Controlling Emissions in India’s Electricity Sector

An analysis of options
Maybe, but limitations demand that choices need to be made – sometimes straight-forward, sometimes complicated.
Recognize limitations in the current “Command and Control” approach

- Probable reasons why the original deadline (Dec 2017) was missed:
  - Gencos past experience of weak enforcement and monitoring by MoEF&CC
  - Discoms inability to pass-through tariff increase due to ECT investments

- High-level of uncertainty about cost of compliance:
  - One-time costs CAPEX – for FGD alone in the range of 644 to 835 INR bn
  - Recurring costs OPEX – in the range of?

- Plant vintage and operating conditions (PLF) is an important consideration in incurring new investment

- Regulatory certainty (for cost approval and PLF) is an important consideration in attracting debt funding for new investment

Do we have time to deal with "What If Not" …. AGAIN?
Important Notes

• **Total emissions reductions are identical across all options**

• **Data capture & dissemination in a reliable and transparent manner** is a basic requirement for all options

• **Timely and independent audits of emissions inventory and accompanying financial books** is a key requirement for all options
Menu of Options

Option 1: Emissions Trading System (ETS)

Option 2: Emissions Portfolio Obligation (EPO)

Option 3: Emissions Reduction Surcharge (ERS)

No harm in revisiting strategies for course correction
Option 1: Emissions Trading System

- Design elements of the ETS
  - Emissions cap for all coal generators
  - Market for trading allowances
  - Emissions cap for each coal generator
- Newer, efficient, cheaper plants may install emissions control that go beyond standards set for them
- Older, inefficient, expensive plants may buy allowances from the market

- Gencos free to explore emission reduction strategies such as fuel substitution, ECT investment, buying allowances
- Emission reduction optimization across all plants – thus shall reduce total compliance costs
- Limited administrative ability of Gencos to optimize strategies and costs

Draw similarities and experiences from PAT Scheme of BEE
Option 2: Emissions Portfolio Obligation

- Design elements of the EPO
  - Emissions cap for all Discoms
  - Market for trading allowances
  - Emissions cap for each Discom
- Discoms with cleaner portfolios can go beyond cap set for them
- Discoms with dirtier portfolios may buy allowances from the market

- Discoms free to explore emission reduction strategies such as RE procurement, EE measures
- Emission reduction optimization across all power procurers – thus shall further reduce total compliance costs
- Limited administrative ability of Discoms to optimize strategies and costs

Draw similarities and experiences from RPO-REC framework
Option 3: Emissions Reduction Surcharge

- Design elements of the ERS
  - Emission "tax" or "surcharge" on all consumption – either flat-rate or progressive
  - Discoms collect surcharge and remit funds to third-party independent agency
  - Agency disburses funds to most-effective, low-cost emissions reduction proposal

- Consumers get more involved, since they pay an additive as surcharge meant for emissions reduction

- Freedom to explore broadest set of options
- Emission reduction optimization that goes beyond power sector interventions – thus shall further reduce total compliance costs
- Accountability of third-party agency will need to be enforced – including skill set of staff
- Governments may be tempted to re-assign collected funds for other objectives

Draw similarities and experiences from various cesses levied from time-to-time by central and state governments
Evaluation of Options

![Cost curve](#)

- Cost curve – 2022 Command—and-Control
- Cost curve - today

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<th>Cost of Compliance (INR/kWh)</th>
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Evaluation of Options

Choice to be based on Total Cost of Compliance
Evaluation of Options

Choice to be based on Total Cost of Compliance
Evaluation of Options

Choice to be based on Total Cost of Compliance

Cost curve - today

Cost curve: ERS

Electricity Generation (kWh)

Cost of Compliance (INR/kWh)
Options ordered in terms of increasing costs

ERS < EPO < ETS < C-and-C
About RAP

The Regulatory Assistance Project (RAP)® is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at raponline.org

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