The perfect fit: shaping the Fit for 55 package to drive a climate-compatible heat pump market – primer

This primer provides a brief overview of the full paper which can be found here: bit.ly/3iL6NfH

The challenge

Removing fossil fuels from heating is a goal of policy makers around the world in order to decarbonise energy systems and to remove exposure to fossil fuel imports. The key technology to replace fossil fuels for heating is heat pumps, devices that use electricity to extract inexhaustible heat from the environment and put it to use to heating buildings and hot water. The International Energy Agency and McKinsey see heat pumps as the most important future heating technology.

In the EU, where fossil fuels — mostly gas — dominate the heating mix, particularly rapid action on heat is needed with the share of heat from heat pumps expected to grow at lightning speed even for existing goals to be met. Heat networks, which simultaneously need to grow rapidly, are also expected to see much of the heat they transport produced from heat pumps.

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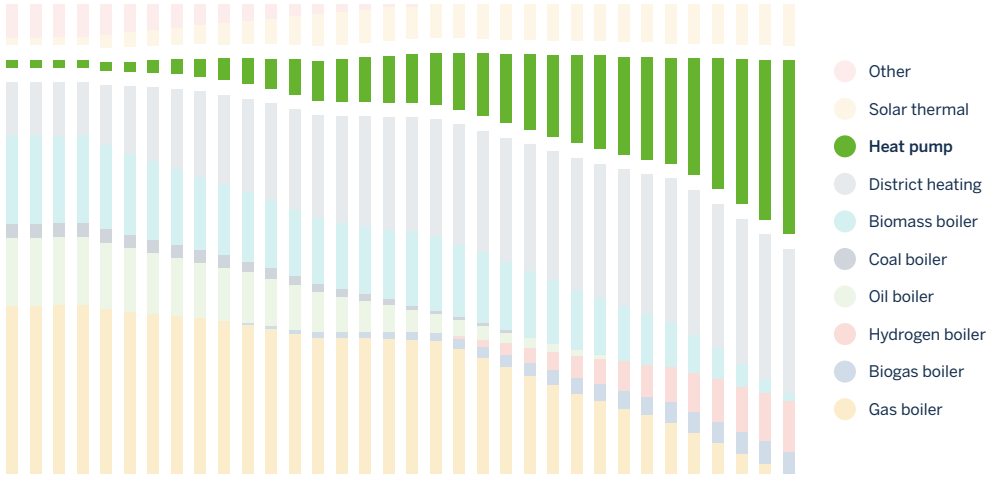
Space and water heating technology mix in Mckinsey's net-zero Europe scenario (Penetration level in %)



Source: McKinsey. (2020). *Net-Zero Europe – Decarbonisation pathways and socioeconomic implications*

Multiple barriers to heat pumps need to be removed

With decades of support given to fossil fuel heating technologies, the rapid deployment of heat pumps will need support. Currently three issues stand in the way of heat pumps:

01 The presence of alternative heating infrastructure, in particular gas grids, gives an advantage to fossil heating technologies, which are supported by previously sunk costs, skills, supply chains and consumer expectations.

02 Due to market immaturity and energy pricing regimes, lifetime costs of heat pumps are nearly always higher than for gas boilers, particularly for first time fossil fuel replacements.

03 For historic reasons, existing policies and regulations are likely to offer enhanced support to incumbent fossil fuel heating technology rather than heat pumps.

Reforms to the Fit for 55 package can significantly increase heat pump deployment

Element of package	Benefits	Issues	Proposals for reform
Development of ETS 2 in ETS directive which would include buildings as well as transport sectors.	Inclusion of buildings in ETS is expected to balance economics towards heat pumps.	• Concern that scheme will not be maintained. • Risk that carbon prices could rise to unsustainable levels if members states don't act.	ETS 2 should be maintained, but with a cap on allowance prices and recycling of revenues to protect vulnerable consumers. Simultaneously the Effort Sharing Regulation and energy efficiency requirements should be strengthened.
Revisions to Energy Taxation Directive to ensure electricity is always taxed lower than other fuels which will have tax levels linked to environmental damage.	These proposals would see tax levels on electricity reduced compared to other fuels driving pricing reform which would support heat pumps.	• Because of need for unanimity of support on tax issues there is a risk this could be dropped.	This policy change should be supported and exemptions limited. Revenues should be used to protect the most vulnerable from pricing impacts.
Recast Energy Efficiency Directive in which proposals are set to disallow energy savings from boiler installations, as well as introduce a standard for 'efficient heating and cooling' networks.	These changes would increase heat pump deployment under energy efficiency schemes and increase heat pump use in district heat networks.	• Primary energy saving target is not strict enough. • District heating rules may continue to allow the use of bioenergy and fossil fuels.	Energy saving target should be tightened and rules for 'clean' district heating should rapidly eradicate the potential for fossil fuels and bioenergy.
Revised renewable energy directive, which includes higher targets for renewable heat use in buildings.	Meeting such a target would imply growth in the numbers of heat pumps, classed as a renewable energy technology.	• The new target could lead to Member States using unsustainable biomass to meet renewable heating targets.	A strict cap on the use of biomass to meet the target should be introduced. In the absence of a cap, an uplift for the heat produced by heat pumps should be considered to ensure strategically important non-bioenergy technologies receive appropriate support.
Revisions to the Energy Performance of Buildings Directive, which include the need for Member States to set out policies for fossil fuel heating phaseouts by 2040 and the need for new, zero emission buildings by 2030. Revisions also include uplifts to minimum energy efficiency standards.	The increased fabric efficiency standards could increase the suitability of buildings for heat pumps. Fossil fuel phaseout plans will also likely drive increased interest in wider policy change which supports heat pumps.	• Proposed bans on fossil heating in new buildings will come into force too late locking in emissions. Similarly for existing buildings, phaseout planning requirements may lead to a lock-in of existing buildings.	Plans for phaseouts of fossil fuel heating in the directive should be brought forward for both new and existing buildings. In general, goals and standards for energy efficiency should be increased.
Modifications to energy labelling and ecodesign regulations for heating appliances are being reviewed and rescaled in parallel to the package.	The proposed rescaling of the energy label requirement for heating equipment would mean that even condensing fossil boilers would receive a maximum 'F' rating. This would point consumers towards heat pump technologies.	• The proposals do nothing to ban the installation of fossil fuel boilers. • The proposals include 'hydrogen ready' boilers, which could confuse consumers and lead to delays in heat pump deployment.	The proposals should introduce a minimum efficiency requirement of 110% as soon as is practical to stop the installation of new building and replacement fossil fuel boilers. Any mention of hydrogen-ready boilers should be removed.

Immediate policy change is required across scales including at Member State level

The Fit for 55 legislation will take some time to come into force. While the EU legislation could progress more quickly, Member State-level policy reform can move ahead of EU law in the shorter term. In general, to support rapid heat pump deployment, three things need to happen simultaneously and these can be supported now:

01 Fuel pricing strategies should ensure heat pumps have lower total ownership costs (including running costs) than equivalent fossil fuel systems. Green heat needs to be cheaper that fossil fuel heat. This can be achieved by moving levies from electricity and introducing new taxes.

02 Financial support needs to be available for building owners to cover additional capital costs associated with first time heat pump installs, as well as the associated building efficiency and heating system upgrades that may be needed to make buildings 'heat pump ready.'

03 Regulatory measures need to drive bans of fossil fuel heating in both new and existing homes.

These policies need to be supported by clear government heat pump strategies and joined-up heat and buildings governance. Immediate action is needed to reform heat pump policy across the EU. The Fit for 55 package provides a window of opportunity for policy change which must not be missed.