



**Strathmore University**  
*Energy Research Centre*

# Solar Water Pumping Training at SERC

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# Introduction



**Strathmore University**  
*Energy Research Centre*

- ▶ Strathmore University Energy Research Centre (SERC) is a research center within Strathmore University in Nairobi, Kenya.





# Courses Offered

- ▶ T1 T2 Solar PV Training
- ▶ T3 Solar PV Training
- ▶ Minigrid courses
- ▶ Solar Water Pumping Training
- ▶ Energy Efficiency courses ( CEM, Factory Operators, Energy Management..)



# Solar PV Capacity Building

- ▶ National curriculum of on Solar PV developed through efforts of GIZ, SERC and other stakeholders:
- ▶ Tier 1 - Upto 100Wp DC only systems
- ▶ Tier 2 - Upto 300Wp Standalone with one inverter
- ▶ Tier 3 Grid-Tie - Grid Tie Systems
- ▶ Tier 3 Hybrid - Solar PV, Battery, Genset Minigrid
- ▶ SERC has trained over 1500 solar technicians - Approx 60% are Youth
- ▶ Patented easy to use training kit







# Training Facilities: The 600KW System

- ▶ Grid tie system which was commissioned in mid 2014
- ▶ Primary objective is to reduce dependence from the grid with export to grid during period of low demand
- ▶ Module level monitoring using which can be done online



Lifetime energy

**2.61 GWh**

Lifetime revenue

**\$636,284.62**

## Environmental Benefits



CO2 Emission Saved  
**1,025,071.5 kg**



Equivalent Trees Planted  
**3,425.62**



# Training Facilities: Installed Systems and Kits

- ▶ System: A hybrid 17.5 kWp Solar PV - Grid Tie with Battery and Genset Backup



- ▶ System: A 2 kWp Solar PV Backup System with Battery and Grid Backup





# SERC Solar Testing Lab

- ▶ Started in 2014
- ▶ The Laboratory implements IEC 62257-9-5 and some of the referenced standards
- ▶ Components tested are:
- ▶ Solar PV Modules, Charge Controllers, Batteries, Luminaires
- ▶ Our aim is to improve adoption of solar through improving access to good quality products





# Solar Water Pumping Course Curriculum

- ▶ Support of EU-ECHO in collaboration with OXFAM, IOM and NRC
- ▶ 5 day course divided in three parts;
  
- ▶ Basic Solar PV Design (T1T2 Training).
- ▶ Hydrology
- ▶ Design of Pumps
- ▶ Practical on Solar PV and Pump connections.



# Training Equipment



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# Training Equipment





# Who are our target participants?



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- ▶ Government officials
- ▶ Development organisations
- ▶ Farmers or intermediaries
- ▶ Professionals - technical and non-technical



# Launch of the Solar Water Pumping course at Strathmore University



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# Challenges / Going forward

- ▶ Interdisciplinary topics - water, agriculture, solar/energy professionals.
- ▶ Curriculum accreditation and national (regional?) adoption
- ▶ Outreach through Technical Training Institutions (TTI)
- ▶ More local content in training materials - case studies, design tools
- ▶ Course affordability

# Asante Sana!

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