

CHOLA SOLAR PLANT PROTECT POLICY

Policy Wordings

The Insured (hereinafter called "You/ Yours") named in the Schedule hereto by a proposal and declaration together with any statement, report and/or other document has applied to the *Cholamandalam MS General Insurance Company Limited* (hereinafter called the 'Company/ We/ Our/ Us') for the insurance and has paid the premium as consideration for such insurance

Subject to the terms, exceptions and conditions contained herein or endorsed hereon, the Company agrees to indemnify the Insured, if at any time during the period of insurance, shortfall in deemed energy production is caused due to any insured peril as specified in the policy schedule. Shortfall in deemed energy production is defined by virtual energy produced Index, based on observations of insured parameters, as described in detail under policy schedule.

The liability of the Company in respect of a Solar power plant shall not exceed the sum insured specified for the plant in any one period of insurance.

1. Definitions

- a) "Company" means the Cholamandalam MS General Insurance Company Limited
- b) "Proposal" means any signed Proposal by filling up the questionnaires and declarations, written statements and any information in addition thereto supplied to The Company by you or on your behalf.
- c) "Policy" means the policy booklet, the schedule and any applicable endorsement. The policy contains details of the extent of cover available to the insured the exclusions from the cover and the terms and conditions of the issue of the policy.
- d) "Endorsement" means any alteration made to the policy which has been agreed by Us in writing
- e) "Exclusion" means the damages/ perils/ properties/ contingencies which are not covered under the Policy and for which the Company have no liability in the event of loss occurrence.
- f) "Insured" means the person or entity whose name specifically appears as such in the policy schedule

- g) "Risk Period" means the cover period of the policy starting with the policy commencement date, which could be any length of period from few months up to a maximum of 12 months, for which coverage is sought by the insured
- h) "Insured Units" means the Virtual Energy Produced. Virtual energy is the calculated energy that a power plant is deemed to have produced taking the Insured parameter as the only variable real input and assuming all other factors as constant over the cover period
- i) "Payout per plant" is the maximum claim amount payable for the affected power plant. It is worked out as below:

Payout per plant = (Trigger - virtual energy) * notional, subject to a maximum of sum Insured for the power plant

- j) "Trigger" means the virtual energy production level below which the claim becomes payable under the policy. Insurer will be liable for payment of a claim if the virtual energy produced is less than trigger. Example for Trigger workings is as below:

$$\text{Trigger} = (\text{Virtual Energy at P (50)}) - (x \%)$$

Virtual Energy at P(50) = Long Term Average of the total Virtual Energy that is deemed to have been produced in a cover period, calculated by taking the simple average for the same length of period as the cover period, over the last 15 – 30 years, for the site of plant, using historical solar irradiance and ambient temperature data

Assuming that the Virtual Energy Produced is distributed normally, P (50) corresponds to that level of Virtual Energy, that has the probability of exceedance at 50%, i.e., the probability that the Virtual Energy Produced by the plant for that period would exceed this level is 50%. (Note-This probability of 50% varies for every plant and is as specified in policy schedule).

x % is the deductible to be applied and is as shown in the policy schedule

- k) "Exit" means the minimum virtual energy production level below which the insurer has no liability. It is worked out as below:

$$\text{Exit} = (\text{Virtual Energy at P50}) - (y \%)$$

Y% is to be decided depending upon the variation in total energy production over the cover period, as expected by the Insured, and is considered as the value at risk.

$$Y\% > x\%$$

- l) "Notional" means payout per unit of shortfall in the virtual energy Index. Notional is set equal to the actual loss that would be incurred by the Insured per unit of shortfall in actual power production, based on documentary evidence submitted by the Insured. This evidence could be tariff applicable for the plant over the cover period, as demonstrated by the Insured's power purchase agreement or any other similar evidence
- m) "Sum Insured" means and denotes the amount of cover available as stated in Policy Schedule.
- n) In case of a Solar PV plant, Sum Insured is arrived at as below:
$$\text{Sum Insured} = (\text{trigger} - \text{Exit}) * \text{Notional}$$
- o) "Total Limit of Liability or ultimate net loss" means the Sum Insured

2. Exclusions:

The company shall not be liable to make any payment under this policy to the insured, in connection with or in respect of any losses or expenses, whatsoever, incurred by any insured, arising out of any of the following, but not limited to:

- a) **Liability arising out of deliberate, willful or intentional non-compliance of any statutory provision**
- b) **War Risk : Any liability assumed by the Insurer for loss or damage directly or indirectly occasioned by, happening through or in consequence of war, invasion, acts of foreign enemies, hostilities or war-like operations (whether war be declared or not), civil war, mutiny, civil commotion assuming the proportions of or amounting to a popular rising, military rising, insurrection, rebellion, revolution, military or usurped power, martial law, confiscation or nationalization or requisition or destruction of or damage to property by or under the order of any Government or public or local authority.**
- c) **Nuclear Risks: Nuclear energy risks in accordance with the Nuclear Energy Risks Exclusion Clause NMA 1975a and any other liability, loss, cost or expense of whatsoever nature directly or indirectly caused by, resulting from, arising out of or in connection with nuclear reaction, nuclear radiation or radioactive contamination regardless of any other cause contributing concurrently or in any other sequence to the loss, save where such liability, loss, cost or expense arises under insurances or reinsurances expressly exempted from NMA 1975a in respect of which the Insurer has specifically granted cover.**
- d) **Terrorism: Any loss, damage, cost or expense of whatsoever nature directly or indirectly caused by, resulting from, happening through, and arising out of or in connection with any act of terrorism, regardless of any other cause contributing concurrently or in any other sequence to the loss, damage, cost or expense. For the purpose of this exclusion, terrorism means an act or threat of violence or an act harmful to human life, tangible or intangible property or infrastructure with the intention or effect of influencing any government or of putting the public**

or any section of the public in fear. In any action, suit or other proceedings where the Insurer alleges that by reason of this definition a loss, damage, cost or expense is not covered by this Agreement, the burden of proving that such loss, damage, cost or expense is covered shall be upon the Insured.

- e) **Consequential Loss:** Consequential loss of any kind or description.
- f) **Expenses Incurred:** Any expenses whatsoever incurred by an Insured Person in connection with or in respect of any loss, howsoever caused, even if such loss results in diminished output/ yield.
- g) Losses in revenue arising from lack of energy actually produced owing to any factor(s), whatsoever, will NOT be covered, other than that deemed to have been produced, derived solely from the

virtual energy index, and that has been calculated pursuant to the terms and conditions of the policy, at the end of the cover period

- h) Complete shutdown of the plant.

3. Claim computation:

- a) **Settlement of Claims:** Claims will be calculated and settled at the end of the risk period, solely based on the virtual energy index derived from 3rd party data, and no actual generation or site data will be used. However, a calibration factor may be applied in case there is actual site data available for a sufficient period of time.

- b) **Claims Calculation Methodology-**

Virtual Energy Produced Index determines the calculation for the Payout at the end of the Cover Period.

Virtual Energy Produced is a function of the Irradiation incident on the surface of the Solar PV modules, Modules' PV conversion rate and System Efficiency.

Virtual Energy = Irradiation on Module surface x PV Conversion Rate x System Efficiency. Satellite data for Daily Insolation incident on a horizontal surface, is first used to derive Effective Irradiation incident on the surface of the modules (which could be fixed tilted from the horizontal, or tracking) by using standard mathematical formulas.

Modules' PV conversion rate refers to the energy generated per unit of insolation incident on its surface, and is taken as per the technical specifications provided by the manufacturer, and considered constant over the cover period

System Efficiency is derived from the aggregate of all System Losses, viz. Optical losses (due to Shadings, Soiling, etc.), Array losses (like PV loss due to temperature and irradiance levels, electrical loss due to module array mismatch, DC Ohmic wiring losses, inverter loss during operation, etc.); and, other miscellaneous losses (like AC Ohmic loss, Auxiliary/ Night consumption, plant/ grid availability, external transformer losses, etc.).

While all other System Losses are taken as per the technical specifications provided by the manufacturer, and/ or, as reported (or assumed) in the system sizing (or feasibility) report of the plant; and, are assumed to be constant over the cover period (one year of operation), PV loss due to Temperature is calculated from the Satellite based Daily Average Surface Air Temperature based on standard mathematical formulas.

For the purpose of Claims calculation, Daily Isolation incident on a Horizontal surface; and, Daily Average Surface Air Temperature, for the specified Lat Long coordinate(s), for the risk period, will be taken from Data Provider, directly by the Insurer.

Global (effective) Irradiation incident on the tilted surface of the modules will be calculated from Global Horizontal Irradiation data based on appropriate Transposition models

Array Nominal Energy at Standard Test Conditions will be calculated from effective irradiance, after adjusting for optical losses and based on the modules' PV conversion efficiency.

Net Power produced per day (or Energy injected into grid) will be calculated after adjusting Array Nominal Energy for PV loss due to temperature, and various other Array and miscellaneous losses.

Virtual Energy Produced is derived by integrating the Net Daily Energy for the length of cover period

c) Source of data: The data source for the purpose of claim computation as above shall be any of the following:

1. Solar GIS
2. NASA
3. Any other data source acceptable to You i.e. The Insured and the Company i.e. the Insurer.

d) Application of calibration factor for actual site data

In case the Insured seeks claim settlement factoring in the site data, the Company agrees to take the site data into account and apply annual calibration factor to the third party source data for the purpose of claims calculation. This calibration factor is applicable only for those policies where the insured has opted for calibration factor application, prior to policy period.

In case this feature is opted for, the following methodology would be applicable:

- i. Calibration factor is the percentage calibration (either positive or negative) needed to be applied to the virtual energy produced for calculating the sum Insured and trigger, based on the relation between the third party data source and site data. Further the claims for the subsequent year would be settled on the application of this factor.
- ii. Application of calibration factor would be allowed only from second year of the Insurance policy with us
- iii. Services of any mutually agreed and reputed vendor (like Skymet, NSMSL, etc.) will be engaged to install a Pyranometer and/ or other suitable measuring devices at the client's site, in the first year of Insurance policy.
- iv. The service provider would have right to physically inspect the pyranometer/ other measuring equipment on a regular basis and the data from this would be provided to Insured and Insurer, by the vendor on a regular basis.
- v. At the time of first renewal, the monthly actual solar insolation and average surface air temperature data provided by the vendor measured at the Insured site for the earlier period (of 10 to 12 months depending on availability as of renewal) will be correlated with that of the third party data.
- vi. Calibration factor would be applied if the correlation between third party data and site data is more than 75%. If the correlation is found to be less than 75%, site data would not be considered. Policy coverage would depend only on data from third party sources.

Where the calibration factor is within +/- 10%, sum Insured and trigger would be modified by applying the calibration factor. If the calibration factor is beyond +/- 10%, sum Insured, trigger and premium rate would be reviewed suitably

e. Measurement of satellite based irradiation and temperature data

Daily Insolation (irradiance over the day) incident on a horizontal surface and daily average surface air temperature, from any of the above satellite data sources will be taken for the GPS coordinates of the insured plant for the cover period

If required, appropriate Calibration Factor(s) will be applied to the Daily Insolation and/ or Air Temperature data to calibrate the calculated P50 (and respective Plant Load Factor) with that estimated by the manufacturer, and in which case, the same Calibration Factor(s) so chosen, will also be applied for the purpose of settlement.

f. Fallback Methodology:

For any day during the Calculation Period for which the Solar Irradiation and/ or the Ambient Temperature data are/ is not available from the satellite/ modelled data source under consideration, the missing data shall be replaced by the arithmetic mean of the relevant data from the same satellite/ modelled data source for the corresponding calendar day in the preceding five (5) calendar years, or, if not reported for all of such years, the years for which it was reported, rounded to the nearest tenth

g. Adjustment to fallback methodology:

If, the satellite/ modelled data source publishes official data for any of the day(s) for which the Fallback Methodology was used, such data, if relevant, will be used to recalculate the loss as if such data were previously available and an appropriate amount (without interest unless payment of such amount is in default) will be promptly paid or reimbursed by the relevant party. This is subject to such official data being available within a period of 120 days from the end of the calculation period (risk period).

h. Standard terms and conditions:

A. Validity of Cover:

- I. The cover would be valid subject to submission of Commissioning Certificate of the plant, in addition to documentary proof (for example, declaration on company letter head, etc.) of the plant being "in-operation" as on the day of policy inception
- II. Such documents should also specify the system configuration (PV module & Inverter models, etc.) of the plant, which should match with the information provided by the Insured in its submission, based on which the cover was offered
- III. Additionally, the insured is responsible to inform the Insurer in case of a permanent shut down of the entire plant, for whatsoever reasons, during the course of the cover period, and if the insured is unable to or has no intent to produce power after that. Following treatment would be adopted for the various scenarios that may arise in such a case
- IV. In case of shutdown of only a part of the plant, the cover would continue
- V. Only in case of a permanent shutdown of the entire plant, the cover would cease to exist on that date and in which case
 - a. Premium will be refunded back to the client only for the remainder of the cover (unexpired) period, to be calculated on pro-rata basis
 - b. A minimum charge @ 1% of the refundable premium will be deducted towards administrative expenses from the refundable premium amount

- c. No claims will be paid for the part of cover period already past. However, cases where the Insured may request for a pro-rata claim settlement for the period already past only in cases when the shutdown was due to a natural calamity, and in which case the insurer would have the right to verify the same by site inspection

B. *Limitation Period*

In no case whatsoever shall the Company be liable for any loss or damage after the expiration of 12 months from date on which the claim under this policy is made if the insured fails to produce or deliver such documents or details as may be required by the Company in connection with the claim, unless the claim is the subject of pending action or arbitration.

It being expressly agreed and declared that if company shall disclaim liability for any claim hereunder and such claim shall not within 12 calendar month from the date of the disclaimer have been made the subject matter of a suit in a court of law then the claim shall for all purposes be deemed to have been abandoned and shall not thereafter be recoverable hereunder.

C. *Legal Ownership*

During the Period of Insurance, the Insured shall possess all legal ownership rights with regard to, and/ or adequate insurable interest in the Property. The insured shall provide to the Company such title deeds and/ or other documents as may be required by the Company for verification of his / her ownership over, and/ or insurable interest in the Property. The due observance and fulfillment of the above shall be a condition precedent for settlement of any claim under this policy.

D. *Incontestability and Duty of Disclosure*

The policy shall be null and void and no benefit shall be payable in the event of untrue or incorrect statements, misrepresentation, mis-description or on non-disclosure in any material particular in the proposal form, personal statement and declaration and connected documents, or any material information having been withheld or a claim being fraudulent or any fraudulent means or devices being used by the insured or any one acting on his behalf to obtain any benefit under this policy.

E. *Reasonable Care*

The Insured shall take all reasonable steps to safeguard the interest of the Insured against loss or damage that may give rise to a claim.

F. *Observance of Terms and Conditions*

The due observance and fulfillment of the terms, conditions and endorsement of this policy in so far as they relate to anything to be done or complied with by the insured shall be condition precedent to any liability of the company to make any payment under this policy.

G. *Material Change*

The insured shall immediately notify the company by mail/ fax and in writing of any material change in the risk, and cause at his own expense such additional precautions to be taken as circumstances may require to ensure safe operation of the insured items or trade or business practices thereby containing the circumstances that may give rise to the claim, and the company may adjust the scope of cover and / or premium if necessary, accordingly.

H. *Records to be maintained*

The insured shall keep an accurate record containing all relevant particulars and shall allow the company to inspect such record. The insured shall within one month after the expiry of the insurance policy furnish such information as the company may require.

I. *No constructive Notice*

Any knowledge or information of any circumstances or condition in connection with the insured in possession of any official of the company shall not be the notice to or be held to bind or prejudicially affect the company notwithstanding subsequent acceptance of any premium.

J. *Notice of charge etc.*

The company shall not be bound to take notice or be affected by any notice of any trust, charge, lien, assignment or other dealing with or relating to this policy, but the payment by the company to the insured or his legal representative of any compensation or benefit under the policy shall in all cases be on effectual discharge to the company.

K. *Special provisions*

Any special provisions subject to which this policy has been entered into and endorsed in the policy or in any separate instrument shall be deemed to be part of this policy and shall have effect accordingly.

L. *Right to inspect*

If required by the company, an agent/ representative of the company including a loss assessor or a surveyor appointed in that behalf shall in case of any loss or any circumstances that have given rise to the claim to the insured be permitted at all reasonable times to examine into the circumstances of such loss. The insured shall on being required to do so by the company produce all books of accounts, receipts, documents relating to or containing entries relating to the loss or such circumstance in this possession and furnish copies of or extract from such of them as may be required by the company so far as they relate to such claims or will in any way assist the company to ascertain in the correctness thereof or the liability of the company under the policy.

If the insured does not comply with the provisions of this Clause or other obligations cast upon the insured under this policy, in terms of the other clauses referred to herein or in terms of the

other clauses in any of the policy documents, all benefits under the policy shall be forfeited, at the option of the company.

M. Fraudulent claims

If any claim is in any respect fraudulent, or if any false statement, or declaration is made or used in support thereof, or if any fraudulent means or devices are used by the insured or anyone acting on his / her behalf to obtain any benefit under this policy, or if a claim is made and rejected and no court action or suit is commenced within twelve months after such rejection or, in case of arbitration taking place as provided therein, within twelve(12) calendar months after the Arbitrator or Arbitrators have made their award, all benefits under this policy shall be forfeited.

N. Cancellation / Termination

The company may at any time, cancel this policy, by giving 15 days notice in writing by Registered Post Acknowledgment Due post to the insured at its last known address in which case the company shall be liable to repay on demand a rateable proportion of the premium for the unexpired term from the date of the cancellation.

O. Policy Disputes

Any dispute concerning the interpretation of the terms, conditions limitations and/or exclusions contained herein is understood and agreed to by both the insured and the company to be subject to Indian law. Each party agrees to submit to the exclusive jurisdiction of the High Court of Madras and to comply with all requirements necessary to give such Court the jurisdiction. All matters arising here under shall be determined in accordance with the law and practice of such court.

P. Arbitration clause

If any dispute or difference shall arise as to the quantum to be paid under this policy (liability being otherwise admitted) such difference shall independently of all other questions be referred to the decision of a sole arbitrator to be appointed in writing by the parties to the dispute/difference, or if they cannot agree upon a single arbitrator within 30 days for any party invoking arbitration, the same shall be referred to a panel of three arbitrators, wherein one arbitrator to be appointed by each of the parties to the dispute/difference and the third arbitrator to be appointed by such two arbitrators. Arbitration shall be conducted under and in accordance with the provisions of the Arbitration and Conciliation Act, 1996.

It is clearly agreed and understood that no difference or dispute shall be referable to arbitration, as hereinbefore provided, if the company has disputed or not accepted liability under or in respect of this policy.

It hereby expressly stipulated and declared that it shall be a condition precedent to any right of action or suit upon this policy that the award by such arbitrator/arbitrators of the amount of the loss or damage shall be first obtained.

Q. Notices

Any notice, direction or instruction given under this Policy shall be in writing and delivered be hand, post, or facsimile to:

In case of the Insured – at address specified in Policy Schedule.

In case of the Company –

Cholamandalam MS General Insurance Company Limited

“Dare House” 2nd Floor,

No.2, N.S.C. Bose Road,

Chennai – 600 001

Notice and instruction will be deemed served 7 days after posting or immediately upon receipt in the case of hand delivery, facsimile or e-mail.

R. Customer Service

If at any time the insured requires any clarification or assistance, the Insured may contact the offices of the Company at the address specified, during normal business hours.

S. Grievance Mechanism

As an esteemed customer of our company, You can contact us to register complaint/ grievance, if any, including servicing of policy, claims etc. with regard to the insurance policy issued to You. The contact details of our office are given below for Your reference

Cholamandalam MS General Insurance Company

Customer services

Address: H.O: Dare House 2nd floor, No 2 N.S.C. Bose Road, Chennai 600 001,

Toll-Free : 1800 200 5544

SMS : 'CHOLA' to 56677 (premium charges apply)

E-Mail : customer care@cholams.murugappa.com

Website : www.cholainsurance.com

If you have not received any reply from us within one month from the date of lodging the complaint or if you are not satisfied with our reply, you can also contact the nearest Insurance Ombudsman, whose addresses are mentioned below

Chola Solar Plant Protect Policy
UIN IRDAN123RP0011V01201819

Serial No	Office of the Ombudsman	Contact Details: Office of the Insurance Ombudsman	Areas of Jurisdiction
1	AHMEDABAD	2nd floor, Ambica House, Near C.U. Shah College 5, Navyug Colony, Ashram Road, Ahmedabad – 380 014 Tel.:- 079-27546150/139 Fax:- 079-27546142 Email:- bimalokpal.ahmedabad@gbic.co.in	State of Gujarat and Union Territories of Dadra & Nagar Haveli and Daman and Diu.
2	BENGALURU	Jeevan Soudha Building, PID No.57-27-N-19, Ground Floor, 19/19, 24th Main Road, JP Nagar, 1st Phase, Bengaluru-560 078. Tel.:- 080-26652048 / 26652049 Email:- bimalokpal.bengaluru@gbic.co.in	Karnataka.
3	BHOPAL	Janak Vihar Complex, 2nd Floor, 6, Malviya Nagar, Opp.Airtel Office, Near New Market, Bhopal – 462 033. Tel.:- 0755-2769200/201/202 Fax:- 0755-2769203 Email:- bimalokpalbhopal@gbic.co.in	States of Madhya Pradesh and Chattisgarh.
4	BHUBANESHWAR	62, Forest park, Bhubneshwar – 751 009. Tel.:- 0674-2596461 / 2596455 Fax:- 0674-2596429 Email:- bimalokpal.bhubaneswar@gbic.co.in	State of Orissa.
5	CHANDIGARH	S.C.O. No. 101, 102 & 103, 2nd Floor, Batra Building, Sector 17 – D, Chandigarh – 160 017. Tel.:- 0172-2706196/5861 / 2706468 Fax:- 0172-2708274 Email:- bimalokpal.chandigarh@gbic.co.in	States of Punjab, Haryana, Himachal Pradesh, Jammu & Kashmir and Union territory of Chandigarh.
6	CHENNAI	Fatima Akhtar Court, 4th Floor, 453 (old 312), Anna Salai, Teynampet, CHENNAI – 600 018. Tel.:- 044-24333668 / 24335284 Fax:- 044-24333664 Email:- bimalokpal.chennai@gbic.co.in	State of Tamil Nadu and Union Territories - Pondicherry Town and Karaikal (which are part of Union Territory of Pondicherry).
7	DELHI	2/2 A, Universal Insurance Building, Asaf Ali Road, New Delhi – 110 002. Tel.:- 011-23239611/7539/7532 Fax:- 011-23230858 Email:- bimalokpal.delhi@gbic.co.in	State of Delhi.
8	ERNAKULAM	2nd floor, Pulinat Building, Opp. Cochin Shipyard, M.G. Road, Ernakulam - 682 015. Tel.:- 0484-2358759/2359338 Fax:- 0484-2359336 Email:- bimalokpal.ernakulam@gbic.co.in	Kerala, Lakshadweep, Mahe-a part of Pondicherry
9	GUWAHATI	Jeevan Nivesh', 5th Floor, Nr. Panbazar over bridge S.S. Road, Guwahati – 781001(ASSAM). Tel.:- 0361- 2132204 / 2132205 Fax:- 0361-2732937 Email:- bimalokpal.guwahati@gbic.co.in	States of Assam, Meghalaya, Manipur, Mizoram, Arunachal Pradesh, Nagaland and Tripura.

Serial No	Office of the Ombudsman	Contact Details: Office of the Insurance Ombudsman	Areas of Jurisdiction
10	HYDERABAD	6-2-46, 1st floor, "Moin Court", Lane Opp. Saleem Function Palace, A. C. Guards, Lakdi-Ka-Pool, Hyderabad - 500 004. Tel.:- 040-65504123/23312122 Fax:- 040-23376599 Email:- bimalokpal.hyderabad@gbic.co.in	States of Andhra Pradesh, Telangana and Union Territory of Yanam - a part of the Union Territory of Pondicherry.

Chola Solar Plant Protect Policy
UIN IRDAN123RP0011V01201819

11	JAIPUR	Jeevan Nidhi-II Bldg., Ground Floor, Bhawani Singh Marg, Jaipur - 302005. Tel.:- 0141-2740363 Email:- bimalokpal.jaipur@gbic.co.in	State of Rajasthan.
12	KOLKATA	Hindustan Building Annexe, 4th floor, 4, CR Avenue, Kolkata - 700 072. Tel.:- 033-22124339 / 22124340 Fax:- 033-22124341 Email:- bimalokpal.kolkata@gbic.co.in	States of West Bengal, Bihar, Sikkim and Union Territories of Andaman and Nicobar Islands.
13	LUCKNOW	6th Floor, Jeevan Bhawan, Phase-II, Nawal Kishore Road, Hazratganj, Lucknow-226 001. Tel.:- 0522-2231330 / 2231331 Fax:- 0522-2231310. Email:- bimalokpal.lucknow@gbic.co.in	District of Uttar Pradesh: Lalitpur, Jhansi, Mahoba, Hamirpur, Banda, Chitrakoot, Allahabad, Mirzapur, Sonbhadra, Fatehpur, Pratapgarh, Jaunpur, Varansi, Gazipur, Jalaun, Kanpur, Lucknow, Unnao, Sitapur, Lakhimpur, Bahraich, Barabanki, Raebareli, Sravasti, Gonda, Faizabad, Amethi, Kaushambi, Balrampur, Basti, Ambedkarnagar, Sulanpur, Maharajganj, Santkabirnagar, Azamgarh, Kaushinagar, Gorkhpur, Deoria, Mau, Chandauli, Ballia, Sidharathnagar.
14	MUMBAI	3rd Floor, Jeevan Seva Annexe, S. V. Road, Santacruz (W), Mumbai - 400 054. Tel.:- 022-26106928/360/889 Fax:- 022-26106052 Email:- bimalokpal.mumbai@gbic.co.in	States of Goa, Mumbai Metropolitan Region excluding Navi Mumbai & Thane.
15	NOIDA	Bhagwan Sahai Palace, 4th Floor, Main Road, Naya Bans, Sector-15, Gautam Budh Nagar, Noida Email:- bimalokpal.noida@gbic.co.in	States of Uttaranchal and the following Districts of Uttar Pradesh: Agra, Aligarh, Bagpat, Bareilly, Bijnor, Budaun, Bulandshehar, Etah, Kanooj, Mainpuri, Mathura, Meerut, Moradabad, Muzaffarnagar, Oraiya, Pilibhit, Etawah, Farrukhabad, Firozabad, Gautam Budh Nagar, Ghaziabad, Hardoi, Shahjahanpur, Hapur, Shamli, Rampur, Kashganj, Sambhal, Amroha, Hathras, Kanshiramnagar, Saharanpur.
16	PATNA	1st Floor, Kalpana Arcade Building, Bazar Samiti Road, Bahadurpur, Patna - 800 006. Email:- bimalokpal.patna@gbic.co.in	States of Bihar and Jharkhand.
17	PUNE	Jeevan Darshan Building, 3rd Floor, CTS Nos. 195 to 198, NC Kelkar Road, Narayan Peth, Pune - 411 030 Tel: 020 -32341320 Email:- bimalokpal.pune@gbic.co.in	States of Maharashtra, Area of Navi Mumbai and Thane excluding Mumbai Metropolitan Region.

POLICY SCHEDULE

Policy issuing office:

Policy Number:

Agent:

Customer code:

Name of the Insured:

Address of the Insured:

Policy Period: From.....To.....

Insured Parameter: lack of adequate solar irradiation

Coverage Location:

Limit of Liability –

For Solar PV plant –

Trigger (MWh):

Exit (MWh):

Deductible (X):

Sum Insured for the plant(INR):

Annexure:

For the purpose of illustration, let us assume the following sample cases.

PARAMETRIC INSURANCE COVER FOR SHORT-FALL IN IRRADIANCE

Submission received from the Client

SITE SPECIFICATION

Latitude (+ to N)	xx.xxx
Longitude (+ to E)	yy.yyy
Time Zone (+ to E)	5.5
Albedo (ρ)	0.2

AEP ESTIMATE

Exceedence	P50
Net AEP (MWh)	222622
Specific Production (KWh/ KWp/ Year)	1731
Performance Ratio	84.20%

MODULE SPECIFICATIONS

Manufacturer	First Solar
Length (m)	1.2
Width (m)	0.6
Temperature Coefficient, /oC (β_p)	-0.34%
STC Reference Temperature (Tr)	25
NOCT (oC)	45
Module Efficiency @ STC	15.46%

ARRAY SPECIFICATIONS

POA Orientation Type	Fixed Tilted
POA Tilt (β)	13
POA Azimuth, cw from N (γ Axis)	180
Sub-Array 1	
Module Model	FS-4112-2 Sept2014
Modules In Series per String	15
No. of Parallel Strings	38947

Unit Nominal Power @ STC (Wp)	112.5
Model of Inverter	Sunny Central 2500
Unit Nominal Power of Inverter (kWac)	2250
No. of Inverters	23
Total Power of Inverters (kWac)	51750

Sub-Array 2

Module Model	FS-4110-2 Sept2014
Modules In Series per String	15
No. of Parallel Strings	38100
Unit Nominal Power @ STC (Wp)	110
Model of Inverter	Sunny Central 2500
Unit Nominal Power of Inverter (kWac)	2250
No. of Inverters	22
Total Power of Inverters (kWac)	49500

Array Global

Total No. of Modules	1155705
Total Collector Area	832108
Total Nominal Power @ STC (KWp)	58521859
Total No. of Inverters	45
Total Inverter Power (kWac)	101250

OPTICAL LOSSES

Near Shadings: Irradiance Loss	-1.10%
IAM Factor on Global	-2.20%
Array Soiling Losses	
Month	Loss
1	-2.70%
2	-2.80%
3	-2.40%
4	-1.30%
5	-0.70%
6	-0.10%
7	0.00%
8	0.00%
9	0.00%
10	-0.50%
11	-1.70%

12	-2.60%
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ARRAY LOSSES

PV loss due to Irradiance level	-0.10%
Shadings: Electrical loss acc. to strings (assumed)	- 0%
Module quality loss	0.60%
Module array mismatch loss	-1%
Ohmic wiring loss	-1.10%

SYSTEM LOSSES

Inverter loss during operation (efficiency)	-1.80%
Inverter loss over nominal inv. power	-0.20%
Inverter loss due to power threshold	0%
Inverter loss over nominal inv. voltage	0%
Inverter loss due to voltage threshold	0%
Night consumption	0%

OTHER LOSSES

AC Ohmic loss	-0.10%
External transformer loss	-1.70%

UNCERTAINTIES

Uncertainties	
Meteo Data Source	
Inter-Annual Variability	2.50%
System Parameters	
PV module modelling/ parameters	2%
Inverter efficiency uncertainty	0.50%
Soiling & mismatch uncertainty	1%
Degradation uncertainty	1%
Effective Uncertainty	3.54%

Tariff (Rs./ kWh)	5.05
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All the above information will be treated as constant over the cover period, for the purpose of this insurance product, all of which are either based on the technical specifications supplied by the manufacturer and/ or taken from the client's system sizing report:

Data taken from 3rd party data provider

Daily Insolation incident on a horizontal surface; and, daily average surface air temperature for 1995 – 2015

Calculated by Insurer

P50 = Long Term Average of Virtual Energy from 1995 – 2015 = 215,755 MWh

P99 = 198,010 MWh

Expected Revenue at P50 = INR 1,089,562,750

Trigger & Exit

Deductible (x%) = 2%

Trigger = P50 – x% = 211,440 MWh

Exit = P99 = 198,010 MWh

Tariff = INR 5,050/ MWh

Sum Insured = (Trigger – Exit) x Tariff

$$= (211,440 - 198,010) \times 5,050 = 67,821,500 \text{ INR}$$

Notes:

1. P99 denotes the virtual energy production, which is reached with a probability of 99%.
2. Trigger point has been arrived at after applying a deductible of 2% on P50
3. Exit has been set to cover a shortfall up to P99.

Termsheet

Cover Period	Apr 01 to Mar 31
Trigger	211,440 MWh
Exit	198,010 MWh
Payout/ MWh shortfall	INR 5,050
Sum Insured for Plant	INR 67,821,500

Settlement

- 1) At the end of Cover Period, data from the same data provider will be taken and Virtual Energy Produced will be calculated for the Cover Period, to determine Payout, if any.
- 2) If the Virtual Net Energy produced, as calculated, falls below 211,440 MWh, insurance pay-out will be made at the rate of INR 5,050/ MWh of shortfall, up to 198,010 MWh