SMART-NODE TECHNICAL OVERVEIW

PREPARED BY: NERGI

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ABOUT US

Nergi is a leading solar services company dedicated to powering African communities through advanced solar mini and microgrid technology. We offer an end-to-end utility service that encompasses everything from project evaluation and feasibility studies to implementation and service delivery. By building and operating distributed nano, micro, and minigrids, Nergi provides clean, reliable electricity to communities on a consumption basis, striving to make sustainable power accessible and affordable for all.

OUR MISSION

To transform the energy landscape in Africa by delivering innovative solar solutions that empower communities, promote sustainability, and drive economic growth.

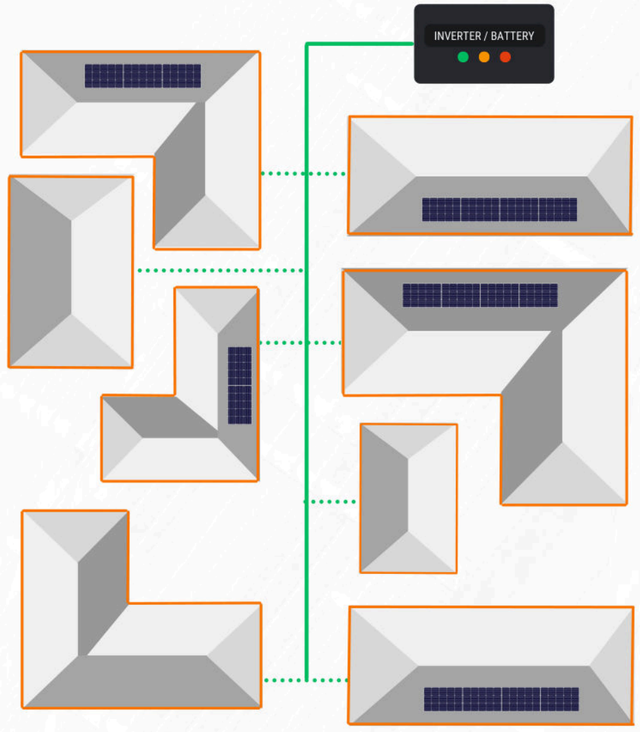
OUR VISION

A future where every African community has access to clean, affordable, and reliable energy, fostering development and improving quality of life.

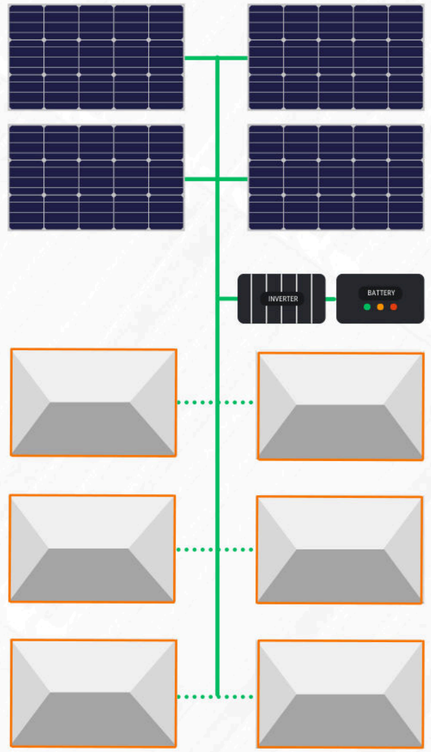
NERGI’S SMART-NODE MODEL

- Panels distributed across homes and/or businesses in a community to form a nano, micro, or mini-grid.
- Quick deployment - avoid lengthy land approval processes
- Lower environmental footprint and less time on terra forming
- Power sold to residents and businesses through prepaid smart-meter
- Nergi Smart Grid (VPP) allows for smart power distribution, load balancing, and energy trading.
- 24/7 electricity for underelctrified urban communities

SMART-NODE MODEL



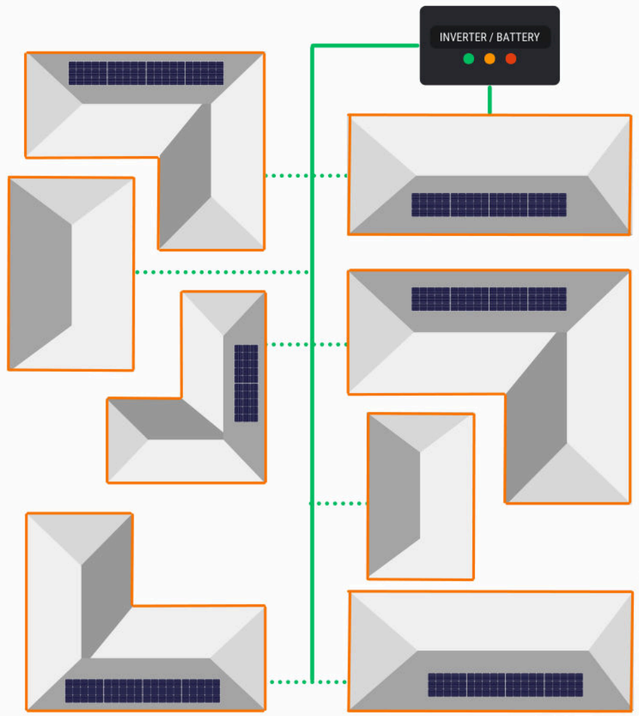
TRADITIONAL MODEL



SMART-NODE OVERVIEW

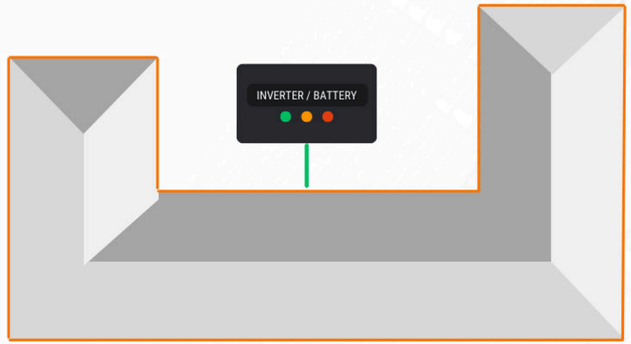
NODES

A collection of homes connected to a single ESS (inverter/battery)



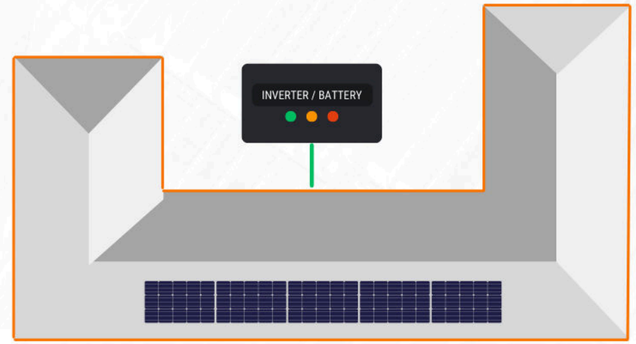
HUBS

Properties that have inverter/battery (AC)



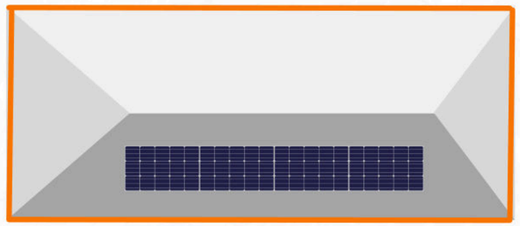
HOST-HUBS

Properties that have solar + inverter/battery (AC+DC)



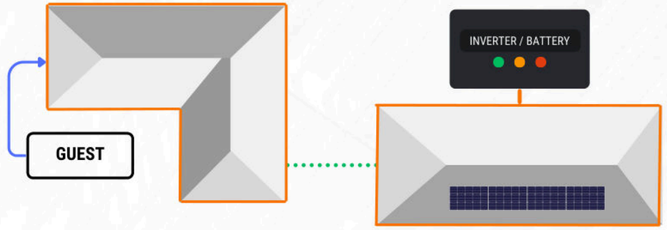
HOSTS

Properties that have solar panels (DC)



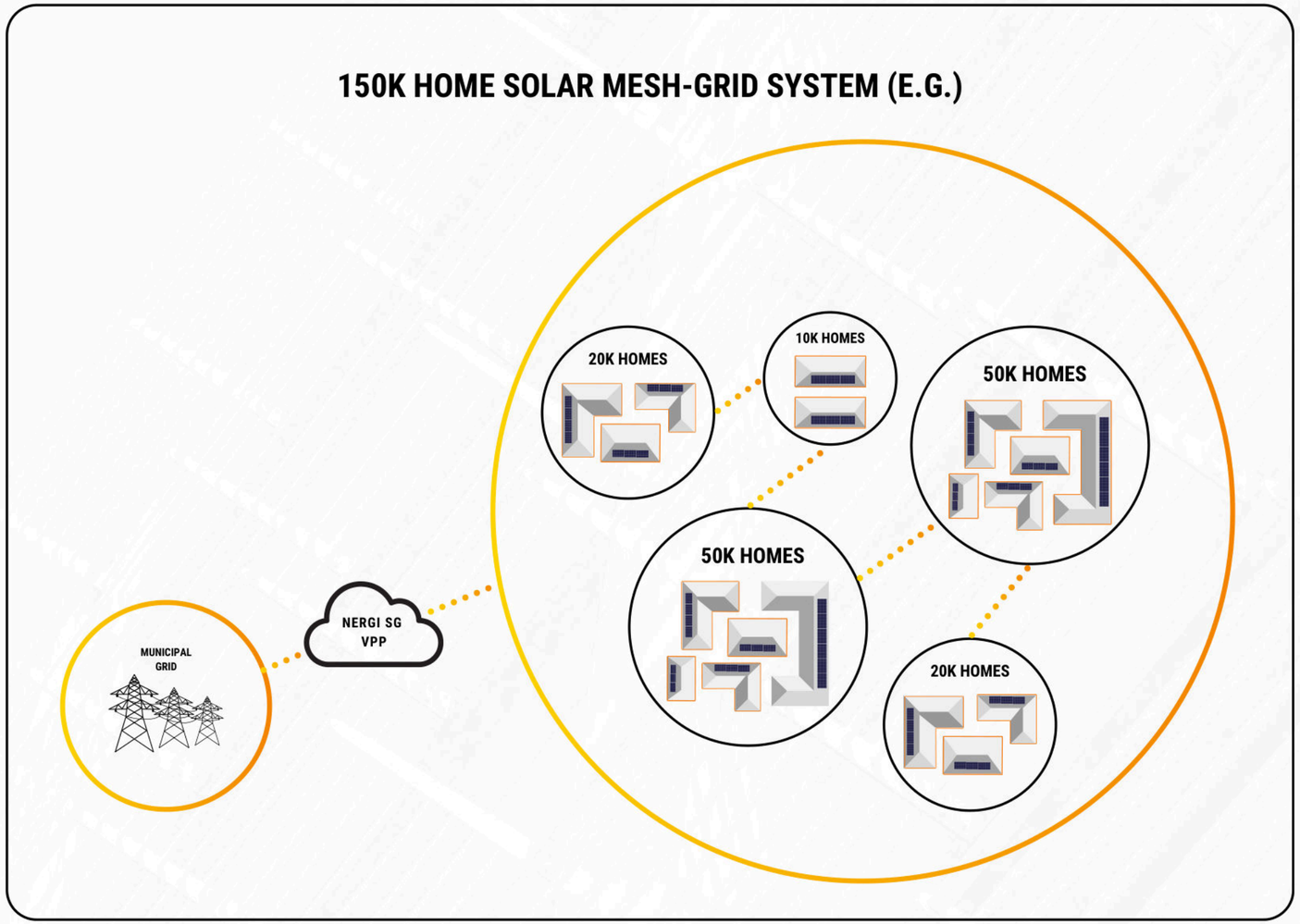
GUESTS

Guests are homes connected to the grid that have neither solar, nor inverter + battery



MESH-GRID MODEL

- Mesh-grids combine multiple nodes to create one collective energy pool.
- Start small and add additional nodes to form an even larger collective energy pool.
- When one node goes down, or has insufficient power, the other node can share electricity to compensate.
- Node and Mesh-grid power can be supplemented with Municipal grid power.
- Maintenance can be conducted on each node without needing to power down the entire meshgrid.



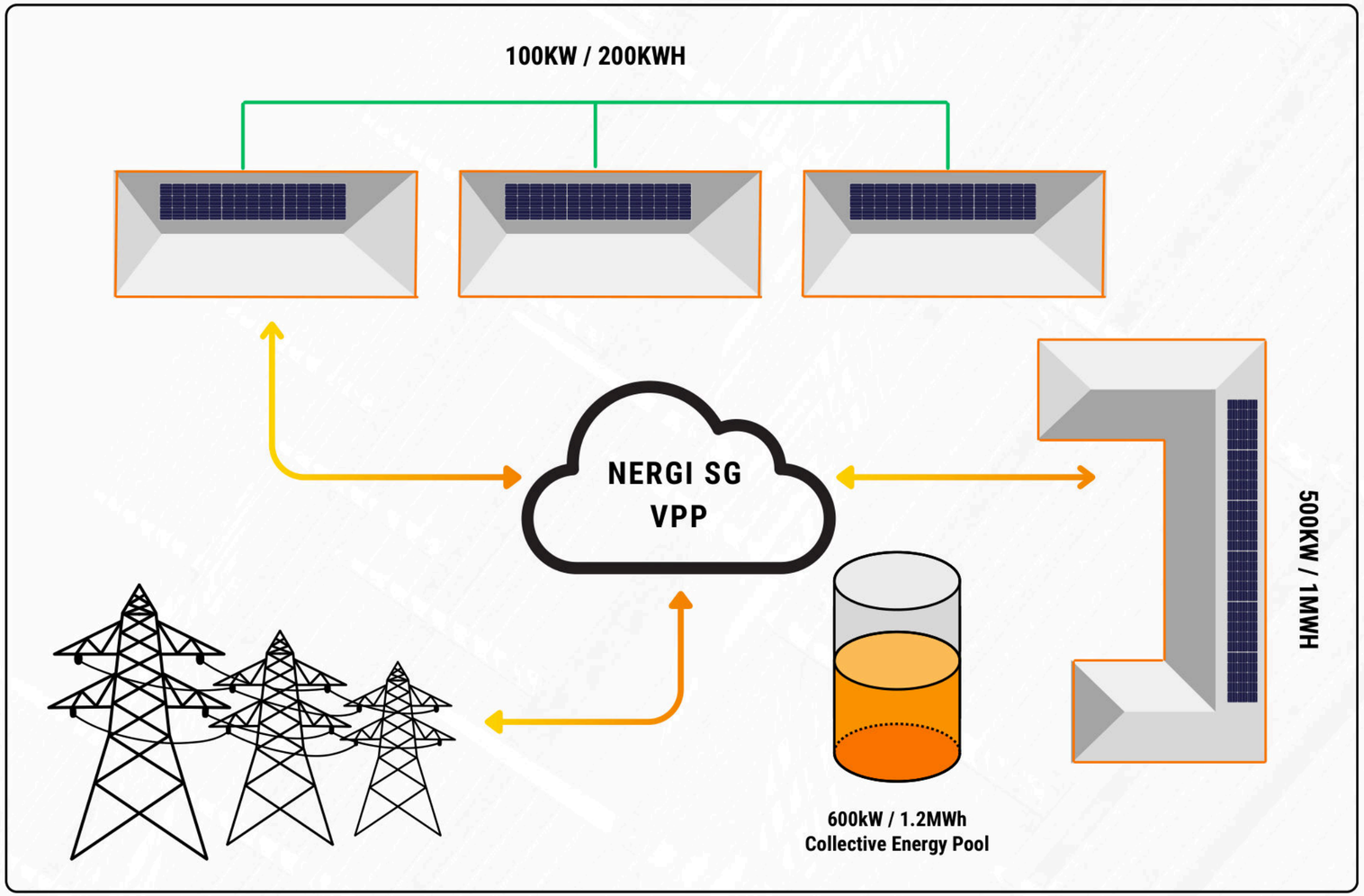
NERGI SMART GRID (VPP)

OPTIMIZED ENERGY MANAGEMENT & LOAD BALANCING

VPP technology enables Nergi to link multiple nodes into a single, intelligently managed energy pool (mesh-grid). By aggregating the generation and storage capacity of separate systems, the VPP allows us to balance supply and demand across all sites in real time. This creates a more stable and efficient energy network, allowing power to be redirected where it's needed most, reducing system strain, and improving overall reliability for all connected communities.

ADDITIONAL REVENUE THROUGH GRID PARTICIPATION

Instead of operating in isolation, each node contributes to a collective energy reserve that can respond to grid signals or participate in energy markets. This opens up new revenue streams by selling aggregated excess power to the grid or supporting ancillary services, while also positioning our infrastructure as a valuable partner in national energy resilience and decarbonization efforts.



TECHNOLOGY

NANOGRID SYSTEM

Small All-In-One System

MICROGRID SYSTEM

Medium All-In-One System

MINIGRID SYSTEM

Large All-In-One System

SOLAR PANELS

High-efficiency modules

FLEXIBLE PANELS

Lightweight flexible modules

TOKENLESS SMART METERS

Used for bill and data collection

6MM 3CORE BLACK SURFIX CABLE

Used for connecting each house to central unit

UNIVERSAL ANCHOR HOOKS

Used to route the cables on existing infrastructure

CONNECTION POSTS

Used to chain cables from property to property

STANDARD SMART-NODE PACKAGES

PACKAGE 1

56kWp PV Size	**50kW** Inverter Size	**100kWh** Battery Size

PACKAGE 2

112kWp PV Size	**100kW** Inverter Size	**200kWh** Battery Size

PACKAGE 3

168kWp PV Size	**150kW** Inverter Size	**300kWh** Battery Size

PACKAGE 4

224kWp PV Size	**200kW** Inverter Size	**400kWh** Battery Size

PACKAGE 5

280kWp PV Size	**250kW+** Inverter Size	**500kWh+** Battery Size

NERGI’S FULL TURNKEY SOLUTION

01

SITE INSPECTION

We conduct comprehensive assessments of potential locations to determine solar feasibility, energy demands, and infrastructure requirements.

02

ENGINEERING DESIGN

Our experts develop tailored system designs, optimizing solar panel layouts, battery capacity, and grid integration to meet each project’s unique needs.

03

EQUIPMENT PROCUREMENT

We handle sourcing of high-quality solar panels, inverters, batteries, and other critical components at competitive prices.

04

COMMISSIONING

Nergi oversees the entire setup process, ensuring all equipment is installed safely and efficiently, and thoroughly tested before going live.

05

IMPLEMENTATION

Our team manages the end-to-end execution of solar microgrid projects, from planning through integration with existing energy structures.

06

SMART BILLING PLATFORM SETUP

We provide and configure a user-friendly prepaid model, complete with advanced metering and billing software for transparent, affordable energy usage.

07

ONBOARDING & TRAINING

We offer comprehensive training sessions, equipping community members and local operators with the knowledge and skills to manage and maintain the system.

08

O&M SERVICES

Our ongoing maintenance, support, and monitoring programs help ensure peak system performance, long-term reliability, and continuous cost savings.

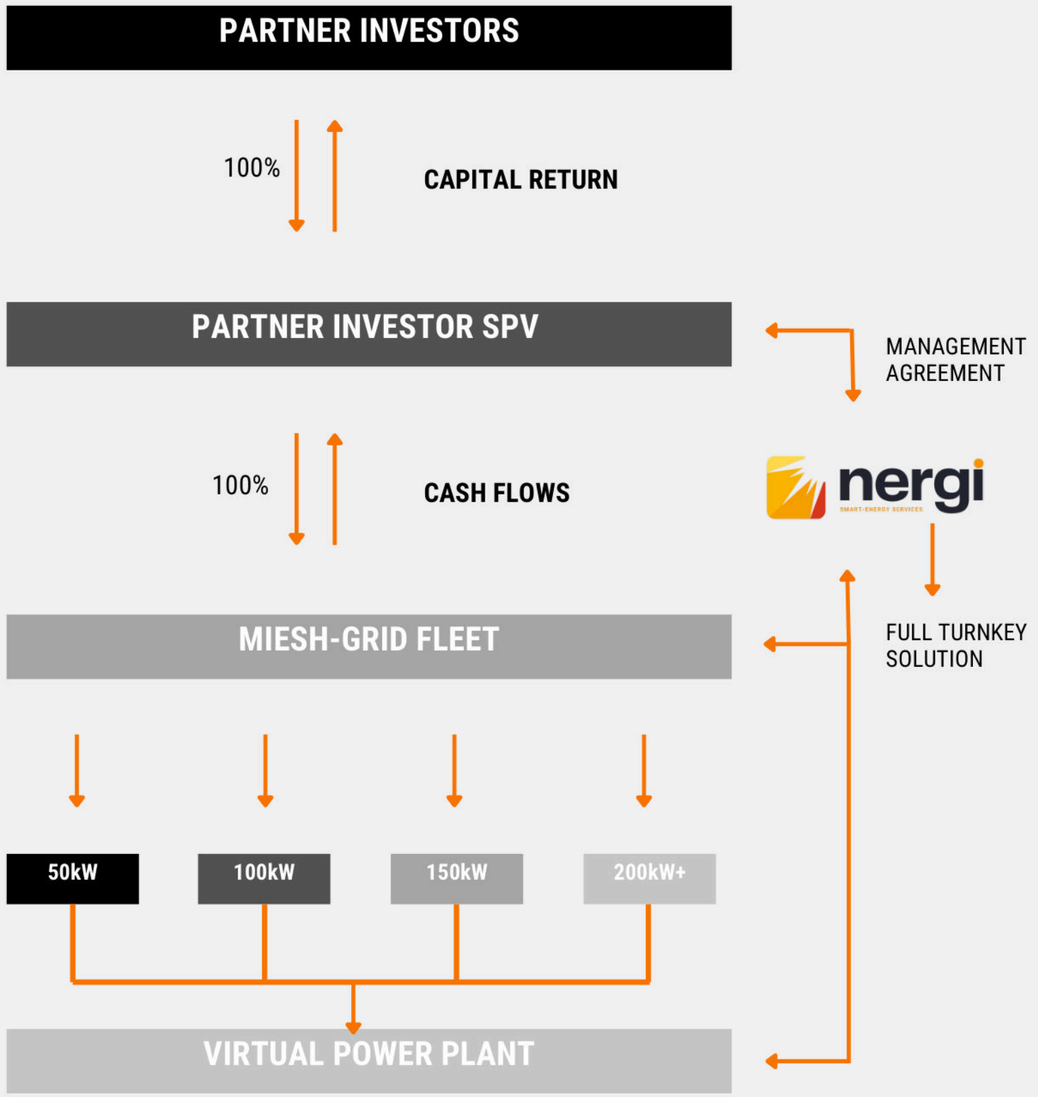
NERGI INVESTOR PARTNER MODEL

- Under Nergi's Partner Investor model, Partner Investors are given the opportunity to invest in a fleet of full-scale Nergi mesh-grids in specially demarcated locations which will fall under an SPV.

- The SPV is wholly owned by the Investor Partner, who retains 100% of the profits generated by the mesh-grid(s). Nergi provides its full turnkey solution and brand onboarding ensuring that each project adheres to our proven standards and operational excellence.

- Through the SPV, multiple Nergi mesh-grids — ranging in size from 50kW/100kWh to 1MW/2MWh — can be deployed as part of a scalable energy portfolio. This fleet approach maximizes impact and return on investment, allowing Investor Partners to expand their clean energy footprint in step with local demand.

- Trade excess power through the Nergi Virtual Power Plant platform (VPP). Consolidate your fleet of mesh-grids under one intelligent control system, allowing real-time coordination of power generation, storage, and demand.



OUR MICROGRIDS

EXTENSION 3, ORANGE FARM

6.6kWp
PV Size

10kW
Inverter Size

10kWh
Battery Size

THABA LEGAE LODGE, RUSTENBURG

22kWp
PV Size

50kW
Inverter Size

60kWh
Battery Size

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