# GHG Mitigation Strategies - 2009

## Analysis of Electricity Demand Sector

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# Outline

- Introduction
  - Sector Background
  - Existing Policy Framework
- Mitigation Options
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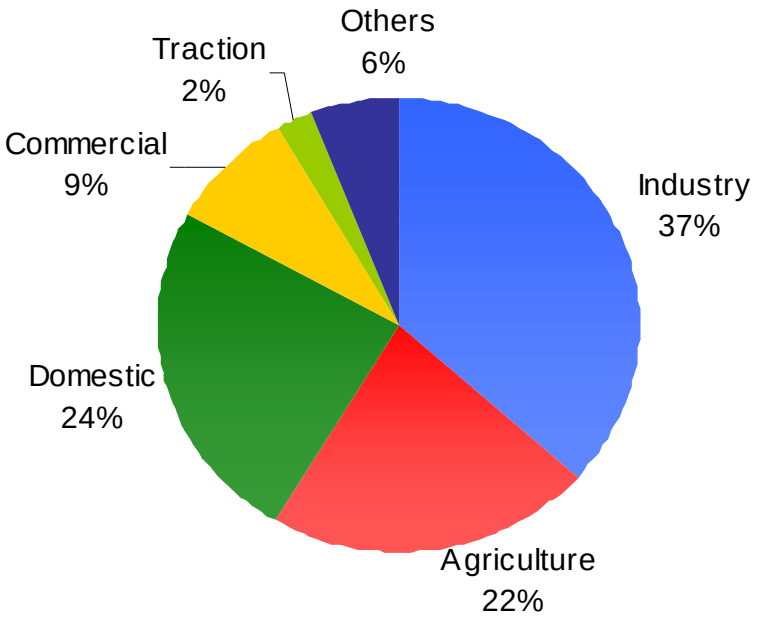
# Electricity Demand: Sector Background

- Facts:
  - Residential & commercial electric demand about 1/3 of the national demand
  - GHG emissions of the order of 184 MMT $CO_2e$
- Opportunity: Demand side management and energy efficiency
- Analysis: Electricity demand sector broken down in two sub categories:
  - Products & Equipments
  - Buildings (Residential & Commercial)

**Electric Demand Composition, FY 2005**



# Energy Demand: Existing Policy Framework

- Evolving Timeline of the Policies:
  - March 2002: Energy Conservation Act, 2001 established the Bureau of Energy Efficiency (BEE)
  - May 2006: Standards and Labelling Program for Products and Equipment by BEE
  - May 2007: Energy Conservation Building Codes for new large commercial buildings by BEE
  - Feb 2009: Recently launched Building Labelling program by BEE

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## Mitigation Options: Products and Equipments

- Short Term:
  - Inefficient appliances replaced by new energy efficient appliances

    Example: Replacement of old refrigerators with the efficient ones: Brazil case study
- Medium Term:
  - Technology and process upgrades in the manufacturing of products and equipment

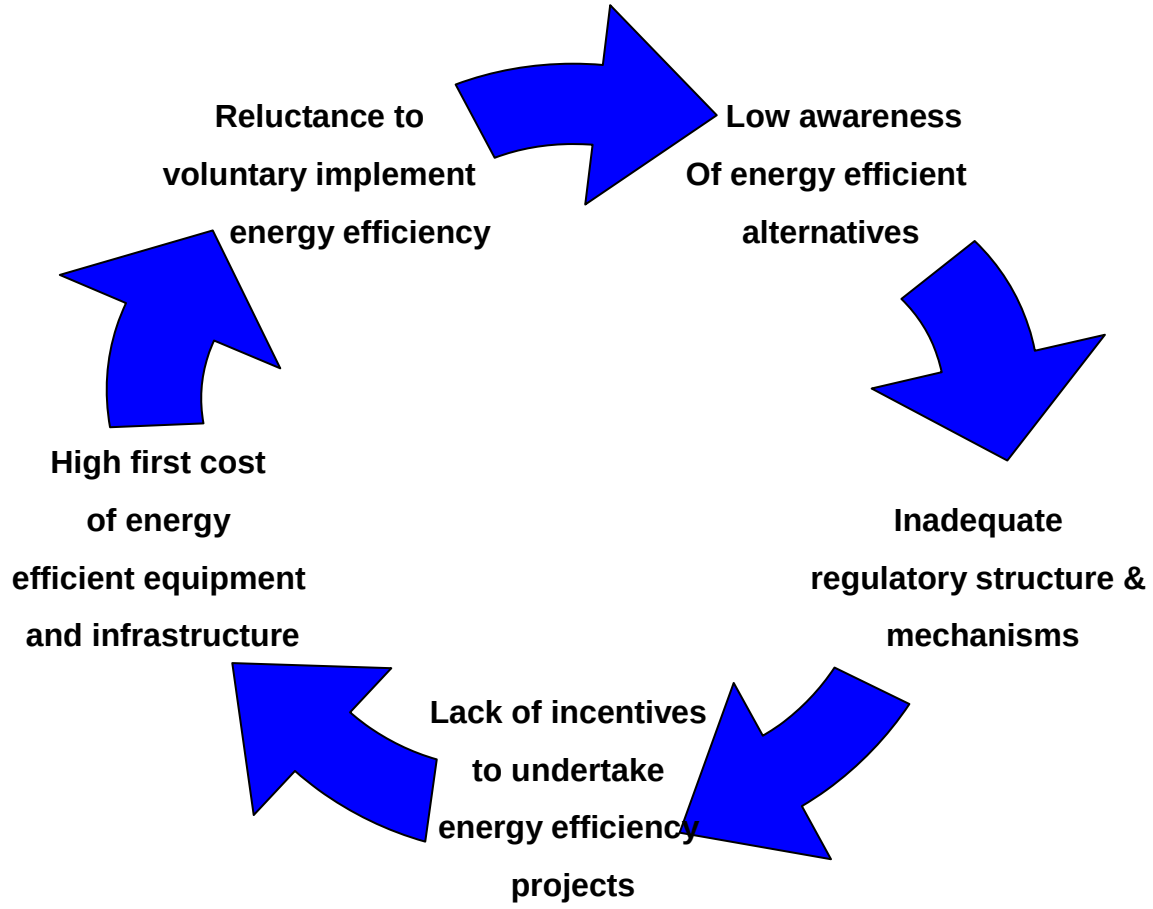
    Example: Change over to less GWP refrigerant
- Long Term:
  - Consumer awareness and campaign to maximize the reach

    Example: The Energy Star program of US EPA

# Mitigation Options: Buildings (Residential & Commercial)

- Short Term:
  - Set required baseline minimum efficiency for all buildings (code)
  - Nationwide audit and benchmarking
  - Low cost or no cost measures should be considered nationwide
- Medium Term:
  - Apply medium cost effective measures
  - Improved building construction and renovation techniques
  - Improved building maintenance and operations training
  - Bringing in improved and new building technologies
- Long Term:
  - Periodic upgrade of all baseline minimum efficiency requirements
  - Periodic upgrade in the above code programs
  - Include all measures that pass a life cycle cost effectiveness test, even if the first cost is significant

# Barriers to Mitigation Options:



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# Policy Options: Products & Equipments

| Policies/Time Period | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Standards & Labeling of Products & Equipments | | | | | | | | | | | | | |
| Tax & Duty Incentives for end use of efficient appliances | | | | | | | | | | | | | |
| Government procurement policy for efficient products | | | | | | | | | | | | | |
| Promotion of Energy Efficiency Research & Development | | | | | | | | | | | | | |

# Policy Options: Buildings

| Policies/Time Period | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Building Labeling for Existing Residential & Commercial Buildings | | | | | | | | | | | | | |
| Tax Incentives for owners or developers of energy-efficient buildings | | | | | | | | | | | | | |
| Building Energy Codes for Commercial Buildings | | | | | | | | | | | | | |
| Building Energy Codes for Residential Buildings | | | | | | | | | | | | | |
| Time Zones division across Nation | | | | | | | | | | | | | |

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# Conclusion

- The scope for energy efficiency in appliances, equipments & buildings is immense
- What can be gained?
  - reduce the energy supply / demand gap
  - bring emission reductions
- What is needed?
  - right mix of regulation,
  - sound policy structure and
  - properly laid out incentives to achieve real progress

# Points to ponder on:

- Incentives-Regulation Hybrid : Right mix of pull & push mechanism for implementation in Indian context?
- Energy Efficiency promotion: Dedicated Govt. fund vs. Market based trading approach?
- Demand Side Management: Option for Electric Utilities?
- Differentiated stringency for different Market Segments?
- Role of Industry Associations (viz FICCI, IGBC, Builders' Association of India, Manufacturers' Associations)

# Thank You!

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