EQUATORSOLAR

SOLAR PV SOLUTIONS
— THAT PAY OFF —
Renewable Energy Solutions in agroecological systems for Africa

Equator Solar Group of Competencies

Germany

NEXIRA

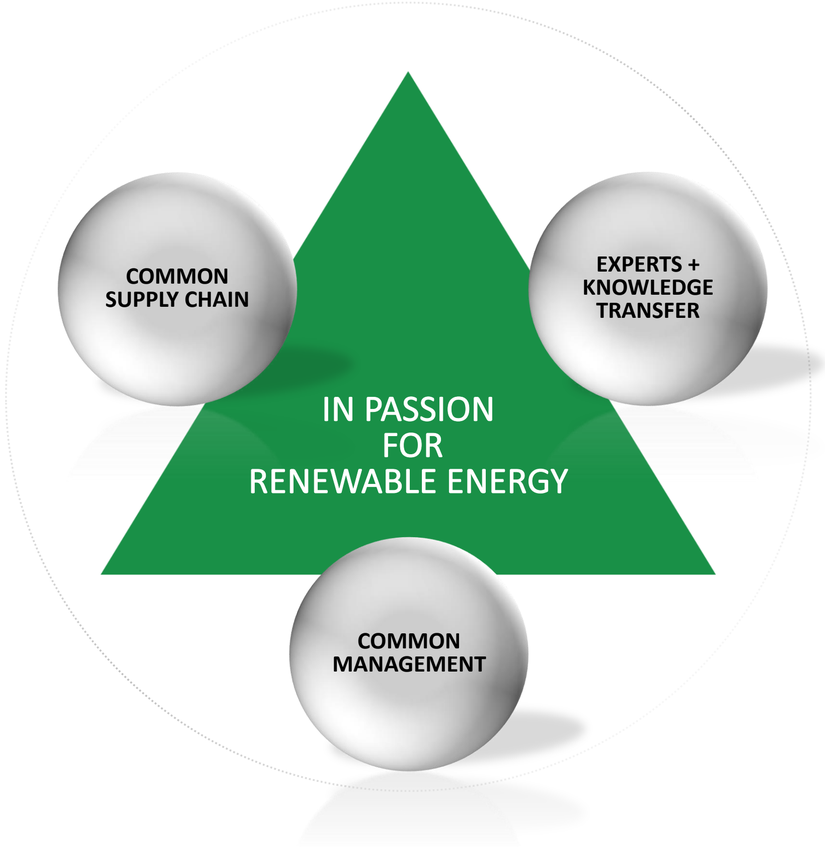
- Renewable energy experts
- Procurement / Supply chain
- Finance experts

Based in Kassel / Germany

renergy CONSULTING

- Renewable energy experts
- Energy efficiency consulting
- Engineering

Based in Ettenheim / Germany



East Africa

EQUATORSOLAR

- Founded in 2011 in Kampala, Uganda
- Owned and managed by group members
- Operating in East Africa
- Renewable energy experts
- Project development
- Implementation and commissioning

Based in Kampala, Uganda

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PORTFOLIO

Integrated Renewable Energy Solutions

CONSULTING	PROJECTS	AFTER SALES SERVICES
Feasibility Studies Energy Assessments System Design	Developing Solar PV Projects	Operations + Maintenance

References in East Africa

01

Spouts of Water Factory, Entebbe, Uganda
75 kWp, 120 kWh Li-Ion, 3-phase, grid-connected with battery back-up.
Commissioned in 06/2023

02

Corsu Hospital, Kisubi, Uganda
100 kWp, 120 kWh Li-Ion, 3-phase, grid-connected with battery back-up.
Commissioned in 06/2023

03

JESA Farm Dairy, Busunju, Uganda
200 kWp, 3-phase, grid-connected, with fuel saving application.
Project start in 01/2020, commissioning projected for 09/2021.

04

International university of east Africa, Uganda
130 kWp, 3 phase, grid-connected, captive power solar system.
Commissioned on 17/2024.

05

Kyamuhunga Tea Factory, Bushenyi, Uganda
500 kWp, 3-phase, grid-connected, 200 kWh lithium-ion batteries, Generator Integration.
Commissioned in 08/2024.

06

Jambo roses nakawuka, Entebbe, Uganda
500 kWp, 3-phase, grid-connected with battery backup of 200kWh for emergency supply.
Commissioned in 30/2024.

07

Sustainable agriculture Morogoro, Tanzania
30 kWp,57.6 kWh back up.
Commissioned on 08/2024

Selected References in East Africa

08

Department of Fisheries (Ministry), Kisumu, Kenya

15 kWp, 1-phase, grid-connected, 30 kWh lithium-ion batteries, biogas and diesel Integration.
Commissioned in 11/2018.

09

Radio Pacis, Arua, Uganda

500 kWp, 3-phase, grid-connected saving system, net metering
Upgraded and commissioned 2022.

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Feasibility Solar PV + Fuel Saving applications

Financial + technical feasibility
Project design
Dairy farm - Uganda, 2014 / Water Utility – Uganda, 2019

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Hospital Solar PV Solutions

Emergency power supply, UMEME + Diesel saving
3-phase, grid connection, battery back-up
Lubaga Hospital – Uganda 2016: 72 kWp Solar PV + 5 kWh Li-Ion Battery

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Solar Hybrid Solutions for Energy Autonomy

Energy reliability + independency, cost saving
Multiple power sources optionally: UMEME, diesel, biogas, battery back-up
Fish Hatchery – Kenya 2018: 14 kWp Solar PV + 30 kWh Li-Ion Battery

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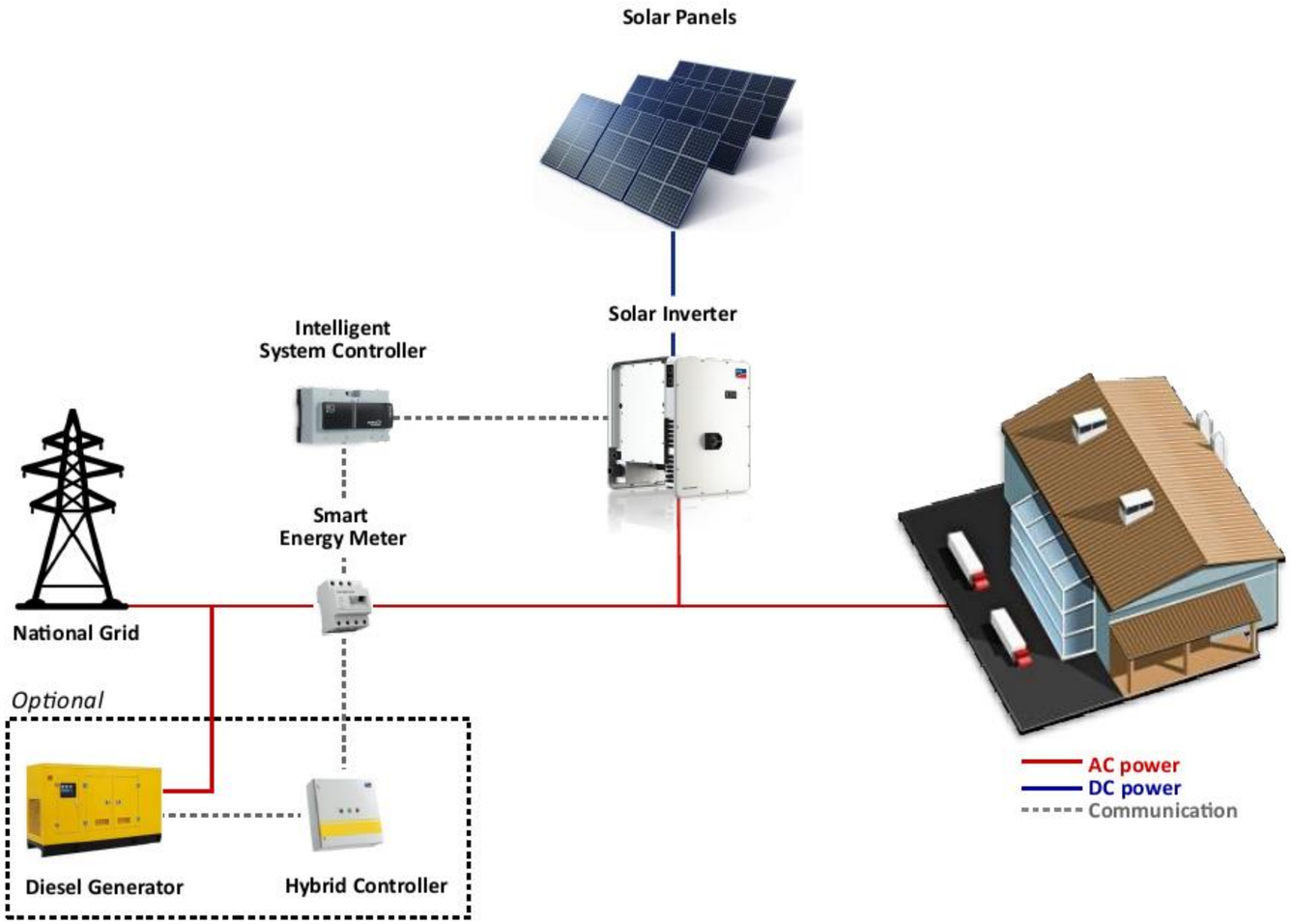
Energy Efficiency Consultancy

Energy Efficiency Audits
Development + Implementation of saving measures
Nagalama Hospital – Uganda 2019

Solar Saving System



Stage 1

Solar PV +
Grid Connection +
Generator Integration

Reduce your bills and
save money

Benefits:

- UMEME + diesel saving
- OPEX reduction
- Cost efficiency

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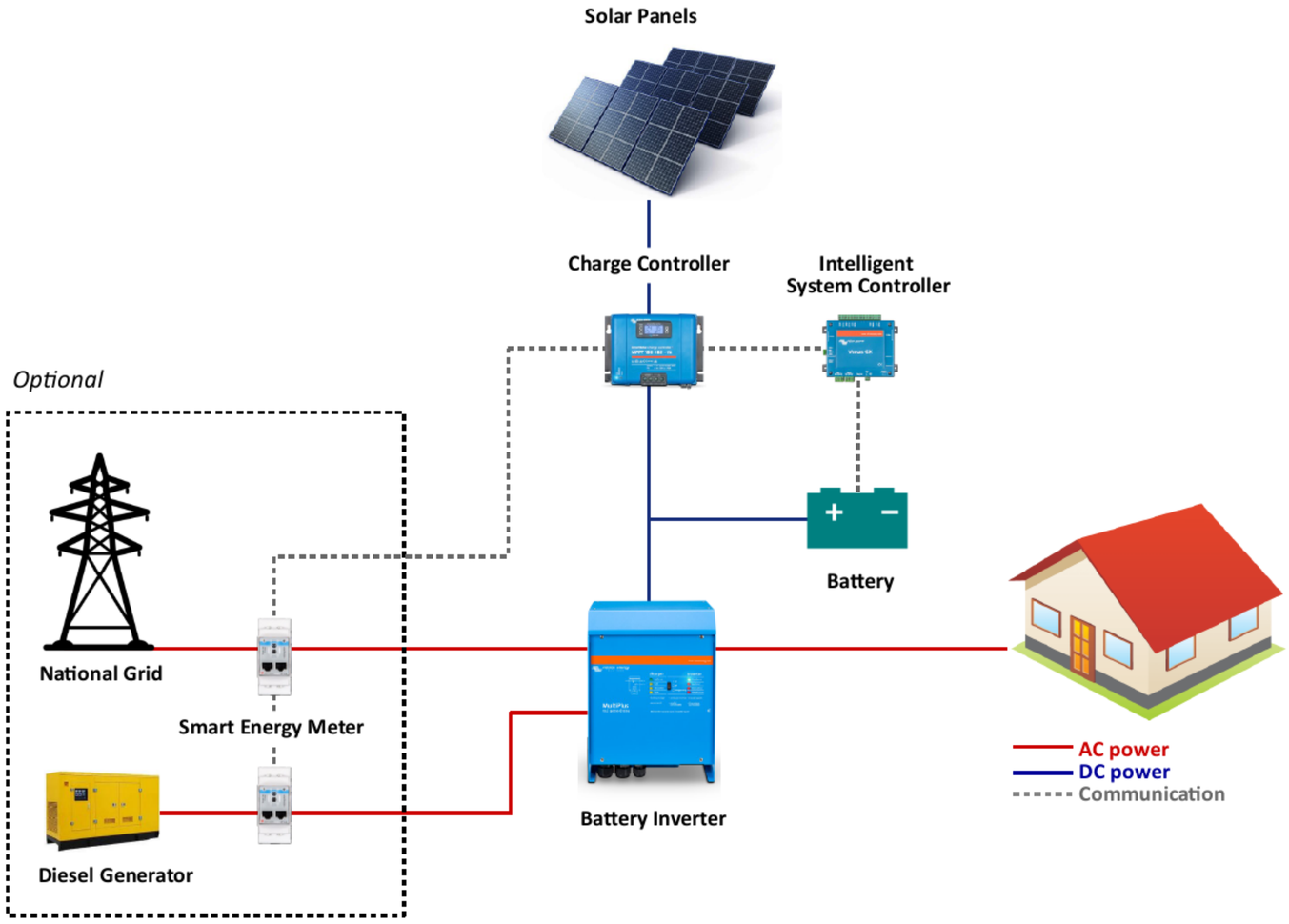
Solar Back-Up System



Stage 2

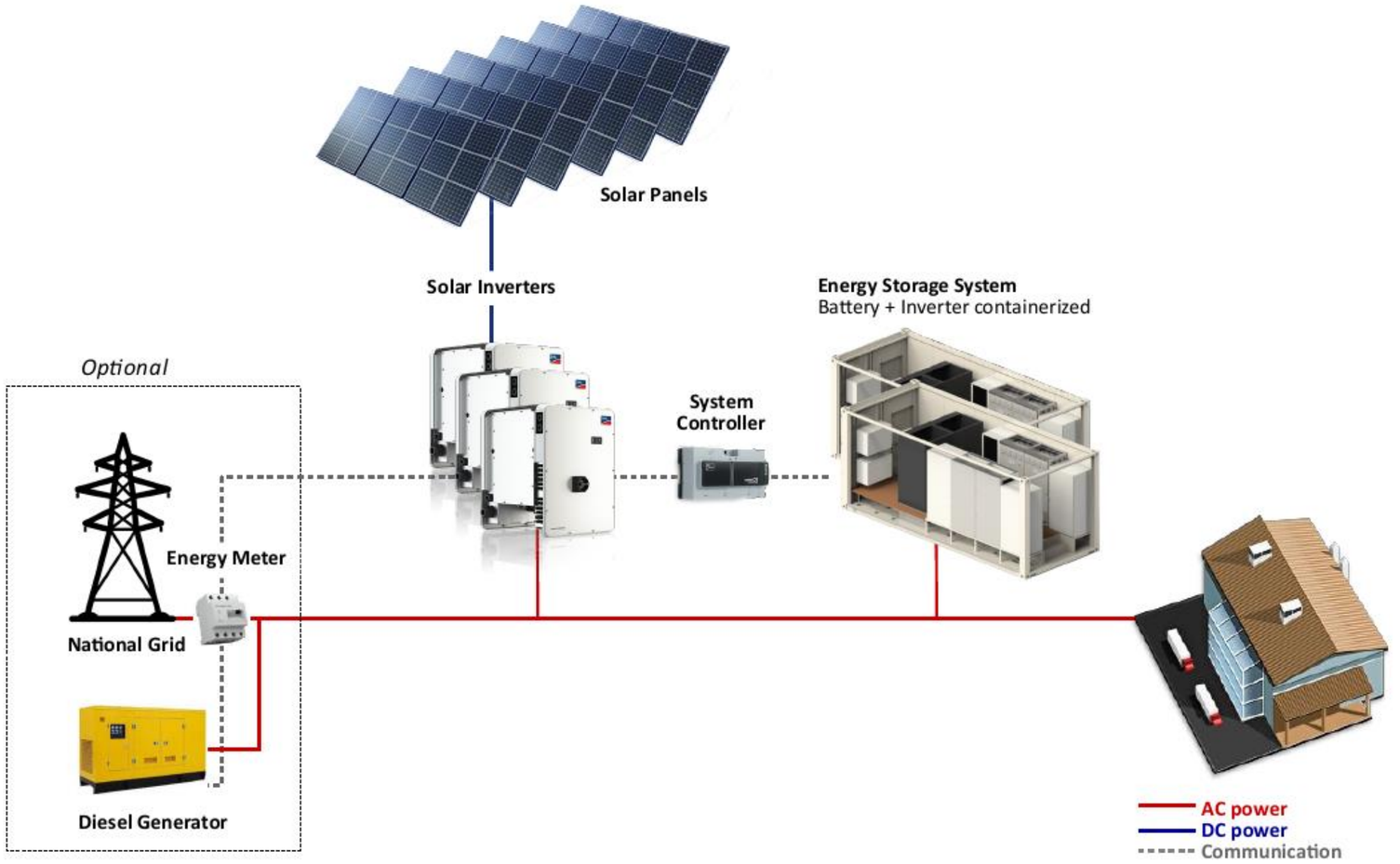
Solar Savings System + Battery Storage

Enjoy daytime autonomy and hours of back-up at night

Benefits:

- Power back-up
- UMEME + diesel savings
- OPEX reduction

Solar Off grid System



Stage 3

Extended
Solar Savings System +
Battery Storage

Be fully Independent
and enjoy solar power
day and night

Benefits:

- Full autonomy
- Unlimited power back-up
- Independent from
  UMEME + diesel

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Project PrAEctiCe Living Lab 2 Kajjansi

Site: National Research Agricultural Organisation (NARO)

System specifications:

10 kWp solar panel capacity
9.6 kWh Lithium battery

Purpose:

Solar power to the Aquaponics green-house pumps and lighting.

- Water circulation between the fish tanks and the plants.
- Nutrient-rich water from the fish tanks continuously provided to the plants, while filtered water returns to the fish.
- Cost saving lighting of the aquaponics.

Achieved objective:

- Eco-friendly farming methods.
- Water conservation.
- Energy efficiency.
- Resilient and low-carbon agricultural future.
- Electricity savings.

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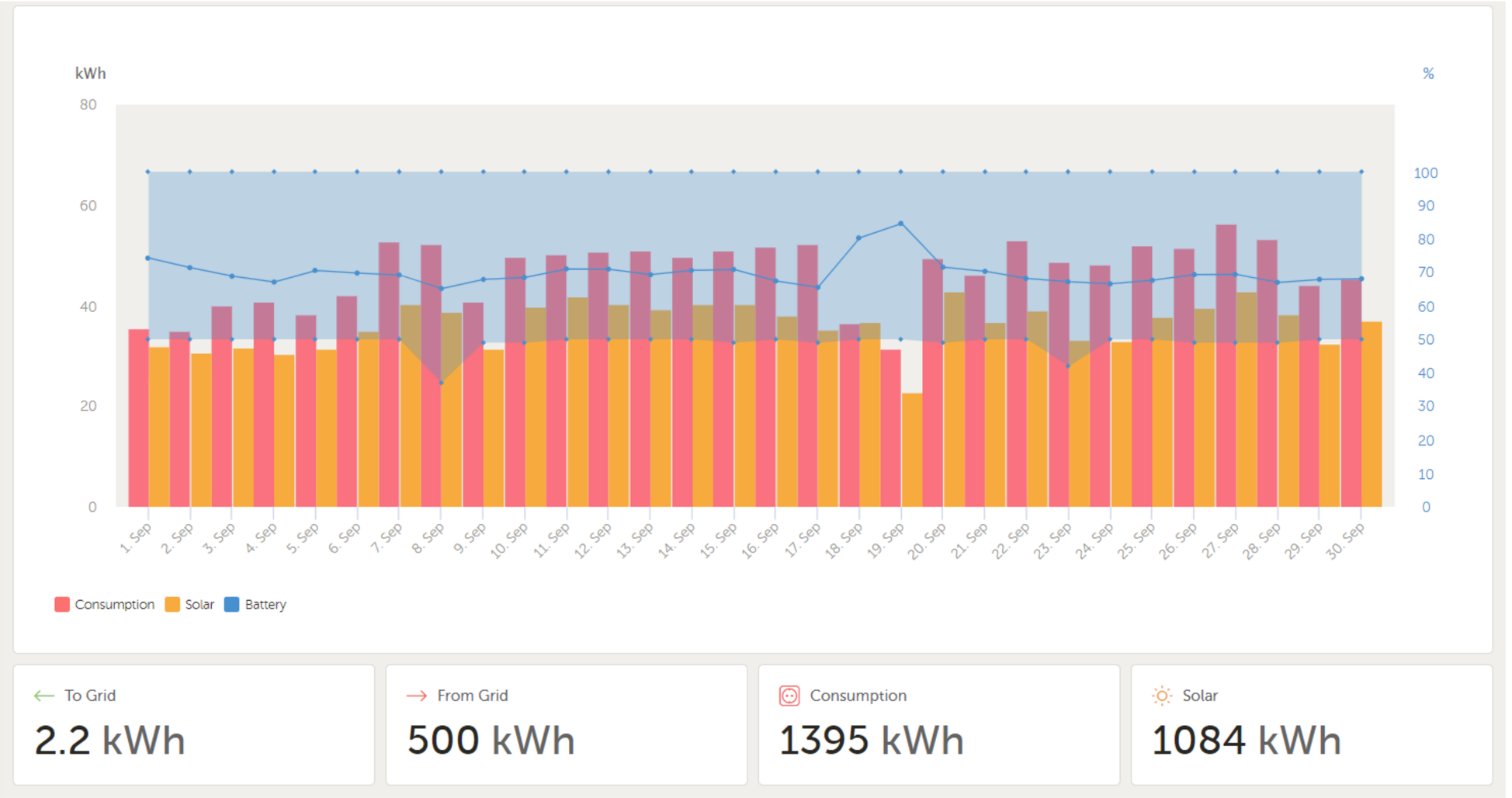
By using a solar PV system, 57% on the total electricity bill was off cut in the month of September.



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Project PrAEctiCe Living Lab 1 Kisumu

Client: Department of Agriculture Livestock and Fisheries Kisumu.

System specifications:

- 20.3 kWp solar panel capacity.
- 19.2 kWh Lithium battery.

Purpose:

Solar energy is used to power pumps, blowers and electronics.

- Sewage water treatment fishponds and gardens.
- Water availability for irrigation .
- Water availability for the aquaponics.
- Waste management.

Achieved objective:

- Converting wastewater into a resource.
- Continuous operation of these systems, ensuring that agricultural activities are not disrupted.
- Cost saving on the high energy costs.
- sustainable foundation for future farming systems .
- resilient to climate change.

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By using a solar PV system, 78% on the total electricity bill was off cut in the month of September.

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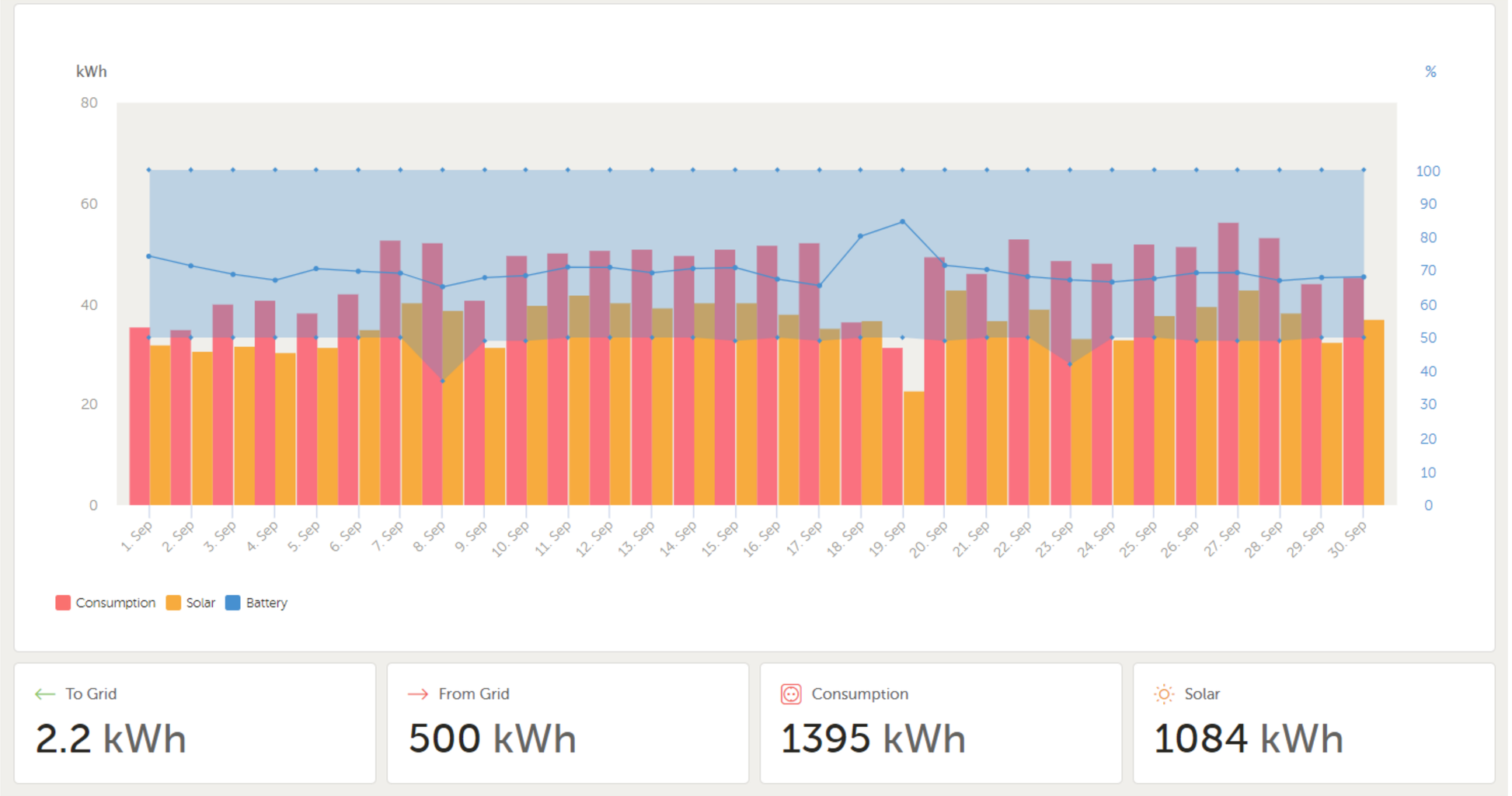

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Project PrAEctiCe Living Lab 3 Morogoro

Client: Sustainable Agriculture Tanzania.

System size:

8 kWp floating PV solar mount system.
22 kWp rooftop solar system.
57.6 kWh Lithium battery.

Purpose:

Solar energy is used to power pumps and electronics.

- water circulation for the fishponds.
- Sustainable garden irrigation.
- Future extension to the workers quarters.
- Future extension to the chicken house heating and lighting.

Achieved objective:

- Reliable Power Supply.
- Energy Independence.
- Cost Efficiency.
- Sustainability.
- Operational Continuity.

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Benefits of using Floating PV.

a) Enhanced Efficiency
Water's cooling effect boosting performance by about 5–6% higher yield.

b) Water Conservation
Reduces water evaporation in turn saving millions of liters annually.

c) Improved Water Quality
Decreases algae growth, helping maintain better water quality.

d) Land-Saving
Avoids land-use conflicts, ideal for densely populated or land-constrained areas.

e) Reduced Dust Accumulation
Lower dust accumulation compared to ground-mounted systems, enhancing efficiency.

f) Sustainability in Water-Scarce Regions
Especially beneficial in areas with limited water resources.

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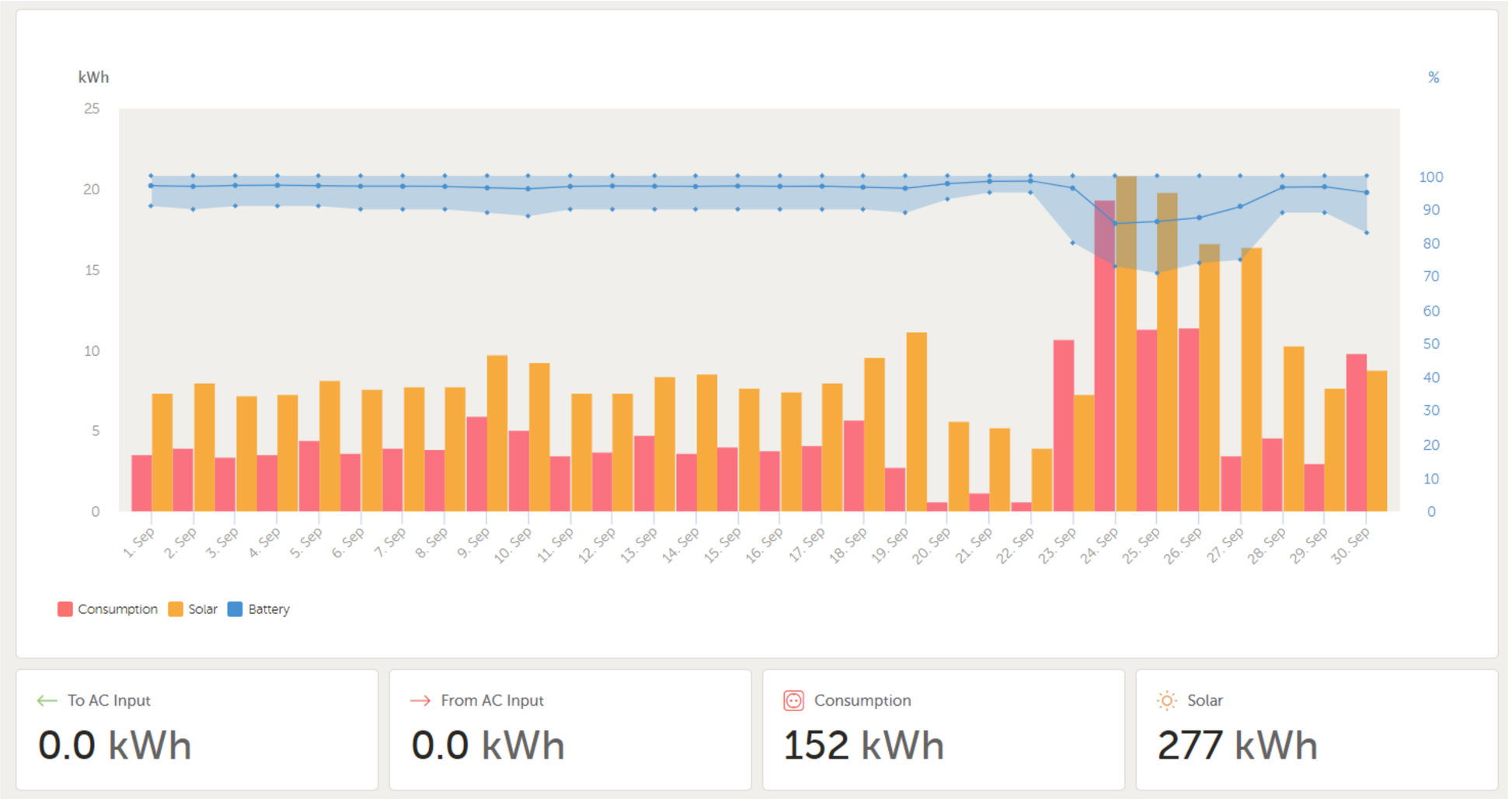
All power was produced by the solar PV systems installed.



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Milk Cooling Centres

Purpose:

- Preserving the quality and freshness of milk before it is transported to the processor or consumer.

Challenges:

- High fuel costs.
- Frequent power outages.
- Environmental pollution.

Solar energy is transforming milk cooling centers:

- Reduced operational costs.
- Reliable and stable power supply.
- Environmentally, Solar is clean and sustainable solution that lowers carbon emissions.

Design Factors

Interacting factors defining solar system design:

Parameters	Design and sizing
Technical: • Energy consumption • Peak demand • Surrounding conditions **Financial:** • Future electricity costs • System costs • Maintenance costs **Operational:** • Max autonomy • Max CO2 emissions reduction	**Iteration to optimize solution**  **Generation:** PV system size **Storage:** Battery size **Power Supply:** Battery inverter size

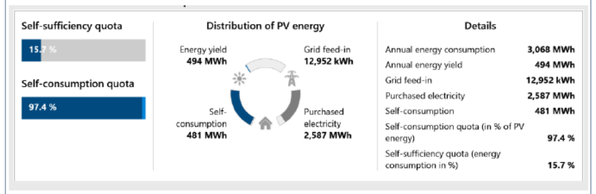
Factors for Success

Best fit of Components + Design for Maximum Performance

Design + Configuration

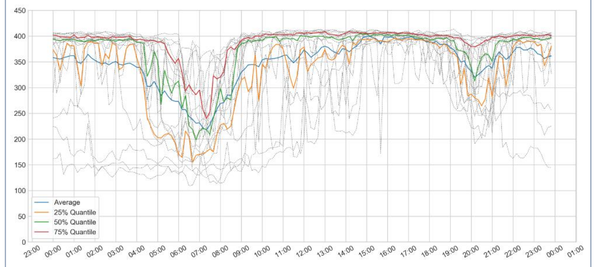
Solar System Simulation

For Optimum Design + Configuration



Electricity Consumption Analysis

Including Detailed Load Measurements



High Quality Components

Tier 1 Solar Panels:

High Efficiency +
30 Years Warranty

Aluminium Mounting:

Very Durable+
10 Years Warranty

State-of-the-Art Electronics :

Intelligent Design + High Efficiency + 5-20 Years Warranty

Leading Inverter Technologies

Intelligent Control
for Advanced Design
and Online Monitoring

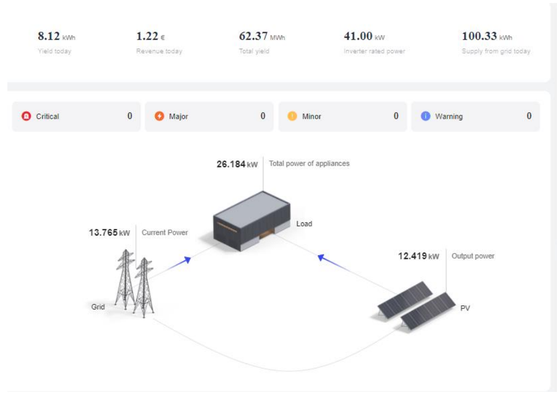
Service

Basic + Advanced Service Plans

for Panel Cleaning, Maintenance, Repair

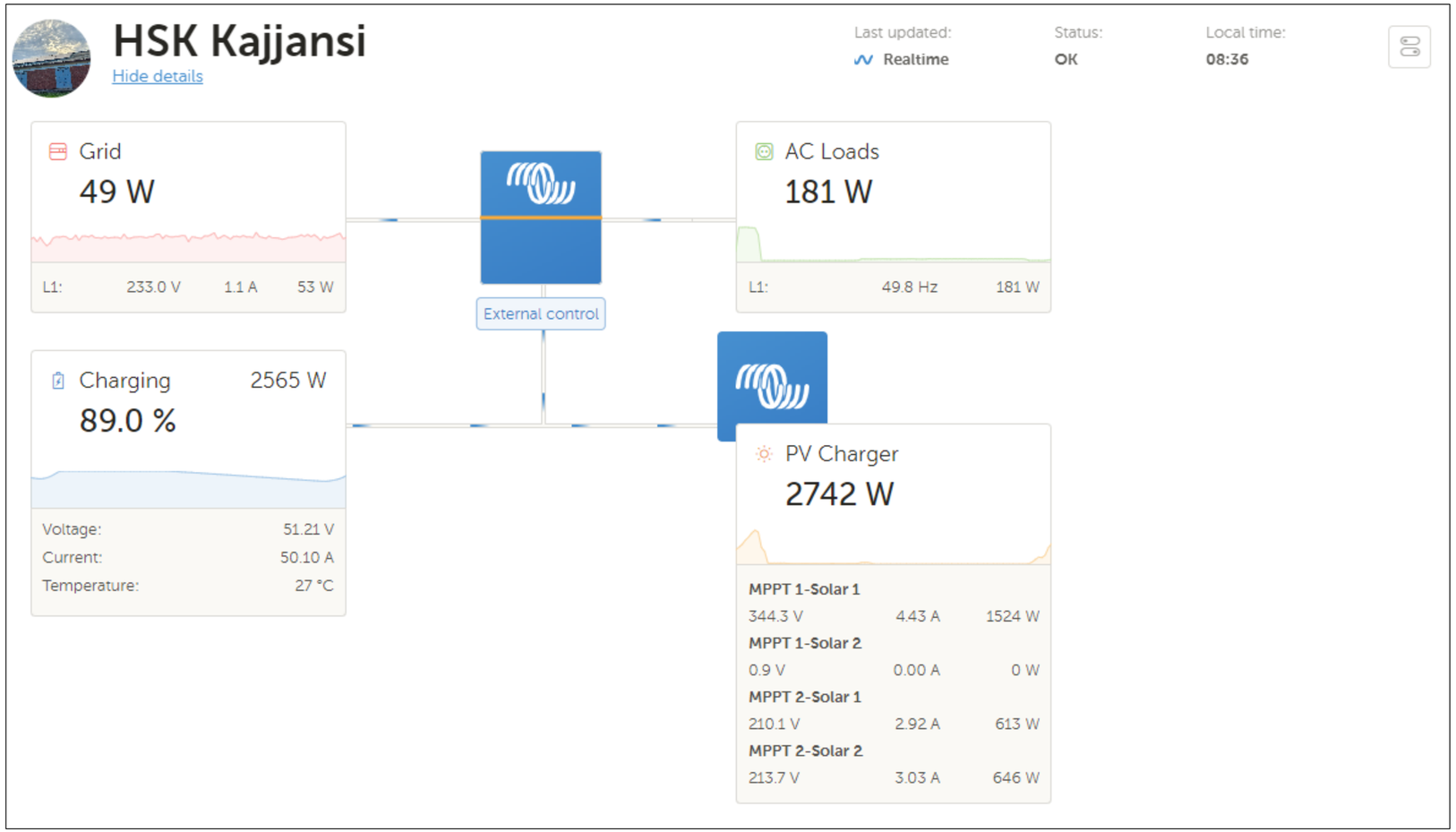
Online Monitoring

for Performance Monitoring and Remote Support



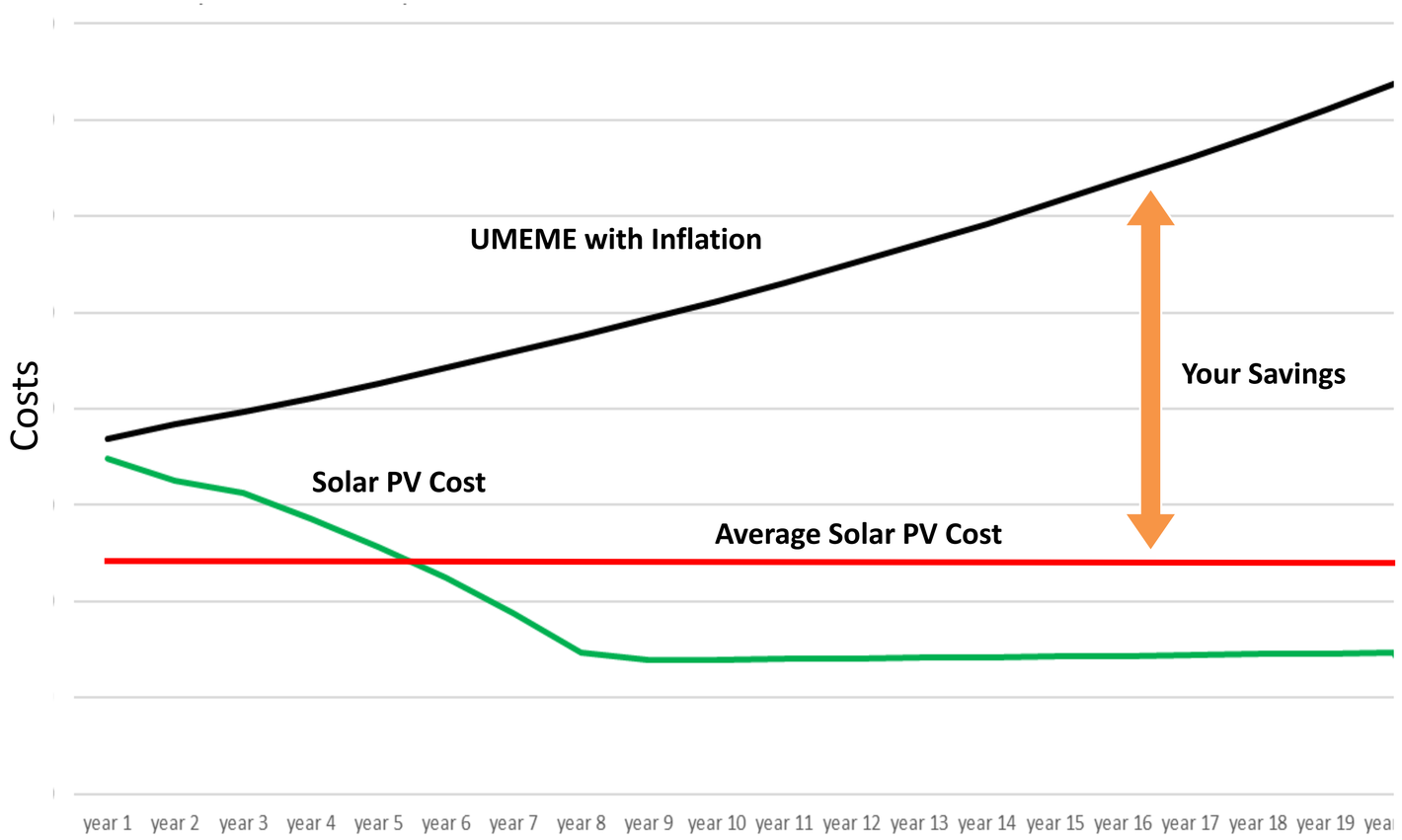
System Monitoring

Online monitoring for early fault detection and performance monitoring.



COST BENEFIT SOLAR

Solar PV is cheaper than UMEME + Diesel from the first day of operation



Financing Options

Lease Model / IPP	**Benefits without Investment** Third party finances and operates system
Classical Corporate Equity + Debt Financing	**Self-Sustaining** Dept repayment through savings
Own Financing	**Direct Investment** Flexible and fast project implementation

Combinations Possible

WE STAND FOR HIGH QUALITY

01

HIGH QUALITY EQUIPMENT

25 years lifetime + German technology

02

OPERATIONS + MAINTENANCE

On-site services + online monitoring

03

EXPERIENCED TEAM

Years of expertise in renewable energies

04

SOLID PARTNERS

Reliable and experienced with proven track record

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