

MINUTES OF THE
58TH MEETING OF THE
FORUM OF REGULATORS (FOR) HELD AT NEW DELHI

Venue : **Conference Room, Upper Ground Floor
Central Electricity Regulatory Commission
Chanderlok Building, 36, Janpath
New Delhi-110001**

Day / Date : **Monday, the 27 February, 2017**

List of Participants : **Enclosed as Annexure-I**

The meeting was chaired by Shri Gireesh B. Pradhan, Chairperson, Central Electricity Regulatory Commission (CERC) and Forum of Regulators (FOR). He extended a warm welcome to the Members of the Forum to the Meeting. He formally welcomed Shri U.N. Behera, Chairperson, OERC, and Shri M.K. Goel, Chairperson, JERC (State of Goa & UTs), who attended the FOR meeting for the first time after assuming the charge of Chairperson of their respective ERCs.

In his welcome address, the Chairperson informed the Forum that Shri Piyush Goyal, Hon'ble Minister of State (I/C) for Power, Coal, New & Renewable Energy, and Mines who was scheduled to join the proceedings and interact with the Members of the Forum, will not be participating due to other pressing engagements. While inviting the attention of the Members to the issue of pendency in disposal of petitions, he stated that both the CERC and SERCs share this concern and have been making best efforts, despite human resource constraints, to dispose of the petitions at the earliest. He informed the Forum that CERC has been ensuring transparency in dissemination of information through its website about the status petitions and Orders issued etc. He requested the SERCs / JERCs to accord priority to ensure transparency by placing the status of petitions processed by them on their websites.

Launching of FOR Quarterly e-Newsletter

Chairperson, CERC / FOR formally launched the Forum of Regulators quarterly e-Newsletter "FOR-NEWS". With a view to sharing of information and best practices amongst the Members of the Forum, the quarterly e-newsletter has been designed which *inter alia* includes important events, new regulations, draft staff papers etc. Secretary, CERC / FOR requested the Members, to share relevant information with the FOR Secretariat and also to provide suggestions for improvement.

Thereafter, the Forum took up the agenda items for consideration.

AGENDA ITEM NO. 1 CONFIRMATION OF MINUTES OF THE 57TH MEETING HELD ON 16TH DECEMBER, 2016 AT RAIPUR, CHHATTISGARH.

The Forum endorsed the minutes of the 57th Meeting of Forum of Regulators held on 16.12.2016 at Raipur, Chhattisgarh.

AGENDA ITEM NO. 2 ADOPTION OF ANNUAL ACCOUNTS FOR FY 2015-16

Secretary, CERC / FOR informed the Members that FOR Secretariat has received a communication from the Ministry of Power (MoP) regarding preparation of the Annual Accounts of "FOR" for the period from its inception, in the Uniform Format of Accounts for Central Autonomous Bodies recommended by the Committee of Experts appointed by Ministry of Finance. MoP also communicated that the accounts of "FOR" are required to be audited by the C&AG and Internal Audit by the Principal Accounts Office of the Ministry. FOR Secretariat has initiated the process of drafting the Accounts for the F.Y. 2015-16 in the Uniform Format of Accounts. Subsequently, the Accounts for the F.Y. 2005- 06 to F.Y. 2014-15 would also be prepared in the Uniform Format of Accounts.

The Forum noted the status.

AGENDA ITEM NO. 3**PROPOSAL OF PLAN ASSISTANCE FOR THE NEXT 5 YEAR PLAN PERIOD.**

The Forum was informed that in line with the previous Five Year Plan, Ministry of Power has requested the Forum to submit the proposal with respect to plan scheme “Assistance to FOR for Capacity Building and Consultancy” for period beyond 31.03.2017. The overall requirement for the Plan period from 2017-18 to 2021-22 is estimated as Rs.5.28 Cr. for Capacity Building and Rs 3.14 Cr. for Consultancy. The Forum deliberated upon the issue and observed that Forum may continue to seek Plan Assistance from Government of India and the estimates may be sent to MoP.

AGENDA ITEM NO. 4**REFERENCE FROM MOP:**

- (i) **PROMOTION OF PAYMENT THROUGH CARDS AND DIGITAL MEANS;**
- (ii) **REPRESENTATION OF DISCOMS FOR GIVING PASS THROUGH SINGLE CODE 1912 SERVICE FOR POWER RELATED COMPLAINTS.**

(i) **PROMOTION OF PAYMENT THROUGH CARDS AND DIGITAL MEANS:**

The Forum has been informed that in order to promote payment through cards and digital means, MoP requested the Forum to persuade Discoms to absorb “MDR / Convenience Fee” on digital payments as the same should be factored in the tariff structure.

Discussion and Decision:

The Forum discussed the matter and observed that the banks generally charge commission on bill payments through cards and digital means. The Forum decided that a request may be made to the Ministry of Finance for waiving off the digital

payment transaction charges in respect of payment of electricity bills. However, till such period, the transaction fee may be made as pass through the ARR.

(ii) REPRESENTATION OF DISCOMS FOR GIVING PASS THROUGH SINGLE CODE 1912 SERVICE FOR POWER RELATED COMPLAINTS:

The Forum was informed that Government of India, while recognizing the need for country-wide single toll-free number to electricity consumers for registering their complaints, finalized “1912” as the single code for all power related complaints by consumers for uniformity and ease of recall. In this regard, the Department of Telecommunications, has issued a letter to all Access Service Providers that the said short code would be applicable to DISCOMs on Called party pays mode, i.e., that the DISCOMs would bear the cost of calls on 1912 (being the service toll-free number) for consumers. This is currently being implemented and operational in some of the discoms. However, some of the discoms have represented that since this initiative is being implemented on all India basis for all Discoms, the cost of providing this service should be given as a pass through in the tariffs so that the service does not become a source of loss to them.

Discussion and Decision:

The Forum deliberated upon the issue and decided that a request may be sent to Government of India for keeping the charges as minimal as possible. However, pending reply from Government of India, the charges may be considered as a pass through the ARR.

AGENDA ITEM NO. 5

REFERENCE FROM BERC, PATNA:

- a. DEFINITION OF SAIDI / SAIFI**
- b. METHODOLOGY FOR COMPUTATION OF WORKING CAPITAL REQUIREMENT FOR MULTI YEAR DISTRIBUTION TARIFF, 2011**

Chairperson, BERC could not attend the meeting. Therefore, the Forum decided to defer the issues for discussion in the next meeting of FOR.

**AGENDA ITEM NO. 6 PRESENTATION AND DISCUSSION ON
“CERC STAFF PAPER ON ENERGY
STORAGE”.**

DR. Sushanta K. Chatterjee, Joint Chief (RA), CERC made a presentation before the Forum on “CERC Staff Paper on Energy Storage”. Copy of the presentation is **enclosed** as **Annexure-II**.

- a. Load is variable and generation also varies to match the demand. The RE generation (especially solar and wind) is inherently variable in nature and as such needs to be balanced adequately.
- b. As requirement for integration of RE generation increases, the need for flexibility in generation sources assumes greater importance. For instance, during the day time solar generation would be high but demand may be low, necessitating lowering the generation level of other conventional plants. However, as the evening approaches, the solar generation drops, and the demand increases requiring sudden ramping up of other generation sources, taking the shape of a “Duck Curve” on load profile. In the Indian context, the challenge is all the more prominent requiring steep ramping up during evening, more akin to a “Giraffe Curve”.
- c. Hence, there exists a greater need to plan ahead more so in the context of the ambitious target of 175 GW of RE capacity. These challenges warrant a specific energy ‘Storage’ solution to cater to peak demand as well as to address the variability of intermittent generation.
- d. Options for system balancing *inter alia* include hydel power, pumped hydro, gas, coal and other storage systems and each system having its own inherent advantages and disadvantages. The Pumped hydro capacity being not adequate (now it is around 6.8 GW), gas being quite expensive, Energy Storage System appears to be one of the possible solutions, in anticipation of decrease in costs due to technological innovations in the long run.

- e. The advantages of storage system include its capability to dovetail into any of generating, transmission and distribution systems, besides providing frequency and voltage support to the grid through quick ramping-up & backing-down. Storage system also facilitates minimizing expansion and upgrade of network.
- f. The new technology throws certain challenges which include environmental hazards, safety of operations etc. The other challenges which need to be examined include placing of storage system in the electricity value chain and its treatment, its effective role in ancillary services, possible changes in market design, role of the system operator etc.

Discussion and Decision:

The Forum observed that cost of storage technology is decreasing and is expected to further decrease, which may allow the technology to be one of the economically viable options. Apart from the conventional usage of storage systems, other innovative options such as integrating with pumped storage need to be explored. In order to minimize the variability of RE generation, determination of a minimum required capacity of storage system for RE projects may also be explored. Forum felt that a pilot study is required to be carried out to examine the above issues. Chairperson, CERC / FOR informed the Forum that the current Staff Paper is an endeavour by the CERC Staff for initiating discussion on the subject. Comments from stakeholders have been invited and upon receipt of comments, the matter will be placed before the Commission for further directions. He requested all Members to provide their views, latest by 15.4.2017.

AGENDA ITEM NO. 7 PRESENTATION AND DISCUSSION ON “IMPLEMENTATION OF ESCERTS”.

Secretary, CERC / FOR informed the Forum that under the National Mission for Enhanced Energy Efficiency (NMEEE), the Perform Achieve and Trade (PAT) Scheme has been put in place. The PAT Scheme is a market based mechanism to enhance the cost-effectiveness of improvements in energy efficiency in energy intensive large industries. The CERC has already notified the CERC (Terms &

Conditions for Dealing with Energy Savings Certificates) Regulations, 2016. The First Cycle of PAT Scheme is scheduled to be completed by the end of March, 2017 and trading of ESCerts on Power Exchanges is expected to be held during April, 2017.

During the First PAT Cycle, approx. 38 lakh ESCerts have been issued. In order to make up for the shortfall in compliance, the obligated entities may opt for purchase of ESCerts through power exchanges, instead of paying penalties which could be levied by the Appropriate Commission. Representative of Bureau of Energy Efficiency made a presentation before the Forum on “ESCert Trading and Adjudication under PAT Scheme of NMEEE”. Copy of the presentation is **enclosed as Annexure-III**.

The Forum was informed that in order to enforce various provisions of Energy Conservation Act, 2001, penalties and adjudication provisions have been stipulated in the Act. The SERCs / JERCs are required to facilitate establishment of institutional framework in the State by appointing Adjudicating Officer and Nodal Officer, besides formulating procedures for Adjudication suitable to the State-specific needs including a broad template. Presently, ERCs of Haryana, Rajasthan, Kerala, Tamil Nadu, Andhra Pradesh, Telangana, Odisha, Karnataka, Maharashtra and Madhya Pradesh have appointed Adjudicating Officers. The Forum was also requested to facilitate convening a National Workshop involving SERCs for knowledge sharing on matters related to Energy Conservation Act.

The Forum noted the issues raised by BEE.

AGENDA ITEM NO. 8 DISCUSSION ON REFERENCES RECEIVED FROM MNRE

Shri Rajeev Kapoor, Secretary, MNRE joined the Forum to interact on the issues referred to by the MNRE for discussion in FOR.

a. Generic Tariff in Small Hydro:

Secretary, MNRE informed the Forum that currently a capacity of approximately 4900 MW of Small Hydro Power (SHP) is installed as against the potential source of 20 GW. Presently, 169 SHP projects are under implementation and approximately 700 proposals are under examination for approval. Tariff fixation for SHP is generic in nature and determined under two categories i.e., upto 5 MW and 5-25 MW of capacity. However, over the period it has been the case that cost of construction varies with location of project e.g., cost is higher for the projects in upper reaches of Himachal Pradesh etc. MNRE is also carrying out a study, in association with IIT-Roorkee on this subject. In addition, it was also informed that subsidy component for SHP has decreased and all developers are not availing the benefit of accelerated depreciation. Accordingly, he requested the Forum to consider re-examination of tariff fixation of SHP by providing generic tariff for SHP upto 5 MW and for projects with 5-25 MW capacity, project specific tariff on case to case may be determined.

Discussion and Decision:

The Forum felt that in order to encourage investments in the sector, while keeping the tariffs at lower level, Government of India may consider providing suitable subsidy to the developers. The Forum observed that there is a need for Central level policy guidelines for 5-25 MW SHP on various financial parameters (incl. debt-equity ratio, benefit of accelerated depreciation, RoE etc.) to attract investments as well as to keep the tariffs at affordable level.

b. Bidding Guidelines:

Secretary, MNRE informed the Forum that MNRE is in the process of finalizing bidding guidelines for Solar based RE projects. Bidding guidelines for RE projects based on wind will be taken up for finalization shortly.

c. Backing Down of RE Projects:

Secretary, MNRE informed the Forum that unlike thermal projects, generation from RE sources are not provided with capacity charge / fixed charge. In absence of such tariff protection, backing down of RE generation is causing negative financial impact on the projects. He requested the Forum to consider providing projects based on RE sources with two part tariff.

Discussion and Decision:

The Forum expressed concern regarding backing down of RE generation for suitable action. As regards two part tariff structure for generating projects based on RE sources, the Forum observed that such a proposition has long term implications and needs detailed examination. It was informed CERC has decided to come up with a staff paper on this issue. The Staff Paper, upon finalization would be brought to the Forum for discussion.

d. RPO Compliance by States and REC Inventory:

Secretary, MNRE informed the Forum that in July, 2016, MoP notified the revised RPO trajectory for three years, i.e. 2016-19 for adoption by the SERCs. However, so far only four States have issued draft regulations. As determination of RPO trajectory and compliance of the same by obligated entities facilitates reviving REC market, he requested SERCs to consider adopting RPO trajectory besides determining RE investment plan for ensuing period.

Discussion and Decision:

The Forum while appreciating the need for long term RPO trajectory felt that it would be advisable to carry out a study on impact assessment of different levels of RPO on consumer tariff and desirable RPO trajectory for States.

AGENDA ITEM NO. 9

PRESENTATION AND DISCUSSION ON CERC STAFF PAPER ON “OPEN ACCESS REGISTRY”.

Secretary, CERC / FOR informed the Forum that CERC has brought out a Staff Paper on “National Open Access Registry (Technology Solution to Short Term Open Access Process)” to facilitate strengthening implementation of Open Access. The Staff Paper provides that the current process for Open Access is manual and cumbersome. As such, it necessitates submission of same information multiple times thereby requires more time for processing. The Staff Paper notes that the above issues could be addressed through a suitable IT based solution which is accessible to all relevant market participants and operating agencies.

Thereafter, a presentation on “Open Access Application Processing by TSSLDC” was made before the Forum by the representatives of Telangana State SLDC. Copy of the presentation is **enclosed** as **Annexure-IV**.

The Forum was informed that this IT application tool acts as a common platform for Open Access Consumer/Generator /Discoms/SLDC and Accounting wings and is meant for processing NOC’s for OA Applicants who are bidding on the Power Exchanges. TSSLDC experienced substantial reduction in time for processing the OA applications, which has effectively removed redundancy in submission of information by the applicants.

However, it was informed that as per present structure, STOA Contracts can only be revised on the 4th day counting 1st day as the Day of issue of requisition, thereby leading to difficulty in planning of Load-Generation balance. Further, there exists an element of uncertainty regarding source of drawl of power by the applicant (i.e., from the Power Exchange/Discom), which is causing difficulty in planning of Load-Generation balance.

Discussion & Decision:

The Forum appreciated the presentation. The Forum felt that the two issues raised by TSSLDC regarding time-schedule for revision of STOA contracts to facilitate ease in planning load-generation balance and measures required for mitigating uncertainty in regard to source of drawl of power by the OA applicant may be looked into by the FOR Technical Committee headed by Shri A.S. Bakshi, Member, CERC. The Forum requested Chairperson, TSERC to facilitate sharing the source code of the IT module to other SERCs / JERCs / SLDCs so that the same could be implemented in other States.

Chairperson, CERC indicated that efforts must be made to start the National Open Access Registry within a span of six months. As a first step, all SERCs / JERCs / SLDCs may start uploading the information related to the number of OA applications received, status of disposal (accepted / rejected) along with time taken for disposal of applications.

At the end of the meeting, Chairperson, CERC / FOR thanked all the dignitaries present in the meeting. He conveyed to the Members of Forum that the next "FOR" Meeting will be held during the month of April, 2017 at Guwahati, Assam.

Secretary, CERC thanked the staff of "FOR" Secretariat for their arduous efforts in organizing the meeting.

The meeting ended with a vote of thanks to the Chair.

LIST OF PARTICIPANTS ATTENDED THE 58TH MEETING

OF

FORUM OF REGULATORS (FOR)

HELD ON 27TH FEBRUARY, 2017 AT NEW DELHI.

| S. No. | NAME | ERC |
|--------|---|------------------------------|
| 01. | Shri Gireesh B. Pradhan Chairperson | CERC – in Chair. |
| 02. | Shri R.P. Singh Chairperson | APSERC |
| 03. | Shri Narayan Singh Chairperson | CSERC |
| 04. | Shri Jageet Singh Chairperson | HERC |
| 05. | Shri S.K.B.S. Negi Chairperson | HPERC |
| 06. | Shri M.K. Goel Chairperson | JERC (State of Goa & UTs) |
| 07. | Shri T.M. Manoharan Chairperson | KSERC |
| 08. | Dr. Dev Raj Birdi Chairperson | MPERC |
| 09. | Shri U.N. Behera Chairperson | OERC |
| 10. | Shri Vishwanath Hiremath Chairperson | RERC |
| 11. | Shri N.R. Bhattarai Chairperson | SSERC |
| 12. | Shri S. Akshayakumar Chairperson | TNERC |
| 13. | Shri Ismail Ali Khan Chairperson | TSERC |
| 14. | Shri Desh Deepak Verma Chairperson | UPERC |

| | | |
|-------------------------|--|-------|
| 15. | Shri Subhash Kumar Chairperson | UERC |
| 16. | Shri B.P. Singh Member | DERC |
| 17. | Shri P.J. Thakkar Member | GERC |
| 18. | Shri Santokh Singh Sarna Chairperson | PSERC |
| 19. | Shri Amitava Biswas Member | WBERC |
| 20. | Ms. Shubha Sarma Secretary | CERC |
| 21. | Dr. Sushanta K. Chatterjee Joint Chief (RA) | CERC |
| SPECIAL INVITEES | | |
| 22. | Shri A.K. Singhal Member | CERC |
| 23. | Shri A.S. Bakshi Member | CERC |
| 24. | Shri Rajeev Kapoor Secretary | MNRE |
| 25. | Shri P.C. Maithani Director | MNRE |
| 26. | Shri M.K. Anand Chief (Fin.) | CERC |
| 27. | Smt. Geetu Joshi Chief (Eco.) | CERC |
| 28. | Shri S.C. Shrivastava Chief (Engg.) | CERC |

CERC Staff Paper



ON

ENERGY STORAGE SYSTEM



केन्द्रीय विद्युत विनियामक आयोग
CENTRAL ELECTRICITY REGULATORY COMMISSION



Background



- The precise balancing of electricity demand and generation is achieved by adjusting output of ‘load following’ generating stations
 - The need for Flexible generation increases with higher penetration of renewable energy,
 - Challenge is to handle projected energy needs as well as increasing variable energy from renewable sources while maintaining a robust and resilient electricity delivery system.
- These challenges warrant a specific energy ‘Storage’ solution
 - to cater to peak demand as well as to address the variability of intermittent generation.

OPTION FOR SYSTEM BALANCING



- **Hydro:** However, the balancing hydroelectric plant would not be adequate.
- **Pump-Hydro:** Pump-Storage hydroelectricity represents 6.8GW capacity and is not a significant proportion in the overall basket of about 309 GW installed capacity.
- **Gas:** The use of gas based generating e is uneconomical as it increases the power purchase cost of distribution licensees due to higher price of natural gas in India.
- **Coal:** Regulating generation output of coal based thermal generation plants, to address the variability of renewable generation has its own challenges.
- **Energy Storage System:** May initially have various challenges including cost/ commercial reasons, but in the long run, cost of the ESS is expected to decrease due to technological innovations.

ADVANTAGES OF ENERGY STORAGE SYSTEM



- Fast-ramping solution.
- Frequency and voltage support to the Grid.
- Reduced Evacuation capacity requirement.
- Time shifting of the renewable generation.
- Optimal utilization of the available generation.
- Utilization of the renewable generator for longer period.
- Enhancing reliability of power system operation
- Managing peak demand by shifting delivery of economical generation output during peak period.
- An alternative method of providing spinning reserves or ancillary support services.
- Role in black start operation during emergency preparedness

STORAGE TECHNOLOGY



- **Traditional technologies:**
 - The only electricity storage technology that has been traditionally adopted is Pump-Storage Hydropower.
- **Non-traditional technologies:**
 - Electrochemical Battery Cells, Flywheels and Compressed Air Energy Storage (CAES), Superconducting Magnetic Energy Storage (SMES).
- **Role of non-traditional storage facility** is expected to increase
 - with the development of electricity market, declining battery prices, technological advancement in renewable generation and increasing regulatory interventions.

APPLICATION OF ELECTRICITY STORAGE SYSTEM



- **Transmission licensees:**

- Transmission licensee is not allowed to undertake trading under the Act.
- It may own the storage facility as a 'facilitator' and provide storage services as supplemental to the transmission services based on the supplemental service rates.

- **Generating Companies:**

- Generating companies may own the storage facility and supply the electricity from ESS by bundling it with conventional sources.
- The storage facility can be used by the generating companies to meet their generation obligation under the firm contract at the rates agreed under the contract.
- They may also provide storage services to other generators at the rates agreed mutually by them.

APPLICATION OF ELECTRICITY STORAGE SYSTEM



- **Distribution Licensees:**

- Distribution licensees that own distribution system may own storage facilities
 - ✦ to flatten the demand curve or
 - ✦ to provide reliability support or
 - ✦ to sell power as part of distribution obligation or
 - ✦ to provide storage services to others.
 - ✦ To provide storage services to other generators at the rates agreed mutually by them.

- **Merchant power plant (including Captive Power Plant):**

- may own storage facilities for sale of power in the open market.

- **Bulk Consumers:**

- may install storage facilities to ensure that
 - ✦ their electric-powered uses can continue to run notwithstanding disturbances or outages in the upstream bulk electric system or distribution system.

ECONOMICS/ COSTS AND CHALLENGES



- Reduction of costs requires extensive engineering research and development for new storage concepts and materials used for it.
- Enhanced life cycle of battery will require periodical replacement of this chemical.
 - Disposal of this chemical may involve environment concerns.
- Deployment and acceptance of grid storage are in their infancy.
- Safety standards and procedures for different storage technologies need to be developed for proper deployment.
- Stake-holder's acceptance is a key to deployment of storage technology.
- Practical experience of storage will boost confidence of stakeholders
 - which can be achieved through pilot based projects.

STAKEHOLDERS COMMENTS SOLICITED ON THE FOLLOWING ISSUES



- Whether Electricity storage facility is required in the Indian Power System or
 - can these issues be addressed through alternative solutions?
- How the requirement of storage facilities is to be assessed in the grid?
 - Specific criteria to be considered for development of storage facilities and associated transmission system?
- The Electricity Act, 2003 covers generation, transmission and distribution of electricity
 - but it does not specifically cover “storage/holding” of electricity?
- What would be the role of system operators and Central Transmission Utility in operations and planning of the Electricity Storage System?

STAKEHOLDERS COMMENTS SOLICITED ON THE FOLLOWING ISSUES



- How scheduling, energy accounting and open access issues will be dealt
 - when the generation output and energy storage output are measured at two different grid points?
- What policy and regulatory changes required
 - to deploy the bulk storage facilities in the Indian Power System?
- Any other issues for development and market acceptance of storage technologies.

THANK YOU



केन्द्रीय विद्युत विनियामक आयोग
CENTRAL ELECTRICITY REGULATORY COMMISSION



ESCerts Trading and Adjudication under PAT Scheme of NMEEE

*Ashok Kumar PhD
Energy Economist
Bureau of Energy Efficiency*

Enabling Framework

- **Energy Conservation Act**
 - Designated Consumers to comply with the specific energy consumption norms

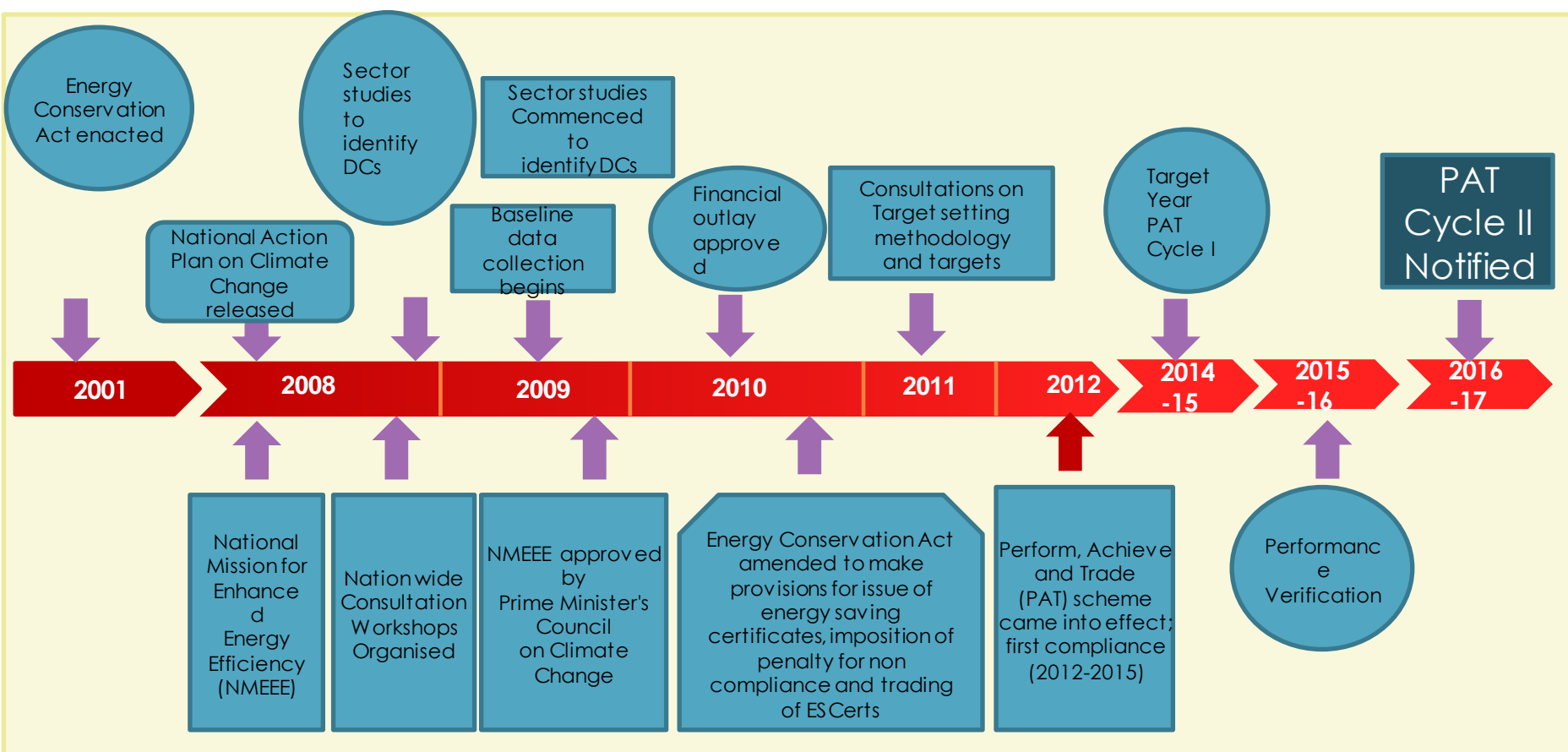
- **National Action Plan on Climate Change (NAPCC)**
 - **Nation Mission for Enhanced Energy Efficiency (NMEEE)**
 - Perform Achieve and Trade (PAT)
 - Market Transformation for Energy Efficiency (MTEE)
 - Energy Efficiency Financing Platform (EEFP)
 - Framework for Energy Efficient Economic Development (FEEED)

- **Nationally Determined Contributions (NDCs)**
 - Emission intensity reduction by 33 to 35% against 2005 level by 2030

Perform, Achieve and Trade

Perform Achieve and Trade (PAT): A **regulatory instrument** to reduce specific energy consumption in energy intensive industries, with an associated **market based mechanism** to enhance the cost effectiveness through certification of excess energy saving which can be traded.

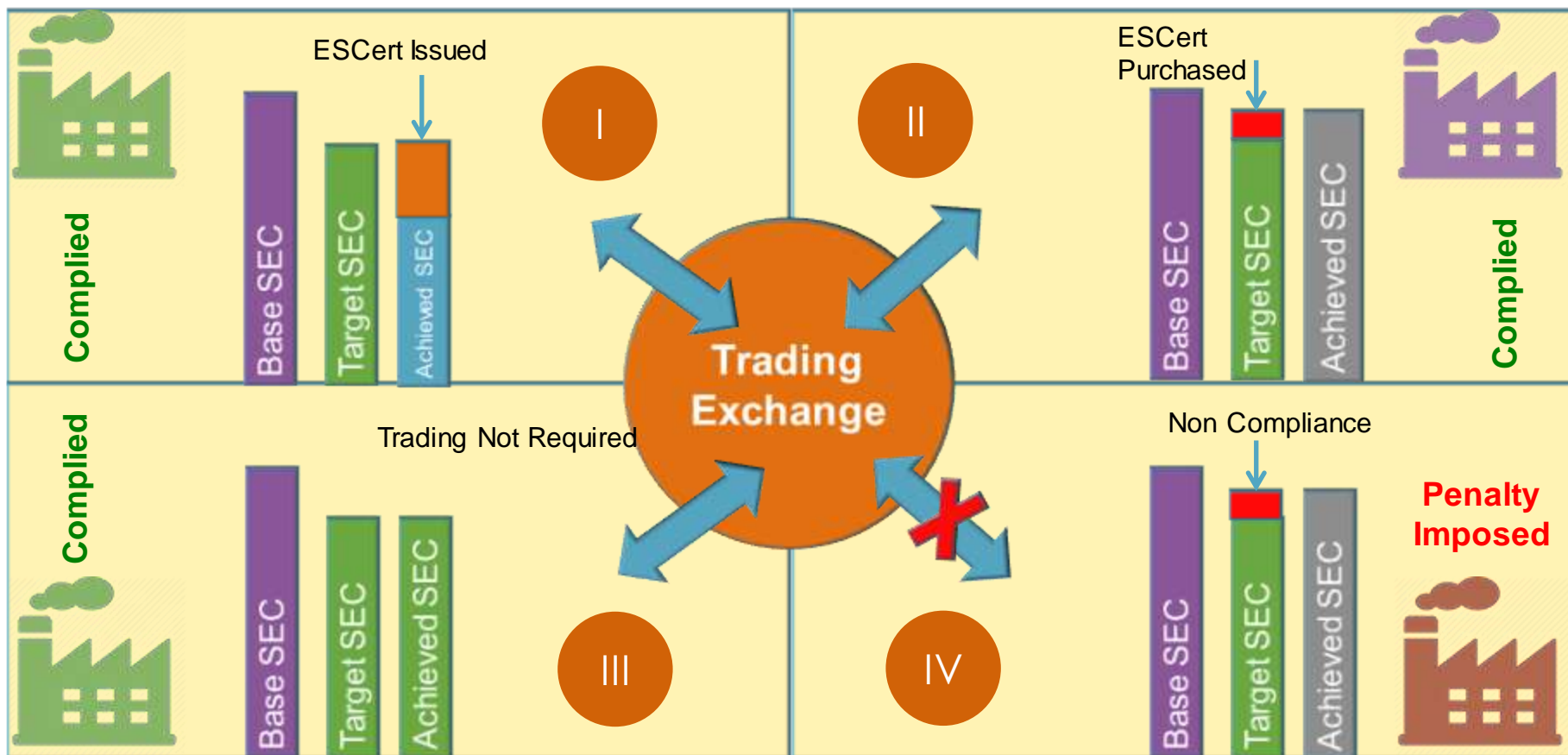
PAT Evolution



Typical PAT Cycle

| | | | | | |
|---|--|--|---|--|--|
| <p>Minimum Energy Consumption Notification. Say 30000 toe for cement</p> <p>11 Sectors notified so far</p> | <p>Data Collection & 3rd party verification for Baseline</p> <p>Data collected from 1000 plus industries</p> | <p>With Industries, Associations, Ministries, Research Bodies etc.</p> <p>250 Plus consultation meeting/work shops/visits</p> | <p>70 TCM to discuss Targets, Saving potential & international practices</p> <p>PAT1: 31.3.12 478 units PAT2: 30.3.16 621 units PAT3: 31.3.17 (Proposed)</p> | <p>3 Year cycle for each PAT Cycle</p> <p>PAT1: 2012-15 PAT2: 2016-19 PAT3: 2017-20</p> | <p>Verification by Accredited Energy Auditors & Trading</p> <p>427 industries verified for PAT1</p> |
| DC Notification | Data Collection & Verification | Consultation | Ministerial Technical Committee & Notification | Implement - ation | Achievement Verification & ESCert Trading |

PAT Mechanism



SEC (Specific Energy Consumption): Energy Consumed per unit production

Realized Impacts – PAT 1 (2012-2015)



Energy Saving

8.67 mtoe
5635 MW

1.25% of
India's
total primary
energy supply



Emission Reduction

31 million tonnes
of CO₂

1.93% of
India's
emissions



Skill Development

Capacity
building: **5000+**
Engineers and
operators

13718 Energy
Auditors &
Managers

219
Accreditation



Savings

Rs 37,685
Crores

from saved
energy
consumption
and **avoided**
generation



Investment

Encouraged
investments for
energy efficient
technologies for
domestic
manufacturing

Rs 24,517
Crore invested

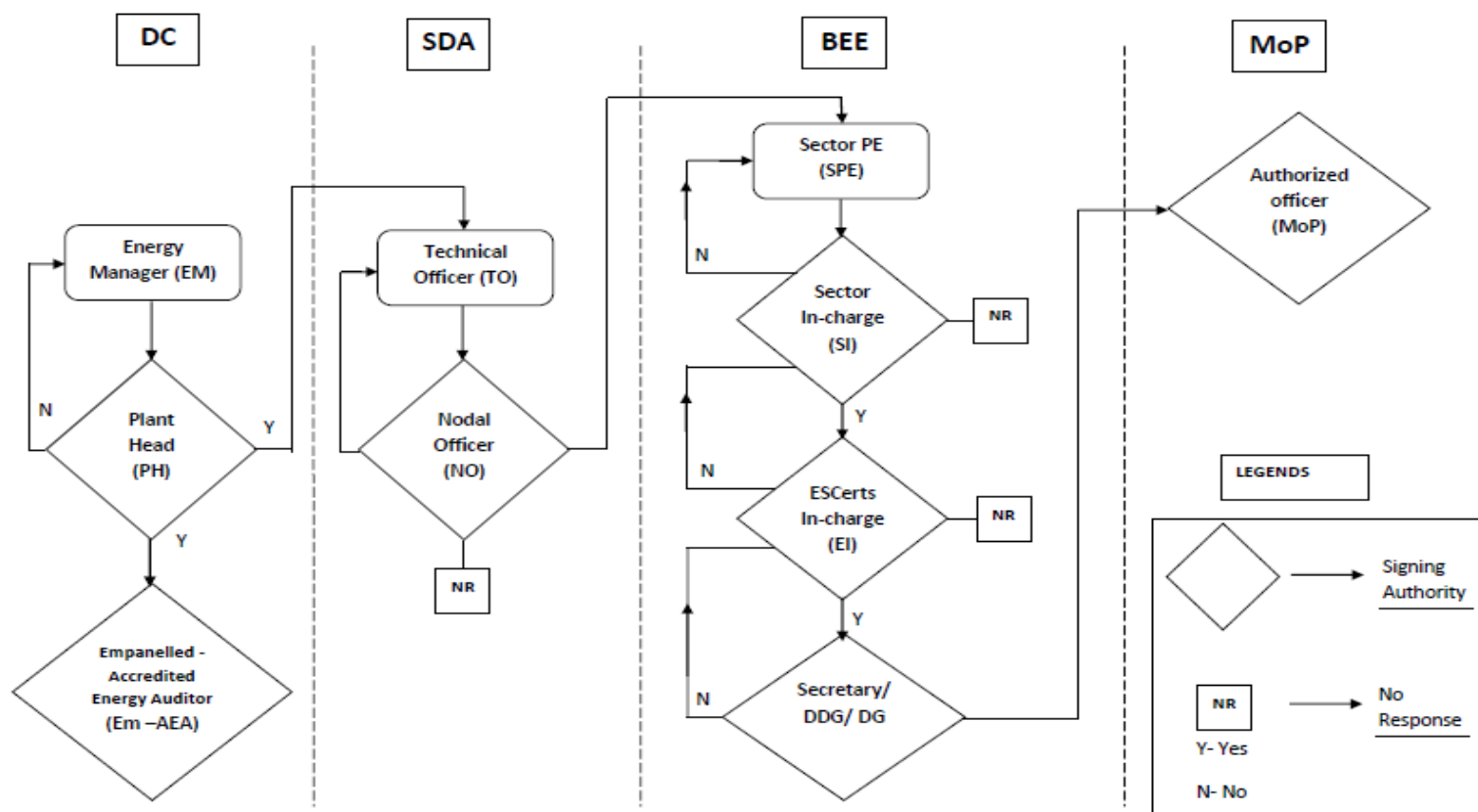
Trading of ESCerts - Background

- Section 14 A (1) of Energy Conservation Act 2001 gives power to Central Government to issue energy savings certificate to the DCs.
- Energy Conservation (*Energy Consumption Norms and Standards for Designated Consumers, Form, Time within which, and Manner of Preparation and Implementation of Scheme, Procedure for Issue of Energy Savings Certificate and Value of Per Metric Ton of Oil Equivalent of Energy Consumed*) Rules, 2012 notified on 30th March 2012 by Ministry of Power, have specified that the ESCerts to be issued in electronic form and tradable on Power Exchange.
- BEE developed PATNet portal for all the DCs through which they upload their forms and ESCerts can be electronically issued to them.
- Value of one ESCert is equal to one metric ton of oil equivalent of energy consumed. The value of per metric ton of oil equivalent of energy consumed shall be prescribed by Central Government , in consultation with BEE, under Section 14 B of the Energy Conservation Act 2001.

Trading of ESCerts - Background

- The value of per metric ton of oil equivalent for 2014-15 is Rs. 10968.
- For trading of ESCerts no floor price or forbearance price has been defined as the price of ESCerts shall be discovered at the power exchanges
- ESCerts shall be bought by DCs for compliance only, and after submission to BEE for meeting the compliance it will stand expired. Thus, after purchasing ESCerts DCs cannot re-sell them.
- DCs to whom the ESCerts are issued can sell them at Power exchanges and balanced ESCerts can be utilized for compliance of their next cycle or sell to any other DC for the compliance within the validity period.
- Validity period for ESCerts issued during current cycle is till the completion of the compliance period of respective DC's next cycle.
- The energy savings certificates issued in a cycle period shall remain valid till the completion of the compliance period of the next cycle.

Process Flow For Issuance of ESCerts



NR: No Response – Notification is issued to the head of the department and to the next officer in the channel.

Present Status

- Ministry of Power has issued/entitled to purchase ESCerts to Designated Consumers of PAT cycle I on 16th February 2017.
- PAT cycle I has achieved an energy saving of 8.67 mtoe against the targeted energy saving of 6.886 mtoe which is about 30% over achievement.
- In this regard currently in the PAT cycle II, 621 DCs from 11 sectors are being included in the scheme.
- Procedure for transaction of ESCerts is approved by CERC on 14th Feb 2017. Subsequently, BEE has circulated this Procedure to DCs, SDAs, Registry (POSOCO) and Power Exchanges (IEX and PXIL). The approval of CERC on fee order is still awaited.
- Power exchanges submitted a copy of Business Rules to CERC and seeking public comments on these Business Rules.

Trading Regulations for ESCerts

Central Electricity Regulatory Commission (Terms and Conditions for Dealing in Energy Savings Certificate) Regulations, 2016 issued by CERC on 27th May, 2016 and notified on 30th May, 2016. Important features are as follows:

- a. Roles & responsibilities of Administrator, Registry, CERC and Power exchanges were defined
- b. Market price of ESCerts shall be discovered through bidding at power exchanges i.e. through closed bid double sided auction
- c. All the DCs to whom ESCerts are either issued or entitled to purchase by MoP have to register themselves with 'Registry' i.e. POSOCO to become eligible entity
- d. For trading in Power exchanges the DCs have to get themselves registered with any of the exchanges

Important features of ESCerts

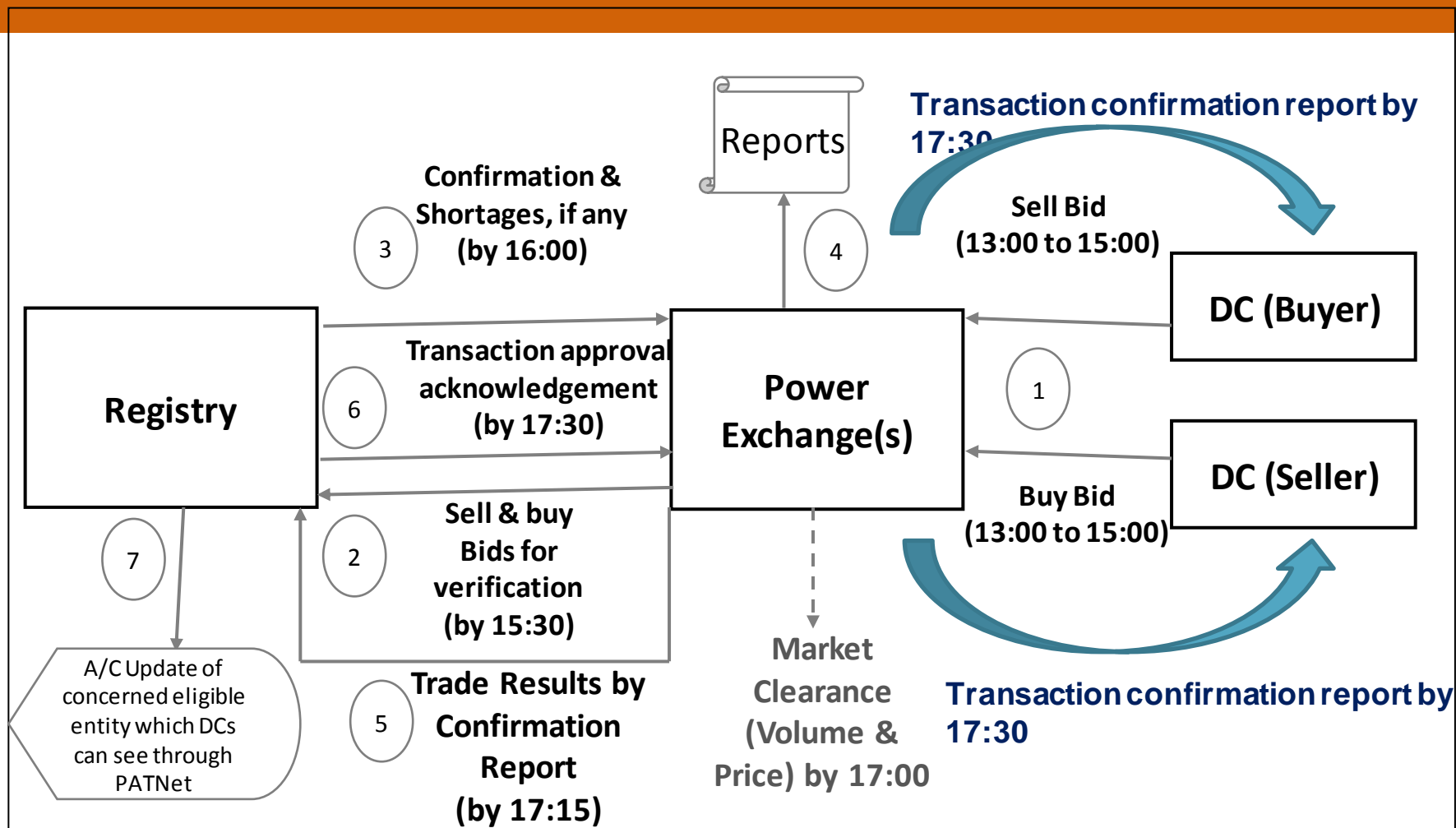
- The energy savings certificates (ESCerts) shall be issued in electronic form.
- The value of one energy savings certificate shall be equal to one metric ton of oil equivalent of energy consumed.
- The DC who has been issued ESCerts during the current cycle may sell them through Power Exchange, or may use them for the purpose of banking until the next compliance cycle.
- The ESCerts issued in a cycle period shall remain valid till the completion of compliance period of the next cycle.
- The ESCerts purchased by a DC for the purpose of compliance with the energy consumption norms and standards shall after their submission to BEE stand expired

Procedure for Transaction of ESCerts

CERC has approved the procedure for transaction of ESCerts in on 14th Feb 2017. Following are important features of Procedure:

- a. Template of application form to become eligible entity for trading of ESCerts has been defined. Documents like PAN, TAN, CIN, etc shall be required. DCs shall fill up application form through PATNet (where already DCs of PAT cycle I are registered)
- b. Process of application scrutiny by Registry has been detailed
- c. Registry shall grant certificate of Registration to eligible entities
- d. Event of default in the trading process and its consequence has been explained
- e. Interface activities between Registry and Power exchanges; Registry and Administrator; and, Registry and DCs have been defined in detail
- f. DCs applying to become eligible entity shall pay two types of fee i.e. (i) One time Registration fee; and, (ii) ESCert fee to be paid by DCs to whom ESCerts have been issued by MoP
- g. Sellers can sell the ESCerts issued to them by MoP in their respective PAT cycle. However, bids placed by them at both the exchanges should not be more than the quantity of ESCerts available for transaction in their Registry at any point of time.
- h. Buyers can purchase ESCerts beyond their compliance in respective PAT cycle. However, it may be noted that ESCerts once purchased cannot be resold.
- i. the DCs may use balanced energy saving certificates after the compliance, if any, for the purpose of banking and such banked ESCerts may be used for the compliance of their next cycle or sell to any other DC for the compliance within the validity period. Validity period for ESCerts issued during current cycle is till the completion of the compliance period of respective DC's next cycle.
- j. Bilateral trading even within the same corporate group is not permitted and accordingly inter-sector self-retention/transfer of ESCerts is also not permitted.

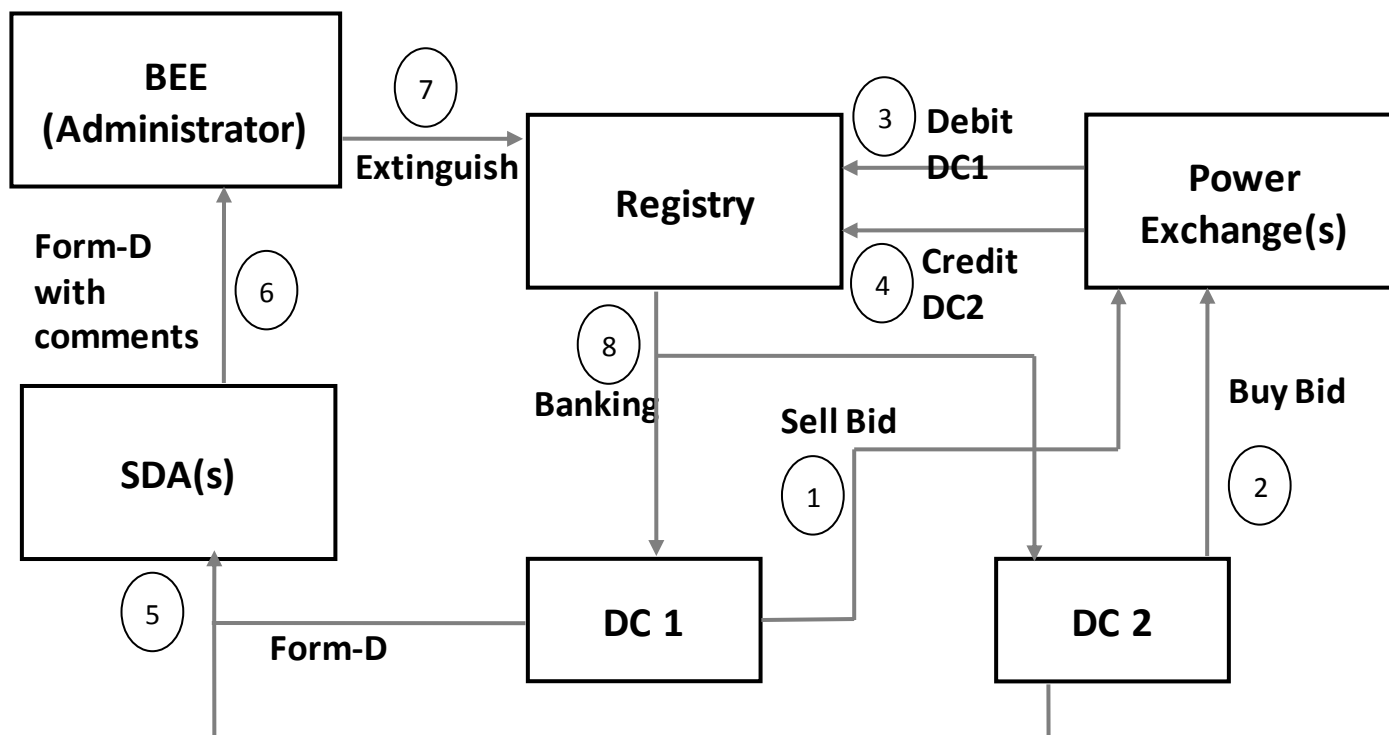
Process flow for ESCerts trading



Trading period

- BEE being the Administrator shall inform the date of opening of Registration to all DCs along with the fee details. The date of trading of ESCerts commencement shall also be informed by Administrator.
- Registry shall do preliminary scrutiny in 7 working days
- The Designated Consumer shall furnish other details, if required by the Registry within 7 working days so as to enable Registry to undertake the registration of that Designated Consumer.
- If application is complete in all respects, including payment of fee and charges, then Registry shall proceed to register the DC within 15 working days from the date of receipt of complete Application and issue the Certificate of Registration to the concerned DC as 'Eligible Entity'.
- Trading/transaction of ESCerts shall be done on continuous basis i.e. every Tuesday on weekly basis.
- After submission of Form D in June, the trading of ESCerts shall continue with respective sellers and buyers.

Process of Extinguishing ESCerts



Form-D (one month from the completion of trading of ESCerts in respective cycle as may be specified by CERC)

Penalties and Adjudication

Importance

- ☐ Ensure fulfillment of objectives of PAT scheme
- ☐ High stake of stakeholders
- ☐ Critical to meet India's commitments under NDCs
- ☐ Complying the provisions of Energy Conservation Act

Process include provisions for

- ☐ penalties on non-compliance,
- ☐ adjudication and imposition of penalties and
- ☐ a quasi-judicial system for grievance redressal through appellate tribunal.

Penalties and Adjudication

In order to enforce various provisions of **Energy Conservation Act, 2001**, penalties and adjudication provisions are stipulated in **chapter VIII** and **chapter IX**

❑ Chapter VIII

- ❑ (Sections 26, 27, 28 & 29) related to provisions on Penalties and Adjudications.

❑ Chapter IX

- ❑ (Sections 30 to 45) related to provisions on Appellate Tribunal.

Penalties and Adjudication

Section 26 – Penalty

- ☐ If any person fails to comply with the **provisions of clause (n) of section 14**, he shall be liable to a penalty which shall not exceed ten lakh rupees and, in case of continuing failure an **additional penalty shall be imposed which should not be less than the price of every metric ton of oil equivalent of energy.**
- ☐ In case, any amount payable under this section is **not paid**, then it may be **recovered as an arrear of land revenue.**

Penalties and Adjudication

Stipulation from Section 14 relevant to PAT Scheme –

- ☐ **From Clause (h):** Energy Intensive Industries specified in the schedule should get energy audit conducted by an accredited energy auditor (AEA) in the manner and intervals of time as may be specified by regulations.
- ☐ **From Clause (i):** Central Govt. may direct, if considered necessary for efficient use of energy and its conservation, any DC to get energy audit conducted by an AEA.
- ☐ **From Clause (k):** DC should furnish to the designated agency, in the form and manner and within the period, as may be prescribed, the information with regard to the energy consumed and action taken on the recommendation of the AEA.
- ☐ **From Clause (l):** DC should appoint an energy manager in charge of activities for efficient use of energy and its conservation and submit a report, in the form and manner as may be prescribed, on the status of energy consumption at the end of every financial year to the designated agency.

Penalties and Adjudication

Section 27 – Power to Adjudicate

- ☐ **State Commission shall appoint any of its members to be an Adjudicating Officer (AO) for holding an enquiry in a manner as may be prescribed by the Central Government, after giving any person concerned reasonable opportunity of being heard for the purpose of imposing any penalty.**
- ☐ **AO shall have the power to summon and enforce the attendance of any person acquainted with facts and circumstances of the case to give evidence or produce any document which in the opinion of the AO, may be useful for or relevant to the subject matter of the enquiry.**
- ☐ **If, on such enquiry, he is satisfied that the person has failed to comply with the provisions of any of the clauses of sections specified in the section 26, he may impose such penalty as he thinks fit in accordance with the provisions of any of those clauses of that section.**

Penalties and Adjudication

Section 27 – Power to Adjudicate

- ☐ **In case the State Commission has not been established** in the State, the Government of that State shall appoint any of its officers, **not below the rank equivalent to a Secretary** dealing with legal affairs in that State to be an AO immediately.
- ☐ **On the appointment of an AO** by the State Commission on its establishment in that State, an AO appointed by a State Government ceased to be an AO and he shall transfer all the matters being adjudicated by him and thereafter the State Commission appointed AO shall adjudicate the penalties on such matters.

Penalties and Adjudication

Section 28 – Factors to be taken into account by the Adjudicating Officer

- ☐ **Amount of disproportionate gain** or unfair advantage, wherever quantifiable, made as a result of the default.
- ☐ **Repetitive nature of default.**

Penalties and Adjudication

Section 29 – Civil Court not to have Jurisdiction

- ☐ **No Civil Court shall have jurisdiction** to entertain any proceeding in respect of any matter which an adjudicating officer appointed under this act is empowered by or under this Act or Appellate Tribunal is empowered by or under this act to determine
- ☐ **No injunction shall be granted by any Court or other authority** in respect of any action taken or to be taken in pursuance of any power conferred by or under this act.

Penalties and Adjudication

Section 31 – Appeal to Appellate Tribunal (AT)

- ☐ **Any person aggrieved**, by an order made by an adjudicating officer or the Central Government or the State Government or any other authority under this Act, may prefer an appeal to Appellate Tribunal.
- ☐ Provided that any person appealing against the order of the adjudicating officer levying any penalty, shall **while filing the appeal, deposit the amount of such penalty.**
- ☐ Appeal may be **filed within a period of forty-five days** from the **date on which a copy of the order made** by the adjudicating officer or the Central Government or the State Government or any other authority.

Support from SERCs/JERCs

- 1. Establishment of institutional framework in the state**
 - Appointment of Adjudicating officer by SERCs/JERCs
 - Appointment of Nodal officer in SERCs /JERCs
- 2. Training and capacity building of SERC/JERC**
- 3. Formulation of procedures for Adjudication as per need of state**
- 4. Design of standard template**

Present status of AO appointment

Present Status

- States namely Haryana, Rajasthan, Kerala, Tamil Nadu, Andhra Pradesh, Telangana, Odisha, Karnataka, Maharashtra and Madhya Pradesh have appointed Adjudicating Officers for EC matters.
- Special Secretary, MoP & DG, BEE have written request letters to SERCs regarding appointment of Adjudicating Officer for EC matters.

Proposal

- Forum of Regulators may facilitate convening a National Workshop involving SERCs for knowledge sharing on matters related to Energy Conservation Act.

Thank You !

For more information:

Website: www.beeindia.gov.in

Email: kumara@beenet.in

Open Access Application Processing

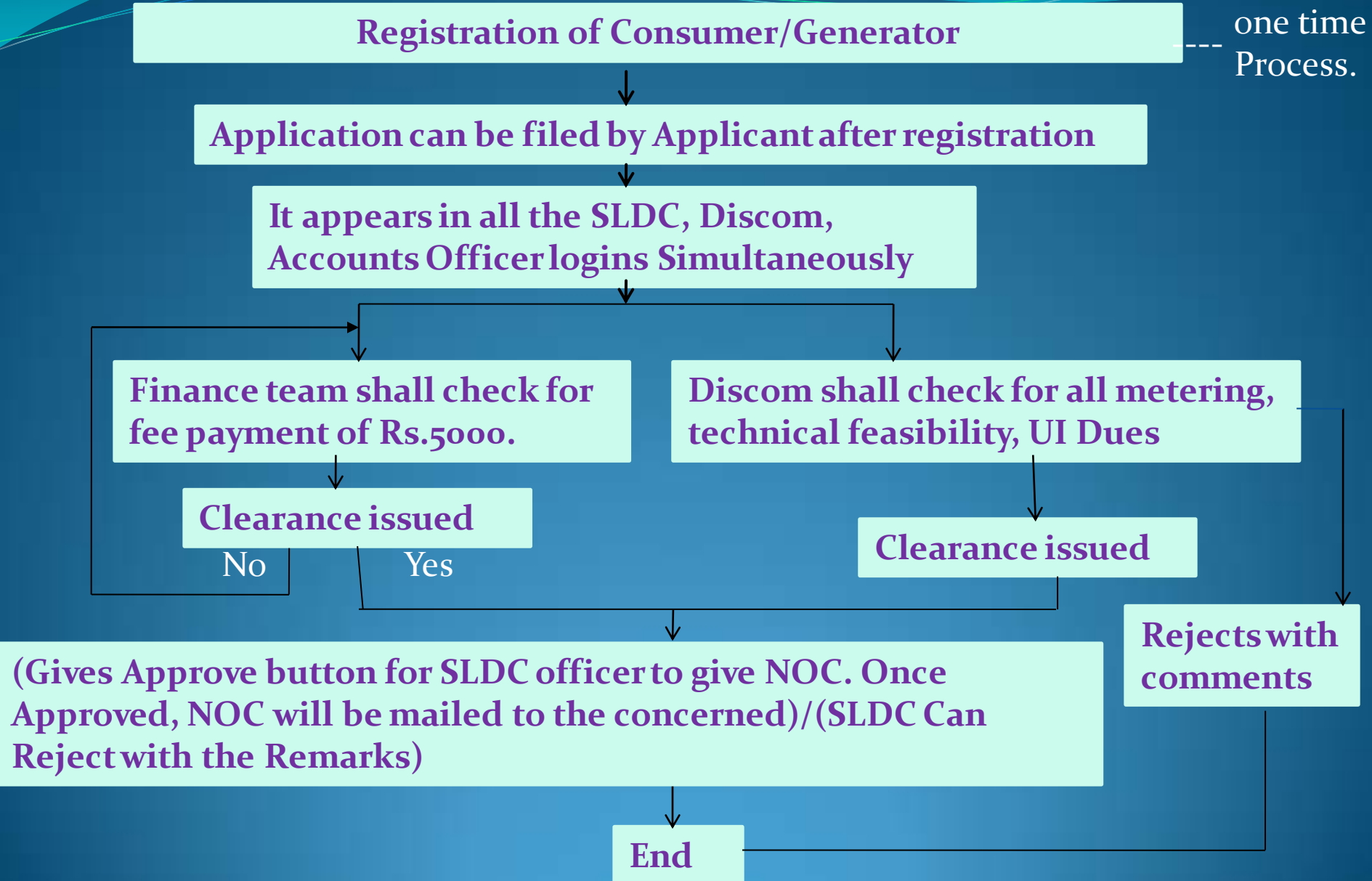
BY

TSSLDC



- ❑ This Application is exclusively for processing NOC's for Bidding in Power Exchanges.
- ❑ This Application is a common platform for Open Access Consumer/Generator and for Discoms/SLDC and Accounting wings.
- ❑ TSSLDC is issuing the NOC's for the applicants from April'2014 using this Software Application.

Detailed Flow chart for the software application





Registration



TRANSMISSION CORPORATION OF TELANGANA LIMITED

NOC For OA Consumer Login



New user clicks
here to Register for
the very first time.

[New Registration](#)[Forgot/Resend Password](#)



TRANSMISSION CORPORATION OF TELANGANA LIMITED

OpenAccess

Consumer Registration Form

Step1

Email Id*

Confirm Email id*

Consumer Name and HT Consumer No. Details

Consumer Name*

HT SC No*

Clicking on Next will pop up the user to check for the username and password that is sent to the Email Id.

Next

Consumer Registration Form

Step 2

Registration No. 201702226117

Discom , Substation and Voltage Details

| | |
|----------------------------------|----------------|
| Area Discom Name* | TSNPDCL ▼ |
| Sub Station Voltage* | 132KV ▼ |
| Sub Station Name* | Minpur SS |
| Maximum Contacted Demand in MVA* | 10 |
| Feeder Voltage* | 33KV ▼ |
| Feeder Type* | Mixed ▼ |
| Feeder Name* | Narsing Feeder |

Previous Next

Registration No. 201702226117

Main and Check Meter Details

| | |
|--------------------------------|--------|
| Main Meter Serial No | 123456 |
| Main Meter Class* | 0.2s |
| Main Meter CT Class* | 0.2 |
| Main Meter PT Class* | 0.5 |
| Main Meter ABT Compatibility* | Yes |
| Check Meter Serial No | 234567 |
| Check Meter Class* | 0.2s |
| Check Meter CT Class* | 0.2 |
| Check Meter PT Class* | 0.2s |
| Check Meter ABT Compatibility* | No |

Previous Next



OpenAccess

Consumer Registration Form

Step 4

Registration No. 201702226117

Stand By Meter Details:

| | |
|-----------------------------------|-------------------------------------|
| Stand By Meter Serial No | <input type="text" value="56478"/> |
| Stand By Meter Class* | <input type="text" value="Select"/> |
| Stand By Meter CT Class* | <input type="text" value="Select"/> |
| Stand By Meter PT Class* | <input type="text" value="Select"/> |
| Stand By Meter ABT Compatibility* | <input type="text" value="Yes"/> |

After submitting this form, Registration is complete and the Consumer can login and apply for Open Access

Previous Submit



Application

OA Consumer Application Form

UTR/NEFT No*

Fee Paid Date*

Fee Paid Rs*

Bank Name*

Applying for the first time ☐ Yes ☐ No

Last NOC Sanction No.

Last NOC Sanction Date

OA Requested Date From*

OA Requested Date To*

Quantity in MW*

UI Dues*

Upload No Dues Certificate From Discom* No file chosen

Upload Last CC Bill* No file chosen

☐ I agree for UI Undertaking

☐ I agree for RPPO Undertaking

[View UI Undertaking](#)

[View RPPO Undertaking](#)

Declaration:

I (Name) declare that OA capacity applied for is equal or below my CMD.

I undertake that drawal of power from all sources including OA and Discom shall not exceed my CMD.

I further declare that details mentioned above are true to the best of my knowledge and belief.If any information furnished above is found to be incorrect at any time, the NOC issued will be liable for cancellation in addition to any other action liable under relevant Act and Rules :

☐ I Accept ☒ I Do not Accept

Fields Mentioned with * are Mandatory

Once the application is submitted in this form, all these details of the application along with the Registration Details are shown simultaneously to the SLDC and concerned Discom and Accounts Officer as shown in the next slide

| | |
|---------------|--------------------------|
| Consumer Name | KE SORAM CEMENT |
| Email Id | aakarsh.d@lancogrcup.com |
| HT ConsumerNo | KRN002 |
| Discom Name | TSNPDCL |

| Fee Details | | Old NOC Details | | NOC Applied Details | |
|--------------------------------|---------------------|---|-----------------|------------------------|------------|
| RNR | 201406246767 | ApplicationNo | 201611281335 | Application Date | 28-11-2016 |
| Fee Paid(UTR No) | SBIN316328506014 | LastNOC Sanction No. | TG-201407285685 | OA Requested Date From | 01-12-2016 |
| Bank Name | STATE BANK OF INDIA | LastNOC Sanction Date | 28-07-2014 | OA Requested Date To | 15-12-2016 |
| Fee Paid Date | 23-11-2016 | | | Quantity in MW | 6 |
| Amount | 0 | | | | |
| Verification by SAO : Verified | | Verification by Discom : Clearance Issued | | | |

Discom ,Substation and Voltage Details

| | | | |
|---------------------|-------------------|---------------------------------|-------------------------|
| Area Discom Name | TSNPDCL | Maximum Contacted Demand in MVA | 6.0 |
| Sub Station Voltage | 132KV | Sub Station Name | MALYALPALLY, RAMAGUNDAM |
| Feeder Voltage | 132KV | Feeder Type | Dedicated |
| Feeder Name | KE SORAM FEEDER I | | |

Main Meter Details

| | |
|-------------------|----------|
| SerialNo | APZ00068 |
| Class | 0.2s |
| CT Class | 0.2s |
| PT Class | 0.2 |
| ABT Compatibility | Yes |

Check Meter Details

| | |
|-------------------|----------|
| Serial No | ORU10915 |
| Class | 0.2s |
| CT Class | 0.2s |
| PT Class | 0.2 |
| ABT Compatibility | Yes |

Stand By Meter Details

| | |
|-------------------|----------|
| Serial No | ORU10916 |
| Class | 0.2s |
| CT Class | 0.2s |
| PT Class | 0.2 |
| ABT Compatibility | Yes |

Document Details

| | |
|--|---|
| Upload No Dues Certificate From Discom | ~/Forms/NOCForms/C_28112016100346796_ND.jpg |
| Upload UI Undertaking | |
| Upload RPPD Undertaking | |
| Upload Last CC Bill | ~/Forms/NOCForms/C_28112016100346799_CC.jpg |

Approve

Reject

This application is viewed by SLDC, Discoms, Accounts officer. In this slide it can be seen that accounts officer(SAO) has verified and Discom issued clearance.

When clicked on Approve, it sends mail automatically to the concerned.

When clicked on Reject, it asks for Remarks for Rejection.

Track Status Report

HTSC.No

Discom Name

Please Choose the type Please Choose Status

From Date* To Date

| Sl.No. | Application Number | Appl. Date | Appl. HH:MM | HT No. | Name | Discom | NOC No. | DateofNOC | Status |
|--------|--------------------|------------|-------------|---------|--------------------------------------|---------|---------|-----------|----------------|
| 1 | 201702064818 | 06-02-2017 | 10:05 | MDK632 | GAYATRI BIO ORGANICS LTD | TSSPDCL | | | DiscomRejected |
| 2 | 201606105167 | 10-06-2016 | 13:02 | RRS1247 | SUGNA METALS LIMITED | TSSPDCL | | | DiscomRejected |
| 3 | 201607227794 | 22-07-2016 | 19:42 | MBN725 | Sri Navdurga Billets Pvt Ltd | TSSPDCL | | | Rejected |
| 4 | 201701253231 | 25-01-2017 | 16:24 | RRN1243 | GRIP STRAPPING TECH PVT LTD | TSSPDCL | | | DiscomRejected |
| 5 | 201606257037 | 25-06-2016 | 15:24 | MDK512 | Mylan laboratories limited, unit-1 | TSSPDCL | | | DiscomRejected |
| 6 | 201701264334 | 26-01-2017 | 18:26 | RRN598 | DR REDDYS LABORATORIES LTD CPS UNIT | TSSPDCL | | | DiscomRejected |
| 7 | 201701277961 | 27-01-2017 | 20:48 | MDK733 | Kirby Building Systems India pvt Ltd | TSSPDCL | | | DiscomRejected |

Rejected by Discom. when clicked on it, Shows the remarks.

Rejected by SLDC. when clicked on it, Shows the remarks.

Relevant Experience of TELANGANA in Open Access

❑ Applications received in bulk are being processed with minimum manual intervention and in limited period.

❑ Usage of this application has reduced the work of communicating among several wings with manual pursuance.

❑ Around 100 NOC's are being issued every month using this application in just a single click

- ❑ Reporting for several queries has become easier
- ❑ The application is effectively useful in Reaching the timelines of processing the applications as per the Regulations.
- ❑ Manual errors while checking the standard data for every application is minimized.

❑ Presently STOA Contracts can only be revised on the 4th day counting 1st day as the Day of issue of requisition. This is leading to difficulty in planning of Load-Generation balance

❑ There is uncertainty whether the applicant will draw the power from the Power Exchange or from the Discom till final allocation is made. This is leading to difficulty in planning of Load-Generation balance.