

Getting off gas: Learnings for the UK to get ahead in the global race to clean heat

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Background

The invasion of Ukraine by Russia in February 2022 has led to a worsening of the international gas crisis that started in autumn 2021, heightening the imperative to get off gas. The UK has seen a rise in the cost-of-living that has impacted every household, with the most-vulnerable disproportionately affected. Analysts predict that wholesale prices will remain above 2021 levels until at least 2030.¹ Clean, electric heat and energy efficiency measures will have a key role to play in reducing the exposure of families to these price shocks now and in the long run.

Around the world, several countries are turning to clean heat as part of the solution to counter the gas crisis. This means heat pump manufacturing and installation skills are becoming an asset of increasing value, representing a market and economic opportunity.

This report profiles how countries are turning to low carbon electric heat pumps to boost energy security and help households shift away from gas, drawing key lessons and recommendations that could be applied here in the UK.

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¹ [Cornwall Insight, 2022](#). Volatile energy prices set to continue into 2030

1. Overview: Key lessons and recommendations

- **Pump-priming the market:** Around the world, countries are ramping up incentives to support households with the upfront costs of heat pumps and complementary fabric efficiency measures. This includes a coverage up to 110% offered in Italy and generous subsidies of up to €9,000 in France. Lessons for the UK might include increasing the number of recipients of the Boiler Upgrade Scheme to cover more homes (the scheme can currently support 30,000 per year – falling below the UK government’s target to install 600,000 heat pumps per year by 2028).
- **Insulating homes to isolate Putin:** The UK remains behind the rest of Europe when it comes to energy efficiency; currently 80% of mid-to-low income households living in inefficient homes have no access to nationwide subsidy support.² Providing support for more households to help insulate their homes – as seen in many countries – would help reduce heat loss and thus energy demand, helping reduce gas dependency.
- **Scaling attractive green finance:** Germany is boosting its landmark loan programme to fund renovation by nearly €5bn.³ Since 2006, 6 million housing units have benefitted from this scheme. The UK could take a similar approach through its new UK Infrastructure Bank, offering subsidised loans to households via retail banks.
- **Reducing running costs of low carbon electric heating:** Through removing taxes and legacy policy costs from electricity bills, the UK can follow the lead of France and other countries to make the running costs of clean electric heat more affordable.
- **Regulations and targets:** Policy certainty plays a key role in providing long-term signals to spur investment, innovation and action from households and industry. The UK could follow the lead of Germany through cementing the proposed timelines for the phase-out of fossil heating into law, accelerating the introduction of the Future Homes Standard and confirming the pathway ahead for the implementation of Minimum Energy Efficiency Standards across different housing tenures.
- **Supporting skills, supply chains and manufacturing:** Ensuring that the supply chain can meet increasing demand will be critical for ensuring successful delivery of the clean heat transition. Through investing and supporting good jobs in clean heat, as well as providing more support for manufacturers, the UK can help boost domestic innovation, design and engineering capacity – skills and resources which could help put Global Britain on the map.

² [E3G 2021](#), Responding to the gas crisis: The essential role of energy efficiency

³ [Spiegel 2022](#), Bund stockt KfW-Sanierungsprogramm um fast fünf Milliarden auf

2. How the UK has incorporated heat pumps into its response

Through the British Energy Security Strategy,⁴ the UK government set out several steps to support the lift-off of the UK heat pump market. The Spring Statement also provided a welcome boost by removing VAT from energy saving materials, including heat pumps. While some ambition was shown, the approach to date falls short of the war-effort demonstrated by other countries including Germany, the Netherlands, and the US. There are opportunities for the UK to build on progress and leverage the economic opportunities.

- **New:** Confirming that energy performance standards across all housing tenures will be announced in May 2022. *This confirmation has not yet been announced.*
- **New:** Expanding UK heat pump manufacturing with a Heat Pump Investment Accelerator Competition in 2022 worth up to £30m.
- **New:** Improved support and advice for consumers and small businesses on the steps they can take to make their homes more efficient, with some local advice projects.
- **New:** Taking steps to boost green homes finance, doubling innovation funding for new green finance products to £20m and introducing a scheme under which lenders will work to improve the energy performance of the properties against which they lend.
- £450m Boiler Upgrade Scheme and VAT cut on some green home retrofit measures announced at the Spring Statement and 2021 Spending Review – with a hint that the Boiler Upgrade Scheme could be boosted pending sufficient levels of demand.
- Rebalancing the costs placed on energy bills away from electricity to ensure heat pumps are comparatively cheaper to run, publishing proposals this year, as announced in the 2021 Heat and Building Strategy.
- The Queen’s Speech and announcement of the Energy Bill confirmed that the UK would move ahead with laying the regulations for a market-based mechanism on low carbon heat, placing an obligation on fossil fuel heating appliance manufacturers to meet a portion of sales through tradable credits in heat pump sales. The government has published its response to the recent consultation on the new mechanism.⁵

⁴ [UK government, 2022](#). The British Energy Security Strategy

⁵ [UK government, 2022](#). Government response to the market-based mechanism for low carbon heat

3. RePowering heat: Soaring demand in the European Union

The EU has put heat pumps at the centre of its response for getting off Russian gas – with the European Commission’s REPowerEU plan targeting 20 million heat pumps to be installed by 2026 and nearly 60 million by 2030.⁶ In the accompanying ‘EU Save Energy’ Communication the Commission proposes a range of measures to accelerate and incentivise the roll-out of heat pumps, such as tougher requirements on buildings which should see an end to ‘standalone’ fossil fuel boilers by 2029.⁷

Energy dependency in figures: Around 40% of EU gas consumption is supplied by Russia⁸. Over €26 billion have been paid to Russia for gas alone since the invasion⁹.

Goal: Drastically reduce energy imports from Russia. The REPowerEU plan communicated in March and detailed in May 2022 is the European Commission’s proposal to achieve this goal. It outlines three main goals: to reduce energy demand; diversify supply and accelerate the clean energy transition.

Focus on electrifying heat

- **Why?** The biggest energy demand in European households comes from heating¹⁰, with gas the main fuel used.
- **How?** Targeting 20 million heat pumps to be installed by 2026 and nearly 60 million by 2030. Member States are encouraged to reduce VAT rates for clean heat and insulation and adopt energy pricing measures which facilitate switching to heat pumps¹¹. €56 billion has been earmarked to invest in energy efficiency and heat pumps by 2030¹².
- **Who?** The heat pump market as it stands in Europe today is not developed enough – both in terms of manufacturing and installation capacity – to cater to this surge in demand¹³. The REPower plan seeks to address this by strengthening the supply chains of heat pumps. Cross-border efforts to tackle the innovation challenge will be supported by the European Commission through a strategic instrument for industrial policy implementation¹⁴.

Industry’s response

- **Energy utilities:** In 2021, major energy groups such as Enel and EDF had already indicated the feasibility of such large-scale heat pump deployment, emphasising that “*the lights will stay on*”. The European electricity grid as it stands today could handle 50 million heat pumps¹⁵.

⁶ [European Commission, 2022](#). RePower EU Plan

⁷ [European Commission, 2022](#). EU ‘Save Energy’

⁸ [European Commission, 2022](#). REPowerEU: Joint European Action for more affordable, secure and sustainable energy

⁹ [Beyond Coal, 2022](#). Russian Fossil Fuel Tracker

¹⁰ [EuroStat, 2022](#). Energy consumption in households

¹¹ [European Commission, 2022](#). REPowerEU Plan

¹² [European Commission, 2022](#). Factsheet on Financing REPowerEU

¹³ [EurActiv, 2022](#). Europe’s booming demand for heat pumps exposes bottlenecks

¹⁴ [European Commission, 2022](#). REPowerEU Plan

¹⁵ [EurActiv, 2022](#). European Electricity Grid can handle 50 million heat pumps

- **Manufacturers:** Leading heat pump manufacturers have deemed this “colossal challenge”¹⁶ as “doable”.¹⁷ Recommendations set out by the European Heat Pump Association include:¹⁸
 - Encouraging Member States to accelerate the deployment and integration of large-scale heat pumps in a cost-effective way, for example by exploiting industrial heat
 - Encouraging Member States to use pricing measures to encourage heat pumps
 - Encouraging co-legislators to bring forward the cut-off date for public subsidies for fossil fuel-based boilers in buildings, from 2027 to 2025
 - Creating a new window in the Innovation Fund to support innovative clean tech manufacturing including heat pumps
 - Proposing increasing the binding energy efficiency target to at least 13% by 2030 based on 2020 levels, from the current 9%
 - Setting up a large-scale ‘skills partnership’ which should help train up people to work in the heat pump industry

Key lessons for the UK

- **Huge market opportunity with manufacturing and export potential** to meet demand for the targeted 20 million heat pumps to be installed in the EU by 2026 and 60 million by 2030. A recent report for BEIS identified the export potential for several European countries, including France, Ireland, Netherlands, Spain, Germany and Eastern Europe.¹⁹ This could translate into support for skills and training opportunities.
- **Ambitious heat electrification plans are plausible and desirable**, and targets provide a good signal for industry and consumers of the path ahead. To ensure effective delivery on the ground, complementary policies such as providing incentives to households and support for skills and training will also be important.

¹⁶ [EurActiv, 2022](#). Heat pumps to RePower EU

¹⁷ [EurActiv, 2022](#). Germany’s summer package to focus on heating sector revamp

¹⁸ [European Heat Pump Association, 2022](#). RePower EU Heat pump strategy required

¹⁹ [BEIS 2020](#), Heat Pump Manufacturing Research Project

3a) France: The largest EU market, pump-primed with sweet incentives

Context: Gas accounts for 16% of total energy consumption in France²⁰, and nearly a third of it is used in the residential sector²¹.

In 2021, France was the largest market for heat pumps in Europe,²² in part due to the role of various subsidy schemes to pump-prime the market.

Sweetening incentives: The existing French subsidy scheme, MaPrimeRenov, got boosted with an additional €1,000 per households from April until the end of 2022²³. Up to €20,000 can be disbursed over 5 years for various energy performance improvement work. Low-income households can now access up to €10,200 of combined subsidies for installing a heat pump²⁴.

Reducing running costs: To further mitigate the energy price increase for consumers, the tax on electricity bills has been reduced by 96% since February 2022, covered by general government spending and EDF²⁵. It is now €1/MWh, the minimum allowed by EU regulation²⁶.

Lessons for the UK

- **Long-term incentives, well communicated to the public, can pump-prime the market:** MaPrimeRenov was originally set up as a 'green stimulus' measure in response to the coronavirus pandemic, and has been described as a "resounding success"²⁷ –and might be considered a more successful cousin to the UK's ill-fated Green Homes Grant scheme. Various lessons can be learnt, including the success of France's strong public communication campaign.²⁸ Another key takeaway for the UK is that fabric energy efficiency measures are included, which can bring down the cost of heat pump installations further – something which the Boiler Upgrade Scheme does not currently cover.
- **Changing the economics for clean heat:** The UK can move ahead with its proposed plans to reduce the running costs of clean, electric heat through removing legacy policy costs from electricity bills, funding these through general government spending instead.

²⁰ [Ministère de l'Écologie, 2022](#). Bilan énergétique de la France

²¹ [Ministère de l'Écologie, 2022](#). Gaz naturel

²² [Carbon Brief, 2022](#): How heat pump sales are starting to take off around the world

²³ [Ministere de l'Economie, 2022](#). MaPrimeRénov' : la prime pour la rénovation énergétique

²⁴ [EDF, 2022](#). Quelles aides pour installer une pompe à chaleur dans son logement?

²⁵ [EurElectric, 2022](#). Power prices and the war in Ukraine

²⁶ [Service Public France, 2022](#). La hausse des tarifs réglementés de l'électricité plafonnée à 4 % au 1er février

²⁷ [EurActiv, 2021](#). France to capitalise on resounding success of green renovation

²⁸ [La Croix, 2021](#). Ma Prime Renov

3b) Germany: Gearing up for ‘a decade of the heat pump’

Context: Half of Germany’s total energy consumption is used for heating,²⁹ and German households are paying the highest electricity prices in Europe³⁰. As the EU’s largest energy consumer and the second biggest consumer of Russian fossil fuels, Germany’s move on clean heat will set the pace for the rest of the EU member states to follow.³¹

Support for clean heat: An “Easter package” launched in April 2022 proposed new ambitious targets: 80% renewable power and 50% renewable heating by 2030, with all new heating systems running on renewables by 2025.³² To facilitate planning and permit processes, investments in renewables have been labelled as “overriding public interest”³³.

In May, Germany published the “*Work Plan Energy Efficiency*”³⁴ which outlined further measures – some of which had been previously announced:

- Increasing efficiency standards for new buildings
- Renewable use of new heating installations: Mandatory 65% renewable use from 2024, covering new builds and heating system replacements.
- Heat pump targets: 500,000 installations annually until 2024 and 800,000 per year after.
- Distribution of CO₂-price between tenants and landlords: The lower the energy efficiency of the building, the higher the share the landlord must pay.
- Solar roofs “should” become standard
- Mandatory environmental and energy management for all levels of government, including yearly saving goals.
- “Climate-neutral” district heating: Widespread planning of district heating; key elements to be announced in 2022.
- Funding of building efficiency measures: Increased focus on renovation of existing buildings. New programme for new buildings (2023). Ending funding for renovation standards that are already widespread (namely EH 55, which was funded w/ funded w/ EUR 6 bn. last year, although it would’ve likely been taken up w/o funding as well). There is no language that suggests social targeting of this funding.
- Funding programme for RES in district heating: Supporting new systems and fuel switches in existing heating systems.

Supporting skills: A “programme for heat pump development” encourages companies and workers from the construction sector to take part in upskilling training sessions³⁵.

Industry’s response: German manufacturer Viessmann, one of the leaders of the European heat pumps market, announced early May an investment of €1 billion in the next three years to expand its

²⁹ [Clean Energy Wire, 2022](#). German households use less energy for heating and more for cooling

³⁰ [Bruegel, 2022](#). National Policies to shield customers from rising energy prices.

³¹ [Beyond Coal, 2022](#). Russian fossil fuel tracker

³² [Federal Ministry of Economic Affairs and Climate Action, 2022](#). Federal Minister Robert Habeck Says Easter Package is Accelerator for Renewable Energy

³³ [Clean Energy News, 2022](#). Germany launches full-scale renewable power transition

³⁴ [BMWK, 2022](#). Saving energy for independence

³⁵ [BMWK, 2022](#). Arbeitsplan energieeffizienz energiesparen fuer mehr unabhaengigkeit

heat pump and green climate solutions portfolio amid growing demand. The Group's CEO justified this decision by the "unprecedented geopolitical developments"³⁶.

Green finance: The government has injected close to €5 billion in the popular loan programme for energy renovation ran by the KfW, the German equivalent of the UK infrastructure bank³⁷. The programme had been temporarily halted earlier this year due to enormously high demand³⁸. Since its establishment in 2006, €180 billion have been deployed in various low interest rate loans and grants, triggering €500 billion in investments and boosted employment, especially in SMEs³⁹.

In Germany, projects which lead to the most efficient homes can access the most attractive rates and subsidies, incentivising greater ambition and promoting additional economic activity.⁴⁰ The KfW loan can be used to cover 50% of the costs of hiring retrofit specialists on the German Energy Agency's list of accredited supervisors to oversee and plan the work, providing confidence to the household that the correct measures are being expertly installed.

Key lessons for the UK

- **Building upon existing frameworks to accelerate heat pump deployment:** Similar to Germany, the UK could accelerate timelines previously proposed in the Heat & Buildings Strategy – for example, to speed up the phase out of fossil heating systems in new and existing buildings.
- **Leveraging the UK Infrastructure Bank to spur action and investment:** Many lessons from the KfW could be applied by the new Bank to accelerate retrofit in the UK. To replicate Germany's success, there is an important need for long-term cooperation across government departments, as well as with industry and local delivery partners. In the near-term, the Treasury could provide public funding to support a trial KfW style loan with a high-street bank. The offer must be consumer-centred, with trusted advice provided to support the household in selecting appropriate measures, and information provided to guide the homeowner on how to use new appliances and installations efficiently.

³⁶ [Viessmann, 2022](#). One Billion Heat Pump Investment

³⁷ [Spiegel, 2022](#). KfW Sanierungsprogramm Wird Um Fast Fuenf Milliarden Aufgestock

³⁸ [KfW, 2022](#). Newsroom

³⁹ [Boell, 2022](#). State support energy efficiency: Buildings view Germany

⁴⁰ [UCL Energy Institute, 2011](#). The KfW experience in the reduction of energy use

3c) Italy: Recovery efforts driving heat pump deployment

Context: Largest EU consumer of Russian gas, spending around €9795m per year⁴¹. Second largest market for heat pumps⁴².

Generous incentives to boost the market: Italy is the only country where the upfront costs for heat pumps installation are totally covered. Various schemes offer a rebate from 50% up to 110% on heat pumps and other complementary green home measures (such as energy efficiency) to households. In May the most generous of these subsidies, the *Superbonus*, has been extended until December 2022 under certain conditions⁴³. In that same set of emergency measures adopted as an immediate response to shelter citizens from high energy prices and achieve independence from Russian gas, it was decided to disburse a one-off allowance of €200 to workers and pensioners.

Lessons for the UK

- Generous support with upfront capital can make the transition to clean heat more attractive and affordable for a larger number of families – with complementary fabric efficiency measures included too.

3c) The Netherlands: A nationwide drive to get off gas

Context: Similar to the UK, the Netherlands relies heavily on gas, and their building stock is poorly insulated. 90% of homes use it for heating and cooking⁴⁴.

Boosting funding options to increase affordability: In April 2022, the Dutch government announced the ‘National Insulation Programme’ channelling £4bn to insulate 2.5 million homes by 2030 through a combined approach⁴⁵. To support this switch, €150 million per year will be disbursed until 2030 to help households purchase heat pumps. This year, the existing subsidy has been increased by 30%. In parallel, a loan has been made available through the ‘National Heat Fund’ with a 0% interest rate⁴⁶.

Signalling change with long-term regulations: In May 2022, the Dutch government significantly stepped up its commitment to clean heat: hybrid heat pumps will become the standard for heating from 2026⁴⁷. Exceptions will be made for homes unsuited for heat pumps and those already connected to alternatives to natural gas, such as a district network. The government is keen to send a strong signal to the market and consumers by providing legal certainty: the relevant legislation has been amended to this end.

⁴¹ [Beyond Coal, 2022](#). Russian Fossil Fuel Tracker

⁴² [Energy Monitor, 2022](#). France is the biggest market for heat pumps in Europe

⁴³ [Gazzetta A ufficiale, 2022](#). DECRETO-LEGGE 17 maggio 2022, n. 50

⁴⁴ [Cedelft, 2022](#). The natural gas phase out in the Netherlands

⁴⁵ [Vabi, 2022](#). Nationaal Isolatie Programma

⁴⁶ [Rijksoverheid, 2022](#). Hybride Warmtepomp de Nieuwe Standaard Vanaf 2026

⁴⁷ [Rijksoverheid, 2022](#). Hybride Warmtepomp de Nieuwe Standaard Vanaf 2026

Supporting skills: To further ensure market readiness, joint action will be undertaken with manufacturers and installers to train a larger workforce and substantially ramp up production capacity⁴⁸. Every region of the country will have dedicated training centres while three new production facilities are due to open in the short term. Quality standards for heat pumps and installers will be established to protect consumers.

Lessons for the UK

- **A wide range of funding options to support different households:** The mixture of grants and loans – including those which cover complementary efficiency measures – mean that a wide range of households have access to the funding options they need.
- **Supercharging supply chains:** While the UK government has acknowledged the jobs and skills gap in the Heat & Buildings Strategy, more is needed to support good jobs in clean heat. This could include working with industry to establish training courses and high-quality apprenticeship opportunities, as well as working with industry and unions to ensure that jobs in clean heat are secure and attractive – for example, exploring how fair pay mechanisms could be introduced across the sector.

3d) Finland: Trailblazing in the snow

Context: 21 May 2022 was the day when Russia turned off the gas tap to Finland. But the country had been ready for a long time. Finland is one of the pioneers of clean heat, with about one third of households already equipped thanks to a combination of grants, high performance building standards and increased taxes on fossil fuels⁴⁹.

Steps towards the Finnish line: To further accelerate the energy transition and reach its climate-neutrality target set for 2035, a proposal from Finland to cut taxes on electricity for certain heat pumps is under review at EU level⁵⁰.

Concerned about sheltering citizens from energy prices pushed up by the invasion of Ukraine, Environment Minister Emma Kari held a press conference on energy savings during which she labelled the installation of a heat pump a “patriotic act”⁵¹.

The Climate Change Act approved this spring and entering into force in July lays down provisions for policy plans⁵² which include €40 million “in subsidies for improving the energy efficiency of residential buildings and for measures that aim for smart and flexible energy consumption”⁵³.

⁴⁸ [Rijksoverheid, 2022](#). Hybride Warmtepomp de Nieuwe Standaard Vanaf 2026

⁴⁹ [RAP, 2022](#). The perfect fit: Shaping the Fit for 55 package to drive a climate-compatible heat pump market

⁵⁰ [European Commission, 2022](#). Council Implementing Decision

⁵¹ [EurActiv, 2022](#). Green technologies shortage looming in CEE

⁵² [Ministry of the Environment, 2022](#). New climate change act to be submitted to parliament

⁵³ [Finnish Government, 2022](#). Minister Emma Kari: This spring will be critical in building fossil-free Finland

Lessons for the UK:

- While Finland has always been a leader in clean heat, there are nonetheless lessons the UK can learn – in particular, dispelling myths and misinformation that heat pumps do not work in cold climates.

3e) Poland: The fastest growing EU market facing shortages

Context: Gas makes up a fifth of the total energy consumed annually in Poland. About half of the country’s gas was supplied by Russia, before pipelines stopped delivering in May⁵⁴.

From Clean Air to Clean Heat: A “Clean Air Programme” was introduced before the gas price crisis to address the significant health problems created by coal, the dominant heating fuel⁵⁵. Launched to incentivise the switch to more efficient heat systems, it focused on strict air quality requirements regardless of the heating technology used. However, with the rise of gas prices, heat pumps are now the major heating technology, with a market growth of 66%. Per capita, more heat pumps were installed last year in Poland than in the UK⁵⁶.

Clean Air subsidies cover from 30% up to 90% of the costs for the poorest households⁵⁷. In April, an additional programme was launched covering 30 to 45% of upfront costs. Called “My Heat”, it supports the installation of heat pumps in new homes meeting a high energy efficiency performance⁵⁸. The phase out of coal heating systems legislated by several Polish regions created market certainty and, together with the subsidies, contributed to unlocking unprecedented growth⁵⁹.

Booming demand is causing supply chain challenges in some regions⁶⁰. The heating industry is awaiting a clear signal from the central government and adapt their production⁶¹.

Reducing running costs: Shortly before the war, Poland introduced its second “anti-inflation shield” which included a series of progressive VAT cuts on energy bills for households, from 23% to 5% to 0%.

Lessons for the UK:

- **Support joint-up policies to address multiple challenges at once:** the electrification of heat sits at the nexus of several of the government’s main concerns: energy security, fuel poverty, jobs, clear air and more. Now is the opportunity to recognise these interlinkages and increase the level of ambition by ensuring that the *Heat & Building Strategy* delivers on its promises.

54 [Washington Post, 2022](#). Poland Russian gas diversity strategy

55 [IEA, 2022](#). Poland

56 [Foresight, 2022](#). From laggard to leader: How Poland became Europe’s fastest growing heat pump market

57 [Wysokienapiecie, 2022](#). Pompa ciepła zamiast kotła. Rząd namawia dotacjami

58 [Wysokienapiecie, 2022](#). Pompa ciepła zamiast kotła. Rząd namawia dotacjami

59 [Foresight, 2022](#). From laggard to leader: How Poland became Europe’s fastest growing heat pump market

60 [EurActiv, 2022](#). Green technologies shortage looming in CEE

61 [Wysokienapiecie, 2022](#). Pompa ciepła zamiast kotła. Rząd namawia dotacjami

4. The US: A keen transatlantic interest

A war time response: The US announced they would make use of the Defense Production Act (DPA) to accelerate their domestic production of clean energy technologies, including heat pumps and solar panels. The DPA gives the US president the power to order companies to produce goods and supply services to support national defense. It was created to allow for quick industry response in times of war, but has more recently been used during the pandemic to produce face-masks and vaccines.

The Act seeks to lower energy costs, create good jobs and “*to build an American-made clean energy future*” and reduce US energy reliance on and exposure to other countries.

Beefing up manufacturing: DPA authority, with the necessary funding appropriated by Congress, will allow the federal government to invest in companies that can build clean energy facilities, expand clean energy manufacturing, process clean energy components, and install clean energy technologies for consumers. The move enables federal authorities to buy heat pumps for federal buildings, subsidise expanding heat pump manufacturing capabilities, and fund technology transfer from federally funded R&D. This also includes the use of preferential tariffs for US manufacturing to prioritise their domestic supply chain.

Lessons for the UK:

- This significant move to deploy heat pumps signifies they have now become strategically vital – not just in terms of climate change, but in the war effort to counter Russia and reduce dependence on gas and exposure to its price’s volatility.
- The US announcements present an incentive for the UK government to be more ambitious in both its targets and support to reach them, and provides encouragement to heating manufacturers to flex their capabilities to ensure the UK’s position in the innovation race moves forward at speed.

Conclusion

Around the world, a growing number of countries are looking to accelerate the shift away from fossil gas heating and towards mass deployment of heat pumps. This is an opportunity for the UK to accelerate manufacturing and export opportunities – harnessing its gas boiler supply chain capabilities and channelling them into clean heat technologies like heat pumps – as shown technically possible by a recent BEIS report.⁶² Research last year from Cambridge Econometrics suggested there was a £5bn economic opportunity for the UK in putting its weight behind heat pump manufacturing – this could now be even bigger.⁶³ Now is the time to go big if the UK wants a piece of this rapidly growing market.

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⁶² [BEIS, 2020](#). Heat pump manufacturing supply chain research report.

⁶³ [Cambridge Econometrics, 2021](#). Economic impacts of decarbonising heating in residential buildings.