PERFORM, ACHIEVE AND TRADE (PAT)

Presentation By:
ARUN KUMAR
MINISTRY OF POWER
INDIA
NMEEE – FOUR NEW INITIATIVES

- Energy Intensive Industries
  - Targets for Mandatory Energy Saving

- Stimulate Funding for ESCOs

- Energy Efficient Appliances
  - BLY
  - SEEP
  - DSM

- Fiscal Instrument for EE
  - PRGF
  - VCF
  - Public Procurement
Perform, Achieve & Trade (PAT) Mechanism

- The market based mechanism to enhance the cost effectiveness in improving the Energy Efficiency in Energy Intensive industries through certification of energy saving which can be traded

**Stakeholders**

- **Administrator**
  - Set target and compliance period

- **Designated Consumers**

- **Auditing Agencies**
  - Independent
  - Monitor, verify and certify

- **Market Place**
  - Transaction of energy efficiency instrument

**Processes Involved**

- **Set Targets**
  - Setting targets on the basis of current specific energy consumption
  - Set compliance period
  - May take into account Location, Vintage, Technology, raw materials, product mix etc.

- **Monitoring & verification of targets by Accredited Energy Auditors (AEA)**
  - Check if designated consumer has achieved targets
  - Underachievement: Obligations to buy ESCerts or pay penalty
  - Overachievement: Issuance of ESCerts for banking for later use or trade

- **Trading of ESCerts**
  - Participation by Designated consumers on platform provided by Power Exchanges
  - Symmetrical flow of information

**Reward over achiever**

**Penalize under performer**
PAT Activity Flow Sheet

1. Getting Information Through Base Line Format
2. Data Compilation/Evaluation
3. Target Setting [Declaration of Base Year, Target Year]
4. Communication to Designated Consumer
5. Preparation Performance Assessment Document (PAD or Form A)
6. Communication to BEE and SDA
7. Verification of PAD through AEA (Form B)
8. Check Verification of PAD (Form C) through AEA & submission of compliance doc (Form D).

Baseline & Target Setting (based on last three years)

Issuance of ESCerts after successful M&V

Market for Trade
## Time lines

<table>
<thead>
<tr>
<th></th>
<th>Mandatory</th>
<th>Voluntary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submission of Form 1</td>
<td>Once in a year</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>30(^{th}) June</td>
<td>30(^{th}) June</td>
</tr>
<tr>
<td>Submission of Form A (Performance Assessment Document)</td>
<td>Once in 3 years</td>
<td>Before Compliance year</td>
</tr>
<tr>
<td></td>
<td>30(^{th}) June 2015</td>
<td>30(^{th}) June</td>
</tr>
<tr>
<td>Submission of Form B (Verification by AEA)</td>
<td>Once in 3 years</td>
<td>Before Compliance year</td>
</tr>
<tr>
<td></td>
<td>30(^{th}) June 2015</td>
<td>30(^{th}) June</td>
</tr>
<tr>
<td>Issuance of ESCerts</td>
<td>Once in 3 years</td>
<td>Before Compliance year</td>
</tr>
<tr>
<td></td>
<td>31(^{st}) Aug 2015</td>
<td>31(^{st}) Aug</td>
</tr>
<tr>
<td>Submission of Form D (Performance Compliance Document)</td>
<td>Once in 3 years</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>30(^{th}) Nov 2015</td>
<td>NA</td>
</tr>
</tbody>
</table>
PAT Scheme: Background & Scope

- Covers 478 designated consumers in 8 sectors

- All DCs consume about 165 million toe of energy

- Targets given to all DCs to achieve the same within a time frame
  - Achievement > Target $\longrightarrow$ ECScerts
  - Achievement < Target $\longrightarrow$ Purchase ECScerts / Penalty

- National Target = 6.6 million toe at the end of 1st PAT Cycle (by 2014-15)
Concept of Target, Compliance, ESCerts & Penalty

Scenario 1:
- Baseline SEC
- Target SEC
- Issued Escerts
- Achieved SEC
- Compliance
- Purchase Escerts

Scenario 2:
- Baseline SEC
- Target SEC
- Issued Escerts
- Achieved SEC
- Compliance
- Penalty
Trading of ESCerts
Baseline and Target

- Baseline Year: 2009-10
- Baseline Production ($P_{base}$): Avg. of 2007-8, 2008-9 & 2009-10
- Baseline SEC ($SEC_{base}$): Avg. of 2007-8, 2008-9 & 2009-10
- Baseline CU% ($CU_{base}$): Avg. of 2007-8, 2008-9 & 2009-10
- Target SEC ($SEC_{target}$): SEC as estimated in 2014-15
Covers units using about 165 million toe/year
- Gate-to-gate specific energy consumption, collectively, to be about 5.5% less in 2014-15 than it was in 2009-10
- Less efficient units have larger SEC %-reduction targets – so that the collective SEC reduction is 5.5%

Energy Savings Certificates (and penalties) would be based on difference between the achieved SEC & the target SEC and the base year.

Target is Plant Specific ….. Less for Energy Efficient & High for Energy Inefficient Plant
Estimation of Energy Saving (TOE) :

\[ P_{base} \left( SEC_{base} - SEC_{target} \right) \]

1 Energy Saving Certificate = 1 metric ton of oil equivalent
Example

- Baseline SEC: 10 toe/unit of production
- Baseline Production: 10000 units
- Target: 4% reduction in baseline SEC
- SEC at the end of 2014-15: 9.6 toe/unit of production (Target)
- ESCerts:
  - Case1 (Achieved SEC = 9.8): -2000 toe (Purchase)
  - Case2 (Achieved SEC = 9.4): +2000 toe (ESCs)
Advance ESCerts

- Baseline, SEC(b) = 10 toe/t
- Target, SEC (t) = 7 toe/t
- Achieved after year 1, SEC (a) = 8.5 toe/t
- Production = 10000t

**AFTER YEAR 1**

ESCerts =\[(SEC(b) – (SEC (b)– SEC (t))/3) – SEC(a)\] x 80% x prod
= \((10 - (10-7)/3) – 8.5)\) x 0.8 x 10000
= \((9-8.5)\) x 8000 = 4000 ESCerts

Revised Target = SEC(t) – (ESCerts/Prod)
= 7 – (4000/10000) = 6.6 toe/t
Value of ToE

\[ P = W_c \times P_c + W_o \times P_o + W_g \times P_g + W_e \times P_e \]

Where-

\( P \) = Price of one metric ton of oil equivalent (1toe);
\( P_c \) = Average price of delivered coal;
\( P_o \) = Price of fuel oil as declared by Indian Oil Cop. Ltd, MoPNG;
\( P_g \) = Price of gas as declared by GAIL, MoPNG;
\( P_e \) = Average price of electricity;

\( W_c \) = Amount of coal consumed across all DCs in the year (in toe);
\( W_o \) = Amount of oil consumed across all DCs in the year (in toe);
\( W_g \) = Amount of gas consumed across all DCs in the year (in toe);
\( W_e \) = Amount of electricity consumed across all DCs in the year (in toe);

The value of per metric ton of oil equivalent of energy consumed is

**Rupees 10154** for the year 2011-12
Market Design

- ESCerts are issued
  - When energy efficiency improvements surpass targets
  - $1 \text{ ToE} = 1 \text{ ESCert}$
  - Banking of ESCerts allowed during each cycle
    - $1^{\text{st}}$ cycle ESCerts to $2^{\text{nd}}$ cycle
    - $2^{\text{nd}}$ cycle ESCerts to $3^{\text{rd}}$ cycle
- Partial issuance of ESCerts allowed on Ex-ante basis to DC
Proposed Institutional Design
Schematic

MoP → BEE Market Regulator & Administrator

- Updated list of DCs and AEA
- Any Baselines Improvement
- Apply for Empanelment
- Energy Return
- Apply for ESCerts through Performance Assessment Document (Form A)

SDA → AEA

- Verified Result of DCs
- Regular updates
- Verification

AEA → Designated Consumers (DCs)

- Energy Return Form A Information
- Issue ESCerts

Central Registry

- Updated Obligation of DCs: Deficit or Surplus
- ESCerts
- Trading
- Updated ESCerts
- Account Info
- Settlement Details

Trading Exchange
THANK YOU