

The building sector plays a crucial role in the worldwide shift toward achieving net-zero emissions. Building energy efficiency standards (BEESs) are highly effective policies for reducing carbon emissions. Therefore, exploring the provincial variations in carbon emission efficiency (CEE) in the building sector and identifying the effect of BEESs on CEE is crucial. This study focuses on commercial buildings in China and applies a difference in differences model to evaluate the impact of BEESs on the CEE of commercial buildings. The slacks-based measure–data envelopment analysis model is employed to assess the CEE of commercial buildings in 30 Chinese provinces from 2000 to 2019. Furthermore, heterogeneous tests are used to explore how climate characteristics and economic conditions affect the efficiency of BEESs. The results indicate that BEESs positively influence the CEE of commercial buildings. Specifically, a 1% increase in the intensity of BEESs causes a 0.148 4% increase in the CEE of commercial buildings. Moreover, the impact of BEESs is particularly pronounced in the southern and western provinces. This study provides valuable scientific evidence for governments to enhance BEESs implementation.