

## Response to the National Infrastructure Commission's Call for Evidence 2015 from the Mineral Wool Insulation Manufacturers' Association (MIMA)

### 1. Introduction:

The Mineral Wool Insulation Manufacturers' Association (MIMA) is a trade body providing an authoritative source of independent information and advice on glass and stone wool insulation. MIMA actively promotes the benefits of mineral wool insulation and the contribution it makes to the energy efficiency of buildings and the comfort of their occupants.

We represent four of the leading insulation companies in the UK - Isover Saint-Gobain, Knauf Insulation, Rockwool and Superglass.

MIMA whole-heartedly welcomes the creation of the National Infrastructure Commission (NIC). It is a hugely positive step to form a body able to make balanced, value for money decisions on how best to create a solid infrastructure base to support continued economic growth. The goal to link infrastructure delivery programmes to an independent assessment of projected future "need" is also to be commended.

The current consultation being conducted therefore represents an important development in the way that UK infrastructure is considered by government and we welcome the opportunity to submit our analysis.

The main focus of our response is on your third area of interest: ***"Ensuring investment in energy infrastructure can meet future demand in the most efficient way."*** We summarise why investment in building energy efficiency is an infrastructure priority, and more broadly answer how a national renovation programme of our aging building stock addresses the Chancellor of the Exchequer's questions:

- Does this increase the economic security of working people, or not?
- Does this enhance our national security, or not?
- Does this extend opportunity, or not?

### 2. Investing in energy efficiency is an investment in our national infrastructure

It has long been recognised that investment in infrastructure has a positive effect on economic growth by increasing productivity and attracting investment, as well as boosting employment in the construction and other industries. For example, building better transport links and energy generation capacity can have a strong positive effect on GDP per capita.

Visible, major construction projects, such as power stations and roads are most commonly thought of as infrastructure. Increasingly communications, connectivity and networks on a smaller scale and within local communities play just as big a role in ensuring our economy has the solid base needed to continue to grow. The inclusion of Smart Meters, which will be installed in individual properties, in the list of top 40 priority projects in the National Infrastructure Plan is evidence of our increasingly modern view of what constitutes infrastructure, and therefore what can drive economic growth.

**The UK's building stock is part of our national infrastructure.** Nationally coordinated investment in the quality and functionality of that stock - especially by making it more our 27 million existing homes more energy efficient – will drive growth and employment, just like most other infrastructure projects.

The reasons such investment can create growth are very simple:

- Energy efficiency reduces consumer demand for energy, freeing up energy capacity just as effectively as building new power stations, networks and storage.
- The work required to maintain and improve the building stock, including installing energy efficiency measures such as insulation, results in jobs and growth.
- Consumers living in energy efficient homes, and energy efficient businesses, have significantly lower energy bills, allowing them to spend money on other goods and services (particularly in the “able to pay” market).
- Energy efficiency provides a great range of public services, such as helping to protect consumers over the long-term from energy price volatility, from fuel poverty, and it substantially reduces the UK’s carbon emissions.

Indeed, in terms of economic benefits alone, a recent report by Frontier Economics, sponsored by MIMA, found that according to the Government’s own data, a large-scale energy efficiency programme for the residential and commercial buildings in Britain would provide a **net economic benefit of £8.7bn over 10 years and have a comparable economic impact to major road and railway projects, including HS2-Phase 1, Crossrail and new roads.**<sup>1</sup>

In terms of jobs, over 135,000 people are currently employed in the energy efficiency industry but major investment in energy efficiency could almost **double the number of jobs in the sector to 260,000.**<sup>2</sup>

The research by Frontier Economics also demonstrates that **energy efficiency fits clearly within each of HM Treasury’s eight infrastructure characteristics** as defined by their valuation guidance:

*“Domestic energy efficiency investments can free up energy sector capacity just as effectively as delivering new generation plant, networks or storage would. Energy efficiency investments provide public services, by reducing carbon emissions and improving health and wellbeing. They also provide option value in the face of uncertainty over future energy sector conditions (e.g. uncertainty over future fuel prices).”*

ResPublica built on these findings in 2015<sup>3</sup> by recommending that, in addition to classifying energy efficiency as a national infrastructure priority, there is a case to **devolve infrastructure spending** to the city or local level, which MIMA also supports:

*“As the Energy Bill Revolution and others have proposed, we advocate that energy efficiency should be made a national infrastructure priority: included in the top 40 priority infrastructure investments.*

*But in keeping with our support to devolve powers and fiscal responsibilities to the lowest appropriate level, we also argue that Government should devolve infrastructure spending, where appropriate, to city regions.”*

**When balanced against wider infrastructure investment, a rollout of energy efficiency provides a comparable economic return to HS2**

<sup>1</sup> Frontier Economics, Energy Efficiency: An Infrastructure Priority, 2015.

<http://www.frontier-economics.com/documents/2015/09/energy-efficiency-infrastructure-priority.pdf>

<sup>2</sup> UKGBC, A Housing Stock Fit for the Future, 2014. <http://www.ukgbc.org/resources/publication/housing-stock-fit-future-making-home-energy-efficiency-national-infrastructure>

<sup>3</sup> ResPublica, After the Green Deal, 2015. <http://www.respublica.org.uk/wp-content/uploads/2015/05/After-the-Green-Deal.pdf>

From an **energy security** perspective, the most secure energy system we can create is one which invests in supply, but also keeps demand as low as is cost-effective in smart, high quality, energy efficient homes. We must continue to support demand management for both electricity and gas.

Not only does demand management and energy efficiency **help to de-risk national supply strategies**, which could easily be thrown off track by changes in the global market, it is also one of the most effective ways to protect consumers from the full force of **energy price rises and volatility** in energy markets.

By way of example, analysis by the UKGBC in 2014<sup>4</sup> found that:

- The UK could **reduce its reliance on imported gas** by 19 per cent by making UK homes more energy efficient, saving £2 billion in gas imports every year; and
- Delivery of **energy saving measures costs less on average per unit of power than large-scale power generation**. Through cost-effective investment in all forms of energy efficiency, the UK could be saving 196TWh in 2020, equivalent to 22 power stations.

A report by Cambridge Econometrics in 2014 found that energy security could be enhanced further if all homes were to achieve an EPC rating of C by 2030. In that scenario we should see a reduction of gas imports of 26%, worth £2.7bn per year by 2030.<sup>5</sup>

**Making building energy efficiency a public infrastructure priority has widespread support**, including from other leading UK business associations and businesses, including the CBI. And in Scotland, the five main parties, including the Scottish Conservatives, have already committed to improving home energy efficiency through a “national infrastructure project”. Such a move is also supported by core cities. Area-based programmes carried out by core cities are a natural fit with objectives to encourage resurgent cities and to support further devolution.

More than 200 businesses, charities and consumer groups are now calling for infrastructure funding to support energy efficiency, including Age-UK, Kingfisher plc, Co-operative Energy, the Energy Saving Trust, Keepmoat, Willmott Dixon and Worcester Bosch.

**Energy efficiency of the building stock is an integral part of the energy system**. By classifying energy efficiency of buildings as a national infrastructure priority, the NIC would be instrumental in creating the stable framework and strategic oversight required to attract the capital needed to deliver the necessary scale of works.

### 3. Why is there a need to invest in a national, long-term energy efficiency programme?

Reassuringly, between 2005 and 2013 UK homes saw a huge **30% drop in (weather adjusted) median gas consumption**, with gas consumption decreasing on average by 5% per year between 2004 and 2011.

A rough calculation at today's prices suggests **£5bn less per year will be spent on gas alone** across the UK's 27 million homes than if consumption had remained at 2005 levels (again, weather adjusted).

DECC cites one the reasons for this drop in consumption as being down to energy efficiency

<sup>4</sup> <http://www.ukgbc.org/resources/publication/housing-stock-fit-future-making-home-energy-efficiency-national-infrastructure>

<sup>5</sup> <http://www.energybillrevolution.org/wp-content/uploads/2014/10/Building-the-Future-The-Economic-and-Fiscal-impacts-of-making-homes-energy-efficient.pdf>

programmes, efficient boiler regulation and some austerity driven thermostat adjustment – however the trend started well before the 2008 recession.

This is a great **UK infrastructure success story** meaning we are already far more energy secure than we otherwise might have been. However, the job of retrofitting the housing stock is only half done.

Despite the implementation of a string of government programmes over recent decades, sadly, the **UK's housing stock still remains amongst the “leakiest” in Western Europe**. The energy being generated to power and heat our homes is being wasted through un-insulated walls and roofs.

Contrary to perception, there are still many millions of homes that haven't benefitted from insulation and energy efficiency upgrades. Only a very small percentage of the country's 8 million solid walls have been insulated, and around 5 million party walls are, as yet, un-insulated. The **estimated fuel bill cost to consumers from heat loss through party walls alone is around £465 million a year**.

Although more progress has been made on cavity walls and lofts, there are still millions which have not been treated or can benefit from being topped up.

Even worse, there are a growing number of examples of people from all over the country wishing to make their home more energy efficient, but being **unable to access the remaining support**, because government-driven delivery is now almost solely in the hands of energy suppliers, since other programmes and schemes were cut.

This has far reaching implications for consumers. For the average consumer, energy bills may be up to £300 per year more than they could be. For the 2.3 million households in fuel poverty, the decision to under heat their home to save energy and money is often their only option. Cold homes can put people's health at risk, especially in households with vulnerable people such as the elderly or very young. The ONS estimated there were just over 43,000 cold-related winter deaths in England and Wales in 2014/2015, more than double the number from the year before and higher than the average annual figure. The cost impacts of cold homes and fuel poverty on the NHS is an estimated £1.3bn per year.

In the future, as the population ages, many more people will fall into vulnerable categories, struggling to pay needlessly high energy bills or suffering the effects of living in a cold home. **Energy efficiency is one of the most cost-effective ways to protect vulnerable groups for the long-term.**

In terms of our climate change commitments and targets, **failure to deliver an ambitious energy efficiency programme is likely to make it more difficult and costly to meet carbon budgets.**

At present **more than a third of all energy used in the UK goes to heat either water or air** so that we have comfortable living and working environments. If demand side measures – particularly improving the fabric of UK buildings – are not fully considered as part of wider infrastructure choices, the UK risks being locked in to an inefficient energy system with an imbalance in long-term investment.

The Committee on Climate Change has, taking into account the uncertainty around the projections, estimated that there is already a shortfall against the fourth carbon budget (2023 to 2027) where our emissions are projected to be greater than the cap set by the budget.<sup>6</sup>

---

<sup>6</sup> DECC Updated energy and emissions projections: November 2015  
<https://www.gov.uk/government/publications/updated-energy-and-emissions-projections-2015>

Analysis underlying the CCC's assumptions assumes certain levels of energy and carbon savings being achieved as result of government energy efficiency policies. There is cause for concern as, at present, the policies that would deliver carbon savings have either been cut or weakened, including the Green Deal, the Zero Carbon Standard for new homes, and the post 2017 Energy Company Obligation.

### **Why does incorporating energy efficiency into decision-making on infrastructure make a difference?**

The reasons policies have not succeeded in delivering the technical potential (or even the cost-effective potential) are varied and complicated. But we would argue, it comes down to a **failure to deliberately and concertedly drive demand** for energy efficiency across the board towards an agreed target or goal.

We instead focused on piece-meal policies, often designed to remove barriers to uptake, such as the upfront cost in the case of the Green Deal. Such policies are more likely to be successful only in cases where consumers were already persuaded on the benefits of energy efficiency. Where there is latent demand.

Some steps were then taken by DECC and DCLG to rectify this situation. For example, the time-limited Green Deal Home Improvement Fund was introduced, as well as new energy efficiency requirements for the private rented sector. There is no doubt that the number of installations rose – but what resulted was a **boom and bust delivery profile** as DECC suddenly withdrew funding when the number of applications sky-rocketed, and then re-introduced vouchers in short stints.

Voucher and cash-back schemes can drive demand, but in an uncontrolled way and sometimes leading to perverse outcomes.

The ECO has proved to be more successful than the Green Deal, demonstrating that creating fixed targets e.g. to save a specified amount of carbon and making organisations responsible for driving sufficient demand to meet the target, works in terms of driving numbers – but in some cases, this has been at the expense of quality.

The **lack of a proper, long-term strategic framework** for the stock as a whole has had unwelcome consequences for the stability of the insulation industry. The building insulation market contracted by 22% in 2013 as the installation of cavity wall insulation fell by 46%, the installation of loft insulation fell by more than 87%, and the installation of solid wall insulation fell by 30%, compared with the number of measures installed under the Carbon Emissions Reduction Target (CERT) in 2012.

There is now a **clear opportunity for the National Infrastructure Commission and the Government to put in place the plan for improving the UK's existing housing stock through the infrastructure “architecture” to fully insulate our building.** We need to fully integrate energy efficiency into national infrastructure plans.

With energy efficient buildings classed as an infrastructure priority, and an appropriate long-term vision outlined, delivery can be implemented through a set of **coordinated policies designed to drive the uptake of measures**, including support for low interest loans, cost neutral stamp duty reform which rewards home owners with energy efficiency homes, and a programme of targeted capital investment in the homes of the fuel poor.

The UKGBC estimates that a national energy efficiency programme would need public investment of £3-4 billion a year to **address areas of market failures and leverage substantial additional**



**private investment** – just a small percentage of the £hundreds of billions of investment expected to be brought forward this Parliament.

#### 4. Meeting future energy demand

One of the National Infrastructure Commission's primary areas of interest is to ensure "*investment in energy infrastructure can meet future demand in the most efficient way*". The key point we want to make in this section is that **no matter what our future energy mix, it always makes sense to invest in the fabric and energy efficiency of buildings.**

We must make solid progress on energy efficiency now as we work towards decarbonising the electricity grid over the coming decades, and a greater proportion of homes become electrically heated. Electricity is currently a more expensive and carbon intensive form of heating compared to gas, and even as this begins to change, we do not want to waste this clean heat.

Failing to insulate our homes properly means the **energy we pay for is needlessly wasted**. Heat is leaking through the walls. It is like paying out for energy to run a hot bath, only to have half the water go straight down the plughole.

Investing in the fabric of the building stock reduces the amount of energy needed to achieve the same levels of comfort in the home. **Energy capacity is then freed up**, potentially reducing the need for further investment in new infrastructure in other areas of the energy system. In doing so, **energy efficiency helps to de-risk security of supply strategies.**

Fabric measures can also help to **flatten morning and evening peak loads**. While only 2-3 million homes rely solely on electric heating, this still constitutes a significant part of peak UK winter energy demand. **Large numbers of gas homes are also meeting this peak demand with plug-in electric heaters** providing top-up heat which again likely coincides with peak times of the day.

Replacing inefficient appliances with the most efficient appliances is part of the answer, but making homes more energy efficient would also reduce for some of demand for electricity, such as for secondary heating, in the first place. 4.2 million English households currently have secondary electric heating.<sup>7</sup>

Similarly, when **smart meters** are rolled out, they could soon be followed by "time of use tariffs" which will aim to shave peak demand by setting higher peak prices. If this is not mitigated against, this could have a **potentially regressive effect on poorer households** pushing them away from peak use whether it's no longer cooking dinner at dinner time or heating their homes first thing in the morning or on their return from work. Ensuring fabric renovation options are available that will allow the home to retain heat means homeowners can comfortably move away from those winter peaks but still stay warm.

Looking ahead, we are increasing take up **microgeneration technologies** for heat and power such as Solar PV, Solar Thermal and Heat Pumps. It is of fundamental importance to ensure that we simultaneously insulate the fabric of buildings to minimum levels, otherwise risking the waste of renewable generation. This "fabric first" principle is a key tenet of energy efficiency policy and was reiterated in DECC's recent response to Feed in Tariffs consultation.

The move towards **smart homes** with clever tech which enables people to control their heating, hot water and appliances should also be matched with a quality building. Being able to precisely control when your heating comes on, in order to be comfortable and save energy, has much greater value

<sup>7</sup> Cambridge Architectural Research Ltd et al, Further Analysis of the Household Electricity Survey 2013. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/275483/early\\_findings\\_revised.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/275483/early_findings_revised.pdf)

and impact in a building which is not simultaneously leaking lots of heat. You wouldn't expect much from a cutting-edge GPS system installed into an old car with a broken steering wheel (even that is possible!).

Driving energy efficiency across the board - both electricity and gas – remains a wise choice. Around **80% of heat demand is currently met with natural gas.**<sup>8</sup>

To achieve the type of energy system needed we must address every aspect of heat and energy demand.

Currently, overall **energy demand is falling**. However, **it is expected to rise after 2025** as the impact of recent energy efficiency policies declines. In the absence of a major policy intervention, current levels of energy efficiency and the impact of fossil fuel prices may be insufficient to offset the impact of economic and population growth. Demand is expected to rise again.

## **5. Conclusion:**

Gas consumption in UK homes has fallen by 30% between 2005 and 2013. Energy efficiency has been a major driver in this success story.

As a result, a rough calculation at today's prices suggests **£5bn less per year will be spent on gas alone** than if consumption had remained at 2005 levels.

It is not yet clear how we in the UK intend to continue to drive the remarkable benefits of energy efficiency, but the need is urgent. The UK still has some of the leakiest housing stock and amongst the highest excess winter death figures in Europe. The UK's current energy costs are some of the lowest in Europe, yet householder energy bills are amongst the highest.

Keeping the lights on is of course vital but so is providing the UK with a housing stock that is affordable to heat.

Driving the energy efficiency of the UK's housing stock to prevent energy capacity and investment being wasted must be central to our infrastructure, economic, energy and climate change policy. We desperately need a stable, long-term (at least ten-year) programme.

**We urge the Commission to include the need to properly retrofit the nation's buildings in its up-coming assessment, and to make delivery of such a programme an infrastructure priority.**

**We also ask the Commission to urgently investigate and consult in detail on what our long-term energy efficiency targets and delivery strategy should be, and how these relate to and drive benefits in the wider energy system.**

## **6. For further information, please contact:**

Sarah Kostense-Winterton  
Executive Director  
Mineral Wool Insulation Manufacturers Association (MIMA)  
Email: [email address redacted]  
Tel: [phone number redacted]

**January 2016**

<sup>8</sup> Department of Energy and Climate Change (DECC): The Future Of Heating: Meeting The Challenge, March 2013  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/190149/16\\_04-DECC-The\\_Future\\_of\\_Heating\\_Accessible-10.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/190149/16_04-DECC-The_Future_of_Heating_Accessible-10.pdf)