National Institute of Solar Energy

Date: 22/9/2015

Offering the "Quality verification services for photovoltaic power plants"

National Institute of Solar Energy (NISE), an autonomous centre of excellence of Ministry of New and Renewable Energy, Government of India, offering the Quality verification services for photovoltaic power plants to meet the quality standards and analyse the technical competence of solar PV plants to assure the customers.

The proposed specialized services are designed and offered for various stakeholders i.e., facility owners, investors, financial institutions, banks, EPC contractors, project developers, service providers and insurance firms interested in assessing the operational condition of a given solar PV facility or portfolio.

The service shall verify that the installation of plant is according to the precise specifications comply with a range of international standards including IEC 62446 - Grid connected photovoltaic systems – Minimum requirements for system documentation, commissioning tests and inspection and IEC 60364-7-712 that photovoltaic power plant is operating safely and according to the relevant guidelines and standards. The verification will include DC/AC system inspection, Testing and performance measurement of PV module/array and BOS etc. The verification report will includes certificate of verification, inspection report, PV array test report and suggestions to improve the PV power plant wherever necessary. The relevant formats as follows are at annexures.

"Format for Service request for PV Plant Project Size Capacity of 10 kWp–100 kWp" (Form-A) "Format for Service request for PV Plant Project Size Capacity of 101 kWp – 500 kWp"(Form-B) "Format for Service request for PV Plant Project Size Capacity of 501 kWp–1000 kWp" (Form-C) "Format for Service request for PV Plant Project Size Capacity of above 1000 kWp" (Form-D)

The interested customers may please contact the following division of NISE for the above Quality services.

N.B.Raju, DDG, NISE

DDG

Skill Development and consultancy division
National Institute of Solar Energy
Email: pvservices.nise@gmail.com

FORM - A

(10 kWp - 100 kWp)

(QUALITY VERIFICATION SERVICES OF PHOTOVOLTAIC POWER PLANT)

O/o National Institute of Solar Energy, Post Box No: 02 Sector 45, Gurgaon, Dist-G	
	Validity: 31st March, 2016 ion: (please write complete address)
Address & Contact Nos. of service request co	ompany: (please write complete address)
Nature of relationship with the photovoltaic p	
Buyer	Banks
Stakeholders	EPC contractors
Facility owners	Project developers
Investors	Service providers
Financial institutions	Insurance firms
Sir, We hereby place an order on you for the S.No. Description Fee 1. Quality verification services for photovolta 2. We accept your general terms and condition	per verification service will inform after receiving the service request aic power plants as per IEC 62446
3. A Bank Draft no. Dated	for Rs. In favor of DDO, NISE drawn on is enclosed fee
towards the Quality verification service re	equest to National Institute of Solar Energy.
Dated:	Signature of authorized person Name (in capital Latter): Designation: Seal of the Company:
	Ear office was only
	For office use only
	Inspected By: Service Identification Number (S,I.D.)
	Signature of Officer Receiving
(Note: It is mandatory to strictly comply the	attached checklist with this form without which service request shall not

Page 1 of 4

be accepted.)

	Grid-Tied Hybrid
	Hybrid
	11,0114
DV mlant Installation data	
PV plant Installation date	· ·
PV plant commissioning date	:
PV plant installed by (contractor)	:
PV plant maintained by (service)	
PV Plant capacity	
Module technology	:
Number of Strings	:
Number of strings in parallel	:
Number of strings in series	:
Total number of modules	:
Modules per string	:
Array orientation	:
Array tilt	:
Number of arrays	
Module Make	
Nominal wattage of each module	:
PV Modules IEC 61215/	
IEC 61646 approved	:
Inverter DC rated capacity	
PV inverter certified	: if yes, mention the standard, submit copy
Inverter make	: / N -
Inverter 3-phase	: Yes/ No
Inverter model number	:
Inverter serial number	
Number of inverters	
Inverter DC rating	
Inverter want facture warments	: (In ********)
Inverter manufacture warranty	:(In years)
D.P.R (Detailed project report)	: Yes/ No
System designer, company	
System designer, contact person	
System designer, postal address, telepl	hone number and e-mail address
Dated:	Signature of authorized person
	Name (in capital Letter):
	Designation:
	Seal of the Company:
	For office use only

1. One report on Quality inspection of photovoltaic power plant (s) conducted by NISE will be issued to the

customer.

2. The report shall contain all the verifications done by NISE as per the standard specifications.

3. The report contains the following disclaimer:

a) This is a report on measurements and verifications carried out on the photovoltaic plants reference

no.----by the National Institute of Solar Energy.

b) The data contents in this report do not constitute a qualification certificate under any set of

specifications.

c) The measurements and verifications made and results reported in this test report are valid at the time of

and under stipulated conditions of measurement".

4. The test report if reproduced for any purpose, commercial or otherwise, Should be reproduce in full.

Reproduction of a part of the report or an abstract thereof is not permitted.

5. For identification purpose, all documents submitted to the NISE for verification purpose shall be marked

clearly and indelibly as per the standard.

6. The tentative period for verification of the photovoltaic power plant is two months from the date of submission

of request however this period may be vary depending on the outdoor weather conditions and condition of

measuring equipment and priority.

7. National Institute of Solar Energy shall not be responsible for any loss or damage caused during Quality

verification service of photovoltaic plant.

8. The issued verification report is not a legal document and is not valid for any kind of legal formalities.

9. Warranty documentation for PV modules and inverters

10. Operation and maintenance information

11. Shall make proper arrangement to access the power plant and proper cleaning of the modules prior to the

Quality verification team arrival.

Declaration:

I read the above mention general terms and conditions carefully and I agreed.

Signature with Seal

Date

Place:

- 1. For submitting the request for Quality verification service of photovoltaic power plant to NISE, the following Checklist is required to be satisfied/submitted along with application.
- 2. Demand Draft/RTGS for Rs..... for Quality inspection of photovoltaic power plant D.D.O., National Institute of Solar Energy, payable at New Delhi.
- 3. Order form duly filled.
- 4. Copies of Instruction manual and datasheets
 - a) Inverter
 - b) Module
 - c) Junction box/Combiner box
 - d) Others if any.
- 5. Copy of Warranty Cards.
- 6. Attested copy of Bill of materials.
- 7. Copy of Purchase Order.
- 8. Buyer approved Drawings, SLD's (single line drawings) & Specifications.
- 9. Buyer approved ITP (Indicating Parameters to Witnessed / Reviewed, Sampling Plan, Reference Specifications / Standards, Acceptance criteria etc.).
- 10. Copy D.P.R (Detailed project report)
- 11. Copy of IEC 61215/IEC 61646 and IEC 61730-1&2 qualification certificate of modules installed in PV Plant.
- 12. Copy of STC report of module of particular type. Copy of Inverter certification and test report from govt., authorized testing organization, if any.

FORM – B

(101 kWp - 500 kWp)

(QUALITY VERIFICATION SERVICES OF PHOTOVOLTAIC POWER PLANT)

O/o National Institute of	elopment and Consultancy Solar Energy, 5, Gurgaon, Dist- Gurgaon		, Ph: 0124-2579215 ana
Address & Contact Nos.		ity: 31st Mar	ch, 2016 mplete address)
	of service request company		e complete address)
	th the photovoltaic power p		ne field with $\sqrt{\text{mark}}$
Buyer			Banks
Stakeholders			EPC contractors
Facility owners			Project developers
Investors			Service providers
Financial institutions			Insurance firms
S.No. Description 1. Quality verification ser	Fee per very rvices for photovoltaic powel terms and conditions princes	rification serv ver plants as p	ice will inform after receiving the service request er IEC 62446
3. A Bank Draft no.	Dated for	r Rs.	In favor of DDO, NISE drawn on is enclosed fee
towards the Quality ve	erification service request t	to National Ins	stitute of Solar Energy.
Dated:		Name (i Designa	re of authorized person n capital Latter): tion: he Company:
	Fo	or office use o	nly
_	_		fication Number (S,I.D.)
			Signature of Officer Receiving
(Note: It is mandatory to	strictly comply the attach	ed checklist v	vith this form without which service request shall not

Page 1 of 4

be accepted.)

PV Plant type	: [Stand alone	
		Grid-Tied	
	-	Hybrid	
DV along Installation 3-4-	_		
PV plant Installation date	:		
PV plant commissioning date	:		
PV plant installed by (contractor)	:		
PV plant maintained by (service)	:		
PV Plant capacity	:		
Module technology	:		
Number of Strings	:		
Number of strings in parallel	:		
Number of strings in series	:		
Total number of modules	:		
Modules per string	:		
Array orientation	:		
Array tilt	:		
Number of arrays	:		
Module Make	:		
Nominal wattage of each module	:		
PV Modules IEC 61215/			
IEC 61646 approved	:		
Inverter DC rated capacity	:	, , , , , ,	1 1 4
PV inverter certified	: if yes, r	mention the standa	ard, submit copy
Inverter make	•		
Inverter 3-phase	: Yes/ No	0	
Inverter model number	:		
Inverter serial number	:		
Number of inverters	:		
Inverter DC rating	:		
Inverter voltage range	:	(T	
Inverter manufacture warranty		.(In years)	
D.P.R (Detailed project report)	: Yes/ No	0	
System designer, company			
System designer, contact person			
System designer, postal address, telepl	one number and	d e-mail address	
Dated:		Signature	e of authorized person
Dateu.		•	•
			capital Letter):
		Designation Seed of the	
		Sear of th	ne Company:
		fice use only	
Verified by:	2 02 02		
•			

1. One report on Quality inspection of photovoltaic power plant (s) conducted by NISE will be issued to the

customer.

2. The report shall contain all the verifications done by NISE as per the standard specifications.

3. The report contains the following disclaimer:

a) This is a report on measurements and verifications carried out on the photovoltaic plants reference

no.----by the National Institute of Solar Energy.

b) The data contents in this report do not constitute a qualification certificate under any set of

specifications.

c) The measurements and verifications made and results reported in this test report are valid at the time of

and under stipulated conditions of measurement".

4. The test report if reproduced for any purpose, commercial or otherwise, Should be reproduce in full.

Reproduction of a part of the report or an abstract thereof is not permitted.

5. For identification purpose, all documents submitted to the NISE for verification purpose shall be marked

clearly and indelibly as per the standard.

6. The tentative period for verification of the photovoltaic power plant is two months from the date of submission

of request however this period may be vary depending on the outdoor weather conditions and condition of

measuring equipment and priority.

7. National Institute of Solar Energy shall not be responsible for any loss or damage caused during Quality

verification service of photovoltaic plant.

8. The issued verification report is not a legal document and is not valid for any kind of legal formalities.

9. Warranty documentation for PV modules and inverters

10. Operation and maintenance information

11. Shall make proper arrangement to access the power plant and proper cleaning of the modules prior to the

Quality verification team arrival.

Declaration:

I read the above mention general terms and conditions carefully and I agreed.

Signature with Seal

Date

Place:

- 1. For submitting the request for Quality verification service of photovoltaic power plant to NISE, the following Checklist is required to be satisfied/submitted along with application.
- 2. Demand Draft/RTGS for Rs. for Quality inspection of photovoltaic power plant D.D.O., National Institute of Solar Energy, payable at New Delhi.
- 3. Order form duly filled.
- 4. Copies of Instruction manual and datasheets
 - a) Inverter
 - b) Module
 - c) Junction box/Combiner box
 - d) Others if any.
- 5. Copy of Warranty Cards.
- 6. Attested copy of Bill of materials.
- 7. Copy of Purchase Order.
- 8. Buyer approved Drawings, SLD's (single line drawings) & Specifications.
- 9. Buyer approved ITP (Indicating Parameters to Witnessed / Reviewed, Sampling Plan, Reference Specifications / Standards, Acceptance criteria etc.).
- 10. Copy D.P.R (Detailed project report)
- 11. Copy of IEC 61215/IEC 61646 and IEC 61730-1&2 qualification certificate of modules installed in PV Plant.
- 12. Copy of STC report of module of particular type. Copy of Inverter certification and test report from govt., authorized testing organization, if any.

FORM - C

$\frac{(501~kWp-1000~kWp)}{(QUALITY~VERIFICATION~SERVICES~OF~PHOTOVOLTAIC~POWER~PLANT)}$

Section Name: Skill Development an O/o National Institute of Solar Energ Post Box No: 02 Sector 45, Gurgaon	gy,		
Address & Contact Nos. of verificati	Validity: 31st M ion location: (please write	•	
Address & Contact Nos. of service re	equest company: (please w	vrite complete address)	
Nature of relationship with the photo		the field with $\sqrt{\text{mark}}$	
Buyer		Banks	
Stakeholders		EPC contractors	
Facility owners		Project developers	
Investors		Service providers	
Financial institutions		Insurance firms	
Sir, We hereby place an order of S.No. Description 1. Quality verification services for pl 2. We accept your general terms and 3. A Bank Draft no. Date towards the Quality verification services.	Fee per verification se hotovoltaic power plants a conditions printed on pag ed for Rs.	ervice will inform after receiving t s per IEC 62446 e 3 of this order. In favor of DDO, NISE drawn	•
Dated:	Name Desig	ture of authorized person e (in capital Latter): enation: of the Company:	
	For office use	e only	
Date & Time of Receipt:	-		

Signature of Officer Receiving

(Note: It is mandatory to strictly comply the attached checklist with this form without which service request shall not be accepted.)

PV Plant type	: [Stand alone	
		Grid-Tied	
	-	Hybrid	
DV along Installation 3-4-	_		
PV plant Installation date	:		
PV plant commissioning date	:		
PV plant installed by (contractor)	:		
PV plant maintained by (service)	:		
PV Plant capacity	:		
Module technology	:		
Number of Strings	:		
Number of strings in parallel	:		
Number of strings in series	:		
Total number of modules	:		
Modules per string	:		
Array orientation	:		
Array tilt	:		
Number of arrays	:		
Module Make	:		
Nominal wattage of each module	:		
PV Modules IEC 61215/			
IEC 61646 approved	:		
Inverter DC rated capacity	:	, , , , , ,	1 1 4
PV inverter certified	: if yes, r	mention the standa	ard, submit copy
Inverter make	•		
Inverter 3-phase	: Yes/ No	0	
Inverter model number	:		
Inverter serial number	:		
Number of inverters	:		
Inverter DC rating	:		
Inverter voltage range	:	(T	
Inverter manufacture warranty		.(In years)	
D.P.R (Detailed project report)	: Yes/ No	0	
System designer, company			
System designer, contact person			
System designer, postal address, telepl	one number and	d e-mail address	
Dated:		Signature	e of authorized person
Dateu.		•	•
			capital Letter):
		Designation Seed of the	
		Sear of th	ne Company:
		fice use only	
Verified by:	2 02 02		
•			

1. One report on Quality inspection of photovoltaic power plant (s) conducted by NISE will be issued to the

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of request however this period may be vary depending on the outdoor weather conditions and condition of

measuring equipment and priority.

7. National Institute of Solar Energy shall not be responsible for any loss or damage caused during Quality

verification service of photovoltaic plant.

8. The issued verification report is not a legal document and is not valid for any kind of legal formalities.

9. Warranty documentation for PV modules and inverters

10. Operation and maintenance information

11. Shall make proper arrangement to access the power plant and proper cleaning of the modules prior to the

Quality verification team arrival.

Declaration:

I read the above mention general terms and conditions carefully and I agreed.

Signature with Seal

Date

Place:

- 1. For submitting the request for Quality verification service of photovoltaic power plant to NISE, the following Checklist is required to be satisfied/submitted along with application.
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- 4. Copies of Instruction manual and datasheets
 - a) Inverter
 - b) Module
 - c) Junction box/Combiner box
 - d) Others if any.
- 5. Copy of Warranty Cards.
- 6. Attested copy of Bill of materials.
- 7. Copy of Purchase Order.
- 8. Buyer approved Drawings, SLD's (single line drawings) & Specifications.
- 9. Buyer approved ITP (Indicating Parameters to Witnessed / Reviewed, Sampling Plan, Reference Specifications / Standards, Acceptance criteria etc.).
- 10. Copy D.P.R (Detailed project report)
- 11. Copy of IEC 61215/IEC 61646 and IEC 61730-1&2 qualification certificate of modules installed in PV Plant.
- 12. Copy of STC report of module of particular type. Copy of Inverter certification and test report from govt., authorized testing organization, if any.

FORM - D

$\frac{(Above\ 1000\ kWp)}{(QUALITY\ VERIFICATION\ SERVICES\ OF\ PHOTOVOLTAIC\ POWER\ PLANT)}$

O/o National Institute of S	opment and Consultancy Divolar Energy, G, Gurgaon, Dist-Gurgaon, St	
Address & Contact Nos. o.	•	31st March, 2016 e write complete address)
Address & Contact Nos. Of	-	e write complete address)
Address & Contact Nos. of	f service request company: (p	lease write complete address)
•••••		
		a a
Nature of relationship with	the photovoltaic power plan	t (Mark the field with √ mark)
Buyer		Dayle
Stakeholders		Banks
Facility owners		EPC contractors
Investors		Project developers Service providers
Financial institutions		Insurance firms
Tillaliciai ilistitutiolis		insurance irrns
S.No. Description 1. Quality verification serv	Fee per verifications for photovoltaic power parterms and conditions printed	ation service will inform after receiving the service request plants as per IEC 62446
3. A Bank Draft no.	Dated for Rs.	• •
towards the Quality ver	ification service request to Na	ational Institute of Solar Energy.
Dated:		Signature of authorized person
		Name (in capital Latter):
		Designation:
		Seal of the Company:
	For of	fice use only
		d By:vice Identification Number (S,I.D.)
		Signature of Officer Receiving
(Note: It is mandatory to s	strictly comply the attached c	checklist with this form without which service request shall not

Page 1 of 4

be accepted.)

PV Plant type	: [Stand alone	
		Grid-Tied	
	-	Hybrid	
DV along Installation 3-4-	_		
PV plant Installation date	:		
PV plant commissioning date	:		
PV plant installed by (contractor)	:		
PV plant maintained by (service)	:		
PV Plant capacity	:		
Module technology	:		
Number of Strings	:		
Number of strings in parallel	:		
Number of strings in series	:		
Total number of modules	:		
Modules per string	:		
Array orientation	:		
Array tilt	:		
Number of arrays	:		
Module Make	:		
Nominal wattage of each module	:		
PV Modules IEC 61215/			
IEC 61646 approved	:		
Inverter DC rated capacity	:	, , , , , ,	1 1 4
PV inverter certified	: if yes, r	mention the standa	ard, submit copy
Inverter make	•		
Inverter 3-phase	: Yes/ No	0	
Inverter model number	:		
Inverter serial number	:		
Number of inverters	:		
Inverter DC rating	:		
Inverter voltage range	:	(T	
Inverter manufacture warranty		.(In years)	
D.P.R (Detailed project report)	: Yes/ No	0	
System designer, company			
System designer, contact person			
System designer, postal address, telepl	one number and	d e-mail address	
Dated:		Signature	e of authorized person
Dateu.		•	•
			capital Letter):
		Designation Seed of the	
		Sear of th	ne Company:
		fice use only	
Verified by:	2 02 02		
•			

1. One report on Quality inspection of photovoltaic power plant (s) conducted by NISE will be issued to the

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9. Warranty documentation for PV modules and inverters

10. Operation and maintenance information

11. Shall make proper arrangement to access the power plant and proper cleaning of the modules prior to the

Quality verification team arrival.

Declaration:

I read the above mention general terms and conditions carefully and I agreed.

Signature with Seal

Date

Place:

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