

A circular inset image showing a smiling family of four (a man, a woman, and two children) sitting on a couch in a bright, modern living room.

Net Zero  
by Industry

A circular inset image showing a close-up of a hand using a soldering iron to work on a green printed circuit board (PCB).

## Making a Consumer Market

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A circular inset image showing an electrician in a blue shirt and yellow safety vest working on an electrical control panel.

Delivering a private investment  
case for electrification

# Manufacturers are making decisions on where to invest right now

The electrical equipment sector is vital to the achievement of the UK and global electrification Net Zero pathway. It incorporates the necessary range of technologies which are essential to secure our electricity grid capacity along with the decarbonisation of our homes, transport, and industry.

**We are calling on Government to understand that intervention and positive messaging is essential to remove barriers to market development.**



## Foreword

There is a significant UK market growth and innovation opportunity as we decarbonise our energy systems for Net Zero, but the confidence and speed we need to deliver on our targets needs a greater focus. Early investment is key to reducing the long term cost of delivering Net Zero. We are now seeing evidence emerging of the value this early investment has to the UK economy which we should not ignore.

Our members are experiencing growth in demand for electrification technologies, globally presenting a huge opportunity for our industry. This should be a clear signal for investment, but it is still questionable how much of this opportunity will be secured for the UK market.

Previously, Government and industry have been guilty of focusing too hard on the constraints and blockers to delivering Net Zero, especially for the supply chain where we have more recently started to feel the impact of global material shortages for some sectors. But we need to turn this conversation around and talk about opportunity and need.

At a time when we are governed by the volatility of energy prices, we should listen and act on the advice being given. Early investment is key to reducing long term cost. What the supply chain needs is the certainty of consumer demand and uptake, and a clear pipeline for investment on the electricity grid.

This report offers a conversation piece against the current discussion on UK manufacturing investment. This is a climate emergency, requiring a more radical assessment of the UK energy market, and a fresh approach to enabling investment in the sector. It is only through effective collaboration that we can deliver this, and BEAMA's Net Zero campaign is the basis for our drive to forge strong industry and government collaborative workstreams that will unpin a UK strategy for investment in Net Zero.

There is a lot that industry can do alone, but only some ceilings can be smashed by Government!

*Yselkla Farmer*  
CEO

# A thread to a £1 trillion UK Business Opportunity

Global demand for electrical equipment is predicted to grow at an unprecedented rate as countries decarbonise their energy systems. The UK will need to compete in this international market to both secure the supply of the required electrification technologies and leverage the potential £1 trillion global market opportunity for UK business in the Net Zero transition<sup>1</sup>.

The 6th Carbon Budget necessitates early action<sup>2</sup> and this decade is a crucial period for investment confidence to secure manufacturing capacity for electrical products.

Certain threads can only be woven into place with Government support, to encourage the manufacturers of these solutions to onshore and build an innovative and exportable UK manufacturing market. Business will not U-turn on Net Zero, and this journey is already underway, with investment decisions being made today. However, the level of investment may be scaled back without an addressable market that benefits from reduced political and regulatory barriers and allows competition.

Developing this relies on the construction of a consumer market which values electrified homes and cars, underpinned by supply chain confidence in consistent policy and regulation – all of which ultimately stimulate a competitive market and open up innovative and affordable financial, service and technology offerings. This would not only support the steady reduction of emissions as domestic transport and heating move away from fossil fuels, but also create green jobs and bring urgently required private investment into the UK.

This consumer market will only be facilitated through a clear pipeline of investment in our electricity grids, enabling the associated supply chain to expand, and ensure the integration of renewables and the electrification of heat and transport.

In this visual report, we review the questions which manufacturers ask when looking to invest and innovate, reviewing the signs downstream of the meter which signal low risk, high opportunity investment potential.

So, what does it take to give market certainty for the supply chain to invest and deliver at the pace Net Zero demands?

<sup>1</sup> Opportunities for UK businesses in the net zero transition (McKinsey Sustainability, 2021)

<sup>2</sup> Growing the Market for a Net Zero Energy System (BEAMA and Energy Systems Catapult, 2022)

91% of the global economy is committed to Net Zero<sup>3</sup>

Potential £1 trillion global market opportunity for UK business in the Net Zero transition

Electricity demand could grow by 70% by 2035...  
...Resulting in a tenfold increase in product demand for some sectors<sup>4</sup>

Net Zero could require private investment of up to £50 billion per year by 2030<sup>5</sup>

If unlocked, this growing market could deliver 480,000 green UK jobs by 2030<sup>6</sup>

Delaying action by ten years could incur UK debt 23% of GDP higher in 2050<sup>7</sup>

<sup>3</sup> Net Zero Tracker (2022)

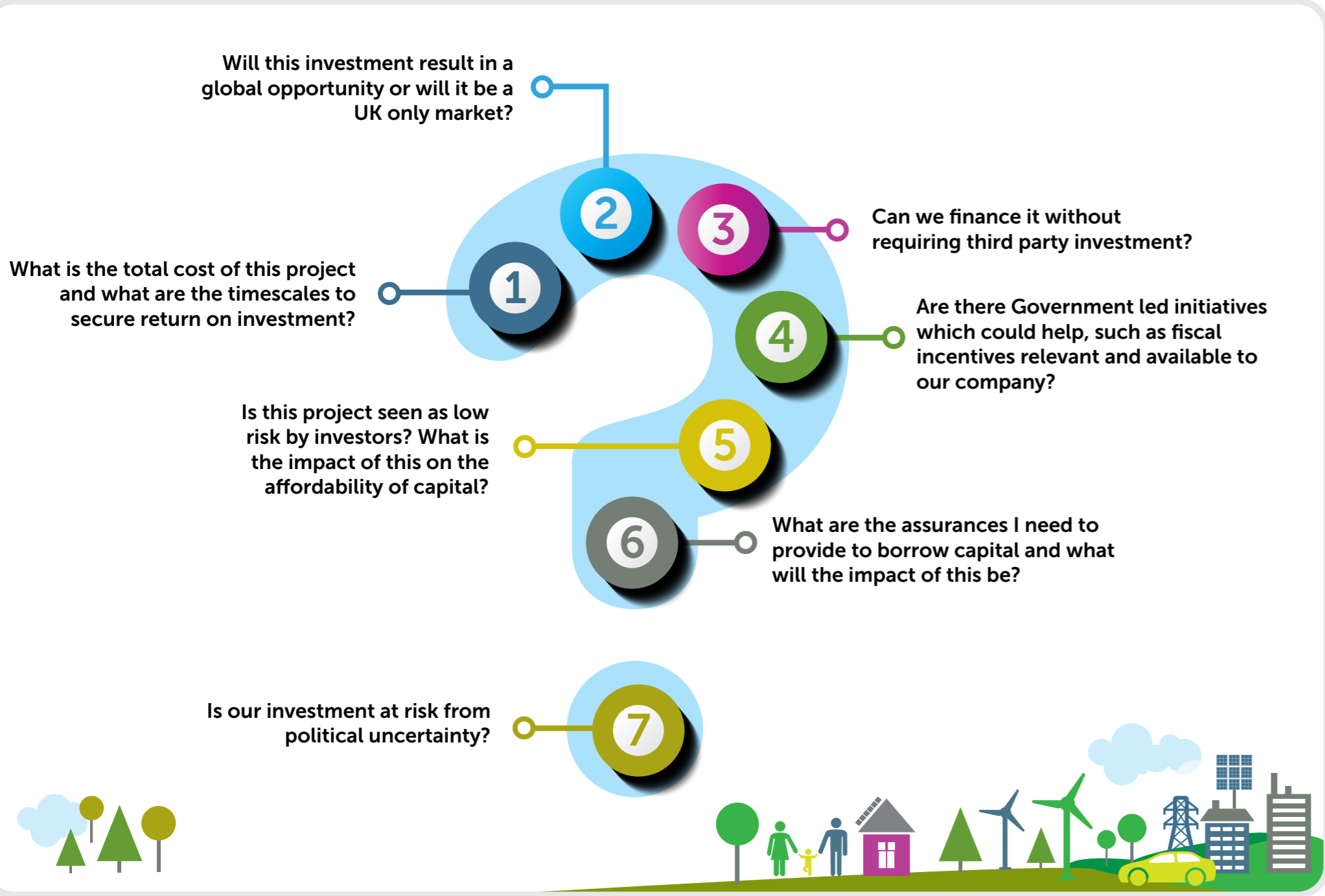
<sup>4</sup> Growing the Market for a Net Zero Energy System (BEAMA and Energy Systems Catapult, 2022)

<sup>5</sup> Mobilising green investment: 2023 green finance strategy (DESNZ, 2023)

<sup>6</sup> British Energy Security Strategy (DESNZ, 2022)

<sup>7</sup> Fiscal Risks Report (OBR, 2021)

The supply chain is requesting Government to remove critical market and regulatory barriers to begin investing in enabling the affordable and timely delivery of Net Zero.



# Do we have access to finance?

Whether manufacturers are looking to invest in increasing manufacturing capacity or innovate through R&D, this is the critical question to delivering action.

We need to ramp up the speed of home electrification, and the manufacturing companies who enable this may, in certain cases, be looking at multi-million-pound upfront investment costs. Companies may not have accessible upfront capital to fund the full project themselves. In these cases, the search begins for affordable capital to enable expenditure.

Whilst direct and indirect subsidies, such as tax relief and grant funding, have a role to play, this may not always be enough to cover the full cost of the required investment. The private sector must fill this gap to enable projects to move forwards. Private investors, including Government owned investment companies, will be key to this – but the capital investment must also be seen by investors as low risk to become affordable.

Government could support this quickly by speeding up the development and delivery of a UK Green Taxonomy.

For most companies, unless access to finance is simple and affordable, investment and innovation plans will stop here.

# Government grants can have a hugely positive impact on developing a market, without breaking the Treasury

BEAMA has worked on several impactful industry and Government partnership projects. In the mid-2000's, we developed the first ground-breaking SAP Appendix Q scheme for two ventilation systems designed for use in highly insulated buildings. This supported Government's goal to drive investment in zero carbon homes, for a shared cost of £150-200,000, including management resource. This joint investment enabled the delivery of the project's two objectives:

- Government could confidently mandate improved building standards without jeopardising home and consumer health as these ventilation systems are essential to sustained indoor air quality in well insulated and airtight homes.
- Industry was able to confidently invest in manufacturing capacity for the two ventilation solutions (MVHR and MEV), lifting unit sales from the low thousands to 93,000 units in 2022.

# Is there an addressable customer market and is it attractive?

For a company which has access to finance and an appetite to invest, there needs to be an attractive, addressable market to underpin the basis of an investment proposition. This must be (or soon should be) free from barriers which substantially increase investment risk.

 **28 million** homes in UK<sup>8</sup>

**95%** need low carbon heat<sup>9</sup>, with an estimated **£3-12 billion** per year required to support decarbonisation over the next 15 years<sup>10</sup>

**80%** of new UK cars are expected to be EVs by **2030**<sup>11</sup>, rising to a potential

**49m** vehicles by **2050**<sup>12</sup>



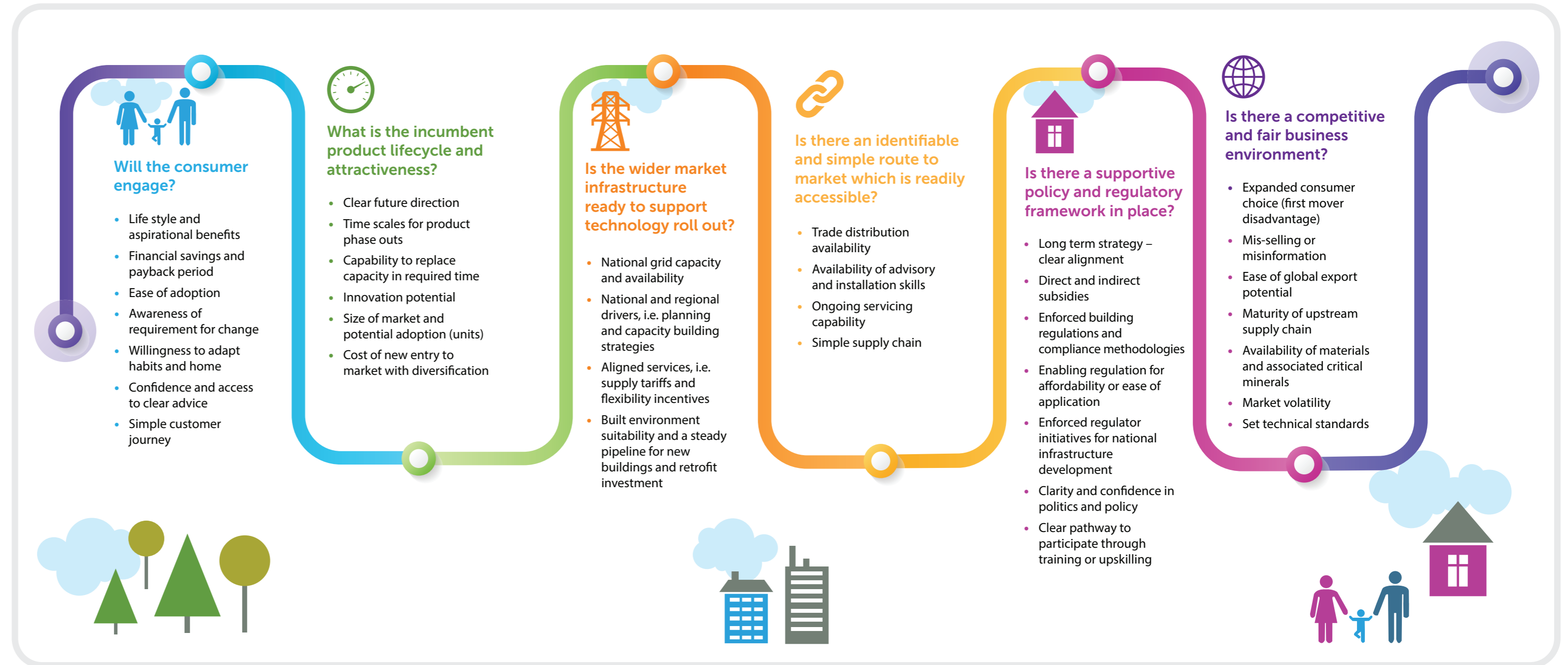
<sup>8</sup> Families and households in the UK: 2022 (ONS, 2023)

<sup>9</sup> A Guide to Decarbonisation of Heat (ESCC, 2021)

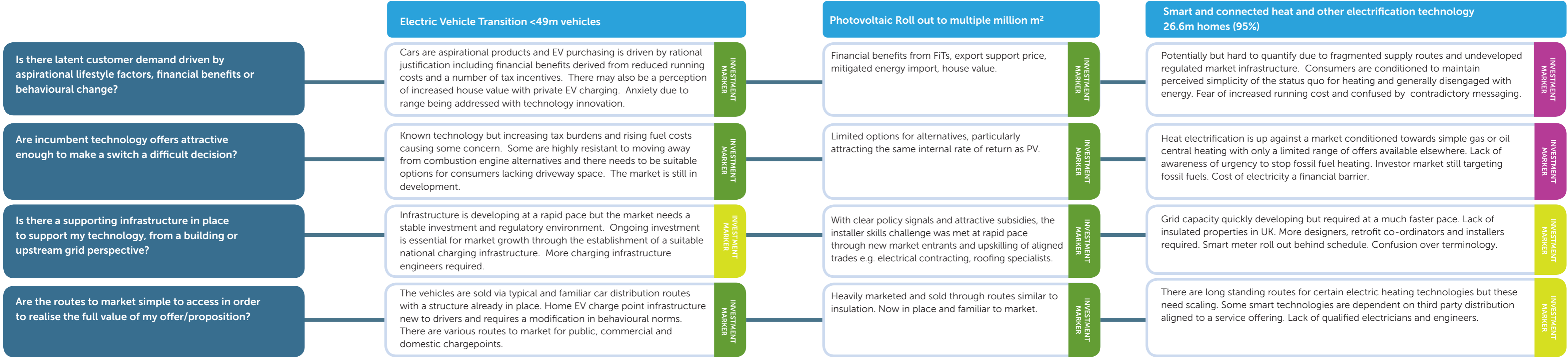
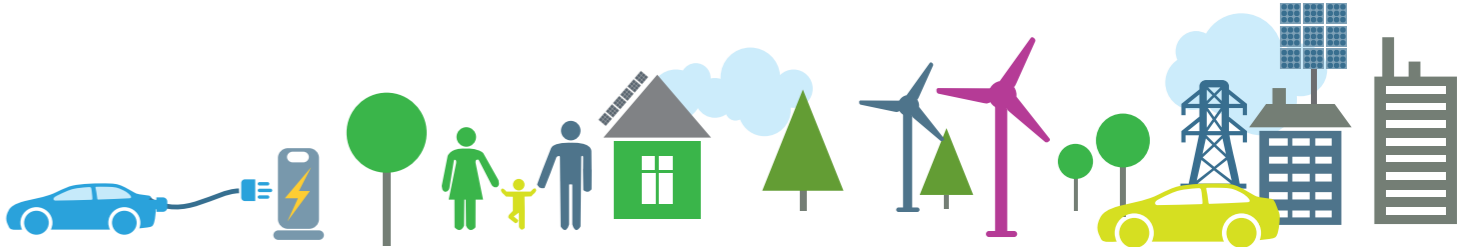
<sup>10</sup> Second National Infrastructure Assessment (NIC, 2023)

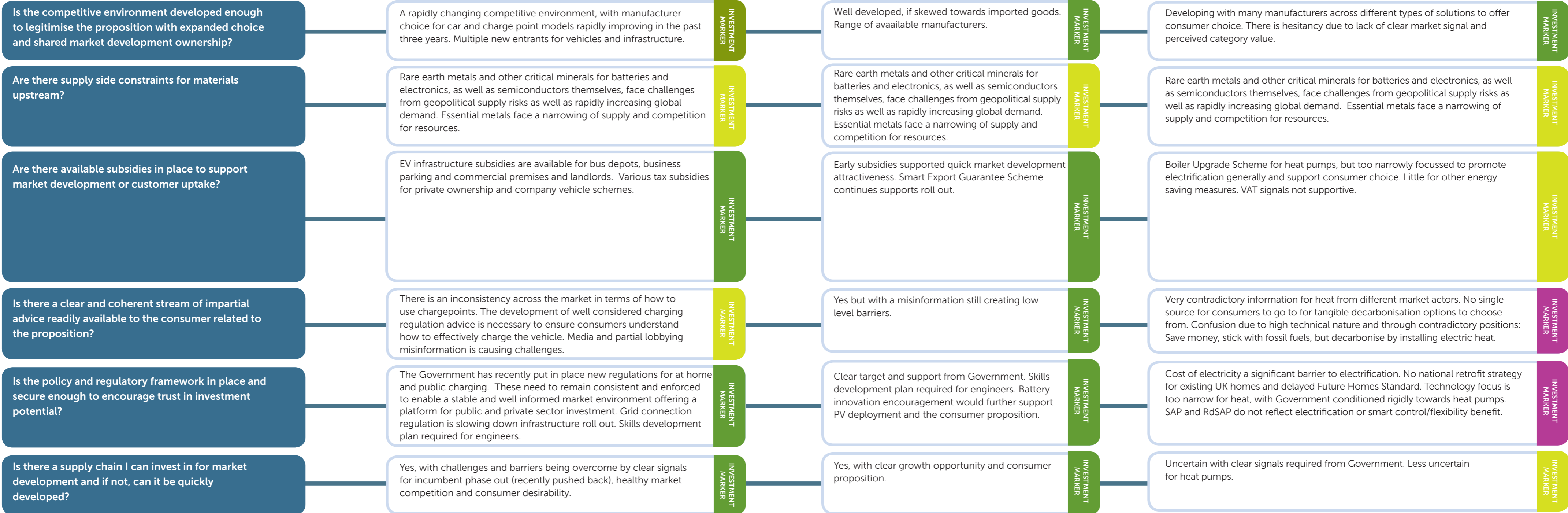
<sup>11</sup> According to Government's ZEV mandate.

<sup>12</sup> The Sixth Carbon Budget Methodology Report (CCC, 2020)



# The electrification of homes: An analysis of the addressable market





“Over the past 12 years, we have found the speed of network capacity investment to be a major barrier to heat pump and broader electrification demand from consumers. A ‘just in time’ approach or pass through costs to consumers to cover the cost of network upgrades can add significant uplift to their initial investment, sometimes into thousands of pounds. The process for connections can also take a long time which further deters consumers.

Network capacity development should be running faster than electrification roll out as any additional complexity or cost will deter demand in years to come. As capacity investment is a regulated requirement for networks, we would very much welcome greater scrutiny and enforcement by Ofgem to accelerate infrastructure development.”

Mark McManus, CEO  
Stiebel Eltron



# Investment into the electricity grid is central to unlocking private investment to electrify homes

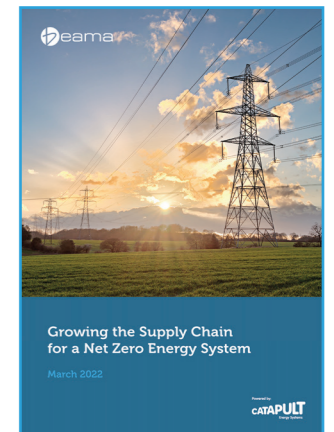
The scale of change required to grow our electricity grid by 2050 is unprecedented.

Electricity demand could grow by 70% by 2035 with the electrification of heat, transport, and industry, requiring up to £330 billion of investment by 2050 to create a stable and secure electricity grid for Net Zero.

Creating a secure electricity grid, where development pace does not lag behind demand growth, requires a new strategic planning paradigm. Our national grid infrastructure remains a barrier to an accessible electrification market – from securing connections for EV infrastructure and wind turbines, to ensuring that electrical capacity is available for the development of large numbers of electrified homes.

The potential solution is the creation of more regional spatial and infrastructure planning frameworks, matching regional aspirational targets and local development plans to infrastructure investment.

The positive news is that our world leading 74 GW<sup>13</sup> renewable energy target by 2050 is achievable and manufacturers are gearing up investment to supply to this Net Zero critical market. With proper end-to-end planning, stakeholder engagement and grid investment, we will be able to deliver 50 GW of new wind power by 2030 and 24 GW of new nuclear by 2050.



Read more about supply chain investment requirements in our ground breaking report: [Growing the Supply Chain for a Net Zero Energy System.](#)

<sup>13</sup> Powering Up Britain (DESNZ, 2023)



# Who controls the perceived value of my product?

The perceived value of a product is a key factor to building a consumer market for electrification. Put simply, consumers must value electrification enough to buy electrification solutions over alternatives. The difficulty is that only a fraction of this perceived value is under the direct control of the manufacturer.

## Government examples

- **Strategic policy:** Targets to phase out the sale of petrol and diesel cars by 2035 were a clear indication of a future consumer market which the supply chain could innovate and build towards. Easily replicable in other areas, including the firm, clear commitment to phase out all new fossil fuel boiler sales by 2035.
- **Subsidies:** When consumers hear that the Government is providing incentives such as the Boiler Upgrade Scheme or VAT relief on energy saving products, it gives them assurances in these technologies. This can be expanded by reviewing the scopes of these measures to offer consumers more choice when it comes to their electrification journey, in particular with heating technologies.

- **Compliance:** Solutions resulting in tangible benefit within compliance methodologies, such as SAP (Standard Assessment Procedure) and RdSAP, are naturally valued higher than those which do not. Smart controls and electric heating are a clear example here, with real world benefits valued less due to reflection in SAP. In fact, an innovative technology cannot be easily specified in a new building because of this without complex workarounds.

## Distribution influencer examples

- **Terminology and understanding:** Simple and consistent terminology linked to accredited or trusted sources of advice.
- **Consumer familiarity:** The consumer journey for purchasing electric vehicles is common to combustion engine alternatives. This familiarity provides security and raises the perceived value of the product.
- **Available skills:** When the availability of installers or quality of installs negatively impacts customer experience, word-of-mouth can spread quickly, especially with social media. This is particularly damaging to the perceived value of a product if the skills challenges are perceived as technology



challenges, which is being seen with the roll out of Who controls the perceived value of my product? heat pumps. Fast tracking options with a broader range of technology that 'normalises' electrification with existing heating systems could remove the negatively perceived value of smart, electric heating as a category.

## Infrastructure owner examples

- **Availability:** The inability to connect to electricity supplies has proved damaging to the perceived value of both electric heating and the adoption of electric vehicles and home charging. It provides a negative perception that there is not a security of electricity supply, which reduces consumer confidence and, therefore, perceived value. Reforming the connection planning regulation to enable faster connections is key to addressing this.
- **Reputation:** Consumer trust in electricity providers directly impacts the value they place on electric solutions.

## Stakeholder influencer example

- **Advice:** Advice signals, such as the Energy Performance Certificate creates a negative perception of electric based solutions due to an outdated and narrow technology focus, which supports the status quo. This can be overcome

by expanding technology scope, taking the first steps towards recognising flexibility benefits, and re-adjusting the cost of energy to make electrification a more financially appealing option. This will positively increase the perceived value of electric solutions.

## The competitive market example

- **Commonality:** Traditional solutions are seen as trusted sources of heat and transport. The more we can normalise electrification, the higher value consumers will place on enabling solutions. We're seeing this with electric vehicles already but need to begin work at pace to normalise electric heating in the UK. The upcoming Future Homes Standard will support this with new build homes, but we urgently need a retrofit strategy to support the existing housing stock. This can be further supported by market mechanisms which tie electrification roll out to traditional sales, but these mechanisms must be realistic in ensuring choice for consumers.

These external factors need to be addressed – with elements of reform – to create a positive perception of the value of electrification.



# Can my company justify this investment?

Reviewing the addressable market, associated barriers and perceived value of a product, combined with access to accessible and affordable finance will ultimately decide if a company moves forwards with investment plans in the UK. However, even if this provides justification, investment could be stopped if there is limited confidence in the stability of the market or the certainty of policy and regulation.

Many of the mechanisms to build a consumer market are out of the Government's hands – but there are key aspects which Government can influence to unlock electrification. With time running out until we reach Net Zero and manufacturers and the investment market waiting for confidence in the market signals, enacting these could be the tipping point to provide electrified homes.

- **The creation of holistic policy** to reflect how technology, fabric and controls work together to decarbonise homes whilst enabling demand side response. This includes the creation of a national retrofit strategy.
- **Direct and indirect subsidies** which recognise the broad range of electrification technologies required to decarbonise homes, offering homeowners choice.

- **Introduce the UK's Green Taxonomy** as soon as possible to provide guidance and confidence to investors which will reduce the cost of capital for electrification projects.
- **Review the regulatory and compliance barriers for electrification**, including the cost of electricity, EPCs and the Standard Assessment Procedure (SAP)
- **Urgently address skills and education** of installers, to ensure we have the capacity, capability and future workforce pipeline to effectively roll out electrified heat and transport. This must include encouraging new people into the manufacturing sector.
- **Utilise the existing installer capacity** by fast tracking through supporting technologies which are immediately complimentary to existing skills.
- **Provide clarity on future Net Zero and sustainability requirements** to industry, including potential targets for embodied carbon and recycled content (or other circular economy initiative), to give industry clarity and time to innovate and prepare.

## Who are we?

BEAMA is the UK trade association for manufacturers and providers of energy infrastructure technologies and systems. We represent more than 200 companies, from start-ups and SMEs to large multinationals. Our members' products ensure low carbon energy and environmental services are delivered safely, securely and efficiently to UK homes, businesses, transport and grid networks. We support our members in ensuring that the UK has a strong electrotechnical industry that is recognised as an essential part of modern society and brings invaluable economic, social, and environmental benefits.

We are profound supporters for a scientific Net Zero, both in ensuring affordable, just and timely application to the market and in supporting our members to reduce their own emissions at both a product and industrial level.

## Our vision

To ensure and establish:

- A market for safe, secure, and compliant products.
- A prosperous export market for our members.
- A strong investment environment for electrification technologies.
- A low carbon, smart and flexible energy system.

## Our sector

**£14 billion**  
UK turnover

**90,000**  
people employed  
in the UK

Exporting  
**£5 billion**  
worldwide

## Our represented technologies

Our sector represents a wide range of technologies and sub sectors, including:



A dark blue silhouette of a community landscape. It includes various houses, some with solar panels on their roofs, several wind turbines, and power line towers. The scene is set against a white background, creating a clean, modern look.

LEARN MORE ABOUT WHAT IT WILL TAKE TO  
DELIVER NET ZERO HOMES AND INFRASTRUCTURE –  
**VISIT OUR CENTRAL HUB**

