



Water Source Heat Pumps – Summary of Stakeholder Views

Water Source Heat Pumps (WSHPs) operate by taking heat from the water, boosting temperature and feeding it into local heat networks or single buildings, providing a low-carbon source of renewable heat to local areas. Along with other lower carbon forms of heating, as set out in the Government's 2013 policy paper [The Future of Heating, Meeting the Challenge](#), they will play an important part in safeguarding the UK's future energy security and cutting greenhouse gas emissions. They have the potential to provide heat on a large scale, especially in densely populated urban areas. But there are currently very few large scale water source heat pumps in the UK.

We have therefore undertaken an informal consultation with a range of stakeholders to assess barriers to deployment. This included representatives from the heat pump industry, those involved in granting the relevant planning permissions and consents, potential "customers" of this technology and other interested parties.

The objective was to identify the barriers to wider deployment and what actions could be taken by Government and industry to overcome them. Over the course of three workshops and other meetings we have gathered the attached stakeholder views (Table 2).

On 5 November 2014, [Amber Rudd, the Under Secretary of State for Climate Change announced a focused package of actions](#) to help overcome the most important barriers to deployment of WSHPs at the Annual Heat Conference. These included:

- working with the Environment Agency (EA) to streamline processes so it is easier to apply for the relevant permissions;
- working with industry to drive up technical standards through a Code of Practice, and to help those looking to install water source heat pumps navigate the planning and consenting processes;
- running roadshows and other events to raise awareness of this technology among potential developers;

More detail is set out at Table 1. These actions were agreed jointly by government and industry and provide a proportionate and deliverable response to the concerns raised by stakeholders. These actions are in addition to work already underway which will support water source heat pump deployment as part of their wider policy objectives (e.g. heat networks), in particular the development of a [water source heat map](#). More information on these can be found at: <https://www.gov.uk/government/policies/increasing-the-use-of-low-carbon-technologies/supporting-pages/heat-networks>

Table 1: Overview of Planned Actions

Issue	Action	Detail
Consenting and Planning	<p>Working with the Environment Agency to streamline processes so it is easier to apply for the relevant permissions</p>	<p>To include:</p> <ul style="list-style-type: none"> • improved application forms; • a central point of contact within the EA for each WSHP project; • good quality pre-application advice; and • working with industry to help them understand what is required.
	<p>Helping those looking to install water source heat pumps navigate the planning and consenting processes</p>	<p>Working with industry to create a ‘customer journey’, mapping out the various permits and consents required for WSHP developments.</p>
Technical	<p>Working with industry to drive up technical standards.</p>	<p>Supporting the industry in putting together a Code of Practice, or similar guidance document.</p>
Awareness raising among potential developers, consultants etc.	<p>Running roadshows, and other events, to raise awareness of this technology among potential developers;</p>	<p>To include:</p> <ul style="list-style-type: none"> • Running a number of roadshows around the UK on heat pump design and specification for non-domestic and domestic buildings, aimed at a range of potential ‘customers’. We will actively identify developers of large waterside developments, so that they can take full advantage of these roadshows to understand the opportunities for the technology. • Working with industry to set up a series of meetings targeting Local Authorities to raise awareness about WSHPs. This would build on previous events, including wider Heat Network Delivery Unit (HNDU) roadshows. • Working with industry to develop and promote case studies and identify flagship schemes to help with awareness raising activity.

Table 2: Summary of Stakeholder Views

Barrier Type	Issue Identified	Importance to stakeholders	Possible Actions suggested by stakeholders ¹
Consenting Barriers	Potentially lengthy and/or complex water abstraction and discharge licensing processes , possibly based on misunderstanding of the “abstraction” involved in operating a WSHP.	High	Make improvements to EA application forms so that they are easier to access and navigate.
			Develop a system for pre-application advice and a dedicated point of contact within the EA to handle WSHP projects.
			Work with industry to ensure that those working on WSHP applications within the EA have all the information they need.
			Develop two stage water licensing process in order to provide confidence for investors that relevant consents will be successful.
			Integrate the management of abstraction and discharge licensing into a single process.
	A lack of understanding of the consents process among developers.	Medium	Work with industry and investors to ensure they understand the system e.g. through industry guidance.
	Short licences and/or perceived lack of certainty about length of licence makes securing financing difficult.	High	Further information could be provided to clarify this aspect given the fact that WSHPs are non-consumptive.

¹ This table contains views expressed during stakeholder workshops held over the summer 2014, and other stakeholder engagement activity. .

	WSHPs may need to get other permissions depending on their location e.g. SSSIs, Crown Estate, Marine Licences, water companies, Port of London Authority, from other waterway owners etc.	Low	Work with these companies and organisations to understand potential challenges and concerns and to raise awareness about the technology.
	Concerns about the potential cumulative impact of WSHPs, for example in relation to regulations on water quality and temperature.	Low	Keep under review and consider how this may be modelled in the future if demand rises greatly.
Planning Barriers	WSHP developments may require a number of planning permissions (e.g. energy centre, pump house, pipe network etc.) as well as possible easements. Process can be complex and time-consuming.	Low	Produce a customer journey/ "decision tree" relevant to most types of WSHP - should cover planning and consenting aspects as far as possible.
			Look at the way in which water source heat pumps are dealt with in planning regulations - c.f. policies on "statutory undertakings"/ "permitted developments"
	Planning approvals pathways may differ across LAs so that WSHPs are treated differently in different areas.	Low	Undertake work with those involved in the planning and building control process to raise awareness about this technology.
	WSHP developments may encounter resistance at planning stage for a number of	Low	Encourage the exchange of best practice regarding energy centre, and other, design elements so that permission for WSHPs more likely to be granted.

	reasons. For example, because they are in a conservation area; on a tourist route; the public has concerns about the impacts of a 'novel' technology; the site is on a flood plain; and/ or possible wider impacts on the landscape e.g. tree root systems.		Engage with possible interested parties (e.g. river user groups) who may be concerned about this technology in order to develop more acceptable mitigation options.
	Lack of incentive in the planning system/ building regulations to consider WSHPs	High	Provide guidance which could be used by LAs when putting together their local plans (e.g. model policies and model conditions) to encourage zoning/ deployment of WSHPs, where appropriate.
	Land ownership can be an issue as the developer may not own the land next to the river.	Low	Encourage early engagement e.g. via customer journey work
Technical Barriers	Potential design challenges for WSHPs, e.g. higher temperatures, integration into a heat network. Not insurmountable and have been overcome in many cases (including internationally or in other industries).	Medium	Identify and promote examples where these issues have been overcome which demonstrate the temperatures achieved and reliability of such systems.
			Encourage innovative design and demonstration projects with proper monitoring and evaluation e.g. through demo competitions.
	Possible issues around potential design versus built performance. Could be caused by: Poor quality design and feasibility studies; poor installation; fragmented supply chain; poor operation and	High	Develop and promote guidance and/or a Code of Practice focused on WSHPs for use by designers, consultants, engineers etc. This could possibly be followed by a training and accreditation scheme. Areas of focus might include: design optimisation; parasitic power; control systems; integration into civil engineering; commissioning; building services operation;
			Consider development of a performance guarantees scheme.

	<p>maintenance of systems. May lead to WSHPs not being considered as an option/ being designed out during the development of a project.</p>		<p>Look at the way in which building regs and underpinning methodologies (including SAP/ BREEAM etc.) might influence decision-making and potentially disadvantage WSHPs e.g. due to the carbon values assigned to WSHPs.</p>
			<p>Developing/ promoting design tools to help comparison of potential heating systems at the feasibility study stage</p>
	<p>Varying approaches taken by DNOs/ possible future challenges (i.e. reinforcement of electricity grid) as number of heat pumps increases.</p>	Low	<p>Develop iterative investment plans with DNOs in order to ensure availability of electricity from the grid (especially in London).</p>
<p>Consumer information - lack of awareness</p>	<p>Lack of awareness about the technology and potential for water source heating therefore WSHPs do not get considered as an option.</p>	High	<p>Develop and publicise water source heat map. Provide support to LAs so that they can interpret the map properly.</p>
			<p>Proactively identify potential developers, e.g. all larger developments requiring heat capacities above 1MW and/or specific sectors e.g. hotels and alert them to the technology. Could include areas off gas grid with potential - e.g. coastal Cornwall</p>
			<p>Encourage local authorities to identify WSHP priority areas (obliging developers to investigate and, if viable, install WSHPs) via local planning policy.</p>
			<p>Identify and support organisations who understand the technology and who can reach out to appropriate developments.</p>
<p>Consumer information - Concerns about</p>	<p>Perceptions about what WSHPs can do and/ or poor performance of WSHPs among potential developers and their</p>	High	<p>Identify and promote examples which demonstrate the temperatures achieved and reliability of such systems.</p>
			<p>Directly fund demonstration projects, e.g. identify LA heat network projects with high potential.</p>

technology	advisers (consultants, mechanical and electrical engineers, Energy Savings Companies (ESCOs), utilities etc.).		Evidence gathering e.g. monitoring and evaluating existing and new projects where possible
Consumer - lack of capacity	Lack of capacity and expertise , especially among Local Authorities and community groups.	Low	Provide bespoke support/ advice to Local Authorities, community groups and others on feasibility and/ or practicalities (e.g. on water abstraction, putting together partnership agreements and heat contracts, project governance, "masterplanning" etc.). Could be time-limited to build up critical mass of knowledge among developers/ consultants leading to a "snowball effect".
			Encourage exchange of best practice/ knowledge among LAs, community groups etc. e.g. via a web portal or virtual group.
Financial/ Commercial Barriers [NB does not include issues related to RHI]	Difficulty in securing investment given costs, risks and uncertainty associated with all of the above.	High	<i>Links to all actions above.</i>
			Raise awareness among financiers so that they are aware of/ understand the technology better and their key concerns.
			Develop evidence base on cost effectiveness, likely rates of return etc.
			Keep incentivising heat networks to ensure there is higher demand for heat customers that might benefit from heat supply from WSHPs.