

**ECONOMY, ENERGY AND FAIR WORK COMMITTEE****ANNUAL ENERGY STATEMENT**

**SUBMISSION FROM THE UNIVERSITY OF STRATHCLYDE (LEAD: PROF KAREN TURNER, CENTRE FOR ENERGY POLICY; CONTRIBUTORS: PROFESSORS KEITH BELL, JOSEPH CLARKE, STUART GALLOWAY & DR GARETH JOHNSON)**

**1. Whether the 11% renewable heat target is still appropriate?**

Now that the Scottish Government has formally adopted net zero greenhouse gas emissions target for 2045, the renewable heat target gains importance. In practical terms, the 11% target is for 2020 and there is still a large gap. It is not clear exactly where we are now, but it has been officially reported that Scotland reached around 6% in 2017<sup>1</sup>. Most of this (around 82%<sup>1</sup>) was achieved through large biomass CHP plant. (Energy from waste has contributed 10% and just 8% from heat pumps). The continued contribution of biomass will be constrained given other demands on land use. That is, it cannot be relied on as the major source of renewable heat by 2045.

It may be more constructive to focus attention on the 2032 target – to have 35% of heat for domestic buildings, and 70% of heating and cooling for non-domestic buildings, supplied using low carbon technologies. The key question going forward is how to tackle the challenge of efficiently heating the building stock more generally. Improving the energy efficiency of existing buildings and retrofitting low carbon means of heating them is, in many instances, extremely expensive. Given that the building renovation rate in the EU hovers around 1% per annum<sup>2</sup>, and similar rates are expected for the UK, getting to 50% of the stock will take around 70 years. This indicates that the rate needs to rise dramatically and that to achieve this would require significant financial capital and new technical innovations in how we renovate buildings. This might be, for example, through the use of robotics and/or new approaches to off-site manufacturing which are subjects of on-going research.

**2. Whether the target is likely to be achieved?**

From our response to Q1, this is unlikely. 2020 is very close now (next year) and tangible actions that could bridge the gap are unlikely to be able allow it to be bridged in this timeframe. Thus, the Scottish Climate Change Plan targets for 2032 become a more meaningful and important focus. This requires immediate action: the challenge of transitioning our building stock is so great that we need to start now. 'Business as usual' is no longer a relevant scenario. The Committee on Climate Change recommended in February 2019 that no new homes are connected to the gas grid from 2025<sup>3</sup>, and acceptance of this advice was reflected in the 2019 Spring Statement by the then UK Chancellor<sup>4</sup>.

The fiscal and technical barriers to significant decarbonisation are still significant. In terms of fiscal solutions, there is a need to incorporate the lessons learned from past incentive scheme failures (RHI, Green Deal, REFIT etc.), which stimulated the market but neglected solution effectiveness. We need to substantially upscale the renovation process while ensuring that outcomes are technically sound. This may be through the above noted innovations coupled with a new approval process to ensure effective deployment.

There is also the need to set plans and pathways to meeting the 2032 and 2045 targets in the context of achieving a just transition. Lessons must be learned from the lack of progress in developing domestic supply chain activity and jobs to accompany the huge growth in renewables. For example, concerns have been expressed to the Scottish Just Transition Commission over how industry and supply chain jobs may be impacted by a shift

away from domestically manufactured boilers and connection to mains gas. Concern over jobs is not just an issue of fairness. There is very likely to be an important role for public investment in supporting the transition but that is only possible if employment and tax revenues are sufficiently high. Wherever new equipment is manufactured, local installers will still be needed, but must have sufficient skills for confidence in new means of heating buildings to be built up. A market for such skills must be established alongside new training provision if individuals are to invest their own time and money in gaining such skills. The Just Transition challenge is not limited to jobs. If the challenge of 'who pays' is not effectively and equitably addressed, there will not only be an adverse impact on efforts to address energy poverty (and poverty more generally) but public support for climate change mitigation may be undermined.

Generally, the major costly and immediate challenge lies in replacing heating equipment. That is, capital stock replacement is a crucial issue where clear policy action is needed soon as assets become due for replacement. This has to be more than just technology subsidies; rather, it should include actions to ensure that new technologies are appropriate. For example, techniques now exist to computationally appraise, at low-cost and rapidly, any proposed change to ensure effectiveness. In terms of the 'just transition' concerns set out above, evidence is still required in respect of the long-term role of hydrogen in replacing the use of natural gas while still utilising the (albeit repurposed) existing network, infrastructure and supply chains. Agreement seems to be growing that hydrogen will be needed in at least some respects, and this leads to questions about how a market for hydrogen can be created in the shorter term. One possibility is to oblige gas grid supplies to use a mixture of conventional methane, biomethane and up to 20% hydrogen, perhaps in strategically chosen locations initially, e.g. those with access to established sources of hydrogen. However, such an intervention depends on resolution of questions on both safety and billing standards. Furthermore, the sources of hydrogen should be 'green' or, at least, straightforwardly 'greenable' with suitable investment.

### **3. What the key risks and threats to achieving the target are, and what more can be done?**

In addition to issues already raised above, an obvious issue to highlight here is the risks associated with an unstable policy and investment environment. This is a particular concern in the current context of Brexit. Attention needs to be given as to how any funding gaps may be filled following the UK's exit from the EU, within what timeframes etc. What can the Scottish Government do in terms of stabilising the investment environment and/or partnership/support of private activity? The Scottish Government's consistency of support for renewable electricity generation has been successful in the last 15 years in contributing to an environment in which investors can be confident of the long-term direction. Similar clarity and consistency backed up by evident effectiveness is required in respect of heat policy. More generally (i.e. not limited to the current Brexit context), the key issue is that building and refurbishing to deliver low carbon homes has high up-front costs and policy action is required to provide help in financing these costs.

Non-domestic buildings also require attention beyond questions of finance. In that context, stronger regulation in terms of both standards and verification of building performance is required to push greater energy efficiency and to drive either the use of lower carbon heat (including electricity) from the outset, or to produce a plan to switch to it later under some set of given circumstances.

All of this sits in the context of the need to address and act on several broader practical problems that must be considered if targets are to be met. First, no one technical solution fits all cases and solutions need to be tailored to need and context. The Scottish Energy

Strategy<sup>5</sup> outlined a key role for local authorities in identifying local energy plans that are appropriate for current circumstances and the energy resources that might be used in a particular area. However, if local authorities are to take on this role, they must have access to adequate data and means of analysis and each local plan must make realistic and coherent assumptions on access to any sources of energy used from outside their area, e.g. electricity, methane or hydrogen. Second, the absence of qualified decision-makers (e.g. a technical vetting agency) throughout the refurbishment process tends to result in inappropriate deployments. Third, incentives will only deliver when outcomes are quality-assured in a timely manner and the reasons for any failures shared. Problems such as these could be tackled by establishing a national building refurbishment plan that addresses aspects such as target setting, outcome monitoring, standardisation of assessment methods and best practice sharing.

## References

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