

## Assessment of policy instruments for climate change mitigation in Indian electricity sector

Indian policymakers are confronted with commitments to decarbonise the electricity sector to achieve climate change mitigation targets. In this context, it is important to find cost effective policies to create suitable conditions for penetration of green technologies. Many model-based studies have been previously performed to study carbon emission trajectories for future scenarios. Previously performed studies analyse the effectiveness of carbon prices in achieving mitigation targets and none of them focuses on existing policies under implementation.

The study analyses the implications of implementing a market based policy regime against command and control policy options in electricity sector, which has the largest share in total emissions. This study takes a robust approach to create low carbon scenarios for power sector by analysing implications of regulatory and market based instruments while also accounting for operational constraints like ramp rates, minimum stable levels, partial load heat rates etc.

Our study aggregates currently installed coal, gas and nuclear plants along with wind and solar generation profiles of sites spread across all regions for creating reference energy system and new technologies database. As a part of this study, scenarios will be constructed to analyse implications of carbon taxes, plant retirements and emission targets on capacity mix, operations and cost of electricity.