

Market Based Mechanism - PAT

PAT – Perform, Achieve and Trade (PAT)

Ashok Kumar
Energy Economist
Bureau of Energy Efficiency

Enabling Framework

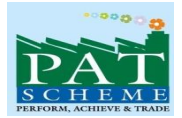
- **Energy Conservation Act**
 - Designated Consumers to comply with the specific energy consumption norms

- **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



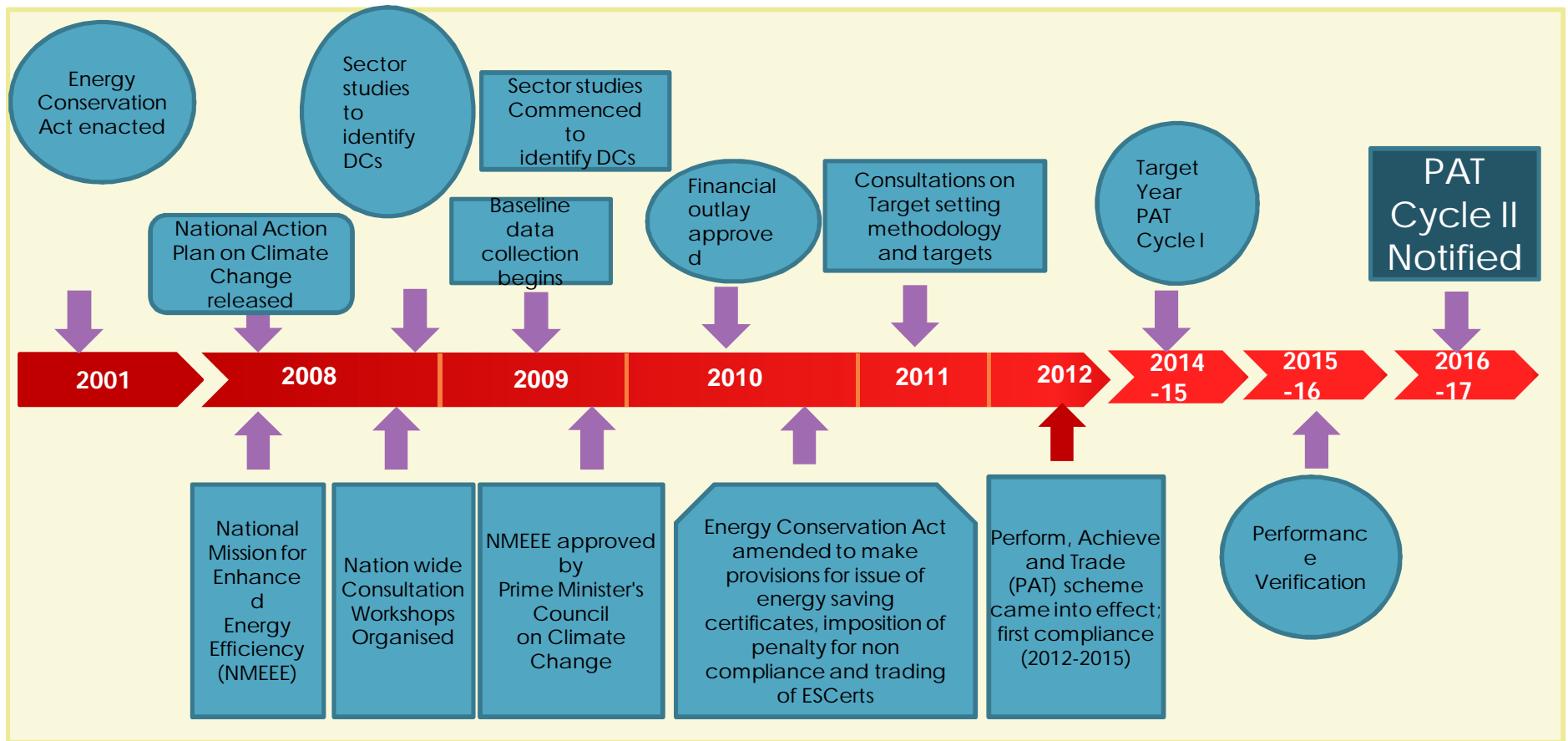
GOVERNMENT OF INDIA
MINISTRY OF POWER



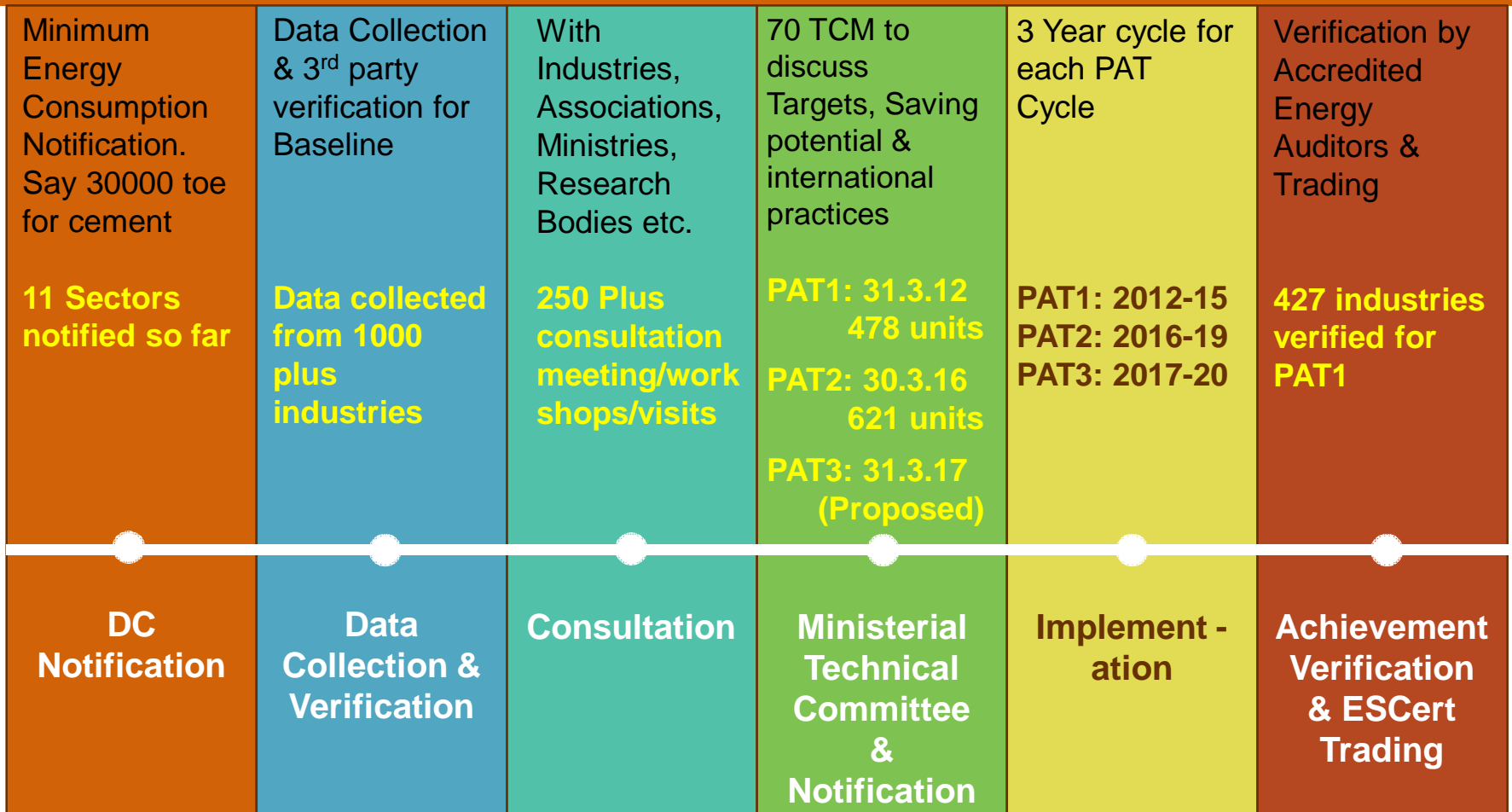
Perform, Achieve and Trade

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.

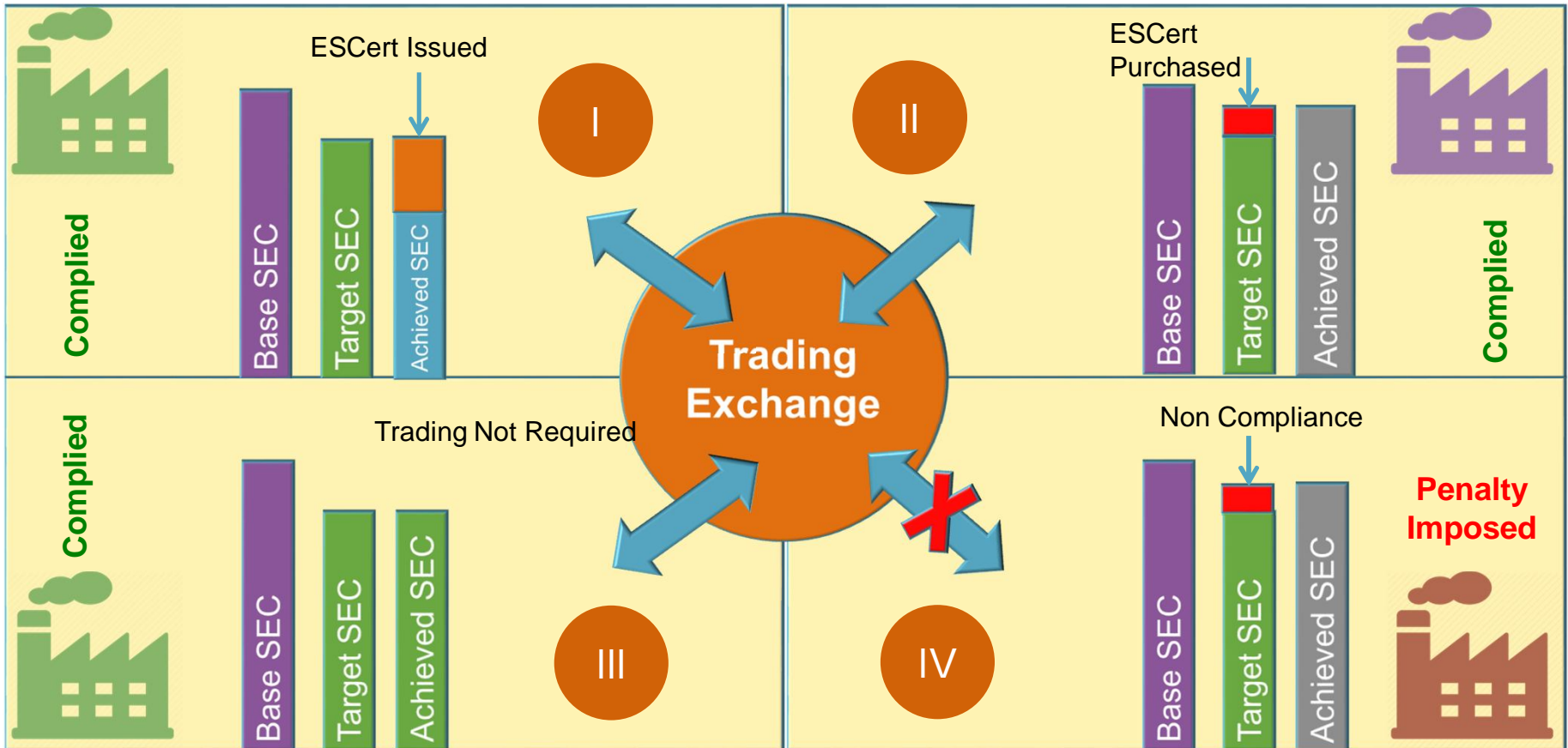
PAT Evolution



Typical PAT Cycle



PAT Mechanism



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

PAT Cycle I- Achievements

S. NO.	Sectors	No. of Identified DCs	Savings (Million toe)
1	Aluminium	10	0.73
2	Cement	75	1.44
3	Chlor- Alkali	22	0.13
4	Fertilizer	29	0.83
5	Iron & Steel	60	2.10
6	Paper & Pulp	26	0.26
7	Textile	82	0.12
8	Thermal Power Plant	123	3.06
	Total	427	8.67

- ▶ **Saving of about 8.67 MTOE from the assessed 427 DCs**
- ▶ **CO₂ mitigation - 31 million tonne**

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

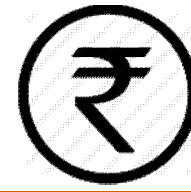
1.93% of
India's
emissions



Skill Development

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

13718 Energy
Auditors &
Managers
219
Accreditation



Savings

Rs 9,500
Crores

from saved
energy
consumption
and **avoided**
generation



Investment

Encouraged
investments for
energy efficient
technologies for
domestic
manufacturing

Rs 24,517
Crore invested

PAT 2 Cycle

Sr. No	Sector	No. of DCs in PAT I	Additional DC in PAT Cycle-II	Total no. of DCs PAT -2
1	Aluminum	10	2	12
2	Chlor-Alkali	22	3	24
3	Textile	90	14	99
4	Pulp & Paper	31	4	29
5	Iron & Steel	67	9	71
6	Fertilizer	29	8	37
7	Cement	85	27	111
8	Thermal Power Plants	144	22	154
9	Refinery	NA	18	18
10	DISCOMS	NA	44	44
11	Railway	NA	22	22
Total				621

PAT Cycle II

Baseline Year: 2014-15

PAT Cycle 2016-2019

Assessment Year: 2018-19

Total Energy Consumption
from 11 sectors 227 mtoe

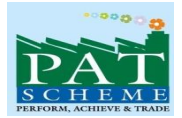
National Target = 8.869
mtoe at the end of 2nd PAT
Cycle (by 2018-19)

Target for PAT Cycle 3 (2017-20)

S. No	Sector	No of DCs	Energy Consumption (million toe)	Energy Savings Target (million toe)
1	Thermal Power Plant	37	23.82	0.402
2	Cement	14	1.74	0.096
3	Aluminium	1	1.02	0.061
4	Pulp & Paper	1	0.06	0.003
5	Iron & Steel	29	6.860	0.409
6	Textile	34	0.668	0.040
	Total	116	34.17	1.01



GOVERNMENT OF INDIA
MINISTRY OF POWER

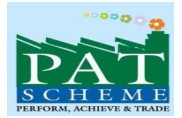


Trading of ESCerts

- ❑ 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.
- ❑ 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.



GOVERNMENT OF INDIA
MINISTRY OF POWER

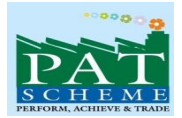


Trading Elements

- ❑ Central Electricity Regulatory Commission (Terms and Conditions for Dealing in Energy Savings Certificate) Regulations, notified on 30th May, 2016
- ❑ Ministry of Power has issued/entitled to purchase ESCerts to Designated Consumers of PAT cycle I on 16th February 2017.
- ❑ 306 Designated Consumers (DCs) have been issued about 38.25 lakh ESCerts and 110 DCs are entitled to purchase about 14.25 lakh ESCerts.
- ❑ Procedure for transaction of ESCerts and Business Rules of Power Exchanges approved by CERC.
- ❑ The Dynamic Customer Relationship Management (D-CRM) software for interfacing PATnet (online platform for PAT) at BEE with Registry and Power Exchanges is under finalization.
- ❑ Registration of DCs expected in July, 2017 and Trading is expected after 15 working days of the start of registration.



GOVERNMENT OF INDIA
MINISTRY OF POWER



Penalties and Adjudication

Importance

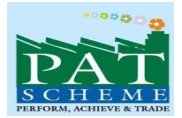
- Ensure fulfillment of objectives of PAT scheme
- High stake of stakeholders
- Critical to meet India's commitments under NDCs
- Complying the provisions of Energy Conservation Act

Process include provisions for

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



GOVERNMENT OF INDIA
MINISTRY OF POWER



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

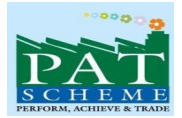
- ❑ (Sections 26, 27, 28 & 29) related to provisions on Penalties and Adjudications.

❑ Chapter IX

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



GOVERNMENT OF INDIA
MINISTRY OF POWER



Penalties and Adjudication

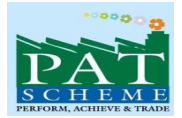
Section 26 – Penalty

- 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.**



GOVERNMENT OF INDIA
MINISTRY OF POWER



Way Forward

- ❑ Culmination of PAT Cycle I
- ❑ Enforcement of Compliance
- ❑ Expansion of PAT
- ❑ Development of Eco-system for enhanced energy efficiency promotion
- ❑ Development of robust M&V system
- ❑ Support establishment of EMSs
- ❑ Capacity building of stakeholders

Thank You !

For more information:

Website: www.beeindia.gov.in

Email: kumara@beenet.in