Response to the National Infrastructure Commission's Call for Evidence on the Second National Infrastructure Assessment: Baseline Report from the Mineral Wool Insulation Manufacturers Association (MIMA)

1. MIMA is a trade body providing an authoritative source of independent information and advice on non-combustible glass and stone wool insulation. We represent leading mineral wool insulation companies in the UK, promoting the benefits of mineral wool insulation and the contribution it makes to the energy efficiency of buildings and the comfort, health and safety of their occupants.

2. We are grateful for the opportunity to submit evidence to the National Infrastructure Commission's (NIC) Call for Evidence on the Second NIA. This is a hugely important area of policy and MIMA is especially supportive of the NIC's continued inclusion of building energy efficiency in the NIC's Baseline Report. We agree that energy infrastructure includes "*meters, heating systems and energy efficiency improvements, like loft insulation and double glazing, that reduce demand for energy*".

3. At the time of writing the UK is suffering an energy price crisis, with massive increases in gas wholesale prices causing consumer fuel bills to sky-rocket, knocking millions more into fuel poverty. The crisis has revealed the dire need for major and rapid reforms to energy infrastructure and policy to reduce our energy waste as much as possible, and ultimately our reliance on gas.

4. Within this context it is now more important than ever for the Government to initiate a new national mission to ensure all English homes are well insulated by 2030 and to accelerate the rollout of heat pumps at scale. A national, long-term "Buildings Energy Infrastructure Programme" is needed to help to cut and stabilise energy bills, whilst also lowering greenhouse gas emissions, boosting jobs and the economy, and reducing gas imports.

5. In our view, building energy efficiency should be the country's number one infrastructure priority, and we invite the NIC to prioritise this area in the 2023 NIA.

6. MIMA has prepared a short submission to the Call for Evidence, focusing on Challenge 3: *Heat transition and energy efficiency – the Commission will identify a viable pathway for heat decarbonisation and set out recommendations for policies and funding to deliver net zero heat to all homes and businesses.*

Question 9: What evidence do you have on the barriers to converting the existing gas grid to hydrogen, installing heat pumps in different types of properties, or rolling out low carbon heat networks? What are the potential solutions to these barriers?

7. A critical aspect of installing heat pumps effectively is to first check a building's fabric is performing well. It is thermally efficient.

8. The Energy Saving Trust makes this point clearly on their website for consumers: "*Unlike gas and oil boilers, heat pumps deliver heat at lower temperatures over much longer periods. If you are installing an ASHP to replace a gas or oil boiler, you should consider*

whether you can also upgrade your insulation to get the most out of your ASHP. You might also consider fitting larger radiators or underfloor heating".[1]

9. The Centre for Sustainable Energy agrees: "*If you are considering a heat pump it is very important to make sure your home is well insulated as heat pumps work best in buildings that require little energy to maintain a temperature once it has been reached*".[2]

10. A major study by Imperial College published in January 2022 on the future of home heating also emphasised the need for strong links between heat pumps and insulation to be made: "*Replacement of radiators and upgrading of insulation measures will…be needed in addition to the heat pump installation itself in many homes. However, improved insulation measures will be required in any case for many properties to meet UK net zero targets. Well-insulated homes will allow for more efficient retention of lower-temperature heat, increasing the efficiency of heat pumps substantially. Newbuild houses will require little or no modification for heat pump installation due to improved insulation building regulations*".[3]

11. Providing support for householders to insulate their homes if they are installing a heat pump (and even if they are not) is a critical component of any successful energy policy. Although a heat pump uses less units of energy to heat a home compared to a gas boiler (and creates far fewer carbon emissions), as it uses electricity at roughly four times the unit price of gas, any failure to manage energy demand alongside the installation of the new heating system risks energy bill impacts. Every extra, unanticipated unit of electricity used to heat the home will come at a higher price than if the house were heated with gas – a very unwelcome outcome.

12. Hence, real heat pump operating costs will be dictated by how energy efficient a home actually is, how low the flow temperature can be set while still delivering enough heat for cold days and, increasingly over the decade, how far the home can be heated away from peak times.

13. Homeowners with a new heat pump in a genuinely efficient home have a triple benefit that is far less present in gas:

    a. They will need fewer units of energy to heat their home because of the well-performing overall fabric efficiency and lower space heating demand;

    b. They can operate their heat pumps with lower flow temperatures so as to maximise efficiency. For example, if a home is suffering from a fabric performance gap of 40% requiring a flow rate at 45 degrees to achieve thermal comfort, closing that gap and reducing the space heating demand should enable flow temperatures to be reduced to 35 degrees, greatly improving the coefficient of performance of the heat pump); and

    c. They can use heating energy at times of supply peaks or demand troughs therefore paying less per kWh at a time that works better for the grid

14. Overall, if building's fabric performance is not up to scratch, and hence space heating demand is unnecessarily high, a heat pump would need to be sized accordingly to secure thermal comfort, potentially at increased cost. It also means wasted energy, less opportunity for occupants to take advantage of time-of-use tariffs, and once electricity

[1] See https://energysavingtrust.org.uk/renewable-energy/heat/air-source-heat-pumps
[2] See https://www.cse.org.uk/advice/renewable-energy/ground-source-heat-pumps
[3] See The Future of Home Heating.pdf (imperial.ac.uk)

unit prices increase again, potentially rising energy bills. Such a "perfect storm" must be prevented. We must strive for early movers who install heat pumps to have a good experience and share this with others.

15. MIMA strongly recommends good insulation as a prerequisite for future low carbon heating system roll out. Reducing energy demand makes sense whichever heating system is installed, and especially electric systems are concerned.

Question 10: What evidence do you have of the barriers and potential solutions to deploying energy efficiency in the English building stock?

16. As acknowledged in Annex B of the NIC's Baseline Report, "*The energy efficiency of buildings has been improving but there is a long way to go*".

17. Delivering greener homes is mission critical for achieving net zero, tackling climate change and levelling up communities across the UK. It is vital to realise the benefits of a nationwide infrastructure drive to reduce energy bills, ensure healthier homes, create jobs and drive down carbon emissions, especially in the context of the energy price crisis.

18. MIMA is a core member of the Energy Efficiency Infrastructure Group (EEIG) – a broad-based coalition of over 25 industry groups, NGOs, charities and businesses. The EEIG has produced a series of analytical papers in recent years which demonstrate that a sustained drive to boost home energy efficiency can reduce household energy expenditure by £7.5 billion per year to 2030, support 190,000 jobs across a range of trades to 2030, and avoid pressures placed on the NHS by fuel poverty and cold, unhealthy homes – potentially preventing 10,000 excess winter deaths every year and saving the NHS £1.4 to £2 billion annually. Few infrastructure projects can do so much for economic growth with £2 put back in economy for every £1 spent on a national retrofit strategy.[4]

19. Investing in improving the energy efficiency of the national building stock makes sense.

20. Energy efficiency also works. For example, analysis soon to be published by the Regulatory Assistance Project (RAP), referenced recently in The Guardian, estimates that energy efficiency measures have had a major positive impact on energy consumption and bills: *"Energy consumption overall has declined by 16% since 2000 despite a 15% increase in the number of homes, the average home being 10% larger and the rise in appliance ownership…The energy price cap is forecast to rise to £2,000 for a typical household in April[5], owing to the gas crisis, from about £1,300 today. But average household energy bills would be £3,000 a year if it were not for a range of regulatory measures that have brought down energy use in the* last *two decades*".[6]

21. Despite the fact that energy efficiency makes sense and it works, Government intervention and infrastructure funding will continue to be required to drive the scale of building performance improvements needed. The vast majority of the country's 29 million homes will require a green retrofit if net zero targets are to be met. Market forces alone will not be enough. Building owners continue to face financial, psychological, and practical barriers to upgrading their homes.

[4] See eeig_2021-budget-and-spending-review_0721.pdf (theeeig.co.uk)
[5] The price cap rise has since been confirmed.
[6] See Green energy measures saving households £1,000 a year – analysis | Energy | The Guardian

22. For this reason the EEIG continues to urge the UK Government to bring forward a properly resourced and funded national buildings infrastructure plan to get on track for meeting carbon budgets and net zero.[7] We would like to see the NIA in 2023 support the same: a long-term plan out to 2030 and beyond, encompassing and ring-fencing funding to deliver the Government's stated target to get all homes up to an Energy Performance Certificate rating of at least C (currently only 40% achieve this).

23. In the short term, during this Parliament, the EEIG has called on the Government to create a rounded green retrofit programme including:[8]

    a. **Regulation** – Confirm a plan to regulate the energy and carbon performance of all tenures, emulating the ambition shown in Scotland's recent Heat in Buildings Strategy. The Government should set an ambition for owner-occupier homes in England to hit EPC band C by 2030. Such regulation should be introduced as part of a holistic suite of incentives and support.

    b. **Funding** – Provide direct support for households with fewer means:

        i. Fulfil commitments to extend the Energy Company Obligation to 2026 with £1bn per year from April 2022;
        ii. Fully fund the £2.5bn Home Upgrade Grant. There is currently a funding gap of £1.4bn to 2025;
        iii. Fully fund the £3.8bn Social Housing Decarbonisation Fund. There is currently a funding gap of around £0.2bn to 2025;
        iv. Make energy efficiency upgrades affordable for all, including middle income households, by providing a new form of grant or subsidy to replace the Green Homes Grant worth £3.6bn, tapering support from 2025. Funds could be mobilised through the new £multi-billion green gilt and UK Infrastructure Bank. Owner-occupiers, representing two-thirds of the market currently have little or no support to upgrade the energy efficiency of their homes. Many are not "able to pay" and this continues to be a major barrier to improving the country's housing stock;
        v. Pump-prime a mass market for heat pumps through expanding grant support available through the Boiler Upgrade Scheme. Provide an additional £4.15bn this Parliament.

    c. **Structural incentives and finance** - Pave the way for green finance at scale, including:

        i. Introduce attractive incentives that spur action and investment including an Energy Saving Stamp Duty incentive;[9]
        ii. Leverage additional private finance and support new innovative financial products and services which are already being developed by the UK's leading banks and building societies, supporting market growth;
        iii. Ensure affordable finance for energy efficient, low carbon homes is available to all through the new UK Infrastructure Bank, treating home retrofits as an infrastructure investment priority. Offer 0% loans and blended finance through retail banks, with interest offset by the UK Infrastructure Bank.

[7] See the Better Buildings Investment Plan 2021 See eeig_2021-budget-and-spending-review_0721.pdf (theeeig.co.uk)
[8] See eeig_analysis-of-the-heat-and-buildings-strategy_03.pdf (theeeig.co.uk)
[9] See Business Coalition calls for Energy Saving Stamp Duty Incentive (theeeig.co.uk)

24. Lastly, the NIC will no doubt be aware of the BEIS Select Committee's February 2022 report on decarbonising heat in homes.[10] The report comprehensively sets out why the policies set out in the Government's Heat and Buildings Strategy are not sufficient to achieve our country's legally binding decarbonisation goals. It highlights, for example, that the Boiler Upgrade Scheme is not at the scale required.

25. It also reiterates the importance of linking heat decarbonisation and energy efficiency policy: "*Evidence was clear that for low carbon heating installations to work effectively and to heat homes adequately, properties need to be upgraded to the correct levels of energy efficiency. It is critical then that Government policies and strategies are interlinked. If people are encouraged to switch to low carbon heating sources without the knowledge or incentive for energy efficiency upgrades, then there are risks of scheme failure and loss of public trust if the new low carbon heating sources are not heating homes to the desired temperature and insulation*."

26. MIMA would be pleased to discuss this submission with the NIC and we stand ready to provide more information if needed.

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[10] See Decarbonising heat in homes - Business, Energy and Industrial Strategy Committee (parliament.uk)