

The Energy Impacts of Green Remodeling: Evidence from the Building Sector

Sangwoo Han, Yeong Jae Kim

KDI School of Public Policy and Management, Sejong, Korea, Republic of

Extended Abstract

[Download file](#)

Abstract Summary

We examine the impact of the Green Remodeling Program on the energy consumption of public buildings in South Korea. Using monthly building-level utility data, we find that participation in the Green Remodeling Program reduces energy use on average by roughly 8–15% for electricity and 5–8% for gas, with savings that emerge gradually and persist over the post-retrofit period despite modest rebound effects in some facility types. Effects are heterogeneous: savings are most consistently observed for daycare centers, and the largest, most precisely estimated reductions are concentrated in envelope upgrades and on-site generation, with complete envelope retrofit packages delivering the biggest reductions across both fuels. These results imply that we can improve the cost-effectiveness of public-building decarbonization by prioritizing deep, bundled envelope retrofits, tailoring guidance and targeting by facility type, and strengthening post-retrofit commissioning and multi-year measurement and verification so that subsidies are tied to realized performance rather than installed measures. More broadly, our results inform the policy debate on whether publicly supported building retrofit programs can effectively reduce energy demand and support climate mitigation.