Perform Achieve & Trade (PAT) Scheme

Looking Back and Way Forward

New Delhi 26/02/2015
PAT Overview and Elements

- Covers 478 Designated Consumer (DCs) in 8 energy intensive industry and Gate to Gate boundary concept adopted.
- Energy consumption of these plants was about 1/3rd of the total energy consumed in India in the baseline year (2009-10).
- Large variations in energy intensities of different units in almost every sector
- **Key Goal**: Mandate Specific Energy Consumption improvement
- Energy Intensity reduction target for each unit based on its current efficiency in baseline (2009-10)
- Multi-cycle process – First PAT cycle till 2014-15
- Design based on extensive consultations over 2010-12

**HIGHLIGHTS**

### National Target of Energy Saving – All Sectors

<table>
<thead>
<tr>
<th>SNo</th>
<th>Sector</th>
<th>No. of Identified DCs</th>
<th>Annual Energy Consumption (Million toe)</th>
<th>Share Consumption (%)</th>
<th>Apportioned Energy Reduction For PAT Cycle-1 (Million toe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power (Thermal)</td>
<td>144</td>
<td>104.56</td>
<td>63.38%</td>
<td>3.211</td>
</tr>
<tr>
<td>2</td>
<td>Iron &amp; Steel</td>
<td>67</td>
<td>25.32</td>
<td>15.35%</td>
<td>1.486</td>
</tr>
<tr>
<td>3</td>
<td>Cement</td>
<td>85</td>
<td>15.01</td>
<td>9.10%</td>
<td>0.815</td>
</tr>
<tr>
<td>4</td>
<td>Aluminium</td>
<td>10</td>
<td>7.71</td>
<td>4.67%</td>
<td>0.456</td>
</tr>
<tr>
<td>5</td>
<td>Fertilizer</td>
<td>29</td>
<td>8.20</td>
<td>4.97%</td>
<td>0.478</td>
</tr>
<tr>
<td>6</td>
<td>Paper &amp; Pulp</td>
<td>31</td>
<td>2.09</td>
<td>1.27%</td>
<td>0.119</td>
</tr>
<tr>
<td>7</td>
<td>Textile</td>
<td>90</td>
<td>1.20</td>
<td>0.73%</td>
<td>0.066</td>
</tr>
<tr>
<td>8</td>
<td>Chlor- Alkali</td>
<td>22</td>
<td>0.88</td>
<td>0.53%</td>
<td>0.054</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>478</strong></td>
<td><strong>164.97</strong></td>
<td><strong>100.00%</strong></td>
<td><strong>6.686</strong></td>
</tr>
</tbody>
</table>

**Sectoral Share in Energy Saving Target (%) (2012-15)**

- Chlor- Alkali: 1%
- Textile: 1%
- Paper & Pulp: 7%
- Aluminium: 7%
- Fertilizer: 12%
- Cement: 22%
- Iron & Steel: 48%
- Power Plant: 2%

Reduction in India's CO2 emissions by 24 million tons / year in 2014-15.

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Total EE Projects planned in 2012-15: 2057
Total anticipated investment: Rs. 27300 Crore

The direct benefit for the participating industries in this period is reductions in input costs related to energy of approximately Rs. 6800 Crore.
### Development of Normalization Factors, Monitoring, Verification and Trading

| Development of new sector specific data Collection Form for Annual Energy Return with inbuilt SEC Calculation sheet | Development of Sector Specific Normalization Factors for  
- Capacity Utilization or PLF  
- Intermediary products  
- Product Mix  
- Power Mix  
- Fuel and Raw material Availability  
- Coal Quality  
- APC linked with PLF and Coal Quality  
- Sector Specific RM Quality  
- Environmental Concern  
- Natural Disaster & Unforeseen Circumstances  
  *(Normalisation factors developed for DCs)* |
<table>
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<tbody>
<tr>
<td><em>(Completed)</em></td>
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<tr>
<td>Market place for Energy efficiency Instruments</td>
<td></td>
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<tr>
<td><em>(Under Progress)</em></td>
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<tr>
<td>Finalization of the overall structure for issuance of Escerts</td>
<td></td>
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<tr>
<td><em>(Under progress)</em></td>
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</table>

### Mandatory Energy Audit and Identification of New DCs

| Making energy audit mandatory for DCs to identify the energy saving potential in the existing and new plants | Identification of new DCs in 8 sectors  
  *(Activities initiated)* |
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<tbody>
<tr>
<td><em>(Notified on 27th May, 2014)</em></td>
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</table>
Performance of DCs during 2013-14 (Unverified data)

The data is based on the Form-I submitted by DCs

► Does not include Normalisation Factor
► Based on Un-verified data

65% has achieved their target or shown better performance than their baseline performance and achieved Net Energy saving of 4.12 mtoe
Performance of TPPs during 2013-14 (Unverified data)

Major Reason for Low PLF
- Non-Availability of Fuel
- Schedule un-availability

Average PLF of DCs in TPPs for Baseline year & 2013-14 (As reported in Form I by DCs)

<table>
<thead>
<tr>
<th>Type of TPPs</th>
<th>Av PLF (BY 2009-10)</th>
<th>Av PLF 2013-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>81.79</td>
<td>76.71</td>
</tr>
<tr>
<td>Gas</td>
<td>72.56</td>
<td>51.83</td>
</tr>
<tr>
<td>Diesel</td>
<td>64.70</td>
<td>41.13</td>
</tr>
</tbody>
</table>

Overall deterioration of PLF from 80.59% to 74.9%
Way Forward

**Document Prepared**

- Sector Specific Pro-forma
- Normalisation Formulae & Document
- Monitoring and Verification (M&V) Guidelines
- Reporting Format for M&V (Verification Report)
- Check List

**Important Document for M&V**

- Accepted Baseline Audit Report (Available with BEE and DC)
- Form 1 & Sector Specific Pro-forma
- Form A,B,C,D as covered in PAT rules
- Normalisation Factors Document available with BEE
- Normalisation Guidelines Document available with BEE
- Check List to be used by all stakeholders
- Reporting Format for EmAEA

**Deepening**

- **Study Initiated-** Lowering Threshold Limit
  - Iron and Steel
  - Pulp & Paper

**Widening**

- **Study Initiated-**
  - Railways
  - Refinery
  - Discom

**Trading**

- Trading Regulation
- Trading Structure
- Depository Interlinking

**Study Initiated-** for New DCs in existing 8 sectors
A reliable monitoring, reporting and verification (M&V) system forms the backbone of assessment process of the PAT scheme.

The objective of the M&V system is to streamline the activities to be carried out for verifying the energy performance achieved by the Designated Consumer in the target year.

The Assessment of performance verification involves an independent evaluation of each activity undertaken by the DCs for compliance under PAT rules.

Verification plays a crucial role in maintaining the integrity of the scheme and ensuring transparent validation.