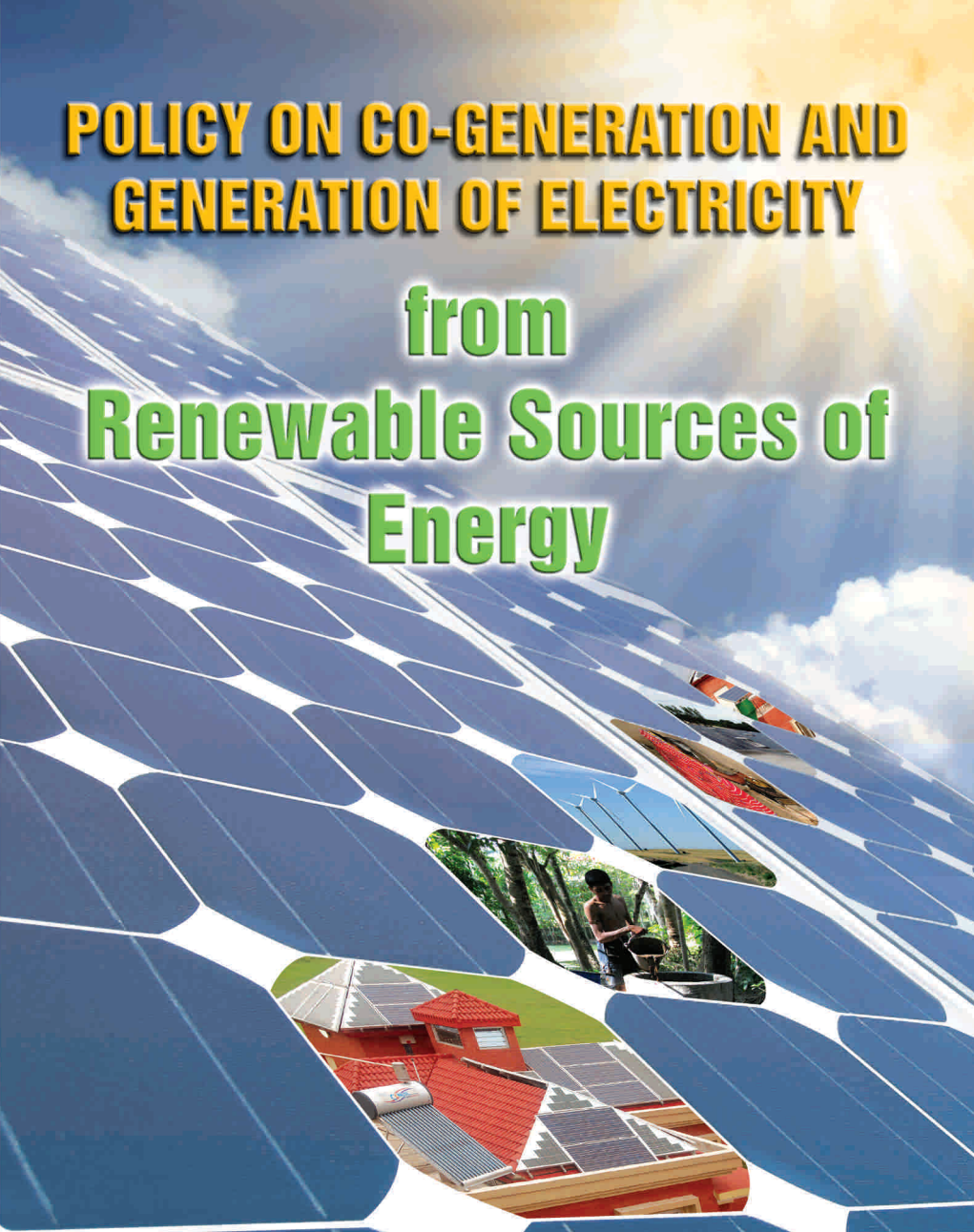


POLICY ON CO-GENERATION AND GENERATION OF ELECTRICITY

from Renewable Sources of Energy



सत्यमेव जयते

Government of West Bengal

Department of Power & Nonconventional Energy Sources



Government of West Bengal



Policy on Co-generation
and Generation of Electricity from
Renewable Sources of Energy

Department Of Power
&
Nonconventional Energy Sources, Govt. of West Bengal

5th June, 2012

Policy on Co-generation
and Generation of Electricity from Renewable Sources of Energy

1st Edition

Published by :
Department of Power & Nonconventional Energy Sources,
Govt. of West Bengal

Design & Printed by :
Caps Micrographics Pvt. Ltd.
8/2, Kiran Sankar Roy Road
Kolkata

Price : ₹ 150/-

মমতা ব্যানার্জী
ममता बैनर्जी
ممتا بنرجی
Mamata Banerjee



মুখ্যমন্ত্রী, পশ্চিমবঙ্গ
मुख्यमंत्री, पश्चिम बंगाल
مغربی بنگال وزیراعلی
CHIEF MINISTER, WEST BENGAL

FOREWORD

West Bengal has come up with a first-ever policy on Co-generation and Generation of Electricity from Renewable Sources of Energy. This is a major step to harness renewable energy and develop renewable energy projects in the State.

This policy envisages substantial increase in electricity generation from renewable energy sources including Co-generation so as to reach 1040 MW by 2017 and 2706 MW by 2022, compared to the present installed capacity of 193 MW.

This effort is primarily aimed at addressing the issues relating to climate change as also to encourage tapping of renewable energy sources, as the conventional energy sources are becoming costly day by day.

I hope this document will help all the stakeholders including investors, policy makers etc. to have a better understanding of what the Government intends to do in the renewable energy field and have a clear comprehension of the task ahead.

Kolkata
5th June 2012


(Mamata Banerjee)

Manish Gupta
Minister-in-charge
Department of Planning,
Power & NES Department
Government of West Bengal
Writers' Buildings
Kolkata- 700 001
Ph- + 91-33-2214 3664
Fax- + 91-33-2214 1899



মনিশ গুপ্ত
ভারপ্রাপ্ত মন্ত্রী
পরিকল্পনা মন্ত্রণা,
বিদ্যুৎ ও অতিরিক্ত শক্তি উৎস মন্ত্রণা
পশ্চিমবঙ্গ সরকার
মহাকরণ

MESSAGE

Renewable sources of energy have driven much of the growth in the global clean energy sector since the year 2000. Per capita energy consumption is one of the key indices of economic growth of a nation. The demand for energy has been increasing rapidly in our country. Over exploitation of fossil fuels such as coal, oil and natural gas to meet the energy needs of various sectors has posed serious environmental problems such as global warming and climate change. Energy derived from natural processes (e.g. sunlight and wind) are replenished at a faster rate than they are consumed. Solar, wind, geothermal, hydro, and some forms of biomass are common sources of renewable energy.

Recent years have seen a major scale-up of wind and solar photovoltaic (PV) technologies. Other renewable technologies – including hydropower, geothermal and biomass – continue to grow from a strong established base, adding hundreds of Giga Watts of new capacity worldwide.

Renewable Energy Sources such as Solar, Wind, Biomass and Hydro are non-exhaustive and non-polluting in nature and are available in most parts of the country. Renewable Energy will be useful in meeting our energy needs, in enhancing energy security and in contributing effectively to keep environmental pollution in check.

There are good opportunities in West Bengal for the robust growth of Renewable Energy. In order to increase the percentage share of Renewable Energy in the State, a road map needs to be defined for this sector. Till recently, there was no Renewable Energy Policy in West Bengal. This new policy on Co-generation and Generation of Electricity from Renewable Energy Sources will help formulate concrete strategy and enable establishment of appropriate measures for exploiting renewable sources by developers, investors and users.

I express my gratitude to Mamata Banerjee, Hon'ble Chief Minister of West Bengal for her valuable guidance. I also thank all the experts who have contributed meaningfully in the drawing up of this policy for the State.

I hope this policy will help the accelerated development of renewable energy sources in West Bengal.

Kolkata
June 5, 2012



(Manish Gupta)
Minister-in-Charge, Power & NES
Government of West Bengal

Table of Contents

	Page No
1 Preamble	1
2 Definitions	2
3 Vision	10
4 Objective of the Policy	10
5 Scope of the Policy	11
6 Goals	11
7 Focus Areas and Strategy	12
8 Decentralised Distributed Generation (DDG)	18
9 Implementation of RE Projects	19
10 Land for RE Project Development	24
11 RE Project Financing	25
12 Regulatory Issues	26
13 Others	29
14 CDM Benefit Sharing Mechanism	30
15 Institutional Framework	30
16 Social and Environmental Issues	32
17 General	32
18 Amendments and Interpretation of the Policy	33

1. Preamble

- 1.1 The power sector in West Bengal has achieved significant improvements over the years in the areas of electricity generation, transmission and distribution. Two percent (2%) of the total power requirement of the State is met from Renewable Energy (RE) sources. There is a need for optimally harnessing the RE potential in the state.
- 1.2 In the implementation of National Action Plan on Climate Change (NAPCC), a share of 15% of India's total energy requirements is targeted to be met from renewable sources by 2020. To meet this ambitious target, a number of initiatives are being perused by various State Governments for enhancing the growth of renewable energy through active public & private participation in the sector.
- 1.3 The State of West Bengal, India has an estimated potential of generating 2,206 MW (excluding solar) of electricity from RE sources. Total achievement untill date has been around 193 MW. The West Bengal Electricity Regulatory Commission (WBERC) has mandated 4% of total procurement of electricity from RE sources as Renewable Purchase Obligation (RPO) by 2012-13,
- 1.4 The present Government of West Bengal has formulated this Policy - "West Bengal Policy on Co-generation and Generation of Electricity from Renewable Sources of Energy, 2012" for accelerating development initiatives for promotion of alternate energy sources in the State.

Definitions

- i) **“Bid”** means an offer to participate in the project, made in accordance with the terms and conditions set out in a document inviting such offers;
- ii) **“Biomass”** means wastes produced during agricultural and forestry operations (for example straws and stalks) or produced as a by-product of processing operations of agricultural produce (e.g., husks, shells, de-oiled cakes, etc); wood produced in dedicated energy plantations or recovered from wild bushes/weeds; and the wood waste produced in some industrial operations;
- iii) **“Captive Generating Plant”** means the Captive Generating Plant as defined in the Act and that which qualifies in accordance with the provisions of the Electricity Rules, 2005;
- iv) **“Carbon Credit”** or Certified Emission Reduction is the technical term for the output of Clean Development Mechanism (CDM) projects, as defined by the Kyoto Protocol. One CER unit represents one tonne of carbon-di-oxide (CO₂) equivalent reduced;
- v) **“Clean Development Mechanism (CDM)”** is an arrangement under the Kyoto Protocol allowing industrialised countries (called countries) with a greenhouse gas reduction commitment to invest in projects that reduce emissions in developing countries as an alternative to more expensive emission reductions in their own countries;
- vi) **“Co-generation”** means a process which simultaneously produces two or more forms of useful energy including electricity from a single fuel source;



- vii) “**Command Area**” shall mean the area allocated by the Nodal Agency to a biomass project developer for procurement of biomass on the basis of the clustering study conducted by the Nodal agency and shall include any reallocations thereof;
- viii) “**Commission**” means the West Bengal Electricity Regulatory Commission;
- ix) “**Decentralised Distributed Generation (DDG)**” means generation of electricity from various conventional or renewable energy sources for local consumption, in areas where grid connection is not feasible or cost-effective, largely using its own dedicated distribution system;
- x) “**Distribution Licensee**” means licensee authorised to operate and maintain a distribution system for supplying electricity to consumers in his area of supply;
- xi) “**Distribution System**” means the system of wires and associated facilities between the delivery points on the transmission lines or the generating station connection and the point of connection to the installation of the consumers;
- xii) “**Detailed Project Report (DPR)**” is a Report that establishes the Technical and Commercial basis of the Project and includes all Project Technical and cost related details and is used for subsequent planning and implementation of the Project. ;
- xiii) “**Developer**” means a person or body of persons, company, firm and such other private or Government undertaking, who/that finances, designs, processes, constructs, Commissions, operates and maintains the project facilities and, at the end of the concession term, transfers them to the Government of West Bengal in case of BOOT model;
- xiv) “**Feed-In-Tariff (FIT)**” means a minimum guaranteed price per unit of electricity paid to the generator to enable investors to obtain a reasonable return on renewable energy investments;

- xv) “**Generation Based Incentive (GBI)**” means the fiscal Policy support measures initiated by the Ministry of New and Renewable Energy to promote generation of electricity through renewable energy sources via Policy directive No.32/61/ 2007-08/PVSE dated January 2008 and subsequent amendments thereof;
- xvi) “**Generating Company**” means any company or body corporate or association or body of individuals, whether incorporated or not, or artificial juridical person, which owns or operates or maintains a generating station;
- xvii) “**Generate**” means to produce electricity from a generating station for the purpose of giving supply to any premises or enabling a supply to be so given;
- xviii) “**Generating Station**” or “**station**” means any station for generating electricity, including any building and plant with step-up transformer, switchgear, switch yard, cables or other appurtenant equipment, if any, used for that purpose and the site thereof; a site intended to be used for a generating station, and any building used for housing the operating staff of a generating station, and where electricity is generated by water-power, includes penstocks, head and tail works, main and regulating reservoirs, dams and other hydraulic works, but does not in any case include any sub-station;
- xix) “**Government**” means the Government of West Bengal;
- xx) “**Green Energy Fund**” means a fund managed by West Bengal Green Energy Development Corporation Limited for promotion of renewable energy in the State;
- xxi) “**Grid**” means the high voltage backbone system of inter-connected transmission lines, sub-stations and generating plants;
- xxii) “**Grid Code**” means the code as defined in the West Bengal Electricity Regulatory Commission (State Electricity Grid Code) Regulations, 2007 and amendments thereof. ;

- xxiii) “**Grid-Connected RE Projects**” means the projects connected to the distribution / transmission network of the utilities to sell electricity to the grid;
- xxiv) “**Grid Standards**” means the standards as specified by Central Electricity Authority U/S 73(d) of the Electricity Act, 2003
- xxv) “**Inter-Connection Point**” means a point at which a generating plant and/or apparatus connects to the transmission/distribution system;
- xxvi) “**Net Metering**” means measurement of the net energy consumption by the consumer from the distribution licensee under which a distribution licensee receives credit for the net energy supplied to the consumer and allows credits to the consumer if there is net drawal. The metering & billing arrangement shall be as per relevant provisions of the Regulations of the Commission.
- xxvii) “**Nodal Agency**” refers to West Bengal Green Energy Development Corporation Limited, the agency responsible for promotion and development of renewable energy in the State;
- xxviii) “**Open Access**” means the non-discriminatory provision for the use of transmission lines or distribution system or associated facilities with such lines or system by any licensee or consumer or a person engaged in generation in accordance with the regulations specified by the West Bengal Electricity Regulatory Commission;
- xxix) “**Power Purchase Agreement (PPA)**” means a contract for the sale of power between two parties: one who generates electricity for the purpose of sale (the seller) and the other who purchases electricity (the buyer), based on terms and conditions as agreed between the seller and the procurer;
- xxx) “**Renewable Energy Certificate (REC)**” mechanism is a market-based instrument to promote renewable energy and facilitate renewable energy purchase obligations amongst various stakeholders;

- xxxii) “Renewable Purchase Obligation (RPO)” means the same as defined in the relevant regulations of WBERC
- xxxiii) “Renewable source” means renewable electricity generating sources such as hydro generating station, wind, solar, biomass based on 100% producer gas on combustion route, urban / municipal waste, industrial waste, geothermal, tidal, ocean thermal energy conversion (OTEC) or other such sources as approved by the MNRE;
- xxxiiii) “Single Window” is a system facilitated by the Nodal Agency in order to expedite the process of receiving clearances from multiple agencies and fulfil all inception-related requirements of an RE project;
- xxxv) “Single Window Empowered Committee” is an interdepartmental committee established with the objective of reviewing and addressing RE Project related clearance issues, comprising members from West Bengal Renewable Energy Development Agency, West Bengal Industrial Development Corporation, West Bengal Pollution Control Board, West Bengal Department of Power and Non-Conventional Energy Sources, Department of Urban Development and Department of Municipal Affairs and any other related department and the Secretariat of which shall be the Nodal Agency;
- xxxvi) “Stand-Alone System” means the electricity system set-up to generate power and distribute electricity in a specified area without connection to the grid/mini-grid or any kind of distribution system.
- xxxvii) The “Act” means the Electricity Act, 2003;
- xxxviii) “Transmission Lines” means all high pressure cables and overhead lines (not being an essential part of the distribution system of a licensee) transmitting electricity from a generating station to another generating station or a substation, together with any step-up and step-down transformers, switch-gear and other works necessary to and used for the control of such cables or overhead lines, and such buildings or part thereof as may be required to accommodate such transformers, switch-gear and other works;

- xxxviii) “Transmission Licensee” means a licensee authorised to establish or operate transmission lines;
- xxxix) “Transmit” means conveyance of electricity by means of transmission lines and the expression "transmission" shall be construed accordingly;
- xl) “Waste to Energy (WTE)” means energy generated out of waste that includes municipal solid waste, wastage from Government, industrial and urban areas or any other form of organic or inorganic wastes;
- xli) “Wheeling” means the operation whereby the distribution system and associated facilities of a transmission licensee or distribution licensee, as the case may be, are used by another person for the conveyance of electricity on payment of charges as determined by the West Bengal Electricity Regulatory Commission under section 62 of the Act.

Note : If any definition which is not covered in this policy, will be as per the definition as mentioned in the respective regulation of WBERC. If any inconsistency arises related to the definition between this policy document and WBERC then the definition of WBERC will prevail.



Acronyms and Abbreviations

BOOT	Build-Own-Operate-Transfer
CDM	Clean Development Mechanism
DPR	Detailed Project Report
DDG	Decentralised Distributed Generation
DISCOM	Distribution Company
ESCOM	Energy Supply Company
FY	Financial Year
GHG	Green House Gas
HV	High Voltage
ITI	Industrial Training Institute
KVA	Kilo Volt-Ampere
kW	Kilo Watt
LC	Letter of Credit
LV	Low Voltage
MNRE	Ministry of New & Renewable Energy
MSW	Municipal Solid Waste
MW	Mega Watt
MU	Million Units
MoP	Ministry of Power
MoEF	Ministry of Environment and Forests
NAPCC	National Action Plan on Climate Change
PPA	Power Purchase Agreement
PPP	Public Private Partnership

PV	Photovoltaic
PFR	Pre-Feasibility Report
R&D	Research & Development
RE	Renewable Energy
REC	Renewable Energy Certificate
RPO	Renewable Purchase Obligation
RFP	Request for Proposal
SERC	State Electricity Regulatory Commission
SHP	Small Hydro Project
SNA	State Nodal Agency
SIA	Secretariat of Industrial Assistance
SWID	State Water Investigation and Development Department
UMPP	Ultra Mega Power Project
VAT	Value Added Tax
WB	West Bengal
WBERC	West Bengal Electricity Regulatory Commission
WBGEDCL	West Bengal Green Energy Development Corporation Limited
WBREDA	West Bengal Renewable Energy Development Agency
WBSEDCL	West Bengal State Electricity Distribution Company Limited
WBSETCL	West Bengal State Electricity Transmission Company Limited
WTE	Waste to Energy

Vision

- 2.1. Ensuring greener generation of electricity for future generations. To develop and deploy new and renewable energy for supplementing the energy requirements of the state.
- 2.2. To promote generation of electricity from renewable energy resources available in the State, thereby, enhancing the contribution of RE in the total installed capacity of the State in respect of electricity utilization as well as thermal application (Biogas, solar water heating and solar cooker)
- 2.3. To create a conducive environment for participation of the public sector, private developers and smaller communities in the development of RE-based power projects in the State.
- 2.4. To generate value for the stakeholders, as well as for the State.

3. Objectives of the Policy

- 3.1 The objective of the Renewable Energy Policy for this State is to promote and facilitate the growth of generation of electricity from renewable energy sources by way of optimum utilization of the RE potential in the State. This Policy is also aimed at removing constraints by providing a guiding framework for promotion and development of appropriate RE technologies. The long-term and short-term objectives of the Policy are detailed below:
 - a) Long-term objectives:
 - i) Facilitating enhanced contribution of electricity generation from RE resources;
 - ii) Facilitating and sustaining private sector investment in the development of renewable energy and
 - iii) Adopting / evolving RE technologies and facilitating commercial development of the same e.g. wind, solar, tidal, geothermal etc;

- b) Short-term objectives:
 - i) Identifying technology-wise thrust areas and strategies for RE in the State;
 - ii) Developing a Roadmap for each of the RE technologies;
 - iii) Facilitating RE investments in the public as well as the private sector;
 - iv) Charting an energy-mix and framing a timeline in synch with the RPOs;
 - v) Developing future RE technologies via pilot projects, and
 - vi) Framing the basic building blocks to develop necessary regulatory, administrative, infrastructural and institutional mechanisms.

4. Scope of the Policy

- 4.1 The provisions contained in this Policy shall be applicable to all the projects related to electricity generation from renewable energy sources. This Policy supersedes all the Policy guidelines/instructions issued on this behalf from time to time.
- 4.2 This Policy will be applicable to all the renewable energy projects sanctioned prior to the commencement of this Policy and those in the process of development, including the projects already commissioned.
- 4.3 This Policy shall include the following RE technologies-solar, wind, biomass, cogeneration, small hydro, municipal solid waste (MSW) and other energizing technologies. The policy shall cover, inter alia, the following areas of RE interventions:
 - a) Grid-connected R.E. Projects;
 - b) Decentralised Distributed Generation (DDG) projects based on clean and renewable energy sources including stand-alone systems and decentralised grids.
- 4.4 Under this Policy, all the electricity generated from the renewable energy projects established within the State of West Bengal are to be preferably sold to the distribution licensees within the State of West Bengal.

5. Goals

- 5.1 For the currently proven renewable technologies in the State, the targets till the end of 13th Five Year Plan (2022) are set as below:

RE Source	Potential (in MW)	Existing Installed Capacity (in MW)	Target Cumulative Capacity (in MW)	
			2017 (End of the 12th Plan)	2022 (End of the 13th Plan)
Wind Power	450	2	75	450
Mini & Small Hydro	394	97	220	394
Co-generation 1	6001	69	355	600
Biomass	662	16	240	662
Waste to Energy 2	100	7	50	100
Solar	Under Preparation	2	100	500
Total	2206	193	1040	2706

6. Focus Areas and Strategy

Wind Farms

- 6.1 To exploit the wind potential of the State, the Nodal Agency shall initially undertake a comprehensive wind resource assessment and offer the identified potential sites for development. Government-owned wasteland in areas having minimum annual mean Wind Power Density (WPD) of 200 Watt/m² measured at a hub height of 50 meters and using new generation wind turbine generators will be offered for setting up of wind projects.

The Nodal Agency shall undertake an assessment of the progress achieved for all earlier allocated

projects. Projects which have not met implementation milestones as per the Allotment shall be required to provide justification to the Nodal Agency



* The potential needs to be identified based on the potential of steel, fertilizer and chemical industries in West Bengal. The current potential is based on available figures of such industries and is likely to rise.

* Includes industrial, urban and municipal waste

* Potential is still to be determined

failing which the Nodal Agency shall reserve the right to cancel such allotments without incurring any liability thereof. Extension shall only be provided in the case of project progress having been impaired because of factors beyond the reasonable control of the Developer.

The Nodal Agency shall assist the project developers in obtaining CDM benefits. The CDM benefits would be allowed to directly accrue to the developer.

Small, Mini and Micro Hydel Projects

- 6.2 By 2017, a target of 120 MW of power has been fixed for achievement through small and mini-hydro projects. The Nodal Agency will undertake studies to prepare the DPR for SHP in a time bound manner and will offer the identified sites for development. The mini-hydro proposals, which involve diversion of water flow, resulting in drying up of a stream/river stretch, will not be considered for development. The Nodal Agency shall undertake an assessment of the progress achieved for all earlier allocated projects, also.

Projects which have not met the implementation milestones as per the Allotment shall be required to provide justification to the Nodal Agency failing which the Nodal Agency shall reserve the right to cancel such allotments without incurring any liability thereof. Extension shall only be provided in the case of project progress having been impaired because of factors beyond the reasonable control of the Developer.

Pico/micro-hydel projects shall be identified by the Nodal Agency in a fast-track mode and central financial assistance applicable to the pico/micro-hydel project cost will be passed on to the eligible beneficiaries. Such projects can also be taken up on an un-solicited basis subject to approval by the Nodal Agency.

Biomass Projects

- 6.3 An additional 224 MW of biomass power has been targeted for achievement by the year 2017. In West Bengal, rice husk is a primary

feedstock for biomass projects. However, other forms of agricultural waste like wood, straw, maize, energy plantation, etc. are also being considered for generating biomass power in West Bengal.



- 6.4 Feedstock availability and pricing are the critical determinants of success for biomass plants. In order to ensure feedstock availability, energy plantations will be promoted. For this, barren Government land, waste land, as well as degraded forest land shall be made available. The Nodal Agency shall identify potential sites for such plantation based on PPP mode. The feed-in-tariff structure shall be reviewed and possibility of adaptation of two-part tariff structure segregating fixed and variable charges shall be explored. The two-part tariff mechanism for biomass projects with partial fixed cost recovery linked to project availability and the variable cost linked to the fuel cost shall be considered for implementation.
- 6.5 To ensure smooth availability of feedstock, WBGEDCL (West Bengal Green Energy Development Corporation Limited) shall classify the high rice-producing areas into zones based on the quantum of production of rice in these areas. Based on the clustering study conducted by the Nodal Agency, the Nodal Agency would allocate projects in the pre-defined command areas. Such allocations shall be periodically reviewed by the Nodal Agency.
- 6.6 The prospective developer shall ascertain the availability of water from the State Water Investigation and Development Department (SWID) for groundwater sourcing and Irrigation and Waterways Department for surface water sourcing. The Nodal Agency shall assist the Developer in getting clearances from the mentioned Departments for their project.

Small-Scale Biomass Power Projects Using Gasifiers

- 6.7 Biomass power generation through gasifier route is mainly targeted at meeting rural power requirements depending on the command area for feedstock; the generation can range from 500 kW to 10 MW.
- 6.8 Presently, in West Bengal, 173 rice-husk-based gasifier systems with an aggregate capacity of 3.5 MW have been installed under the MNRE-initiated programme for commercial establishments. The power generated is primarily used to meet the captive demand of the rice mills. The Policy envisages establishing 1000 such rice-husk-based gasifier systems with an aggregate capacity of 20 MW by the year 2017.
- 6.8a Energy plantations are to be encouraged for electricity generation through biomass power projects as well as improving soil productivity, specifically on barren and non-agricultural land.

Waste to Energy

- 6.9 By 2017, 50 MW of power is targeted from waste-to-energy power projects covering municipal solid waste, municipal liquid waste and industrial waste. The priority areas for development of power projects will be identified in line with the National Master Plan for Development of Waste-to-Energy in India.
- 6.10 The Municipal Corporations will identify the land for the projects. Considering the fact that the use of such plants will reduce the requirement of landfill area, land for such projects will be preferably be provided in the landfill area at nominal charges.
- 6.11 Two or three Municipal Corporations proximate to each other should consider using the same dumping ground in order to provide the necessary waste for large plants. Efforts shall be made to promote garbage segregation at source and the same shall be made mandatory for industries, large commercial complexes and large housing societies, to begin with. Other categories generating garbage may also be extended.
- 6.11a Use of bio degradable waste is to be encouraged for generation of

electricity through waste-to-energy power projects as well as preventing soil degradation of the waste dumping ground.

Co-generation

- 6.12 By 2017, 355 MW of power is targeted to be harnessed through co-generation facilities that are intended to be installed primarily in iron and steel, fertilizer and chemical industries. Moreover, the Policy envisages that iron and steel, fertilizer and chemical industries having 2,000 KVA and above as connected load, should produce at least 5 per cent of their requirement through captive power plants employing co-generation technology.

Solar Photovoltaic

- 6.13 There is a target to harness 82 MW of solar power through grid-connected projects and 18 MW of solar power through rooftop and smaller solar installations by 2017. The State intends to encourage the development of solar



power by providing favourable atmosphere for promising Solar Developers. Apart from grid-connected solar power, the State is targeting huge capacity addition through rooftop and smaller solar installations.



In view of the variable and uncertain nature of generation from PV installations and consequent impact of large scale penetration of such variable generation into the distribution system, suitable provisions in the Regulations as to grid safety and grid discipline may be considered by the Commission (WBERC).

- 6.14 The reactive power charges as well as unscheduled interchange charges shall be borne by the co-generation & renewable energy source developers / distribution licensee / consumers, as the case may be, and as per applicable Regulations of the Commission. Building codes shall be framed under which it would be mandatory for the buildings of business and commercial entities, schools and colleges, hospitals, large housing societies and Government establishments to install rooftop PV devices.

Rooftop and Small Solar PV Installations

- 6.15 Solar rooftop and small solar PV installations can provide a significant amount of energy for in-house loads, reducing peak system demands in urban establishments. Depending on the rooftop area available and building loads, these solar systems can be as large as 5-10 MW and can power a majority of the building's non-fluctuating loads.

- 6.16 Urban local bodies (M u n i c i p a l Corporations, Utilities, City, Corporations) will form an essential part of the comprehensive solar Policy for cities. The by-laws shall be amended with due mandatory



- provisions for providing solar energy infrastructure, right at planning/building stage, both for residential and commercial categories.
- 6.17 It shall be mandatory for all the public buildings to have solar devices to meet electricity requirements and other applications. All existing and upcoming commercial and business establishments having more than 1.5 MW of contract demand will be required to install solar rooftop systems to meet at least 2% of their total electrical load. Further, all the existing and upcoming schools and colleges, hospitals, large housing societies and Government establishments having a total contract demand of more than 500 KW will be required to install solar rooftop

systems to meet at least 1.5% of their total electrical load

- 6.18 Moreover, the industrial infrastructure coming under the recent initiatives of the Government of West Bengal to encourage rapid industrialisation of the State in the form of growth centres, industrial parks, intelligent parks etc. shall mandatorily employ the usage of the rooftop PV installations to meet some part of the in-house demand. The Policy envisages establishment of rooftop and small-scale PV installations across the unused rooftop areas and vacant spaces in the premises of these establishments. The Policy envisages a target of 16 MW of rooftop and small PV installations by the year 2017.

7. Decentralised Distributed Generation (DDG)

- 7.1 All remote and non-electrified villages where grid access is technically and commercially not viable shall be electrified based on DDG.



- 7.2 DDG projects' conceptualisation and implementation shall be based on the 'Guidelines for Village Electrification through Decentralized Distributed Generation (DDG) under Rajiv Gandhi Grameen Viduyutikaran Yojana in the XI Plan' and other related directives issued by the Ministry of Power (MoP), Government of India. In this regard,

the infrastructure for these projects is to be established in a manner so that they are grid compatible.

8. Implementation of RE Projects

8.1 WBGEDCL (West Bengal Green Energy Development Corporation Limited) will be the Nodal Agency and will facilitate investment and involvement in the RE sector of the State.

8.2 WBREDA will promote new renewable energy technologies through demonstration projects.

8.3 Allotment of Projects

8.3.1 Depending on the available potential, maturity and the size of the RE technology in the State of West Bengal, it is envisaged that allotment of projects shall be done either on an unsolicited or solicited basis.

The projects, which are proposed to be installed in the State, having 2-MW size and above shall be allotted through solicited process following the competitive bidding route whereas the small projects below this size shall be allotted on an unsolicited basis.

Allotment of Projects through Competitive Bidding

8.3.2 The Nodal Agency shall release in the public domain a Request for Proposal (RfP) for inviting prospective developers to submit their proposals. This document will comprise the requisite details about the proposed project and instructions for bidders to facilitate informed decision-making. The RfP shall at least include the following:

- a) Pre-qualification criteria to evaluate the technical and financial capacities of the prospective developers
- b) Preliminary feasibility report depicting the site specifications and details of the project;
- c) Methodology for evaluation of technical and financial analysis for the viability of the project.

- Competitive Bidding process will be followed / called by the respective DISCOMs as per the prevailing Electricity Act 2003 and rules and regulations framed there under.
- 8.3.3 Bidders qualified on fulfilling minimum requirements at pre-qualifying stage will be considered for next stage of technical and financial evaluation. The developer offering the highest discount on the WBERC (West Bengal Electricity Regulatory Commission) ceiling tariff for the concerned RE technology will be invited to negotiate for signing the PPA.
- 8.3.4 A developer can bid for full or part capacity/quantity of a specified RE Project.
- 8.3.5 The selected Developer shall sign a Power Purchase Agreement with the concerned host utility at the price determined through competitive bidding. In addition to this, the Developer shall also enter into an Implementation Agreement with the State Government which would clearly outline the timeline for the selected Developer to develop a project.
- 8.3.6 The PPA already executed, if any, by any private Developers with any DISCOM etc will not be affected by the introduction of this new Policy on co-generation & generation of electricity from renewable sources of energy.
- 8.3.7 If already any draft PPAs are under process / consideration for finalization / approval of WBERC then this policy may not be applicable for those cases / draft PPAs and on the basis of the approval from WBERC those agreements can be signed by the respective DISCOM
- 8.4 Allotment of the Projects on Unsolicited Basis
- 8.4.1 It shall be at the discretion of the Nodal Agency to consider projects brought for implementation by project developers on their own initiative. On receipt of any such proposal in the form of a pre-feasibility report from a Developer, the Nodal Agency shall ascertain whether the Developer meets the requisite pre-qualification criteria in the form of

technical and financial requirements for implementing the project.

The Nodal Agency shall also assess the project on parameters such as social, economical and national interest. The Nodal Agency shall provide the basis of the aforementioned aspects. Projects not found feasible against these parameters shall not be taken forward beyond this stage. The assessment of the projects in the pre-qualification stage shall also consider the financial and socio-economic impacts of the project.

8.4.2 If the project is found feasible and the Developer meets all the qualification criteria (financial and technical), the project shall be directly allocated to the project developer who has identified the project site and submitted report to the Nodal Agency.

8.4.3 As regards mini-solar project (maximum 150 kW size), the development of these projects shall be done under the DDG model. The mini-solar projects situated in the remote/off-grid areas shall be identified by the Nodal Agency and the project shall be owned by the State Government as per the stipulation of the DDG guidelines. The community shall look after the operation of these types of projects. The operation and maintenance of such projects shall be met through the revenue generated from these projects.

8.4.4 Projects selected on a unsolicited basis shall mandatorily sign the Power Purchase Agreement with the concerned host utility. The designated parties shall also execute an Implementation Agreement, which shall set the timelines that shall be adhered to with regards to development of the project.

8.5 Clustering of Biomass Projects

8.5.1 The major rice-producing areas will be clustered in different zones based on the availability of rice husk. The clustering shall be done by the nodal agency on the basis of the feedstock availability study that shall be conducted by the Nodal Agency and may be reviewed from time to time to re-define the boundaries with an objective to optimize the utilization. The clustering study shall also establish the maximum

size of biomass based power plants that can be established in each zone. In order to ensure adequate biomass feedstock availability, the geographical location of plants will be regulated based on the inputs of the clustering study.

8.6 Evacuation Infrastructure

8.6.1 For grid connectivity of RE projects, the inter-connection point of the renewable energy generation facility with the transmission or distribution system will be as per Regulations of the Commission.

8.6.2 WBSETCL (West Bengal State Electricity Transmission Company Limited)/Distribution Licensee and WBSEDCL will jointly undertake projects for creating required evacuation infrastructure for renewable energy projects. In this regard, pooling stations will be created on the basis of a detailed techno-economic feasibility study for assessing the feasible pooling stations based on RE project concentration pattern primarily in the following areas:

- a) Bankura and Purulia and Paschim Medinipur for transmitting RE generated from solar projects
- b) Darjeeling for transmitting RE generated from SHP projects
- c) Sundarban and other coastal areas for transmitting RE generated from wind projects

8.6.3 For creating such pooling stations, the RE projects expected to come up till the year 2020 should be considered, provided that, the evacuation infrastructure cost beyond the inter-connection point shall be borne by the licensees and shall be recovered from the consumers as per suitable pricing framework developed by the Commission (WBERC).

8.6.4 Interfacing equipments, including transformers, panels, kiosks, protection metering, as well as their maintenance will be undertaken by the developers according to the specification and requirements of the transmission/distribution licensee for which such eligible developers will bear the entire cost. Alternatively, these works and their maintenance

could be undertaken by the transmission/distribution licensee at charges to be decided by the licensee/WBERC, whenever it is set up.

8.6.5 The inter-connection voltage for the grid-connected RE projects will be as per WBERC regulations (Renewable and Co-generation Regulations, 2010) as amended from time to time. The current provisions are:

- a) The co-generation and renewable energy sources excepting rooftop solar PV sources shall be connected to the State grid at a voltage level of 132 kV or 66 kV or 33 kV or 11 KV or 6 KV subject to technical suitability determined by the licensee.
- b) Rooftop solar PV sources of capacity ranging between 100 kW - 2 MW shall be allowed connectivity at LV or MV or 6 kV or 11 kV of the distribution system of the licensee as considered technically and financially suitable by the licensee and the developer.

8.6.6 For the purpose of creation of evacuation infrastructure for small-hydro and island-based wind projects, if the developer has to lay a line for a distance greater than 5 km, the transmission / distribution licensee shall bear the extra connectivity cost for the additional distance subject to Regulations of the Electricity Regulatory Commission.

8.7 Time Limit for Projects

8.7.1 It is mandatory for the Developer to start the work of the project within six months of getting all the necessary statutory clearance.

8.7.2 The project should be completed in all respects and the Commissioning of the project with grid synchronization should be done within the time limits stipulated in the Implementation Agreement.

8.7.3 The Nodal Agency shall continuously monitor the Project progress through a project monitoring mechanism and shall review Project Progress reports that shall need to be submitted by the Developers as per the requirements of the Implementation Agreement. Projects not demonstrating visible progress or lagging behind the fixed milestones shall be required to furnish suitable justification on delay to the Nodal Agency.

8.7.4 The Nodal Agency shall review the project progress issues and based on their assessment may grant specific time extensions / waivers on meeting the milestones. The revised milestones and penalties shall be finalized with a suitable amendment to the Implementation Agreement. The Nodal Agency reserves the right to cancel the allotment in case of no satisfactory explanation being provided by the Developer on Project delays. The Implementation Agreement shall stipulate the detailed arrangements, legal provisions for the same.

9. Land for R.E. Project Development

9.1 For cases where Government vested land is available, the permission for use of such land will be given for 30 years or the project life whichever is less. Vested land will be allocated and transferred to the WBGEDCL, which will then lease the land to the renewable energy developers.

9.2 For projects on private land the developer will arrange the entire required quantum of land through direct purchase from / suitable agreement with the land owner. R.E. projects may not require conversion of private /agricultural land to non agriculture purposes subject to necessary government orders passed for these purposes.

9.2.1 The allotment of land, if any, shall stand cancelled if the power project is not started within the time frame in accordance with the time limits as stipulated in the Implementation Agreement.

9.3 Clearance

9.3.1 The Nodal Agency will act as a Single Window for obtaining assistance from all line Departments.

9.3.2 The Nodal Agency will clearly identify the requirements, proofs, and support required by different Departments and on that basis, the Nodal Agency shall develop standard formats for obtaining clearances for

different technologies. All these standard formats based on technology, size of project, location/region of the projects etc. shall be available from the website of the Nodal Agency.

- 9.3.3 In order to obtain statutory clearances, the developers will apply in the standardized prescribed formats to the different Departments and furnish a copy to the Nodal Agency. The Nodal Agency will coordinate and pursue with all the concerned Departments for speedy approvals and clearances within 90 days. In case, the project involves clearance from the MoEF, necessary approvals and clearances will be arranged and coordinated by the Nodal Agency within 120 days.
- 9.3.4 The clearances/approvals, which are not accorded within the specified period, will be dealt with by the Single Window Empowered Committee. The Committee will meet once in every month to decide on pending cases and to ensure that the hurdles in the way of clearances are dealt with expeditiously.

10. RE Project Financing

10.1 Green Energy Fund

- 10.1.1 In order to finance various initiatives for development of RE in the State, a Green Energy Fund shall be created by the Nodal Agency. The fund will be seeded by some initial equity contribution by the Government and contributions from international donor agencies. The Nodal Agency should use this fund for promotion of RE which will generate sufficient revenue to make the fund self-sustainable. The Nodal Agency shall also be responsible for managing of the Green Energy Fund and will prepare the yearly budget for utilization of the fund.
- 10.1.2 The Nodal Agency shall levy a charge for providing administrative support for obtaining statutory clearance at various levels. In addition to that, WBGEDCL will charge all project preparatory expenses which shall include all direct expenses incurred for the project assessment and reasonable levels of overhead, administrative and personnel expenses.

The specific details of the chargeable expenses that shall be recovered upfront from the selected developer shall be specified in the bid documents. Such amount earned will be deposited in the Green Energy Fund.

10.1.3 Eighty (80)% of the penalty imposed for violation of any statutory clearances shall also be channelled into the Green Fund. Moreover, 50% of the penalty imposed for not meeting the RPO by the obligated entities shall also be fed into the Green Fund.

10.1.4 The Nodal Agency may also take an equity stake in an RE project in return of the services provided as a part of the PPP model implementation. Specific transaction mechanism for project equity investments shall be set out in the RFP and Security Package. Dividends declared on such equity investments in RE projects will be deposited in the Green Energy Fund.

10.2 Budgetary Support

10.2.1 With regard to financing of the renewable energy projects in West Bengal, it shall be contemplated by the Government of West Bengal to make a provision of allocating annual budget for the development of renewable projects in the State. The budgetary allocation shall be done in such a way that separate funds shall be created and parked for different RE technologies. However, the disbursement of the fund to finance the RE projects shall be linked to its technical feasibility as well as the set parameters in the form of milestones achieved by the project in relation to its construction and Commissioning.

11. Regulatory Issues

11.1 Open Access, Wheeling and Banking

11.1.1 Any person generating electricity from co-generation or renewable sources can opt for open access, subject to availability of adequate transmission facility to any transmission licensee's system within the State on payment of various charges as specified.

- 11.1.2 Open access charges shall be payable according to the Open Access Regulations, Tariff Regulations and Co-generation & Renewable Sources Regulations of the Commission.
- 11.1.3 For power purchase from projects located outside the State, the landed cost of the RE power on account of open access transaction at the State boundary cannot be more than the WBERC price cap, as approved. Here the Landed cost means the cost of power at generating point which is outside the State, cost of Transmission charges up to State boundary including cost of transmission loss up to the point where CTU delivers the required quantum of power to STU. The total cost involvement up to the point of receiving the power by STU from CTU is called the landed cost.

11.2 RPO

- 11.2.1 The State Government is committed to procure and utilize the renewable energy power as required and determined by the West Bengal Electricity Regulatory Commission.
- 11.2.2 The RPO will be as per the West Bengal Electricity Regulatory Commission (Co-generation and Generation of Electricity from Renewable Sources of Energy) Regulations, 2010 or the subsequent amendment of the same.
- 11.2.3 The Commission may consider inclusion of captive consumers and open access consumers under the purview of the obligated entity.
- 11.2.4 Utilities are free to procure power from outside the boundary of the State to meet its RPO, provided, that the procurement price shall not be more than the capped price prescribed by WBERC. This purchase will, however, be allowed even if the utility has not exhausted its option to purchase power from RE generators situated within the State.
- 11.2.5 The Commission may consider allowing the purchase of REC to meet the RPO obligations.
- 11.2.6 If the obligated entity fails to comply with the RPO target as provided in the WBERC regulations during any year and fails to purchase the

required quantum of RECs, the State Commission may direct the obligated entity to deposit a certain amount in the Green Energy Fund, to be created and maintained by the Nodal Agency. The amount may be determined by the Commission based on the shortfall in units of RPO, RPO regulatory charges and the forbearance price decided by the Central Commission. The underlying condition is that the RPO regulatory charges shall be equivalent to the highest applicable preferential tariff during the year for RE generating sources, as the case may be, or any other rate as may be stipulated by the Commission.

11.3 PPA, IA, Settlements and Net Metering

11.3.1 The sale of electricity by the power producer to the energy supply company shall be governed by the Power Purchase Agreement executed between the power producer and the obligated procuring entity through competitive bidding and as per Regulations of the Commission.

11.3.2 The interested developer shall execute an implementation agreement with the Government of West Bengal and submit a corporate bank guarantee of a requisite amount linked to the capital cost of the project. The specific quantum of bank guarantee shall be specified in the bid documents.

11.3.3 The developers shall be liable to pay specified penalty in case of any extension sought and granted in implementation of the project except in cases where such penalty is waived by the Nodal Agency after assessing the reasons for such delay uncontrollable on part of the developer. The penalty terms will be as mentioned in the implementation agreement.

11.3.4 The Government will determine suitable security deposit for implementation of the renewable energy projects. Such bid security amounts shall be specified in the bid documents.

11.3.5 All transactions between the West Bengal State Electricity Transmission Company Limited/Distribution Licensee and the developer involving wheeling or sale of power will be settled on a monthly basis as per the Power Purchase Agreement and Transmission Service Agreement executed.

11.3.6 Net metering facility will be extended to solar power systems installed on rooftops and connected to the electrical grid to feed excess power back to the grid. Net metering facility for solar rooftop PV should be provided along with a separate meter to get a clear assessment of consumption and generation of electricity by the consumer. It shall be the responsibility of the distribution licensee to take down the meter reading and record the metered data, maintain database of all the information associated with that meter and verify the correctness of metered data.

11.4 Incentives

11.4.1 Exemption of demand cut to the extent of 50% of the installed capacity assigned for captive use purpose will be allowed subject to the Regulations of the Commission.

11.4.2 The host and obligated distribution utilities shall provide revolving Letter of Credit from a nationalized bank as a payment security mechanism for all RE projects.

11.4.3 In case of RE project construction in very remote areas, some infrastructural support including approach roads to the project site may be provided at Government cost.

12. Others

12.1 The various concession and incentives allowed by the Ministry of New and Renewable Energy/Government Of India regarding Detailed Survey & Investigation/Detailed Project Report, Generation Based Incentive etc will ipso-facto continue to be passed on by the State Government to the project developer through the designated Nodal Agency.

12.2 The distribution utilities will extend the facility of Letter of Credit to the developer. The intent would be realizing payments in scheduled periods for the renewable energy power sold to the State distribution utility. The cost for opening the Letter of Credit shall be reimbursed

to the DISCOMS from Green Energy Fund by West Bengal Green Energy Development Corporation Limited.

- 12.3 For maintaining a complete database of RE projects in this State, all the developers need to register their project with the



Nodal Agency with their Industrial Entrepreneur Memoranda (IEM)/Entrepreneurs Memorandum (EM). For such registration, no registration fee needs to be levied by the Nodal Agency.

13. CDM Benefit sharing mechanism

- 13.1 All risks, costs, and efforts associated with the availing of carbon credits shall be borne by the generating company. Further, the entire proceeds of carbon credit from approved CDM project, if any, shall be retained by the generating company.

14. Institutional Framework

14.1.1 Role of West Bengal Renewable Energy Development Agency (WBREDA)

14.1.1 WBREDA shall be responsible for:

- i) promotion of alternative sources of energy through demonstration projects;
- ii) promotion of off-grid solar and biomass/biogas projects and disbursement of the subsidy related to that projects;
- iii) providing support to developers in formulation, design, and proper implementation of the projects;
- iv) encouraging public awareness about renewable energy;
- v) creation and management of Centre of Excellence;

- vi) monitoring and development of advanced courses and R&D work, taken up by the Centre of Excellence;
- vii) Introduction of new courses in the area of RE in ITIs and Government Engineering Colleges.

14.1.3 A Centre of Excellence will be formed under WBREDA in association with the prominent institutions of the State. The fund for creating and maintenance of such centre of excellence will be provided from the Green Energy Fund during the initial periods and thereafter it is expected to become self-sufficient.

14.1.4 The Centre of Excellence will serve the purpose of providing training to the manpower employed in the RE sector and offering advanced courses and fellowship in the field of RE.

14.2 Role of West Bengal Green Energy Development Corporation Limited (WBGEDCL)

14.2.1 WBGEDCL shall be responsible for:

- i. promotion of private sector investment and involvement in developing grid-connected RE units;
- ii. assisting the developers in getting different incentives for implementation of RE projects;
- iii. conducting the RE resource assessment studies;
- iv. assisting in the solicitation of the project based on the competitive bidding;
- v. evaluation and allotment of smaller projects to be allocated on unsolicited basis;
- vi. identification and creation of land bank for RE projects;
- vii. management of the green energy fund;
- viii. acting as a single window for obtaining assistance from all line Departments;
- ix. monitoring of allotted RE Projects and review of the RE Projects in the implementation phase, and

- x. acting as the State Nodal Agency.

15. Social and Environmental Issues

15.1 The developer shall make suitable financial provisions for mitigation of adverse impacts according to the approved Environment Impact Assessment Plan and Environment Management Plan. It is



required to follow environmental related issues concerning disposal of blasting muck and soil at appropriate dumping sites. Enterprises adopting best environment-friendly practices will be given due recognition through State awards every year.

- 15.2 The Developer/Government acquiring land shall provide an amount not exceeding one percent (1%) of the project cost for :-
- the rehabilitation and resettlement of the persons displaced from the project area
 - local development activities like building of schools, hospitals etc.
- 15.3 The project developer, as far as possible, should try to generate local employment opportunities.

16. General

16.1 Funding adaptive research is to be encouraged in the areas of interest of this State for the development of R. E. Sector and enhancement of efficiency in generation and availability of electricity from RE sources including their cost effectiveness.

17. Amendments and Interpretation of the Policy

17.1 Department of Power and NES, Government of West Bengal shall have the powers to amend / issue clarification, if any, on any matter related to interpretation of any provisions under this Policy in consultation with the concerned Departments / Agencies.





West Bengal Renewable Energy Development Agency

State Nodal Agency, MNRE, Govt. of India
An Organisation of The Deptt. of Power & N.E.S. Govt. of W.B.
Bikalpa Shakti Bhavan, J-1/10, EP & GP Block, Sector-V, Salt Lake, Kolkata - 700 091
Phone & Fax : 2357 6569 / 5037
Webside : www.wbreda.org