



Returnable Schedules

Engineering, Procurement and Construction of a fixed tilt Solar Photovoltaic Power Facility (Phase I) at the CSIR Campus in Pretoria on building 3, 10, 22, 23 and 33

Date of issue	17th October 2017
Tender Submission Date	17th November 2017
Contact Details	tender@csir.co.za

Bidders are to submit responses in the following format by completing the Returnable Schedules provided on the tender website. Failure to adhere to this will result in disqualification. Bidders are to submit one sealed hard copy and an electronic copy each of the Technical and Financial Proposal clearly labelled as “Technical Proposal” and “Financial Proposal”. Failure to adhere to this will result in disqualification.

Technical Proposal

- Covering letter
- Schedule 1: *Contractor's* Contract Data
- Schedule 2: *Contractor's* Works Information
- Schedule 3: The Programme
- Schedule 5: *Contractor* and Key Staff Experience
- Schedule 6: Operations and Maintenance Proposal
- Schedule 7: Training Plan
- Schedule 8: Quality Assurance Plan

Financial Proposal

- Covering letter
- Schedule 4: Activity Schedule
- Schedule 9: B-BBEE Certificate
- Schedule 10: Commercial Offer
- Schedule 11: Financial Model

Covering Letter

The Bidder is to provide a covering letter signed by a Director confirming the company's commitment to Tender and acknowledgement of:

- The parties comprising the bidder and the percentage share in the joint venture (if applicable).
- They have read understood the bid requirements;
- Are familiar with and accept the terms and conditions of the NEC4;
- They are aware of no conflicts of interest.
- Any matters they wish to bring to the *Employer's* attention.

Schedule 1 Contractor's Data

The following data is to be provided by the *Contractor*. Areas marked as grey is to be provided by the *Contractor*. Other data not in grey cannot be edited.

Contract Clause	Term	Data
10.1	The <i>Contractor</i> Address Department Represented by Tel no. Email	
11.2 (8)	The direct fee percentage is	0%
	The subcontracted fee percentage is	0%
	The working areas are	The <i>site</i> as identified in the Employer's Works Information only
24.1	The <i>Contractor's</i> key persons are: 1 Name: Job: Responsibilities: Qualifications: Experience: 2 Name: Job: Responsibilities: Qualifications: Experience: 3 Name: Job: Responsibilities: Qualifications: Experience: [add further as required]	CVs are to be provided in Schedule 5
11.2 (3)	The completion date for the whole of the works is	To be provided by <i>Contractor</i> , also required in the table of Key Dates and Programme
11.2 (14)	The following matters will be included in the Risk Register	The Risks that the <i>Contractor</i> identifies are:

Contract Clause	Term	Data
		Delays to delivery of material and equipment Theft and vandalism
		<i>Contractor</i> to list risks they wish to identify under obligation of 16.1 (Early Warning)
11.2 (19)	The Works Information for the <i>Contractor's</i> design is in	<i>Contractor</i> to provide their proposed design in Schedule 2
A 11.2 (20)	The Activity Schedule is in	Schedule 4
A 11.2 (30)	The tendered total of the Prices is Construction portion Operations & Maintenance	To be provided in Schedule 10 To be provided in Schedule 10

Schedule 2 *Contractor's Works Information*

The bidder is to provide their Contractor's Works Information in the following format:

Section	Contents
Design Overview	<p>A high level description of the design, the technology used, the quality of materials.</p> <p>Confirmation of design according to the minimum technical criteria stated and standards of a professional Solar PV EPC company.</p>
Project delivery	<p>Explanation of the Contractor's approach to the project, what machinery and equipment will be employed, list of subcontractors used.</p>
Technology Specifications	<p>Details of the technology used:</p> <ul style="list-style-type: none"> Modules Inverters Mounting structure Transformer DC cabling AC cabling Combiner boxes String monitoring Switchboards Protection devices Transformer protection UPS 2 x Soiling sensor 4 x Pyranometer Monitoring Lithium Ion Battery storage system Metering Valid certificates of compliance Equipment warranties
Schematics	<p>Physical layout (pdf and dwg)</p> <p>Single line diagrams (LV, AC, communications, earthing system, monitoring)</p>

Schedule 3 The Programme

The bidder is to provide a Gantt chart describing their programme referencing the activities in the Activity Schedule and the Key Dates. Please also include milestones.

Schedule 4 Activity Schedule

The bidder is required to complete this activity schedule in full.

Ref	Component	Description	Measureable Quantity	Unit of measurement	Price (ZAR)
1	Detailed design of PV system including all auxiliary systems and facilities	Design		Lump sum	
2	Site Preparation, setting out, clearing,	Construction work		m ²	
3a	Mounting structure	Procurement		No. of units	
3b	Mounting structure	Construction work		No. of units	
4a	PV Modules	Procurement		kWp	
4b	PV Modules	Installation work		kWp	
5	DC Cabling, including ducting, terminations, MC4	Procurement		m	
6	DC Cabling, including ducting, terminations, MC4	Installation work		m	
7a	DC Combiner Box - if applicable (including protection devices)	Procurement		No. of units	
7b	DC Combiner Box - if applicable (including protection devices)	Installation work		No. of units	
8a	Inverters	Procurement		kW	
8b	Inverters	Installation work		kW	
9a	LV AC Cabling between inverters and boards (including ducting)	Procurement		m	
9b	LV AC Cabling between inverters and boards (including ducting)	Installation work		m	
10a	LV boards, switches, protection devices	Procurement		No. of units	
10b	LV boards, switches, protection devices	Installation work		No. of units	
11a	LV AC Cabling between boards and transformer (including ducting)	Procurement	N/A	m	N/A
11b	LV AC Cabling between boards and transformer (including	Installation work	N/A	m	N/A

Ref	Component	Description	Measureable Quantity	Unit of measurement	Price (ZAR)
	ducting)				
12a	MV AC cabling between Transformer and RMU	Procurement	N/A	m	N/A
12b	MV AC cabling between Transformer and RMU	Installation work	N/A	m	N/A
13a	RMU	Procurement	N/A	No. of units	N/A
13b	RMU	Installation work	N/A	No. of units	N/A
14a	Lightning protection and earthing (All parts)	Procurement		Lump sum	
14b	Lightning protection and earthing (All parts)	Installation work		Lump sum	
15a	Energy and Power Meters (including CTs and VTs)	Procurement		No. of units	
15b	Energy and Power Meters (including CTs and VTs)	Installation work		No. of units	
16a	Balance of plant eg. Fuses, SPDs, fire protection, signage, cable labels etc.	Procurement		No. of units	
16b	Balance of plant eg. Fuses, SPDs, fire protection, signage, cable labels etc	Installation work		No. of units	
17a	Transformer protection unit	Procurement	N/A	No. of units	N/A
17b	Transformer protection unit	Installation work	N/A	No. of units	N/A
18a	PV soiling monitoring (2x)	Procurement		No. of units	
18b	PV soiling monitoring	Installation work		No. of units	
19a	Pyranometer (4x)	Procurement		No. of units	
19b	Pyranometer	Installation work		No. of units	
20a	String monitoring system	Procurement		No. of units	
20b	String monitoring system	Installation work		No. of units	
21a	Control and monitoring system (Including SCADA server and user interface, all data cabling, all data monitoring and operation devices)	Procurement		No. of units	
21b	Control and monitoring system (Including SCADA server and user interface, all data cabling, all data monitoring and operation	Installation work		No. of units	

Ref	Component	Description	Measureable Quantity	Unit of measurement	Price (ZAR)
	devices)				
22	PV Facility commissioning and testing	Commissioning & Testing		Lump sum	
23	Setting up a site office, machinery & equipment, utilities	Preliminary & General		Lump sum	
24	O&M services for the first year	O&M		Lump sum	
25	O&M Training Programme	Training		Lump sum	
26	OHSA health and safety plan, preparation, PPE, training	Preliminary & General		Lump sum	
27	Testing and Certification of Equipment	Preliminary & General		Lump sum	
28	Environmental plan	Preliminary & General		Lump sum	
29	Waste disposal plan	Preliminary & General		Lump sum	
30	Structure engineering report & certificate	Preliminary & General		Lump sum	
31	Spare parts	Procurement & delivery		Lump sum	
32a	Lithium Ion battery storage system	Procurement		kW	
32b	Lithium Ion battery storage system	Installation work		kW	
33	Other	other		Lump sum	
				SUB TOTAL	
				VAT	
				TOTAL PRICE	

Schedule 5 *Contractor and Key Staff Experience*

The bidder is required to complete this table

Key Projects

Project	Location	Size (kWp)	Scope of work	Achieved performance to date

(add as required)

CV'S of Key People

Schedule 6 Operations and Maintenance Proposal

Bidder is required to provide an O&M strategy for delivering the required 36 month service. Note that a separate O&M contract will be entered into.

Schedule 7 Training Plan

Bidder is required to provide a high-level training strategy for delivering the required 36 month service. The staff compliment to be trained is 3 skilled people.

Schedule 8 Quality Assurance Plan

The bidder is required to submit a high-level QAP as described in the Employer's Works Information.

Schedule 9 Administrative documents

The bidder is to provide the following documents:

- a) Valid B-BBEE certificate
- b) Valid Tax clearance certificate
- c) Declaration of no conflict of interest
- d) Financial rating letter from bank

Schedule 10 Commercial Offer

The bidder is required to provide a signed binding pricing proposal confirming the:

- a) CAPEX as provided in the Financial Model (ZAR)
- b) OPEX (year 1) as provided in the Financial Model (ZAR)
- c) Guaranteed PR (based on Global Horizontal Irradiation) as provided in the Financial Model (%)
- d) The resultant LCOE as calculated by the model (ZAR/kWh)
- e) The performance liquidated damages as calculated by the model (ZAR/kWh)

Schedule 11 Financial Model

The bidder is to complete and return the Financial Model supplied on the tender website