



Development of CO₂ capture technologies for coal-fired power plants in China: Idealized test challenges for China-specific conditions

Pingjiao Hao
NICE America Research, INC

Development of CO₂ capture technologies for coal-fired power plants in China: Idealized test challenges for China-specific conditions

Pingjiao HAO¹, Xiao LIU², Baodeng WANG², Qian CUI², Xinglei ZHAO², Bin XU¹, Surinder SINGH¹, Anthony Y KU^{1,2,*}

¹NICE America Research, 2091 Stierlin Ct, Mountain View, CA 94043

²National Institute of Clean-and-Low-Carbon Energy, P. O. Box 001, Future Science & Technology City, Changping District Beijing 102209, P. R. China

* Corresponding author: anthonyku@nicenergy.com

Abstract

There are important differences in the operation of power plants in China that affect the performance and economics of post-combustion CO₂ capture systems relative to other parts of the world. These include the possibility of lower capture rate requirements, salient differences in the installed power plant infrastructure, and flexible operation in the forms of reduced capacity factors and load-following. This paper quantifies these China-specific conditions that CO₂ capture technologies will encounter at coal-fired power plants in China and proposes a suite of idealized test challenges that can be used to supplement testing of candidate technologies during the pilot stage. Data from these challenges can be used to improve accuracy in estimates of operational performance, robustness, and economic potential and also provide early insight into technology development needs.

Keywords

