Solario

Renewable Energy

About Us

We are a Professional, Certified and Qualified EPC Turnkey Company

The Consortium

The Sizwe Sechaba/Lead EPC consortium is a fast growing EPC turnkey multi-disciplined company active in Structural, Mechanical, Electrical, Instrumentation & Control as well as renewable projects.

Over 20 Years

Years of Experience

19 years actively doing EPC turnkey projects within Sub Sahara Africa.

Projects

Capability

From conceptual design up to project development, detailed engineering, procurement, construction and commission.

Completed

Projects

Successfully completed numerous rooftop projects as well as large ground-mounted systems

Renewable Energy

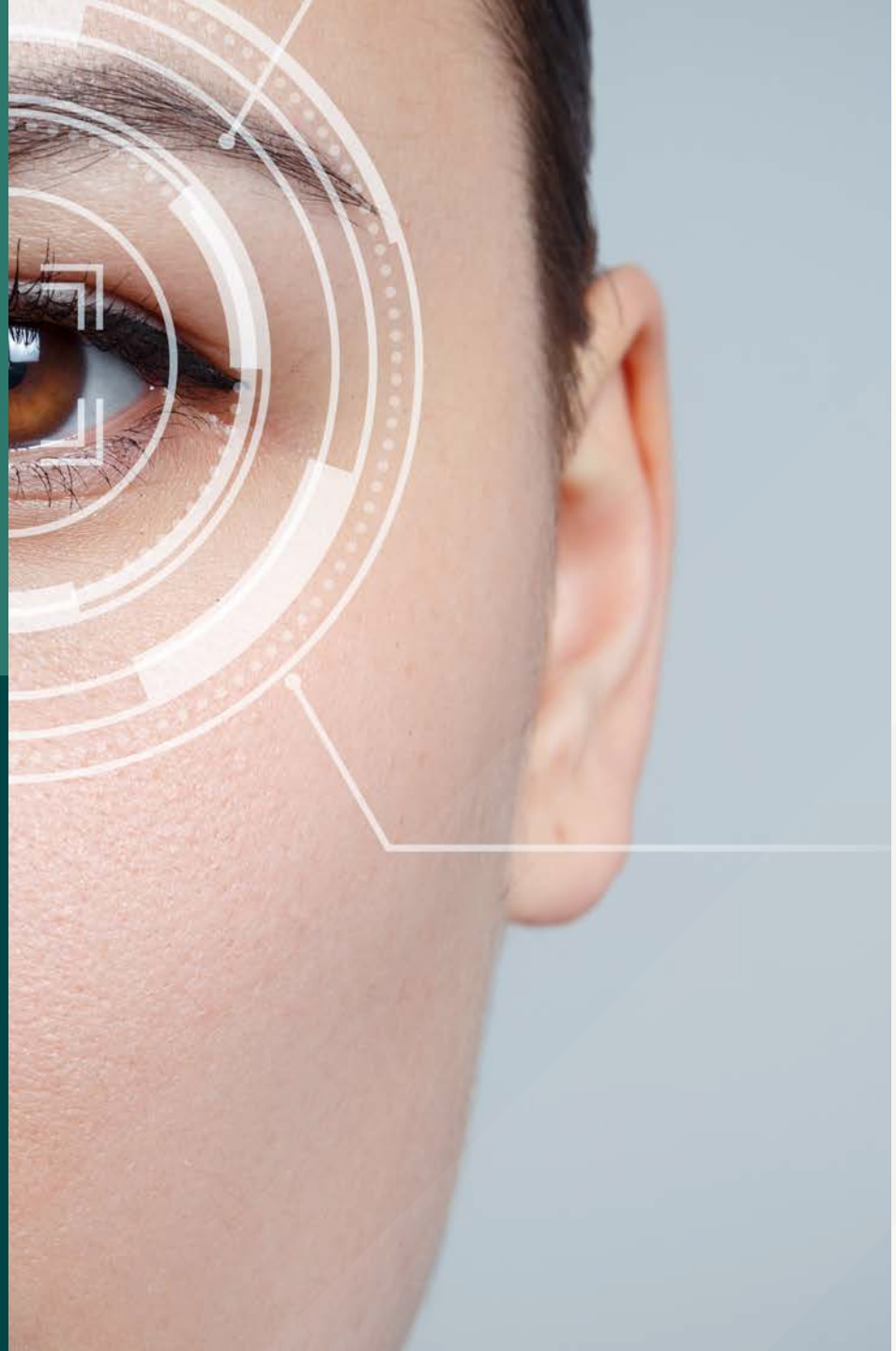
Our capabilities include:

- ❑ Complete engineering development team in-house
- ❑ Civil works
- ❑ Sub-structure installations
- ❑ PV Module installations
- ❑ Inverter, Transformer, Switchgear and Cabling installations
- ❑ Grid Connection (including substation design and installations)
- ❑ Security Fences
- ❑ Fibre Networks
- ❑ Monitoring of Systems (SCADA)

We are a locally owned South African Level 1 BBBEE company with CIDB Status, 9 GB, 9CE, 9EP and 8ME

Our Mission

Lead from the front, in service, excellence and commitment.



Our Vision

To be the leading service provider, in managing projects on time, cost effectively projecting an honest and reliable focus while sustaining a challenging and rewarding work environment for our greatest asset, our employees.

To keep our customers involved in the project from concept to completion to ensure that together we will achieve above average results.

To provide our customers with the highest quality products and world-class services of our expert and well-trained professionals.

To repetitively manage our quality, occupational health, safety and conservation of the environment through continually monitoring our impact as a company and by acting proactively.

Our Value Add

- Assisting in all phases of the project life cycle
- Managing the cost of Solar projects
- Technical expertise and lessons learned
- Aligning business goals with QHSE/CRSS objectives

Shareholding

Partners

Sizwe Sechaba/Lead EPC Consortium

Procurement

Civil

Electrical

B-BBEE

International

Management Systems

ISO Certifications


at
CNR HERTZ AND MAcCOLM BOULEVARD VANDERBIJLPARK, SOUTH AFRICA
1911

Quality Registrar Systems certify that the management system of the above organization has been audited and found to be in compliance with the QRS requirements for registration of the management system standard detailed below:

ISO 45001:2018

Occupational Health and Safety Management Systems

Scope of work

PROJECT MANAGEMENT, DESIGN ENGINEERING, PROCUREMENT AND CONSTRUCTION OF ELECTRICAL, INSTRUMENTATION, MECHANICAL AND PIPING INCLUDING INSTALLATION, TESTING AND COMMISSIONING

EA 28, 34
Certificate No: AQS-30004
Originally Registered: 05 AUG 2017
Latest Issue: 15 SEP 2020
Valid up to: 04 AUG 2021

ISO

45001-2018


at
CNR HERTZ AND BEQUEREL STREET, VANDERBIJLPARK, SOUTH AFRICA

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OHSAS 18001:2007

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OHSAS

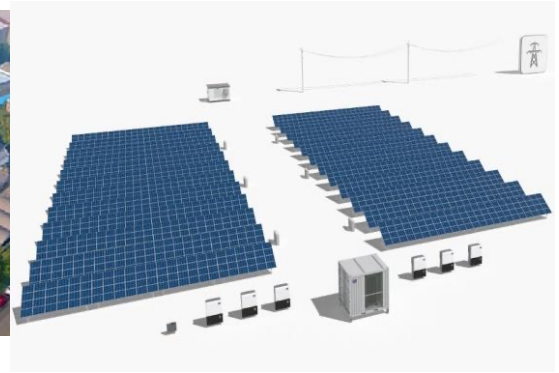
18001-2017

More about our Capabilities and Project Portfolio

Solar

Plant Types

- PV Parks –Utility Scale
- CSP Solar Plants –Utility Scale
- Embedded Generation
- Hybrid Solutions & PV Applications



Project

Portfolio

2021: 5MWp PV: ACWA, Bokpoort, South Africa
Scope: Design, installation and commission of a new 5MW PV plant.
Technology: Jinko 450Wp bifacial modules,, Huawei 100kWac string inverters, Lumz single axis tracker, Secondary switchgear, 11kV ABB switchboard
Value: ZAR 70m

2018/19: 40MWp PV SCATEC, Mocuba Solar Park, Mozambique
Scope: Installation and commissioning of a greenfield 40.6MWp SAT. 330MWp 72 cell poly-crystalline, R/Sen/RSM PV modules; PVH Single Axis Tracker; GPTech Central Inverters 33kV and 2x33kV Actom Grid Connection Switchgear module
Value: US$8m

Project

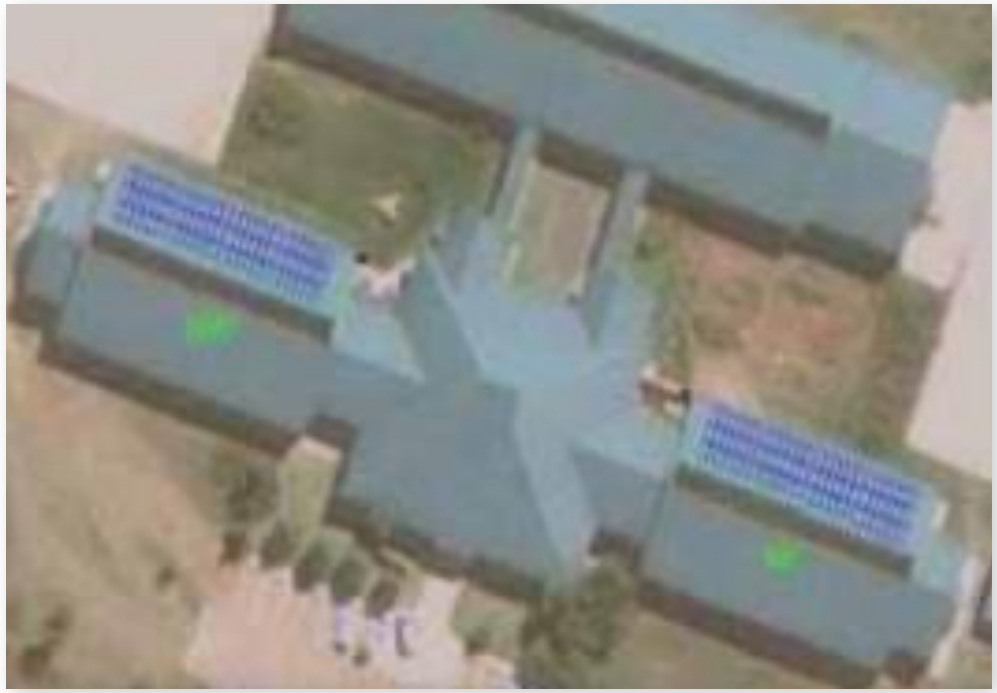
Portfolio

2018/19: 10MWp PV METKA, Bufulubi, Jenja, Uganda
Scope of Work: Civil Works, Mechanical Installation, Electrical Installation, Fibre Installation, Splicing and commissioning, Installation Quality control for entire project and manage all site health, safety and environmental compliance.

Equipment: PV Modules –13,000x 450Wp Jinko Bi-Facial, Inverters –50 x 100kWac (Huawei), Substructure –Lumax Single Axis Tracker, Secondary Switchgear –5 x 1.25MVA Mini-Subs, and Grid Connection –11kV ABB switchboard

Project

Portfolio



2019: 41KWp PV Roof Top, Danielskuil, Northern Cape, South Africa

Scope:

- PV roof top system –41.6kWp
- Construction/Installation of Electrical Equipment
- Complete with weather station
- Installation Quality control and Site health, safety and environmental compliance

2019: PV Rooftop Irrigation System, Groenwater-Danielskuil, Northern Cape, South Africa

Scope:

- Irrigation system energized by PV rooftop system
- Installation Quality control
- Site health, safety and environmental compliance

Project

Portfolio

2016: Containerised20kVA PV Solar Hybrid Systems, Livingstone, Zambia

Scope: Engineering, Procurement, Construction and Commissioning of a 20kVA Hybrid Containerized PV Solution

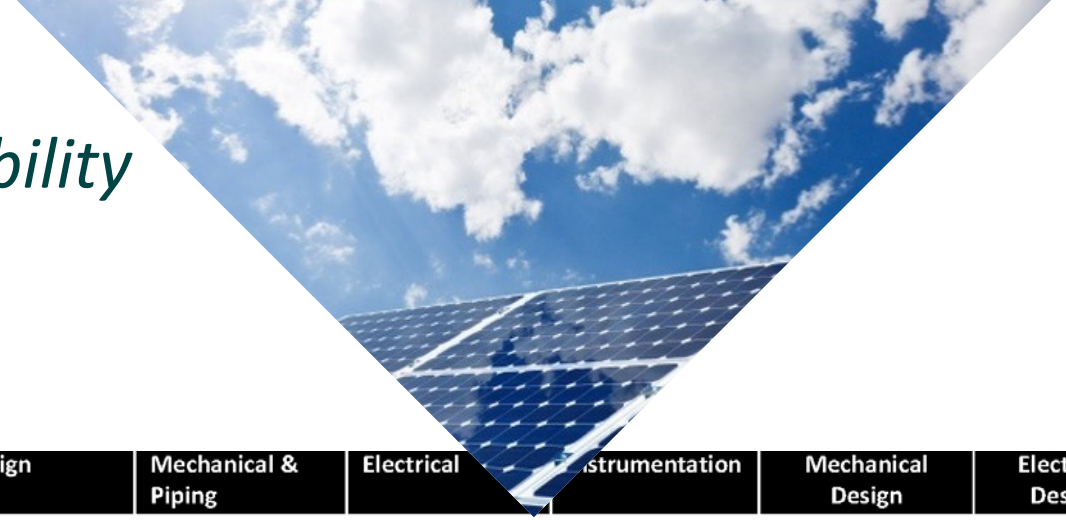
Technology:

- 36 –310 Solar PV Panels
- 20 x 200Ah Batteries System
- 20kVA Single Phase Diesel Generator

Our complete reference list of projects is available on request

EPC

Engineering & Solutions Capability



Project Management Services:

- Use PMI PMBoK methodology for engineering/construction projects
- Project managers certified as Project Management Professional (“PMP”)
- Experienced over a wide range of engineering disciplines to effectively implement projects

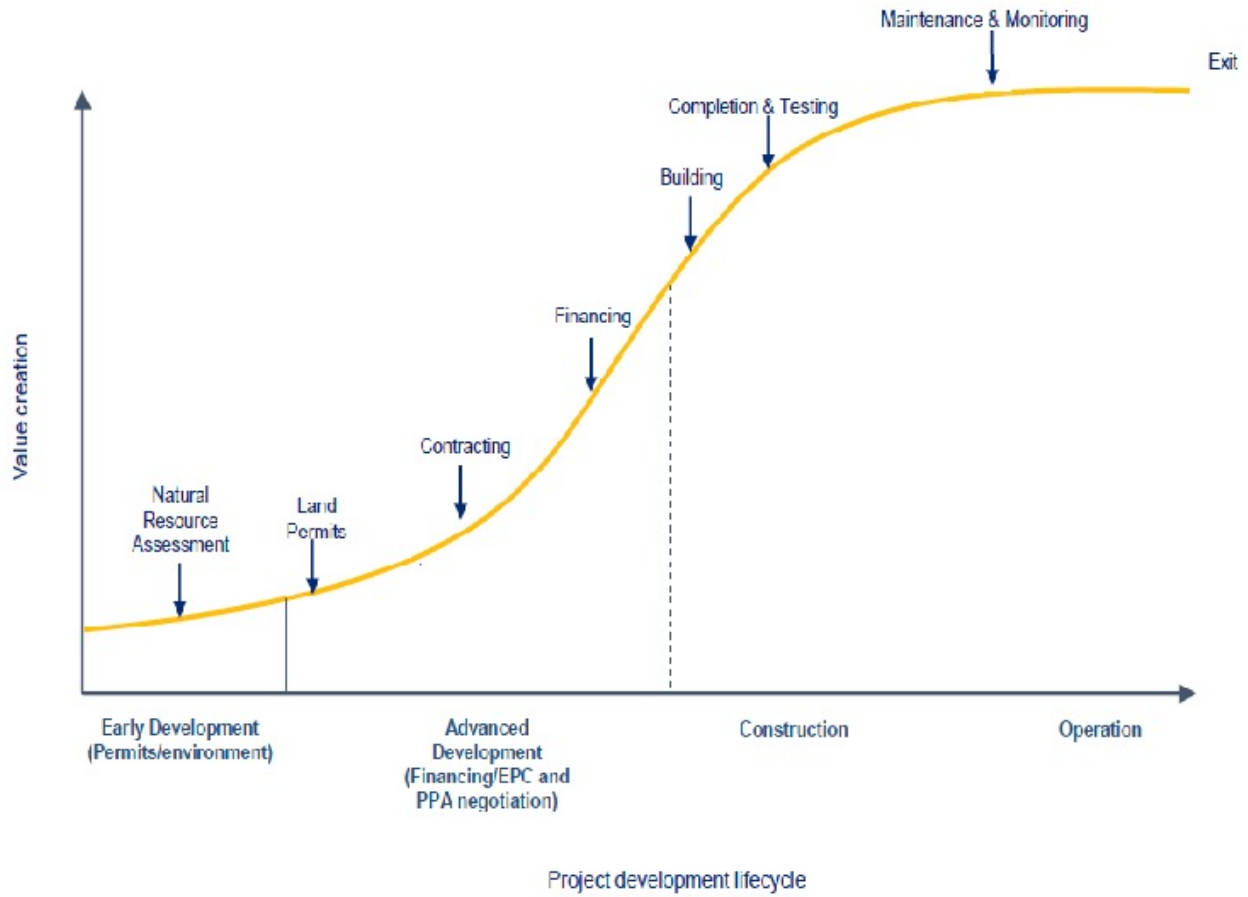
Engineering Services

- Use Registered Professional Engineers (“Pr Eng”)
- Scoping Studies
- Multi-disciplinary Pre-Feasibility and Feasibility Studies
- Civils, structural, mechanical, piping, electrical, instrumentation & control
- Basic & Detail Engineering
- Solutions Engineering
- Specialist Automation & Control

Design	Mechanical & Piping	Electrical	Instrumentation	Mechanical Design	Electrical Design	Instrumentation
AutoCAD	Procon for Structural and civil designs	DigSilent	Intools Smartplant	Pressure Vessels Belt Feeders and Conveyors (Helix) Pipe Augers & Trough Augers Sweep Augers Bucket Elevators Feed bins and Silos (Cement & Grain) API 650 Storage tanks Corro-flex Conveyors Belt scales Modular Concept Design	Electrical Power System studies and modelling Electrical: – Switchyard – MV Switchgear, Transformers, MV Cabling – MCC’s, LV Switchgear, LV Cabling Small Power & Lighting Earthing & Lightning Protection Power generation (including renewable)	Software Eng: • DCS, PLC, SCADA and ESD • VSD • MES interfaces • HMI Design Control equipment & Instrument Cabling PLC & Process Control Systems JB’s & Field Instruments BMS & Fire Systems Plant communications systems Process & pneumatic hook-ups
Autodesk Inventor	Autocad Plant for piping designs	Smart Plant Electrical	P&IDs & Instrument Lists			
Microstation V8		Etap				
Eplan	Caesar II Intergraph for Pipe Stress Analysis	PV Syst				
3-D Plant layout & modelling	Inventer for 3D modelling and Equipment designs	Cable Sizing and Cable Length and Racking Tool				
	Helix Delta-T for conveyor designs					
	ISO-metric piping layouts • Fabrication shop detailing					

Our Value Add

Assisting in all phases of the project life cycle



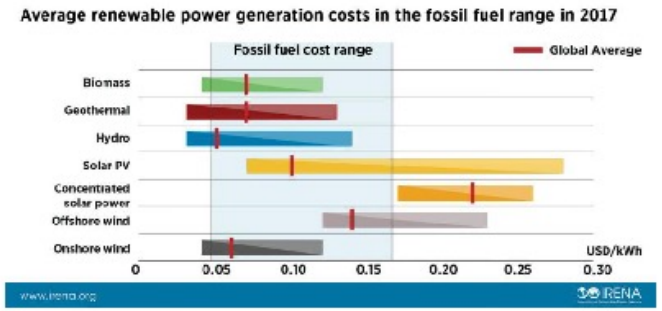
We have a flexible engagement approach to assisting project developments and can be involved in all phases of the project life cycle including:

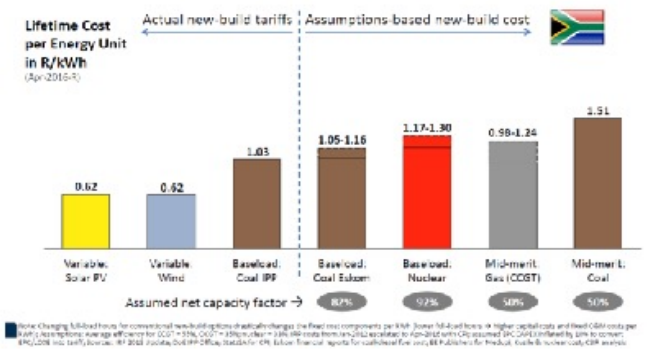
- Engineering studies for concept development
- Assistance with development of EPC proposals for finance development
- Early site works and setup
- Balance of supply and construction either on a multidiscipline level or scope/discipline focus, including:
  - Complete Engineering development team inhouse
  - Civil Works
  - Sub-structure Installation
  - PV Module Installation
  - Inverter, Transformer, Switchgear and cabling Installation
  - Grid Connection (Including **Sub-Station Design +** Installation)
  - Security Fencing, Fibre Next and Monitor of System
- As the projects are being developed, we can provide support assistance to accelerate project programs or provide focus in specific areas
- After completion, we can provide maintenance and upgrade of facilities services

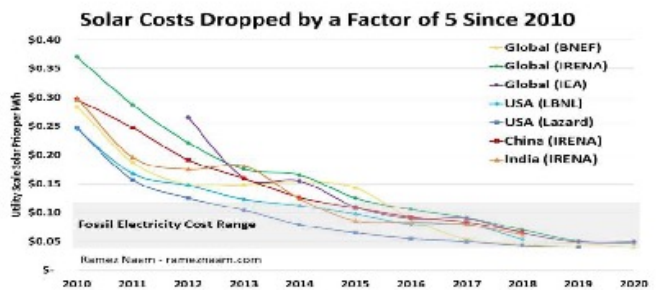
Our flexible contracting arrangements can add significant value to developers and EPC contractors alike

Our Value Add

Managing the cost of solar projects







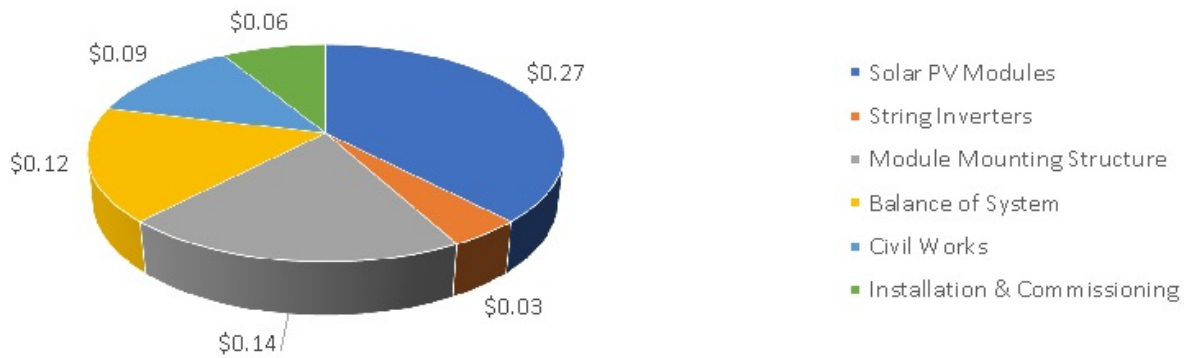
We are fully aware of the capital and operating costs of power projects and the position that Solar projects have in this market.

We are up to date with latest technologies that comprise solar projects and the sensitivities relating to equipment/construction costs and relating to efficiencies in maximizing the solar resource conversion to electrical energy.

This understanding allows ourselves and the Developer to balance capital costs and production efficiencies to achieve optimum project feasibility.

In addition to technology advances, we have also invested in engineering standards development and improved construction techniques that reduce construction costs and increase labour productivity such as mechanization of certain activities to ensure construction efficiency

Typical Distribution of Capital Costs US$/Wp



Our Value Add

Technical Expertise

Extensive experience with various technologies:

- Solar modules including
  - Polycrystalline modules from Jinko, Trina Solar,
  - Monocrystalline modules
  - Bi-facial polycrystalline modules
- Mounting structures including:
  - Fixed tilt
  - Single axis tracking
  - Multi-axis tracking
  - Roof and car port mounted with patented security measures
- Inverters including
  - Central inverters/transformer stations including GP Tech, SMA
  - String inverters including Huawei,
- String combiner boxes
- LPS and Earthing Systems including
- Weather stations and SCADA control systems
- MV reticulation switchgear panels including ABB, Actom, Siemen

Our Value Add

Aligning business goals with QHSE/CRSS Objectives

All solar construction projects are challenged by

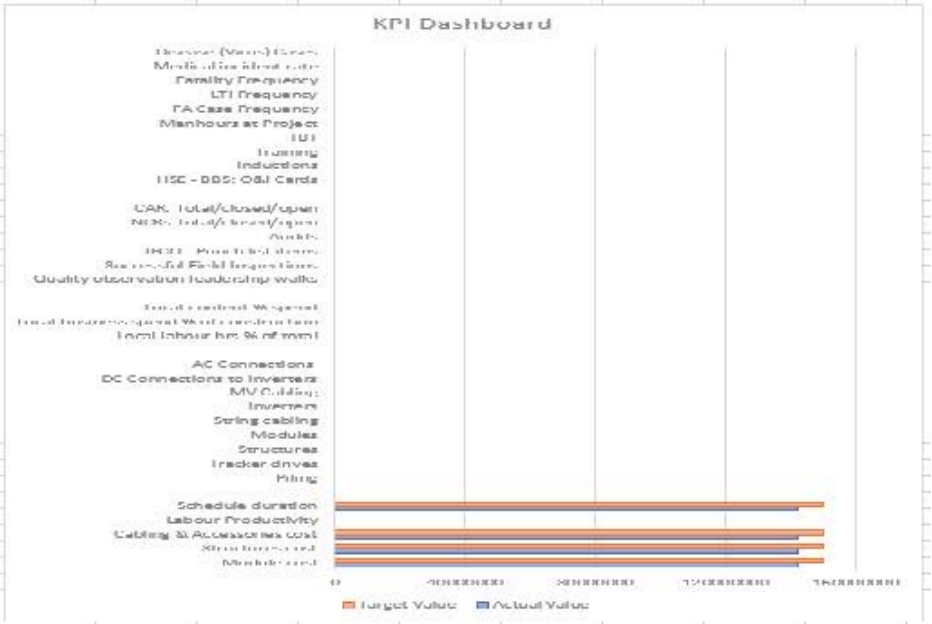
- Cost certainty
- Schedule certainty,
- Zero tolerance safety objectives,
- Achievement of quality KPIs and
- Community engagement targets

We link business objectives to safety, quality, schedule and community engagement objectives by way of a KPI dashboard linked to performance payments

KPI Dashboard

Project:
Location:

	Parameter	Actual Value	Target Value	Actual Value	Target Value	Comments
Module cost	Cost	142500000	150000000	95%	100%	
Structures cost	Cost	142500000	150000000			
Cabling & Accessories cost	Cost	142500000	150000000			
Labour Productivity	Efficiency	0.87	1			
Schedule duration	Cost	142500000	150000000			
Piling	Schedule	Qty	Qty			
Tracker drives	Schedule	Qty	Qty			
Structures	Schedule	Qty	Qty			
Modules	Schedule	Qty	Qty			
String cabling	Schedule	Qty	Qty			
Inverters	Schedule	Qty	Qty			
MV Cabling	Schedule	Qty	Qty			
DC Connections to Inverters	Schedule	Qty	Qty			
AC Connections	Schedule	Qty	Qty			
Local labour hrs % of total	CSR	Manhours	Manhours			
Local business spend % of constructio	CSR	ZAR	ZAR			
Local content % spend	CSR	ZAR	ZAR			
Quality observation leadership walks	Quality	Qty	Qty			
Successful Field Inspections	Quality	Qty	Qty			
IR30 - Punch list items	Quality	Qty	Qty			
Audits	Quality	Qty	Qty			
NCRs Total/closed/open	Quality	Qty	Qty			
CAR. Total/closed/open	Quality	Qty	Qty			
HSE - BBS. O&I Cards	HSE	Qty	Qty			
Inductions	HSE	Qty	Qty			
Training	HSE	Qty	Qty			
TBT	HSE	Qty	Qty			
Manhours at Project	HSE	Manhours	Manhours			
FA Case Frequency	HSE	FA-FR	Qty			
LTI Frequency	HSE	LTI-FR	Qty			
Fatality Frequency	HSE	Fat-FR	Fat-FR			
Medical Incident rate	HSE	MI - FR	MI - FR			
Disease (Virus) Cases	HSE	Qty	Qty			



Thanks