

Table 2-1. Summary of Financial Evaluation

Sr. No.	Description	Engineer's Estimate		M/S Wahab 3P GRACE JV		REMARKS
		Cost (Rs.)		Cost (Rs.)		
1	Disposal Works at Chak# 9/11 Vehari	23,762,595		22,775,595		
2	Disposal Works at 32 Quarters Vehari	26,646,118		27,050,118		
3	Disposal Works at People's Colony Connection No-2 Vehari	25,252,208		25,554,208		
4	Disposal Works at People's Colony Connection No-1 Vehari	11,975,865		12,963,865		
5	Water Works at Chak# 9/11 WB Vehari	20,549,730		21,125,730		
6	Water Works at H Block Connection No-1 Vehari	9,229,820		9,978,820		
7	Water Works at H Block Connection No-2 Vehari	4,539,865		5,847,865		
8	Water Works at People's Colony Vehari	14,350,820		15,729,820		
9	Water Works at Madina Colony Vehari	10,087,820		11,267,820		
10	Water Works at Sharqi Colony Vehari	7,656,865		9,138,865		
11	Water Works at Anwarabad Vehari	7,656,865		9,063,865		
	Sub-Total	161,708,570		170,496,570		
	Environment & Social Management Plan (ESMP) Implementation Cost	95,600		302,200		
	Total	161,804,170		170,798,770		
	10% Discount as per Letter of Financial Bid. Offered by M/S WAHAB 3P GRACE JV			(17,079,877)		
	Grand Total	161,804,170		153,718,893		

Note: M/S Wahab 3P GRACE JV has submitted the bid 5% below to the Engineer Estimate.



Team Head
Asian Consulting Engineers Pvt. Ltd.

Polina Singh

Municipal Officer (I&S)
Municipal Committee - Vehari

G. J.

Chief Officer
Municipal Committee - Vehari


Municipal Officer (Finance)
Municipal Committee - Vehari


Assistant Engineer
Representative LG & CDD


Representative of
Deputy Commissioner - Vehari

Approved By:


Administrator
Municipal Committee - Vehari

SOLARIZATION OF TUBEWELLS AND DISPOSAL STATIONS IN VEHARI CITY

Summary of Cost

Financial Comparison Statement

Ser	Description	Engineer's Estimate	M/S Wahab 3P GRACE JV	REMARKS
		Cost (Rs.)	Cost (Rs.)	
1	Disposal Works at Chak# 9/11 Vehari	23,762,595	22,775,595	
2	Disposal Works at 32 Quarters Vehari	26,646,118	27,050,118	
3	Disposal Works at People's Colony Connection No-2 Vehari	25,252,208	25,554,208	
4	Disposal Works at People's Colony Connection No-1 Vehari	11,975,865	12,963,865	
5	Water Works at Chak# 9/11 WB Vehari	20,549,730	21,125,730	
6	Water Works at H Block Connection No-1 Vehari	9,229,820	9,978,820	
7	Water Works at H Block Connection No-2 Vehari	4,539,865	5,847,865	
8	Water Works at People's Colony Vehari	14,350,820	15,729,820	
9	Water Works at Madina Colony Vehari	10,087,820	11,267,820	
10	Water Works at Sharqi Colony Vehari	7,656,865	9,138,865	
11	Water Works at Anwarabad Vehari	7,656,865	9,063,865	
Sub-Total		161,708,570	170,496,570	
Environment & Social Management Plan (ESMP) Implementation Cost		95,600	302,200	
Total		161,804,170	170,798,770	
10% Discount as per Letter of Financial Bid. Offered by M/S WAHAB 3P GRACE JV			(17,079,877)	
Grand Total		161,804,170	153,718,893	

Note: M/S Wahab 3P GRACE JV has submitted the bid 5% below to the Engineer Estimate.



Financial Comparison Statement							
Delayed Works at Chind 971 Vchari							
Ser	Description	Financial Comparison Statement					
		Engineer's Estimate			SUS Works 3P GRACE JV		
		Unit Price	Quantity	Unit	Total Price	Unit Price	Total Price
1	PV Modules & Power Generation System						
1.1	Solar Modules(200W-1830-35 mm 24W)	80.00	93,000.00	Wp	7,440,000.00	112	10,616,000.00
1.2	Inverter (Grid-Tied) 95 KW	1,550,000.00	1.00	Set	1,550,000.00	1,550,000	1,550,000.00
1.3	PV-Genest Controller	250,000.00	1.00	Job	250,000.00	250,000	250,000.00
1.4	Cable for Interconnection (DC)(UV Protected XLPE)	400,000.00	1.00	Job	400,000.00	400,000	400,000.00
1.5	PV Combiner Boxes with DC Breakers / Fuses , SPD's etc. for string protection	250,000.00	1.00	Job	250,000.00	250,000	250,000.00
2	AC Termination & Accessories						
2.1	LT Termination						
2.1.1	Secondary Comprehensive Protection Cabinet	150,000.00	1.00	Set	150,000.00	50,000	50,000.00
2.1.2	Low Voltage Switchgear Cabinet	150,000.00	1.00	Set	150,000.00	50,000	50,000.00
2.1.3	AC Combiner Breakers for MCCB	150,000.00	1.00	Set	150,000.00	50,000	50,000.00
2.1.4	AC Combiner Breakers for ACB	150,000.00	1.00	Set	150,000.00	50,000	50,000.00
3	Fabricated Items						
3.1	Mounting Structure	12,000.00	166.00	Job	1,992,000.00	16,000	2,616,000.00
3.2	Cable Tray	200,000.00	1.00	Job	200,000.00	50,000	50,000.00
3.3	Distribution Boxes	250,000.00	1.00	Job	250,000.00	50,000	50,000.00
4	Cable & Accessories						
4.1	AC Cable for Inverter Interconnection as spec,4 core, Armored	200,000.00	1.00	Set	200,000.00	400,000	400,000.00
4.2	AC Cable for Combined Output as spec,4 Core, Armored	200,000.00	1.00	Set	200,000.00	400,000	400,000.00
4.3	Installation Material (cable Ducts etc.)	200,000.00	1.00	Set	200,000.00	200,000	200,000.00
5	Earthing/ Grounding System / ATS Panels						
5.1	Earthing for PV Solar System complete independent earthing system for PV solar system, must be separated of the main earthing system to obtain 3-ohm max resistance the item includes (2 copper electrodes 13mm2 driven into ground, manholes with iron cover, earth joints, clamps, ducts, conduits and 25 mm2 flexible earthing copper wires and cables (Yellow/Green) from the PV system components to the electrode to complete the system as specifications and supervisor engineers instructions and approval.	100,000.00	1.00	Job	100,000.00	150,000	150,000.00
5.2	Earthing System For Inverter / WAPDA / Generator Set Neutral Complete independent earthing system for Inverter / WAPDA / Generator Set Neutral must be separated of the main earthing system to obtain 3-ohm max resistance. the item includes (2 copper electrodes 13mm2 driven into ground, manholes with iron cover, earth joints, clamps, ducts, conduits and 25 mm2 flexible earthing copper wires and cables from the Neutral bus bar to the Main Distribution bus to the electrode to complete the system as specifications and supervisor engineers instructions and approval.	100,000.00	1.00	Job	100,000.00	150,000	150,000.00
5.3	Surge protection device of appropriate short circuit capacity to secure the overall AC system (data and power) against lightning and surges strikes, including connecting the device to earthing system and all needed accessories	15,000.00	12.00	Set	180,000.00	12,000	144,000.00
5.4	Grounding Flat Iron, Grounding Network for the plant Area, Power distribution Room, HV power Distribution room	250,000.00	1.00	Job	250,000.00	100,000	100,000.00
5.5	Automatic Transfer Switch (ATS) 3 phase system. The ATS consist of two 4 poles contactors of appropriate capacity complete with (Mechanical & electrical interlock) all needed ACU control fittings such as wires, relays, undercables, with all needed fittings and accessories to get job ready.	450,000.00	1.00	Job	450,000.00	50,000	50,000.00
5.6	Phase Failure Protection 3ph. Follow, loss of phase, under voltage, over voltage and phase sequence relay (LRST), adjustable type with four poles contactor 4*100A and all needed protection devices, control devices and accessories	450,000.00	1.00	Job	450,000.00	100,000	100,000.00
6	Remote Monitoring & Data Acquisition System						
6.1	Contractor Shall Provide the access of Remote Monitoring Mobile App and Server from the Inverter Manufacturer for real time monitoring, Data Logging	50,000.00	1.00	Job	50,000.00	50,000	50,000.00
7	Services						
7.1	Project Design & Execution	400,000.00	1.00	Job	400,000.00	425,000	425,000.00
7.2	Erecting of Mechanical Mounting Structure	400,000.00	1.00	Job	400,000.00	190,000	190,000.00
7.3	Installation, testing and Commissioning of Solar System	400,000.00	1.00	Job	400,000.00	100,000	100,000.00
7.4	Operations and Maintenance O&M* Services (1 Year)	1,200,000.00	1.00	Job	1,200,000.00	100,000	100,000.00



2.3	Load Flow Study (Required for Net-Metering)	250,000.00	1.00	Job	250,000.00	10,000	10,000.00
2.4	Net-Metering Process (including Equipment, Fee, Approvals, Documentation, Inspection)	1,000,000.00	1.00	Job	1,000,000.00	120,000	120,000.00
Amount of PV system complete in all respect Sub total A					19,722,000		18,735,000
B Fencing							
MERS Ref	Description	Engineer's Estimate				M/S Wahab JF GRACE JV	
		Rate	Quantity	Unit	Total Price	Rate	Total Price
26745	Providing and fixing and class high security galvanized razor cut wire having double sharp four U-shaped pointed 6.5 mm thick (22mmx15 mm barbs) spaced @ 33 mm c/c embedded over 2.5 mm dia high tensile Core wire making coil fencing of specified diameter @ 4' c/c fixed on 2'-3" high 10S angle iron post 1 1/2"x1 1/2"x1/4" embedded in base of PCC (1:2:4) (4"x4"x9") @ 4' apart in the case of 2 No. bars 20" dia welded horizontally with angle iron posts, binding wire, painting of posts, etc. complete in all respects as approved and directed by the Engineer incharge. (1) 18" diameter	591.15	900.00	Per RM	532,035.00	591.15	532,035.00
26747	Providing and fixing hot dipped Galvanized braun chain link mesh/ence of 2"x2" mesh made of wire of specified gauge, with the help of 1"x1/8" GI post, GI Clamps and screws, in the case of 3 nos 8 SWG GI the wires penetrated through mesh at top, middle and bottom, fixed on vertical posts of 2" diameter GI pipes (medium quality) erected @ 8' R C/C only embedded in PCC(1:2:4) etc. complete in all respect as approved and directed by the Engineer incharge (1) 8 SWG	487.30	3,200.00	Per SQ	1,508,560.00	487.30	1,508,560.00
Sub Total (B)					4,040,595.00		4,040,595.00
Total (A+B)					23,762,595.00		22,775,595.00



Financial Comparison Statement							
Disposal Works at 21 Quarters Vohar							
Ser	Description	Financial Comparison Statement					
		Engineer's Estimate			M/S Wahab SP GRACE JV		
		Unit Price	Quantity	Unit	Total Price	Unit Price	Total Price
1	PV Modules & Power Generation System						
1.1	Solar Modules(2094*1038*55 mm 54FW)	80	111,000	Wp	9,200,000	111	12,800,000
1.2	Inverter (Grid-Tied) 113 KW	1,550,000	1	Set	1,550,000	1,550,000	1,550,000
1.3	PV-Genset Controller	750,000	1	Job	750,000	250,000	250,000
1.4	Cable for Interconnection (DC) (UV Protected XLPE)	600,000	1	Job	600,000	400,000	400,000
1.5	PV Combiner Boxes with DC Breakers / Fuses / SPD's etc. for string protection	450,000	1	Job	450,000	250,000	250,000
2	AC Termination & Accessories						
2.1	LT Termination						
2.1.1	Secondary Comprehensive Protection Cabinet	250,000	1	Set	250,000	250,000	250,000
2.1.2	Low Voltage Subcircuit Cabinet	250,000	1	Set	250,000	250,000	250,000
2.1.3	AC Combiner Breakers for MCCB	250,000	1	Set	250,000	250,000	250,000
2.1.4	AC Combiner Breakers for ACB	250,000	1	Set	250,000	250,000	250,000
3	Fabricated Items						
3.1	Mounting Structure	15,000	200	Job	2,400,000	16,000	3,200,000
3.2	Cable Tray	200,000	1	Job	200,000	200,000	200,000
3.3	Distribution Boxes	250,000	1	Job	250,000	250,000	250,000
4	Cables & Accessories						
4.1	AC Cables for Inverter Interconnection 121 sqmm, 4 core, Armored	200,000	1	Set	200,000	200,000	200,000
4.2	AC Cables for Combined Output 121 sqmm, 4 Core, Armored	200,000	1	Set	200,000	200,000	200,000
4.3	Installation Material (Cable Ducts etc.)	200,000	1	Set	200,000	200,000	200,000
5	Earthing/ Grounding System / ATS Panels						
5.1	Earthing for PV Solar System complete independent earthing system for PV solar system must be separated of the main earthing system to obtain 2-ohm max resistance. the item includes (2 copper electrodes 15mm) driven into ground, manholes with iron cover, earth joints, clamps, ducts, conduits and 25 mm ² flexible earthing copper wires and cables (Yellow/Green) from the PV system components to the electrode to complete the system as specifications and supervisor engineer instructions and approval.	150,000	1	Job	150,000	150,000	150,000
5.2	Earthing System For Inverter / WAPDA / Generator Set Neutral Complete independent earthing system for Inverter / WAPDA / Generator Set Neutral must be separated of the main earthing system to obtain 2-ohm max resistance. the item includes (2 copper electrodes 15mm) driven into ground, manholes with iron cover, earth joints, clamps, ducts, conduits and 25 mm ² flexible earthing copper wires and cables from the Neutral bus bar in the Main Distribution box to the electrode to complete the system as specifications and supervisor engineer instructions and approval.	150,000	1	Job	150,000	150,000	150,000
5.3	Surge protection device of appropriate short circuit capacity to secure the overall AC system (data and power) against lightning and surge strikes, including connecting the device to earthing system and all needed accessories	12,000	12	Set	180,000	12,000	144,000
5.4	Grounding Flat Iron, Grounding Network for the plant Area, Power distribution Room, HV power Distribution room	350,000	1	Job	350,000	350,000	350,000
5.5	Automatic Transfer Switch (ATS) 3 phase system. The ATS consist of two 4 poles contactors of appropriate capacity complete with (mechanical & electrical interlock) all needed ACU control fittings such timers, relays, undervoltage, with all needed fittings and accessories to get job ready.	450,000	1	Job	450,000	50,000	50,000
5.6	Phase Failure Protection 3ph. Failure, loss of phase, under voltage, over voltage and phase sequence relay (LRST), adjustable type with four poles contactor 4*100A and all needed protection devices, control devices and accessories	450,000	1	Job	450,000	450,000	450,000
6	Remote Monitoring & Data Acquisition System						
6.1	Contractor Shall Provide the access of Remote Monitoring Mobile App and Server from the Inverter Manufacturer for real time monitoring, Data Logging	50,000	1	Job	50,000	50,000	50,000
7	Services						
7.1	Project Design & Execution	450,000	1	Job	450,000	400,000	400,000
7.2	Exciting of Mechanical Mounting Structure	450,000	1	Job	450,000	350,000	350,000
7.3	Installation, testing and Commissioning of Solar System	450,000	1	Job	450,000	350,000	350,000
7.4	Operations and Maintenance (O&M) Services (1 Year)	1,200,000	1	Job	1,200,000	200,000	200,000
7.5	Load Flow Study (Required for No- Metering)	500,000	1	Job	500,000	10,000	10,000
7.6	Net Metering Process (Including Equipment, Fee, Approvals, Documentation, Inspection)	1,000,000	1	Job	1,000,000	150,000	150,000
Amount of PV system complete in all respect Sub total A					22,820,000		23,224,000



S	Flooring	MRS Ref	Description	Engineer's Estimate				M/S Wahab SP GRACE JV	
				Rate	Quantity	Unit	Total Price	Rate	Total Price
				2626	Providing and fixing steel diamond high security galvanized mesh net wire having double sharp four U-shaped pointed 0.5 mm thick (25mmx15 mm mesh) spaced @ 33 mm dia rhomboid cover 2.5 mm dia high tensile Core wire making nail fixing of specified diameter @ 4' x 4' fixed on F-3' high MS angle iron post 1 1/2" x 1 1/2" x 3/16" embedded in base of FCC (1:2:4) (F' x C' x S') @ 4' apart in the case of 2 dia bars 3/8" dia welded horizontally with angle iron posts, binding wire, painting of posts, etc. complete in all respects as approved and directed by the Engineer incharge. (1) 18" diameter	591.15	800	Per sq ft	502,920.00
2627	Providing and fixing hot dipped Galvanized iron chain link mesh/finer of 2' x 1' mesh made of wire of specified gauge, with the help of 1" x 1/4" GI post, GI Clamps and screws, fix the post of 2 nos @ SWG GI 66 wire galvanized through mesh at top, middle and bottom, fixed on vertical posts of 2" diameter GI pipes (medium quality) spaced @ 8' x 8' C/C duly embedded in FCC(1:2:4) etc. complete in all respect as approved and directed by the Engineer incharge (1) 8 SWG	427.30	6000	Per sq ft	331,380.00	427	331,340.00		
Sub Total (B)						834,300.00		833,817.50	
Total (A+B)						26,446,118		27,050,117.50	



Financial Comparison Statement							
Disposal Works at People's Colony Concession No. 81 Vihar.							
Set	Description	Financial Comparison Statement					
		Engineer's Estimate			M/S Wahab JP GRACE JV		
		Unit Price	Quantity	Unit	Total Price	Unit Price	Total Price
1	PV Modules & Power Generation System						
1.1	Solar Module(2091 x 1034-33 mm 543W)	80	110,000	Wp	8,800,000	112	12,320,000
1.2	Inverter (Grid Tied) 115 KW	1,550,000	1	Set	1,550,000	1,550,000	1,550,000
1.3	PV-Genset Controller	350,000	1	Job	350,000	350,000	350,000
1.4	Cable for Interconnection (DC/UV Protected XLPE)	600,000	1	Job	600,000	600,000	600,000
1.5	PV Combiner Boxes with DC Breakers / Fuses , SPD's etc. for string protections	450,000	1	Job	450,000	250,000	250,000
2	AC Termination & Accessories						
2.1	LT Termination						
2.1.1	Searchkey Comprehensive Protection Cabinet	250,000	1	Set	250,000	250,000	250,000
2.1.2	Low Voltage Switchgear Cabinet	250,000	1	Set	250,000	250,000	250,000
2.1.3	AC Combiner Breakers for MCCB	250,000	1	Set	250,000	250,000	250,000
2.1.4	AC Combiner Breakers for ACB	250,000	1	Set	250,000	250,000	250,000
3	Fabricated Items						
3.1	Mounting Structures	12,000	192	Job	2,304,000	16,000	3,072,000
3.2	Cable Tray	200,000	1	Job	200,000	200,000	200,000
3.3	Distribution Boxes	250,000	1	Job	250,000	250,000	250,000
4	Cables & Accessories						
4.1	AC Cables for Inverter Interconnection as per spec, 4 core, Armored	200,000	1	Set	200,000	200,000	200,000
4.2	AC Cable for Combined Output as per spec, 4 Core, Armored	200,000	1	Set	200,000	200,000	200,000
4.3	Insulation Material (cable Ducts etc.)	200,000	1	Set	200,000	200,000	200,000
5	Earthing/ Grounding System / ATS Patch						
5.1	Earthing for PV Solar System complete independent earthing system for PV solar system. must be separated of the main earthing system to obtain 2-ohm max resistance. the item includes (2 copper electrodes 15mm driven into ground, modules with iron cover, earth joints, clamps, ducts, conduits and 25 mm ² flexible earthing copper wires and cables (Yellow-Green) from the PV system components to the electrode to complete the system as per specifications and supervisor engineer instructions and approval.	150,000	1	Job	150,000	150,000	150,000
5.2	Earthing System For Inverter / WAPDA / Generator Set Neutral Complete independent earthing system for Inverter / WAPDA / Generator Set Neutral must be separated of the main earthing system to obtain 2-ohm max resistance. the item includes (2 copper electrodes 15mm driven into ground, modules with iron cover, earth joints, clamps, ducts, conduits and 25 mm ² flexible earthing copper wires and cables from the Neutral bus bar in the Main Distribution box to the electrode to complete the system as per specifications and supervisor engineer instructions and approval.	150,000	1	Job	150,000	150,000	150,000
5.3	Surge protection device of appropriate short circuit capacity to secure the overall AC system (data and power) against lightning and surge strikes, including connecting the device to earthing system and all needed accessories	12,000	12	Set	144,000	12,000	144,000
5.4	Grounding Flat Iron, Grounding Network for the plant Area, Power distribution Room, HV power Distribution room	350,000	1	Job	350,000	350,000	350,000
5.5	Automatic Transfer Switch (ATS) 3 phase system. The ATS consist of two 4 poles contactors of appropriate capacity complete with (3 mechanical & electrical interlock) all needed ACU control findings such timer, relay, undervoltage, with all needed findings and accessories to get job ready.	450,000	1	Job	450,000	50,000	50,000
5.6	Phase Failure Protection 3ph. Failure, loss of phase, under voltage, over voltage and phase sequence relay (RST), adjustable type with four pole contactor 4*100A and all needed protection devices, control devices and accessories	450,000	1	Job	450,000	450,000	450,000
6	Remote Monitoring & Data Acquisition System						
6.1	Contractor Shall Provide the access of Remote Monitoring Mobile App and Server from the Inverter Manufacturer for real time monitoring, Data Logging	50,000	1	Job	50,000	50,000	50,000
7	Services						
7.1	Project Design & Execution	450,000	1	Job	450,000	400,000	400,000
7.2	Erecting of Mechanical Mounting Structure	450,000	1	Job	450,000	250,000	250,000
7.3	Installation, testing and Commissioning of Solar System	450,000	1	Job	450,000	450,000	450,000
7.4	Operations and Maintenance (O&M) Services (1 Year)	1,200,000	1	Job	1,200,000	300,000	300,000
7.5	Load Flow Study (Required for Net-Metering)	500,000	1	Job	500,000	10,000	10,000
7.6	Net-Metering Process (including Equipment, Fee, Approvals, Documentation, Impacts)	1,000,000	1	Job	1,000,000	150,000	150,000



Amount of PV system complete in all respect Sub total A					27,311,000			27,311,000	
0	Finching								
BIRS Ref	Description	Engineer's Estimate				M/S Wahab SP GRACE JV			
		Rate	Quantity	Unit	Total Price	Rate	Total Price		
26005	Providing and fixing anti climb high security galvanized razor cut wire having double sharp four U-shaped pointed 0.3 mm thick (21mmx13 mm bars) spaced @ 33 mm etc attached over 2.3 mm dia high tensile Core wire making coil fencing of specified diameter @ 4' x 4' fixed on 2'3" high 1/2" dia high angle iron post 117x117x16" embedded in base of PCC (12.4) (4'x4'x3") @ 4' apart to the east of 3 No. bars 1/2" dia welded horizontally with angle iron posts, binding wire, painting of posts, etc. complete in all respects as approved and directed by the Engineer incharge. (ii) 1/2" diameter	591.15	600	Per RA	354690.00	591	354690.00		
26017	Providing and fixing hot dipped Galvanized Iron chain link mesh/fence of 2"x2" mesh made of wire of specified gauge, with the help of 1"x1/4" GI post, GI Clamps and screws, to the east of 3 nos 2 SWD GI dia wires penetrated through mesh at top, middle and bottom, fixed on vertical posts of 2" diameter GI pipes (medium quality) erected @ 8 R CC dia) embedded in PCC(12.4) etc. complete in all respect as approved and directed by the Engineer incharge (i) 2 SWD	487.30	5200	Per RA	2533960.00	487	2533960.00		
Sub Total (B)							2,918,208	2,918,208	
Total (A+B)							25,252,300	25,252,300	

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Financial Comparison Statement							
Disposal Works at People's Colony Extension No. 01 Vohar.							
Ser	Description	Financial Comparison Statement					
		Engineer's Estimate			MS Wahab SP GRACE JV		
		Unit Price	Quantity	Unit	Total Price	Unit Price	Total Price
1	PV Modules & Power Generation System						
1.1	Solar Module(2011-1010-33 mm 340W)	99	30,000	Wp	4,000,000	113	5,000,000
1.2	Inverter (Grid-Tied) 20 KW	1,000,000	1	Set	1,000,000	1,000,000	1,000,000
1.3	PV-Genet Controller	250,000	1	Job	250,000	250,000	250,000
1.4	Cable for Interconnection (DC/UV Protected XLPE)	200,000	1	Job	200,000	400,000	400,000
1.5	PV Combiner Boxes with DC Breaker / Fuses, SPD's etc. for string protection	200,000	1	Job	200,000	250,000	250,000
2	AC Termination & Accessories						
2.1	LV Termination						
2.1.1	Secondary Comprehensive Protection Cabinet	125,000	1	Set	125,000	125,000	125,000
2.1.2	Low Voltage Switchgear Cabinet	125,000	1	Set	125,000	125,000	125,000
2.1.3	AC Combiner Breakers for MCCB	125,000	1	Set	125,000	125,000	125,000
2.1.4	AC Combiner Breakers for ACB	125,000	1	Set	125,000	125,000	125,000
2.2	Subcontracted Items						
2.3	Mounting Structure	12,000	87	Job	1,044,000	16,000	1,392,000
2.3.1	Cable Tray	115,000	1	Job	115,000	115,000	115,000
2.3.2	Distribution Boxes	115,000	1	Job	115,000	115,000	115,000
4	Cables & Accessories						
4.1	AC Cable for Inverter Interconnection as specified over, Armored	100,000	1	Set	100,000	100,000	100,000
4.2	AC Cable for Combined Output as specified over, Armored	100,000	1	Set	100,000	100,000	100,000
4.3	Installation Material (cable ducts etc.)	70,000	1	Set	70,000	70,000	70,000
5	Earthing/ Grounding System / ATS Panel						
5.1	Earthing for PV Solar System complete independent earthing system for PV solar system, must be separated of the main earthing system to obtain 2-ohm max resistance the item includes (2 copper electrodes 15mm) driven into ground, manholes with iron cover, earth joints, clamps, ducts, conductors and 25 mmil flexible earthing copper wires and cables (Yellow-Green) from the PV system components to the electrode to complete the system as specifications and supervisor engineer instructions and approval.	80,000	1	Job	80,000	150,000	150,000
5.2	Earthing System For Inverter / WAFDA / Generator Set Neutral Complete independent earthing system for Inverter / WAFDA / Generator Set Neutral must be separated of the main earthing system to obtain 2-ohm max resistance, the item includes (2 copper electrodes 15mm) driven into ground, manholes with iron cover, earth joints, clamps, ducts, conductors and 25 mmil flexible earthing copper wires and cables from the Neutral bus bar in the Main Distribution bus to the electrode to complete the system as specifications and supervisor engineer instructions and approval.	80,000	1	Job	80,000	150,000	150,000
5.3	Surge protection device of appropriate short circuit capacity to secure the overall AC system (data and power) against lightning and surges strikes, including connecting the device to earthing system and all needed accessories	15,000	10	Set	150,000	12,000	120,000
5.4	Grounding Flat bar, Grounding Network for the plant Area, Power distribution Room, HV power Distribution room	250,000	1	Job	250,000	250,000	250,000
5.5	Automatic Transfer Switch (ATS) 3 phase system. The ATS consist of two 4 poles contactors of appropriate capacity complete with (mechanical & electrical interlock) all needed ACU control fittings such timers, relays, under-voltage, with all needed fittings and accessories to get job ready.	250,000	1	Job	250,000	50,000	50,000
5.6	Phase Failure Protection 1ph. Failure, loss of phase, under voltage and phase sequence relay (LRST), adjustable type with four poles contactor 4*100A and all needed protection devices, control articles and accessories	325,000	1	Job	325,000	325,000	325,000
6	Remote Monitoring & Data Acquisition System						
6.1	Contractor Shall Provide the access of Remote Monitoring Mobile App and Server from the Inverter Manufacturer for real time monitoring, Data Logging	50,000	1	Job	50,000	50,000	50,000
7	Services						
7.1	Project Design & Execution	100,000	1	Job	100,000	100,000	100,000
7.2	Erecting of Mechanical Mounting Structure	150,000	1	Job	150,000	100,000	100,000
7.3	Installation, testing and Commissioning of Solar System	100,000	1	Job	100,000	100,000	100,000
7.4	Operation and Maintenance (O&M) Services (1 Year)	700,000	1	Job	700,000	300,000	300,000
7.5	Load Flow Study (Required for Net-Metering)	200,000	1	Job	200,000	10,000	10,000
7.6	Net-Metering Process (including Equipment, Fee, Approvals, Documentation, Inspection)	400,000	1	Job	400,000	120,000	120,000
Amount of PV system complete in all respect Sub total A					18,439,000		18,439,000



S	Punching	Description	Engineer's Estimate				M/S Webot JP GRACE JV	
			Rate	Quantity	Unit	Total Price	Rate	Total Price
2006		Providing and fixing cast in situ high strength galvanized wire net wire having double sharp bend U-shaped pointed 0.3 mm thick (20mm) 2mm bars) spaced @ 33 mm c/c extended over 2.3 mm dia high tensile Core wire making coil fencing of specified diameter @ 4" c/c fixed on 1.5" high MS angle iron post 11/2" x 11/2" x 1/8" embedded in base of RCC (1:2:4) @ 4" x 4" spaced @ 2 No. bars 3/8" dia welded horizontally with angle iron posts, binding wire, painting of posts, etc. complete in all respects as approved and directed by the Engineer incharge. (a) 10" diameter	591.15	300	Per RM	177345	591	177345
2007		Providing and fixing hot dipped Galvanized iron chain link mesh/fence of 2"x1" mesh made of wire of specified gauge, with the help of 1"x1/2" GI post, GI Clamps and covers, in the form of 3 nos 8 SWG GI dia wires penetrated through mesh at top, middle and bottom, fixed on vertical posts of 2" diameter GI pipes (medium quality) erected @ 8 ft CC (duty embedded in FCC(1:2:4) etc. complete in all respect as approved and directed by the Engineer incharge (b) 8 SWG	487.30	2400	Per SM	1169520	487	1169520
Sub Total (B)						1,346,865		1,346,865
Total (A+B)						11,975,865		12,963,865.00



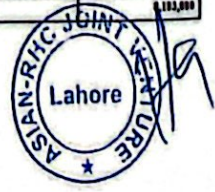
Financial Comparison Statement							
Water Works at Chah 9/1 WB Yehar							
S/N	Description	Financial Comparison Statement					
		Engineer's Estimate				MS Walsh JP GRACE JV	
		Unit Price	Quantity	Unit	Total Price	Unit Price	Total Price
2	PV Modules & Power Conversion System						
2.1	Solar Modules(204-1020-35 mm 347V)	80	83,000	Wp	6,840,000	112	9,310,000
2.2	Inverter (Grid-Tied 81 KW)	1,550,000	1	Set	1,550,000	1,550,000	1,550,000
2.3	PV-Onnet Controller	250,000	1	Job	250,000	250,000	250,000
2.4	Cable for Interconnection (DC)UV Protected XLPE	200,000	1	Job	200,000	400,000	400,000
2.5	PV Combiner Boxes with DC Breaker /Fuses, SPD's etc. for string protection	200,000	1	Job	200,000	250,000	250,000
3	AC Termination & Accessories						
3.1	LT Termination						
3.1.1	Secondary Comprehensive Protection Cabinet	150,000	1	Set	150,000	150,000	150,000
3.1.2	Low Voltage Subgroup Cabinet	150,000	1	Set	150,000	150,000	150,000
3.1.3	AC Combiner Breaker for MCCB	150,000	1	Set	150,000	150,000	150,000
3.1.4	AC Combiner Breaker for ACB	150,000	1	Set	150,000	150,000	150,000
3	Substation Items						
3.1	Mounting Structure	12,000	148	Job	1,776,000	16,000	2,348,000
3.2	Cable Tray	200,000	1	Job	200,000	200,000	200,000
3.3	Distribution Boxes	250,000	1	Job	250,000	250,000	250,000
4	Cable & Accessories						
4.1	AC Cable for Inverter Interconnection 25 sqmm, 4 core, Armored	200,000	1	Set	200,000	200,000	200,000
4.2	AC Cable for Combined Output 25 sqmm, 4 Core, Armored	200,000	1	Set	200,000	200,000	200,000
4.3	Insulation Material (cable Ducts etc)	200,000	1	Set	200,000	200,000	200,000
5	Earthing/ Grounding System / ATS Panels						
5.1	Earthing for PV Solar System complete independent earthing system for PV solar system must be separated of the main earthing system to obtain 2-ohm max resistance the item includes (2 copper electrode 15mm) driven into ground, modules with iron cover, earth clamps, ducts, conductors and 25 mm flexible earthing copper wires and cables (Yellow-Green) from the PV system components to the electrode to complete the system as specifications and supervising engineer instructions and approval.	100,000	1	Job	100,000	150,000	150,000
5.2	Earthing System For Inverter / WAPDA / Generator Set Neutral Complete independent earthing system for Inverter / WAPDA / Generator Set Neutral must be separated of the main earthing system to obtain 2-ohm max resistance the item includes (2 copper electrode 15mm) driven into ground, modules with iron cover, earth clamps, ducts, conductors and 25 mm flexible earthing copper wires and cables from the Neutral bus bar to the Main Distribution bus to the electrode to complete the system as specifications and supervising engineer instructions and approval.	100,000	1	Job	200,000	150,000	150,000
5.3	Surge protection device of appropriate short circuit capacity to secure the overall AC system (phase and power) against lightning and surge surges, including connecting the device to earthing system and all needed accessories	15,000	12	Set	180,000	12,000	144,000
5.4	Grounding Flat Iron, Grounding Network for the plant Area, Power distribution Room, HV power Distribution room	350,000	1	Job	350,000	350,000	350,000
5.5	Automatic Transfer Switch (ATS) 3 phase system. The ATS consist of two 4 poles contactors of appropriate capacity complete with (mechanical & electrical interlock) all needed ACU control fittings such timers, relays, under-voltage, with all needed fittings and accessories to get job ready.	450,000	1	Job	450,000	50,000	50,000
5.6	Phase Failure Protection 4ph. Failure, loss of phase, under voltage, over voltage and phase sequence relay (LRST). Adjustable type with four poles contactor 4*100A and all needed protection devices, control devices and accessories	450,000	1	Job	450,000	450,000	450,000
6	Remote Monitoring & Data Acquisition System						
6.1	Contractor shall Provide the access of Remote Monitoring Mobile App and Server from the Inverter Manufacturer for real time monitoring, Data Logging	50,000	1	Job	50,000	50,000	50,000
7	Services						
7.1	Project Design & Execution	300,000	1	Job	300,000	300,000	300,000
7.2	Handing of Mechanical Mounting Structure	300,000	1	Job	300,000	170,000	170,000
7.3	Installation, testing and Commissioning of Solar System	300,000	1	Job	300,000	300,000	300,000
7.4	Operations and Maintenance (O&M) Service (1 Year)	1,000,000	1	Job	1,000,000	200,000	200,000
7.5	Load Flow Study (Required for Mtr-Metering)	300,000	1	Job	300,000	10,000	10,000
7.6	Manufacturing Process (including Equipment, Fee, Approvals, Documentation, Inspection)	800,000	1	Job	800,000	130,000	130,000
Amount of PV system complete in all respect Sub total A					17,456,000		18,432,000



S	Parting	Description	Engineer's Estimate				SOS W/ab JP GRACE JV	
			Rate	Quantity	Unit	Total Price	Rate	Total Price
26/06		Providing and fixing anti climb high security galvanized mesh net wire having double sharp four U shaped pointed 0.8 mm thick (23mm x 15 mm bars) spaced @ 33 mm etc cladbed with 2.5 mm dia high tensile Core wire having coil fencing of specified diameter @ 4' etc fixed on 2'-3' high MS angle iron post 1 1/2" x 1 1/2" x 3/16" embedded in base of FCC (1:2:4) (4" x 4" x 9") @ 6' apart for the cost of 2 lbs. bars 3/8" dia welded horizontally with angle iron posts, binding wire, painting of posts, etc. complete in all respects as approved and directed by the Engineer incharge. (10) 18" diameter	591.15	600	Per RB	354690	591	354690
26/07		Providing and fixing hot dipped Galvanized iron chain link mesh/venes of 2' x 2' mesh made of wire of specified gauge, with the help of 1" x 1/2" GI post, GI Clamps and screws, for the cost of 3 nos 8 SWG GI pipe (medium quality) spaced @ 8 ft CC (4b) embedded in FCC (1:2:4) etc complete in all respect as approved and directed by the Engineer incharge (Q) 8 SWG	487.30	4800	Per SA	2339640	487	2339640
Sub Total (B)						2,693,330		2,693,330
Total (A+B)						30,549,730		31,125,730.00



Financial Comparison Statement						
Water Works at H Block Connection No-1 Yohari						
S/N	Description	Financial Comparison Statement				
		Engineer's Estimate			M/S Wahab JP CRACE JV	
		Unit Price	Quantity	Unit	Total Price	Total Price
1	PV Modules & Power Generation System					
1.1	Solar Module (2094*1038-38 mm 343W)	80	35,000	Wp	2,800,000	2,870,000
1.2	Inverter (Grid-Tied) 15 KW	650,000	1	Set	650,000	650,000
1.3	PV-Genset Controller	400,000	1	Job	400,000	250,000
1.4	Cable for Interconnection (DC, UV Protected XLPE)	100,000	1	Job	100,000	450,000
1.5	PV Combiner Boxes with DC Breakers / Fuses, SPD's etc. for safety protection	300,000	1	Job	300,000	250,000
2	AC Termination & Accessories					
2.1	AT Termination					
2.1.1	Secondary Comprehensive Protection Cabinet	30,000	1	Set	30,000	30,000
2.1.2	Low Voltage Switchgear Cabinet	30,000	1	Set	30,000	30,000
2.1.3	AC Combiner Breakers for MCCB	50,000	1	Set	50,000	30,000
2.1.4	AC Combiner Breakers for ACB	30,000	1	Set	30,000	30,000
3	Fabricated Items					
3.1	Mounting Structure	12,000	61	Job	732,000	14,000
3.2	Cable Tray	30,000	1	Job	30,000	30,000
3.3	Distribution Bus	30,000	1	Job	30,000	30,000
4	Cables & Accessories					
4.1	AC Cable for Inverter Interconnection 2x sqmm, 4 core, Armored	30,000	1	Set	30,000	30,000
4.2	AC Cable for Combined Output 2x sqmm, 4 Core, Armored	30,000	1	Set	30,000	30,000
4.3	Insulation Material (cable ducts etc.)	30,000	1	Set	30,000	30,000
5	Earthing/ Grounding System / ATS Panels					
5.1	Earthing for PV Solar System complete independent earthing system for PV solar system, must be separated of the main earthing system to obtain 2-ohm max resistance the item includes (1 copper electrode 15mm2 driven into ground, manholes with iron cover, earth joints, clamps, ducts, conduits and 25 mm2 flexible earthing copper wires and cables from the PV system components to the electrode to complete the system as specifications and supervisor engineer instructions and approval.	50,000	1	Job	50,000	150,000
5.2	Earthing System For Inverter / WAPDA / Generator Set Neutral Complete independent earthing system for Inverter / WAPDA / Generator Set Neutral must be separated of the main earthing system to obtain 2-ohm max resistance. the item includes (1 copper electrode 15mm2 driven into ground, manholes with iron cover, earth joints, clamps, ducts, conduits and 25 mm2 flexible earthing copper wires and cables from the Neutral bar in the Main Distribution bus to the electrode to complete the system as specifications and supervisor engineer instructions and approval.	50,000	1	Job	50,000	150,000
5.3	Surge protection Service of appropriate short circuit capacity to secure the overall AC system (ducts and panels) against lightning and surge strikes, including connecting the ducts to earthing system and all needed accessories	12,000	1	Set	12,000	12,000
5.4	Grounding Flat Iron, Grounding Network for the plant Area, Power distribution Room, HV power Distribution room	30,000	1	Job	30,000	30,000
5.5	Automatic Transfer Switch (ATS) 3 phase system. The ATS consist of two 4 poles contactors of appropriate capacity complete with (mechanical & electrical interlock) all needed ACU control fittings such clamps, relays, under voltage, with all needed fittings and accessories to get job ready.	175,000	1	Job	175,000	50,000
5.6	Phase Failure Protection 1ph. Failure, loss of phase, under voltage, over voltage and phase sequence relay (LRST), adjustable type with four poles contactor 4*100A and all needed protection devices, control ducts and accessories	125,000	1	Job	125,000	125,000
6	Remote Monitoring & Data Acquisition System					
6.1	Contractor Shall Provide the access of Remote Monitoring Mobile App and Server from the Inverter Manufacturer for real time monitoring, Data Logging	50,000	1	Job	50,000	50,000
7	Services					
7.1	Project Design & Execution	150,000	1	Job	150,000	150,000
7.2	Erecting of Mechanical Mounting Structure	150,000	1	Job	150,000	70,000
7.3	Installation, testing and Commissioning of Solar System	150,000	1	Job	150,000	150,000
7.4	Operation and Maintenance (O&M) Service (1 Year)	200,000	1	Job	200,000	200,000
7.5	Load Flow Study (Required for Net-Metering)	200,000	1	Job	200,000	10,000
7.6	Net Metering Process (including Equipment, Fee, Approvals, Documentation, Inspection)	250,000	1	Job	250,000	170,000
Amount of PV system complete in all respect Sub total A					7,434,000	8,112,000



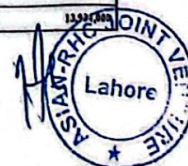
Final Comparison Statement							
Water Works at H Block Connection For 1 Year							
Sl. No.	Description	Final Comparison Statement					
		Engineer's Estimate				BIS Water SF GRACE JV	
		Unit Price	Quantity	Unit	Total Price	Unit Price	Total Price
1	PV Modules & Power Connection System						
1.1	1000 Modules (2004-1024-11 and 1070)	80	11/00	Wp	1,200,000	110	1,650,000
1.2	Inverter (Grid-Tied) 11 KW	100,000	1	Set	100,000	100,000	100,000
1.3	PV Mounting Structure	100,000	1	Job	100,000	100,000	100,000
1.4	Cable for Interconnection (DC) (UV Protected XLPE)	40,000	1	Job	40,000	40,000	40,000
1.5	PV Combiner Boxes with DC Breaker / Fuses, SPD's etc. for safety protection	100,000	1	Job	100,000	100,000	100,000
2	AC Transmission & Accessories						
2.1	AT Transmission						
2.1.1	Secondary Comprehensive Protection Cabinet	25,000	1	Set	25,000	25,000	25,000
2.1.2	Low Voltage Switchgear Cabinet	25,000	1	Set	25,000	25,000	25,000
2.1.3	AC Combiner Boxes for MCCB	20,000	1	Set	20,000	20,000	20,000
2.1.4	AC Combiner Boxes for ACB	20,000	1	Set	20,000	20,000	20,000
3	Substation Items						
3.1	Isolating Structure	15,000	27	Job	225,000	15,000	405,000
3.2	Cable Tray	40,000	1	Job	40,000	40,000	40,000
3.3	Distribution Boxes	40,000	1	Job	40,000	40,000	40,000
4	Cable & Accessories						
4.1	AC Cable for Inverter Interconnection 25 sqmm, 1 core, Armored	15,000	1	Set	15,000	15,000	15,000
4.2	AC Cable for Combiner Output 25 sqmm, 4 Core, Armored	15,000	1	Set	15,000	15,000	15,000
4.3	Installation Material (cable Ducts etc.)	15,000	1	Set	15,000	15,000	15,000
5	Earthing/ Grounding System / ATS Panels						
5.1	Earthing for PV Solar System complete independent earthing system for PV solar system, must be separated of the main earthing system to obtain 2-ohm max resistance the item includes 25 copper electrodes 150mm dia into ground, electrodes with low cover, earth plates, clamps, ducts, conductors and 25 mm ² flexible earthing copper wires and cables from the PV system components to the electrode to complete the system as per specifications and supervisor engineer instructions and approval.	40,000	1	Job	40,000	100,000	100,000
5.2	Earthing System For Inverter / WAFDA / Generator Set Neutral Complete independent earthing system for Inverter / WAFDA / Generator Set Neutral must be separated of the main earthing system to obtain 2-ohm max resistance, the item includes 25 copper electrodes 150mm dia into ground, electrodes with low cover, earth plates, clamps, ducts, conductors and 25 mm ² flexible earthing copper wires and cables from the Inverter bus bar in the Main Distribution box to the electrode to complete the system as per specifications and supervisor engineer instructions and approval.	40,000	1	Job	40,000	100,000	100,000
5.3	Surge protection device of appropriate short circuit capacity to secure the overall AC system (data and power) against lightning and surge strikes, including connecting the device to earthing system and all needed accessories	12,000	2	Set	24,000	12,000	24,000
5.4	Grounding Flat Iron, Grounding Network for the plant Area, Power Distribution Room, HV power Distribution room	50,000	1	Job	50,000	50,000	50,000
5.5	Automatic Transfer Switch (ATS) 3 phase system. The ATS consist of two 4 poles contactors of appropriate capacity complete with mechanical & electrical interlock all needed ACU control fittings such fuses, relays, under-voltage, with all needed fittings and accessories to get job ready.	25,000	1	Job	25,000	50,000	50,000
5.6	Phase Failure Protection 3ph. Failure, loss of phase, under voltage, over voltage and phase sequence relay (LRST), adjustable type with four poles contactor 4*100A and all needed protection devices, control devices and accessories	100,000	1	Job	100,000	100,000	100,000
6	Remote Monitoring & Data Acquisition System						
6.1	Contractor shall provide the access of Remote Monitoring Mobile App and Server from the Inverter Manufacturer for real time monitoring, Data Logging	25,000	1	Job	25,000	25,000	25,000
7	Services						
7.1	Project Design & Execution	25,000	1	Job	25,000	600,000	600,000
7.2	Errecting of Mechanical Mounting Structure	25,000	1	Job	25,000	20,000	20,000
7.3	Installation, testing and Commissioning of Solar System	25,000	1	Job	25,000	25,000	25,000
7.4	Operation and Maintenance (O&M) Services (1 Year)	200,000	1	Job	200,000	200,000	200,000
7.5	Load Flow Study (Required for Net-Metering)	25,000	1	Job	25,000	10,000	10,000
7.6	Net-Metering Process (Including Equipment, Fee, Approvals, Documentation, Inspection)	110,000	1	Job	110,000	130,000	130,000
Amount of PV system complete in all respect Sub total A					2,312,000		4,391,000



Sl. No.	Particulars	Engineer's Estimate				SIS Work IF GRACE IV	
		Rate	Quantity	Unit	Total Price	Rate	Total Price
20/25	Providing and fixing mild steel high tensile galvanized mesh on tubes having double sharp bend U-shaped pattern 0.3 mm thick (20mm x 20 mm holes) spaced @ 33 mm etc. welded mesh on 2.5 mm dia high tensile steel mesh having specified diameter @ 4" etc. fixed on 2.5" high 180 degree iron post 1 1/2" x 1 1/2" x 1/16" embedded in base of FCC (1.3.4) iron posts, spacing etc. apart in the rest of 2 1/2" dia 3/16" dia welded horizontally with angle directed by the Engineer incharge.	391.13	300	Per sq ft	117339	391	117339
20/27	Providing and fixing hot dipped galvanized iron plate fish mesh/iron of 2"x3" mesh made of wire of specified gauge, with the help of 1"x1/2" GI post, GI Clamps and screws, in the rest of 2 nos 8 SWG GI dia where penetrated through mesh at top, middle and bottom, fixed on vertical posts of 2" diameter GI pipes (medium quality) spaced @ 8 ft C/C duly embedded in FCC(1:3:4) etc. complete in all respect as approved and directed by the Engineer incharge.	487.50	2000	Per sq ft	116930	487	116930
Sub Total (B)					1,342,665		1,342,665
Total (A+B)					4,827,865		4,827,865.00



Financial Comparison Statement							
Water Works at People's Colony Vohal							
S/N	Description	Financial Comparison Statement					
		Engineer's Estimate				M/S Wahab JP GRACE JV	
		Unit Price	Quantity	Unit	Total Price	Unit Price	Total Price
1	PV Modules & Power Generation System						
1.1	Solar Module(204*1038*35 mm 343W)	80	60,000	Wp	4,800,000	111	6,720,000
1.2	Inverter (Grid-Tied) 60 KW	1,000,000	1	Set	1,000,000	1,000,000	1,000,000
1.3	PV-Onnet Controller	400,000	1	Job	400,000	200,000	200,000
1.4	Cable for Interconnection (DC)(UV Protected XLPE)	200,000	1	Job	200,000	400,000	400,000
1.5	PV Combiner Boxes with DC Breaker / Fuses , SPD's etc. for riving protection	200,000	1	Job	200,000	200,000	200,000
2	AC Termination & Accessories						
2.1	LT Termination						
2.1.1	Secondary Comprehensive Protection Cabinet	150,000	1	Set	150,000	150,000	150,000
2.1.2	Low Voltage Switchgear Cabinet	150,000	1	Set	150,000	150,000	150,000
2.1.3	AC Combiner Breakers for MCCB	150,000	1	Set	150,000	150,000	150,000
2.1.4	AC Combiner Breakers for ACF	150,000	1	Set	150,000	150,000	150,000
3	Fabricated Items						
3.1	Mounting Structures	12,000	100	Job	1,200,000	16,000	1,600,000
3.2	Cable Tray	150,000	1	Job	150,000	150,000	150,000
3.3	Distribution Boxes	150,000	1	Job	150,000	150,000	150,000
4	Cables & Accessories						
4.1	AC Cables for Inverter Interconnection 3x sqmm, 4 core, Armored	150,000	1	Set	150,000	150,000	150,000
4.2	AC Cables for Combined Output 3x sqmm, 4 Core, Armored	150,000	1	Set	150,000	150,000	150,000
4.3	Installation Material (cable Ducts etc)	100,000	1	Set	100,000	100,000	100,000
5	Earthing/ Grounding System / ATS Panels						
5.1	Earthing for PV Solar System complete independent earthing system for PV solar system must be separated of the main earthing system to obtain 2-ohm max resistance. The item includes (2 copper electrodes 15mmØ driven into ground, earth rods with lead cover, earth joints, clamps, ducts, conductors and 35 mmØ flexible earthing copper wires and cables (Yellow/Green) from the PV system components to the electrode to complete the system as specifications and supervisor engineer instructions and approval.	100,000	1	Job	100,000	150,000	150,000
5.2	Earthing System For Inverter / WAPDA / Generator Set Neutral Complete independent earthing system for Inverter / WAPDA / Generator Set Neutral must be separated of the main earthing system to obtain 2-ohm max resistance. The item includes (2 copper electrodes 15mmØ driven into ground, earth rods with lead cover, earth joints, clamps, ducts, conductors and 35 mmØ flexible earthing copper wires and cables from the Neutral bus bar in the Main Distribution bus to the electrode to complete the system as specifications and supervisor engineer instructions and approval.	100,000	1	Job	100,000	150,000	150,000
5.3	Surge protection device of appropriate short circuit capacity to secure the overall AC system (data and power) against lightning and surge surges, including connecting the device to earthing system and all needed accessories	15,000	7	Set	105,000	12,000	84,000
5.4	Grounding Flat Iron, Grounding Network for the plant Area, Power distribution Room, HV power Distribution room	200,000	1	Job	200,000	200,000	200,000
5.5	Automatic Transfer Switch (ATS) 3 phase system. The ATS consist of two 4 poles contactors of appropriate capacity complete with (Mechanical & electrical interlock) all needed ACU control fittings such timers, relays, undervoltage, with all needed fittings and accessories to get job ready.	200,000	1	Job	200,000	30,000	30,000
5.6	Phase Failure Protection 3ph. Failure, loss of phase, under voltage, over voltage and phase sequence relay (LRST), adjustable type with four poles contactor 4*100A and all needed protection devices, control devices and accessories	200,000	1	Job	200,000	200,000	200,000
6	Remote Monitoring & Data Acquisition System						
6.1	Contractor shall Provide the access of Remote Monitoring Mobile App and Server from the Inverter Manufacturer for real time monitoring, Data Logging	50,000	1	Job	50,000	50,000	50,000
7	Services						
7.1	Project Design & Execution	200,000	1	Job	200,000	600,000	600,000
7.2	Erecting of Mechanical Mounting Structure	200,000	1	Job	200,000	100,000	100,000
7.3	Installation, testing and Commissioning of Solar System	200,000	1	Job	200,000	200,000	200,000
7.4	Operations and Maintenance (O&M) Services (1 Year)	600,000	1	Job	600,000	200,000	200,000
7.5	Load Flow Study (Required for Net-Metering)	200,000	1	Job	200,000	10,000	10,000
7.6	Net-Metering Process (Including Equipment, For, Approvals, Documentation, Inspection)	500,000	1	Job	500,000	100,000	100,000
Amount of PV system complete in all respect Sub total A					12,252,000		



Sl. No.	Description	Engineer's Estimate				BIS Value of Contract	
		Rate	Quantity	Unit	Total Price	Rate	Total Price
2666	Drilling and fixing mild steel high tensile galvanized steel wire having double duty low carbon steel (20mm dia) and having length of 20 mm dia drilled wire 2.5 mm dia high tensile steel wire having length of specified diameter of 4' dia steel wire 2" dia high tensile steel wire having length of specified diameter of 4' dia (20mm dia) of 4' length for the use of 2 No. low SW for drilled horizontally with angle iron plates. Working wire, painting of parts, etc. complete in all respects as approved and directed by the Engineer-in-charge. (1) 20mm dia	200.00	40	Per M	20000.00	200	20000.00
2667	Drilling and fixing hot dipped galvanized low carbon steel rods of 20mm dia and of size of specified gauge, with the help of 2" dia of part, 1/2" clamp and nut, in the form of 2 nos. 2 SW for wire passed through each at top, middle and bottom, fixed on vertical posts of 2" diameter GI pipe (section quality) coated @ 2.5 CC dia embedded in RCC (1:2:4) etc. complete in all respect as approved and directed by the Engineer-in-charge. (1) 2 SW	400.00	200	Per M	20000.00	400	20000.00
Sub Total (B)						40000.00	
Total (A+B)						64000.00	64000.00



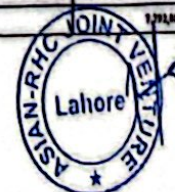
Financial Comparison Statement							
Water Works at Madina Colony Vohar							
Ser	Description	Financial Comparison Statement					
		Engineer's Estimate			BWS Wahab SF GRACE JV		
		Unit Price	Quantity	Unit	Total Price	Unit Price	Total Price
1	PV Modules & Power Generation System						
1.1	Solar Module (2091*1036-33 mm 315W)	80	40,000	Wp	3,200,000	111	4,401,000
1.2	Inverter (Grid-Tied 40 KW)	730,000	1	Set	730,000	230,000	730,000
1.3	PV Mounting Structure	430,000	1	Job	430,000	230,000	230,000
1.4	Cable for Interconnection (DC/UV Protected XLPE)	100,000	1	Job	100,000	400,000	400,000
1.5	PV Combiner Boxes with DC Breakers / Fuses, SPD's etc. for safety protection	200,000	1	Job	200,000	250,000	250,000
2	AC Termination & Accessories						
2.1	HT Termination						
2.1.1	Secondary Comprehensive Protection Cabinet	20,000	1	Set	20,000	20,000	20,000
2.1.2	Low Voltage Switchgear Cabinet	20,000	1	Set	20,000	20,000	20,000
2.1.3	AC Combiner Breakers for MCCB	20,000	1	Set	20,000	20,000	20,000
2.1.4	AC Combiner Breakers for ACD	20,000	1	Set	20,000	20,000	20,000
2.2	Fabricated Items						
2.2.1	Mounting Structure	12,000	70	Job	840,000	16,000	1,120,000
2.2.2	Cable Tray	20,000	1	Job	20,000	20,000	20,000
2.2.3	Distribution Boxes	20,000	1	Job	20,000	20,000	20,000
2.3	Cable & Accessories						
2.3.1	AC Cable for Inverter Interconnection 2x sqmm, 4 core, Armored	20,000	1	Set	20,000	20,000	20,000
2.3.2	AC Cable for Combined Output 2x sqmm, 4 Core, Armored	20,000	1	Set	20,000	20,000	20,000
2.3.3	Installation Material (cable ducts etc.)	20,000	1	Set	20,000	20,000	20,000
3	Earthing/ Grounding System / ATS Panels						
3.1	Earthing for PV Solar System complete independent earthing system for PV solar system must be separated of the main earthing system to obtain 2-ohm max resistance the item includes (1 copper electrode 15mm ² driven into ground, manholes with iron cover, earth joints, clamps, ducts, conduits and 25 mm ² flexible earthing copper wires and cables (Yellow/Green) from the PV system components to the electrode to complete the system as per specifications and supervisor engineer instructions and approval.	20,000	1	Job	20,000	150,000	150,000
3.2	Earthing System For Inverter / WAPDA / Generator Set Neutral Complete independent earthing system for Inverter / WAPDA / Generator Set Neutral must be separated of the main earthing system to obtain 2-ohm max resistance. The item includes (1 copper electrode 15mm ² driven into ground, manholes with iron cover, earth joints, clamps, ducts, conduits and 25 mm ² flexible earthing copper wires and cables from the Neutral bus bar in the Main Distribution bus to the electrode to complete the system as per specifications and supervisor engineer instructions and approval.	20,000	1	Job	20,000	150,000	150,000
3.3	Surge protection device of appropriate short circuit capacity to secure the overall AC system (data and power) against lightning and surge strikes, including connecting the device to earthing system and all needed accessories	12,000	1	Set	12,000	12,000	12,000
3.4	Grounding Flat Iron, Grounding Network for the plant Area, Power distribution Room, HV power Distribution room	20,000	1	Job	20,000	20,000	20,000
3.5	Automatic Transfer Switch (ATS) 3 phase system. The ATS consist of two 4 poles contactors of appropriate capacity complete with (Mechanical & electrical Interlock) all needed ACU control fittings such timer, relay, undervoltage, with all needed fittings and accessories to get job ready.	200,000	1	Job	200,000	50,000	50,000
3.6	Phase Failure Protection 3ph Failure, loss of phase, under voltage, over voltage and phase sequence relay (LRST), adjustable type with four poles contactor 4*100A and all needed protection devices, control devices and accessories	150,000	1	Job	150,000	150,000	150,000
4	Remote Monitoring & Data Acquisition System						
4.1	Contractor Shall Provide the access of Remote Monitoring Mobile App and Server from the Inverter Manufacturer for real time monitoring, Data Logging	20,000	1	Job	20,000	20,000	20,000
5	Services						
5.1	Project Design & Execution	150,000	1	Job	150,000	600,000	600,000
5.2	Errecting of Mechanical Mounting Structure	150,000	1	Job	150,000	20,000	20,000
5.3	Installation, testing and Commissioning of Solar System	150,000	1	Job	150,000	150,000	150,000
5.4	Operation and Maintenance O&M Services (1 Year)	600,000	1	Job	600,000	200,000	200,000
5.5	Load Flow Study (Required for Net-Metering)	200,000	1	Job	200,000	10,000	10,000
5.6	Net Metering Process (including Equipment, Fee, Approvals, Documentation, Inspection)	200,000	1	Job	200,000	150,000	150,000



		Amount of PV system complete in all respect Sub total A				0.071,000	
B	Parting	Engineer's Estimate				SOS WASH IF GRACE PV	
Slms Ref	Description	Rate	Quantity	Unit	Total Price	Rate	Total Price
20/08	Pre-wiring and fixing and etch high security galvanized wires on wire having double sharp bend. Unalloyed polished 0.2 mm thick (23mm) 8 mm bars) spaced @ 33 mm air clearance over 2.8 mm dia high tensile Clow wire having well finishing of specified diameter @ 2' air fixed on 1'-3" high 500 angle iron post 100"x100"x10" embedded in base of RCC (1.5' @ 1"x1"x9") @ 4' apart in the rest of 2 dia. from 20" dia welded horizontally with angle iron posts, binding wire, painting of posts, etc. complete in all respects as approved and directed by the Engineer incharge. (10 10" diameter)	221.13	450	Per BA	236450	221	236450
20/07	Pre-wiring and fixing hot dipped Galvanized iron chain link mesh/rope of 2"x2" mesh made of wire of specified gauge, with the help of 1"x1/2" GI post, GI Clamps and screws, in the rest of 2 mm @ 2000 GI or wires penetrated through mesh at top, middle and bottom, fixed on vertical posts of 2" diameter GI pipes (medium quality) erected @ 2 B CC 4/d) embedded in RCC(1.2:1) etc. complete in all respect as approved and directed by the Engineer incharge (10 @ 2000)	487.30	3100	Per BA	1530540	487	1530540
		Sub Total (B)			1,795,830		1,795,830
		Total (A+B)			10,087,830		11,307,830.00



Financial Comparison Statement							
Water Works at Shargh Colony Vabad							
S/N	Description	Financial Comparison Statement					
		Engineer's Estimate				BIS Water IP GRACE JV	
		Unit Price	Quantity	Unit	Total Price	Unit Price	Total Price
1	PV Modules & Power Generation System						
1.1	Solar Modules (2011-1030-33 mm 141W)	80	20,000	Wp	1,600,000	111	2,200,000
1.2	Inverter (Grid-Tied) 20 KW	600,000	1	Set	600,000	600,000	600,000
1.3	PV Mount Controller	200,000	1	Set	200,000	200,000	200,000
1.4	Cable for interconnection (DC) (1KV Protected) 30.750	100,000	1	Set	100,000	100,000	100,000
1.5	PV Combiner Boxes with DC Breakers / Fuses / SPD's etc. for rating protection	100,000	1	Set	100,000	100,000	100,000
2	AC Transmission & Accessories						
2.1	LT Transmission						
2.1.1	Secondary Comprehensive Protection Cabinet	40,000	1	Set	40,000	40,000	40,000
2.1.2	Low Voltage Switchgear Cabinet	40,000	1	Set	40,000	40,000	40,000
2.1.3	AC Combiner Boxes for MCCB	40,000	1	Set	40,000	40,000	40,000
2.1.4	AC Combiner Boxes for ACB	40,000	1	Set	40,000	40,000	40,000
2	Fabricated Items						
2.1	Skidding Structure	10,000	20	Set	200,000	10,000	200,000
2.2	Cable Tray	20,000	1	Set	20,000	20,000	20,000
2.3	Distribution Boxes	20,000	1	Set	20,000	20,000	20,000
3	Cables & Accessories						
3.1	AC Cable for Inverter Interconnection 110 sqmm, 4 core, Armored	40,000	1	Set	40,000	40,000	40,000
3.2	AC Cable for Combined Output 110 sqmm, 4 Core, Armored	40,000	1	Set	40,000	40,000	40,000
3.3	Installation Material (cable ducts etc.)	40,000	1	Set	40,000	40,000	40,000
4	Earthing/ Grounding System / ATS Panels						
4.1	Earthing for PV Solar System complete independent earthing system for PV solar system must be separated of the main earthing system to obtain 2-ohm max resistance. The item includes (2 copper electrodes 15mm) driven into ground, modules with iron cover, earth joints, clamps, ducts, conduits and 25 mm ² flexible earthing copper wires and cables (Yellow/Green) from the PV system components to the electrode to complete the system as per specifications and supervisor engineer instructions and approval.	40,000	1	Set	40,000	100,000	100,000
4.2	Earthing System For Inverter / WAPDA / Generator Set Neutral Complete independent earthing system for Inverter / WAPDA / Generator Set Neutral must be separated of the main earthing system to obtain 2-ohm max resistance. The item includes (2 copper electrodes 15mm) driven into ground, modules with iron cover, earth joints, clamps, ducts, conduits and 25 mm ² flexible earthing copper wires and cables from the inverter bus bar in the Main Distribution bus to the electrode to complete the system as per specifications and supervisor engineer instructions and approval.	40,000	1	Set	40,000	100,000	100,000
4.3	Surge protection device of appropriate short circuit capacity to secure the overall AC system (data and power) against lightning and surges strikes, including connecting the device to earthing system and all needed accessories	12,000	1	Set	12,000	12,000	12,000
4.4	Grounding Flat Iron, Grounding Network for the plant Area, Power distribution Room, HV power Distribution room	20,000	1	Set	20,000	20,000	20,000
4.5	Automatic Transfer Switch (ATS) 3 phase system. The ATS consist of two 4 pole contactors of appropriate capacity complete with (mechanical & electrical interlocks) all needed ACU control fittings such fuses, adapt, underwiring, with all needed fittings and accessories to get job ready.	150,000	1	Set	150,000	20,000	20,000
4.6	Phase Failure Protection 3ph, Failure, loss of phase, under voltage, over voltage and phase sequence relay (LRST), adjustable type with three poles contactor 4*100A and all needed protection devices, control devices and accessories	100,000	1	Set	100,000	100,000	100,000
5	Remote Monitoring & Data Acquisition System						
5.1	Contractor shall provide the access of Remote Monitoring Mobile App and Server from the Inverter Manufacturer for real time monitoring, Data Logging	20,000	1	Set	20,000	20,000	20,000
6	Services						
6.1	Project Design & Execution	100,000	1	Set	100,000	600,000	600,000
6.2	Erasing of Mechanical Monitoring Structure	120,000	1	Set	120,000	60,000	60,000
6.3	Installation, testing and Commissioning of Solar System	120,000	1	Set	120,000	120,000	120,000
6.4	Operation and Maintenance (O&M) Services (1 Year)	600,000	1	Set	600,000	200,000	200,000
6.5	Load Flow Study (Required for Net-Metering)	190,000	1	Set	190,000	20,000	20,000
6.6	Net Metering Process (including Equipment, Fee, Approvals, Documentation, Inspection)	220,000	1	Set	220,000	130,000	130,000
Amount of PV system complete in all respect Sub total A					4,310,000		4,310,000



Sl. No.	Particulars	Engineer's Estimate				S/S Work of GRACE IV	
		Rate	Quantity	Unit	Total Price	Rate	Total Price
2046	Procuring and fixing steel chain high tensile galvanized steel rod wire having double sharp ends 12 shaped pointed 0.5 mm thick (23mm x 1 mm holes) spaced @ 33 mm c/c chain length 2.2 mm dia high tensile Core wire making coil having of specified diameter @ 4" dia fixed on 2.2" high 1/2" angle iron post 1/2" x 1/2" x 1/2" embedded in base of FCC (1.2.4) (1" x 1/2" x 1/2") @ 4" apart in the case of 2 dia. base 1/2" dia welded horizontally with angle iron posts, binding wire, painting of posts, etc. complete in all respects as approved and directed by the Engineer incharge. (Ø 18" diameter)	591.15	300	Per BA	177345	591	177345
2047	Procuring and fixing hot dipped Galvanized steel chain link mesh/rope of 2"x2" mesh made of wire of specified gauge, with the help of 1" x 1/2" ØI post, ØI Clamps and covers, in the post of 2 dia Ø SWG ØI the wires penetrated through mesh at top, middle and bottom, fixed on vertical posts of 2" diameter ØI pipes (minimum quality) erected @ 8' x 8' C/C duly embedded in FCC(1.2.4) etc. complete in all respect as approved and directed by the Engineer incharge (Ø 8 SWG)	487.50	2100	Per BA	1183250	487	1022700
Sub Total (B)					1,356,695		1,356,695
Total (A+B)					7,654,865		9,139,865.00



Financial Comparison Statement							
Water Works at Amarsahel Vohra							
S/N	Description	Financial Comparison Statement					
		Engineer's Estimate				MS Walsh & Grace JV	
		Unit Price	Quantity	Unit	Total Price	Unit Price	Total Price
1	PV Inverter & Power Generation System						
1.1	Solar Inverter (2000-1000W 110v 240V)	80	30,000	Qty	2,400,000	111	3,330,000
1.2	Inverter (Child-Proof) 33 KW	800,000	1	Set	800,000	800,000	800,000
1.3	PV-Output Controller	200,000	1	Set	200,000	200,000	200,000
1.4	Cable for Interconnection (DC) UV Protected XLPE	100,000	1	Set	100,000	100,000	100,000
1.5	PV Combiner Boxes with DC Breakers / Fuses, SPD's etc. for string protection	150,000	1	Set	150,000	150,000	150,000
2	AC Termination & Accessories						
2.1	LT Termination						
2.1.1	Secondary Comprehensive Protection Cabinet	40,000	1	Set	40,000	40,000	40,000
2.1.2	Low Voltage Switchgear Cabinet	40,000	1	Set	40,000	40,000	40,000
2.1.3	AC Combiner Breakers for MCCB	40,000	1	Set	40,000	40,000	40,000
2.1.4	AC Combiner Breakers for ACB	40,000	1	Set	40,000	40,000	40,000
3	Fabricated Items						
3.1	Mounting Structure	12,000	53	Set	636,000	12,000	636,000
3.2	Cable Tray	30,000	1	Set	30,000	30,000	30,000
3.3	Distribution Busbar	30,000	1	Set	30,000	30,000	30,000
4	Cables & Accessories						
4.1	AC Cable for Inverter Interconnection 2x 1sqm, 4 core, Armored	45,000	1	Set	45,000	45,000	45,000
4.2	AC Cable for Combined Output 2x 1sqm, 4 Core, Armored	45,000	1	Set	45,000	45,000	45,000
4.3	Insulation Material (cable ducts etc.)	45,000	1	Set	45,000	45,000	45,000
5	Earthing/ Grounding System / ATS Panels						
5.1	Earthing for PV Solar System complete independent earthing system for PV solar system must be separated of the main earthing system to obtain 2-ohm max resistance. The item includes (2) copper electrodes 15mmØ driven into ground, modules with iron cover, earth joints, clamps, ducts, conduits and 25 mmØ flexible earthing copper wires and cables from the electrode to the Main Distribution bus in the electrical room to complete the system as per specifications and supervisor engineer instructions and approval.	45,000	1	Set	45,000	150,000	150,000
5.2	Earthing System For Inverter / WAPDA / Generator Set Neutral Complete independent earthing system for Inverter / WAPDA / Generator Set Neutral must be separated of the main earthing system to obtain 2-ohm max resistance. The item includes (2) copper electrodes 15mmØ driven into ground, modules with iron cover, earth joints, clamps, ducts, conduits and 25 mmØ flexible earthing copper wires and cables from the electrode to the Main Distribution bus in the electrical room to complete the system as per specifications and supervisor engineer instructions and approval.	45,000	1	Set	45,000	150,000	150,000
5.3	Surge protection device of appropriate short circuit capacity to secure the overall AC system (data and power) against lightning and surge strikes, including connecting the device to earthing system and all needed accessories	12,000	2	Set	24,000	12,000	24,000
5.4	Grounding Flat Iron, Grounding Network for the plant Area, Power distribution Room, HV power Distribution room	30,000	1	Set	30,000	30,000	30,000
5.5	Automatic Transfer Switch (ATS) 3 phase system. The ATS consist of two 4 pole contactors of appropriate capacity complete with (Mechanical & electrical interlock) all needed ACU control fittings such as timer, relay, under-voltage, with all needed fittings and accessories to get job ready.	150,000	1	Set	150,000	30,000	30,000
5.6	Phase Failure Protection 3ph. Failure, loss of phase, under voltage, over voltage and phase sequence relay (LRST), adjustable type with four poles contactor 4*100A and all needed protection devices, control devices and accessories	100,000	1	Set	100,000	100,000	100,000
6	Remote Monitoring & Data Acquisition System						
6.1	Contractor shall provide the access of Remote Monitoring Mobile App and Server from the Inverter Manufacturer for real time monitoring, Data Logging	30,000	1	Set	30,000	30,000	30,000
7	Services						
7.1	Project Design & Execution	100,000	1	Set	100,000	600,000	600,000
7.2	Earthing of Mechanical Mounting Structure	125,000	1	Set	125,000	60,000	60,000
7.3	Installation, testing and Commissioning of Solar System	125,000	1	Set	125,000	30,000	30,000
7.4	Operation and Maintenance (O&M) Services (1 Year)	600,000	1	Set	600,000	100,000	200,000
7.5	Load Flow Study (Required for Net-Metering)	190,000	1	Set	190,000	10,000	10,000
7.6	Net-Metering Process (including Equipment, Fee, Approvals, Documentation, Inspection)	225,000	1	Set	225,000	120,000	120,000



Amount of PV system complete in all respect Sub total A					4,000,000		1,000,000		
Sl. No.	Description	Engineer's Estimate			ESTIMATE OF GRADE IV				
		Rate	Quantity	Unit	Total Price	Rate	Total Price		
200001	Supplying and fixing cast steel high security galvanised screw cast wire having double sharp edge Unthreaded portion 1 mm dia (1.2mm) 1 mm length spaced @ 11 mm in circular form 1.1 mm dia high heads Cast wire having all finishing of specified diameter @ 1' in length on 1'-0" high with angle iron post (10"x10"x1/2") embedded in base of PCC (1:2:4) 12"x12"x1/2" @ 4' apart in the case of 1 dia. base 1/2" dia welded horizontally with angle iron post. Working wire, painting of post, etc. complete in all respect as approved and directed by the Engineer-in-Charge.	100.00	200	Per 100	20000.00	100	20000.00		
200002	Supplying and fixing hot dipped Galvalume iron chain link mesh of 1'x1' mesh mesh and wire of specified gauge, with the help of 1"x1/2" GI post, GI Clamps and screws, by the use of 1/2" wire 1:2:4 concrete in wire post through mesh at top, middle and bottom, fixed mesh vertical posts of 1" diameter GI pipes (medium quality) spaced @ 4' & CC slab embedded in PCC(1:2:4) etc. complete in all respect as approved and directed by the Engineer-in-Charge.	100.00	2000	Per 100	200000.00	100	200000.00		
Sub Total (B)							2,00,000.00	2,00,000.00	
Total (A+B)							4,20,000.00	4,20,000.00	



9200121-PMDFC (PKG-04)-301
March 05, 2024

Chief Officer
Municipal Committee,
Vehari.

**Consultancy Services for Detailed Design of Infrastructure Sub-Projects, Sectoral
Planning & Resident Supervision in 16 Cities of Punjab-Package No. 4"**
Technical Evaluation of Solarization Sub – Projects – MC Vehari

Reference:

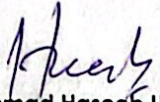
1. PMDFC/PCP/PO (P)/7189 Dated: February 28, 2024

Dear Sir,

With reference to above cited letter from PMDFC office please find attached herewith the Technical Evaluation Report of bidders for subject sub – projects in MC Vehari. Assuring you best professional services all the times.

Yours sincerely,

For Asian Consulting Engineers (Pvt) Limited


Engr. Muhammad Haseeb Ur Rehman
CRE/Team Leader
Email: haseeb.ur.rehman@asiancon.com



Mob: 99/3/24
9/3/24

Attachments

- Technical Evaluation Report

CC:

- | | |
|----------------------------------|---------------------------------|
| 1- DPD, PCP, PMDFC | 4- PO (Procurement), PCP, PMDFC |
| 2- SPO (Procurement), PCP, PMDFC | 5- Municipal Officer (I&S) |
| 3- PO (ID) PMDFC | 6- Office File |

MUNICIPAL COMMITTEE VEHARI
SOLARIZATION OF TUBEWELLS AND DISPOSAL STATION IN
VEHARI CITY

Technical Evaluation – Summary

A. Eligibility Criteria (Part-A)

Category	Description	Requirement	Bidder's Name		
			Abdul Wahab & Enterprises & Ahmed & Co JV	Asghar & Co STZ JV	M/S Wahab Engineering Svcs M/S 3P Solutions (Pvt) Ltd M/S Grace Solar
Legal	Duly licensed by the Pakistan Engineering Council (PEC) in the category C3 & Above with relevant code EE-11. Alternative Energy Development Board (AEDB) certification in C1. In case of Joint Venture, the Lead partner must be registered in the category C3 & Above with the relevant code for PEC, and the other member/s should have at least registration from PEC. Further, at least one member of JV shall have AEDB certification in C1. No foreign Firm(s) is allowed to participate whether as Single entity or Lead member of JV.	Mandatory	C2 & CA (JV) AEDB C-1 (JV)	CA AEDB C-1	CA AEDB C-1
	The bidder shall not have conflict of interest in the instant work. All the bidders found to have conflict of interest shall be considered as non-responsive.	Mandatory	Encl	Encl	Encl
	Valid legal entity of the bidder / firm/ company e.g. Certificate of registration from SECP or registrar of firms etc.	Mandatory	Encl	Encl	Encl
	Certificate of registration with Active Income Tax & Active Sales Tax under Relevant Authority.	Mandatory	Encl	Encl	Encl
	Affidavit on Non-Judicial Stamp paper for No litigation OR submission of Litigation History of last 10 years.	Mandatory	Not encl	Encl	Encl
	Affidavit declaring "Neither the firms nor its Directors, Stakeholders, as a whole or as a part of the firm have ever been black listed/ defaulted by any government agency / department / organization / Donors or settled dispute in plea bargain or Volunteer recovery".	Mandatory	Encl	Encl	Encl
	Bid Property signed	Mandatory	Encl	Encl	Encl
	Bid Security	Mandatory	Encl	Encl	Encl
	Signed Integrity Pact	Mandatory	Encl	Encl	Encl
	Bid Responsiveness			Non Responsive	Responsive



MUNICIPAL COMMITTEE VEHARI
SOLARIZATION OF TUBEWELLS AND DISPOSAL STATION IN VEHARI
CITY

Technical Evaluation – Summary

Eligibility Criteria (Part-B)

Category	Description	Requirement	Bidder's Name		
			Abdul Wahab & Enterprises & Ahmed & Co JV	Asghar & Co STZ JV	M/S Wahab Engineering Svcs M/S 3P Solutions (Pvt) Ltd M/S Grace Solar
Legal	<p>Solar Modules Wafer Type: N Type Cell Technology: HJT Bifacial PV Panel Size: 600W or Above Cell Quality: A grade, Tier-1 (Bloomberg) Model/Make: Longi, Risen, JA, Jinko, Huasun or equivalent Maximum Module Efficiency: 22% or above First Year Power Degradation: 2% or less Product Warranty: 10 Years or more Linear output warranty: 25 years or more</p>	Bidder to Specify	N Type Non HJT	N Type HJT	N Type HJT
	<p>Inverter (Grid Type) Max Input Power (KW): 95 - 100KW (According to requirement of 95KW) accumulative capacity of Inverter Must be equal or greater than Total PV Capacity Type of Inverter: Grid-Tied, 3 phases, WAPDA/Gen.sync, With WiFi Dongle and Data Logger for Remote Monitoring & All Allied Accessories Efficiency: 98% Peak Rated Power @ 400 V, 50Hz: 95KW Minimum Standby power consumption: less than 10W Warranty: 5 Years replacement or more Nominal AC Voltage: 3c, 230/400 VAC 50Hz Protection: Ground Fault Protection, Leakage Protection LVRT: Grid Frequency under/over Ingress protection rating: IP65 or above</p>	Bidder to Specify	Attached	Attached	Attached
	<p>Max Input Power (KW): 100 KW to 150 KW (According to requirement of 115 KW) accumulative capacity of Inverter Must be equal or greater than Total PV Capacity Type of Inverter: Grid-Tied, 3 phases, WAPDA/Gen.sync, With WiFi Dongle and Data Logger for Remote Monitoring & All Allied Accessories Efficiency: 98% Peak Rated Power @ 400 V, 50Hz: 115 KW Minimum Standby power consumption: less than 10W Warranty: 5 Years replacement or more Nominal AC Voltage: 3c, 230/400 VAC 50Hz</p>	Bidder to Specify	Attached	Attached	Attached



	<p>Protection: Ground Fault Protection, Leakage Protection LVRT: Grid Frequency under/over Ingress protection rating: IP65 or above</p>				
	<p>Max Input Power (KW): 100 KW to 150 KW (According to requirement of 115 KW) accumulative capacity of Inverter Must be equal or greater than Total PV Capacity Type of Inverter: Grid-Tied, 3 phases, WAPDA/Gen.sync, With WiFi Dongle and Data Logger for Remote Monitoring & All Allied Accessories Efficiency: 98% Peak Rated Power @ 400 V, 50Hz: 115 KW Minimum Standby power consumption: less than 10W Warranty: 5 Years replacement or more Nominal AC Voltage: 3c, 230/400 VAC 50Hz Protection: Ground Fault Protection, Leakage Protection LVRT: Grid Frequency under/over Ingress protection rating: IP65 or above</p>	Bidder to Specify	Attached	Attached	Attached
	<p>Max Input Power (KW): 50 KW accumulative capacity of Inverter Must be equal or greater than Total PV Capacity Type of Inverter: Grid-Tied, 3 phases, WAPDA/Gen.sync, With WiFi Dongle and Data Logger for Remote Monitoring & All Allied Accessories Efficiency: 98% Peak Rated Power @ 400 V, 50Hz: 50 KW Minimum Standby power consumption: less than 10W Warranty: 5 Years replacement or more Nominal AC Voltage: 3c, 230/400 VAC 50Hz Protection: Ground Fault Protection, Leakage Protection LVRT: Grid Frequency under/over Ingress protection rating: IP65 or above</p>	Bidder to Specify	Attached	Attached	Attached
	<p>Max Input Power (KW): ranging from 85 KW to 100 KW (According to requirement of 85 KW) accumulative capacity of Inverter Must be equal or greater than Total PV Capacity Type of Inverter: Grid-Tied, 3 phases, WAPDA/Gen.sync, With WiFi Dongle and Data Logger for Remote Monitoring & All Allied Accessories Efficiency: 98% Peak Rated Power @ 400 V, 50Hz: 85 KW Minimum Standby power consumption: less than 10W Warranty: 5 Years replacement or more Nominal AC Voltage: 3c, 230/400 VAC 50Hz Protection: Ground Fault Protection, Leakage Protection LVRT: Grid Frequency under/over Ingress protection rating: IP65 or above</p>	Bidder to Specify	Attached	Attached	Attached



<p>Max Input Power (KW): ranging from 35 KW to 50 KW (According to requirement of 35 KW) accumulative capacity of Inverter Must be equal or greater than Total PV Capacity Type of Inverter: Grid-Tied, 3 phases, WAPDA/Gen.sync, With WiFi Dongle and Data Logger for Remote Monitoring & All Allied Accessories Efficiency: 98% Peak Rated Power @ 400 V, 50Hz: 35 KW Minimum Standby power consumption: less than 10W Warranty: 5 Years replacement or more Nominal AC Voltage: 3c, 230/400 VAC 50Hz Protection: Ground Fault Protection, Leakage Protection LVRT: Grid Frequency under/over Ingress protection rating: IP65 or above</p>	Bidder to Specify	Attached	Attached	Attached
<p>Max Input Power (KW): 15KW (According to requirement of 15KW) accumulative capacity of Inverter Must be equal or greater than Total PV Capacity Type of Inverter: Grid-Tied, 3 phases, WAPDA/Gen.sync, With WiFi Dongle and Data Logger for Remote Monitoring & All Allied Accessories Efficiency: 98% Peak Rated Power @ 400 V, 50Hz: 15KW Minimum Standby power consumption: less than 10W Warranty: 5 Years replacement or more Nominal AC Voltage: 3c, 230/400 VAC 50Hz Protection: Ground Fault Protection, Leakage Protection LVRT: Grid Frequency under/over Ingress protection rating: IP65 or above</p>	Bidder to Specify	Attached	Attached	Attached
<p>Max Input Power (KW): ranging from 10 KW to 60 KW (According to requirement of 60 KW) accumulative capacity of Inverter Must be equal or greater than Total PV Capacity Type of Inverter: Grid-Tied, 3 phases, WAPDA/Gen.sync, With WiFi Dongle and Data Logger for Remote Monitoring & All Allied Accessories Efficiency: 98% Peak Rated Power @ 400 V, 50Hz: 60 KW Minimum Standby power consumption: less than 10W Warranty: 5 Years replacement or more Nominal AC Voltage: 3c, 230/400 VAC 50Hz Protection: Ground Fault Protection, Leakage Protection LVRT: Grid Frequency under/over Ingress protection rating: IP65 or above</p>	Bidder to Specify	Attached	Attached	Attached



<p>Max Input Power (KW): ranging from 40 KW to 50 KW (According to requirement of 40 KW) accumulative capacity of Inverter Must be equal or greater than Total PV Capacity Type of Inverter: Grid-Tied, 3 phases, WAPDA/Gen.sync, With WiFi Dongle and Data Logger for Remote Monitoring & All Allied Accessories Efficiency: 98% Peak Rated Power @ 400 V, 50Hz: 40 KW Minimum Standby power consumption: less than 10W Warranty: 5 Years replacement or more Nominal AC Voltage: 3c, 230/400 VAC 50Hz Protection: Ground Fault Protection, Leakage Protection LVRT: Grid Frequency under/over Ingress protection rating: IP65 or above</p>	<p>Bidder to Specify</p>	<p>Attached</p>	<p>Attached</p>	<p>Attached</p>
<p>Max Input Power (KW): ranging from 10 KW to 30 KW (According to requirement of 30 KW) accumulative capacity of Inverter Must be equal or greater than Total PV Capacity Type of Inverter: Grid-Tied, 3 phases, WAPDA/Gen.sync, With WiFi Dongle and Data Logger for Remote Monitoring & All Allied Accessories Efficiency: 98% Peak Rated Power @ 400 V, 50Hz: 30 KW Minimum Standby power consumption: less than 10W Warranty: 5 Years replacement or more Nominal AC Voltage: 3c, 230/400 VAC 50Hz Protection: Ground Fault Protection, Leakage Protection LVRT: Grid Frequency under/over Ingress protection rating: IP65 or above</p>	<p>Bidder to Specify</p>	<p>Attached</p>	<p>Attached</p>	<p>Attached</p>
<p>Max Input Power (KW): ranging from 10 KW to 35 KW (According to requirement of 35 KW) accumulative capacity of Inverter Must be equal or greater than Total PV Capacity Type of Inverter: Grid-Tied, 3 phases, WAPDA/Gen.sync, With WiFi Dongle and Data Logger for Remote Monitoring & All Allied Accessories Efficiency: 98% Peak Rated Power @ 400 V, 50Hz: 35 KW Minimum Standby power consumption: less than 10W Warranty: 5 Years replacement or more Nominal AC Voltage: 3c, 230/400 VAC 50Hz Protection: Ground Fault Protection, Leakage Protection LVRT: Grid Frequency under/over Ingress protection rating: IP65 or above</p>	<p>Bidder to Specify</p>	<p>Attached</p>	<p>Attached</p>	<p>Attached</p>



	<p>Mounting Structure Material: Mountings for Standard Roof Structure made of Aluminum with at least 15-degree tilt (or as per site requirement) designed at wind speed of 33 m/s/120kmph. Structure as per Configuration P1/L2. Installation: Complete Installation Including Excavation 2 feet below ground level and 1 feet above ground with 1:2:4 PCC Civil Work for each Mounting</p>	Bidder to Specify	X	✓	✓
	<p>The Contractor / Manufacturer must also provide undertaking for the availability of spares parts for the period of ten (10) years that will be made part of the main contract.</p>	Affidavit	X	✓	✓
	Bid Responsiveness		Non Responsive	Responsive	Responsive

Note:

1. This part of evaluation shall be of knock out basis if the bidder fails to provide the authorization from Original Equipment Manufacturer (OEM) / authorized distributor of OEM Manufacturer for items at Sr. No. 1 & 2 and fails to comply the given specifications he shall be considered as non-responsive and shall not be considered for further evaluation.
2. Similar to other than above or better specifications of an equivalent item will be accepted by the Procurement Committee / Bid Opening & Evaluation Committee, provided the bidder attaches brochure mentioning the relevant specifications. In absence of brochure the bid will be considered as non-responsive and the decision of the committee shall be final.
3. The Contractor / Manufacturer must also provide undertaking for the availability of spares parts for the period of ten (10) years that will be made part of the main contract.



Handwritten note: The existing system is not full under the period of 10 years.

B. Overall Technical Evaluation Result

Sr. No.	Category	Total Marks	Bidder's Name	
			Asghar & Co STZ JV	M/S Wahab Engineering Svcs M/S 3P Solutions (Pvt) Ltd M/S Grace Solar
1	General & Relevant Experience	45	0	45
2	Financial Soundness	30	30	30
3	Personnel Capabilities	15	15	15
4	Equipment Capabilities	10	10	9
TOTAL OBTAINED MARKS		100	55	99
STATUS			Non Responsive	Responsive

Note: The applicants must score total 65 marks and at least 50 % marks in each category, to qualify.



MUNICIPAL COMMITTEE VEHARI
SOLARIZATION OF TUBEWELLS AND DISPOSAL STATION IN VEHARI
CITY



Representative
M/s Asian Consulting Engineers JV RHC


Municipal Officer (S) Secretary
MC VEHARI


Rep. of Deputy Commissioner/Member
VEHARI


Adhyksator
MC VEHARI


Assistant Engineer/Member
U.G. & CD VEHARI


Municipal Officer
(Head Office)/Member
MC VEHARI


Chief Officer/Convener
MC VEHARI