

Response to the Cost of Energy Review

Introduction and Scope

This response is in a personal capacity as the Research Councils' Energy Demand Research Champion.

The response concerns the role of energy efficiency in energy costs and in the Cost of Energy Review. Energy efficiency is an important driver of the cost of energy and explicitly within the scope of the review. However, the Call for Evidence document is structured into only the four upstream stages of the electricity supply chain: generation, transmission, distribution and supply. It is not clear why the fifth stage, end use, has been excluded, given its critical importance to energy costs. For consistency with the scope of the Review, these comments focus on the efficient use of electricity, although it is unclear why the Review's terms of reference exclude gas and transport fuels, both of which form major parts of energy costs.

Energy Efficiency Evidence

The diversity and scale of energy efficiency research evidence far exceeds what can be set out in a two-page response. The Research Council funded End Use Energy Demand Centres alone have produced more than 500 outputs in the last 5 years. In addition, there is relevant evidence from the work of UK Energy Research Centre and the Tyndall Centre, as well as research by specialist organisations outside universities (e.g. BRE, EST, NEF, ACE and NEA) and evidence commissioned by Government (e.g. the Bonfield Review and the Electricity Demand Reduction project). It appears that none of this has informed the Review.

I would be happy to provide pointers to the relevant evidence not considered in the Review.

The Importance of Energy Efficiency

Energy bills, in commodity driven tariff structures, are the product of unit price and demand. Even with more complex tariffs in future, energy costs will remain a function of supply price and energy demand.

Historically, energy prices have fluctuated, but energy efficiency has improved monotonically. Over any significant historical period energy efficiency has therefore been the dominant driver of cost reduction. UK final energy demand is now lower than in 1970, and 15% below the peak demand year of 2004, despite huge growth in economic activity and energy service demand in the intervening years. This is due to energy efficiency. It is widely accepted that this reduction trend will need to continue and accelerate if energy policy goals are to be met. The Committee on Climate Change (CCC) analysis (set out in Figure 3, page 12) projects a 25% energy efficiency improvement in the years 2014-2030.

The CCC recognises that this pace of improvement is not automatic. Energy efficiency policy interventions are necessary and have historically been highly effective in reducing energy efficiency bills. The Review recognises this historical effect of policy in Figure 14 and Chart 7 (page 43), but does not review the policy intervention options or their outcomes going forward. This is a major gap in its analysis.

The Trajectory of Energy Efficiency Improvement

The Review also contains very limited analysis of the effectiveness of current (as opposed to historical) energy efficiency policy. There have been substantial reductions in policy effectiveness in recent years. The largest change results from the change from the large supplier obligation schemes in the period 2008-2012 (CERT) to the far less ambitious current scheme (ECO), from which the efficient use of electricity (other than in heating) has been excluded. This change was accompanied by the introduction of the unsuccessful Green Deal scheme, but the reduction in supplier obligation activity rather than the failure of the Green Deal was the dominant effect. In the same period, other energy efficiency policies have been abandoned or reduced in effectiveness, including the CRC Energy Efficiency Scheme and the Zero Carbon Homes policy. These changes have increased energy costs.

In this context, interpretation of Figures 42 and 43 of the Review is important. Both start at 2012, i.e. the year in which policy effectiveness was substantially reduced, obscuring this change. They show cumulative savings, so that the rising curves indicate some policy activity not an improving policy environment. Even with the policies set out in the Clean Growth Strategy, current policy instrument plans are significantly less ambitious than those in operation before 2012, and they are inadequate to deliver long term policy goals.

Energy Efficiency Policy

Policy intervention is justified where there are market failures that reduce economic efficiency, such as non-price barriers to cost-effective energy efficiency. There is a very large literature on these barriers and UK research has played major role in their analysis. Much of the evidence supports the assertion in the review

that standards are an appropriate policy response. The Government's Electricity Demand Reduction project identified EU product standards as the most important future policy instrument, especially in the residential sector. The Review does not explicitly address the risk to these from Brexit, although (since the Review was published) that risk has been reduced by the commitment to regulatory alignment between UK and EU.

However, standards are not a panacea for addressing the market failures that constrain energy efficiency. Indeed, the range of policy interventions set out in Table 3 of the Review (page 41), and criticised for being too complex, can largely be ascribed to the number of sectors and barriers that need to be addressed.

Existing buildings form a particularly problematic area, given their long lifetimes. In this context, the Review does not justify its rejection of supplier obligations as a mechanism for addressing market failures. They were introduced by the Major Government in 1994 explicitly to address the market failure of suppliers having a vested interest in increasing demand. The data cited by the Review on the current supplier obligation (page 185) shows their current cost effectiveness. Widespread international experience, as well as evaluations of previous phases of GB supplier obligations, confirm this conclusion more generally.

Supplier obligations and related mechanisms essentially shift investment from generation to end use efficiency. By doing this, they enable the same level of energy services to be delivered at lower total cost, and therefore with lower overall consumer bills. In other words, the scale of market failure is reduced and economic efficiency is improved. There is good evidence to suggest that supplier obligations alone will not be sufficient to deliver the necessary scale of deep refurbishment of existing buildings, but that is not a reason for their abolition.

The review also asks (paragraph 79, page 185) "why the costs of the ECO should fall on all customers when only some customers benefit". Of course, individual supplier obligation investments have this property, but the vast majority of customers have benefited from supplier obligations over the last 20 years.

Energy efficiency and distributional issues

The Review recognises the nature of electricity supply as a public good and the implications for a universal supply obligation. However, it takes the classical economic approach of separating consideration of economic efficiency from distributional issues. It considers fuel poverty as a social and distributional issue, which it is not appropriate to address through energy market obligations. Of course, there is much that can be done to address fuel poverty via social policy. However, fuel poverty is associated with a failure in capital markets, in that low-income house-owners are constrained from undertaking energy efficiency by lack of access to capital, not the absence of cost effective projects. Distributional issues therefore directly affect the market failure of under-investment in energy efficiency, and therefore economic efficiency. Reasonable people can, and do, take different positions on the relative roles of energy levies and general taxation in funding fuel poverty programmes, but fuel poverty cannot easily be separated from economic efficiency.

Conclusions

End use efficiency is the largest, long-term driver of energy costs, reducing costs at all of the upstream stages into which the Call asks for responses. The Review cites evidence that energy efficiency improvement has been a major driver of cost reduction and carbon emissions reduction, and that it will be necessary for this to continue if energy policy goals are to be delivered.

The Review neglects the large evidence base now available on energy efficiency in the UK and its policy drivers. Whilst it recognises energy efficiency's broad role in reducing costs, there is no analysis of the implications for public policy, in particular the complexity of addressing the relevant market failures.

The Review fails to recognise that changes in UK energy efficiency policy since 2012 have seriously undermined policy effectiveness, increasing energy costs. It appears to assume that energy efficiency improvement can continue at faster than historical rates with weaker than historical levels of policy intervention. This assumption is not supported by the available evidence. As a result, the Review does not adequately consider options for stronger energy efficiency policy. Moreover, it recommends, without justification, the discontinuation of highly effective policy instruments, which would further weaken policy.

In summary, the Review is highly skewed towards consideration of supply-side issues and away from demand-side policy. It will be necessary to undertake a parallel review and analysis of the potential, barriers and policy instruments for energy efficiency, if a reliable policy framework on energy costs is to be developed.

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