

The Importance of the Water-Energy Nexus for Emerging Countries When Moving Towards Below 2 °C

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Chapter

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Abstract

The *Thirsty Energy* initiative of the World Bank assists countries to address water and energy planning challenges in an integrated manner. The first two Case Studies for South Africa and China have been completed. The approach to developing “water-smart” energy planning models was different in the two Case Studies, with key findings and important insights arising from each. The most fundamental conclusion from both studies is that policies being pursued to mitigate climate change impacts reduce both CO₂ emissions and water needs by the energy sector—with only modest increase in energy system cost, and that including the supply and cost of water has a dramatic effect on the upstream technology choices. For example, government mandated policies forcing dry cooling for new coal-fired power plants was reaffirmed as wise and appropriate, though at odds with achieving Nationally Determined Contributions (NDC) which quickly disincentivizes the use of coal while promoting renewables and nuclear, as a major step towards achieving below 2 °C emission reductions. Thirsty Energy also examined the influence of climate change on energy and water planning, where results for the two Case Studies proved to be very different, as water availability in China’s northern Energy Bases may actually increase slightly, while in South Africa the water system is stressed forcing more dramatic changes in the energy sector.

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