



DIRECTORATE MANDATE

- Review and implementation of County specific renewable Energy Policies, Strategies, Standards, Guidelines and Regulations.
- Establish and maintain data on County Renewable Energy Information.
- Promote and utilize renewable Energy Technologies and Energy Efficiency and Conservation in the County.
- Undertake Research and Provide Technical Advice on Renewable Energy.
- Develop county Frameworks to **enable** efficient and sustainable production and distribution of Energy and Bio-Energy Technologies.
- Promote alternative sources of Energy Production in the County.
- Develop appropriate local Capacity for Manufacturing, Installation, Maintenance and operational of Renewable Energy Technologies.
- Exploit opportunities offered under Climate Change Programs and projects in relation to Energy.
- Promote Public-Private Sector Participation in Development of Renewable Energy

ACCOMPLISHMENTS

- Promotion of Energy efficiency initiatives-1 60 cooking stoves distributed to 2 informal settlements in Mvita Sub-County
- Creation of awareness on Renewable Energy options within the wards.
- Energy Audit currently on-going in 10 County key installations
- Awareness creation to transport sector on transition to e- mobility ongoing
- Trained 1 group on improved cook stoves fabrication and manufacturing in partnership with Mercy corps.
- Staff trained staff and Partners on E-cooking
- Sensitization workshop on Smart Metering and data analysis workshop

SMART METERING PROJECT DESCRIPTION

Urban Smart Energy (USE): To explore the potential of renewable energy and energy efficiency in public buildings (owned by county – for example hospitals, schools, markets, county offices, polytechnic, etc.)

County team and GIZ team screened the feasibility of such projects, and once a business case is established the GIZ team can support with crowding in private sector investment into the projects.

10 facilities were shortlisted out of 26 based on the energy consumption, power feed points, availability of roof space, Roof type and Structure.

SMART METERING OBJECTIVE

Tapping into data-driven decision making, in relation to access to digitalized data (real time access) to:

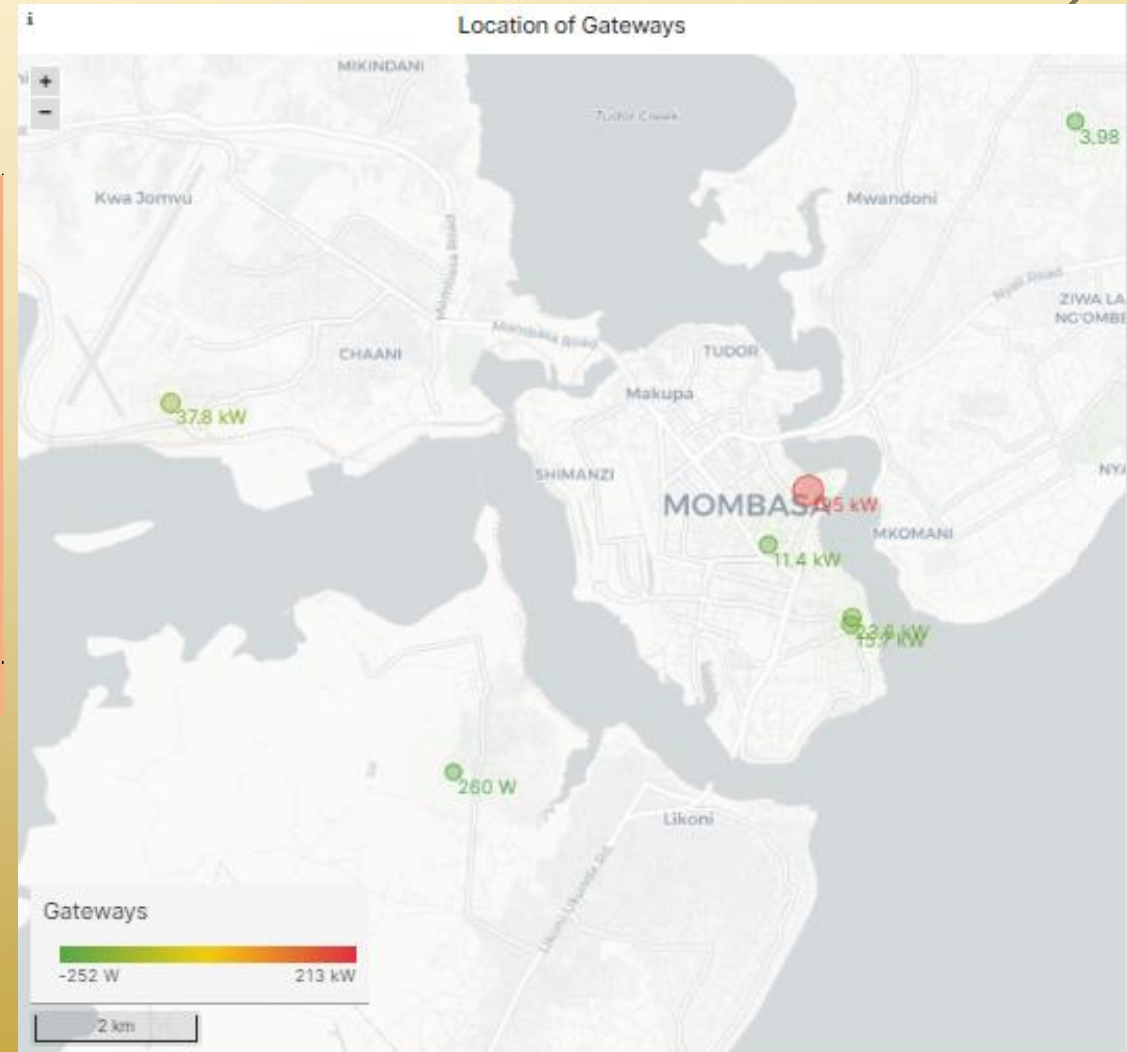
- Monitor energy in real-time, leading to greater efficiencies and cost savings.
- Evaluate cost of energy consumption according to the time of day and the seasons.
- Allow facilities to lower electricity power demand, save money on their monthly electricity bill (kVA and PF).
- Study load profiles (Dips and spikes) and use to shift loads where necessary
- Evaluate optimum efficiency and guide on O&M
- Establish baselines and compute actual energy and cost savings upon implementation of EE or RE projects
- Use Data for budgetary purposes based on projections for RE, EE and utilities
- Troubleshooting of the power systems and step 1 in energy centers establishment

SMART METERING INFRASTRUCTURE



FACILITIES UNDER SMART METERING

Sr No.	Facility	Type of facility	Av.Power Demand (kW)
1	Coast Provincial Refferal Hospital Feed 1	Health	283.70
2	Coast Provincial Refferal Hospital Feed 2	Health	36.73
3	Port Reitz Hospital	Health	25.22
4	Kongowea Market	Economic	19.86
5	County Assembly	Administration	14.48
6	Governor's office	Administration	13.77
7	Municipal Yard	Administration	10.31
8	Maunguja Polytechnic	Education	0.75
9	Kadzandani	Education	0.35
10	Longo ECD	Education	0.30
Totals (10 facilities)			405.47



SMART METER DASHBOARD AND KEY PARAMETERS

The screenshot displays a smart meter dashboard for a device named '1057 - KE - Kongowea Market'. The interface includes a top navigation bar with a menu icon, the text 'General / Detailed view of ONE individual Po...', and a search icon. Below the navigation bar, there are dropdown menus for 'Choose Power Monitor' (set to '1057 - KE - Kongowea Market') and 'Select Channel' (set to '1 - Grid'). The main title 'KE - Kongowea Market' is prominently displayed, followed by 'Type: Economic Site'. A 'Device Overview' section on the left shows a map of the location, with a red box highlighting the 'MOMASA' area. The central part of the dashboard features a large red oval highlighting the total energy consumption of '493.09 kWh'. To the right of this, there are several smaller charts and data points: 'Battery Voltage' at '3.90 V', 'GPRS' status '11 minutes ago' with '48%' signal strength and ID '89185002210108029444', and a 'Channel state' chart showing 'Channel 0 unavailable', 'Channel 1 unavailable', and 'Channel 2 unavailable'. Below these, there are five more charts: 'Max power' at '38.25 kW', 'MIN Frequency' at '49.26 Hz', 'MAX Frequency' at '50.57 Hz', 'DEVIATION Frequency' at '1.31 Hz', and 'AVERAGE power factor' at '0.89'. The bottom section, titled 'Measurements', shows a 'Phase Power - Channel 1' chart with a power range from 0 W to 40 kW over a 24-hour period.

Choose Power Monitor 1057 - KE - Kongowea Market Select Channel 1 - Grid

5m

☒ Export all log-data in selected interval to CSV ☐ Remove negative power ☐ Use comma as decimal separator 30s Interval Interval

Type: Economic Site

A map titled "Location of Gateway" showing a coastal region. A red rectangle highlights a specific area on the coast, with the label "MOMBASA" visible within it. The map includes a scale bar indicating 100 km and navigation controls (plus and minus signs) in the top left corner.

Max power Ⓢ Last 24 hours

MIN Frequency ⌚ Last 24 hours

MAX Frequency 🕒 Last 24 hoursDEVIATION Frequency [🕒 Last 24 hours](#)

AVERAGE power factor ⓘ [Lap](#)

3.90 V

11 minutes ago

48%

89185002210108029444

Messages

493.09 kWh

Channel state

15:00 19:00 23:00 03:00 07:00 11:00

■ Channel 0 unavailable ■ Channel 1 unavailable
■ Channel 2 unavailable

38.25 kW

49.26 Hz

50.57 Hz

1.31 Hz

0.89

- Measurements

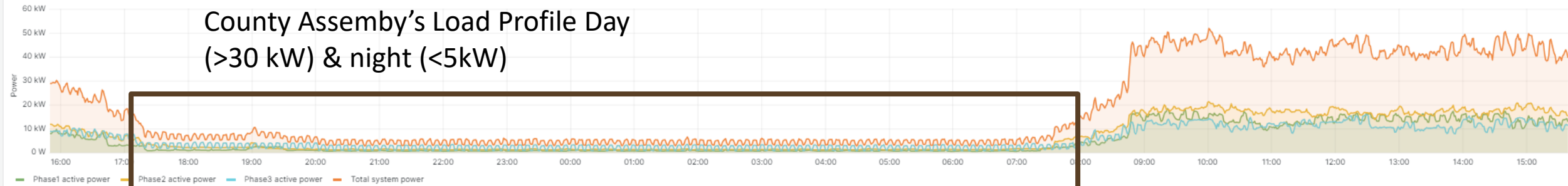
Phase Power - Channel 1

LOAD PROFILES PER DAY

Measurements

Phase Power - Channel 1

County Assembly's Load Profile Day
(>30 kW) & night (<5kW)



452.98 kW

49.24 Hz

50.57 Hz

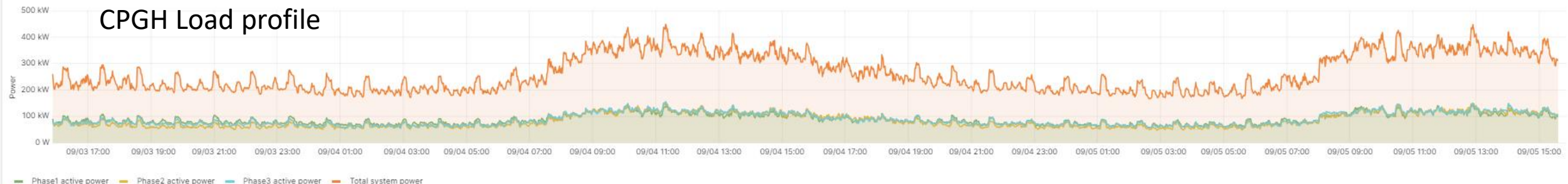
1.33 Hz

0.95

Measurements

Phase Power - Channel 2

CPGH Load profile

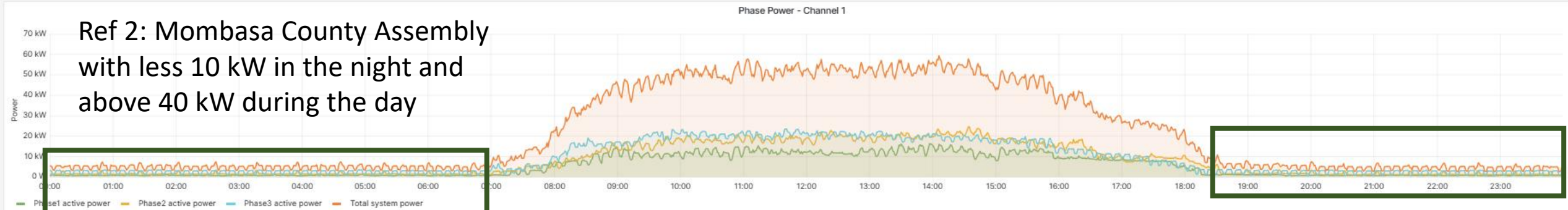


MOMBASA ASSEMBLY LOW POWER DEMAND AT NIGHT

Ref 1: County Assembly
facility with , Avg demand
of 24.47 kW



Ref 2: Mombasa County Assembly
with less 10 kW in the night and
above 40 kW during the day



FACILITIES AVERAGE POWER, ENERGY AND COST

Type of facility	Av.Power	Cost Per Hr. (	Energy Consumption		Energy Consumption	
	Demand (kW)	KES)	(24 Hrs)	Cost per Day	(month)	Cost per Month
Health	283.70	6,525.10	6,808.80	156,602.40	211,072.80	4,854,674.40
Health	36.73	844.79	881.52	20,274.96	27,327.12	628,523.76
Health	25.22	580.06	605.28	13,921.44	18,763.68	431,564.64
Economic	19.86	456.78	476.64	10,962.72	14,775.84	339,844.32
Administration	14.48	333.04	347.52	7,992.96	10,773.12	247,781.76
Administration	13.77	316.71	330.48	7,601.04	10,244.88	235,632.24
Administration	10.31	237.13	247.44	5,691.12	7,670.64	176,424.72
Education	0.75	17.25	18.00	414.00	558.00	12,834.00
Education	0.35	8.05	8.40	193.20	260.40	5,989.20
Education	0.30	6.90	7.20	165.60	223.20	5,133.60
	405.47	9,325.81	9,731.28	223,819.44	301,669.68	6,938,402.64

Assumption: 23 KES/kWh
Hourly (1Hr), Day (24 Hr) & monthly (30 days)

The background is a solid yellow-to-gold gradient. In the corners, there are decorative line art elements resembling electronic circuit boards. These include thin black lines in the top-left and top-right corners, and thin gold lines in the bottom-left and bottom-right corners. Some of these lines terminate in small circles, mimicking solder points or vias.

THANK you