

# India's Market Based Scheme for energy intensive Industries – A critical review

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## Perform, Achieve and Trade Scheme

- PAT - a **market based mechanism** – is a key component of National Mission on Enhanced Energy Efficiency (NMEEE)
- A **mandatory** energy efficiency improvement scheme for large energy intensive industrial sectors
- **8** energy intensive industrial sectors were covered in the 1<sup>st</sup> Cycle (April 2012 to March 2015) which share about **35%** of total energy consumed by the country
- About **4%** reduction in Specific Energy Consumption (SEC) was targeted in a **3-year** period The SEC reduction targets were “**Industry specific**” – Less Target for good performing industries and high targets for inefficient ones



## Perform, Achieve and Trade Scheme - Goal and Expectations

### ▪ **Goal**

- Energy Saving of **6.7** million tonnes of oil equivalent (mtoe) in Cycle 1

### ▪ **Expectation**

- Unlock energy efficiency **market opportunity** of over \$ 5000 million
- Establish **energy management systems** in industries
- Skill development and creation of **employment opportunities**
- Create a conducive environment for **competitiveness** in industrial business
- Inventorise information through effective monitoring, reporting and verification

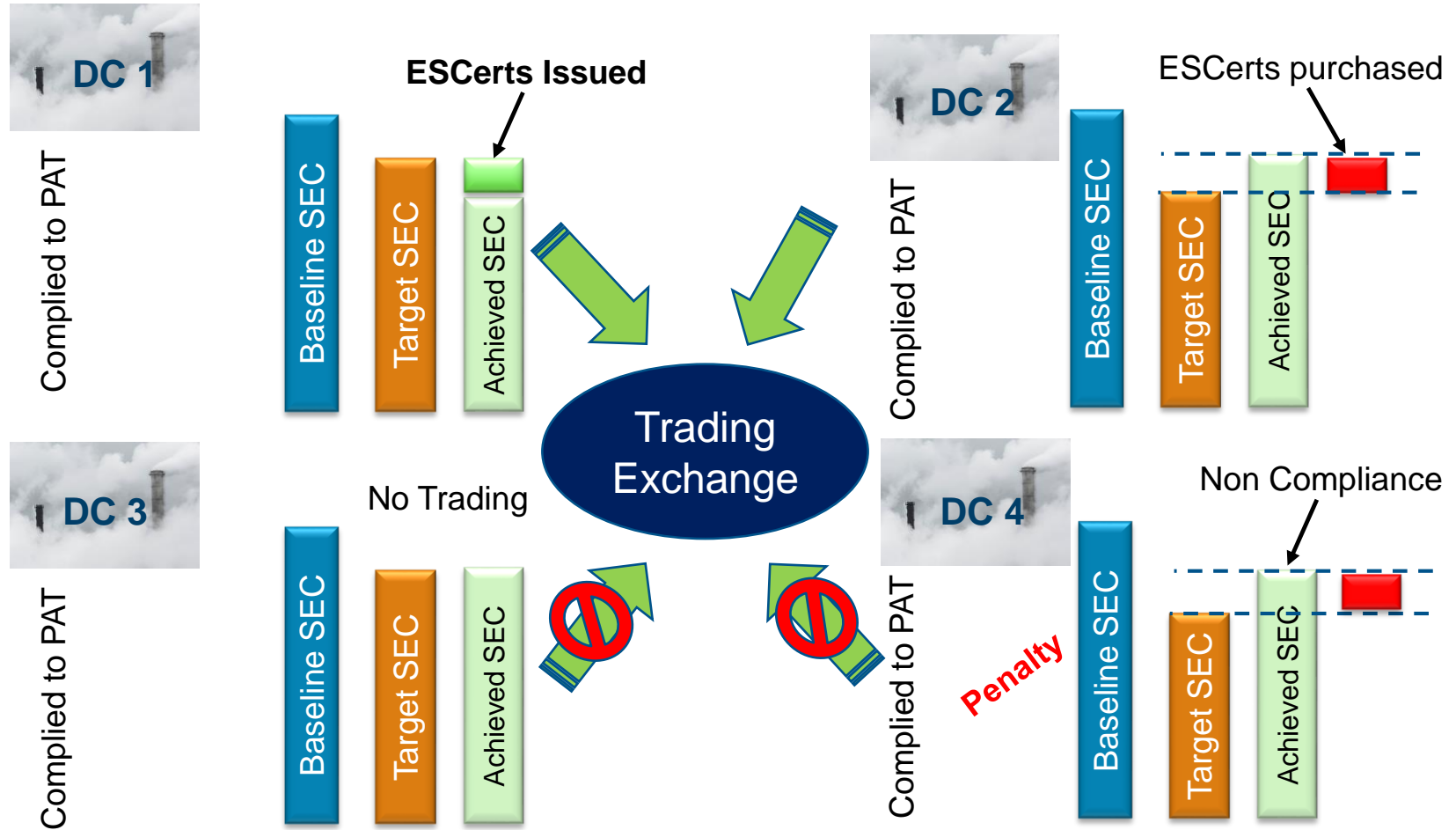
- **Key stakeholders** - Designated Consumers (DCs), industry associations, Accredited Energy Auditors (AEA), Energy Managers, Power Exchangers, Relevant Ministries, banks



# Perform, Achieve and Trade Scheme - formulation



# ESCerts Trading

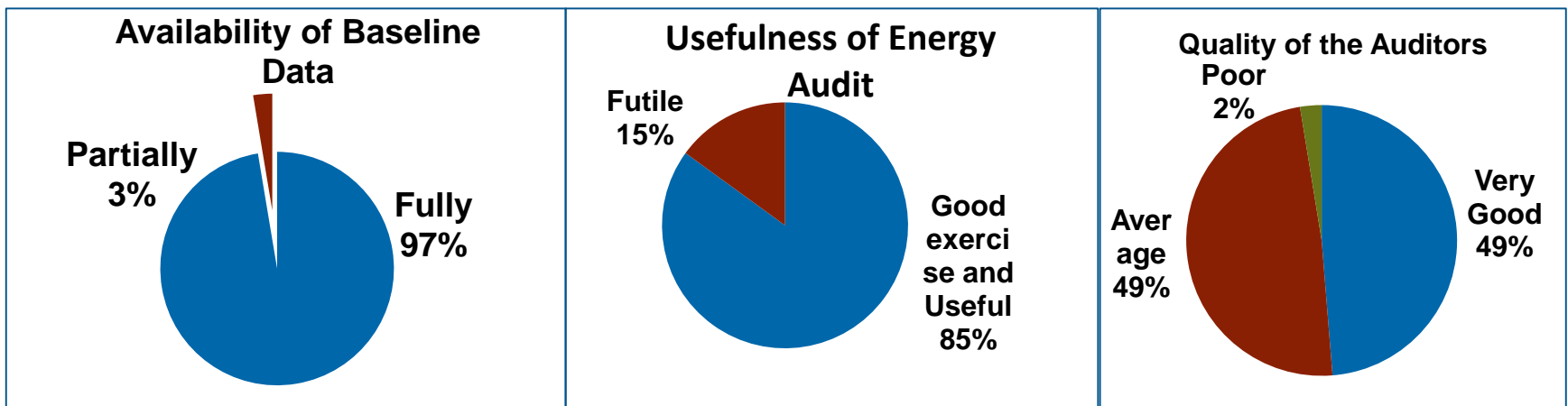


# Critical review

## 1. Stakeholder Consultation Process

- Over 60 stakeholder consultations have been conducted
  - Baseline and Target setting approach,
  - Monitoring & verification (M&V) and
  - other provisions of PAT Scheme
- 92% respondents are satisfied with the consultation process of BEE
- 60% felt that there is a scope for improvement in communication strategy and stakeholder engagement in consultation

## 2. Baseline Data & Baseline Energy Audit



# Critical review contd..

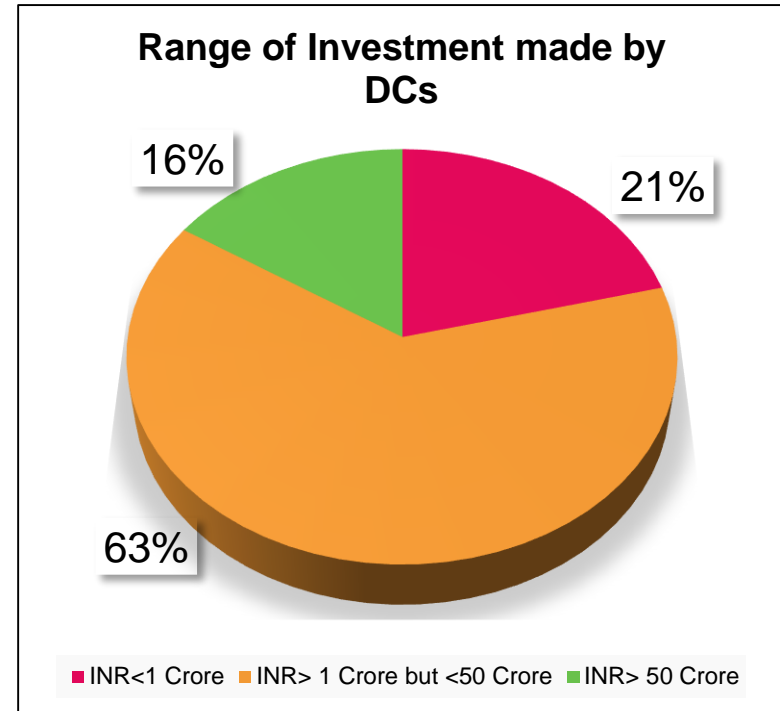
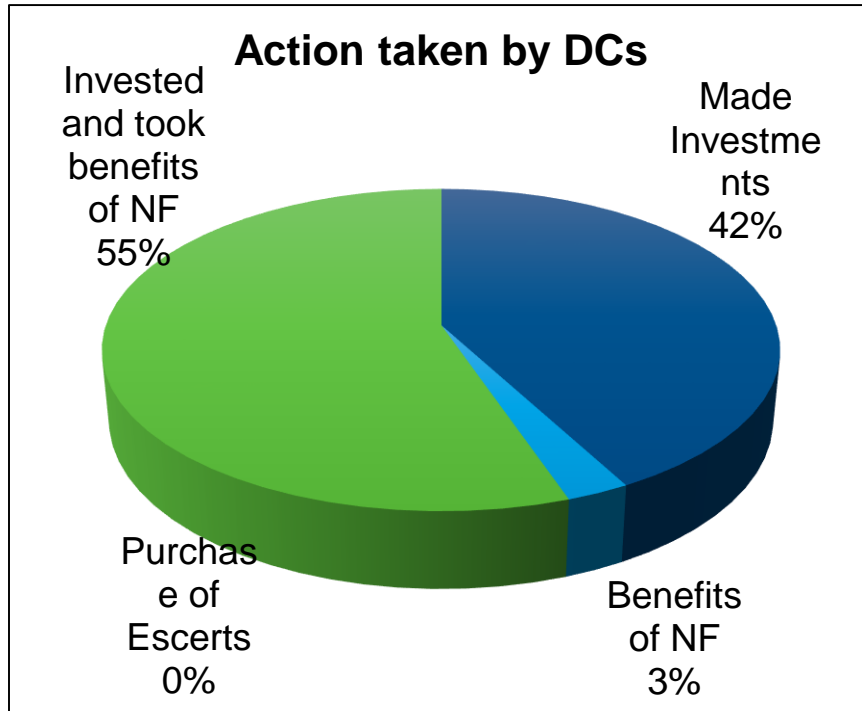
## 3. Monitoring & Verification (M&V) Process

- **M&V Documents** : 75 % of the DCs highlighted the documents were useful but it can be simplified in subsequent cycles
- **M&V Approach**: 84 % of the DCs Agree on 'Normalization Methodology'
- **Independent Verifiers** : About 110 independent verifiers empaneled by BEE
  - ✓ 70% DCs are satisfied with the available independent verifiers and timely completion of M&V activity
  - ✓ 67% DCs are satisfied with quality of Verifiers
  - ✓ 32 % of the DCs have concerns about non-Availability of Sector Experts
- **M&V Data and Records** :
  - ✓ Availability is not an issue – 74 % of the verifiers have highlighted that they have large volume of measured data than estimated data

# Critical review contd..

## 4. Actions Taken by DCs

- Technical Intervention (Cross-cutting technologies, Waste Heat Recovery)
- Operational Intervention (Process fine-tuning, Increasing Capacity Utilization)



NF : Normalization Factor  
ESCerts : Energy Saving Certificates  
INR : Indian Rupees  
DC : Designated Consumer

1 Crore : 10 million

Source : ICF Analysis



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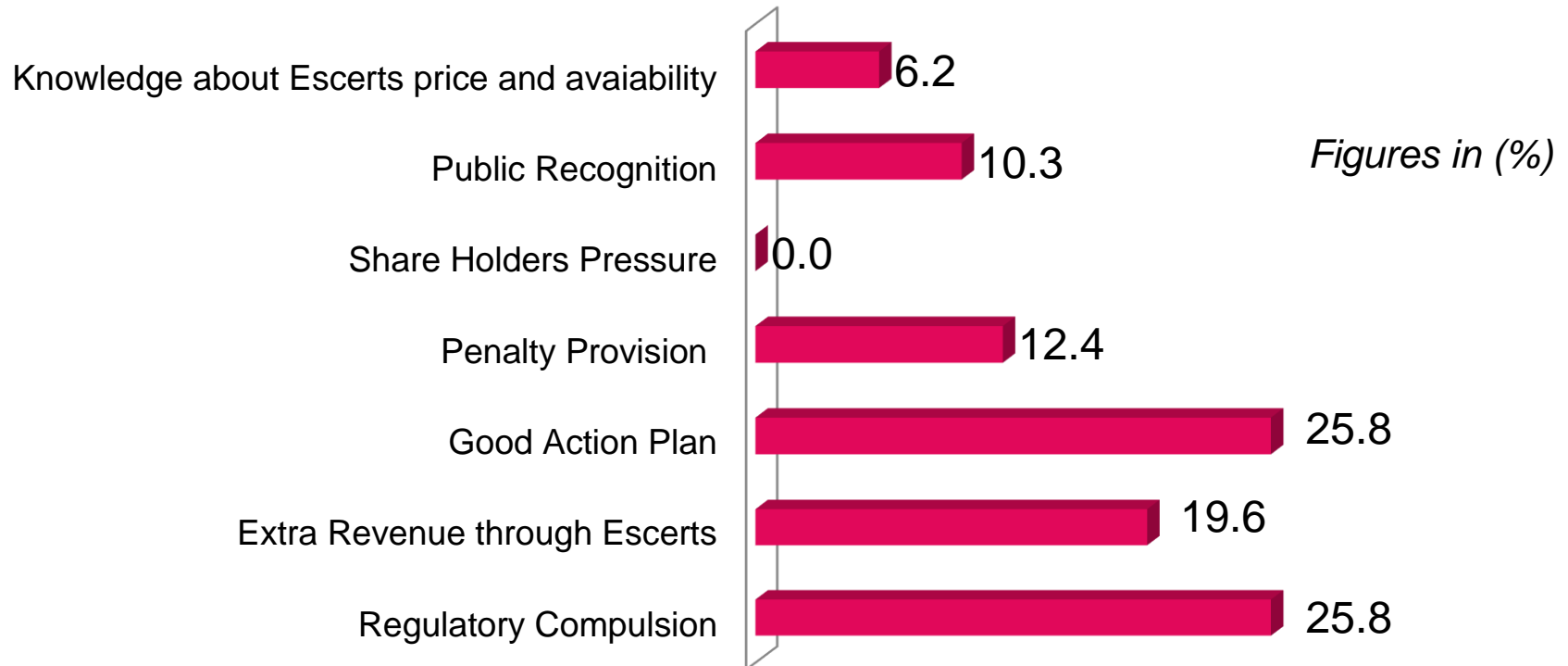


## Critical review contd..

### 5. Driving Factors to Make Investments

- 67% DCs have felt that the target is stringent for 3-year compliance period, 74% DCs have exceeded the target.

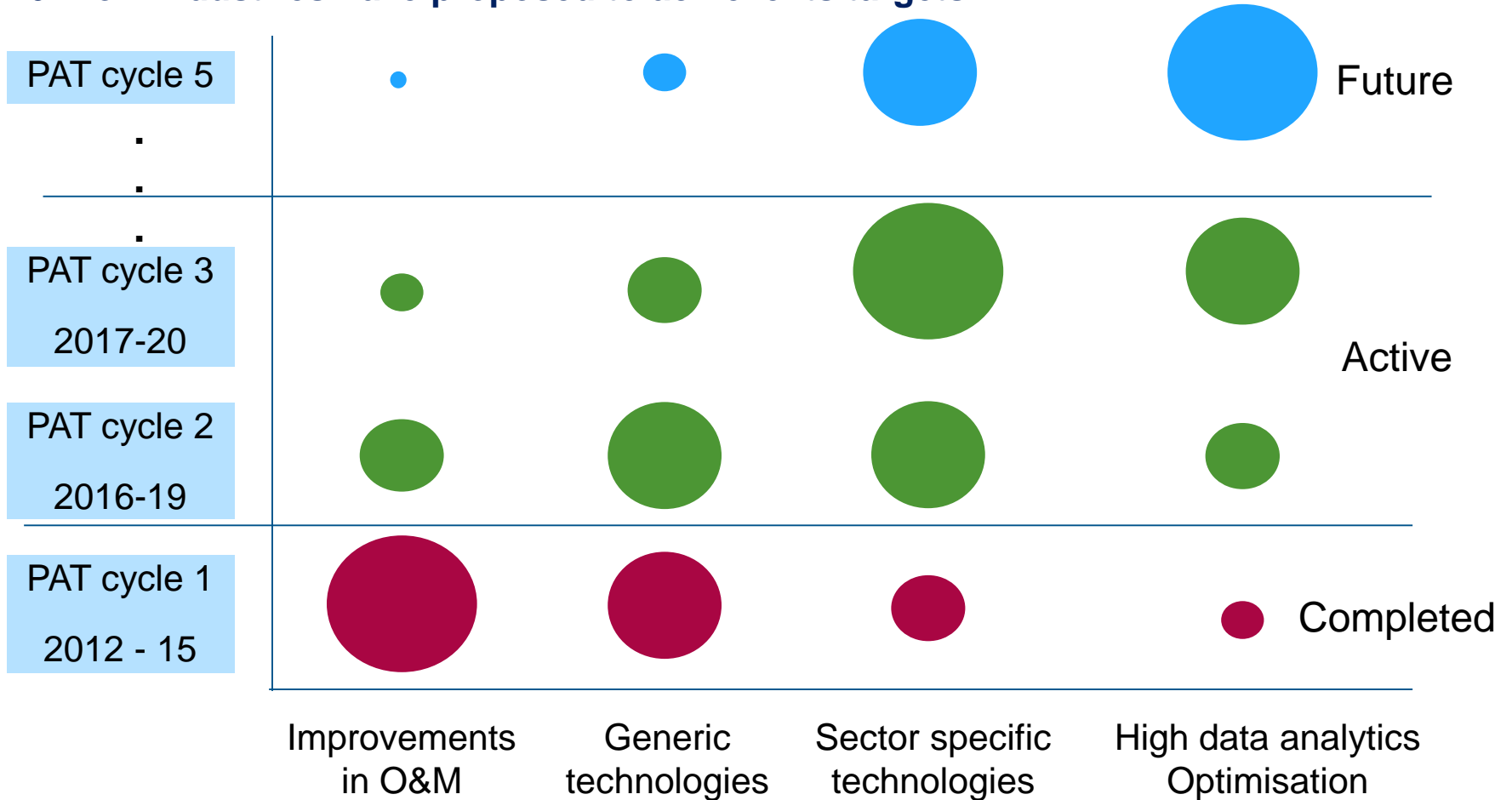
### Driving Factors for DCs for PAT Compliance



**Regulatory Compulsion & Good Action Plan (51% of DCs)**

# Critical review contd..

## 6. How industries have proposed to achieve its targets?



**Data analytics and optimization will play pertinent role in future**

Size of the bubble denotes saving potential and associated opportunities



## Results – Outcome of PAT cycle 1



There are **306 DCs** who have been cumulatively issued about **38.50 lakh** ESCerts in lieu of their excess energy saving against the targets and there are **110 DCs** that are cumulatively entitled to purchase about **14.50 lakh** ESCerts to meet their shortfall to meet energy saving targets.



### Energy Saving

**5635 MW**  
**8.67 mtoe**

**1.25% of**  
**India's**  
total primary  
energy supply



### Emission Reduction

**31 Million tonnes**  
of CO<sub>2</sub>

**1.93% of**  
**India's**  
total emissions



### Capacity building

**5000+** Engineers  
and operators

**13718** Energy  
Auditors &  
Managers  
**219**  
Accreditation



### Savings

Saved due to  
**energy**  
**consumption**

**Rs 9,500**  
**Crores**



### Investment

Encouraged  
investments for  
energy efficient  
technologies

**Rs 24,517**  
**Creore** invested

# Impacts of PAT Scheme

## Success

- Change in management outlook towards EE
- Proactive Investments in EE
- Technology Intervention
- Data Monitoring & Accounting
- Engagement of Certified Energy Auditors/Managers

## Concerns

- Scheme Administration and Facilitation
- Data Quality
- Complex target setting methodology
- Verifiers ( Quantity & Quality ), M&V
- Prediction of ESCerts Quantity & Price

## Way forward

- Support to India's INDC commitment
- India has notified targets for 2<sup>nd</sup> PAT Cycle in March 2016 (**11 Sectors, 621 DCs**) and 3<sup>rd</sup> PAT cycle in March 2017 (**116 DCs**)
- Energy Saving Target of **8.87 MTOE by 2018-19** and **1.06 MTOE by 2019-20**.
- Strong, yet Simplified M&V - Focus on measured data
- Promotion of ESCOs and Widening and Deepening of the Scheme

THANK YOU

