



Acts and Policies on Energy Efficiency and Renewable Energy



Click to begin

TOPICS

Energy Efficiency

Institutional and Regulatory Framework – A Snapshot

Energy Conservation Act

Electricity Act

National Mission on Enhance Energy Efficiency (NMEEE)

Other Key Regulations

Renewable Energy

India's Solar Program

India's Small Hydro Power Program

India's Wind Energy Program

RPOs and RECs

References



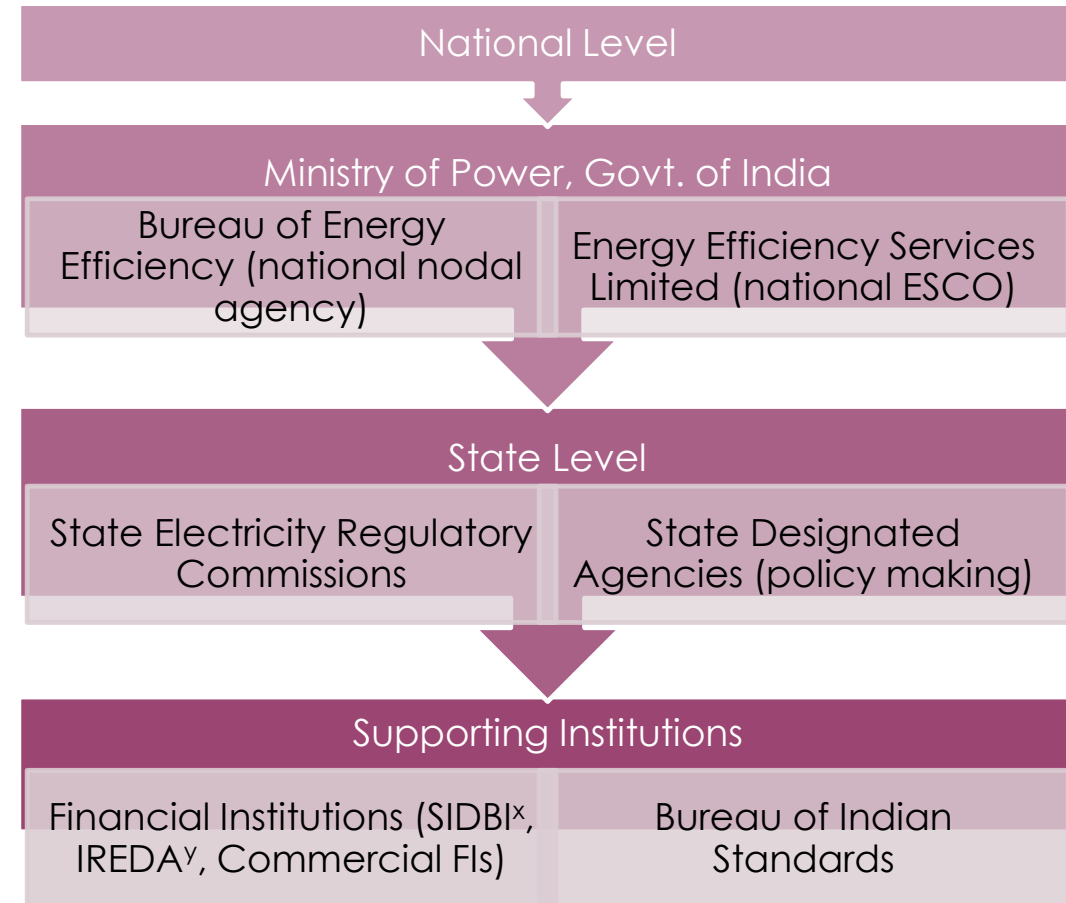
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SNAPSHOT – INSTITUTIONAL AND REGULATORY FRAMEWORK

- The **Bureau of Energy Efficiency (BEE)** acts as the country's nodal agency with specific powers and functions to facilitate, regulate and promote EE in all sectors of the economy.
- **Energy Efficiency Services Limited (EESL)** is the country's primary implementation agency (equivalent of a "Super ESCO") and resource centre for EE and climate change businesses.
- **State Designated Agencies (SDAs)**, notified by the state governments are responsible for planning, formulating and enforcing EE policies, regulations or programs in respective states.
- **State Electricity Regulatory Commissions (SERCs)** are responsible for bring necessary regulations in power generation, transmission, distribution and trading. They also advise the state governments on matters related to functional efficiency of state power sector.



ENERGY CONSERVATION ACT, 2001 (1/2)

- **An Act to provide for efficient use of energy and its conservation and for matters connected therewith.**
- Under this Act, Central Government has the power to:
 - Specify the norms for processes and energy consumption standards for any equipment, appliances which consumes, generates, transmits or supplies energy
 - Specify equipment or appliance or class of equipments or appliances, as the case may be, for the purposes of the proposed legislation
 - Prohibit manufacture or sale or purchase or import of equipment or appliances unless such equipment or appliances conforms to energy consumption standards
 - Specify, having regard to the intensity or quantity of energy consumed by any user or class of users of energy, as designated consumer for the purposes of the legislation
 - Direct any designated consumer to get energy audit conducted by an accredited energy auditor or appoint a energy manager
 - Prescribe minimum qualifications for appointment of energy managers
 - Direct any designated consumer to furnish information with regard to energy consumed and action taken on the recommendation of the accredited energy auditor
 - Prescribe energy conservation building codes for efficient use of energy and its conservation in the building or building complex

ENERGY CONSERVATION ACT, 2001 (2/2)

- **The Bureau of Energy Efficiency (BEE) came into force from March 2002.**

BEE –Duties and Functions

- Recommend to the Central Government the norms for processes and energy consumption standards for equipment and appliances
- Recommend to the Central Government for notifying any user or class of users of energy as a designated consumer having regard to intensity or quantity of energy used by it
- Recommend to the Central Government the particulars required to be displayed on label of equipments or on appliances and manner of their display
- Take suitable steps to prescribe guidelines for energy conservation building codes
- Develop testing and certification procedure and promote testing facilities for certification and testing for energy consumption of equipment and appliances
- Promote use of energy efficient processes, equipment, devices and systems
- Promote innovative financing of energy efficiency projects;
- Specify qualifications for the accredited energy auditors, the manners and interval of time in which the energy audit shall be conducted by such auditors
- Specify certification procedures for energy managers to be appointed by designated consumers

ELECTRICITY ACT, 2003 (1/2)

- **A uniform and unified legislation to take care of the current needs of power sector in the areas of Generation, Transmission, Trading and Distribution of Electricity.**
- Under this Act, key points include:
 - Preparation, review and updation of National Electricity Policy and Tariff Policy for development of the power system based on optimal utilization of resources such as coal, natural gas, nuclear substances or materials, hydro and renewable sources of energy.
 - Formulation of a national policy for rural electrification, in consultation with the State Governments and the State Commissions
 - Lays down procedures for granting a license for transmission, distribution and electricity trading purpose. Also provides various provisions and clauses to be adhered to by the licensee
 - Provides for establishment of National Load Dispatch Center (NLDS), Regional Load Dispatch Center (RLDC) and State Load Dispatch Center (SLDC) for monitoring and maintaining smooth grid operations at national, regional and state level respectively
 - Lays down provisions for Open Access
 - An Electricity Supply Code to provide for recovery of electricity charges, intervals for billing of electricity charges, disconnection of supply of electricity for non-payment thereof; restoration of supply of electricity; tampering, distress or damage to electrical plant, electric lines or meter etc.
 - Constitution of a Central Electricity Authority, Central and State Regulatory Commissions with their roles and responsibilities, functions and duties.
 - Constitution of Coordination Forum and Forum of Regulators to work in coordinated manner towards development of power system of the country

ELECTRICITY ACT, 2003 (2/2)

Central Electricity Regulatory Commission – Duties and Functions

- to regulate the tariff of generating companies owned or controlled by the Central Government and otherwise
- to regulate the inter-State transmission of electricity and to determine tariff for inter-State transmission of electricity;
- to issue licenses to persons to function as transmission licensee and electricity trader with respect to their inter-State operations
- to specify and enforce the standards with respect to quality, continuity and reliability of service by licensees;
- to fix the trading margin in the inter-State trading of electricity;
- advise the Central Government in formulation of National electricity Policy and tariff policy, promoting efficiency in electricity systems and promoting investments in the system

Central Electricity Authority – Duties and Functions

- advise the Central Government on the matters relating to the National electricity policy, formulate short-term and perspective plans for development of the electricity system and co-ordinate the activities of the planning agencies for the optimal utilization of resources and to provide reliable and affordable electricity for all consumers;
- specify the technical standards for construction of electrical plants, electric lines and connectivity to the grid;
- specify the safety requirements for construction, operation and maintenance of electrical plants and electric lines; specify the Grid Standards for operation and maintenance of transmission lines; specify the conditions for installation of meters for transmission and supply of electricity;
- collect and record the data concerning the generation, transmission, trading, distribution and utilization of electricity and carry out studies relating to cost, efficiency, competitiveness and such like matters;
- promote and assist in the timely completion of schemes and projects for improving and augmenting the electricity system;

NATIONAL MISSION FOR ENHANCED ENERGY EFFICIENCY (NMEEEE) (1/4)

Perform Achieve & Trade :

A market based mechanism to enhance cost effectiveness of improvements in EE in energy-intensive large industries and facilities, through certification of energy savings that could be traded.

Market Transformation for Energy Efficiency (MTEE):

Accelerating the shift to energy efficient appliances in designated sectors through innovative measures to make the products more affordable.

Energy Efficiency Financing Platform (EEFP):

Creation of mechanisms that would help finance demand side management programmes in all sectors by capturing future energy savings.

Framework for Energy Efficient Economic Development (FEEED):

Developing fiscal instruments to promote energy efficiency.

ABOUT PERFORM ACHIEVE AND TRADE (PAT) MECHANISM (2/4)

- Formulated under National Mission for Enhanced Energy Efficiency
- Market based mechanism to enhance cost effectiveness of improvements in EE in energy-intensive large industries and facilities, through certification of energy savings that could be traded.
- Essentially, a cap and trade scheme:
 - Targets on SEC rather than absolute energy consumption -unique via-a-vis other international schemes
 - Designated Consumer (DC) specific targets
 - Industrial units over achieving targets issued ESCerts which can be bought by under achieving industrial units

PAT Cycle I (FY 13 to FY 15)

- 8 Sectors - Thermal Power Plant, Iron and Steel, Cement, Fertilizer, Aluminium, Pulp and Paper, Textile, Chlor-Alkali
- Applicable to 478 Designated consumers
- Estimated Savings 6-7 million toe
- ESCerts Trading not commenced yet

PAT Cycle II (FY 17- FY 19)

- Widening and Deepening of the scheme
 - 3 additional sectors – Petroleum Refineries, Railways, Distribution Utilities
 - Applicable to 623 Designated Consumers
 - Targeted Savings 8 million toe for the cycle
 - Notified on 31 March 2016

For process flow [click here](#)

ABOUT MARKET TRANSFORMATION FOR ENERGY EFFICIENCY (MTEE) MECHANISM (3/4)

- Leveraging international funds for promoting energy efficiency
- Implementing a National Energy-Efficiency CDM Roadmap

ABOUT ENERGY EFFICIENCY FINANCING PLATFORM (EEFP) MECHANISM

- Ensuring availability of finance at reasonable rates for energy efficiency project implementation- Expansion of EEFP to include other FIs and public and private sector banks
- Create demand for energy efficiency products, goods and services- awareness, public policy, facilitation/ stimulation by preparation of bankable projects and markets
- Promotion of ESCOs
- Credible monitoring and verification protocols to capture energy savings
- Capacity building of banks and FIs

ABOUT FRAMEWORK FOR ENERGY-EFFICIENT ECONOMIC DEVELOPMENT (FEED) MECHANISM (4/4)

- Formulated under National Mission for Enhanced Energy Efficiency
- Providing comfort to lenders by provision of
 - Risk guarantee for performance contract Partial Risk Guarantee Fund (PRGF)
 - Venture Capital Fund for Energy Efficiency (VCFEE)
 - Initial seed capital from Government budget-can be expanded by contributions from other agencies as well.
- Partial Risk Guarantee Fund (PRGF), one of the financing instruments developed under FEEED, is a risk-sharing facility that provides commercial banks with partial coverage of risk exposure against loans issued for EE projects. The World Bank and the Government of India have entered into a USD 43 million grant and guarantee agreement to form the Partial Risk Sharing Facility (PRSF). The facility is managed by EESL and SIDBI.
- Tax Exemptions for Promotion of Energy Efficiency
 - Graded excise duty for STAR labelled equipments in favor of higher efficiencies
 - Income and Corporate tax incentives for ESCOs/ Venture Capital funds, etc. in energy efficiency
 - Providing infrastructure status to ESCO business
- Support and Assistance to Electricity Regulatory Commissions for stimulating Utility driven Demand Side Management (DSM)
 - Develop a mechanism to incentivize utilities for taking up DSM activities
 - Evolve suitable monitoring and verification protocols for DSM programmes.

OTHER KEY POLICIES AND REGULATIONS

- **Public procurement of energy efficient appliances**, obligating all central govt. departments, ministries, attached and subordinate offices to ensure procurement of specified product categories having at least threshold BEE star rating.
- **DSM Regulations** for electricity distribution licensees, providing framework to undertake Demand Side Management measures.
- **Standards and labelling (S&L) of appliances and equipment**, covering 21 categories of appliances and equipment with eight categories (frost-free and direct cool refrigerator, tubular fluorescent lamp, room air conditioner, distribution transformer, single phase split air conditioner (vapor compression type), color television and electric geyser) in the mandatory scheme and rest 13 in the voluntary scheme.
- **Energy conservation building codes (ECBC)**: It sets minimum energy standards for commercial buildings having a connected load of 100kW or contract demand of 120 KVA and above.

QUIZ TIME

Lets check what you have learnt till now.

Answer the questions correctly and move to the next section OR

Consider revising this section ... All the Best !!

NOTE: Click on the suitable option for answering the question

Q 1. In which year was the Energy Conservation Act enacted and Bureau of Energy Efficiency formed?

1. 2000 & 2001
2. 2001 & 2003
3. 2001 & 2002
4. 2000 & 2004

QUIZ TIME

Q 2. Which of the following is **not** the power given to Central Government under the Energy Conservation Act?

1. Specify the norms for processes and energy consumption standards for any equipment, appliances which consumes, generates, transmits or supplies energy
2. Prescribe minimum qualifications for appointment of energy managers
3. Preparation, review and updation of National Electricity Policy and Tariff Policy for development of the power system based on optimal utilization of resources such as coal, natural gas, nuclear substances or materials, hydro and renewable sources of energy
4. Prescribe energy conservation building codes for efficient use of energy and its conservation in the building or building complex

QUIZ TIME

Q 3. Which of the following is **not** a part of the Electricity Act, 2003?

1. Preparation, review and updation of National Electricity Policy and Tariff Policy for development of the power system based on optimal utilization of resources such as coal, natural gas, nuclear substances or materials, hydro and renewable sources of energy
2. Establishment of National Load Dispatch Center (NLDS), Regional Load Dispatch Center (RLDC) and State Load Dispatch Center (SLDC) for monitoring and maintaining smooth grid operations at national, regional and state level respectively
3. An Electricity Supply Code to provide for recovery of electricity charges, intervals for billing of electricity charges, disconnection of supply of electricity for non-payment thereof, etc.
4. Specify qualifications for the accredited energy auditors, the manners and interval of time in which the energy audit shall be conducted by such auditors
5. Constitution of a Central Electricity Authority, Central and State Regulatory Commissions with their roles and responsibilities, functions and duties.

QUIZ TIME

Q 4. National Mission on Enhanced Energy Efficiency is one of the eight (8) missions under the National Action Plan on Climate Change. Which initiatives mentioned below are part of the NMEEE?

1. PAT, MTEE, EEFP, FEEED
2. PAT, UJALA, FEEED, DSM
3. UDAY, PAT, MTEE, EEFP
4. DSM, MTEE, FEEED, MTEE

Renewable Energy- Current Institutional and Regulatory Framework

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INDIA'S SOLAR PROGRAM – JAWAHARLAL NEHRU NATIONAL SOLAR MISSION (1/2)

Category 1. Rooftop Projects

40,000 MW



Category 2. Large Scale Projects

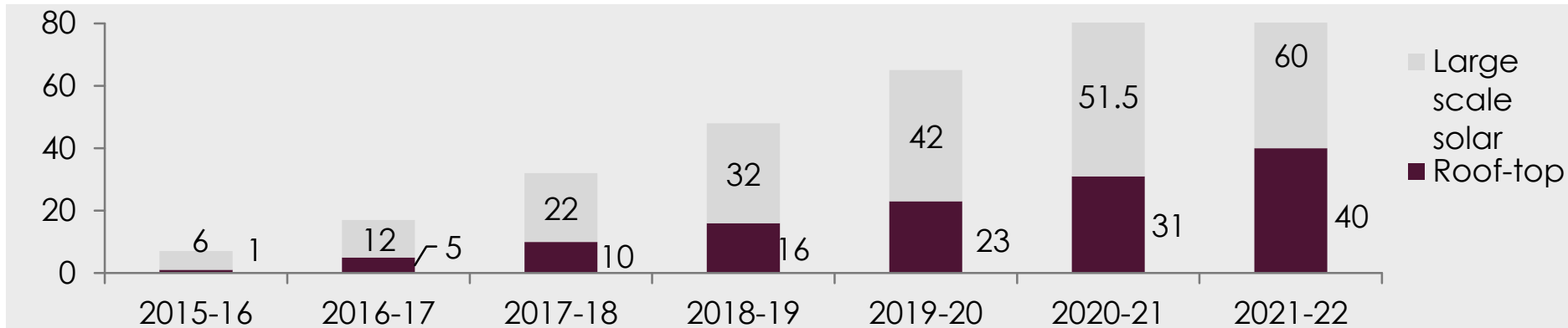
Inside Solar Park
20,000 MW



Outside Solar Park
40,000 MW



Cumulative Solar Targets (GW)



INDIA'S SOLAR PROGRAM – JAWAHARLAL NEHRU NATIONAL SOLAR MISSION (2/2)

- Solar Energy Corporation of India, a Section-25 Company (now a PSU renamed as Renewable Energy Corporation of India) was incorporated on 20th September 2011 to implement and facilitate the various activities of Jawaharlal Nehru National Solar Mission (JNNSM)
- Solar Energy Research Advisory Council (SERIC) has been set up to advice on research policy with a view to achieve Mission targets.
- MNRE announced the Guidelines namely Rooftop PV and Small Solar Power Generation Programme (RPSSGP) for solar power plants connected to distribution network (Below 33 kV) in June 2010.
- The aim of the scheme was to encourage the States to declare their Solar Policy for grid connected projects focusing on distribution network and to strengthen the tail-end of the grid.
- 16 States namely Andhra Pradesh, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Manipur, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, Uttarakhand and West Bengal have come out with Solar Policy supporting grid connected rooftop systems.

SMALL HYDRO POWER PROGRAM

- Hydro power projects up to capacity of 25 MW are classified as Small Hydro.
- An estimated potential of about 20,000 MW of small hydro power projects exists in India.
- Currently, about 4000 MW has been installed across 1049 sites in 29 states
- Central Financial Assistance is provided to State Governments and private sector to set up small / mini hydro projects.

Financial support for the identification of new potential SHP sites, overall potential estimation of projects and preparation of a plan for systematic development including environment impact assessment.

Financial support for setting up new SHP projects in the private/ co-operative/ joint sector and Government sector

Financial support for Renovation and Modernization of existing SHP projects in the government sector.

Financial support for development / Upgradation of Water Mills (mechanical/ electrical output) and setting up Micro Hydel Projects (up to 100KW capacity).

Support to R&D projects, strengthening of technical institutions, setting up turbine laboratory, business meets, training programme/ courses, fellowships etc., monitoring of SHP projects, consultancy and/ or any other activity left necessary for the SHP development.

WIND ENERGY PROGRAM (1/2)

- India is globally placed at 4th position in terms of wind power with total installed capacity of 28.1 GW.
- The National Institute of Wind Energy (NIWE), Chennai was established to support resource assessment and testing & certification of wind technologies
- Guidelines for Development of Onshore Wind Power Projects issued by GoI in October 2016. <http://mnre.gov.in/file-manager/grid-wind/Guidelines-for-Development-of-Onshore-Wind-Power-Projects.pdf>

National Wind Mission

- Proposes to create an enabling policy framework that minimizes the risk and cost of the wind power deployment while sharing such reduced costs and risks appropriately amongst all the stakeholders of the wind industry.

Tax Benefits

- Various Direct and Indirect tax benefits to wind project developers

Generation based incentive (GBI) mechanism

- Incentive for a period of ten years to the eligible Grid interactive Wind Power projects.
- The incentive is over and above the applicable tariff approved by respective State Electricity Regulatory Commissions

Preferential Tariff Mechanism

- State Regulatory Commissions have preferential tariff policies for purchase of power from wind projects

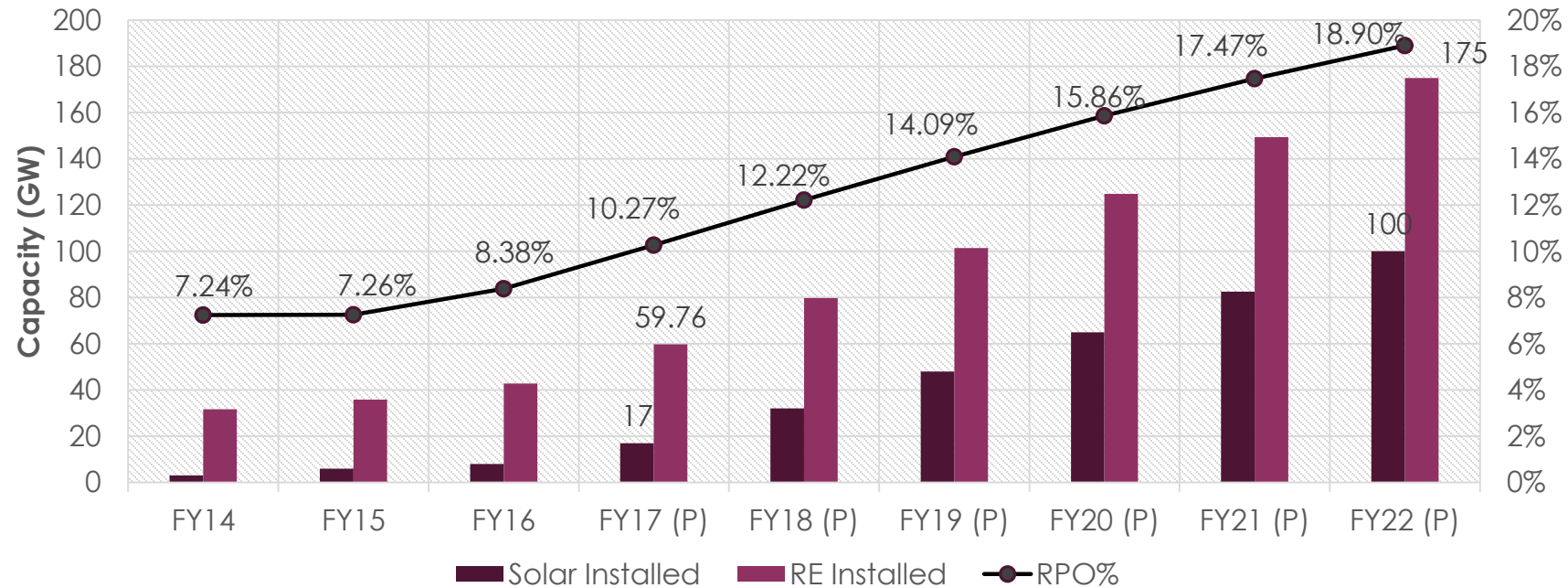
NATIONAL OFFSHORE WIND ENERGY POLICY (2/2)

- With a focus to exploit the vast coastline of 7,600 km for development of offshore wind energy in the Indian Exclusive Economic Zone (EEZ), Union Cabinet has approved the National Offshore wind energy policy.
- **Policy highlights:**
 - MNRE will be the nodal Ministry for development of Offshore Wind Energy in India and act as one of the government entities, among others, for Development and Use of Maritime Space within the Exclusive Economic Zone (EEZ) of the country
 - MNRE will be responsible for overall monitoring of offshore wind energy development; co-ordination with other Ministries/ Departments; preparation of guidelines/ directives for development
 - The National Institute of Wind Energy (NIWE), Chennai will act as the nodal Agency and has been assigned the following responsibility:
 - Carry out & coordinate resource assessment, surveys and studies in EEZ
 - Demarcate offshore wind energy blocks
 - Call for proposals for development of offshore wind power projects in demarcated blocks through International Competitive Bidding
 - Enter into contract with the project developer & collect lease as per specified guidelines
 - Facilitate developers in obtaining clearances and NOCs from concerned Ministries & Departments.
 - Clearances/NOCs will be required before commencing installation in the sea (survey or Wind Turbine Generator) from concerned ministry

RENEWABLE PURCHASE OBLIGATION

- The concepts of RPO was introduced in the National Action Plan for Climate Change (NAPCC)
- Renewable Purchase Obligation (RPO) is the obligation mandated by Central/State Regulatory Commission and is applicable to Obligated Entities - distribution licensee, consumer owning the captive power plants and open access consumer

RPO Trajectory for India



RENEWABLE ENERGY CERTIFICATES

- It is a market based instrument to promote RE and facilitate Renewable purchase obligation (RPO)
- It will address the mismatch between availability of RE sources and the requirement of the obligated entities to meet their RPOs
- REC is issued to RE generators by nodal agencies (for process [click here](#))
- REC's are traded in power exchange within the forbearance price and floor price determined by CERC from time to time.

QUIZ TIME

Lets check what you have learnt till now.

Answer the questions correctly OR

Consider revising this section ... All the Best !!

NOTE: Click on the suitable option for answering the question

Q 1. Under Jawaharlal Nehru National Solar Mission, India targets to set up solar projects of following capacity by 2022?

1. Solar Rooftop – 40 GW, Large scale solar – 100 GW
2. Solar Rooftop – 60 GW, Large scale solar – 40 GW
3. Solar Rooftop – 40 GW, Large scale solar – 60 GW
4. Solar Rooftop – 100 GW, Large scale solar – 175 GW

QUIZ TIME

Q 2. Central Financial Assistance is **not** available to small hydro power projects for which of the following activities?

1. Identification of new potential SHP sites, overall potential estimation of projects and preparation of a plan for systematic development including environment impact assessment
2. Setting up new SHP projects in the private/ co-operative/ joint sector and Government sector
3. Identification of potential sites with capacity greater than 100 MW
4. Renovation and Modernization of existing SHP projects in the government sector.
5. Development / Upgradation of Water Mills (mechanical/ electrical output) and setting up Micro Hydel Projects (up to 100KW capacity)

QUIZ TIME

Q 3. The institution established to support resource assessment and testing & certification of wind technologies?

1. Centre for Energy Studies, IIT Delhi
2. National Institute of Wind Energy, Chennai
3. World Institute of Sustainable Energy, Pune, Maharashtra
4. Wind World (India), Ltd, Mumbai

QUIZ TIME

Q 4. Renewable Purchase Obligations (RPOs) are applicable to all entities **except** one of the following

1. Distribution Companies
2. Transmission Companies
3. Open Access Consumers
4. Captive Power Generators

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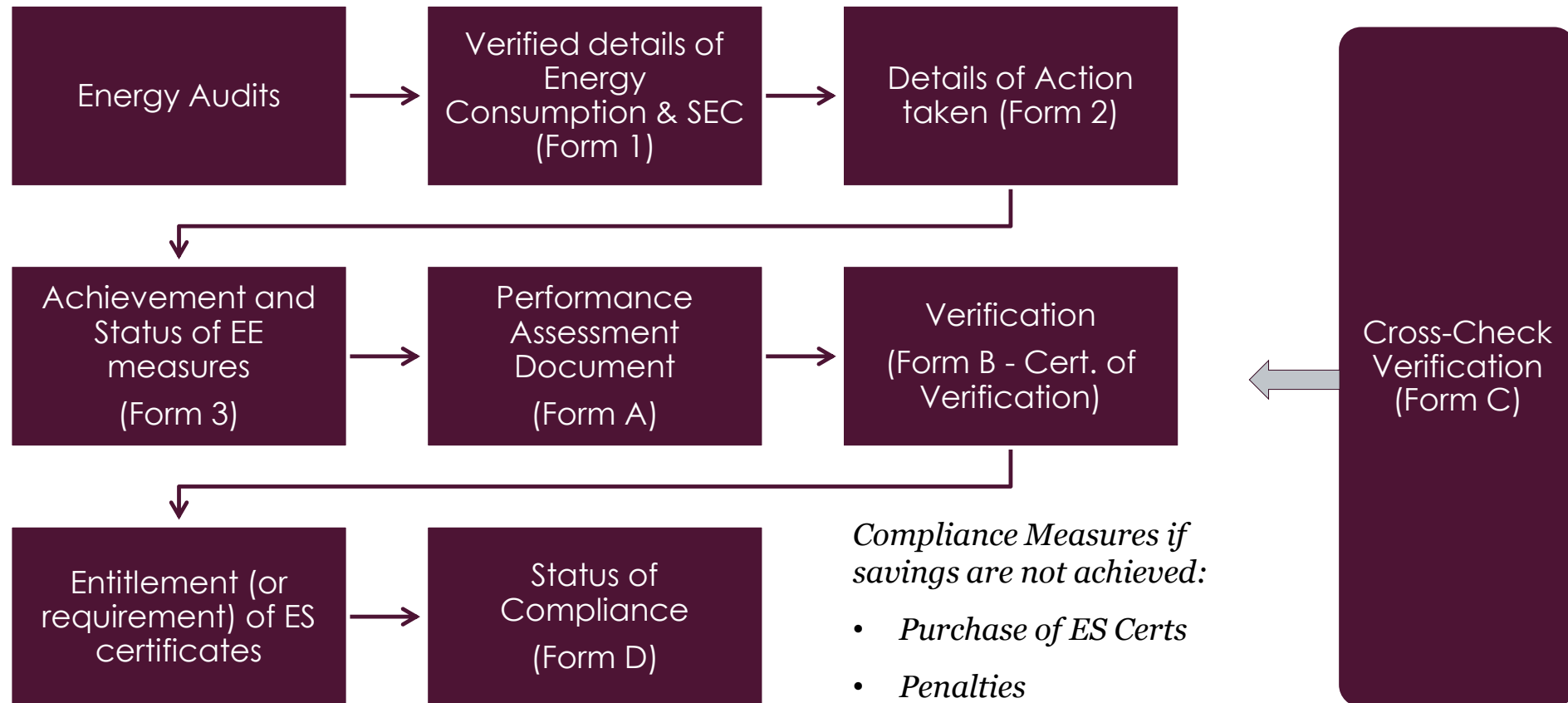
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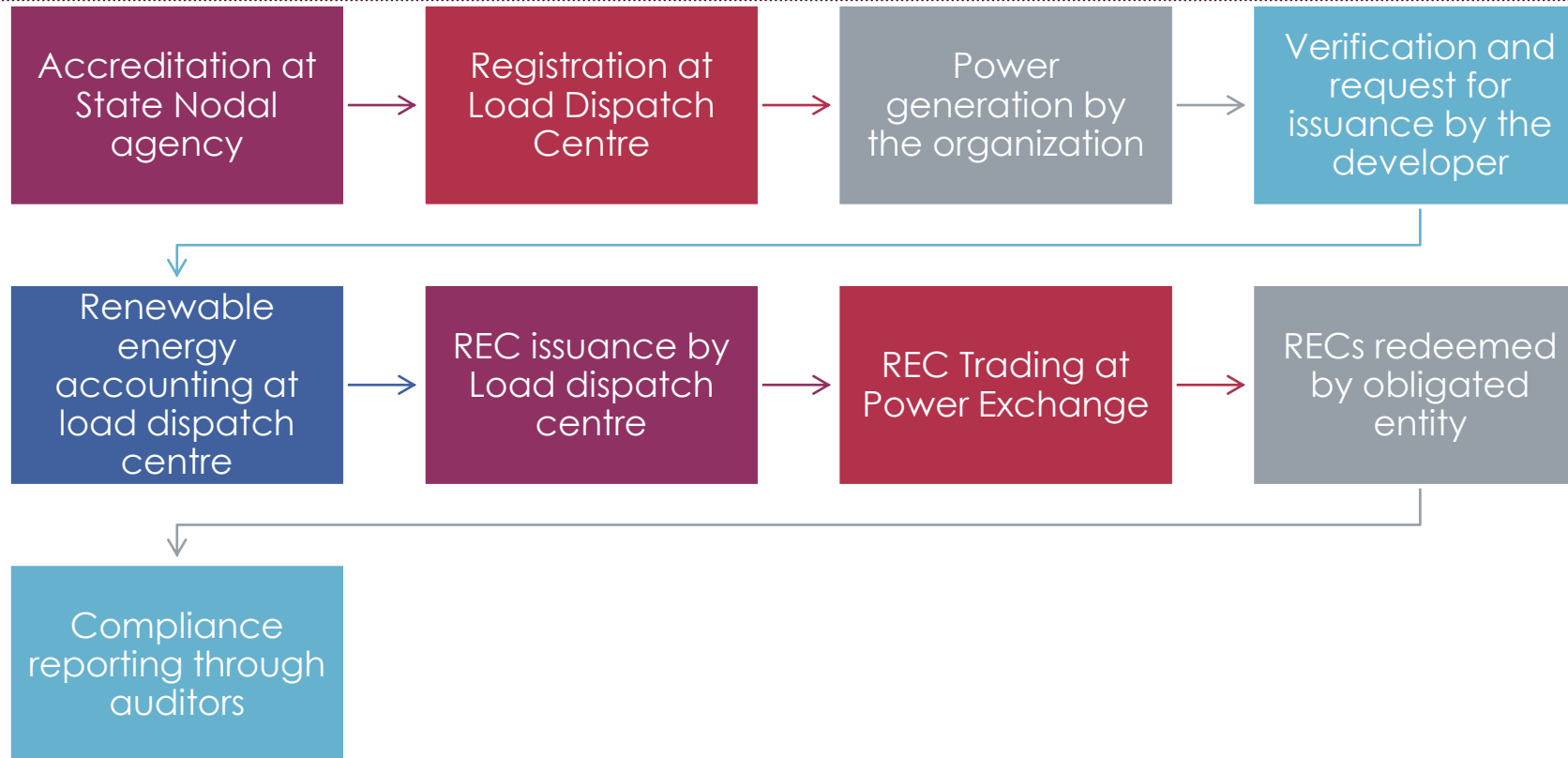
Appendices

PROCESS FLOW AS PER PAT RULES - FOR ENTITLEMENT (OR REQUIREMENT) OF ENERGY SAVING CERTIFICATES



To go back [click here](#)

PROCESS FLOW FOR REC



To go back [click here](#)

Congratulations !!
That's a correct response...



Next question

Sorry !!

That's incorrect...



Try again

Next question

Congratulations !!
That's a correct response...



Next question

Sorry !!

That's incorrect...



Try again

Next question

Congratulations !!
That's a correct response...



Next question

Sorry !!

That's incorrect...



Try again

Next question

Congratulations !!
That's a correct response...



[Go to Next Section](#)

***Sorry !!
That's incorrect...***



Try again

Go to the beginning of the section

Continue to next section

Congratulations !!
That's a correct response...



Next question

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Try again

Next question

Congratulations !!
That's a correct response...



Next question

Sorry !!

That's incorrect...



Try again

Next question

Congratulations !!
That's a correct response...



Next question

Sorry !!

That's incorrect...



Try again

Next question

Congratulations !!
That's a correct response...



Exit

Sorry !!

That's incorrect...



Try again

Go to the beginning of the section

Exit
