Response to BEIS and Ofgem's Call for Evidence
on A Smart, Flexible Energy System 2016
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 welcomes the opportunity to respond to BEIS and Ofgem's call for evidence on the smart, flexible energy system.

The main focus of our short response is to encourage the Government to factor into decision-making and future analysis the important role **building energy efficiency** plays in a smart and flexible energy system.

The key point is that consumers, particularly in the residential sector, will be less able to take advantage of the opportunities offered by a smart energy system if their basic needs for heat and comfort at home are not adequately met. Energy efficiency should therefore be viewed as a facilitator of, and integral part of, the future smart energy system.

Question 11 - What types of enablers do you think could make accessing flexibility, and seeing a benefit from offering it, easier in future?

The call for evidence acknowledges the importance of demand side responses, highlighting the role technology-enabled large non-domestic operators will play, as well as consumers and small businesses through the use of smart meters and smart products.

BEIS wants to help energy consumers gain control of their fuel bills and how much energy they use. Smart technologies will have a central role to play in this, and can provide consumers with greater control and choice. For example, the call for evidence document highlights that smart appliances can help consumers manage or reduce their bills by shifting some demand automatically to times of the day when energy is cheaper.

To enable this, occupants must be able to heat their homes away from peak times and still be confident their home will retain that heat and maintain comfortable temperatures in cold weather. Ensuring the building fabric is as energy efficient as possible is a cost-effective way to enable early morning or early afternoon 'non-peak' heating. Improving the building fabric to a level at which a home central heating system can manage the full heating load rather than having to rely on plug-in electric heaters to get rooms up to temperature offers further benefits.

We would also suggest that BEIS considers what 'smart fabric' improvements i.e. innovation in insulating materials - might look like, alongside considering the concept of other smart home options such as internet linked fridges and storage. Energy efficiency policy to date limits innovation, with policy mechanisms such as the ECO written into legislation which is slow or difficult to change, even when officials are persuaded of an innovation's benefit.

We have urged BEIS in the past to clarify and streamline the process for including new measures in government programmes, including providing a means for manufacturers to easily track the progress of new measures being assessed, and to be in a position to fast-track the "approval" of measures which have especially robust evidence of in-situ performance. We can provide more information on our proposal if this is helpful.

Question 18 - **Do you recognise the reasons we have identified for why suppliers may not offer or why larger non-domestic consumers may not take up, smart tariffs? If so, please provide details, especially if you have experienced them. Have we missed any?**

Smart tariffs incentivise consumers to use, store and export electricity at times that are most beneficial or least costly to the system. They will play a key role in helping consumers to participate in, and realise the benefits from, the future smart energy system. For example, Time of Use (ToU) tariffs which charge different prices at different times of the day can lead to bill savings for consumers if they change behaviour and use energy at cheaper times.

The Government research quoted found that 50% of respondents would take up a smart tariff if their supplier offered one to them now. For the remaining 50%, the researchers uncovered some scepticism and disinterest amongst respondents, and the desire for further information before making up minds. MIMA would also add that leaving leaky, energy inefficient homes untreated creates a further barrier for households wishing to take up ToUs, reducing the flexibility for householders to heat homes at the cheapest times. The higher priority for the able to pay would be to maintain comfort.

For the 2.3 million households in fuel poverty, the decision to under heat their home to save energy and money is often the 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.

The assumption is that ToUs would shave peak demand by setting higher peak prices. If this is not carefully managed it could have a potentially regressive effect on poorer, fuel poor, 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.

BEIS has acknowledged this issue, stating that certain types of consumer will be less able to realise the potential benefits these tariffs could provide, for example, those who are less able

to shift their energy consumption away from peak hours or those who face higher barriers to switching. We urge BEIS to consider how building fabric and energy efficiency improvements could be encouraged, alongside any future ToU tariff policy to prevent possible unfair impacts on the fuel poor. Again, MIMA would be willing to further develop options in consultation with other industry stakeholders.

Question 25 - Can you provide evidence to show how existing Government policies can help or hinder the transition to a smart energy future?

Historically UK energy policy has emphasised and supported the supply-side of the energy system (e.g. investing in power production) and less strategic activity has taken place on energy demand management. Yet, energy demand management in the domestic sector has already offered huge benefit in terms of UK energy affordability and security, as BEIS's NEED analysis demonstrates.

Reducing electricity (and gas consumption) through making buildings more energy efficient therefore benefits the energy system in terms of:

- Avoided or deferred large-scale and local grid reinforcements
- More efficient asset management
- Impacts on gas storage sites
- The impact on electricity generation capacity (including savings in the traded sector and the impact on carbon allowances)
- Avoided use of supplementary electric heating
- The smoothing out of peak demand profiles

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 supply strategies.

It would be an exciting prospect if policies, as part of wider strategy which classes building energy efficiency as a national infrastructure property, encouraged contracts to be let that stated; 'these homes attached to this sub-station use x base load and y peak load of electricity and z gas load. We are inviting bids that will help occupants in those homes to undergo 'smart retrofit' to reduce all of the loads to a level where we don't need to reinforce that substation (or reinforce to a lesser extent). There are examples of such an approach being tried already e.g. demand management in Holyhead and Great Gonerby http://www.ncl.ac.uk/guru/assets/documents/ewp8.pdf and more recently the Agility ECO/NEA analysis from 2015[1].

Such an approach may drive the market toward the much imagined, but as yet unrealised, domestic energy services company (ESCO) model. ESCOs could be enabled to build businesses that fund energy efficiency works to homes by packaging together funding

[1] http://www.agilityeco.co.uk/sites/default/files/agilityeco_supportinglocalenergyefficiency_june2015v2.pdf

streams from; future avoided household energy bills, avoided grid reinforcements and CO2 abatement.

The NEA's trials for example have shown that the key thing is the ability of a DNO (or a partner working on their behalf like a ESCO) to be able to access a range of funding streams to make such projects stack up and the ability to lever in additional contributions to energy efficiency projects put in place by policymakers. Each aspect of these 'services' has been proposed as part of a solution by other actors to improve home efficiency but until there is a route to understanding these numbers and aggregating them in to a revenue stream no such business model will prosper.

Energy efficiency also has the benefit of de-risking a low carbon heat strategy. Many solutions have been proposed for 'de-carbonising' heat, from electrification of heat and a mass roll-out of heat pumps, to repurposing for hydrogen, to injecting biogas into the gas grid. For example, if heat pumps are part of the solution, then the home fabric must be efficient for the low-temperature distribution heat pumps to operate efficiently.

Similarly, 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.[2]

Overall, 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.

Conclusion:

The move towards smart homes with smart technology 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 and impact in a building which is not simultaneously leaking heat. You wouldn't expect much from a cutting-edge GPS system installed into an old car with a broken steering wheel.

To achieve the type of energy system needed we must address every aspect of heat and energy demand. We therefore urge BEIS and Ofgem to ensure building energy efficiency is viewed as an enabler of the smart, flexible energy system, and is fully supported as an infrastructure priority with a long-term investment plan.

[2] Cambridge Architectural Research Ltd et al, Further Analysis if the Household Electricity Survey 2013. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/275483/early_findings_revised.pdf

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