

Govt Policies for Solar Sector

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Legal framework of policies

Outline of Presentation

- **Legal framework of policies**
- **Grid power solar policies**
- **Off-grid solar policies**

Legal Framework of Policies

Bill

Gazette notification/Decree

Act/Law/Statute

Rule

Regulation

Policy

Government order

Bye laws

Office order

Guidelines

Bill

THE COAL REGULATORY AUTHORITY BILL, 2013

A

BILL

to provide for the establishment of Coal Regulatory Authority to regulate and conserve resources in the coal sector; protect the interests of consumers of coal and producers of coal and for matters connected therewith or incidental thereto.

BE it enacted by Parliament in the Sixty-fourth Year of the Republic of India as follows:—

CHAPTER I

PRELIMINARY

1. (1) This Act may be called the Coal Regulatory Authority Act, 2013.

Short title
and
commencement.

(2) It shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint and different dates may be appointed for different provisions of this Act.

2. (1) In this Act, unless the context otherwise requires,—

Definitions.

(a) “Appellate Tribunal” means the Appellate Tribunal referred to in section 21;

- A bill is a proposed law under consideration by a legislature
- A draft of a proposed law presented to parliament for discussion
- A bill does not become law until it is passed by the legislature

Gazette notification/ Decree

रजिस्ट्री सं० डी० एल०—(एन)04/0007/2003—14

REGISTERED NO. DL—(N)04/0007/2003—14



भारत का राजपत्र The Gazette of India

असाधारण

EXTRAORDINARY

भाग II — खण्ड 1

PART II — Section 1

प्राधिकार से प्रकाशित

PUBLISHED BY AUTHORITY

सं० 19] नई दिल्ली, सोमवार, मई 12, 2014/ वैशाख 22, 1936 (शक)

No. 19] NEW DELHI, MONDAY, MAY 12, 2014/VAISAKHA 22, 1936 (SAKA)

इस भाग में भिन्न पृष्ठ संख्या दी जाती है जिससे कि यह अलग संकलन के रूप में रखा जा सके।

Separate paging is given to this Part in order that it may be filed as a separate compilation.

MINISTRY OF LAW AND JUSTICE
(Legislative Department)

New Delhi, the 12th May, 2014/Vaisakha 22, 1936 (Saka)

The following Act of Parliament received the assent of the President on the 9th May, 2014, and is hereby published for general information:—

THE WHISTLE BLOWERS PROTECTION ACT, 2011

No. 17 OF 2014

[9th May, 2014.]

- Entry in official register
- Registration number
- Assent of the President:
9 May 2014
- Effective Date: 12 May 2014

Act/Law/Statute

MINISTRY OF LAW, JUSTICE AND COMPANY AFFAIRS

(Legislative Department)

New Delhi, the 1st October, 2001/Asvina 9, 1923 (Saka)

The following Act of Parliament received the assent of the President on the 29th September, 2001, and is hereby published for general information:--

THE ENERGY CONSERVATION ACT, 2001

No 52 OF 2001

[29th September 2001]

An Act to provide for efficient use of energy and its conservation and for matters connected therewith or incidental thereto.

BE it enacted by Parliament in the Fifty second Year of the Republic of India as follows:—

CHAPTER I PRELIMINARY

1. (1) This Act may be called the Energy Conservation Act, 2001.
(2) It extends to the whole of India except the state of Jammu and Kashmir

Short title, extent
and commencement

- A bill which has passed through the various legislative steps required for it and which has become law
- Issued by Law Ministry
- Does not need national emblem

Rule

(Published in Part II, Section 3, Sub-section (i) of the Gazette of India, Extraordinary)

GOVERNMENT OF INDIA
MINISTRY OF POWER

New Delhi, the 8th, June, 2005

NOTIFICATION

G.S.R. 379(E). - In exercise of powers conferred by section 176 of the Electricity Act, 2003 (Act 36 of 2003), the Central Government hereby makes the following rules, namely:-

1. Short title and commencement.-

- (1) These rules shall be called the Electricity Rules, 2005.
- (2) These Rules shall come into force on the date of their publication in the Official Gazette.

2. Definitions.-

In these rules, unless the context otherwise, requires:

- Power conferred by EA, 2003
- Issued by Power Ministry
- As notification
- Procedure, formats, implementing authority, compliance and penalties

Regulation

*MERC Order for long term development of renewable energy sources and
Associated regulatory (RPS) framework*

BEFORE THE
MAHARASHTRA ELECTRICITY REGULATORY COMMISSION
World Trade Centre, Centre No.1, 13th Floor, Cuffe Parade, Mumbai- 400 005

IN THE MATTER OF

Long term Development of Renewable Energy Sources and
associated Regulatory (RPS) Framework

Case No 6 of 2006

Dr. Pramod Deo, Chairman
Shri. A. Velayutham, Member
Shri. S. B. Kulkarni, Member

Date of Order: August 16, 2006

ORDER

The Maharashtra Electricity Regulatory Commission, in exercise of the power vested in it under clause (e) of sub-section (1) of Section 86, read with sub-section (h) of Section 61 and Section 3 of the Electricity Act, 2003 (hereinafter referred to as EA 2003) and all other powers enabling it in this behalf, determines the regulatory framework for long term development of renewable energy sources namely, Renewable Purchase Specification (RPS), within the State of Maharashtra.

In exercise of its powers vested in it as per above provisions of the EA03, the Commission hereby passes the Order as under:

- Quasi judicial entity
- Created by Act
- Independent – Not under government
- Regulation mandatory for government policy
- Unbiased – Level playing field
- Joint decision: chairman and members
- Provides consensus enabling instrument
- Public hearing

Policy



SOLAR POLICY

Govt. of Chhattisgarh

2012 - 2017



CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)
Dept. of Energy, Govt. of Chhattisgarh

- **Govt. level decision**
- **Issued by Energy Dept.**
- **No legislation necessary**
- **Has sunset date**
- **Administrative decision of ruling party**
- **May be changed by next government**
- **A follow through of Act**

Government order

8555
27/11/13



GOVERNMENT OF KERALA

ABSTRACT

Power Department - Kerala Solar Energy Policy 2013 - Approved - Orders issued.

POWER (PS) DEPARTMENT

G.O(P) No. 49/2013/PD

Dated, Thiruvananthapuram, 25/11/2013

Read: 1) Minutes of the meeting held on 29.06.2012, under the Chairmanship of Hon'ble Minister (Power and Transport).
2) GO(Rt)160/2012/PD dated 04.08.2012.

ORDER

The State has substantial sources of renewable energy, viz, Solar, Wind, Small Hydro Power, etc. The potential of Solar Power in the State is yet to be exploited. In order to tap the vast potential of Solar Power in the State, Government as per the minutes read as first paper above have decided to formulate a Solar Policy for the development of Solar Power in the State. Based on the decision at the above meeting, a Committee was constituted vide order read as 2nd paper above for formulating the draft Solar Policy in the State.

2. Accordingly the Draft Solar Policy submitted by the Committee was put on the website of ANERT calling for comments and suggestions. Based on the comments from the Public, the members of the Committee and other expert in the field, certain modifications were made in the draft policy.

3. Government have examined the draft Solar Policy so prepared in detail and are pleased to approve the 'Kerala Solar Energy Policy 2013' as appended to this Order.

(By Order of Governor)

NIVEDITA P HARAN

Additional Chief Secretary

- Departmental notification
- Order no. , dated
- Based on minutes of meeting
- Authorizing the decision
- Subject to review midway
- Bureaucratic procedure

Bye laws, Office order, Guidelines

- **Bye laws**
 - **Localized and customized rules**
 - **Local decision**
- **Office order**
 - **Subject to changes with mutual consent**
 - **For smooth functioning**
 - **Internal office management**
- **Guidelines**
 - **Only guiding principle**
 - **May not be mandatory**

Mission Statement: NAPCC

- **National Action Plan on Climate Change**
- **Prime Minister's Council on Climate Change**
- **Announced on June 30, 2008**

Way Forward: Eight National Missions

- National Solar Mission
- National Mission for Enhanced Energy Efficiency
- National Mission on Sustainable Habitat
- National Water Mission
- National Mission for Sustaining the Himalayan Ecosystem
- National Mission for a "Green India"
- National Mission for Sustainable Agriculture
- National Mission on Strategic Knowledge for Climate Change

Grid power solar policies

JNNSM

S. No.	Application segment	Target for Phase I (2010-13)	Target for Phase 2 (2013-17)	Target for Phase 3 (2017-22)
1.	Solar collectors	7 million sq meters	15 million sq meters	20 million sq meters
2.	Off grid solar applications	200 MW	1000 MW	2000 MW
3.	Utility grid power, including roof top	1,000-2000 MW	4000-10,000 MW	20000 MW

Future vision:

- **Phase I: Learning, Market growth**
- **Phase II: Commercialization, Grid parity**
- **Phase III: Self sustainable, Tech. Innovation**

Various Business Models

- **Generation based incentive**
- **Bundling mechanism: NVVN**
- **RPO market: Regulatory Requirement**
- **REC market: APPC + REC**
- **State initiative: FiT + Bidding**
- **Private market: Third party sale + Captive**
- **Viability gap mechanism: 30% of project cost**

Viability Gap Mechanism

- **Viability gap fund based on bid**
- **VGF 30% of the project cost or Rs.2.5 Cr./MW, whichever is lower**
- **Tariff:**
 - **Without AD Rs.5.45 per kWh fixed for 25 years**
 - **With AD Rs.4.75 per kWh fixed for 25 years**
- **Equity min Rs.1.5 Cr./MW must**
- **Release of funds:**
 - **50% on achieving Commercial Operation Date (COD)**
 - **Balance 50% progressively 10% over next 5 years**
- **Bidding Result:**
 - **47 projects selected**
 - **DCR (Domestic Content Requirement) Category: 22 (Rs.1.35 - 2.456 Cr per MW)**
 - **Open Category: 25 (Rs.0.175 - 0.135 Cr per MW)**

Canal Bank and Canal Top SPV Power

- **Scheme:**
Pilot-cum-Demonstration Project for Development of Grid Connected SPV Power Plants on Canal Bank and Canal Top
- **CFA:**
Total budget: Rs. 225 Crs for 2015-2017
Support: Rs. 3 Crs/MW canal top, Max. 50 MW and Rs. 1.5 Crs/MW canal bank, Max. 50 MW
- **Eligibility:**
Only those states/UTs who have fulfilled RPO or commit to
- **Implementation Agency:**
Govt. utilities, Departments and PSUs
- **Scheme Manager:**
SECI to invite proposal, scrutinize, forward for sanction

Solar Parks and Ultra Mega Solar Power Projects

- **Scheme:**
Development of Solar Parks and Ultra Mega Solar Power Projects, 2014-2019 (25 nos. 500 MW each)
- **Implementation:**
Govt. Agencies with/without private equity
- **Scheme Manager:**
SECI on behalf of MNRE
- **CFA:**
 - **One time Rs. 25 lakhs for DPR**
 - **In stages Rs.20 lakhs/MW or 30% of the project cost including Grid-connectivity cost, whichever is lower**
- **Objective:**
 - **One-stop-shop**
 - **Single window format**
 - **Shorter period of time**
- **Facilities:**
 - **Land, road, construction power, evacuation, drainage etc.**

Solar Power Achievement

Commissioning Status of Grid Connected Solar Power Projects under JNNSM

Sr. No.	State/UT	Total MNRE Projects MW	State Policy MW	RPO MW	REC Scheme MW	Pvt. Initiative (Roof top) MW	CPSUs MW	Total commissioned capacity till 11-08-14 (MW)
1	Andhra Pradesh	44.75	90.19		28.1	1.1		164.14
2	Arunachal Pradesh	0.025						0.025
3	Chhattisgarh	4			3.1			7.1
4	Gujarat	0	863.05	50	6			919.05
5	Haryana	7.8					5	12.8
6	Jharkhand	16						16
7	Karnataka	5	30				9	44
8	Kerala	0.025						0.025
9	Madhya Pradesh	5.25	224.05		75.78		50	355.08
10	Maharashtra	47	125		108.75			280.75
11	Orissa	12	5		2.5		10	29.5
12	Punjab	9			7.52			16.52
13	Rajasthan	484.5	23.1	40	190.35			737.95
14	Tamil Nadu	16	3		80	0.5		99.5
15	Uttar Pradesh	12	2				15	29
16	Uttarakhand	5						5
17	West Bengal	2.05	5					7.05
18	Andaman & Nicobar	0.1					5	5.1
19	Delhi	0.335			2.14	2.99		5.465
20	Lakshadweep	0.75						0.75
21	Puducherry	0.025						0.025
22	Chandigarh	2						2
23	Others	0.79						0.79
TOTAL		674.4	1370.39	90	504.24	4.59	94	2737.62

- **October 2014: 2738MW**
- **JNNSM lags behind in achieving target (674MW)**
- **Individual state initiative commendable**
- **REC mode got flip, later slowed down**
- **Private market untapped**

RPO Regulations

State- wise Solar RPO targets

States	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Andhra Pradesh	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%					
Arunachal Pradesh	Not regulation issued for RPO by the Power Department										
Assam	0.10%	0.15%	0.20%	0.25%							
Bihar	0.25%	0.25%	0.50%	0.75%	1.00%	1.25%	1.50%	1.75%	2.00%	2.50%	3.00%
Chhattisgarh	0.25%	0.50%									
Delhi	0.10%	0.15%	0.20%	0.25%	0.30%	0.35%					
JERC (Goa & UT)	0.30%	0.40%									
Gujarat	0.50%	1.00%									
Haryana	0.00%	0.05%	0.75%								
Himachal Pradesh	0.01%	0.25%	0.25%	0.25%	0.25%	0.25%	0.50%	0.75%	1.00%	2.00%	3.00%
Jammu and Kashmir	0.10%	0.25%									
Jharkhand	0.50%	1.00%									
Karnataka	0.25%										
Kerala	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
Madhya Pradesh	0.40%	0.60%	0.80%	1.00%							
Maharashtra	0.25%	0.25%	0.50%	0.50%	0.50%						
Manipur	0.25%	0.25%									
Mizoram	0.25%	0.25%									
Meghalaya	0.30%	0.40%									
Nagaland	0.25%	0.25%									
Orissa	0.10%	0.15%	0.20%	0.25%	0.30%						
Punjab	0.03%	0.07%	0.13%	0.19%							
Rajasthan	0.50%	0.75%	1.00%								
Sikkim	Not regulation issued for RPO by the Power Department										
Tamil Nadu	0.05%										
Tripura	0.10%	0.10%									
Uttarakhand	0.03%	0.05%									
Uttar Pradesh	0.50%	1.00%									
West Bengal			0.25%	0.30%	0.40%	0.50%	0.60%				

State Solar Power Policies

SN	Particulars	Description
1	Capacity	1-10 MW
2	Wheeling	Allowed with charges as per SERC
3	Electricity Duty	Mostly exempted
4	PPA duration	20 to 25 years
5	Transmission infrastructure	By utility with or without charge
6	Forecasting & Scheduling	Not applicable
7	Land	Govt. and Private
8	Connectivity	11 to 400 kV substation
9	Open Access	Allowed with OA/grid loss charges

Off-grid Solar Policies

Implementation Arrangements

- **State Renewable Energy Development Agencies (State Nodal Agencies)**
- **Financial Institutions/Financial Integrators (e.g. NABARD and Regional Rural Banks, Commercial Banks, IREDA and NHB)**
- **Channel Partners including RESCO**
- **Solar Energy Corporation of India**
- **Other Large Govt. Departments/PSUs**

SNAs and FIs

•State Nodal Agencies:

- Each state has SNA e.g. MEDA, TEDA, HIMURJA**
- Only by inviting tenders**
- Aggregating the projects**
- Only for systems: larger than 5kWp or equivalent**

•Financial Institutions/Financial Integrators

- NABARD/ RRBs/ Commercial Banks/ IREDA/NHB**
- Loan from the bank mandatory to avail subsidy**
- Only individual beneficiaries eligible**

Channel Partners/RESCOs

- **Channel Partners:**

- **Manufacturers of cell/Modules, inverters, batteries, luminaries or system integrators**
- **Accredited with certifying agencies e.g. CRISIL**
- **Responsible for design, supply, integration and installation, O&M and other services**
- **Can directly approach the Ministry for accessing subsidy**

- **RESCOs:**

- **Those who install, own & operate RE systems and provide energy services to consumers**
- **Will sell power to the consumer at mutually agreed rate or at rates arrived through bidding process**
- **Street / Home Lighting Systems, mini/micro grids**

SECI and Govt. Depts./PSUs

- **Solar Energy Corporation of India**
 - **SECI: A central govt. company, owned by MNRE**
 - **Through tender mode only**
 - **Submit project proposals directly for approval**
 - **Implement large govt. schemes**
 - **Socially and commercially oriented projects**
 - **All categories of subsidy**
- **Other Large Govt. Departments/ PSUs**
 - **Central/State Ministries/Depts./ Organizations/PSUs, Autonomous Institutions**
 - **Project mode i.e. must be a project report**
 - **Project proposals directly to the MNRE**
 - **Through tender only**
 - **Socially and commercially oriented projects**
 - **All categories of subsidy**

Special Category States

- **North Eastern States, Sikkim, Jammu & Kashmir,**
- **Himachal Pradesh and Uttarakhand, Lakshadweep, A&N Islands**
- **Subsidy 90%**
- **Through SNA or SECI**
 - Procurement through open competitive bidding
 - For common public:
 - For Central and State Government Ministries and their organizations

CFA

I. Central Financial Assistance (Rs/Wp) for SPV Lighting System.

Sno.	Category	Capacity	General Category States	Through NABARD	Rs. Per Wp				Channel Partners	
					NE States, A&N, Lakshadweep Islands		Special Category States			
					@ 30%	@90%	@ 30%	@90%		
1.	Solar lighting System- street lights, home lights, lanterns	CFL	Up to 74 Wp	Rs.75	Rs.100	Rs.82	Rs.247	Rs.75	Rs.225	NA
2.		LED	Up to 40 Wp	Rs.120	Rs.160	Rs.132	Rs.396	Rs.120	Rs.360	NA

II. Central Financial Assistance (Rs/Wp) for SPV Lighting System.

Sno.	Category	Capacity	General Category States	Through NABARD	Rs Per Wp				Channel Partners
					NE States, A&N, Lakshadweep Islands		Special Category States		
					@ 30%	@90%	@ 30%	@90%	
1	Solar power packs/ SPV Power Plants (with battery bank @ 9.6 VAh/Wp)***	Up to 300 Wp	Rs. 75	Rs. 100	Rs. 82	Rs. 247	Rs. 75	Rs. 225	NA
		>300 Wp to 10kWp	Rs. 45	Rs. 45*	Rs. 49	Rs. 148	Rs. 45	Rs. 135	Rs. 43**
		>10 kWp to 100 kWp	Rs. 39	NA	Rs. 43	Rs. 128	Rs. 39	Rs. 117	Rs. 37
2	SPV Power Plants (Without Battery)	Up to 500 kWp	Rs. 24	NA	Rs. 26	Rs. 79	Rs. 24	Rs. 72	Rs. 21
3	Street Lights through SPV power Plant	Up to 100 kWp	Rs. 75	NA	Rs. 82	Rs. 247	Rs. 75	Rs. 225	Rs. 71

*Capital subsidy limited to 1 kWp system through NABARD

** Capital Subsidy applicable for systems above 1 kWp in case of channel partners.

*** In case battery bank is of lower capacity in project proposal than mentioned in category above then it will be treated as battery less system

CFA

III. Central Financial Assistance (Rs/HP) for SPV Water Pumping System

Sno.	SPV System	Capacity	Rs per HP				Channel Partners
			General Category States	Through NABARD	NE States, A&N, Lakshadweep Islands	Special Category States	
1	DC Pumps	Up to 2 HP	Rs. 43200	Rs. 57600	Rs. 47520	Rs. 43200	Rs. 41000
		>2HP to 5HP	Rs. 40500	Rs. 54000	Rs. 44550	Rs. 40500	Rs. 38500
2	AC Pumps	Up to 2 HP	Rs. 37800	Rs. 50400	Rs. 41580	Rs. 37800	Rs. 36000
		>2HP to 5HP	Rs. 32400	Rs. 43200	Rs. 35640	Rs. 32400	Rs. 30700
		>5 HP to 10 HP*	Rs. 28800	Rs. 38880	Rs. 32076	Rs. 29160	Rs. 27630

*SPV water pumping system over 5HP may avail subsidy under State Government Schemes where ever applicable. MNRE subsidy will be limited to 5 HP only even for higher capacity pumps till any revision in the Scheme.

IV. Central Financial Assistance (Rs/Wp) for SPV Micro/ Mini Grid

Sno.	SPV System	Capacity	Rs per Wp			Channel Partners
			General Category States	NE States, A&N, Lakshadweep Islands	Special Category States	
1.	Micro Grid	Up to 10 kWp	Rs. 105	Rs. 115	Rs. 105	Rs. 100
2.	Mini Grid	>10 to 500 kWp	Rs. 90	Rs. 99	Rs. 90	Rs. 85

Technical Specifications: Modules

- **Mono/ multi crystalline silicon solar cells**
- **SPV array: Series and parallel combination of modules**
- **Each module: Various peak wattage at STC**
- **Output: IEC 61215 certified**
- **Safety qualification: IEC 61730 Part I and II certified**
- **Minimum efficiency: 14%**
- **Minimum fill factor: 70%**

Balance of Systems (BoS)

BOS Item / System	Applicable BIS /Equivalent IEC Standard Or MNRE Specifications	
	Standard Description	Standard Number
Solar PV Lighting Systems:	Solar PV Home Lighting System Solar PV street Lighting System Solar PV Lantern	As per MNRE latest Specifications
Solar PV Systems (more than 100 Wp and up to 20 KWp Capacity only) : Charge Controller/MPPT units		IEC 60068-2 (1,2,14,30)

Balance of Systems (BoS)

<p>Power Conditioners/ Inverters**including MPPT and Protections</p>	<p>Environmental Testing</p> <p>Efficiency Measurements</p> <p>Environmental Testing</p>	<p>/ Equivalent BIS Std.</p> <p>IEC 61683 / IS 61683</p> <p>IEC 60068-2 (1, 2, 14, 30) / Equivalent BIS Std.</p>
<p>Storage Batteries</p>	<p>General Requirements & Methods of Testing Tubular Lead Acid / VRLA / GEL</p> <p>Capacity Test</p> <p>Charge/Discharge Efficiency</p> <p>Self-Discharge</p>	<p>As per relevant BIS Std.</p>

Balance of Systems (BoS)

Cables	General Test and Measuring Method PVC insulated cables for working voltage up to and including 1100 V and UV resistant for outdoor installation	IEC 60227 / IS 694 IEC 60502 / IS 1554 (Pt. I & II)
Switches/Circuit Breakers /Connectors	General Requirements Connectors –safety A.C. /D.C.	IEC 60947 part I,II, III / IS 60947 Part I,II,III EN 50521
Junction Boxes /Enclosures for Inverters/Charge Controllers/Luminaries	General Requirements	IP 54(for outdoor)/ IP 21(for indoor) as per IEC 529

Warranty

- **Module Output Wattage Warranty:**
 - **Minimum 90% at the end of 12 years**
 - **Minimum 80% at the end of 25 years**

- **BoS Warranty:**
 - **Minimum period of 5 years**
 - **Warranted against any defects:**
 - **Manufacturing**
 - **Design**
 - **Installation**

THANK YOU

**Dr. Sudhir Kumar, Chief Executive,
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