



# Factors Influencing the uptake of Energy Efficiency Initiatives by Indian MSMEs

**Tirtha Biswas**

**Karthik Ganesan**

Sameeksha Platform Meeting, ITC Sonar  
Kolkata

23<sup>rd</sup> August 2018

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Energy Access



Renewables



Power Sector



Industrial Sustainability & Competitiveness



Low-Carbon Pathways



Risks & Adaptation



Technology, Finance, & Trade

# Motivation for the analysis

## *What are the factors influencing an enterprise owner's decision on energy conservation investments?*

Very few studies have identified the key drivers of energy efficiency investments from the perspective of an MSME enterprise

Sluggish growth between FY'07 and FY'14

- Contribution to GDP decreased from 7.73% to 7.04%

Among the 3 divisions, DC-MSME has the lowest budgetary spend during XII FYP

- 70% of budget expenditure unspent under TEQUP

Meagre budgetary support to survey, and research wing of the ministry

Decreasing state budgetary allocations to village and small scale industries

# Methodology



## Locations of

- Surveys conducted
- Interviews with clusters
- Interviews with MSME-DI and DICs centres

Source: CEEW compilation

Semi-structured interviews with experts from industrial associations, multilateral agencies, and research institutions

Semi-structured interviews with experts from various state and central government and PSUs

A survey to collect primary data on

- Operating status of MSMEs
- Issues identified in initial conversations

## A total of 429 responses were collected

State	District	Cluster Name	Industry Sector	Enterprise Surveyed
Gujarat	Morbi	Morbi ceramics	Glass and ceramics	51
Gujarat	Jamnagar	Jamnagar brass	Foundry and forging	49
Gujarat	Surat	Surat textile	Textile	30
Haryana	Jhajjar, Bahadurgarh	Haryana clay fired brick-making	Brick	39
Karnataka	Belgaum	Belgavi foundry	Foundry and forging	52
Odisha	Bargarh	Bargarh rice mills	Food processing	35
Punjab	Ludhiana	Ludhiana forging	Foundry and forging	50
Tamil Nadu	Tirupur	Tirupur dyeing	Textiles	24
Maharashtra	Nasik	Malegaon textile	Textiles	49
Uttar Pradesh	Varanasi	Varanasi brick	Brick	50

# Econometric analysis

Efforts to conserve energy were broadly categorised into three -

- Investments in energy audits
- Investments in energy efficiency equipment/ technology
- Investments in process modifications

Key variables chosen to characterise a unit were -

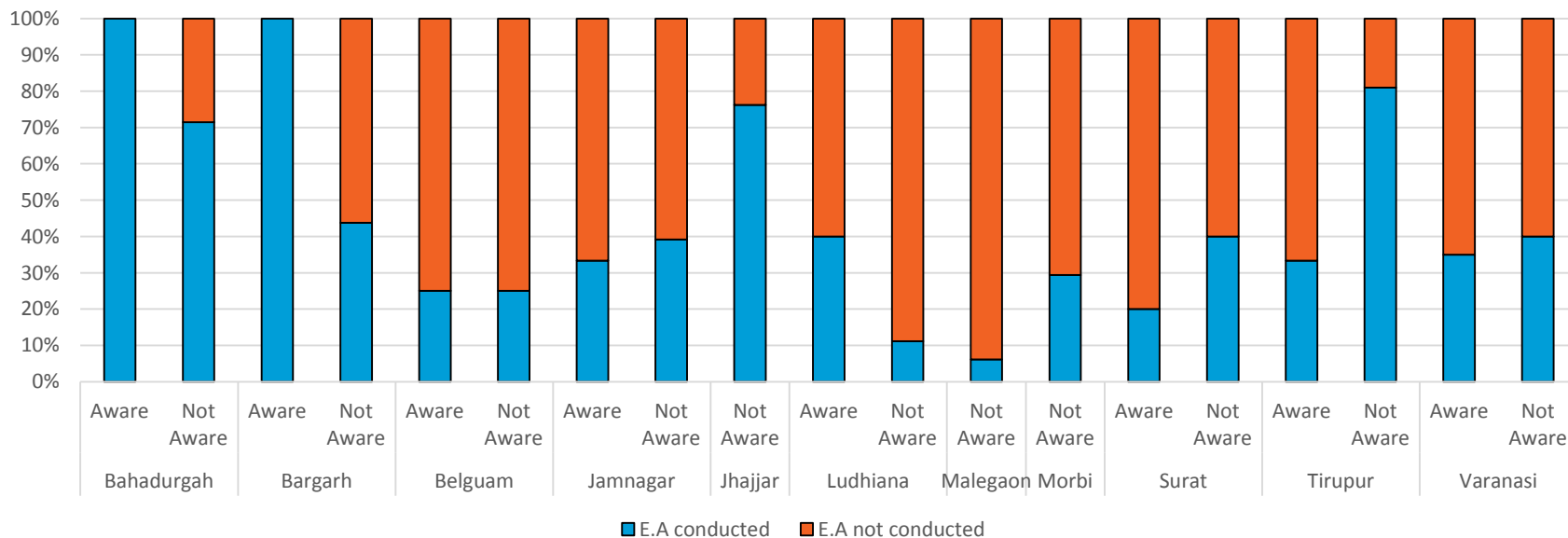
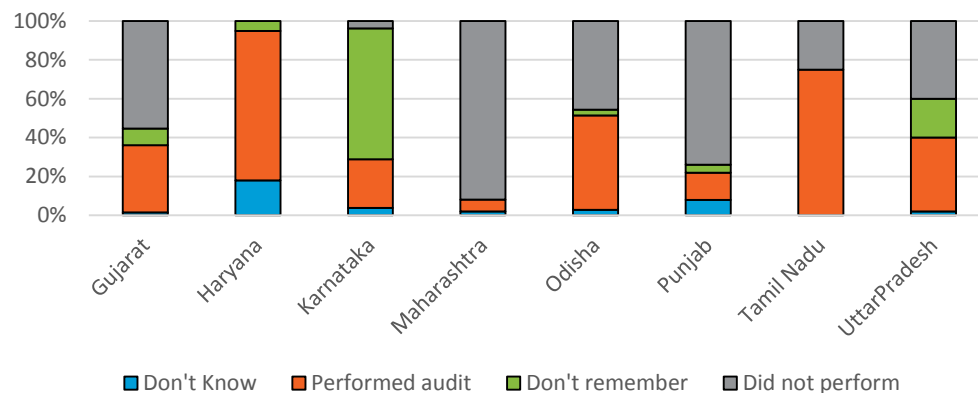
- Age of the enterprise\*\*\*
- Primary market competitors\*\*\*
- Average annual capacity utilisation
- Access to formal financing
- Presence of regulatory and client driven compliances
- Drivers for fuel selection – compliance/efficiency/cost
- Relative energy efficiency of the enterprise w.r.t to cluster mean\*\*\*
- Participation in workshops\*\*\*
- Awareness on EETs\*\*\*
- Awareness on TEQUP/Audit subsidies
- Primary source of information on EE decisions\*\*\*
- Level of energy monitoring\*\*\*

\*\*\* : Significant at 95% confidence intervals

# Key Takeaways

# Units carrying out an energy audit are more likely to have participated in an EE workshop

- 81% of enterprises never participated in a workshop
- State governments provide subsidies for energy audit from their respective Energy Conservation Fund

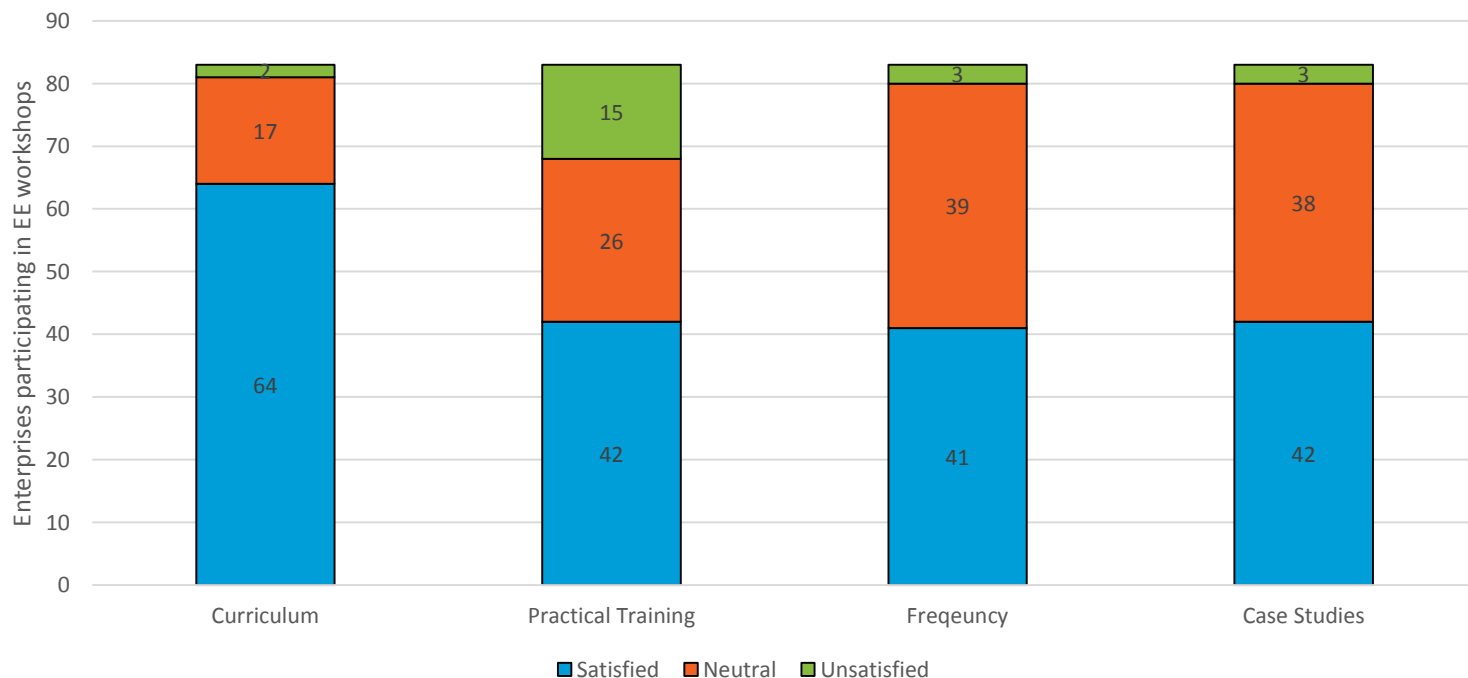


*Subsidies alone cannot drive the conduct of energy audits*



## Peers influence EE investment decisions – the experience shared by them increases the likelihood investment in EETs

- Only 45% enterprises are aware of EETs relevant to their sector
- Poor satisfaction levels ( 50% - practical training) in energy efficiency workshops

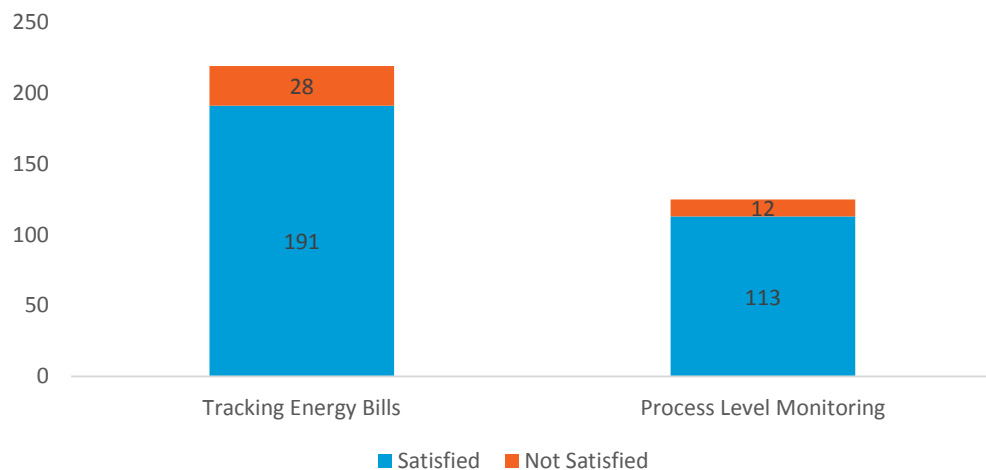


*Each cluster must have an EE ambassador who spreads awareness and increases acceptance*

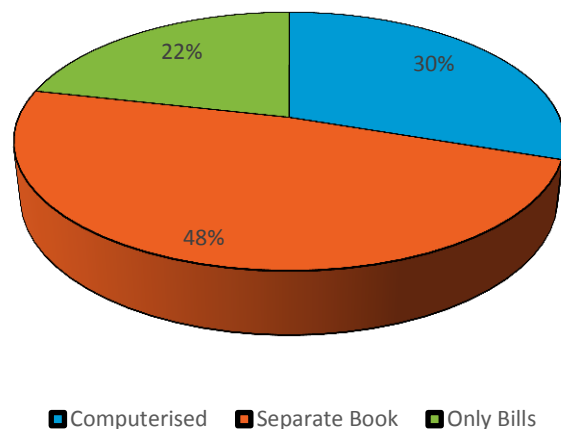
# Precise measurement of energy consumption increases the odds of investments in EETs

- 56% using energy bills vs 20% carrying out process level monitoring
- Majority (~80%) of enterprises who are tracking energy bills are satisfied
- 88% of enterprises are recording energy consumption data

Satisfaction levels with energy monitoring



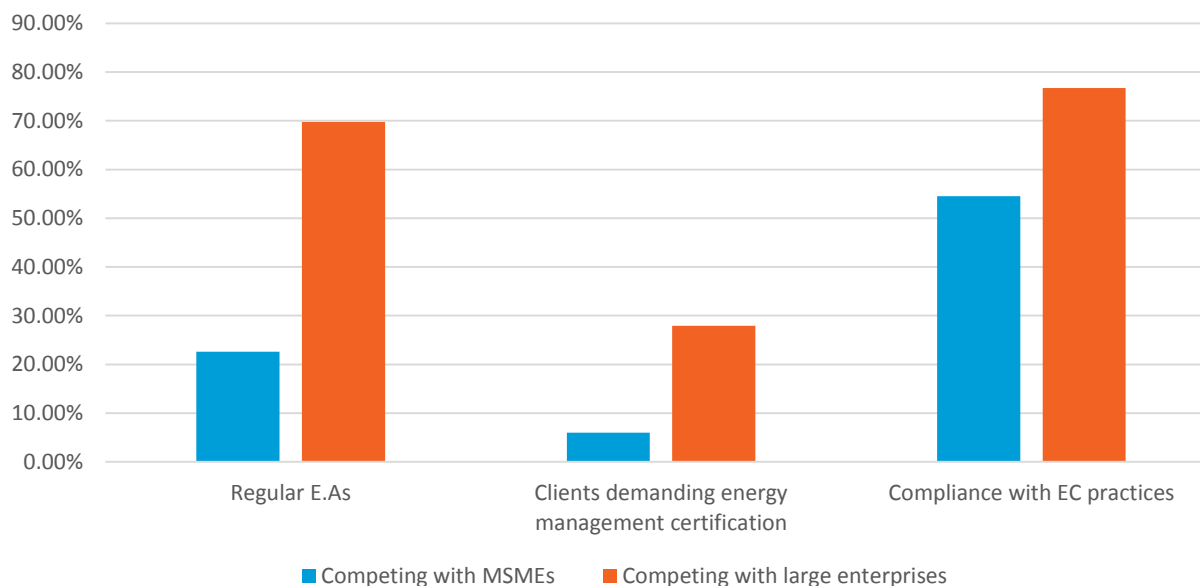
Types of records of energy data



*Potential for creating a nation-wide database of energy consumption in MSME sector*

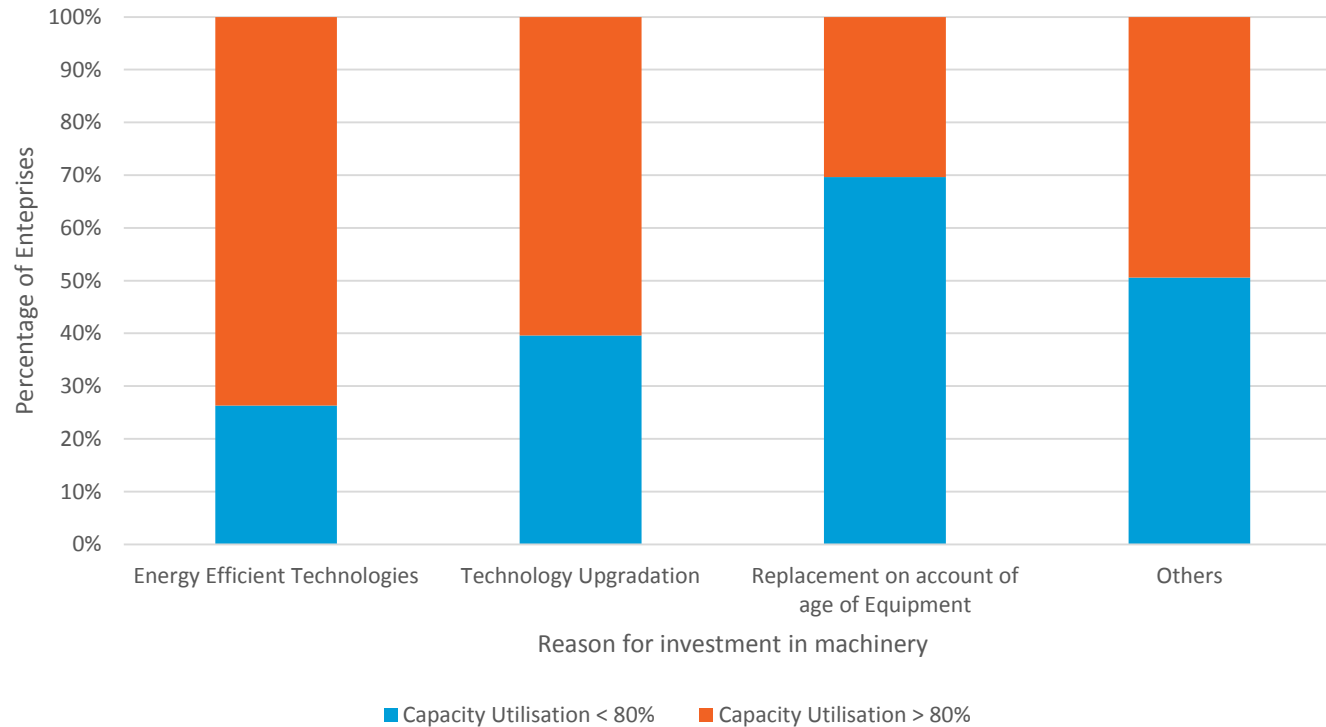
## Units competing with larger enterprises for the market, are more likely to carry out an audit and invest in EETs

- Better levels of awareness and perception on energy efficiency



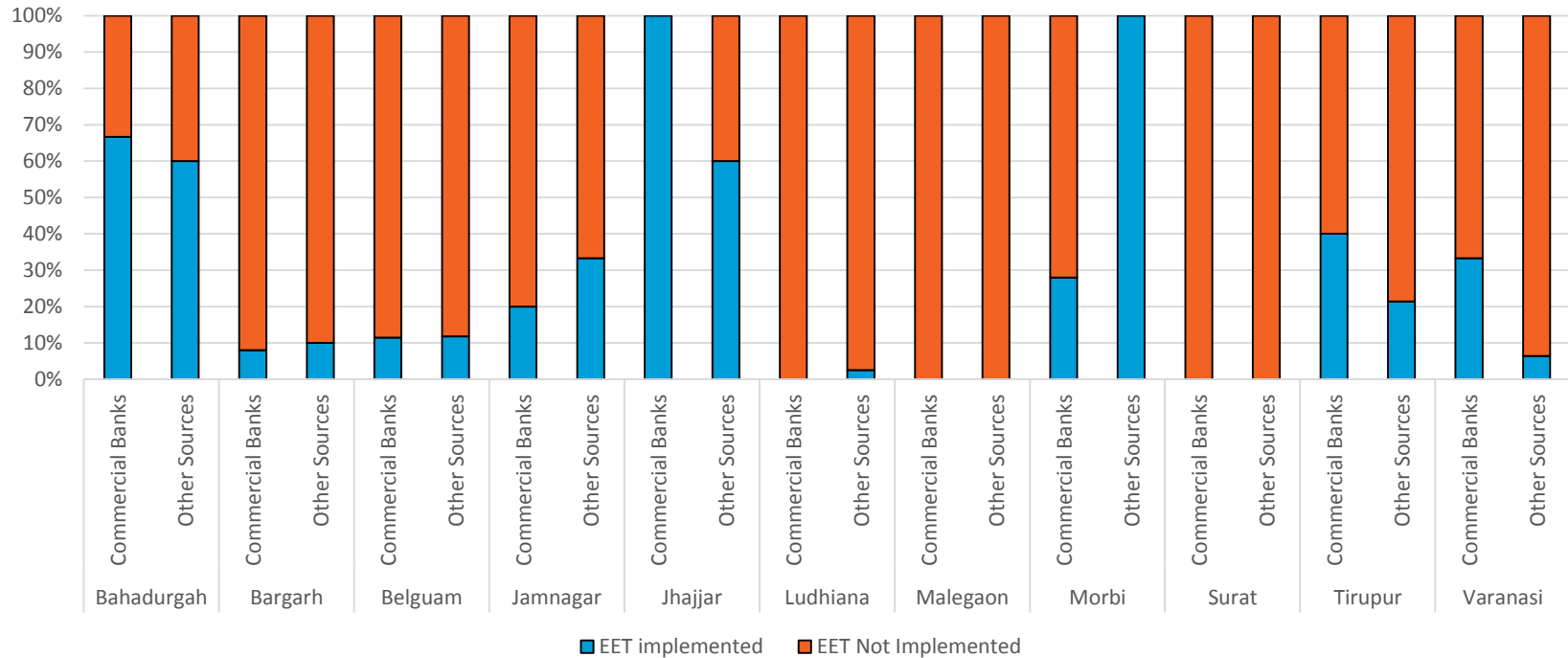
*Energy efficiency can be effectively driven through vendor chain linkages*

# Higher capacity utilisation is more likely to drive investments in energy conservation measures



*Targeting energy efficiency in clusters which see high capacity utilisation could result in better adoption*

# Access to formal financing does not influence the decision to invest in energy efficiency



Most of the investment in EE, using formal financing, is not sourced as an EE loan

- Only 1% enterprises reported using funds ear-marked for EE by lenders

*Financial Institutions must be incentivised to create more dedicated products for EE investing, and promote those who seek funds for EE investing*

# The Roadmap

## Dedicated platform for pilots and tech demonstration

- Linking tech developers, FIs, research agencies to enterprises
- Generation and dissemination of information on on-ground performance of EETs

## Benchmarking energy consumption

- Strengthening ministry's capacity to conduct surveys and research
- Voluntary disclosures of energy consumption by enterprises
- Targeted energy audit programs to assist creation of SECs

## Market mechanisms to drive down SECs

- MEPS
- *greening the supply chain*
- Innovative financing instruments

## Institutional reform and program implementation

- Strengthening the implementation linkages
- Setting of targets/KRAs/KPIs for bodies conducting EE trainings and workshops

**Thank you**

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