HYBRID ROOFTOP SOLAR POWER ELECTRICAL INSTALLATION CERTIFICATE for INSPECTION AND TESTING (Annex 4)

(Less Than or Equal 1.0 MW Supply - LV Metered Customers with Hybrid Inverters Type I/Type II)

(REQUIREMENTS FOR ELECTRICAL INSTALLATIONS - BS 7671 [IET WIRING REGULATIONS])

DETAILS OF THE CUSTOMER			
Name of the Customer		Customer Electricity Account No. and Electric Utility	
Address of the Customer		Contact No./ Email/ Fax	
DETAILS OF THE CONTRACTOR			
Name of the Contractor		SEA Registration No.	
Address of the Contractor		Contact No./ Email/ Fax	

Description of the installation:
Extent of installation covered by this Certificate:

……..kW hybrid rooftop solar power electrical installation (Type I/Type II) at the above address.

(Use continuation sheet if necessary) see continuation sheet No: .....

INSPECTION AND TESTING

	Description	CEB Requirement			Inverter	
		Unit	Reference	Value	Reference Document	Value
1.	Synchronization w.r.t nominal voltage level	%	CEB Manual 7.2.3	+/-6% of the Nominal Voltage	c.	
2.	Capability to withstand voltage and current surges		CEB Manual 7.3	**----**	c.	Yes/No
3.	Capability to withstand voltage w.r.t to the interconnection voltage	%	CEB Manual 7.3	220% of the facility rated voltage	c.	
4.	Output voltage waveform		CEB Manual 7.6	50Hz sinusoidal	c.	Yes/No
5.	Reconnection time of the utility supply after stable service voltage and frequency	Min.	CEB Manual 7.2.3	at least 3 minutes	c.	
6.	Islanding Protection	s	CEB Manual 7.2.4	Within 0.5s of loss of utility power	c.	
7.	Limitation of dc injection current w.r.t full rated output current at the point DR connection	%	IEEE 1547.4.3.1	<0.5%	c.	
8.	Total Demand Distortion (TDD)	%	CEB Manual 7.7	<5% (95th percentile)	c.	
	Individual harmonic current distortion limits as a percentage of the minimum of rated current of the inverter and current of 85% of PV panel capacity at the Point of Common Coupling					
9.	h<11 (Odd harmonic current)	%	CEB Manual 7.7	<4 % (95^{th} percentile)	c.	

10.	11=< h <17 (Odd harmonic current)	%	CEB Manual 7.7	<2% (95th percentile)	c.	
11.	17=< h <23 (Odd harmonic current)	%	CEB Manual 7.7	<1.5% (95th percentile)	c.	
12.	23 =< h < 35 (Odd harmonic current)	%	CEB Manual 7.7	<0.6% (95th percentile)	c.	
13.	h>=35 (Odd harmonic current)	%	CEB Manual 7.7	<0.3% (95th percentile)	c.	
14.	h<11 (Even harmonic current)	%	CEB Manual 7.7	<1% (95th percentile)	c.	
15.	11=< h <17 (Even harmonic current)	%	CEB Manual 7.7	<0.5% (95th percentile)	c.	
16.	17=< h <23 (Even harmonic current)	%	CEB Manual 7.7	<0.375% (95th percentile)	c.	
17.	23 =< h < 35 (Even harmonic current)	%	CEB Manual 7.7	<0.15% (95th percentile)	c.	
18.	h>=35 (Even harmonic current)	%	CEB Manual 7.7	<0.075% (95th percentile)	c.	

The details furnished in HYBRID **ROOFTOP SOLAR POWER ELECTRICAL INSTALLATION CERTIFICATE for DESIGN AND CONSTRUCTION (Annex 5)** are correct without any deviations / with following deviations.

Deviations of furnished details:

Details of the Hybrid inverter

……

Details of the Solar panel

……

Details of the Battery

……

Others

.....

Operation of External Automatic Back Feed Protection as Per CEB Requirements (CEB Manual 7.2.6 & 7.11)	**Yes/No**

COMMENTS ON EXISTING INSTALLATION:

.....
.....
.....
.....

SCHEDULES

The attached Schedules are part of this document and this Certificate is valid only when they are attached to it.

..... Schedules of Inspections and ..... Schedules of Test Results are attached.

(Enter quantities of schedules attached).

FOR INSPECTION & TESTING

I being the person(s) responsible for the inspection & testing of the electrical installation (as indicated by my/our signature below), particulars of which are described above, having exercised reasonable skill and care when carrying out the inspection & testing hereby CERTIFY that the work for which I have been responsible is to the best of my/our knowledge and belief in accordance with the latest edition of BS 7671 & SLS 1680 standards, except for the departures, if any, detailed as follows:

Details of departures from BS 7671 (Regulations 120.3 and 120.4):

The extent of liability of the signatory is limited to the work described above as the subject of this Certificate.

For INSPECTION AND TESTING of the installation:

Signature: ..... Date: ..... Name (IN BLOCK LETTERS): ……..Inspector

NEXT INSPECTION
I/We the designer(s), recommend that this installation is further inspected and tested after an interval of not more than ..... years/months.

PARTICULARS OF SIGNATORY TO THE ELECTRICAL INSTALLATION CERTIFICATE

Inspector

Name: ..... Company: .....
Address: .....
..... Postcode: ..... Tel No: .....

c. Page numbers of the reference documents

SCHEDULE OF INSPECTIONS (for new installation work only) for
HYBRID ROOOF TOP SOLAR POWER INSTALLATION LESS THAN OR EQUAL TO 1 MW SUPPLY

NOTE 1: This form is suitable for many types of smaller installation, not exclusively domestic.

All items inspected in order to confirm, as appropriate, compliance with the relevant clauses in BS 7671. The list of items and associated examples where given are not exhaustive.

NOTE 2: Insert ✓ to indicate an inspection has been carried out and the result is satisfactory, or N/Ato indicate that the inspection is not applicable to a particular item.

ITEM NO	DESCRIPTION	Outcome See Note 2
1.0	**OTHER PART 7 SPECIAL INSTALLATIONS OR LOCATIONS (SECTION 712)**	
1.1	Any connections with Earth on the D.C. side is electrically connected so as to avoid corrosion	
1.2	The protective measures of non-conducting location and earth-free local equipotential bonding are not on the D.C. side.(712.410.3.6)	
1.3	PV A.C. supply is connected to supply side of protective device(712.411.3.2.1.1)	
1.4	RCD is in place and it is type B to IEC 60775 (712.411.3.2.1.2) or	
1.5	Protection by the use of Class II or equivalent insulation has been adopted on D.C. side of cell (712.412)	
1.6	Overloaded protection is omitted from the PV array string if the cable current-carrying capacity is rated to at least 1.25 of the short circuit current. Short circuit current protection is provided at connection to the mains(712.433.1),(712.434.1)	
1.7	To minimize voltage induced by lighting, the area of all wiring loops are as small as possible (712.444,4,4)	
1.8	PV modules comply with the requirements of the relevant equipment standards. (712.511.1)	
1.9	PV modules have been installed in such a way that there is enough heat dissipation under conditions of maximum solar radiation for the site.(712.511.2.1)	
1.10	The selection and erection of equipment shall facilitate safe maintenance (712.513.1)	
1.11	PV string cables ,PV array cables and PV main D.C. cables have been selected and erected so as to minimize the risk of Earth faults and short circuits. (712.522.8.1)	
1.12	Wiring systems withstand the expected external influences such as wind, temperature and solar radiation. (712.522.8.3)	
1.13	Isolation for maintenance on D.C. and A.C. sides is provided (712.537.2.1.1)	
1.14	A switch-disconnector is provided on the D.C. side of the the PV convertor. (712.537.2.2.5)	
1.15	All junction boxes carry label warning about energization after loss of mains.(712.537.2.2.5.1)	
1.16	Protective bonding conductors run in close contact with D.C. and A.C. PV system cables (712.54)	
1.17	Electrical Single line diagram of the installation is attached with the certificate.	

Inspected by Inspector:

Name (Capitals) ..... **Signature** ..... **Date** .....