

## **Kensa Consultation Response - Heat networks regulation: fair pricing protections**

**About Kensa:** Kensa is a manufacturer, installer, training provider, and financier of ground source and shared ground loops. Kensa represents approximately 50% of the UK's ground source heat pump (GSHP) market, manufactures all its products in the UK, has been operating since 1999 and is now partly owned by Legal & General and Octopus Energy. Kensa specialises in the deployment of GSHP through shared ground loops (SGLs) networks - distributed, low-temperature, heat networks deploying GSHPs in individual homes connected to shared infrastructure of connected boreholes absorbing heat from the ground. These boreholes can be supplemented with waste heat, particularly from cooling load sources, like data centres or supermarkets. For the purposes of this consultation response, we will refer to networks only making use of boreholes/ground heat as SGL networks, and those that also use waste heat as ambient networks. Ambient networks are very rare at the current time, with ~ 1% of the networks Kensa has installed to date falling into this category.

SGLs networks differ significantly from centralised high temperature networks in not actively producing heat (this is done by the heat pump in the home). This means network charges are nearly wholly related to the capital costs of installing the SGL and a very small amount of the cost of maintenance/monitoring. Approximately 2/3rds of a home's heating bill on an SGL will be related to the electricity consumed by their own heat pump. The lack of a plant room, or any mechanical/electrical equipment on an SGL means maintenance costs are extremely low compared to a high-temperature heat network. The lack of heat production also means SGL networks will typically not be purchasing energy (some may purchase a very small amount for the operation of water pumps, although none of Kensa's do right now) and therefore there is no volatility in bills – a fixed price is agreed when a customer contracts to join a SGL network, and typically this only increase with inflation. All of this means charges from an SGL supplier are significantly lower and less volatile than a high-temp heat network – these differences and lower risk profiles should be reflected within Ofgem's approach to heat network pricing, and its wider regulatory framework.

Critically, the vast majority of SGLs currently in operation are within social housing where no charge at all is levied. The fair pricing framework/guidance should naturally account for this, making it clear that where no charging takes place on a network, then none of the pricing related responsibilities/requirements are relevant. This is vital to ensure that social housing providers are not deterred from installing SGL networks due to unnecessary levels of admin.

**Q1. Have we identified the right set of fair pricing consumer objective, principles and outcomes and are these properly defined? If you disagree with this proposal, please specify what changes you would like to see and provide a justification.**

Yes, we agreed with the principles set out.

**Q2. Do you agree with our proposals to develop the fair pricing guidance in relation to the principles (please note that questions on cost allocation proposals, including guidance, are asked separately under Chapter 3: Cost allocation).**

**In particular:**

a) have we identified the right areas to be covered by the guidance implementing the fair pricing principles (see paragraph 2.53 for a summary of the areas we are proposing to develop in guidance under each principle)? If you disagree with this proposal or think other areas should also be included, please specify what changes you would like to see and provide a justification.

Yes, we believe the right/necessary areas for guidance have been set out.

b) Do you agree with the specific proposals to develop each of these areas in guidance? If you disagree, please specify what changes you would like to see and provide a justification.

Yes we agree with the proposals in general. The following points should be noted:

**Cost reflective pricing** – guidance should be broad/high -level enough to allow for different pricing structures. We note that the fair pricing framework will not impose the need to install meters, but that this will be dealt with under HNTAS. As noted in previous consultation responses, there is insufficient need for heat metering on SGL networks given the lack of consumption-based charging and the irrelevance of such meters for demonstrating adequate SGL performance. We therefore support Ofgem’s decision that pricing guidance will not impose the need for metering.

Kensa financing of SGL networks, and the typical network fees charged, are based on a return on capital (plus interest) over 40 years. Although a long way off for any network, consideration needs to be given to what is a fair charge for SGL network access after the capital has been paid back. Guidance /principles should be broad/general enough to allow for continued charging on such networks at a rate over and above minimal maintenance charges. The owners of the assets, even once the capital has been paid back, should continue to be able to extract value from them, even if charges are at a lower level than during the initial period where capital (plus interest) was being paid back.

**Cost Efficiency** – pricing on an SGL network will not be related to efficiency as there is no active heat production/supply. It will be the efficiency of the individual heat pump that ultimately determines the cost of heat for consumers, rather than the SGL. Guidance should be general enough to reflect this, although clearly an SGL should still be expected to deliver thermal transfer fluid (TFF) at the right temperature and the right pressure.

**Capital cost recovery** – As noted above, virtually all the network fee on an SGL network is related to capital cost recovery (with a very small amount for maintenance). We believe sufficient flexibility should be provided in guidance to allow operators to recover this capital as they see fit.

**Fair and reasonable returns** – greater clarity on what constitutes an ‘unusually high’ return would be beneficial.

**Q3. Do you agree with the proposed 'fairness test'?**  
**In particular:**

**a) Do you agree with the high-level features of the fairness test (principle based, reasonableness, case-by-case basis, and objectivity)?**

Yes.

**b) Do you agree with our proposals to implement the fairness test discussed in Appendix 1: Fairness test?**

Kensa supports Ofgem's proposed approach, particularly with the intent to apply this on a case-by-case basis.

**Q4. Does the revised authorisation condition, 'fair pricing', reflect the policy intent?**

Yes.

**Q5. In relation to market segmentation (please note that we are asking in relation to the considerations discussed in paragraphs 2.58-2.61, segmentation considerations in relation to price benchmarking are considered under Chapter 4: Price comparison and benchmarking methods):**

**a) Have we identified the right characteristics for market segmentation, and are these correctly defined?**

We support Ofgem's acknowledgement that segmentation may be required with regard to SGL networks. It is worth noting here some particularities to SGL networks that give rise to the need for segmentation

**Non-charging vs charging networks** – guidance should make clear that heat networks that do not charge their consumers anything should not be subject to rules and requirements with regards to pricing. Evidently, they will not be relevant.

**Consumption based charge vs no-consumption based charge** – As noted in the consultation, SGL networks typically have a fixed network fee almost exclusively related to recovery of capital costs. In the absence of unit charges for heat, there will be some aspects of the framework, such as elements of cost allocation, data requirements, that may not be relevant.

**b) Do you agree with the segmentation approach discussed for each of these characteristics?**

Yes we agree, although again note that Ofgem hasn't considered networks where no charging at all takes place – and the need to exempt such networks from all/most of the fair pricing requirements.

**Q6. Of the information listed in Table 3 below, what do heat networks already regularly collect and can be easily reported?**

**Table 1**

Data Type	Detail	Collected by Kensa?	Comment
Charges	Standing charges for heat	Yes	Some SGLs won't even have a standing charge. Where there is a standing charge,
	Unit rates for heat	No	Not relevant for SGLs

	Connection charges	Yes	Many SGL networks won't have a connection fee.
Prices	Total annual charges across all consumers	Yes	Not relevant to non-charging SGL networks
	number of customers (to calculate mean annual customer bill)	Yes	
	annual network demand (to calculate mean price per unit of heat delivered)	No	Not relevant
	reference prices: prices for consumers at reference usage levels	Not currently	This may be developed for individual network, but would likely be done on an assumed demand level – i.e. a 3-bed house consuming 10MWh heat a year would have £x charge, largely related to the estimated capex expenditure on SGI related to their home.
Cost allocation	overview of costs recovered through standing charges	No	Not relevant as all charges are made through a standing charge.
	overview of costs recovered through unit charges	No	Not relevant as all charges are made through a standing charge.
	<b>connection charging methodology</b>	<b>Not currently</b>	Connection charges are not typically charged on our networks. Everything is covered in the standing charge.

**Q7. Of the information listed in Table 3 below, which items would be more challenging for heat networks to report?**

Please see table above for those items that are not relevant to our networks.

**Q8. Of the cost drivers listed in Table 7 (in Appendix 3), which items would be more challenging for heat networks to report?**

Many of the variables below will not be relevant to SGLs and/or won't have an impact on the price.

**Table 2:**

Variable	Comments
Technology type	For SGLs networks this won't be a relevant issue. There will be no heat production or energy centre.
Fuel type	Not relevant for the most part. Some SGL networks may use a very small amount of electricity for water pumps.
Fuel input price	See above point of fuel type
Annual network demand	The heat demand on an SGL network won't have as much impact on prices as it will for high-temp heat networks. There are some economies of scale in development/installation, but as given the lack of heat generation there is obviously no economies of scale in relation to this.
Network length	This won't impact on SGL networks. Given the lack of heat generation there is no need for all the ground arrays to be interconnected. Typically, a housing development/street/tower block will be connected to multiple different SGLs as this keeps costs lower by reducing piping and trenching costs. However, for ambient networks making use of waste heat this will be a relevant issue.
Type of network	See above points on economies of scale in relation to SGLs.
Network generation	Yes relevant as 5 <sup>th</sup> gen will have considerably lower costs.
Age	Installation costs of networks should come down as economies of scale across the industry are achieved, and regulatory barriers are removed.
Utility supplied	No relevant to SGL networks as it's a TFF being supplied which the heat pump in the home will turn into heating and HW. Very unlikely to be SGL networks where the TFF is not being used for both, although technically possible. In cases where only heating or only HW are provided, SGLs may have been sized accordingly, leading to lower capital cost and lower charges.
Operating temperature	For SGLs this will not hugely be relevant. SGLs should be designed to operate a standard temperature, gradually reducing to a minimum of) degrees over about 20 years. Ideally these design standards should be built into HNTAS. However, it is conceivable that some networks may be designed to operate consistently at a higher temperature (for example 10 degree with no reduction) these would require more boreholes and therefore more capex, and higher standing charges.

	Ambient networks providing TFF at higher temps ~20 degrees may have higher charges but may not. The more relevant questions may be – costs of waste heat, proportion of heat in TFF from ground and waste heat. More boreholes = higher capex, lower boreholes (supplemented with waste heat) = lower capex, but higher opex. This all feeds through into standing charges.
Number of customers/Number of properties	Unlikely to make much impact on charges on SGLs.
Geographic location	This could have a major impact on costs on an SGL – urban centres likely to be more expensive to install in due to space constraints, road closures, need to drill in public highway due to lack of private space etc...
Metered vs. nonmetered	We anticipate all SGLs network, will be unmetered. Therefore not a relevant factor in terms of pricing.
Other efficiency measures	Efficiency of SGL networks not particularly relevant. SGLs are designed to provide TFF at the correct temperature and pressure – this is ensured by correct design and installation of the ground around (i.e. sufficient borehole depth). Monitoring (pressure/temp) will identify if leaks have occurred. Beyond this, there is very little that can affect the effectiveness of the SGL.
Profit / non-profit	This is a relevant consideration for SGLs. However, the more important distinction for most SGLs will be between payment/non-payment.
Bad Debt	
Installed primary heat capacity	Not relevant
Load type	This is unlikely to make as much difference (if any) to price compared to a high-temp heat network. Each consumer likely to be charged on basis of its assumed heat consumption across a year, and therefore the SGL capex attributable to their building. Unlikely to make much difference on what type of consumer they are.
Age and type of properties supplied	This is highly relevant. New build properties will have significantly lower charges given their lower heat demands – this leads to lower borehole requirements and therefore lower capex/standing charges.
Funding received or costs not passed on	Highly relevant. Most SGL networks have no costs at all due to public funding (SHF and internal social housing).
Level of vulnerability	It is unlikely that this will impact prices on SGL network.
Housing tenure	Social housing very likely to be non-payment networks.
Network built preregulation vs. post-regulation	This won't have any impact on costs.
Zoning location	Zoning not expected to have any notable impact on SGL networks or their deployment.

**Q9. Should certain types of heat networks have more limited data reporting requirements? If so, which heat networks should these reduced requirements apply to, and what data should they be exempt from reporting?**

Yes. Most importantly, those heat networks that do not charge their consumers anything should be exempt from all aspects of pricing related reporting. Clearly there is some overlap with other reporting aspects (such as levels of vulnerability, or outages etc..) – but anything exclusively related to pricing should not be a requirement for those networks that have no charges.

Equally, where it is clear that certain requirements are not relevant to other SGL networks exemptions should be provided. The two tables above in the consultation provide a starting point for which aspects and data points are not relevant, for SGLs.

**Q10. Do you agree with our proposed prescriptive rule that GSOP payments, compensations, fines, penalties and other redress provided to consumers should not be passed through to customers?**

Agree.

**Q11. Do you agree with the draft best practice guidance provided? Is there anything that should be added? Should any of the best practice guidance be strengthened to prescriptive rules?**

Kensa supports the draft best practice guidance. Cost allocation for SGLs is straightforward, with all costs being allocated to a standing charge. Provided the guidance doesn't prevent this at any point, we have no concerns.

**Q12. Do you think that the best practice approach to cost allocation should differ for different types of heat networks, or different types of suppliers? If so, for which types and how?**

SGLs networks will typically allocate all costs to standing charges. However we would advise Ofgem specifying this must always be the case. In the example of ambient networks, some operators may choose to charge a small unit charge as well (although Kensa currently has no plans to).

**Q13. Does the authorisation condition, 'cost allocation', reflect the policy intent?**

Yes.

**Q14. What other feedback do you have on the proposed approach to cost allocation?**

No.

**Q15. Do you agree with our proposed approach for defining heat network prices in a comparable way? Are there any other ways to define price that we should consider?**

Yes. However, it should be noted that SGL charges will be considerably lower than high-temp heat networks and do not reflect the total price of heat. Around 2/3rds of the cost of heat for consumers on an SGL network will be related to the electricity used by their heat pumps. Direct comparison to other heat networks or even external benchmarks will therefore not necessarily be particularly useful.

**Q16. Do you agree with our proposal to use gas boilers and heat pumps as external reference benchmarks?**

We agree that gas boilers and ASHP represent useful benchmarks, but would suggest also adding direct electric heating. A very high proportion of SGL networks we install in social housing are to



replace night storage/direct electric heating. In many cases, most obviously high-rise buildings, gas boilers and ASHP are not an option. This will remain an important counterfactual, particularly as organisations like the Climate Change Committee are projecting higher use of direct electric heating as the UK decarbonises its heating.

It should also be noted that some heat networks provide cooling, and consideration is needed for how this will be treated within the benchmarking. Cooling can be provided by SGL networks at no extra network fee and this should be reflected in benchmarking.

See answer to question 15 regarding comparison of SGL network charges to external benchmarks.

**Q17. Do you agree with the proposed method for calculating a heat pump benchmark, including the key input parameters outlined? Are there any additional factors that should be considered to ensure a robust heat pump benchmark?**

As noted above, it would be worth adding direct electric heating as a benchmark given it will be the most common counterfactual in many buildings that SGLs are deployed in.

We agree with the proposed method for calculating the heat pump benchmark and agree on the need to calculate GSHP and ASHP using different SCOPs. Some consideration needs to be given to benchmarking the 'total heat' price for consumers on a SGL network. One method may be to combine the GSHP benchmark, with the network costs to give a proxy total cost of heat.

One aspect that does need consideration is how much of the internal work for a heat pump should be included as Capex for the purposes of total annualised costs. Radiators may need replacing for heat pumps, but this is a one off. Once done, the entire wet system doesn't need replacing every heat pump cycle.

**Q18. Do you agree with the proposed approach to comparator benchmarking, and our list of potential cost drivers set out below and in Appendix 3: Cost driver? Are there any relevant cost drivers that we haven't considered?**

SGLs and ambient loops should be separated out for the purpose of comparator benchmarking; the price they charge aren't comparable with high-temperature heat networks.

When comparing ambient temperature networks, it will be important to consider the inlet temperature supplied to the heat pump. A higher temperature can be achieved by incorporating more waste heat and having a higher number of boreholes. This will lead to higher capex and opex costs – and therefore higher standing charges. However this will in turn lead to much higher SCOPs for the heat pumps and therefore lower electricity bills.

**Q19. What is your view on the ease with which data could be reported on the four 'High Importance' cost drivers set out in paragraph 4.33? What information do heat network operators and suppliers already collect, and what would be challenging to provide?**

As noted in table 2 above, most of these high importance metrics are not relevant to SGL networks or won't effect price significantly.

- Technology type – this should include an option for SGLs and ambient/waste heat networks



- Fuel input price – in most cases won't be relevant.
- Network pipe length – SGL networks will be divided into multiple small arrays. Pipelength won't be relevant to costs.
- Annual network demand – we won't have access to this. We could provide an assumed demand for each house based on typical heat loads of different building archetypes (that we'll use for designing the SGL)

**Q20. What is your view on the ease with which data could be reported on the remaining 'Medium Importance' cost drivers set out in paragraph 4.33? What information do heat network operators and suppliers already collect, and what would be challenging to provide?**

Please see table 2.

**Q21. What is your view on our proposal to publish a high-level methodology for each benchmark (once data is collected and methods have been tested), to provide an accessible overview of the approach?**

Agree.

**Q22. Do you have any other feedback on the proposed approach to price comparison and benchmarking?**

No.

**Q23. Do you agree with the proposal for ongoing monitoring of profitability through data collection on EBIT margins for all heat networks?**

EBIT data should be provided on a company/operator basis rather than individual heat networks.

**Q24. How challenging would it be for heat network operators and suppliers to provide the data outlined for calculating EBIT margins? What barriers, if any, might affect the accuracy and completeness of the data?**

We don't see major problems providing this data, but it should be done at an organisational level rather than individual heat networks.

**Q25. As data collection improves, do you agree that more in-depth profitability assessments, for example using Return on Capital Employed (ROCE), should be conducted for networks identified as outliers through benchmarking?**

Yes.

**Q26. Do you have any other feedback on the proposed approach to profitability assessment?**

No.

**Q27. What are your views on the three options? Please comment on each option in terms of the price information to be centrally published, how the price information is presented and what prices are compared to.**

Given that for SGL and ambient networks, the networks fees only represent a proportion of their total heating costs, there is a need for segmentation between networks for comparison. We believe Option 2, pooled market averages, provides the best balance between detail and comparability. Even in an SGL network there are many variables that will affect the capex costs, to the extent that unless a consumer has access to all this information and understands it,

individual network price comparison is not very helpful. Equally a RAG rating for a SGL risk highlighting a particular network as poor performing, when in fact it has proportionately higher costs due to the complexities involved in the building of the network. Option 2, where averages are compared across SGL networks is therefore the best option.

**Q28. Do you think the options have the right balance between providing a good level of transparency, burden on consumers to interpret the information, risks of misinterpretation by consumers, disclosure of commercially sensitive information, and risk of price convergence?**

We believe option 2 strikes the right balance.

**Q29. Do you support focusing on one option or a combination of options in paragraph 6.69?**

We believe focusing on option 2 is the best approach.

**Q30. Do you support the phasing in of the options described in paragraph 6.70?**

No comment.

**Q31. Do you support the adoption of different options for different heat network groups described in paragraph 6.71?**

We believe focussing on option 2 for SGL and ambient temperature networks is the best option. We will not comment on the best approach for traditional heat networks.

**Q32. Do you agree that central price transparency measures are unlikely to put additional administrative burden on heat networks in addition to data reporting for benchmarking? Do you have concerns on the administrative burden from any options?**

We agree.

**Q33. Do you think it is appropriate to link central price transparency with benchmarking?**

Yes.

**Q34. Do you agree with the approach to price investigations set out so far? Please provide reasons and views to support your response.**

Yes,