Storage heater questions and answers

This document has been produced by Happy Energy in consultation with Ofgem, the BRE, certain energy suppliers, technical monitoring companies and ECO scoring tool accreditation bodies. We would like to thank these organisations for their assistance in drafting the guide. Please note, this document has been produced for free use by the supply chain to minimise the risk of non-compliance and to ensure that claims are not later rejected or subject to a re-score. Happy Energy cannot accept any liability whatsoever for any inaccuracies and we would always recommend that installers check with their funder who may have different compliance requirements.

Q: What kind of storage heaters can I install?

A: You need to ensure that the replacement storage heaters are one of three types as below:

1. High heat retention storage heaters – these must be as listed on the PCDB.
2. Fan assisted – this type of heater has a fan which helps to blow out more of the heat from the heater and it sometimes connects to a room thermostat
3. Integrated/direct acting – these heaters have an additional on-peak heater built in to provide boost heat once the stored heat has been depleted

In all cases these heaters will have 2 electric feeds, one for the on-peak supply and one for the off peak supply. A standard storage heater which has only one feed from an off peak supply will not provide any ECO savings points as it must have a responsiveness of greater than 0.2. The unit providing the highest ECO savings points are the high heat retention types, other types may be cheaper but will also receive a lower score. Further information on these storage heaters can be provided by your qualified DEA or EPC software provider.

Some ECO scoring tools will list all 3 of the above options but others show only “Storage heaters not HHR” or “High heat retention storage heaters”. It is important to note that the first option refers only to fan assisted or integrated/direct acting storage heaters, not slimline storage heaters which are not an eligible technology to install using the current ECO scoring methodology.

Q: How do you achieve 100% of the measure installed?

A: It is a requirement that 100% of a measure is installed at premises, unless there are reasonable grounds for not doing so. For storage heater upgrades, Ofgem would deem 100% of the measure to have been installed once the home has been adequately heated using the new or replacement storage heaters. Installers must undertake appropriate calculations, for example, using manufacturer design tools, to ensure that the heaters installed provide adequate heat output for the room that they are in and overall that the combined heaters provide enough heat for the home. In RdSAP, a home is fully heated if all habitable rooms are heated, however, Ofgem would have a different definition and would expect installers to undertake appropriate design calculations to ensure that the whole home is heated, included hallways and rooms deemed to be non-habitable in an EPC.

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As with all measures, Ofgem would expect documentary evidence as to why 100% of a measure has not been installed with the reasons needing to meet their usual criteria. These grounds could include a technical reason, for example where the DNO has restricted the additional electrical load that can be installed at the house or for customer refusal. In these cases, where possible, the score would need to be reduced accordingly. In the example of qualifying storage heaters, this can be achieved by entering in the number of storage heaters that are needed to adequately heat the home rather than the actual number of heaters that are in the home. You would then enter the number of heaters replaced and this would reduce the savings in line with the number of heaters you have replaced or installed.

For non-qualifying storage heaters, not all ECO scoring tools offer the option to enter the number of heaters. NES ECO is an example of a tool that still allows you to enter the number of heaters present and the number replaced even if none exist, to correctly calculate the percentage of savings when unable to install enough heaters to adequately heat the home. For other scoring tools, you will need to speak to your accreditation body and funder to confirm how you can correctly reduce the score whilst remaining compliant with your funder’s requirements.

Q: What evidence do I need to retain regarding adequate heating calculations?

A: Ofgem would expect installers to undertake appropriate calculations when sizing storage heaters for rooms and for ensuring that the home is adequately heated. Ofgem are not prescriptive over this as they expect installers to be suitably qualified to make their own decisions on how to undertake these calculations. However, an example may be to use the design tools that are available on manufacturers’ website which calculate the size and number of heaters required to heat a room, other heat loss design calculators or by using the heat load requirements calculated in the RdSAP EPC calculation.

Ofgem may request evidence that these calculations were undertaken and that the calculations provide assurance that after the installation the home is adequately heated by the new storage heaters. Therefore installers should keep documentary evidence which may include screen shots of any tools used and the results displayed.

Q: Can I install storage heaters even if there are none in the house already?

A: Yes. These are classed as non-qualifying storage heater installations and are scored as such in the ECO scoring tool.

Q: Do I need to replace all of the storage heaters to claim 100% of the Qualifying ESH score?

A: Yes. The score will be based on the proportion of existing heaters that you replace, so if you replace 3 of 6 the scoring tool will reduce the savings by 50%, if you replace 6 of 6 you will be claiming the full score for the house. Where the scoring software allows, you must enter the number of storage heaters fitted and the number of heaters replaced rather than just ticking the “all” box. This provides an audit trail for how many units you installed. You should also ensure that the home is adequately heated as per the previous points, you cannot for example claim 100%
of the score by replacing 6 of 6 heaters if 10 heaters are required to adequately heat the home.

**Q: If there are no storage heaters in the home, how many do I need to install?**

**A:** See previous question. It is a requirement that 100% of a measure is installed at premises, unless there are reasonable grounds for not doing so. You must undertake appropriate industry calculations to ensure that the number and size of storage heaters provide adequate heating for the whole house. This may not necessarily mean that every room has to have its own heater, a lounge diner could for example have just one large heater and a very small property may be adequately heated with a small number of appropriately located heaters subject to this being verified through an appropriate design tool or calculation. If there are constraints which prevent the number of required heaters being installed, for example a limit set by the DNO, these should be recorded on the ESH checklist and the percentage of measure and ECO score reduced accordingly.

**Q: Do I need to replace storage heaters in non-habitable areas such as hallways?**

**A:** All storage heaters in the home must be included in the calculation when replacing storage heaters. Storage heaters in non-habitable areas must be either replaced or if not replaced, be included in the heater count and deducted from the score accordingly.

**Q: If there is only one storage heater in the home can I just replace that one and still claim 100% of the score?**

**A:** From an ECO scoring tool perspective, if you enter that the home has 1 heater and you have replaced 1 heater then you will receive the full cost savings for the property. However, from an ECO perspective, 100% of the measure will only be achieved when the home is adequately heated, so you should correctly reflect the actual percentage of measure installed on the Declaration of Conformity and Completed Measure. Ofgem would remind installers that it is a requirement that 100% of a measure is installed at premises, unless there are reasonable grounds for not doing so. Therefore, if only one heater is replaced, the home may or may not be adequately heated. If the home is not adequately heated, installers should be prepared to provide details of the reasonable grounds which prevented the necessary additional heaters being installed.

So to be clear, if in this example, 1 heater adequately heats the home, Ofgem would accept that the full cost score can be claimed and 100% of the measure would have been installed. If however the home is not adequately heated, Ofgem would expect the installer to install additional eligible storage heaters alongside the one being replaced, or to provide reasonable grounds for not doing so. ‘Reasonable grounds’ does not include cost, unless it is a customer refusal related to cost, in which case, this should be recorded appropriately and a signed customer declaration provided. Even in cases where reasonable grounds have been provided, if a home is not adequately heated, the installer must find an acceptable way to reduce the ECO score accordingly.
Q: Are all homes suitable for storage heaters?

A: Where a home already has storage heaters and you are simply replacing them, then subject to your electrician testing the electrical system, it should be acceptable to install replacement heaters. If, however, the home does not currently have storage heaters or you are adding extra heaters, you should ensure that the appropriate tests and loading calculations are undertaken and in all cases you should check with the local DNO to ensure that they are happy with the increased loading. This can sometimes be done via the DNO website.

Q: What do I do if there is more than one type of storage heater in the house?

A: The DEA would enter this as 2 primary heating systems as per RdSAP 9.92 convention. In the situation where a storage heater is Qualifying, other storage heaters with a responsiveness of 0.2 or less are also deemed to be Qualifying. If you therefore have a mix of storage heaters in a home, some with a responsiveness of greater than 0.2, you would split the heaters into 2 primary heating systems, change only those that have the responsiveness of 0.2 or less and then apply the ECO savings to the relevant primary heating system.

For example, you may have four slimline storage heaters with a responsiveness of 0.2 heating 50% of the home entered as primary heating 1 and four fan assisted storage heaters with a responsiveness of 0.4 heating the remaining 50% of the home and entered as primary heating system 2. You would therefore have 2 primary heating systems each heating 50% of the home. Only the 4 older heaters can be changed under the qualifying criteria. When scoring the job in an ECO tool, you would apply the savings only to the primary heating system 1.

The other 4 storage heaters could be upgraded as non-qualifying storage heaters, for example using high heat retention storage heaters which have a responsiveness of 1. In this case the savings would be based on the difference in running costs between the two types of storage heater, rather than using a starting point of electric on peak heaters as used for the qualifying methodology.

Q: Why can’t I score a home that has 2 different primary heating systems?

If a home has 2 primary heating systems, both of which are storage heaters, as per the previous question, you can apply the savings to one or both of the systems as appropriate. If, however, one of the systems is not a storage heater system, e.g. a solid fuel back boiler system, then you cannot currently score the storage heater upgrade or claim the savings through ECO due to limitations with RdSAP.

Q: What happens when a home currently has storage heaters fitted but the electric meter is on a single tariff rather than a dual tariff?

A: RdSAP 9.92 convention 4.02 August 2016 states that in this case you enter the primary system as electric on-peak panel heaters. In this case, new storage heaters can be installed without having to follow the qualifying storage heater criteria because, in effect, the starting point for the home’s heating costs will be the same as when using the qualifying methodology. In some cases, this may occur where a customer has storage heaters but they are no longer used. In this case, additional
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Q: If a storage heater is in situ but not connected to the electric, do I still need to replace it?

A: If you are using the qualifying storage heater methodology then the assumption is that all storage heaters can be replaced as if they are also broken. If the storage heater is not connected, this could be because the heater is broken which is already what is assumed of the other heaters. Ofgem would also expect in all cases that the home is adequately heated after any storage heater installation or upgrade. Therefore, this heater should be replaced or if not, it should be included in the number of storage heaters in situ and then excluded from the number of heaters being replaced which will have the effect of reducing the score.

Q: How do you confirm that a storage heater is “Qualifying”?

A: A storage heater is only Qualifying if, when connected to an electric supply, it does not store heat or does not deliver any heat. A qualified electrician should understand how to test the heating elements and controls in a storage heater to identify if there is a fault in the heater. The heater may also have some obvious physical signs of damage such as broken controls or burnt out elements and these should be carefully documented with photographic evidence. In all cases, it is good practice to record as much information as possible regarding the fault-finding techniques that were used, for example, if you test the heating element for conductivity you should note the calculated resistance and then take a photograph of the multi-meter showing the actual resistance.

Please see chapter 6 and appendix 4 of the Ofgem ECO 2 delivery guidance for further information on this.

Q: How do you identify the different types of existing storage heaters?

A: A DEA will be trained to identify different types of storage heater but a description can be found in any RdSAP training manual for example, on page 84 of the Stroma RdSAP training manual which is available online. https://stromamembers.net/files/rdsap/documents/RdSAP%20Manual.pdf

Q: How do I find out what the responsiveness of a type of storage heater is?

A: Table 4a of SAP 2012 lists all storage heaters and their responsiveness https://www.bre.co.uk/filelibrary/SAP/2012/SAP-2012_9-92.pdf and this is also shown on page 8 of the Ofgem storage heater checklist.
Q: Who can complete the qualifying ESH checklist?

A: The assessment and the repair or replacement of a qualifying ESH must be carried out by a person with the appropriate skill and experience (the ‘operative’). Appropriate skill and experience can be demonstrated by the operative meeting the competency requirements for domestic electrical installation work listed in the ‘measure specific requirements for electric storage heaters’ in Annex D1 of PAS. Typically this would be a qualified electrician.

Q: If a storage heater has a responsiveness of 0.2 or less can I replace it?

A: There is a misconception in some parts of the industry that any Old or Slimline storage heaters can be replaced using the qualifying storage heater criteria. This is not the case. At least one storage heater must be qualifying, that is to say broken or faulty as per the qualifying storage heater guidance. Only when one can be confirmed as qualifying can all others with a responsiveness of 0.2 or less can be replaced.

Any storage heater can be replaced regardless of whether it is faulty, but then you would need to enter it as a non-qualifying storage heater which will result in lower savings.

Q: What warranty needs to be provided with a qualifying or non-qualifying storage heater installation?

All ESHs repaired or installed in ECO must be accompanied by a warranty of at least one year. The requirements that the warranty must meet is dependent on the ESH measure being delivered. The warranty that accompanies a replacement ESH must reflect the proper functioning of the entire ESH that has been installed. Please read annex 4 of the Ofgem ECO guidance for further information on this.

The Ofgem guidance states that a manufacturer’s warranty can meet their requirements but also states that if a warranty is to cover multiple heaters, it must list the serial numbers of the heaters. Manufacturer’s warranties tend to be simply a card that is left with the customer that comes along with the instructions, it therefore does not contain the serial number or details of the customer or address of the property. Due to the uncertainties, we would recommend that installers ensure that they do have some documentary evidence that a warranty has been provided. Happy Energy offers an example warranty that can be used as a template for these purposes. Download here.

Q: What information do I need to record for non-qualifying storage heaters?

A: Ofgem has published a qualifying storage heater checklist but there is currently no standard template for capturing details in a non-qualifying storage heater situation. Happy Energy has produced a document that installers can use and which we believe captures the pertinent data. Download here.

Further information:

Further information can be found in Annex 4 of the Ofgem ECO 2 Delivery guidance


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