SMA Sunbelt Energy GmbH

Questionnaire PV-Hybrid & Off-grid Systems

With the information provided in this questionnaire, a complete design proposal including inverter configuration can be created using Sunny Design.
Please send this questionnaire back to us (sunbelt@sma.de).

100	GENERAL DATA				Annotations
101	Project Name				**101 Project Name**
102	Customer				Please find a descriptive name that clearly identifies this project (avoid e.g. "PV Hybrid project")
103	E-Mail/Telephone				
104	Plant	☐ new plant	☐ refurbishment		
105	Project status	☐ lead	☐ bidding / tender	☐ contracted	
106	Financing	☐ secured	☐ open		

200	LOCATION DATA			
201	Country			**203 Latitude/Longitude/Altitude**
202	Nearest City/Location			e.g. 23°24' S, 46°65 W, 200 m AMSL
203	Latitude/Longitude/Altitude	° '	° '	m
204	Available area for PV		m²	

300	ELECTRICAL DATA				
301	System Voltage Level	☐ LV	☐ with MV transmission		**302 Low Voltage Level**
302	Low Voltage Level		V		Indicate the nominal *line-to-line* voltage level
303	Medium Voltage Level		kV		**303 Medium Voltage Level**
304	Medium Voltage Wiring	☐ Delta	☐ Star		Indicate the medium voltage level (if applicable)
305	Nominal Frequency		Hz		**304 Medium Voltage Wiring**
					Check the MV transformer configuration (if applicable)

400	LOAD PROFILE						
401	Annual Energy Consumption		kWh				**403 Noon Load**
402	Load (min & max)	Min		kW$_{min}$	Max	kW$_{max}$	The noon load is an important figure when evaluating the most economical PV capacity
403	Noon Load		kW				**404 Average Load Power Factor**
404	Average Load Power Factor						Indicate the average power factor of the load

405 Load Profile

405 Load Profile
The load profile is an essential input for a reliable design proposal. **If available please provide a hourly load profile including possible seasonal variations**.

406 Seasonal Variations
Check whether the load profile changes significantly during the year and provide a load profile if so

	☐ Constant load	☐ Daytime/Noon peak	☐ Evening/Morning peak
406	Seasonal Variations	☐ Yes	☐ No

500	GENSET CONFIGURATION					
501	Fuel Type		Annual consumption		Liters/a	**501 Fuel Type**
502	Genset Information					e.g. Diesel (light or heavy), natural gas, etc.
	Power Rating (per genset)				kVA	**502 Genset Information**
	Fuel Consumption (@100% load)				l per h	You may include up to five different genset types (for other configurations please attach an additional description)
	Manufacturer					Quantity: The number of units having these characteristics
	Model					**505 Automatic Genset Controller**
503	Loading of gensets	Min: %	Max: %			Enter manufacturer and type of automatic genset controller if applied
504	Genset Control	☐ Manual	☐ Automatic			
505	If Automatic Genset Controller					
	Manufacturer					
	Model					

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600 PHOTOVOLTAIC SYSTEM

601	RE Fraction		%	
602	PV Module	☐ Not defined yet		
	Manufacturer /Model			
603	Designed Solar Power		kWp	☐ Please recommend
604	PV installation	☐ Ground mounted		☐ Roof mounted
605	Preferred Inverter Concept	☐ String Inverter	☐ Central Inverter	☐ No preference
606	MV Connection Requested	☐ Yes		kV
607	SMA MV Solution	☐ MVPS	☐ MVS	☐ MV Block

601 Target of RE Fraction

Fraction of Renewable Energy supply to overall energy supply within one year (e.g. 60% RE Fraction)

605 Preferred Inverter Concept
State here if you have a preference regarding the inverter type

606 MV Connection Requested
Indicate if the solar inverters shall feed to MV level directly

607 SMA MV Solution Requested
Please mark your desired SMA MV solution (if applicable)

700 BATTERY SYSTEM

701	Battery Type	☐ Not defined yet		
	Manufacturer			
	Cell Type /Rack Type			
	Voltage Range	-	V	
702	Battery Technology	☐ Li-Ion	☐ Others	
703	Required Battery Power		kVA	
704	Required Storage Capacity		kWh	
705	Inverter Operation Mode	☐ Grid Parallel		☐ Grid Forming
706	Required Functions	☐ PV Smoothing		☐ Peak Shaving
		☐ Frequency Response		☐ Energy Shifting
		☐ Reactive Power Management		☐ Black Start
707	Preferred Inverter Concept	☐ String Inverter	☐ Central Inverter	☐ No preference
708	MV Connection Required	☐ Yes		kV
709	SMA MV Solution	☐ MVPS	☐ MVS	☐ MV Block

701 Battery Type

Voltage range – The battery voltage range at inverter input level

705 Battery Operation Mode
Grid parallel – Battery inverter operates based on a utility grid or operating gensets (current source)
Grid forming – Battery inverter actively forms and manages an islanded grid (voltage source)

706 Required Functions
PV smoothing – Controlled ramp down/up of PV power
Peak shaving – Balancing PV or load steps
Frequency response – P(f) control
Energy shifting – Stores excess PV energy for later use
Reactive power management –Reactive power support or power factor compensation
Black Start – Restart of battery, inverter and related MV transformer (if applicable) after grid failure

708 MV Connection Required
Indicate if the solar inverters shall feed to MV level directly

709 SMA MV Solution Requested
Please mark your desired SMA MV solution (if applicable)

800 PUBLIC GRID CONNECTION

801	Grid Connection Available	☐ Yes	☐ No
802	Grid Feeding Permitted	☐ Yes	☐ No
803	Max. Feed-in Power	kVA	☐ no limitation

900 MISCELLANEOUS

901	Local Fuel Price		per liter
902	Internet Connection Available	☐ Yes	☐ No
903	Additional Comments		

901 Local Fuel

With the local fuel price (and currency) we can help you in finding the optimal economical system layout.

1000 SCOPE DEFINITION FOR BUDGETARY OFFER

1001	SMA SUNBELT Scope	☐ Engineering	☐ Procurement monitoring.
		☐ Procurement inverters	☐ Construction support
		☐ Procurement batteries	☐ Commissioning support
		☐ Procurement modules	☐ O&M
		☐ Procurement mounting str.	☐

101 SMA SUNBELT Scope

SMA Sunbelt can offer different services in their budgetary offer. Please indicate which services should be included in the budgetary offer. Further

Please attach a Single Line Diagram (SLD) of the electrical distribution. An SLD is the basis for a reliable bill of materials.