buildings

#### Moderator

#### Panellists



Joyce Mendez

Latin American Observatory of Geopolitics of Energy







Ernesto Ciorra	Thaddeus Anim-Somuah
Chief Innovability Officer	Engineering Manager
Enel	Croda

Esther Wanza

**Energy Business Mentor** 

Energy 4 Impact

# IRENA INNOVATION WEEK

# Thank you!

Coming up next: Session 8: Re-cap and Wrap-up: The Way Forward

today at 2 pm (CEST)

Register at https://innovationweek.irena.org/

