

에너지 빈곤층을 위한 집수리 정책 개선 방안

Enhancing Home Renovation Policies for the Energy-Poor Households

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SUMMARY

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Chapter 1 Introduction

Recently, electricity and gas prices have been rising due to the rapid increase in the cost of fossil fuels and renewable energy supplies worldwide and the implementation of various climate crisis response policies. In South Korea, heating costs skyrocketed due to the unprecedented cold wave in the winter of late 2022 and 2023, along with the increase in electricity and gas prices. In response, temporary support policies were announced to ease the cost burden of the energy-poor. However, providing in-kind and cash subsidies for the impact of energy price increases is limited in effectiveness. It does not ultimately solve the problem of energy inefficiency in residential environments.

In order to improve the energy welfare of people sensitive to energy prices, such as low-income households, it is necessary to combine in-kind and cash support with solutions to physical inefficiencies in home energy, such as home renovation projects and heating improvements. Home renovation projects aimed at improving the living conditions of low-income people have been promoted in various forms by various ministries for a long time. However, since these projects were established for different purposes, they may need to be more sufficient to ensure a comfortable life through

proper energy use if there is no energy-related content among the support items. Therefore, it is necessary to comprehensively analyze home renovation policies and prepare policy improvement measures by focusing on the energy-poor and their quality of life in the energy sector to improve the living environment of low-income people. Therefore, this study aims to prepare a plan to improve home renovation policies so that the energy-poor can use efficient energy while securing a full quality of life.

Chapter 2 Status of the Energy-Poor and Need for Home Renovation Support

After examining the academic and policy definitions of the energy-poor in South Korea and reviewing domestic and international indicators, the definition and indicator setting of the energy-poor has been studied and developed for a long time. However, there are still advantages and disadvantages of each. This study, which focuses on the energy-poor, suggests a need to reflect further on home energy efficiency in the selection process of energy welfare recipients. This is to compensate for the limitations of the existing indicators, which are composed of income and energy costs and do not reflect the complex bibliography of energy poverty. In other words, there is a need for integrated criteria that are complemented by building characteristics such as building energy efficiency and energy consumption per unit area. In addition, considering the various levels of energy poverty, it is necessary to set standards for the minimum performance of home energy and then subdivide standards accordingly.

A 17-member expert advisory group from the general energy welfare sector and the home renovation sector was formed to hear about the current state of policy support for the energy-poor and the need for home support, and it was found that the energy-poor are in poor economic, physical, and social conditions. As energy costs are expected to increase due to climate change, this needs to be addressed fundamentally, and governments should approach the right to energy as a social safety net. Supporting home renovations for the energy-poor has a lasting effect, not a temporary one, and can be achieved with less energy. It also has positive implications for the country's energy-saving and carbon-reduction policies.

According to an online survey of 1,156 citizens on their experiences and perceptions of home renovation projects by income(over the third quintile/the third quintile or below) and housing tenure(owning/renting), there is a significant difference in housing tenure

based on renting/owning rather than income. In terms of winter energy use, households in the third quintile were more likely to use low-efficiency heating equipment and less likely to use heating appliances than other households. Meanwhile, the impact of the spike in heating costs between December 2022 and February 2023 varied by income and housing occupancy. Overall, we can see that the burden of heating bills intensified after the spike, especially for those renting in the lowest income quintile. The most significant proportion of households that reported 'rarely heating' were renting in the lowest quintile and owning in the lowest quintile. Regarding summer energy use, we found that higher incomes were associated with higher cooling expenditures. As winter heating and summer electricity bills are expected to increase, these findings should be considered when designing policies for low-income households. Regarding experience and perceptions of home renovation projects, we found that renting households are more likely to fall through the cracks if home repair support is focused on owner-occupied households. In addition, renting households in the third quintile and below are limited in their ability to carry out home renovations themselves due to practical burdens, and the availability of government benefits affects their experience with home renovation.

Regarding green remodeling benefits and willingness to support specific policies, renter households are generally more likely than owner-occupied households to see the need for green remodeling based on home occupancy rather than income. Among the various policies for expanding green remodeling, all household types were most interested in monetary support, such as "government support for partial construction costs" and "tax reductions such as acquisition, property, and transaction taxes." On the other hand, "low-interest loans for construction costs" was the least favorable. In addition, the higher the income, the higher the willingness to participate in green remodeling policies. Those renting in the third quintile or below, owner-occupied households in the third quintile or below, and those renting in over the third quintile cited "too much construction cost" as the most likely reason for not participating. This suggests that participation may increase if the burden of construction costs is partially resolved. While there is a high preference for direct financial support for construction costs, if it is not feasible for the government to fund construction costs directly, a zero-interest loan for the entire loan amount could be an alternative. In addition, it was found that to expand green remodeling in the future, it is necessary to provide detailed guidance on construction costs, ways to reduce inconvenience during construction, and expected effects.

Chapter 3 Overseas Home Renovation Assistance Policies and Programs for the Energy-Poor

☐ Overseas Home renovation support policy for the energy-poor

The U.S. Weatherization Assistance Program (WAP) provides low-income households with home renovations, insulation assistance, better insulation materials, and better lighting. The average cost of assistance per household is \$4,695, and the average annual energy savings is \$372.

The UK's Energy Supplier Obligation (ECO) policy, funded through a surcharge on consumption taxes, required large energy suppliers to improve the energy efficiency of homes to reduce carbon emissions and energy bills, thereby tackling fuel poverty. Assistance includes insulation measures such as loft and double insulation, internal wall insulation, and ceiling insulation, and physical devices such as electric storage heaters, intelligent heating controls, provision of condensing boilers, air source heat pumps, and solar panels. The average amount of household support is around £4,300 per measure.

France's 0% Eco Loan provides interest-free loans to finance energy-saving projects in older buildings built before 1990 and is available for individual units and buildings with multiple owners. In addition, the Energy Renovation Support Policy (MaPrimeRénov) supports insulation, heating, ventilation, or energy efficiency renovations for private or shared housing. Eligibility is based on income tax and includes high-income earners. Benefit amounts vary depending on income but are available to homeowners and multi-family households.

☐ Regulatory policies with minimum energy performance standards

The Energy Performance Certificate (EPC) is a regulatory policy utilizing energy efficiency ratings to provide information about a building's energy use and costs, including its Energy Efficiency Rating (EER), energy efficiency recommendations, and potential savings. An EPC is required to build, sell, or lease a building, and it measures the energy efficiency of a building and provides energy efficiency information to buyers and tenants. The energy efficiency rating included in an EPC is a measure of a building's overall energy efficiency, categorizing buildings on an A to G (lowest) scale based on the building's performance and fixed services (heating and lighting).

In the UK, legislation has recently come into force requiring private homes with an F or G rating to achieve an E rating and banning the rental of buildings with an E rating or

lower. New rentals must achieve a C rating by 2025 and existing rentals by 2028. The UK government hopes all homes achieve a C rating by 2035.

As of 2021, rent cannot be increased in France when re-letting an F or G-rated home. Previously, owners could ask for a financial contribution from tenants when carrying out energy retrofits to save money. However, from 2021, they can only ask for money if the retrofit results in an energy-efficient rating. In addition, in 2022, a regulation will come into effect that will make it mandatory to attach the energy performance certificate of a house when selling or renting it. In addition, real estate sales and rental advertisements will be required to state the energy consumption of a building, regardless of its energy rating, with fines and imprisonment for non-compliance. In 2023, legislation came into effect that prohibits renting out G-rated homes, meaning that renters will be able to legally force their landlords to make energy efficiency improvements if their home is rated G from 2023. However, the backlash to this is that landlords may favor short-term rentals like Airbnb, so the plan is to ban Airbnb short-term rentals as well. Thus, in 2025, all G-rating homes will be affected by the rental ban, followed by F-rating homes in 2028 and E-rating homes in 2034.

In Belgium, housing regulation policies vary by local government. In Brussels, each building must have a minimum energy efficiency rating of C by 2050, and all buildings must have an energy performance certificate (PEB: Performance énergétique des bâtiments). Starting in 2030, building owners must select measures every five years to achieve a C rating by 2050. It also introduced a new subsidy scheme, the Renolution policy, which combines energy subsidies with subsidies for home renovations and facade improvements, starting in 2022. It applies to all buildings located in Brussels that are more than ten years old, and the subsidies and building renovation support can vary according to income and household.

In the Flanders region, landlords of poorly insulated homes can only raise rents if energy efficiency is achieved. Homes with energy efficiency certificates E and F are banned from rent indexation for at least one year. D-rated properties will increase rents, and A, B partially, and C-rated properties will be able to increase rents at the landlord's option in line with inflation. Since 2009, all properties have been required to have an EPC rating, and without an energy efficiency certification, there can be no indexation.

The following are some international policies and programs that can be applied to South Korea. First, France's 0% Eco Loan provides interest-free loans for energy-saving projects in old buildings built before 1990. In South Korea, more than the current loan interest subsidy of 5% is needed to encourage the energy-poor to participate. Therefore, increasing the percentage of loan interest support for near-poverty households below is

necessary.

Second, the average support cost per household in major overseas countries is about 5 to 6 million won, which is enough for comprehensive construction to improve home energy efficiency. It has been pointed out that more than the current support amount in South Korea is needed to improve energy efficiency, and it is necessary to increase the upper limit of the support amount.

Third, a rating system has been established for buildings with low energy efficiency, and achieving the minimum rating or higher is mandatory. Homes for sale and long-term and short-term rentals were categorized by grade, and specific deadlines were set. It also complementarily regulates that rent can only be increased if the minimum rating is achieved. The energy-poor live in poor rental housing. However, it is difficult for them to request improvements, so in the long run, it is necessary to establish minimum energy performance standards to maintain a minimum quality of life in South Korea.

Chapter 4 Status and Limitations of Home Renovation Policies in South Korea

Based on a comprehensive examination of the current status, performance, and limitations of home renovation policy projects in South Korea through literature review and field visits, the improvement needs, policy improvement measures, and implications are as follows.

☐ Energy Efficiency Improvement Project

As for the eligibility criteria, the current system is based on income level, which means that low-income and energy-poor people who do not fall into the recipient of national basic livelihood guarantees and secondary categories are left out. To improve the policy, it is necessary to systematize the selection process and establish priority selection criteria. It is necessary to diversify the selection criteria according to economic conditions, housing type and condition, available energy sources, geographical (inverse) characteristics, and residential occupancy type.

In addition, organizations that carry out projects related to the selection method rely on local governments to identify and verify applicants without receiving the applicants' resident registration data. As a result, there is a risk that the verification of eligibility depends on the competence of local government officials. As a policy improvement

measure, it is necessary to establish a comprehensive system, such as a database of home renovation support projects, and utilize recipient information through the Social Security Information system (행복e음망).

As for the amount and content of support, the current support amount is limited to partial insulation and window replacement. With limited support, low-income residents cannot repair enough to create a comfortable situation. As a policy improvement measure, increasing the maximum support per household is necessary to improve the quality of home renovation construction.

In terms of support methods, indirect project management is causing problems with poor management of contractors and construction quality. Since contractors are selected annually, it is possible that even if a construction company gains expertise, it may be eliminated in the next year, depending on the selection criteria and points. In addition, the search and selection of candidates is carried out at the beginning of the year, and the actual construction is concentrated in July and August to meet the end of the contract in late October. Considering that the construction schedule is tight and most contractors are small and medium-sized, it takes work to ensure the quality of construction. As a policy improvement measure, it is necessary to strengthen the role of intermediate support organizations and extend the minimum contract period for contractors or operate them as certified companies.

As an implication, as a representative energy efficiency improvement program focusing on improving the energy efficiency of vulnerable groups, it is the most systematized among energy efficiency improvement projects for vulnerable groups.

□ Renovation of Living Conditions in Vulnerable Areas Project

Regarding the amount of support, most households living in rural or urban vulnerable areas are elderly, and the 50% self-funding ratio works as a disincentive for residents to participate. In addition, the maximum amount of support per household is set, which makes it difficult for households to make necessary remodeling changes despite their different living conditions. To improve the policy, it is necessary to lower the self-funding rate. In the case of cities, it is necessary to expand the linkage with the public-private partnership project, which has a low self-funding rate of about 10%. In addition, it is necessary to consider actively attracting corporate sponsorships to lower the self-funding rate.

In addition, the support is limited to home renovations such as windows and wall insulation, and facilities such as water heating panels and LED lights cannot be supported. As a policy improvement measure, increasing the maximum support per

household is necessary to improve the quality of home renovation construction. In addition, it is necessary to add support for green remodeling-related facilities such as water heating panels and LED lights to the scope of support.

Regarding the support method, it is currently understood that there needs to be more follow-up after applying for defective construction. As a policy improvement measure, it is necessary to expand the role of intermediate support organizations and strengthen their capabilities for systematic management and consulting support.

As an implication, supporting customized packages that meet the needs of residents improves the overall living environment of villages. However, it is possible to renovate the house only if the project is first selected through a public offering.

☐ Home renovation project to regenerate old low-rise residences in urban regeneration project

Regarding the amount of support, the vulnerable (low-income, disabled, etc.) are burdened with out-of-pocket expenses. To improve the policy, exemptions from self-payment are needed for vulnerable people.

In addition, there are limitations in creating a practical residential environment for energy efficiency improvement by supporting only the exterior renovation costs of buildings. To improve the policy, it is necessary to expand the contents of green remodeling, such as windows and wall insulation, to support items.

As an implication, this project promotes home repairs in various types of urban regeneration projects and is the most useful in terms of support targets, support amounts, and contents. However, it can only be supported if the project is first selected through a public offering. The scope of support is broad, including stores and mixed-use buildings, but the most significant limitation is that it is impossible to renovate the houses' interior. The implementation system and procedures are specifically manualized.

☐ Green Remodeling Interest Support Project for Private Buildings (Private Interest Support Project)

This program can only be applied for by individuals, as the building owner must obtain a loan from a financial institution for the improvement needs related to the support target. It is unrealistic for low-income renters to take out a loan to renovate their homes when the principal amount of the loan itself is burdened. As a policy improvement measure, it is necessary to induce the participation of renting households by promoting

the 'Direct Support Project for Green Remodeling Costs for the Energy-Poor.'

Regarding the amount and content of the support, more than the current 5% subsidized loan interest is needed to encourage people with low incomes to participate because the participation rate is almost zero. The subsidized interest rate is fixed when contracting, but the interest cost will also increase if the interest rate increases. In addition, it is unrealistic for low-income people to borrow money to renovate their homes when they have to pay the principal amount of the loan. This is because they often need more money or have difficulty getting a loan in the first place. Promoting the 'Green Remodeling Project for the Energy-Poor' as a policy improvement measure is necessary to induce practical participation of vulnerable people. In addition, it is necessary to increase the percentage of loan interest support for households below the second decile.

Regarding support methods, there are complaints about defective renovations after construction. However, there needs to be more proper follow-up management due to the need for a separate intermediate organization besides the contractor. As a policy improvement measure, it is necessary to expand the role of intermediate support organizations and strengthen their capabilities for systematic management and consulting support.

As an implication, the government subsidizes part of the loan interest for construction costs and does not require immediate payment of construction costs, so the initial burden is low. However, since the primary purpose is to promote energy performance improvement of private buildings, active support for the energy-poor is lacking, and participation of the energy-poor is virtually impossible.

□ Local government home renovation support project (Gwangmyeong City Home renovation Support Project)

The need to unify the home renovation ordinance so that it can be unified without distinguishing between New Deal home renovation projects (뉴딜 집수리 사업) supported by MOLIT(Ministry of Land, Infrastructure and Transport) and Green home renovations(그린 집수리 사업) was raised. However, since no higher law is related, the city ordinance alone has limitations. As a policy improvement measure, it is necessary to propose a standard for local government home renovation ordinances to support vulnerable living environments and strengthen linkages with other related ordinances.

In addition, there is a need to improve support methods, and one dedicated official at the Gwangmyeong Urban Regeneration Support Center is operating and managing the entire project. As a policy improvement measure, it is necessary to expand the role of intermediate support organizations and strengthen their capabilities for systematic

management and consulting support.

As an implication, to complement the MOLIT New Deal home renovation project, which supports the improvement of exterior landscapes, green home renovation for energy efficiency is characterized by operating green home renovation with the local government's budget and ordinance supporting the creation of green buildings. Officials in charge of the Urban Regeneration Support Center provide meticulous support for the overall operation and management of the project.

- Local government home renovation support project (Seoul Energy Plus)

As a project that actively utilizes private funds, it has much more flexibility regarding support targets, amounts, and contents. As companies' ESG activities become more critical in the future, there are many opportunities for collaboration through the utilization of private funds in connection with social contribution projects.

Chapter 5 How to Improve Home Renovation Policies for the Energy-Poor Households

As a result of this process, the findings of this study are as follows. There are five basic policy directions for the energy-poor. First, 'clarifying target selection and establishing energy standards.' This means systematizing the current selection process and establishing prioritization criteria. Target groups that have been marginalized should be identified based on their economic situation, housing type and condition, available energy sources, and geographical characteristics. In addition, energy-related content should be strengthened in the minimum housing standards, and minimum energy performance standards should be set to improve the thermal comfort of housing.

Second, 'expanding the amount and content of support.' Not only the exterior of the house but also the interior construction and equipment should be supported to improve energy efficiency. To make it more feasible for the energy-poor to participate, the percentage of loan interest support should be increased, and the percentage of self-funding should be adjusted downward. In addition, the maximum amount of support per household should be increased to improve the actual energy efficiency of homes.

Third, 'systematizing support methods.' The role of intermediate support organizations should be strengthened to support customized consulting based on the one-stop-shop concept, which comprehensively conducts and supports assessment, budget design, technical design, financial support, construction, and post-assessment, starting with diagnosing energy-poor houses.

Fourth, 'enhancing project effectiveness and expanding monitoring.' In addition to quantitative measures that look at energy usage and cost reduction, qualitative measures that look at the effect of improving the quality of life, such as living comfort and health, will be conducted. After a certain period has passed since the end of the construction, it is necessary to check whether residents continue to live in the building and monitor subjective aspects such as comfort and inconvenience after the construction. Develop evaluation indicators and methodologies for quantitative and qualitative measurement and establish a feedback system.

Fifth, 'Strengthening institutional maintenance and management.' We proposed standardized local government home renovation ordinances to support home renovation for the energy-poor and strengthen the institutional basis by linking with other related ordinances. Also, we proposed establishing governance among relevant actors and promoting linkages with the private sector to utilize ESG financial resources. Indeed, establishing a mechanism to ensure the safety of rental housing and promoting it in parallel with the expansion of quality public rental housing are suggested. In the long run, local governments should be organized to operate and execute related projects rather than the central government's home renovation support policy.

Based on the above basic policy directions, policy improvement measures were derived and categorized into short-term (2024~2027), medium-term (2028~2032), and long-term (2033 and beyond). Each policy improvement plan is as follows.

First, for 'clarifying target selection and establishing energy standards,' the report suggested 'systematizing the selection process and establishing priority selection criteria,' including energy-related issues in the 'minimum housing standard,' and 'setting a target rating for buildings with low energy efficiency to encourage them to achieve the minimum rating or higher.'

Second, for 'expanding the amount and content of support,' the report proposed 'add green remodeling-related contents to the scope of support,' 'increase the percentage of loan interest support for households below the near poverty,' 'lower the self-payment ratio,' 'promote a project to directly support green remodeling construction costs for the energy-poor,' and 'increase the maximum amount of support per household.'

Third, for 'systematizing support methods,' the report suggested 'expanding the role of intermediate support organizations and strengthening their capacities for systematic management and consulting support' and 'customized consulting for individual households'.

Fourth, for 'enhancing project effectiveness and expanding monitoring,' the report proposed 'user satisfaction surveys to measure project effectiveness and expand monitoring of project effectiveness for maintenance and management.'

Fifth, for 'strengthening system maintenance and management,' the report suggested 'proposing a standardized local government home renovation ordinance and strengthening linkages with other related ordinances,' 'supporting linkages through establishing governance among relevant actors,' 'establishing a system to ensure residential safety for rental units,' 'improving the living environment and expanding quality public rental housing in parallel,' and 'establishing integrated management and mid- to long-term planning through inter-ministerial linkages and a dedicated organization.'

The significance of this study is that it sought a paradigm shift so that the energy welfare of the energy-poor can be sustainable through the physical environment of home renovation. In other words, this study sought to secure legitimacy by providing evidence and alternatives to the 'why' of home renovation support for the energy-poor. The policy contribution of this study is that it sought to improve the home renovation policies of various ministries by focusing more on the problem of inefficiency in home energy related to policies to support the energy-poor in terms of economic and social aspects. In addition, regarding the environment, the study presented detailed policy measures for the government's green remodeling project and old building improvement project to realize carbon neutrality and laid the groundwork for implementation.

Improving the quality of housing is indispensable for improving the quality of life of the energy-poor. The proposals presented in this study can be realized to improve people's life satisfaction beyond solving the problem of reducing energy costs.

Keywords :

Energy Poverty, Energy Welfare, Home Renovation Policy, Energy Efficiency Project