

Title: Heat Networks Regulation – Consumer Protection Consultation Impact Assessment IA No: RPC Reference No: N/A Lead department or agency: Department for Energy Security and Net Zero Other departments or agencies: N/A	Impact Assessment (IA)		
	Date: 7 November 2024		
	Stage: Consultation		
	Source of intervention: Domestic		
	Type of measure: Secondary Legislation		
Contact for enquiries: Heatnetworks@energysecurity.gov.uk			
Summary: Intervention and Options		RPC Opinion: N/A	

Cost of Preferred (£m, 2023 prices, 2024 present value)

Total Net Present Social Value: 70.4	Business Net Present Value: -477.6	Net cost to business per year: 15.9	Business Impact Target Status Qualifying provision:

What is the problem under consideration? Why is government intervention necessary? Heat networks will be integral to decarbonising heat to help meet net zero targets. As heat networks have the characteristics of a local natural monopoly, consumers do not have the option to switch away from providers offering poor value for money. Currently, there are very limited regulations to protect heat network consumers from poor operating practices, therefore Ofgem and consumer protection organisations are being given initial powers regarding authorisation of heat networks. This impact assessment is an update of the previous consumer protection consultation in order to specify policy details on actions such as pricing, guaranteed standards of performance, vulnerable customer protections, step in and billing transparency.

What are the policy objectives and the intended effects? The Heat Network Market Framework is a collection of regulatory policies that aim to improve the performance and outcomes of heat networks, with the primary aim of improving consumer outcomes and increasing confidence in the market. The consultation that this IA accompanies focuses on a selection of consumer protection regulations including; step in arrangements, billing transparency, pricing policy, vulnerable customer protections, non-domestic customer protections and guaranteed standards of performance. The objective of these policies that are being consulted on is to define standards and consumer protection measures which heat network operators must comply with. The intended effect is to reduce or eliminate the consumer detriment currently faced by some heat network consumers and reduce negative externalities in heat network operation. The expected result of these market framework regulations is to allow for the efficient provision of heat networks while maintaining a fair level of consumer outcomes. This legislation also intends to provide the necessary regulation to facilitate sustainable growth of the sector.

These intended effects seek to deliver long term results in shaping and expanding the heat network market. Significant growth to the heat network sector has also been identified by the Climate Change Committee as playing a key role in reaching 2050 net zero targets. For this reason, a 30-year appraisal period has been used to capture the full long term policy effects.

What policy options have been considered, including any alternatives to regulation? There are two overarching options assessed in this IA, a continuation of existing market arrangements (Counterfactual) and establishing Ofgem as the heat network regulator. The preferred option is to provide Ofgem with the required rights and powers to regulate the market. To operate in the market under the preferred option, a heat supplier must be authorised by Ofgem and comply with the standards and consumer protection requirements set out in the regulations. This impact assessment matches the scope of the measures being consulted on at this stage and is not a cost benefit analysis of the full market framework. Feedback is being sought on many of these measures within the consultation this impact assessment accompanies.

Will the policy be reviewed? It **will** be reviewed. If applicable, set review date: Secondary Legislation Final Impact Assessment

Is this measure likely to impact on trade and investment?		Yes		
Are any of these organisations in scope?	Micro	Small	Medium	Large
	Yes	Yes	Yes	Yes
What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent)		Traded: N/A	Non-traded: N/A	

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits, and impact of the leading options.

Signed by the responsible:

Minister Fahnbulleh



Date: 15th October 2024

Summary: Analysis & Evidence Policy Option 1: Establishing a Heat network Regulator

FULL ECONOMIC ASSESSMENT

Price Base Year	PV Base Year	Time Period Years	Net Benefit (Present Value (PV)) (£m)		
2023	2024	30	Low: -43.8	High: 196.1	Best Estimate: 70.4
COSTS (£m)		Total Transition	Average Annual (excl. Transition)		Total Cost (Present Value)
Low		7.6	24.8		429.9
High		7.6	31.6		547.2
Best Estimate		7.6	28.6		494.3

Description and scale of key monetised costs by ‘main affected groups’:

Monetised costs include the costs to establish and run the regulatory body and the associated costs to business to be compliant with regulatory requirements. Over a 30-year appraisal period, the central regulatory costs are estimated to be £348m (discounted) for developing and managing the regulatory regime and monitoring prices. Ofgem will recover these costs from gas, electricity and heat network operators, passing costs on to businesses. The additional costs on heat network operators to be compliant is estimated to be £146m (discounted). This includes the administrative cost to heat network operators arising from compliance with the regulation (e.g., the cost of applications, familiarisation and dissemination), costs from disconnection bans and additional maintenance to ensure compliance with standards of performance. Further detail on these proposals is set out in the main body of the impact assessment. Additional costs of compensation payments for outages from operators to consumers is estimated at approximately £28m for 2026 (undiscounted), but this has been excluded from the NPSV calculation in line with Green Book guidance as these compensation payments are economic transfers. However, there is a distributional impact from these compensation payments in the cost incurred by heat network operators and the benefit gained by heat network consumers. We have therefore included transfer payments in the EANDCB to capture the cost incurred by operators and reflect this distributional impact.

Changes from estimates provided in the previous consumer protection consultation are driven by:

- Updated estimates for regulator set up and running costs, mainly from increases in resource requirement for authorisation, digital and monitoring purposes
- Removal of consumer advocacy organisations’ costs to match the scope of this consultation
- Updated costs for guaranteed standards of performance to more accurately reflect the policy proposal
- Addition of vulnerable customer disconnection ban costs

Other key non-monetised costs by ‘main affected groups’: There may be additional costs incurred by heat suppliers due to the need to address any compliance and enforcement issues raised by the regulator. These costs have not been included as they are highly uncertain and would be avoidable through compliance with the regulatory requirements. Additional costs to Ofgem that have not been monetised such as step in costs may be recovered from businesses. Businesses may also experience additional costs to comply with billing transparency and step in regulations although policy design aims to mitigate these costs and so they are expected to be minimal.

BENEFITS (£m)	Total Transition	Average Annual	Total Benefit (Present Value)
Low	0.0	31.4	503.5
High	0.0	39.1	626.0
Best Estimate	0.0	35.2	564.7

Description and scale of key monetised benefits by ‘main affected groups’: The associated monetised benefits with implementing regulation over a 30-year appraisal period relate to:

- £565m (discounted) in benefits to consumers, through reduced length and frequency of outages driven by the penalties for outages placed on operators. This has been informed by service levels observed from networks subject to voluntary regulation.

Other key non-monetised benefits by ‘main affected groups’:

Significant non-monetised benefits that we expect to be realised from the measures being consulted on relate to:

- Non-domestic customer protections

- Pricing policy encourages firms not to charge unfair prices due to the presence of the regulator in the market. Identifying and reducing instances of monopolistic pricing will reduce consumer detriment and deadweight welfare loss in the market.
- Billing transparency and backbilling regulations increasing consumer information and financial certainty.
- Step in regime ensuring the protection of heat supply to all customers, including those who are vulnerable.
- Additional vulnerable customers protections
- Encouraging growth of the market as customers feel more confident to join a heat network, businesses become more confident to invest in building and expanding heat networks.

Key assumptions/sensitivities/risks

Discount rate

3.5

There is uncertainty associated with the final scope and approach to regulation in this analysis due to it being at consultation stage. The impact of uncertainties around cost and benefit assumptions have been analysed as part of the sensitivity analysis and a range of NPSVs are reached by altering these assumptions.

A key area of uncertainty which has significant impact on value for money is the size of the heat network market and future market growth. The current level of regulation in this area means there is uncertainty around the size of the market, with the current estimate likely being an underestimate. There is also uncertainty around the future rate of growth of the market. Heat networks are considered vital in the delivery of net zero and multiple policies and investment programmes are in place to encourage the growth of the heat network sector. This impact assessment assumes a central estimate of 5.5% per year for general growth of the market. This impact assessment now includes the effect of heat network zoning in the growth of the market. However, estimating the per year growth of the market has high levels of uncertainty. There is further uncertainty in estimating future costs of regulation and how the market will respond to guaranteed standards of performance. The impacts of these areas of uncertainty are tested and discussed in the sensitivity analysis section of this impact assessment.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target
Costs: 15.9	Benefits: 0	Net: 15.9	

Contents

Executive Summary6

Problem under consideration.....7

Rationale for intervention8

Policy objective8

Description of options9

Non-Regulatory options.....9

Counterfactual.....9

Option 1: Establishing a Market Framework (Preferred option).....10

Summary of preferred option and implementation plan10

Approach to analysis.....11

Evidence sources12

EANDCB17

Assessment of Regulatory Benefits.....18

Billing Transparency	21
Pricing Policy	23
Step in.....	24
Additional consumer protections	25
Wider impacts	26
Equalities assessment	27
Jobs impact	28
Small and Micro Business Assessment (SaMBA):.....	29
Trade implications of measure	32
Key Limitations, Risks and Uncertainties.....	33
Sensitivity analysis	33
Monitoring and Evaluation.....	35

Executive Summary

1. A heat network is a distribution system of insulated pipes that takes heat from a central source and delivers it to a building or persons in that building. Heat networks are a crucial aspect of the path towards the cost-effective decarbonisation of heat and achieving net zero by 2050. In the right circumstances, they can reduce bills, support local regeneration and can be a cost-effective way of reducing carbon emissions from heating. Heat networks have the potential to provide around 20%¹ of the UK's heat demand in a least-cost pathway to net-zero, up from 3% today.²
2. Relative to non-heat network customers, heat network customers do not have the same level of consumer protections. This can mean lower levels of transparency and quality of service, instances of disproportionately high pricing, and no mandatory compensation regime for outages. Heat network customers are also unable to change supplier, giving heat network operators monopoly power which reduces incentives to provide a high-quality service. In addition, unlike other utilities, heat network developers/owners lack the same rights and powers, which can make developing and operating a heat network more burdensome.
3. The Heat Network Market Framework (HNMF) aims to mitigate these issues by introducing greater consumer protections and driving forward the growth of the market by ensuring heat network developers have confidence in the market.
4. A previous consultation in 2020 sought feedback on policy options for regulating heat networks and an impact assessment (IA) was published alongside this.³ In 2022, a final stage impact assessment containing further analysis was published with primary legislation and was introduced through parliament as part of the Energy Bill (now Energy Act 2023).⁴ A second consultation and impact assessment on the HNMF were then launched in 2023 to seek further feedback on consumer protections and pricing ahead of secondary legislation.⁵ The Heat Networks (Market Framework) Regulations 2024 are now being introduced as secondary legislation to give Ofgem regulatory powers within the heat network framework as well as implementing Citizens Advice, Consumer Scotland and the Energy Ombudsman for consumer advocacy and dispute resolution purposes. This consumer protection consultation is seeking further views on the details of some of the powers within the market framework. The specific policies included within this IA are pricing, billing, guaranteed standards of performance, the inclusion of non-domestic customers, vulnerable customer protections and step in. This impact assessment is an update of the previous 2023 consumer protection consultation to use more recent costs and benefits figures and fulfil the scope of this consultation.
5. Where possible the impacts of the market framework regulations included within this consultation have been monetised. Under the central scenario, the total cost is £494.3m (discounted) and the total benefit is £564.7m (discounted), giving an NPSV of £70.4m for the regulation. The costs include the set-up and ongoing costs of Ofgem as the regulator and the cost to heat network operators in the form of familiarisation and compliance as well as costs resulting from the vulnerable customer disconnection ban. Consumer advocacy organisations and the Energy Ombudsman costs have not been included within this IA as their direct impacts are not included in the consultation. Information and costs for these

¹ Independent Assessment: The UK's Heat and Building Strategy, Climate Change Committee, Table 2.1, pp. 22, <https://www.theccc.org.uk/wp-content/uploads/2022/03/CCC-Independent-Assessment-The-UKs-Heat-and-Buildings-Strategy.pdf> (March, 2022)

² <https://www.gov.uk/government/publications/net-zero-strategy>

³ <https://www.gov.uk/government/consultations/heat-networks-building-a-market-framework>

⁴ <https://bills.parliament.uk/bills/3311/publications>

⁵ <https://www.gov.uk/government/consultations/heat-networks-regulation-consumer-protection>

organisations is available within the Heat Networks (Market Framework) 2024 final legislation impact assessment. The monetised benefits within this IA include reduced outages through the incentivisation structure of the compensation regime. The majority of benefits are non-monetised from billing transparency, pricing policy, vulnerable customer protection and step in. Further detail of the analysis is explained in this impact assessment.

6. Statutory instruments have introduced Ofgem as the core regulator, Citizens Advice as the consumer advocacy body and the Energy Ombudsman as the independent dispute resolution body. This consultation only considers the cost to Ofgem, which across a 30-year appraisal period, is estimated to be £348m (discounted), accounting for the implementation of different aspects of the regulation and anticipated market growth. The additional estimated costs to businesses to be compliant with the core requirements of the regulation is £146m (discounted), including costs associated with familiarisation, applications, reporting, the disconnection ban and improving performance.

Problem under consideration

7. The heat network market currently has minimal regulation⁶ unlike other utilities such as gas and electricity. This means that currently heat network consumers do not benefit from the same levels of protection as gas and electricity consumers. Further to this, organisations involved in the development and operation of heat networks do not have the same rights and powers as their gas and electricity counterparts, despite both delivering similar and vital services.

8. A 2017 market study⁷ by the Competition and Markets Authority (CMA) found that, though many heat network consumers are supplied heat at comparable consumer standards to the wider energy sector, a significant proportion experience poor service, such as 37% of heat network consumers experiencing a loss of heating in the last 12 months compared to 24% of non-HN consumers. The report recommended that the sector should be regulated by a public-sector body which has statutory powers to set regulation, monitor compliance, and enforce against heat network operators that do not comply with the regulation. Subsequent research in the 2022 Heat Network Consumer and Operator Survey⁸ has shown that though some improvements have been made to service quality, there is still a discrepancy between heat networks and non-heat networks. HNCOS also shows discrepancies around heat network pricing; with a small number of heat networks charging high prices significantly above average.

9. The Department for Energy Security and Net Zero agrees with the findings of the CMA to regulate heat networks to ensure adequate protections for all heat network consumers, support market growth, and decarbonise at the required rate to meet our 2050 Net Zero target. The introduction of secondary legislation for HNMF has established Ofgem, Citizens Advice, Consumer Scotland and the Energy Ombudsman in the heat network market. The government is consulting on further views for the details of the powers within the market framework including on pricing, backbilling and step in. The ongoing purpose of the regulatory framework for heat networks is to protect consumers, improve standards, and drive forward the growth of the heat networks market.

⁶ With the exception Heat Network (Metering and Billing) Regulations 2020 <<https://www.gov.uk/guidance/heat-networks>>

⁷ CMA Market Study on Heat Networks <<https://www.gov.uk/cma-cases/heat-networks-market-study>>

⁸ <https://www.gov.uk/government/publications/heat-network-consumer-and-operator-survey-2022>

Rationale for intervention

10. Several market failures and barriers have been identified in the heat network market which contribute to inefficiencies, drive poorer consumer outcomes and limit the deployment of heat networks to below the socially optimal level.

- **Monopolistic characteristics** – In the right circumstances, heat networks can offer the most cost-effective provision of heating and/or cooling. It is most efficient for one supplier to supply the market, or in this case, supply the heat to a pool of consumers. However, once connected it is often not possible or feasible for a customer to disconnect or be excluded. This could lead to instances where consumers face detriment and have little recourse to remedies, as the network is a natural monopoly. This may mean heat networks are able to provide poorer services and extract rents from consumers, above what is efficient and equitable.
- **Incentives** – In conjunction with the monopolistic characteristics, new heat networks are often developed by for-profit organisations without full representation of the future customers. The CMA's market study suggested that developers could have an incentive to be myopic and try to minimise the up-front costs to the detriment of consumers, either through lower standards or recovering additional costs through future consumer bills. Not for profit heat networks may also face incentives to provide low quality service and inefficient networks as they have the monopoly power to do so.
- **Information Failures** - Heat network customers can often face incomplete information and a lack of transparency. When a customer joins a heat network, they often are unfamiliar with the heat network's characteristics, which can prevent them from making informed decisions. Once a customer has joined, they may also face a lack of transparency in billing; customers may not be aware of how their bills are broken down and why they are paying what they are.
- **Development/maintenance barriers** - Organisations involved with the development and maintenance of heat networks currently have fewer rights and powers, relative to other energy utilities. This can make building, maintaining, and expanding networks more challenging and burdensome. In-part, this could contribute to poorer service standards and a lower level of heat network deployment than would be socially optimal.
- **Equity issues** – In comparison to other utility providers, heat network consumers are not given the same level of protection. This is compounded by the fact that networks tend to serve more older consumers.⁹ This may mean heat network customers are disproportionately impacted by instances of consumer detriment, with little recourse to protection.

Policy objective

11. Regulation has two objectives which seek to address these market failures:

- **Consumer protection:** Ensure heat network consumers receive adequate levels of protection by implementing consumer protections against disproportionate prices and unreliable heat supply, as well as promoting transparency of information.
- **Support growth:** Accelerate heat network deployment by improving the reputation and security of heat networks, making them an attractive market to invest within. Growth of

⁹ Heat Network Consumer and Operator Survey 2022

the heat network market has been identified by the Climate Change Committee as a key factor in decarbonising heat to meet net zero targets.

Description of options

12. There are two overarching options assessed in this IA: a continuation of existing market arrangements (Option 0: Counterfactual) and establishing Ofgem as regulator (Option 1: Preferred).
 - **Option 0:** (Counterfactual): Continuation of existing market arrangements, without Ofgem entering the market as a regulator
 - **Option 1:** (Preferred) Establish Ofgem and define the required rights and powers. To operate in the market, a heat supplier must be authorised by Ofgem, with optional licensing to gain extra rights and powers.
13. Several other approaches to regulation were considered in a previous consultation stage IA, with the equivalent of option 1 being retained as the preferred option. For simplicity only the two options listed above are discussed in the main body of this IA. The reasons for this were covered in the previous final stage IA for primary legislation.
14. Optional licensing to gain rights and powers is included within the preferred option for this regulation but it is not included within this IA as it is not within scope of the consultation.

Non-Regulatory options

15. Non regulatory options, including voluntary consumer protection schemes, have been explored, considered and deemed not viable within previous impact assessments. With secondary legislation due to introduce Ofgem into the market as the regulator, it is no longer proportional for this IA to consider further non-regulatory options. The voluntary guidance and schemes which are already in place however form part of the counterfactual.

Counterfactual

16. The counterfactual scenario assumes Ofgem does not enter the market and no new regulation is introduced, leaving the heat network market only subject to Heat Network Metering and Billing Regulations (HNMBR). The heat network market currently has limited self-regulation and industry standards, such as voluntary membership of Heat Trust and the industry led CP1 technical standards applying to some new builds. In the absence of future government action, it is likely these initiatives would continue and possibly grow. An indicative scenario of growth in voluntary Heat Trust membership forms the counterfactual for this IA, more details can be found in Annex A.
17. A continuation and possible expansion of voluntary initiatives is likely to be insufficient to remedy consumer detriment issues or satisfy the CMA's recommendations. As a result, the CMA could still choose to launch a market investigation and use its order making powers to remedy some of the concerns directly. Whilst this would result in some issues being addressed, it is not expected to be the most efficient approach and would not address the more systemic issues faced in the market such as the difference in consumer protections between heat network and domestic gas consumers.
18. Given the anticipated growth in the heat network market, there is a risk that consumer detriment could grow if left unaddressed. In addition, heat network developers would

continue to face the same issues when developing and maintaining heat networks if they continue to lack certain rights and powers introduced with the HNMF. In the longer term, this could also act as a bottle neck to growth in the market, potentially limiting deployment.

Option 1: Establishing a Market Framework (Preferred option)

19. Under this option, Ofgem would be established and would be given the powers necessary to regulate the market, as set out below. The preferred regulatory model for the heat network market is general authorisation in which every heat network operator must notify to Ofgem to be authorised to operate in the market. An authorised entity will need to comply with consumer protection rules under the HNMF. This ensures that all domestic and microbusiness will be protected by consumer protection rules and the consultation seeks views on whether some of these protections should also be expanded to non-domestic customers.
20. The scope of this IA is aligned with the topics covered within the consultation that this document accompanies. The full cost of implementing Ofgem has been included to ensure a representative view of the costs required to generate benefits from policies being consulted on. The cost of consumer advocacy organisations and the energy ombudsman have been excluded as they are not being consulted on and the direct benefits of these organisation have not been included. Whilst there may be some indirect impacts within this IA from their presence in the market, neither the direct costs nor benefits have been discussed. The specific policies included within this IA are pricing, billing, guaranteed standards of performance, the inclusion of non-domestic customers, vulnerable customer protections and step in.

Summary of preferred option and implementation plan

21. The preferred option is to establish a Heat Networks Market Framework in legislation, with a heat network regulator being given powers to enforce regulatory requirements. The proposed approach is a quadripartite structure akin to the retail energy sector consisting of Ofgem as the core regulator, Citizens Advice and Consumer Scotland as the consumer advocacy body and the Energy Ombudsman as the independent dispute resolution body. We expect the four organisations to work collaboratively, to share expertise and market intelligence and to regulate the heat network market efficiently.
22. Secondary legislation is being implemented for the Heat Networks Market Framework. This establishes the roles, objectives and functions of the heat network regulator (Ofgem), consumer advocacy bodies (Citizens Advice and Consumer Scotland), and independent dispute resolution body (Energy Ombudsman). The consultation launched alongside this impact assessment aims to refine Ofgem's specific powers. This impact assessment considers the full cost of establishing Ofgem as set out within initial secondary legislation as well as the additional benefits from the policies being consulted on at this stage.
23. We are taking a flexible approach to regulation; this is particularly important given the nascent state of the heat network market and the growth and decarbonisation we expect to see out to 2050. Ofgem will have powers to amend conditions for authorisation. This means that as the market grows and evolves and Ofgem develops more experience of regulating the market, rules on consumer protection can be amended and supplemented to reflect market changes and increased regulatory knowledge.

Approach to analysis

24. To assess the impact of consumer protection regulations, a cost-benefit analysis has been undertaken. Not all costs and benefits were possible to monetise, and impacts have only been included for the measures included in this consultation. The full cost of implementing Ofgem has been included to ensure a representative view of the costs required to generate benefits from policies being consulted on; such as billing transparency and step in. Consumer protection organisations costs have not been included as they are outside the scope of this consultation. Billing transparency and step in benefits have been added but these are non-monetised at this stage.

25. A monetised assessment has been completed for the following costs using a Standard Cost Model (SCM)¹⁰:

- Establishing Ofgem as the regulator and its running costs.
- Businesses complying with core elements of the regulation.
- Transfer payments incurred by heat network suppliers from the introduction of a compensation regime.
- Non monetised billing transparency costs from adding additional information, unbundling heat charges and reducing backbilling period.

26. A monetised assessment has also been completed for the following benefits:

- Reduction in the number of hours consumers face outages because of the compensation regime.

27. There are also significant non monetised benefits included throughout this IA:

- Billing transparency – informed customers and financial certainty. These welfare impacts are difficult to quantify.
- Pricing policy – protect customers from disproportionate prices and incentivise businesses to lower prices where possible. Uncertainty on the specifics of this policy remain and are subject to an Ofgem consultation.
- Step in regime – guarantees heat supply for all customers and removes psychological stress of the risk of being left without heat. Non monetised as probability of regime being required is low, but the benefit is very high.
- Protection of vulnerable customers – disconnection and prepayment meter (PPM) ban for vulnerable customers, ensuring continued heat supply. A lack of data creates a lack of certainty when estimating the impact on consumers.

28. These costs and benefits are compared against the counterfactual scenario (Option 0). This provides an indication of the expected costs and benefits that arise from the preferred option. The impacts are considered over a 30-year appraisal period. All monetised impacts are presented in 2023 prices and where specified are discounted in accordance with the HM Treasury Green Book.¹¹ A 2024 base year has been used to ensure consistency with the final stage impact assessment.

¹⁰ Activity cost = price x quantity = (tariff x time) x (population x frequency)

¹¹ Green book guidance on how to assess and evaluate policy <<https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government>>

Evidence sources

29. Key sources of evidence used for the impact assessment:

- Heat Networks (Metering and Billing) Regulations (HNMBR) statistics: December 2022: This data has been updated since the last consultation IA on a heat network market framework. This more recent data covered around 12,000 heat networks in the UK. The assumptions derived from this source include the current structure of the UK heat network market, estimated number of heat suppliers and the current number of final customers, which have been used to assess the likely future burden on Ofgem and industry.
- CMA market study: Evidence and data from the CMA market study has been used to strengthen the evidence base, alongside setting out the CMA recommendations.
- The responses from the 2023 'Heat networks regulation: consumer protection' consultation: The responses from the consultation have been used for future development of the policy and analysis of the expected impact of the HNMF.
- Heat network consumer and operator survey 2022: This survey has been used to provide updated consumer detriment indicators and the reported outages which informed the compensation regime analysis.
- Heat Trust data: Membership data is used to inform the counterfactual scenario assumptions as well as inform some assumptions that feed into both Ofgem and business costs estimates. Outage data is also used for the compensation regime analysis.
- Ofgem: The estimated cost of regulation has been informed by evidence and insights from this organisation based on their expertise in the gas and electricity market.

30. A review of these data/evidence sources has confirmed they are the most appropriate sources for the analysis undertaken. Where evidence gaps have persisted, we have relied on appropriate proxy assumptions and/or evidence from the consultation. Although there are several key uncertainties and evidence gaps which have been more challenging to manage, a wide range of sensitivities have been tested for the quantified analysis supporting this IA, and the remaining evidence gaps have been flagged throughout the IA.

Estimated costs

31. Costing for the heat network market framework regulations being consulted on have been estimated as well as the counterfactual scenario. These costs pertain exclusively to the cost of establishing and maintaining Ofgem as the heat network regulator and the cost to business of being compliant with the requirements. An overview of the costs included is below. Full details on the assumptions used can be found in Annex A – Estimated Cost Assumptions.

Heat supplier and operator costs

32. Heat suppliers and operators are expected to incur costs associated with the requirements of the regulation. These are set out below:

- Familiarisation and dissemination - Reading and understanding new regulatory requirements and guidance. This familiarisation is assumed to happen at a heat supplier level with dissemination at a heat network level.

- Authorisation application – All new heat network operators in the scope of the regulation will be required to submit an authorisation application to Ofgem while existing networks at the time of regulation will be required to notify Ofgem with similar information.
- Reporting – Reporting is expected to be a minimum requirement of the regulation to gather the information necessary to monitor and regulate the market. This is expected to take place at the heat network level and is assumed to not require new or specialist IT to complete.
- Additional administrative costs – There are expected to be some additional administrative requirements related to dealing with complaints from consumers and preparing the required documentation for audits. The aggregated cost across the market has been estimated, but in practice, these costs will only be borne by organisations subject to complaints and/or audits.

Billing costs:

33. Existing Heat Network Metering and Billing Regulations mean that networks already have billing obligations and hence these are not accounted for as additional costs. However, the expansion and improvement of billing transparency regulation may increase administrative burden on some heat network operators. Regulation to separate heat charges from other payments (e.g. service charges) may also place additional administrative costs on networks. However, these are being minimised by aligning implementation timings with technical standards regulations to allow all metering and billing changes to be made at the same time. These costs are currently non monetised, but we are seeking views from industry on whether this would generate significant additional resource burden. We expect that adding basic contact details and supplier information will only generate a one-off cost to business without causing significant burden. Some networks may have additional ongoing costs as a result of unbundling bills from rent or service charges but we do not expect this to be a large cost to business.

Step in costs:

34. Suppliers are expected to have some additional requirements related to mitigation of a possible insolvency. As part of the authorisation conditions, suppliers will be required to provide financial statements, establish a Customer Supply Continuity Plan (CSCP), have a contractual entity that would take over the network and be subject to a regulatory Transfer Scheme and/or a Special Administration Regime (SAR) should market-led resolutions be insufficient.
35. This cost is initially expected to be at the time of authorisation and would reduce any burden should the network become insolvent. It is expected that networks will have small on-going administrative costs from reporting and maintaining the CSCP; however, we do not expect this to be significant and could be covered by resource that networks dedicate to authorisation administration. The cost of setting up a contractual agreement with an entity has not been accounted for as it is assumed to be market-led, with each network responsible for producing a plan that all entities are in agreement with. Networks would be ensuring that they would not face additional costs of leaving customers without heat.

Disconnection ban costs:

36. The introduction of protections for vulnerable customers may increase costs on businesses. This policy bans the disconnection of some vulnerable customers from heating supply. More details of who this regulation impacts and how impacts have been calculated are outlined within the benefits section of the IA.

37. Customers protected from being disconnected are likely to continue to use heating as they require it for health reasons leaving networks to cover the cost of this unpaid heat. This generates a total direct cost to business of £620,000 in the first year which we assume are likely to be passed on by networks to customer bills. Whilst this impact assessment accounts for this as a cost to business, not for profit networks will be forced to pass this on to customers and many other networks are likely to pass through a significant amount to bills.
38. A risk of this policy is the additional costs to paying consumers if the unpaid bills of vulnerable customers are passed on to other customers on the network. Whilst this should have minimal impact on large networks, the failure to pay of one customer on a small network could significantly impact the other consumer's bills or the profitability of the network. Analysis shows that if one customer fails to pay and continues to use heat on a small network (containing eight customers), all other customers could be subject to a £123 bill rise per year. There are also further snowballing risks of this policy such as price rises leaving more customers unable to pay their bills or unaffordability risks to networks that are likely to contain more than the average percent of vulnerable customers. These impacts can all compound the risk that a few networks will be subject to high and potentially unsustainable costs.
39. Support will be required for heat networks which are likely to be subject to a disproportionate level of costs resulting from this policy, such as small businesses and networks with a large number of vulnerable customers. Work is ongoing to develop a scheme or support for heat networks to manage debt equitably. The details of a debt management scheme are subject to DESNZ and Ofgem collaboration with industry and the government is committed to ensuring a network or its customers are not disproportionately burdened from this cost.

Performance costs:

40. There is an additional cost on heat network suppliers to improve standards to ensure compliance with guaranteed standards of performance. The aim of these standards is to bring networks in line with Heat Trust performance. This incurs an additional cost as networks will need to improve the response times and condition of their network.
41. Given network interruptions can be indicative of maintenance levels,¹² it is likely that some heat networks currently have poorer customer service and response times due to lower levels of maintenance on their networks. Based on industry expert input and a heat network cost report,¹³ we estimate total operating expenditure and then segment this down to maintenance expenditure for the whole sector totalling £2.9M in maintenance expenditure. HNCOS shows surveyed networks outage durations are 50% worse than Heat Trust levels. Assuming a proportional relationship between network outage responsiveness and maintenance spend, we model that poor performing networks are spending 50% less on maintenance than the expected level. Heat Trust networks are excluded from the aggregate calculation and an assumption of 90% convergence to standards is used, as explained in the benefits section on guaranteed standards of performance. After these exclusions, the difference in expenditure results in a total additional cost of £1.3M to underspending networks in the first year.
42. Heat trust currently cover guaranteed performance standards, but they do not cover technical engineering or performance standards for heat networks. This shows the policy to be about consumer protection and service, and not about technical standards.

¹² <https://www.gov.uk/government/publications/heat-networks-optimisation-guidance-to-help-operators-improve-performance> pg36-37

¹³ https://assets.publishing.service.gov.uk/media/5a802b44e5274a2e8ab4e95d/heat_networks.pdf

However, technical standards regulations are likely to further reduce outages from improvements to the efficiency and reliability of networks. These costs are out of scope of this IA and will be quantified within the technical standards consultation.

43. Heat network operators may also experience costs from the compensation payments and penalties. Heat networks must provide customers with a guaranteed standard of performance and will have to pay compensation to customers for outages on the network. Additionally, failure to provide information to Ofgem could result in penalty charges for heat networks. The size of these penalties is difficult to estimate as there is a lack of information on the number of networks that will fail to comply and the size of penalties that will be implemented. Both these costs have not been included within the NPSV as firms that comply with the regulation and standards will not be subject to these costs.
44. Following the release of Heat Network Metering and Billing 2022 statistics, the estimated business costs have been updated to reflect revisions to the published estimates of the numbers of heat networks and suppliers. The costs to business have also changed compared to the previous consultation due to the addition of the performance and disconnection costs.
45. These heat supplier and operator costs are likely to range significantly between suppliers, dependent on the size of the heat network supplier and the extent of monitoring data they already collect. Smaller heat networks, such as those managed by a landlord, may not have an efficient method of collecting this data and hence will face higher costs from this process. More analysis and information on this are included within the small and micro business section of this IA.
46. There may be additional costs incurred by heat suppliers due to the need to address any compliance and enforcement issues raised by Ofgem. These costs have not been included as they are highly uncertain and would be avoidable through compliance with the requirements.

Regulatory costs

47. The regulatory costs within this IA reflect the set-up and business-as-usual costs to Ofgem. The set-up costs will involve the creation of the regulatory framework as well as the systems to manage it, such as setting up a database and digital tool to receive and disseminate information to heat networks. It is assumed that these costs take place in the first year of the appraisal period. Ongoing costs include the costs of running the regulatory regime. These primarily include registering authorisations, monitoring the market, ensuring compliance of regulation and undertaking enforcement responsibilities.
48. Ofgem will also experience costs of step in provisions, such as the monitoring of networks, which is expected to be reduced through possible data sharing with internal partners, such as the Heat Networks Technical Assurance Scheme, and external partners including the Social Housing Regulator and the Ministry of Housing, Communities and Local Government (MHCLG). Should the heat network become insolvent and market-led resolutions are insufficient, there will be an additional larger cost to the regulator in the event the Special Administration Regime (SAR) needs to be used. This cost has also not been accounted for as there are minimal cases of insolvency in the heat network market and SAR costs are expected to vary based on the size and complexity of the network. There is a lack of certainty on these costs due to continuing policy development and therefore we aim to provide cost estimates in the final stage IA once this policy is finalised.

49. In comparison to the previous consultation, these regulatory costs have significantly increased within this IA. As the policy is now more refined and closer to implementation stage, Ofgem was able to update the expected costs to reflect these requirements. A main driver of these higher costs is an increased resource requirement for authorisation, increased digital costs and an increase in the assumed growth rate of the market. These are even higher in the first year of the policy being implemented to ensure the successful set up of systems and processing of all heat networks for the first time.
50. As the heat network market is currently mostly unregulated, there are high levels of uncertainty around the cost and resources required to implement and maintain this regulation. This has been represented by a range of estimates for FTE requirements and costs used within sensitivity analysis.
51. Ofgem have made some assumptions about the structure of authorisation to generate these cost figures, such as in the first year of regulation, Ofgem will be processing registrations from existing heat networks and applications for authorisation from new networks. Subsequently, only applications for the authorisation of new networks will be received. Existing network registration should be largely automated however will still generate some admin and assistance burden.
52. The legal costs that Ofgem will incur also have significant uncertainties as there isn't a similar regulatory model to compare to and it is difficult to predict what issues may arise. These uncertainties also stem from the previously mentioned issue of the full scope of the framework not yet being finalised.

Counterfactual

53. The estimated counterfactual costs assume the continuation and growth of voluntary market arrangements. To estimate this, we have forecasted Heat Trust membership over a 30-year appraisal period based on the growth in membership over the last 7 years¹⁴, and in the central case this leads to around 288,000 customers covered by the Heat Trust by the end of the appraisal period. Heat Trust membership fees have been applied to estimate the total running costs of the scheme. There are no set up costs included as these are sunk costs.
54. There are also expected to be costs to business in the counterfactual. All the costs to business have been adjusted to reflect the current requirements of Heat Trust membership and only apply to the networks which are members of the Heat Trust. In addition, we have included the costs associated with the 4-year reporting that all networks are required to submit as part of the heat network metering and billing notifications. Please see Annex A – Estimated Cost Assumptions for more details.

Table 1 - Overview of total option costs over the 30-year appraisal period (Discounted, £m, 2023 prices)

		Option 0: Counterfactual	Option 1: Establishing a quadripartite regulatory system
Ofgem/ Heat trust	Set up	£0	£8
	Operating	£12	£352

¹⁴ Based on the annual reports from the Heat Trust < <https://heattrust.org/annual-reports-v2>

Heat Network operator	Familiarisation and dissemination	£0 ¹⁵	£1
	Authorisation, reporting and admin (Audits, complaints)	£54	£123
	Maintenance improvements	£0 ¹⁶	£52
	Disconnection ban	£0	£23
Total		£66	£559

EANDCB

55. This IA has considered the costs and benefits that are generated to business from setting up a regulator and defining consumer protection regulations. Costs and benefits to business can be considered direct or indirect. An impact is considered 'direct' if it arises directly from the implementation of the measure. The Department for Energy Security and Net Zero assesses these direct impacts using the standard methodology to calculate the annual net direct costs for business (Equivalent Annual Net Direct Costs to Business, or EANDCB).

56. As Ofgem recovers costs from businesses, all running costs of the regulator and consumer advocacy organisations will be passed on to business. It is also proposed that Ofgem's set up costs be passed on to gas and electricity businesses through license fees, depending on the outcome of the cost recovery consultation.¹⁷ This mechanism of cost recovery is considered, within guidance, to be excluded from the EANDCB and hence regulator set up and running costs are not included within this calculation. Compensation payments are economic transfers and so are excluded from the NPSV calculation, however, they do have a distributional impact as the cost incurred by heat network operators is a benefit gained by heat network consumers. Therefore, compensation payments for outages are considered a direct business cost and are included in the EANDCB calculation. Compensation payment costs are difficult to predict as they will depend upon the size of the compensation regime that Ofgem implement and the level of compliance with standards from heat network operators. Assuming a 90% convergence to Heat Trust standards and following the Heat Trust compensation regime, the EANDCB of the preferred option in the central case are valued at £15.9m (2023 prices, 2024 PV base year) (discounted) per year over the 30-year appraisal period.

Cost recovery

57. Responses to the early stage consultation stage IA¹⁸ highlighted concerns over the estimated regulatory costs and their financial impact if they were recovered from heat network consumers alone. Given the relatively small size of the current heat network consumer base, even relatively low costs of regulation would lead to a large consumer burden. We have worked with industry and the quadripartite group to review the cost estimates and investigate other cost recovery options. This resulted in the development

¹⁵ Figure rounded to 0

¹⁶ Option 1 monetises the net increase in maintenance costs resulting from regulation. Therefore, whilst there is ongoing maintenance in the market currently, the counterfactual is costed at 0, as costs have already been netted off.

¹⁷ <https://www.ofgem.gov.uk/publications/consultation-licence-fee-cost-recovery-principles-january-2024>

¹⁸ <https://www.gov.uk/government/consultations/recovering-the-costs-of-heat-networks-regulation>

of a range of alternative cost recovery options, which were consulted on between December 2021 and February 2022.¹⁹

58. Following the conclusion of this work, primary legislation within the Energy Act gave Ofgem the power to recover the costs of heat network market regulation across gas and electricity consumers, as well as heat network consumers. Using cost estimates from this IA and also including Citizens Advice costs, this proposal reduces the average estimated annual impact per heat network consumer from £20.58 to £1.86, whilst increasing the average charge for gas and electricity consumers by around £0.24 annually.²⁰ This would mean all energy consumers pay comparable amounts as a consequence of the regulation.
59. The regulator set up and running costs that are recovered from businesses are not included within the headline EANDCB, as per best practice. However, if these costs were included, the annual cost to business would be £34.2M (2023 prices, 2024 PV base year).
60. The secondary legislation is more specific on these cost recovery arrangements. It gives Ofgem the power to charge fees and recover costs through authorisation, code manager license and licensing regimes.
61. In addition to recovering the cost of funding the regulator, this legislation could result in additional costs to businesses which are passed through to consumers. The additional costs are expected to be borne by heat network suppliers, who are assumed to pass through 100% to heat network consumers. If the costs are recovered in this way, the estimated average impact would be £4.34 per customer per year.

Assessment of Regulatory Benefits

62. The regulator will have the powers set out above, the impact of these powers will depend on how they are used, which will be detailed in future legislation. For this IA, we have set out an overview of the potential impacts and provided a sense of scale where data has allowed.

Table 2 – Summary of Regulatory powers impact

Note: Green = expected positive impact, Amber = small impact or uncertain, Red = expected negative impact.

Powers		Heat Network Consumers	Heat Network Suppliers
Quality of service and compensation regime	Setting minimum requirements on quality of service aims to address areas of service where heat network customers report greater levels of detriment. This is expected to bring significant consumer benefits to those consumers who currently have limited protections. As heat network customers are unable to switch suppliers in cases of poor service, a compensation regime is proposed to ensure there is		

¹⁹ Cost Recovery Consultation on Heat Networks Regulation <<https://www.gov.uk/government/consultations/recovering-the-costs-of-heat-networks-regulation>>

²⁰ One off set up cost recovery not included in this calculation.

	incentive for heat network operators to invest in providing a good quality service.		
Billing	<p>Setting requirements on billing transparency aims to overcome information failures and inefficiencies. Heat network customers report lower levels of billing transparency than non-heat network customers. Improving billing will allow customers to make more informed decisions about their heat consumption.</p> <p>Reducing the backbilling period also ensures customers cannot be exploited by suppliers and increases certainty and protection for customers.</p>		
Pricing	<p>There is evidence that some heat network consumers are charged very high prices, relative to both typical heat network and typical non-heat network consumers. These consumers have little or no option to change supplier. The regulation will enable investigation to be carried out and intervention if deemed appropriate. Over time this is expected to improve the understanding of these instances and reduce their prevalence across the industry. This is expected to require suppliers to report on pricing and they may be required to adjust their pricing if deemed disproportionate. In instances where pricing is altered, this would represent a transfer of these costs from consumer to supplier, and therefore would need to be managed carefully.</p>		
Step in	<p>Heat Networks are currently not required to possess step in regimes. With consumers having little to no option to change suppliers should a heat network become insolvent, consumers could be left without heating or hot water for extended periods of time. We have designed a suite of requirements and interventions which providers will be expected to adhere to as part of authorisation conditions. They will be required to produce a Customer Supply Continuity Plan, provide financial statements and possess a named contractual step in entity that will operate the network should it become insolvent. This will be supported by a regulatory backstop of a Transfer Scheme and SAR, should market-led solutions be insufficient to prevent network failure. This prevents consumers from being left without heat and entities having to unwillingly take over a Heat Network.</p>		

Guaranteed Standard of Performance

63. Quality of service regulations are being consulted on in the accompanying consultation. Currently there is minimal regulation on these areas in the heat network market compared to other markets such as gas. The intention of the regulation is to ensure heat network customers receive comparable levels of consumer protections as non-heat network customers.

64. The Heat Networks Regulations 2024 will grant Ofgem the power to introduce guaranteed standards of performance which incentivise heat network operators to

provide a reliable and robust service to consumers. This consultation is now considering the details of this regime, and the IA will quantify the costs and benefits of this policy.

65. Heat Trust members are already subject to guaranteed standards of performance, and we find Heat Trust customers to have significantly lower outages compared to other heat networks. The consultation considers options for the size of compensation payments firms will have to make to consumers for outages. This is intended to transfer some of the cost of outages from the consumers to suppliers. We believe this will incentivise firms to minimise outage frequency and length and improve customer experience, bringing the market in line with the gas and electricity market. The consultation is also seeking feedback on differing options for the scope and variation of standards for non-domestic customers and not for profit heat networks. Guaranteed standards of performance also aim to require compensation for issues such as failure to keep appointments and meter issues. However, the benefits of these additional requirements have not been quantified within this analysis.
66. The length and frequency of outages in the counterfactual 'no compensation regime' market has been estimated using data from the 2022 HNCOS and scaled up to the rest of the market. We have then used data from the voluntary scheme, the Heat Trust, to model the factual scenario of the market under a compensation regime. There are other factors that are likely to lead to fewer outages from Heat Trust networks (e.g. Heat Trust memberships are only granted to networks that meet certain standards), hence the analysis assumes a 90% convergence to Heat Trust outage rates. More details on this are included within the sensitivity analysis section. This analysis only includes the effects of guaranteed standards of performance; it is important to note that, once technical standards are also introduced in later regulation, this will aid in reducing outages whilst helping firms to pay less in compensation.
67. This analysis calculates the effect of a compensation regime based on the current standards and compensation in comparable areas. Ofgem currently sets breach of guaranteed standards of performance compensation for energy suppliers at £30 for erroneous switches and delayed refund of credit balances. Suppliers are required to pay compensation automatically to the affected customer within 10 days of the breach occurring. If they fail to make the initial payment, they will be required to make a further payment of £30.²¹ At the time of analysis, the compensation for outages per day set by the Heat Trust is £40.²² This Impact Assessment assumes a £40 per day compensation level as a central estimate. Whilst the consultation is considering whether the regime will only affect domestic and micro business customers, this analysis assumes the policy will apply to all consumers. The preferred option includes non-domestic consumers within restoration of supply requirements whilst some consumer-focussed regulations will only apply to domestic consumers e.g. vulnerable consumer protections.
68. Setting the level of the compensation payment requires careful consideration to ensure incentives align. Having a higher level of compensation is beneficial to consumers and likely to incentivise firms to ensure there are not excessive outages on their network. However, setting the rate too high will impose higher costs on businesses which means they will have less finance available to reinvest in improving the efficiency and performance of the network. These high compensation payments may also mean that businesses are forced to increase their prices to help cover these additional costs, both of which worsen consumer outcomes in the long run. The consultation continues to seek

²¹ <https://www.ofgem.gov.uk/publications/three-suppliers-pay-total-ps8-million-relation-guaranteed-standards-performance-final-billing-compensation-failures>

²² <https://heattrust.org/the-scheme-rules>

views on ensuring this is set at the most effective level but aligning with Heat Trust levels seems the most appropriate option at this stage.

69. From this analysis, it is estimated that the number of hours consumers will face an outage of heat and hot water will reduce by around 9 million annually. The value of a lost hour of heating is highly uncertain but, under our central assumption, we expect the annual benefits to come to around £19m (undiscounted) once the entire market has adopted the compensation regime and adjusted its behaviour, rising to £72m (undiscounted) by the final year of the appraisal period (2053).
70. Not for profit heat networks may be subject to different requirements following concerns raised in the previous consultation that compensation payment costs can only be financed by increasing consumer prices. Therefore, this consultation is seeking views on this business type being exempt from compensation payments and instead being required to provide a performance improvement plan to Ofgem. This holds businesses accountable for improving the service provided on their network and aims to prevent additional costs on consumers whilst also improving customer outcomes throughout the network.

Billing Transparency

71. Existing Heat Network Metering and Billing Regulations mean that networks already have billing obligations including to provide accurate, clear and informative bills to all customers. Ofgem will take over responsibility for metering and billing regulations following their introduction into the market. This consultation only considers billing regulations and hence metering impacts have been removed from this IA. Metering impacts are still expected to positively affect consumers and society through better informed consumption decisions.
72. Ofgem plans to keep the key principles of the existing regulations whilst expanding and adapting them, including unbundling bills and improving information. This aims to ensure billing processing and information transparency at all stages, allowing for more informed consumer decisions.
73. Regulation seeks to bring heat networks more closely in line with other forms of heating. Heat network customers can often face incomplete information and a lack of transparency in billing. The 2022 Heat Network Consumer and Operator Survey identified that 28% of heat network customers reported receiving too little information in their heating bills, compared to 17% of the non-heat network customer comparison group. This approximates an 11-percentage point disparity in the transparency of billing between the heat network and non-heat network markets. Regulating for the provision of clearer and more frequent billing information addresses this market failure of information asymmetry, improving consumer welfare.
74. Research carried out by the CMA and Which?²³ found that consumers generally have low awareness of the heating technology prior to moving into a property. This suggests that consumers are not sufficiently informed about the characteristics of heat networks when moving into a property and this could therefore restrict their ability to make informed decisions. In the absence of comparable standards to other regulated utilities, this also limits their ability to challenge heat networks on their practices.
75. Given there is already regulation in this area, these disparities show the importance of expanding the scope and extent of regulation as well as ensuring clear communication to

²³ Study carried out by Which? <<https://www.which.co.uk/policy/housing-utilities/363/turning-up-the-heat-getting-a-fair-deal-for-district-heating-users-which-report>>

networks about how to be fully compliant. This includes increasing the information provided on bills, unbundling heat charges and reforming backbilling regulations.

76. Billing is the main communication channel between customers and their heat network and so ensuring the information is accurate, clear, and frequent is critical to the consumer welfare and heat consumption decisions of heat network customers. This intervention seeks to improve the clarity heat network bills, alleviating the 11-percentage point disparity and aligning heat network and non-heat network customers, which reduces financial uncertainty and allows customers to be better informed about their heat supply.
77. The current proposal is to retain existing billing requirements from HNMBR whilst adding several requirements to ensure customers have clear and accurate information on how heat networks operate and contribute to net zero, energy saving information and details of relevant organisations to contact if customers require support.
78. There are many non-monetised benefits from improving billing transparency. For example, fully understanding the heating system customers live on and who manages it, empowers consumers to ensure bills are correct, report issues and make complaints if there is a bad service. Additionally, regular bills help customers with financial planning, potentially reducing psychological and financial stress, especially for vulnerable customers.

Unbundled heat charges

79. HNCOS 2022 shows that only 60% of customers receive a separate heating and hot water bill, with other customers having this charge bundled either with service charges or rent payments. It is proposed that heat charges will have to be unbundled from other payments to meet the aim of transparent billing. Bundled bills leave consumers at risk of not being protected by other parts of billing transparency regulation. This requirement to unbundle bills will ensure all customers are subject to accurate, transparent billing.
80. This regulation will allow heat network customers to be better informed about their heat consumption and charges across the year, including seasonal variations. With increased billing transparency and frequency consumers will have greater cost visibility and spending awareness which allows them to plan financially and clearly see the bill impact of any behavioural or energy saving changes they make. Unbundled bills ensure all customers are covered by the previously mentioned transparency rules that provide a range of beneficial information to consumers.

Backbilling

81. In addition to improving billing transparency for heat network customers, this consultation also looks at preventing suppliers from backbilling customers for consumption older than 12 months, reducing this period from 18 months and bringing standards in line with gas and electricity regulation. Billing customers for heat consumed over 12 months ago can cause financial and psychological stress for many domestic and microbusiness customers. Consumers should expect their supplier to bill them in an accurate and timely manner, to allow for financial planning and stability.
82. There is minimal data on the number of consumers this currently affects and hence it is difficult to quantify the expected impact of this policy. There is also a lack of research into the size of the effect on consumers, both from the uncertainty generated by and financial impact of excessive backbilling periods. Both these factors mean that the benefits of this policy have not been quantified for this IA. We expect the impact to be minimal for the full market but substantial to those customers that experience these poor outcomes from

their supplier. These non-monetised benefits include reduction in financial and psychological stress and equity between gas and heat network customers.

Pricing Policy

83. The 2022 Heat Network Consumer & Operator Survey captured price data between March and July 2022, though this was self-reported by customers rather than direct tariff data. This showed heat network customers typically reported lower heat bills and were less likely to perceive those costs had increased in the last year than non-heat network customers. However, it is important to note that this data was collected before significant price rises in Autumn/Winter 2022 and before government energy support schemes began. As with the previous analysis a wide range was observed, showing that a subsection of heat network customers pays much higher bills than the average.

84. Heat network consumers are at greater risk of higher tariffs as they are not protected by the Ofgem domestic energy price cap. The importance of this has been emphasised by the recent rising wholesale energy costs, in which heat networks experienced commercial cost pressures that many passed on to consumers. The effect on consumers meant government had to intervene to provide support schemes to protect customers from these high prices.

85. Given the wide range of prices, the lack of price cap protection and the fact heat network customers are not able to change tariffs, the priority of pricing policy will be to allow outlier pricing to be identified and discouraged. As part of the authorisation conditions for heat networks, operators will be required to consent to:

- Disclosing heat networks information relevant to the price paid by consumers
- Heat networks being investigated into where prices appear to be disproportionate compared to a range of benchmarks and analyses
- Ofgem intervening when there is evidence of systemic issues on pricing or in cases of significant consumer detriment.
- Ofgem will be responsible for the development of what information will be disclosed, however, it is anticipated basic pricing information will need to be reported, allowing networks with similar characteristics to be compared and to identify instances of disproportionate prices.

86. **Benefits:** Ofgem's powers are expected to impact the pricing behaviour of heat network operators, as it allows them to be compared to others in the market and introduces the potential for Ofgem to investigate them. Furthermore, greater price transparency could allow operators to evaluate their prices relative to other networks, potentially leading to network operators reviewing their prices. Customers may also become better informed about price comparisons if Ofgem publish some of this data, which would help customers challenge suppliers if they feel they are being charged unfairly. In instances of high prices, this should benefit consumers by lowering bills and making them more affordable.

87. **Drawbacks:** An unintended consequence of increased transparency is that it could potentially lead to current and future heat networks anchoring their prices on or within these implied ranges. This could lead organisations to both decrease and increase prices charged, although this effect could be mitigated through policy design. In addition, respondents to a previous consultation suggested they were aware of instances of disproportionately low pricing where the revenues do not cover the costs of operating the networks.

88. It is proposed that the scope of the general obligation on fair pricing is to extend to all non-domestic consumers. However, specific measures might be targeted to different

segments of the market such as microbusinesses or SMEs. The scope of specific rules and guidance will be further consulted upon in the pricing consultation planned for winter 24/25.

89. This policy is limited by a lack of understanding of why heat network prices may be high. It is difficult to distinguish between operators that are profiteering and those that have high cost/inefficient networks. More data is therefore required to inform Ofgem's approach to ensure insolvency risks and poor consumer outcomes are avoided.
90. In addition, it is important to note that a saving to consumers will represent forgone revenue to heat network operators. Therefore, it will be vital for Ofgem to build an understanding of what is driving these disproportionate prices. Where prices are charged above the efficient market price, there is a deadweight loss within the market. As the market moves to more efficient pricing, the deadweight loss of monopoly pricing is reduced, increasing overall welfare. There is an increase in consumer surplus which is generally larger than the decrease in producer surplus. There is also a positive distributional impact, since the change in price represents a transfer from producers to consumers, and some of the consumers will be vulnerable.
91. Measuring the size of this benefit is very difficult due to a variety of factors including not knowing: accurate price information, the effects of price changes on heat demand and the marginal cost of suppliers. This lack of information means generating a figure to quantify this impact would be very unreliable. Even though we are unable to quantify this benefit, the significance of protecting consumers from unfair pricing and improving overall welfare in the market should not be overlooked.

Step in

92. Heat networks have no obligation to protect customer supply. The 2022 Consumer and Operator Survey showed only 28% of operators report that if they were no longer able to operate a network there are contractual arrangements in place which would ensure continued operation of the heat network.
93. As part of the authorisation conditions, suppliers will be required to establish a CSCP and have a contractual entity that would take over the network. These market-led requirements ensure that entities such as local authorities and the regulator would not have to unwillingly become responsible for a heat network as there would already be an existing contractual agreement. However, should these solutions be insufficient, networks could be subject to a regulatory Transfer Scheme and/or a SAR.
94. Without Step In, the physical assets of a failed heat network could be liquidated via a traditional insolvency process to repay creditors without consideration for the needs of customers. With consumers having little to no options to change suppliers, this would leave them without heating and hot water.
95. The heat networks market shares characteristics with both the gas and electricity markets; an example of when a Special Administration Regime was used in these markets was the 'Bulb' crisis.²⁴ When the company announced they would no longer be able to provide energy to customers the existence of this regime meant customers were not left without energy. The regulations ensure that should the contractual agreement fail and a network is no longer be able to provide heat to consumers, a special administrator will take over that network and continue supplying heat to consumers. This also means heat network customers will have similar protection to gas and electric customers.

²⁴ <https://www.gov.uk/government/publications/bulb-energy-notification-of-energy-transfer-scheme>

96. There are too few examples of heat networks becoming insolvent to allow quantification of the impact of step in. This would also vary depending on the size and complexity of the network that has become insolvent. Despite not being monetised, the impact on health and comfort of consumers being left without heat even for a short period of time could be very significant, so mitigating this risk should boost consumer confidence in networks and provide insurance against those negative outcomes. It is expected that the requirement to use step in policy will be infrequent and hence will incur small on-going costs but if it is needed then it will generate significantly greater benefits to consumers on the affected network.

Additional consumer protections

Non-domestic customers:

97. This consultation looks to expand some consumer protection regulations to cover non-domestic customers. Some of these proposals are outlined throughout the IA, for example within guaranteed standards of performance and pricing policy. Additionally, standards of conduct will apply to all non-domestic customers, ensuring suppliers follow principles with the objective of treating consumers fairly. Some of these principles include provision of information, customer engagement and adequate customer service. The scope of complaints handling will also be extended to cover small business consumers as well as domestic and micro businesses that was proposed previously.

98. These proposals aim to align heat network non-domestic protections with gas and electricity regulations to ensure businesses are not disadvantaged by being connected to a heat network. This protection is especially important to support the expansion of heat networks by increasing businesses confidence in the market. It also ensures that any businesses mandated to connect due to zoning policy are well protected and benefit from a high standard of service.

Vulnerable customers:

99. In response to HNCOS 2022, 45% of heat network consumers said that keeping up with heating and hot water costs is 'a bit of a struggle'. This rose to 53% for those who self-identified as vulnerable and to 57% for those on low incomes. Consumers who struggled mostly resorted to making savings elsewhere or not using heating or hot water. This shows the risk that consumers face of being unable to pay bills which may result in the disconnection of their heat supply. The maintenance of heat and hot water is especially important for the health and wellbeing of vulnerable customers.

100. The regulation seeks to protect vulnerable customers from both installation of prepayment meters and disconnection from heat supply. Defining vulnerability requires consideration of both short and long term circumstances as well as personal and market characteristics.

101. Ofgem currently define vulnerability as when a consumer's personal circumstances and characteristics combine with aspects of the market to create situations where they are:

- Significantly less able than a typical domestic consumer to protect or represent their interests; and/or
- Significantly more likely than a typical domestic consumer to suffer detriment or that detriment is likely to be more substantial.

102. The consultation seeks views on the appropriate vulnerability definitions and extent of protection. However, at this stage, the analysis assumes alignment with protections provided within gas and electricity regulation.

103. Rules around the prevention of disconnection and installation of prepayment meters may require more specific demographic categories to aid heat network operators to be compliant with regulation. The consultation seeks views on the most appropriate option, with the preferred option assessed below. This option has been analysed by estimating the percentage of heat network customers that would be classified as vulnerable based on HNCOS data and the percentage of those that are likely to be at risk of disconnection from their supplier.

Preferred option:

- A network must not disconnect, in winter, a domestic customer which has not paid for the supply of heating, if it knows or has reason to believe the household to include a person who is under the age of 2 or is over the age of 75, disabled, terminally ill or chronically sick.
- At any time, a network must not disconnect a domestic customer who has not paid for the supply of heating if it knows or has reason to believe the household includes a person the requires heat for medical reasons.

104. Based on heat trust data, we assume 1% of vulnerable customers would be disconnected without these regulatory protections. This results in 1500 customers being prevented from being disconnected during the winter months when they are most vulnerable to the negative impacts of the cold on their health, development and wellbeing.

105. The costs of this policy have been quantified within the operator cost section of this IA. The benefits of this policy have not been valued as it is difficult to put a monetised figure on the value of a vulnerable customer's health and wellbeing as a result of being able to access heat, especially in the winter months. This policy also removes the fear of disconnection for vulnerable customers which can reduce psychological stress, even if they remain able to pay their bills.

106. Within this scenario, people that require heat for medical reasons will be protected all year round. Current data gaps make it difficult to estimate how many people this will affect, but we expect it to be a small subset of customers. Despite only affecting a few customers, it will have major benefits by providing the certainty of heat to those that need it the most.

107. There will also be regulation to prevent the installation of Pre Payment Meters (PPMs) for vulnerable customers with children 5 or under, serious medical or health condition(s), serious mental/developmental health condition(s), or temporary situations such as pregnancy. We estimate that over 1000 customers will be protected from self-disconnection as they will not be forced to get a prepayment meter that they are unable to keep in sufficient credit. The regulations also cover all customers in this category that are assessed as vulnerable from a direct disconnection, allowing the most vulnerable customers to access heat throughout the winter, regardless of their ability to pay.

Wider impacts

108. **Further Heat Network Market Framework measures-** Further measures beyond the scope of this impact assessment are planned to include minimum technical standards, extra rights and powers for heat network operators and carbon emissions limits. Further policy development is required on these and areas such as technical standards will be consulted on at a later date and an updated impact assessment will be produced alongside this. These policies will drive changes in the heat network market which have

not been captured in this analysis, but these interactions will be reflected in the impact assessment associated with the consultation on these measures.

109. **Heat Network Zoning (HNZ)** - Aims to establish zones where some types of buildings will be required to connect to a heat network, thereby increasing the growth rate of the heat network sector. This policy is currently under consultation. A future heat network zoning policy is predicated on market wide regulations provided under the HNMF. Social research carried out during policy development indicated that the lack of regulation is one of the key concerns from social housing providers and consumers.²⁵ As HNZ is expected to lead to significant growth in the market, all new and expanding heat networks will be subject to the requirements of the HNMF, thus increasing the scale of regulatory activity. Previous IAs have excluded the cost of regulating additional heat networks created due to zoning to avoid double counting, as the Heat Network Zoning consultation includes these costs. However, in this IA, this cost has been included by reflecting zoning's effect on the growth rate. Further to this, there may be extensions and/or additional regulations required for networks in zones; however, this will be subject to future development. This impact assessment analysis assumes a central growth rate of 5.5% based on predicted deployment of government heat network zoning policy. Since the future market growth rate is uncertain, the analysis has been repeated for multiple growth scenarios and presented in the sensitivity analysis section.
110. **Heat Network (Metering and Billing) Regulations (HNMBR)** – The regulations place requirements on heat networks to notify the Secretary of State of their existence, install metering devices, and bill based on consumption, if cost-effective. There is significant overlap with the HNMF, specifically on billing and transparency standards. HNMBR will be revoked, with rules around metering and billing being incorporated into the market framework and Ofgem assuming responsibility.
111. **Heat network investment schemes** – Government schemes to encourage investment in heat networks, such as the Heat Network Efficiency Scheme and Green Heat Network Fund, are seeking to improve heat network standards and encourage market growth. Faster market growth was shown in the consultation to increase the net value expected from the HNMF.
112. **Other regulators and bodies** – Ofgem will be expected to work alongside other sector regulators and bodies. This includes the members of the quadripartite regulatory structure and the Environment Agency, the Competition and Markets Authority, and the Regulator of Social Housing. Interactions between regulators will be considered during future policy development.
113. **Wider interactions with the energy sector** – The analysis in this impact assessment assumes an increase in market growth as a direct result of the regulation, as well as from other heat network policies. Growth of the heat network market over time is expected to drive reductions in demand for high carbon individual heating systems, such as gas boilers. Low carbon heat networks are expected to form an important part of the decarbonisation of heat, alongside other low carbon heating technologies.

Equalities assessment

114. An equality impact assessment of the policy has been carried out. Heat network consumer protection will directly affect domestic consumers who are already on a

²⁵ <https://www.gov.uk/government/publications/heat-network-zoning-social-research>

communal heat network and future domestic customers of heat networks. The number of customers on heat networks is set to increase significantly following the implementation of heat network zoning proposals, which include requirements for new buildings in designated zones to connect to heat networks. The evidence for the equality assessment has been based on the current population who are on heat networks. For the purposes of this assessment, we assume that new customers will be like existing customers on heat networks and growth of the market will not change the protected characteristics of domestic heat network customers.

115. This assessment has identified, using the most recent evidence, that people who are 65 years of age (and older), from some ethnic minority backgrounds and with disabilities are more likely to be connected to heat networks than the general population. We have not found such likelihood for any other protected characteristics based on the available evidence. People over 65 and those with disabilities are likely to be the groups most reliant on heat and, therefore, positively impacted by regulation to protect heating supply, such as guaranteed standards of performance and vulnerable customer disconnection ban.

116. In 2022, the results of the Heat Network Consumer Survey (HNCOS) commissioned by the government found that 31% of heat network consumers had at least one person aged 65 or over. This is a disproportionately elderly consumer base when compared to the general population, where 18.6% of people are in this age category. Furthermore, the HNCOS found that, for 29% of households on a heat network, the main earner is retired, compared with 25% of households in the general population.

117. A significant proportion of heat network consumers are impacted by a disability. HNCOS found that 35% of heat network consumers reported having physical or mental health conditions or illnesses lasting or expected to last for 12 months or more, and 27% reported having a long-term illness, physical or mental health problem which limits their daily activities. This is a little higher compared with 24% of the general population as found by the Family Resources Survey (2022-2023).

118. We assume that groups with the protected characteristics of gender reassignment, marriage/civil partnerships, religion or belief, and sexual orientation are unlikely to be disproportionately impacted by the consumer protection proposals compared to energy customers who do not share those characteristics. However, we have not been able to identify any evidence that would confirm or refute this assumption.

119. This regulation aims to alleviate consumer detriment issues, which have been outlined throughout this IA. All heat network consumers will benefit from the improved protections including those with protected characteristics. This includes benefits such as pricing policy, which aims to reduce bills and standards of performance in order to improve the reliability of networks for customers. The vulnerable customer policies particularly protect older customers and those with disabilities to help reduce their financial stress and guarantee their access to heating.

120. There is also a risk of some negative impacts on heat network consumers. The increase in cost burden on heat networks may, to some extent, be passed on to consumers through higher bills. This risk is mitigated through policy design aimed to reduce burden on businesses, and pricing regulation working to reduce costs for consumers.

Jobs impact

121. The HNMF will directly support jobs within the future regulatory structure, providing jobs within Ofgem, estimated to be an average of 227 full time equivalents (FTE) employed annually over a 30-year appraisal period. There will also be jobs supported by any

external consultants contracted by Ofgem, such as for auditing heat networks. In addition, there will be jobs supported from heat suppliers to process the requirements of the regulation, with the equivalent of 313 FTE jobs expected in the first year of the regulation and an average of 144 FTE jobs in the following years of the 30-year appraisal period.

122. There are also expected to be indirect jobs supported by the development of heat networks. In addition, future requirements such as minimum technical standards could support more jobs in technical organisations.
123. In terms of where these jobs will be located, for the regulatory role this will be dependent on where Ofgem base their operations. The regional distribution of jobs supported within the heat network industry are likely to follow a similar distribution to the location of heat networks, which are currently spread across the UK but concentrated in areas with high heat density.

Small and Micro Business Assessment (SaMBA):

124. The HNMF will impact two types of small and micro businesses (SMBs):

- Firstly, micro businesses connected to heat networks will benefit from the regulation set out above and consumer protections will extend to both domestic and micro business consumers. Approximately 8% of heat network customers are non-domestic. However, data is not available to accurately determine the proportion of these that are small or micro businesses. No significant additional costs are expected to be placed on businesses who are heat network customers due to this regulation. Micro business heat network customers will also benefit from consumer protections.
- Secondly, any business, including small or micro businesses, involved with the development, operation, management, or supply of heat through a heat network will be expected to comply with the relevant regulatory requirements.

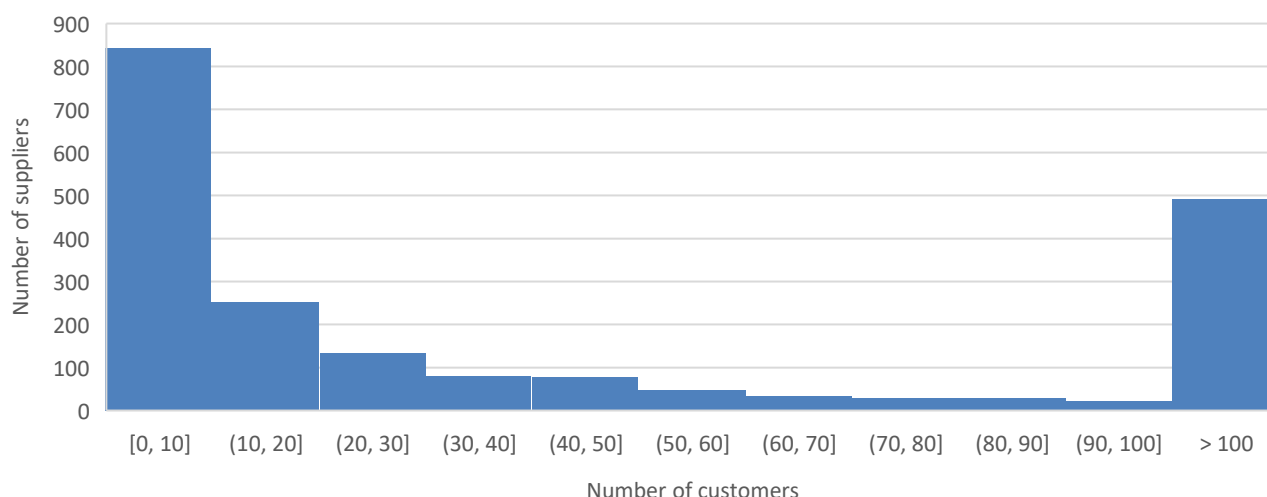
125. This section will focus on the second category of SMBs affected, as this is where a potential negative impact is expected. Positive impacts on micro businesses through consumer protections will take the form of the benefits set out earlier in the impact assessment.

126. The make-up of the heat networks market is varied and there is uncertainty around the exact scale and make-up of the sector. The most recent available version of data collected through HNMBR²⁶ is the most comprehensive dataset available at the time this analysis was conducted but is not a complete register of all heat networks. HNMBR data shows there to be approximately 12,000 heat networks that are in scope of regulation; around 9,000 of these are communal networks (serving one building) and around 3,000 are district heat networks (serving multiple buildings). In total there are around 2,000 suppliers. The number of heat networks and customers per supplier is unevenly distributed (as shown in figure 1).

Figure 1 – Total customers per heat network supplier

²⁶ <https://www.gov.uk/government/statistics/heat-networks-registered-under-the-heat-network-metering-and-billing-regulations-statistics-december-2022>

Total customers per supplier distribution



127. Most heat networks in the Heat Network Metering and Billing Regulations (HNMBR) data have relatively few customers, with 76% of heat network suppliers supplying fewer than 100 consumers, and with 90% owning fewer than ten heat networks. However, this does not necessarily mean these heat suppliers are small and micro businesses²⁷ as they may manage a heat network alongside other business functions. For example, a large shopping centre may employ many people but have few registered heat customers. The data collected through the HNMBR does not cover the size of heat network operators, and, therefore, it is not possible to be exact in this estimation.

128. Analysis from the 2022 Heat Network Consumer Operator Survey (HNCOS)²⁸ showed 19% of operators employed fewer than 10 employees, suggesting they are a micro business, and 20% employed between 10 and 49 employees, suggesting they are a small business. This shows the proportion of operators, but not the proportion of heat networks or the proportion of heat demand operated by SMEs. Further analysis showed that 11% of these operators with fewer than 49 employees identified were local authorities or other government/public bodies. This suggests that at least some of the suspected SMEs identified in the survey were not SMEs. A further 46% of the suspected SMEs identified were operated by housing associations, facility management companies, energy service companies (ESCOs) or charities/NGOs. These types of entities may have had a heat network workforce below 49 employees but with a larger overall workforce. This suggests that the true proportion of small and micro heat network operators may be smaller than the figures suggested by survey data.

129. The main cost placed on businesses through this regulation are:

- **Staff resource required in complying with regulatory requirements** - Staff resource costs may have a disproportionate impact on small and micro businesses, such as networks managed by landlords, as a smaller workforce may mean that networks are less efficient at collecting data if they have less resources allocated to this task. For example, quarterly or annual reporting of information to Ofgem may be a greater burden relative to available resource for a heat supplier with less than 10 employees compared

²⁷ Micro business is defined as having up to 10 employees, small business has up to 49 employees. According to Companies House: <
<https://www.gov.uk/annual-accounts/microentities-small-and-dormant-companies>

²⁸ <https://www.gov.uk/government/publications/heat-network-consumer-and-operator-survey-2022>

to a heat supplier with over 50 employees. This is most prominent for landlords who may have the burden of carrying out multiple network activities, resulting in greater demand for staff resource to ensure the quality of data collected meets the regulatory requirements. This would disproportionately increase costs compared to larger heat suppliers who already have allocated resource for this task. However, this is expected to be somewhat offset, as small and micro businesses are likely to operate a smaller number of heat networks and, therefore, have a relatively smaller resource burden from compliance. Ofgem are also considering varying obligations for different sized and structured networks, thus reducing the increased demand for staff resource. It is expected that different aspects of the regulatory framework will have differing levels of segmentation to ensure a proportional and equitable approach.

- **Compensation payments to be paid to customers for disruptions to heat supply -** Compensation payments are expected to be paid on a per customer basis, meaning the cost of outage compensation will scale depending on the number of customers a heat supplier has. This reduces the risk of disproportionate costs to small and micro businesses. The impact on landlords will be dependent on the number customers on the heat networks they manage.
- **Covering additional costs resulting from a vulnerable customer disconnection ban** - The disconnection ban for some vulnerable customers may result in businesses having to cover the cost of unpaid heat. This could be additionally burdensome for small businesses because, if one customer is unable to pay, this is a significant proportion of their income. There may also be instances of small businesses that have a large number of vulnerable customers on them. These costs to business show the importance of exploring a scheme to ensure systems are in place to spread these costs equitably.

130. It is not appropriate to fully exempt small and micro businesses from the issues the HNMF aims to overcome, given customers on these networks make up a large proportion of the known consumer base, and a full exemption would result in a large portion of these consumers not receiving the benefits of the regulation. A threshold was considered during the first consultation, but BEIS (now the Department for Energy Security and Net Zero (DESNZ)) received clear feedback that this was not preferable. However, DESNZ has considered the impact on SMBs from the policy in the following ways:

- **Optional licensing-** There are future plans for authorisation with optional licensing. This only requires organisations that desire extra rights and powers to obtain a licence, reducing the regulation burden on smaller entities.
- **Spreading the cost of regulation-** The cost of regulation is going to be spread across heat network, gas, and electricity bills, significantly reducing the financial burden on small and micro businesses.
- **Variable fees-** Ofgem are researching and will potentially consult on charging variable fees to suppliers based on the size of the heat network.
- **Outcomes and principles-based regulation-** Small networks will be able to comply with regulation in proportionate and cost-effective ways, providing outcomes for consumers are met. Ofgem are considering ways for obligations to potentially vary between different sized heat networks or factors, such as operator/supplier organisation type and cost structure, in order to reduce burden on small and micro businesses. Where possible, small networks will be able to continue existing established practices that already achieve minimum standards.
- **Templates and guidance-** Particularly in the early years of regulation, we want to ensure that entities in the sector not familiar with complying with consumer standards and

procedures have access to guidance and best practice. We are exploring the issuing of guidance on areas such as pricing and market-led step-in, and templates for establishing billing regimes, complaints handling processes, and heat supply contracts.

- **Phasing in of regulation-** Consumer protection rules will be phased in to help the sector gradually adjust to regulatory requirements.

131. There may be some additional impacts on SMBs by the regulations, such as design consultants, or metering and billing companies who often work with or for heat networks. For example, the transparency measures introduced by the regulation may provide more trade for metering and billing companies with heat networks. These impacts have not been assessed, as they are expected to be indirect and are uncertain at this stage.

Trade implications of measure

132. The proposed regulatory powers may require installation of specialist Heat Network equipment (e.g. Heat Meters) that are not manufactured or available in the United Kingdom. This could result in an increase in the import of these components to develop supply chains needed to comply with regulations. However, we do not expect this to have a significant impact on trade. Regulation, such as guaranteed standards of performance, may also have trade implications for certain equipment but this has not been valued. The presence of a regulator and requirements placed on heat suppliers could also lead to an impact on investment. These are discussed below:

- All UK heat network operators will be required to be authorised to comply with the regulation, and this requirement will not differ between domestic and foreign businesses. This will require current and future heat suppliers to be aware of this requirement and make the necessary notification/application. However, this is not expected to be overly burdensome and, therefore, the impact is not expected to be significant. Ofgem will provide greater clarity and insight into the market to help ease this process.
- Heat networks currently provide around 3% of UK heat demand; this could increase to around 20% in line with a cost-effective decarbonisation pathway.²⁹ The regulatory framework is expected to be a key enabler of this growth by providing the necessary consumer protection, greater confidence in the industry, and extra rights and powers. This is expected to have a positive impact on market growth and, consequently, investment. Market intelligence suggests that some European firms and investors have expressed interest in the UK market once it is suitably regulated.

133. When considering the impact on competition and monopolies, the HNMF is not expected to establish a small number of suppliers or hinder competition within the industry. Regulation could have an indirect impact on future market structure as there may be some consolidation as the market develops and heat suppliers are required to adhere to the regulation. Zoning policy may also have a similar effect on market consolidation, and this will be reflected within zoning impact assessments. This impact has not been quantified at this stage.

134. Overall, the net impact of the HNMF on trade and investment is expected to be positive. However, it has not been possible to attribute investment or trade impact directly to the HNMF as it is part of a wider enabling package of policy and market support under the Heat Networks Transformation Programme. In practice, the impact will depend on how the regulatory powers are used and the response from the industry. The Department for

²⁹ Climate Change Committee – The UK’s Heat and Buildings Strategy March 2022

Energy Security and Net Zero's understanding of this impact is expected to improve through monitoring and evaluation once Ofgem is established in the heat network market. Future elements proposed to be part of the market framework, but not within scope of this impact assessment, such as minimum technical standards, may have trade impacts. These will be covered in a future impact assessment when these policies are consulted on.

Key Limitations, Risks and Uncertainties

135. The analysis presented in the IA provides an indicative cost and benefit estimate for regulating the heat network market, cost to business, and a sense of potential future impacts of the regulatory powers. However, there are several key uncertainties which should be considered alongside this:

- **Size and future growth of the heat network market** - These estimates use inputs from the Heat Network (Metering and Billing) Regulations (HNMBR) dataset, which contains data from network level notifications. Since this data was not collected for these purposes, several assumptions have been made to derive the number of heat suppliers, networks, and customers in scope. Despite these statistics being updated in December 2023, there are still issues with this dataset. There is also a risk that a large number of small heat networks exist that have not been captured in the data set. Furthermore, there is significant uncertainty around forecasting the future growth of the market over a 30-year appraisal period. To show the impact of this in the appraisal, multiple growth scenarios have been modelled in the sensitivity analysis section.
- **Market composition** – In addition to the size of the market, it is uncertain how the structure of the market may change over time. As the heat network market grows, it is possible that there could be consolidation as the market matures. This market consolidation is also likely due to zoning policy and its intended effect on the market. This could mean that, although the heat network market may grow in terms of customers, the number of entities in the market may contract, which could lead to regulatory efficiencies. However, larger heat suppliers can also add to the size and complexity of cases, making the net impact uncertain.
- **Non-monetised impacts of regulatory powers** - Though costs have been estimated in monetary terms where possible, there are still multiple areas which are non-monetised due to insufficient data, such as the full benefit of pricing regulation and consumer protection. These costs and benefits have been explained but not quantified, so do not appear in the NPSV. Future impact assessments will seek to quantify more costs and benefits.
- **Cost recovery** – Several simplifying assumptions have been made to provide indicative customer level cost impacts. The estimate represents the average annual cost per consumer over a 30-year appraisal period. In practice, costs may not be recovered evenly across all consumers.

Sensitivity analysis

136. This analysis explores the sensitivity of monetised cost and benefit outputs to variations in key inputs. Scenario building and key input variation test the impact of varying assumptions in the CBA analysis on the NPSV estimate. We have tested the sensitivity of the NPSV to market growth, standards of performance, and resource requirement for Ofgem, other organisations and business reporting.

137. **Market Growth** - The heat network market growth rate is expected to be positive and continue to be so over the appraisal period. However, there is significant uncertainty around the precise value, particularly across time. Throughout the IA, we have assumed a central estimate of 5.5% annual growth in heat supplied and customer growth, based on preliminary deployment predictions of all current and planned heat network policies. However, given these policies are still being developed and deployed, this is a highly uncertain estimate. We have then tested a low growth scenario (4.8%) and a high growth scenario (6.1%, based on the government's assessment of the maximum technical potential for heat networks for 2050).³⁰
138. Growth rates have increased compared to the previous consultation published on the heat network market framework, as this now includes the effects that zoning will have on the growth of the market. Therefore, the central growth figure includes the expected impacts of all heat network government policy and funded investment schemes (eg Green Heat Network Fund, Heat Networks Investment Project).
139. The headline growth figure is calculated based on the growth of the heat delivered by heat networks and hence is also used as the growth rate for the number of customers, as we do not expect the average heat usage per customer to change significantly. Heat network figures grow so that, by the end of the appraisal period, the average heat supplied per network converges to the average currently provided by district heat networks. Policies such as zoning could result in district heat networks increasing as a share of the market, and hence a higher average heat deployment per network. A similar trend is predicted for heat suppliers, and so average heat supplied converges to the 95th percentile of current suppliers. The high and low figures used for the total heat supplied are used to calculate low and high figures for heat network and supplier growth rates so that the above assumptions still hold.
140. **Guaranteed Standards of Performance** – We expect these standards to encourage and incentivise heat network operators to reduce heat outages and improve the overall service quality provided on the network. Heat Trust has implemented standards of performance and a compensation regime, and these networks, on average, experience a substantially lower frequency and duration of outages compared to survey data from other heat networks. We have modelled the effect of these standards by assuming that all heat network outages will reduce towards the Heat Trust level from the current level measured by HNCOS (2022). The central scenario uses a 90% adjustment, implying future heat networks reduce outages 90% of the way towards Heat Trust levels following the implementation of these standards. In our worst-case scenario, we reduced future outages 80% of the way towards Heat Trust levels, and in our best-case scenario, we assumed 100% towards Heat Trust levels.
141. **Resource requirements** - There is still some uncertainty around the resource requirements involved in carrying out the regulatory function of the HNMF, and for heat network operators to comply with the regulation. Organisations provided estimates for high, central and low costs to represent this uncertainty.
142. **Scenario building** - A scenario with more optimistic market conditions would test the impact of tilting assumptions towards producing high benefits and low costs (a greater NPSV), and with less optimistic market conditions tilting assumptions towards producing low benefits and high costs (a smaller NPSV). An assumption is optimistic when it produces a higher benefit or lower cost than its central estimate.

³⁰ <https://www.gov.uk/government/publications/net-zero-strategy>

143. Combining the three growth and three optimism scenarios, we can test degrees of optimism in wider market conditions within low, central, and high growth scenarios. Table 3 shows the nine NPSV's that result from this. Whilst the less optimistic conditions result in a negative NPSV, there are a magnitude of non-monetised benefits included within this IA, meaning the full benefits are still likely to be larger than the costs, generating a positive NPSV in the low scenario if these benefits were monetised.

Table 3 – Estimated NPSVs under a range of market growth and wider market conditions scenarios

NPSV (£m)		Optimism		
Growth		Low	Central	High
	Low	-56.3	43.6	155.3
	Central	-43.8	70.4	196.1
	High	-31.3	95.7	236.0

Monitoring and Evaluation

144. To ensure an ongoing view of market and individual heat network compliance with authorisation conditions, Ofgem will put in place a monitoring programme. Information will be gathered to gain an ongoing understanding of customer experiences and the level of compliance with regulation. This programme will allow for ongoing assessment of how regulation is impacting the market and where issues are emerging. This will run alongside any technical monitoring covered in future technical standards regulation undertaken by the Code Manager.

145. An on-going reporting and intelligence gathering process is proposed which will include regular, mandatory reporting by heat networks across a range of metrics. Data reporting by heat networks to Ofgem will be mandatory, underpinned by legislation and associated authorisation conditions. This data will be complemented by regularly reported intelligence from stakeholders including Citizen's Advice, Extra Help Unit, Ombudsman and Consumer Scotland in line with the regulatory framework and more widely through charity groups and local organisations, together with other intelligence.

146. We note it might not be applicable or proportionate for some segments of the market to report against all the suggested metrics, so we will consider this to determine if monitoring metrics should vary. Some customer protection metrics will not be applicable for heat networks serving non-domestic customers. Information about network type, provided to the regulator at the point of authorisation or registration, will help inform this. Alongside the wider monitoring and compliance regime, financial monitoring will be vital in identifying early issues and risks of heat network failure, but it needs to be proportionate. Where a network is riskier and/or there is a high impact if they were to fail, it may be proportionate to request further information.

147. Feedback was sought in the consultation on the current plans for monitoring including the proposed monitoring metrics below:

- General - type of network, type (domestic/non-domestic), number of customers.
- Metering (total numbers, type including numbers of prepayment meters, installation – ability to install smart meters assessment)
- Financials – capital, debt, investment (+ future plans), trading and hedging. Continuity plan.
- Billing (payment method, frequency)

- Pricing and tariffs (tariff structure, average price, reliability – alongside wider technical reporting to the Code Manager)
- Customer protection and service – number of vulnerable customers and recorded on Priority Services Register, number of customers in payment difficulty, number of complaints, the number of complaints referred to the Ombudsman,
- Interruptions – frequency, length, Guaranteed Standards of Performance payments made

148. Data will be required to be reported at each individual authorised level. General information will be required at the point of authorisation, when there is a material change and confirmed annually. We expect other metrics will be reported either quarterly or annually through the digital platform, and Ofgem will undertake regular assessments of the information provided. A schedule of the frequency of ongoing information provision and guidance on the expected monitoring metrics and definitions will be provided. We will review our approach to monitoring pricing, including the reporting metrics, following our upcoming pricing consultation.

149. There will also be proactive ad hoc requests for information from segments of the market or from individual heat networks as part of compliance action where Ofgem consider there is a priority area that needs addressing, or where we perceive there to be a risk of poor customer outcomes. More generally, we expect heat networks to be open in their dealings with the regulator and self-report any potential areas of non-compliance and actions they will take to address them.

150. Over time, we are considering implementing approaches to help ensure there is an effective monitoring regime where heat networks provide accurate and timely data in line with requirements, including the issuing of penalties for late/inaccurate reporting.

151. Monitoring will serve operational purposes in ensuring compliance with regulation but will also provide an ongoing view of the impact of regulation in the market against the policy aims. Monitoring enables swift action to be taken where policy aims are not being met and allows for thorough evaluation. As per the Heat Network Market Framework regulation, monitoring data will be shared with the Department for Energy Security and Net Zero for purposes of evaluation, research and analysis to support policies and regulations relating to low carbon heating.

152. Alongside monitoring, evaluation will be undertaken to review the efficiency, effectiveness and impact of current regulations. Ofgem and the Department will collaborate to develop a coherent evaluation plan.

153. When evaluating the policy, research questions may include:

- To what extent have the regulations achieved the aims?
- To what extent are the impacts additional to what would have happened without them?
- How effective was the delivery of the amendments?
- To what extent is this offering value for money?
- Are there any lessons going forward for how heat networks are regulated?
- How has the design of the regulation influenced the impacts that were achieved?
- How has the policy been delivered? What did/didn't work?
- What have the costs and benefits of the regulation been?

- How has the regulation impacted consumers and the heat network industry?

Annex

A – Estimated Cost Assumptions

This annex outlines the assumptions behind the estimated regulator costs, cost to business, the counterfactual, and how costs are assumed to be recovered.

Regulation Cost Estimate

Below is an overview of the approach taken to estimate regulatory costs. A standard cost model approach has been used to estimate the regulatory costs of the preferred option. An overview of the methodology used is as follows:

Current market - The current size of the heat network market in scope of regulation was estimated using the HNMBR notification data. There is uncertainty in this data about the current size of the market, with a risk that a significant number of small networks are not captured. The impact of the size of the market has been tested through analysis of the growth rate, explained in section C.

Identify regulatory activities and estimate the resource – Ofgem used the outputs on market size from step A to estimate a range of required resource, which have been used as the key inputs into this cost modelling. This includes the number of full-time equivalent (FTE) staff by seniority, consultancy, and overhead costs. These estimates were then further refined following scrutiny from the Department for Energy Security and Net Zero and key stakeholders, including industry and other regulatory bodies. The ONS statistics use average Civil Service pay to calculate the cost of the required FTE.³¹ These costs were then inflated by 21.8% to account for non-wage costs, in line with RPC guidance.³²

Profile and scale resource requirements – To account for the anticipated growth, illustrative annual growth rates have been constructed based on the available evidence, detailed in Table 4. Sensitivity testing has shown that the future growth rate of the market plays a much larger role in the conclusions of the analysis than the estimate for the current size of the market.

Table 4 - Estimated heat network deployment under different growth scenarios

Heat network deployment	TWh in 2050	Annual growth rate%
Low	50	4.8%
Central	60	5.5%
High	70	6.1%

Costs to business estimates

The costs to business of reporting and complying with the authorisation conditions is calculated with the methodology below:

³¹ Civil Service median salaries by grade, 2019 < <https://www.gov.uk/government/statistics/civil-service-median-salaries-by-uk-region-and-grade> >

³² RPC guidance on implementation costs, 2019 < <https://www.gov.uk/government/publications/rpc-short-guidance-note-implementation-costs-august-2019> >

For simplicity, wage costs have been set constant across the appraisal period.

Identify requirement: The expected requirements to be placed on heat network organisations was based on consultation with Ofgem, response to the consultation, and the current policy ambition.

Estimate the frequency and resource – The number of hours required by businesses to comply with various areas of the regulation was estimated through consultation with Ofgem and a comparison with the Heat Trust requirements. The frequency of requirements is based on current policy ambition.

Costing - To estimate the implied costs of undertaking these activities, these tasks are assumed to be carried out by an estimate manager and an internal business consultant, split 75:25, respectively. Hourly wage costs have been informed by ONS statistics.³³

Aggregate costs - The costs to business were summed across all activities to provide an aggregated costs for the whole market per year.

Table 5 - Cost to business assumption overview (central case)

Assumption	Level	Duration (hour)	Rate (£/hour)	Cost (£)	Frequency
Familiarisation and dissemination	Heat supplier	9.5	27	257	One-off
Authorisation application	Heat network	3	27	81	One-off
Audits	Heat supplier	4	27	108	Annual
Complaints	Heat supplier	0.5	27	14	Annual
Annual reporting – set up	Heat network	15	27	406	One-off
Annual reporting - ongoing	Heat network	7.5	27	203	Annual

Counterfactual Cost Estimates

We have assumed that for the counterfactual scenario, the only form of regulation in the heat network market is the Heat Network Metering and Billing Regulation (HNMBR) and the voluntary Heat Trust regulation. The implied cost of Heat Trust membership over the appraisal period was estimated using the following methodology:

Estimate future growth – The reported growth in Heat Trust membership was used to derive the observed trend in growth between 2016 to 2021. This trend was then applied to the current

³³ Earnings and hours worked, region by occupation by two-digit SOC: ASHE Table 3
<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/datasets/regionbyoccupation2digitsocashetable3>

Heat Trust membership to produce an illustrative growth scenario over a 30-year appraisal period.

Estimated regulatory costs – The current Heat Trust membership costs were then used to estimate the counterfactual regulatory costs, as summarised in Table 6.

Table 6 – Costs under the counterfactual

Area	Level	Cost	Frequency
Connection cost	Per Heat Trust customer	£3.75	Annually
Joining fee	Per Heat Trust customer	£100	One-off

Costs to business were then calculated in a similar way to the factual case. Though – apart from HNMBR annual reporting – costs for a given area of regulation were multiplied by the projected number of heat networks/suppliers that will join the Heat Trust (as opposed to all heat networks). These costs are summarised in Table 7 below.

Table 7 – Costs to business under the counterfactual

Area	Level	Cost (£)	Frequency
Annual Reporting	Per Heat Trust heat network	203	6 months
HNMBR Annual Reporting	Heat network (all)	406	Every four years
Annual Reporting Set-Up	Per Heat Trust heat network	203	One-off
Complaints	2% of all heat network customers	14	Annually
Authorisation	Per Heat Trust supplier	81	One-off
Familiarisation and dissemination	Per Heat Trust supplier	257	One-off