Heat and Buildings Strategy in the UK: Current Status and Issues for Achieving Carbon Neutrality in the Household Sector

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Globally, challenges are presented to strengthen the measures in the household sector to achieve carbon neutrality. With concerns over the financial burden on individuals and uncertainty about long-term directions in achieving carbon neutrality on the supply side, how to decarbonize the heat demand has caused a wide-ranging debate across the world. Here, we will review examples in the UK regarding carbon neutrality for boilers, designed for heating and hot water supply in the household sector, in order to draw implications for Japan.

The Heat and Buildings Strategy published in the UK in October 2021 presents a comprehensive policy regarding heat use in the home, and policymaking and discussions surrounding the strategy are ongoing. The primary points covered in the Heat and Buildings Strategy include not only achieving carbon neutrality for boilers used in heating and hot water supply, but also the improvement of insulation performance in new, existing, and rental buildings, carbon neutrality on the supply side (by adopting hydrogen and biomethane), the creation of export opportunities through heat pump production, and subsidies to energy poor households. One aim of particular emphasis in the strategy is to first improve insulation performance in homes and then achieve carbon neutrality for boilers.

The UK has made adherence to the Future Homes Standard mandatory from 2025 in an effort to strengthen regulations on new homes. The aim of this Standard is to achieve a 70-80% reduction in CO_2 emissions over current numbers for new homes by improving heating and hot water energy efficiency and reducing heat waste. Meanwhile, the Heat and Buildings Strategy calls for raising the minimum efficiency level of existing homes under the Energy Performance Certificate (EPC), a seven-level rating certificate from A-G, to level C by 2035. The Strategy also calls for raising the minimum efficiency level under the EPC to C for rental units in England and Wales by 2025, and to B by 2030.

The strategy also calls for the gradual elimination of natural gas boilers for homes and buildings connected to the gas pipelines starting in 2035, while calling for a phase-out in the installation of

new fossil fuel boilers for homes not connected to gas pipelines starting in 2026 (2024 for buildings) in order to shift to alternative low-carbon energy sources. Finally, it calls for proving experiments to be carried out on the role of hydrogen and biomethane towards a decision on the subject by 2026.

The UK sees the manufacturing of heat pumps by domestic producers as a chance to expand export opportunities. For this reason, subsidies to spread the use of heat pumps are being offered on both the supply and demand side. For example, in addition to a £5,000 subsidy for transitioning to air-source heat pumps in the home, £60 million is being offered to manufacturers to develop technologies to reduce the unit price of heat pumps. Through these efforts, the aim is to achieve a 25% reduction in heat pump prices by 2025, reaching parity with gas boilers by 2030.

Let us now examine the actual progress that has been made. Despite the government subsidies, only half of the expected 30,000 heat pumps were installed in 2022. Possible reasons for this failure were a shortage of installers and the fact that the price of heat pumps is higher than gas boilers. In other words, the installation of a heat pump still costs £10,000, even with the subsidies, compared to only several thousand for a fossil-fuel-based boiler. Meanwhile, the unit price of heat pumps actually rose by 19.2% over the previous year in 2021, followed by a decline of 6.7% in 2022, but actual savings were limited to a reduction of only 1.9% when offset by inflation and wage increases.

Note that the UK is currently considering imposing a sales quota for heat pumps (at 4% of total units sold annually) for domestic manufacturers who produce over 1,000 fossil fuel-based boilers. To help manufacturers achieve the target, the adoption of the Clean Heat Market Mechanism (CHMM), a mechanism to procure quota shortages through credit trading, is being considered. The adoption of the program has evoked a great deal of debate within the UK, with the Heating & Hotwater Industry Council expressing their opposition and claiming that a subsidy for hybrid heat pumps should be adopted.

The fact is that many challenges remain to achieving carbon neutrality in the household sector through the Heat and Buildings Strategy in the UK, including the financial burden on consumers. However, it is still important to foster debate within society by presenting a comprehensive vision for the future that covers both the supply and demand side. In other words, a great deal of debate is being carried out by stakeholders regarding the Strategy, both for and against, serving as a catalyst for obtaining the understanding of the public. Meanwhile, regarding carbon neutrality for equipment, the Strategy suggests the importance of a comprehensive approach in which the

improvement of insulation performance and supply-side carbon neutrality are kept at the same pace.

There is also ongoing debate in Japan regarding the carbon neutrality of equipment. But the fact is that, compared to solar power generation, adequate understanding has not been fostered among consumers regarding the subject. To address this issue, there will be a continued need for energy providers to provide information, and for subsidies to be provided to replace equipment with high-efficiency alternatives on the demand side. Furthermore, there is surely a need to present a clear and comprehensive path forward in order to achieve cooperation across government agencies and stronger measures for both the public and private sectors.

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