

“The Future of India's Coal-Fired Power Generation Capacity”

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Executive Summary

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1. What is the question?

How much potential for growth in greenhouse gas emissions is there in the Indian power sector? Given the size and growth prospects of the Indian economy, the Indian power sector plays a key role in the global effort to mitigate climate change. Here, we use the January 2017 edition of the Coal Tracker database to understand the future prospects for Indian coal. Using lower and upper bounds for potential construction and capacity factors as well as lifespans of the plants in operating and proposed coal-fired power plants, we offer improved estimates of India's coal pipeline and future CO₂ emissions from coal-fired power plants.

2. What is the answer?

Our analysis shows that the single most important way to reduce these emissions is to reduce the average lifespan of plants, as neither falling capacity factors nor lower construction rates bring India's power sector in line with the goal of limiting global warming to two degrees Celsius. Our estimations indicate that reducing the lifespan of coal-fired plants from 40 to 30 years alone can decrease cumulative CO₂ emissions by approximately 12 gigatons, which is equivalent to saving 5.8% of the global carbon budgets for two degrees Celsius targets.

3. What does this mean for policy and practice?

The findings suggest that average expected lifetime of power plants is one of the most important factors determining a coal pipeline and future CO₂ emissions. Considering India's young coal-fired power generation fleet, reducing the average lifespan of plants is crucial to achieve tangible emission reductions in the short and medium runs. Simply halting the construction of new coal-fired power plants is not enough, and falling capacity factors can only bring the country to a certain point. The rest will require shutting down existing coal-fired power plants. In practice, if recent trends of rapid renewable energy expansion persist, capacity addition from renewable sources can satisfy the pace of growth in energy demand, presumably facilitating early retirements of coal-fired power plants.

4. About ISEP

The Initiative for Sustainable Energy Policy (ISEP) is an interdisciplinary research program that uses cutting-edge social and behavioral science to design, test, and implement better energy policies in emerging economies. Hosted at the Johns Hopkins School of Advanced International Studies (SAIS), ISEP identifies opportunities for policy reforms that allow emerging economies to achieve human development at minimal economic and environmental costs. The initiative pursues such opportunities both pro-actively, with continuous policy innovation and bold ideas, and by responding to policymakers' demands and needs in sustained engagement and dialogue.

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