

## China

# National Energy Efficient Retrofit Programme in Northern Heating Areas

### OBJECTIVE

The primary objective of the National Energy Efficient Retrofit Programme is to enhance the energy efficiency of buildings in China's northern heating regions. The policy focuses on improving the thermal performance of residential buildings built before 2000, where the heating season extends from November to March. The programme aims to reduce energy consumption and reliance on fossil fuels and increase comfort for residents by upgrading insulation, heating systems, and windows.

### COUNTRY

China,  
2008-ongoing

### SECTOR AND APPROACH

Buildings; Regulation and Incentive

### SOURCE

[National Energy Efficient Retrofit Programme in Northern Heating Areas](#)

### DESCRIPTION

The National Energy Efficient Retrofit Programme focuses on improving the energy performance of residential buildings in China's northern heating zones, where heating is essential during the winter months. It began as a [pilot programme](#) in 2008 and was later expanded as part of the 11th Five-Year Plan in 2011. These policies laid the foundation for the 2017 [Clean Winter Heating Plan](#). The programme targets older buildings built before 2000, particularly in urban areas. The renovation measures include improving insulation in walls and roofs, upgrading windows and doors, modernising heating systems, and installing individual heat meters for more efficient energy use. The government plays a central role in funding and overseeing the project, while property owners are required to approve and participate in the renovations. Stakeholders involved include local governments, property owners, construction companies, and technology providers.

### UNIQUE ASPECTS OF THE PROGRAMME

This programme is notable because it targets a large-scale, long-term transformation of residential buildings in one of China's coldest regions. The unique aspect of the programme is its combination of government-led initiative with significant participation from property owners. The need for property owners to approve and participate in retrofitting projects, such as the installation of individual heat meters, guarantees active engagement from local communities. This model is particularly relevant for policymakers in other regions with older housing stocks and severe heating needs.

## RESULTS

The programme retrofitted approximately 1 billion m<sup>2</sup> of residential buildings, focusing on heat supply metering and energy conservation, and an additional 339 million m<sup>2</sup> of residential buildings underwent energy-saving retrofits. [By the end of 2015](#), a total of 990 million m<sup>2</sup> of existing residential buildings in northern heating regions had undergone heat metering and energy-efficiency retrofitting, 1.4 times the target set by the State Council and benefiting more than 15 million households. The comfort levels of aging residential buildings have significantly improved, and approximately 6.5 million tonnes of standard coal are saved annually.

## LESSONS LEARNED

Challenges encountered include financial difficulties for some property owners, reluctance to engage with the renovation projects, and logistical issues related to coordinating large-scale retrofits across multiple properties. Lessons learned emphasise the need for stronger collaboration between government bodies, construction firms, and residents to ensure the programme's success.

## ALIGNMENT WITH REGULATORY AND POLICY FRAMEWORKS

The retrofit programme complements China's broader energy efficiency and carbon reduction strategies, which include policies aiming to modernise the energy sector and reduce emissions. The programme works in tandem with other initiatives, such as the [national building energy efficiency standards](#) and the [green building development policies](#), which encourage energy-saving technologies and practices. The retrofit programme is an integral part of [China's climate action plan](#), aligning with its long-term goals for sustainability and energy transition.

## IMPLEMENTATION AND ENFORCEMENT

The implementation of the policy is managed through a top-down approach, with both central and local governments overseeing the process. Financial incentives are provided through subsidies, and local authorities are responsible for ensuring the renovations meet prescribed energy performance standards. Monitoring and enforcement mechanisms are in place to ensure compliance, with penalties for non-adherence to the renovation plans. Additionally, evaluations of the policy's effectiveness are conducted periodically to assess energy savings and identify areas for improvement.