Deep Decarbonization in Industries
what does it mean for India?

Joyashree Roy
Professor of Economics

Coordinator
Global Change Programme, Jadavpur University, Kolkata
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Energy Efficiency: Important Green Growth Criterion

Decomposition of energy demand - Indian manufacturing industries

Based on Annual Survey of Industries, India 1973-74 – 2010-11
# Behavioural Response

Inter-factor substitutability of inputs and own price elasticity of energy input

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<td>Own price elasticity of energy</td>
<td>-0.22</td>
<td>-0.60</td>
<td>-0.74</td>
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- ✓ Technological progress evolved to substitute energy input, especially by material inputs
- ✓ But, this along with a technological bias towards material input seeks attention
- ✓ Own price elasticity of energy input is negative with an increasing magnitude
- ✓ Price based intervention is expected to be effective to pull down the energy use further with far reaching implications towards reduction of emission as well.
Initiatives ranged from low to high cost

Source: IPCC 2014
What industries are doing?
Driving forces behind actions

- Cost Competitiveness
- Influence of policy
- Price consideration
- Consumer demand
- Exportability

Source: Chakraborty & Roy 2012
New Potential
Results from GCAM

Potential beyond energy intensive industries

Industries other than energy intensive industries covered under PAT – big role to play

Implications for power generation

Long run green growth in industry requires large scale electrification

Projected consumption of fuel use for electricity generation in India in 2050: comparison of Reference scenario and green growth policy scenario

Source: Dasgupta, Roy et al. (2015) Unpublished
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Thank you