

We provide custom Electrical Infrastructure solutions

focused on our clients' needs and
requirements for sustainable and
efficient energy footprint.



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Our Experienced Team

Mr Lourentius van der Westhuizen & Mr David Wilson, Owners of SIIM stands as a premier professional audit facilitators, distinguishing itself by harnessing the collective expertise of best-in-class strategic partners across the nation. This collaborative approach enables SIIM to offer specialized audit services tailored specifically to the unique needs of both current and prospective solar energy projects.

Mr Willem Beukes, Head of engineering with a bachelor's degree in Engineering (B.Eng) in Civil Engineering from the University of Pretoria. He specializes in structures and fire protection. He has extensive experience in multi-discipline engineering project management. He is also a Founding member of the Association of Renewable Energy Practitioners (AREP).

Mr. Arend van der Walt received his bachelor's degree in Engineering (B.Eng) in Electrical Engineering from the University of Pretoria and MBL from the University of South Africa (UNISA). He specializes in Electrical Engineering as well as Facilities Management and has extensive experience in both fields. He has experience with compiling alternative energy strategies for building environment and worked in joint ventures on various specialize alternative energy projects. He has experience in large scale renewable energy plants >1MW.

Mr Trevor Tappan as a Master Electrician has been involved in the electrical industry for close to 30 years. His experience includes acting as electrical inspector with Krugersdorp Town Council and almost 20 years in the telecoms sector as a contractor building base stations. He is the Vice-Chair of the Association of Renewable Energy Practitioners (AREP). He is also the Chair of the ECA (SA) on the west rand branch.



Directors



Pr Eng, MSAICE



Pr Eng, SAIEE



MIE, ECASA



Our Culture and Core Values



Professionalism

All our engineers and technicians are professional registered with ECSA (The Engineering Council of South Africa), SAICE (The South African Institution of Civil Engineering), SAIEE (South African Institute of Electrical Engineers) and ECA(SA) (Electrical Contractors Association South Africa)



Customer Comes First

Our customer requirements and needs comes first within the minimum design requirements of SANS10400.



Privacy And Safety

Your intellectual property remains private and safe with us. We take all the necessary precautions to guard your business.



Teamwork

Our strength originate from the collaboration between our team professionals and project colleagues. Project success requires exceptional teamwork with over 66 years experience collectively.



Quality Services

Our professionals adhere to the latest SANS, IEC, EIR, OHS ACTs and ISO 9001 quality systems.



Innovation Solutions

Through unique solutions to complex business requirements, business sustainability is ensured.



Our Professional bodies

We believe that a sustainable and reliable company is one that boasts of an experienced management team, is financially sound, has strong engineering support with a detailed understanding of the codes of practice, which is why we are proud to be associated with the following professional bodies.





Our Clients

Client satisfaction plays an important role in our professional services. Long term client satisfaction are our building blocks in service delivery. Here are some of our satisfied clients.



Hollard.



vodacom



SIEMENS
Ingenuity for life



OK
Foods



Sun City

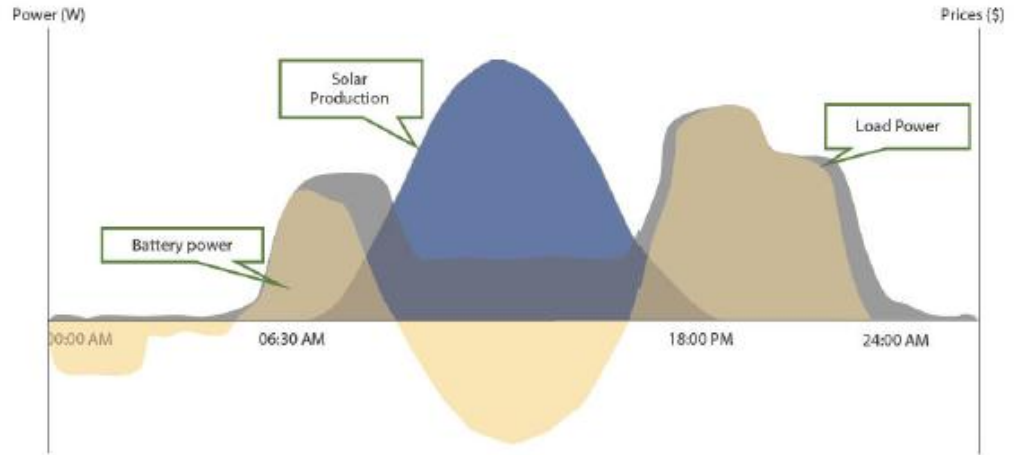
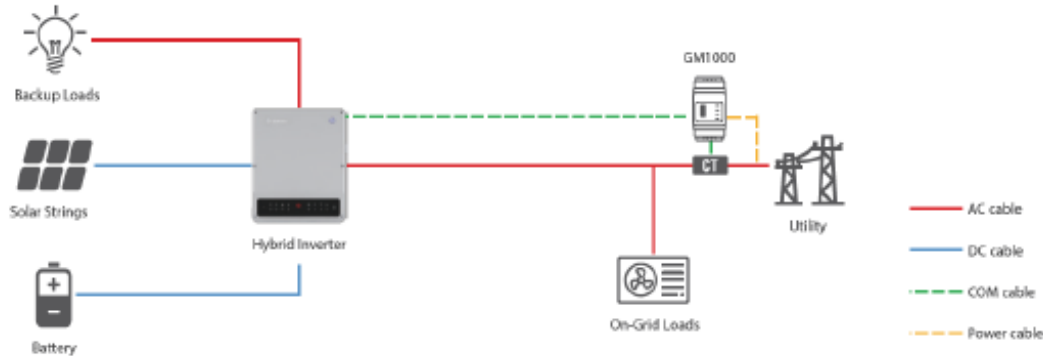


SAOU
DIE VERANDERING IN ONDERWYS
THE CHANGE IN EDUCATION



Hybrid PV Design Methodology

Hybrid inverters are the core of energy storage systems and they integrate the following elements into one unit: MPP trackers, power inverter, battery charging & discharging function, BMS communication, and bypass & backup function as illustrated in the system wiring diagram below.



Main Application Scenarios

Self-consumption: The battery system stores excess power generated from the solar array to avoid restricting solar production, when solar production is weak, the battery will discharge to support the load.

Back-up for critical loads: The battery stores solar power or takes energy from the grid for energy requirements during a grid outage. Loads such as refrigerators, routers, lamps, computers, and other critical appliances can be powered when the grid fails. The system can automatically switch to backup mode within milliseconds.

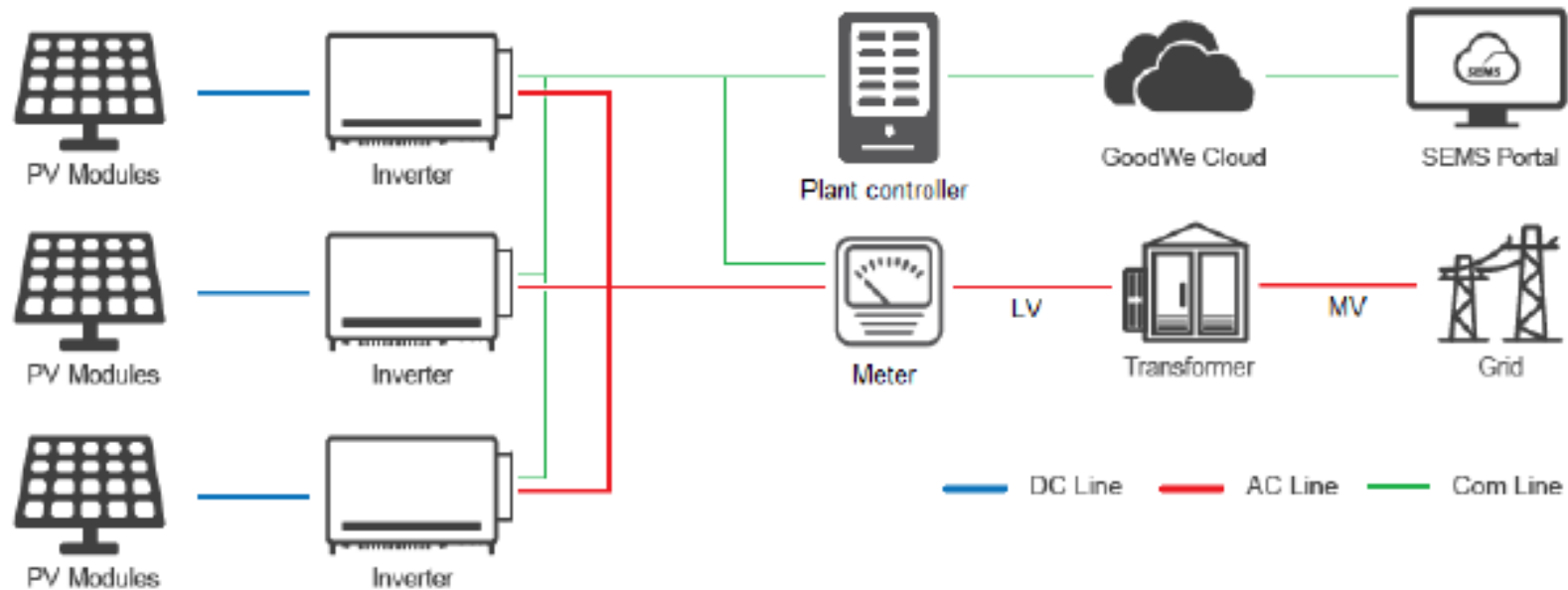
Simulation of daily operation: The battery will discharge to power the loads during the peak morning hours before the solar system takes over early in the morning. During the day, the electricity from the solar array is used to optimize self-consumption. Any excess power charges the battery in order to discharge during the peak evening hours and power the load when the solar system is no longer sufficient.

Grid-tied PV Design Methodology

When the utility is present

A grid-tied solar PV system will generate electricity if a grid voltage is present, for safety reasons these systems are forced to discontinue generation should the grid voltage no longer be present. These systems, by default, are set to reverse power flow blocking meaning any excess electricity generated by the solar PV system will be blocked from feeding back into the grid until the relevant permissions have been obtained.

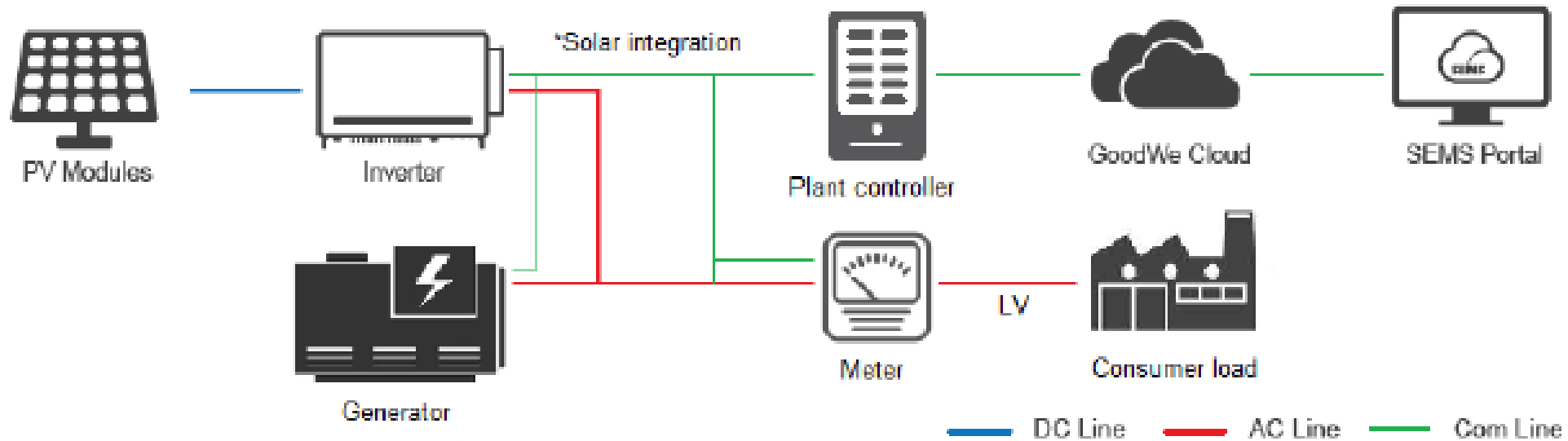
In order to comply with local regulations a separate plant controller is used, not only does it ensure the safety of the system, but also monitors the power flow at the point of connection, enhancing and optimizing selfconsumption/ export. The figure below illustrates the schematic for the intended grid-tied solar PV system. Hybrid inverters are the core of energy storage systems and they integrate the following elements into one unit: MPP trackers, power inverter, battery charging & discharging function, BMS communication, and bypass & backup function as illustrated in the system wiring diagram below.



Grid-tied PV Design Methodology

When utility is no longer present

In the event of grid failure (i.e. load shedding), a backup Generator can be utilized as an alternative source of energy, supplying the power missing from the public grid and allowing the grid-tied PV systems to come online. This is an optimal solution for environments characterized by an unreliable grid operation for not only does it reduce the fuel consumption (+/-40%) of the backup Generator, but it also enables the consumer to safely and cost-effectively generate electricity.





Recent Projects

Client Sun International
Sector Commerical
Size 1.4MW



Description

Roof top solar PV system were installed and intergrated onto their respective low-voltage substations and the onsite diesel generators in order to handle full electrical load during the day time for Valley of Waves. Also work on master plan to reduce diesel cost for resorst in South Africa.

Client Tsebo Facilities Solutions
Sector Commerical
Size 50kW



Description

Roof top solar PV system were installed and intergrated onto their onsite diesel generators in order to reduce their fuel consumption during load shedding.

Client Telesure Strategy
Sector Commerical
Size 1.6MW



Description

Ground mounted solar PV system were installed and grid intergrated to reduce operational and electricity cost.



Recent Projects

Client SAOU
Sector Commerical
Size 100kW



Description

Roof top solar PV system were installed and intergrated onto their onsite diesel generators in order to reduce their fuel consumption during load shedding.

Client OK (Groblersdal)
Sector Commerical
Size 300KW



Description

Roof top solar PV system were installed and intergrated onto their onsite diesel generators in order to reduce their fuel consumption during load shedding.



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