# Heat Network Technical Assurance Scheme

New Build Heat Networks

Assessment Procedures

District Distribution Network

Phase 2: Design

**HNTAS-NB-AP-DD-P2**

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# Version History

| Revision | Notes | Date |
|---|---|---|
| V0.4 | Draft issue | 05/12/25 |

# Disclaimer

The following HNTAS Code document is published in draft format. This document is intended to give the sector early sight of HNTAS requirements in their current stage of development for the purpose of facilitating sector understanding of the scheme.

Draft Code documents, including Technical Specifications and Assessment Procedures, have been reviewed and consulted on through a series of technical workshops with participation from a range of experts from across the heat network industry. The content of this document is still in development and subject to change. Requirements should not be considered as fixed at this stage.

Changes which may be made to this document in future include those to:

- reflect learnings from the New Build and Existing network pilot programmes;
- align with aspects of HNTAS which are subject to public policy consultation;
- align with new requirements in TS1 and MMS;
- align the terminology of this document with that used in other HNTAS documentation;
- rectify errors in this draft version; and
- improve clarity of contents.

The Key Failures set out in the draft Code documents have been identified as a specific area for review, to ensure that:

- all Key Failures enable a binary assessment;
- Key Failures are only included for genuine issues presenting major risks to KPIs, and that moderate or lower risks are considered via non-conformity processes; and
- Key Failures do not duplicate Technical Requirements unless there is a clear justification to do so.

DESNZ will be welcoming feedback on the information in this document via a change management process. This process will run in parallel to the HNTAS policy consultation and DESNZ invites stakeholders to engage with both, once they are open. You can sign up to receive updates on future detailed draft technical documents as they are published by contacting: heatnetworks@energysecurity.gov.uk.

Please be advised that this document references other HNTAS draft Code documents which have not yet been published. References to other documents will also be subject to change following the publication of updated standards. The final version of this document will be released before the launch of HNTAS.

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# Note on Phase 4: Operation (initial) and Phase 5: Operation (ongoing)

The New Build Technical Specification and Assessment Procedures Overview (Phase 0) documents indicate that there are separate New Build Code Documents for Phase 4: Operation (initial) and Phase 5: Operation (ongoing).

These documents have since been consolidated to reduce the number of Code Documents, so the Phase 4: Operation documents cover requirements for New Build networks during both initial and ongoing operation.

This change does not impact the assessment of New Build networks in operation, which still occurs:

- after 1 year of operation; and
- after 2 years of operation.

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# Foreword

These Assessment Procedures form part of the UK Government's Heat Network Technical Assurance Scheme (HNTAS, The Scheme) delivered by the Department for Energy Security and Net Zero, in partnership with the Scottish Government and Ofgem. The Department for Energy Security and Net Zero appointed FairHeat as technical author for this document.

The Scheme has been designed and developed in consultation with a range of experts across the heat network industry in the form of Technical Sub-Working Groups, culminating in a series of Technical Specifications and Assessment Procedures to facilitate the validation and verification of performance outcomes of Elements within a Heat Network.

This document contains the Assessment Procedures for a District Distribution Network Element within a New Build Heat Network in Phase 2: Design.

This document sits within a series of Assessment Procedures for a District Distribution Network, which features within a wider Code documentation structure, as outlined in Table 1.

These Assessment Procedures have been issued in draft format and will be updated prior to scheme launch.

For further information on the use of this document within the Heat Network Technical Assurance Scheme, please refer to the Heat Network Technical Assurance Scheme – New Build Heat Networks – Scheme Rules – Assessment Regime (HNTAS-NB-SR-XX-AS) document.

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# Code Document Structure

## Assessment Procedures

| Document Type | Element | | Part/Phase | | | | |
|---|---|---|---|---|---|---|---|
| | | | Overview | Phase 1: Feasibility | Phase 2: Design | Phase 3: Construction | Phase 4: Operation |
| | | | P0 | P1 | P2 | P3 | P4 |
| Assessment Procedures | Energy Centre | EC | HNTAS-NB-AP-EC-P0 | HNTAS-NB-AP-EC-P1 | HNTAS-NB-AP-EC-P2 | HNTAS-NB-AP-EC-P3 | HNTAS-NB-AP-EC-P4 |
| | District Distribution Network | DD | HNTAS-NB-AP-DD-P0 | HNTAS-NB-AP-DD-P1 | HNTAS-NB-AP-DD-P2 | HNTAS-NB-AP-DD-P3 | HNTAS-NB-AP-DD-P4 |
| | Substation | SS | HNTAS-NB-AP-SS-P0 | HNTAS-NB-AP-SS-P1 | HNTAS-NB-AP-SS-P2 | HNTAS-NB-AP-SS-P3 | HNTAS-NB-AP-SS-P4 |
| | Communal Distribution Network | CD | HNTAS-NB-AP-CD-P0 | HNTAS-NB-AP-CD-P1 | HNTAS-NB-AP-CD-P2 | HNTAS-NB-AP-CD-P3 | HNTAS-NB-AP-CD-P4 |
| | Consumer Connection | CC | HNTAS-NB-AP-CC-P0 | HNTAS-NB-AP-CC-P1 | HNTAS-NB-AP-CC-P2 | HNTAS-NB-AP-CC-P3 | HNTAS-NB-AP-CC-P4 |
| | Consumer Heat System | CH | HNTAS-NB-AP-CH-P0 | HNTAS-NB-AP-CH-P1 | HNTAS-NB-AP-CH-P2 | HNTAS-NB-AP-CH-P3 | N/A |

*Table 1: New Build Network Assessment Procedures structure*

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# Scope

This document specifies the Assessment Procedures applicable for a District Distribution Network within a New Build Heat Network in Phase 2: Design.

A District Distribution Network is defined as any pipework system that is not within a building and distributes thermal energy from one location within a Heat Network to another. For example, distributing thermal energy from an Energy Centre to a Building Connection underground.

A detailed definition of the District Distribution Network is contained within the Heat Network Technical Assurance Scheme – New Build Heat Networks – Technical Specification – District Distribution Network – Overview (HNTAS-NB-TS-DD-P0) document.

Detailed definitions of the Levels of Assessment specified in this document are provided in Heat Network Technical Assurance Scheme – New Build Heat Networks – Assessment Procedures – District Distribution Network – Overview (HNTAS-NB-AP-DD-P0).

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## New Build Heat Networks

There are two stages within Phase 2: Design, which are Stage 2: Developed Design and Stage 3: Technical Design. This is outlined in Figure 1.

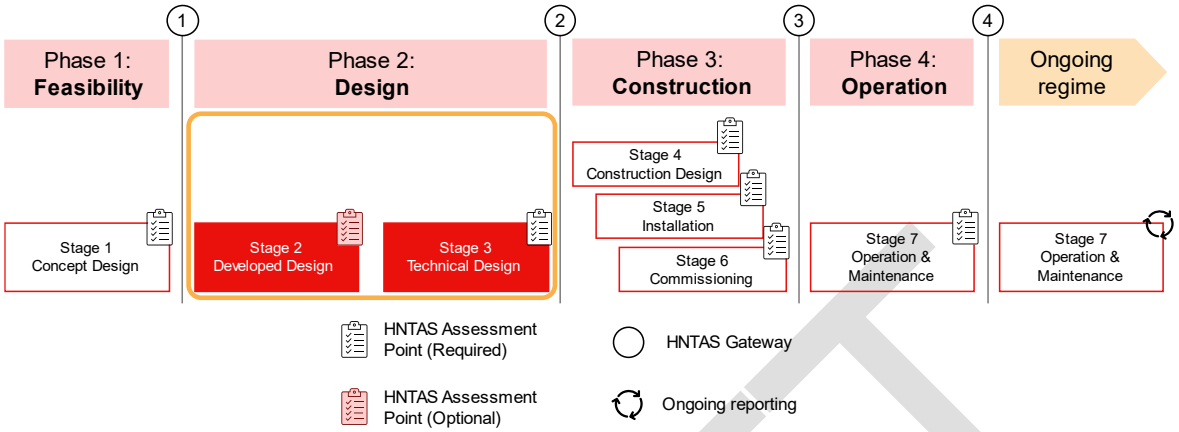


*Figure 1: HNTAS New Build regime phases and stages*

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# References

## Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- Heat Network Technical Assurance Scheme – New Build Heat Networks – Scheme Rules – Assessment Regime (HNTAS-NB-SR-XX-AS)
- Heat Network Technical Assurance Scheme – New Build Heat Networks – Assessment Procedures – District Distribution Network – Overview (HNTAS-NB-AP-DD-P0)

## Informative references

The following informative references apply to this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- ISO 17029: Conformity Assessment – General principles and requirements for validation and verification (ISO, 2019)

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# Terms and Definitions

For the purposes of this document, the terms and definitions given in the Heat Network Technical Assurance Scheme – Terms and Definitions (HNTAS-XX-TD) document apply.

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# 2. Assessment Procedures for Stage 2: Developed Design and Stage 3: Technical Design

## 2.1. Assessment of Technical Requirements

For each HNTAS Technical Requirement, the Assessor shall follow the Assessment Procedures and minimum Level of Assessment specified in Table 2.

| Technical Requirement | Minimum Level of Assessment | Assessment Procedure |
|---|---|---|
| 2.1.1. | 3 | Confirm that the assumptions made and methodology used to calculate peak heat demand and annual heat consumption are in accordance with the applicable technical standard(s). |
| 2.1.2. | 3 | Review the District Distribution Network operating temperature assessment to confirm that the assumptions made and methodology used to determine operating temperatures meet end user requirements, heat generation source requirements, and are in accordance with the applicable technical standard(s).<br>Confirm the calculated return temperatures are based on accurate assumptions and are reasonable given the connection type. |
| 2.1.3. | 3 | Review the route of the District Distribution Network and confirm that the methodology used to determine the route has minimised the length of the network and is in accordance with the applicable technical standard(s). |
| 2.1.4. | 4 | Undertake a sample review to confirm that the necessary separation distances have been provided for sampled items in accordance with the applicable technical standard(s). |
| 2.1.5. | 4 | Confirm that the inputs, assumptions, and methodology used to calculate the network pipe sizes is in accordance with the applicable technical standard(s). |
| 2.1.6. | 5 | Undertake an in-depth review of the working pressure assessment to confirm that the assumptions made, the methodology used to calculate working pressures, and the outputs of the assessment are reasonable given the design characteristics of the system and are in accordance with the applicable technical standard(s).<br>Where required, undertake independent calculations to confirm the accuracy of the working pressure assessment. |

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| Technical Requirement | Minimum Level of Assessment | Assessment Procedure |
|---|---|---|
| | | Confirm that the identification and assessment of risks from the working pressure assessment has been undertaken in accordance with the applicable technical standard(s) and that mitigation measures have been considered and implemented where appropriate. |
| 2.1.7. | 1 | Responsible Party to self-validate that the risk of transient pressure has been considered, mitigated against, and assessed in accordance with the applicable technical standard(s). |
| 2.1.8. | 3 | Confirm that the assumptions made and methodology used to select the pipework system has been undertaken in accordance with the applicable technical standard(s). |
| 2.1.9. | 3 | Confirm that the steel pipework system selected has been specified in accordance with the applicable technical standard(s). |
| 2.1.10. | 3 | Confirm that the polymer pipework system selected has been specified in accordance with the applicable technical standard(s). |
| 2.1.11. | 3 | Confirm that the joint system and method has been selected has been specified in accordance with the applicable technical standard(s). |
| 2.1.12. | 3 | Confirm that the expansion analysis of the pipework system has been developed in accordance with the applicable technical standard(s). |
| 2.1.13. | 3 | Confirm that the inputs, assumptions, and methodology used to determine the pipework expansion design and specification is in accordance with the applicable technical standard(s). |
| 2.1.14. | 2 | Confirm evidence of specification of marker tape for each line of pipe has been provided. No review of contents is required. |
| 2.1.15. | 2 | Confirm evidence of necessary trench depths has been provided. No review of contents is required. |
| 2.1.16. | 3 | Confirm that the design and specification of the termination of the district distribution is in accordance with the applicable technical standard(s). |
| 2.1.17. | 3 | Confirm that the location of the isolation valves is in accordance with the applicable technical standard(s). |

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| Technical Requirement | Minimum Level of Assessment | Assessment Procedure |
|---|---|---|
| 2.1.18. | 3 | Confirm that the access strategy has been developed and that the valve chamber location and design provide suitable access and is in accordance with the applicable technical standard(s). |
| 2.1.19. | 3 | Confirm that the venting and draining provision has been designed and specified in accordance with the applicable technical standard(s).<br>This Assessment Procedure is only applicable at Stage 3. |
| 2.1.20. | 3 | Confirm that any bypasses present are sized, selected, and located in accordance with the applicable technical standard(s). |
| 2.1.21. | 3 | Confirm that the surveillance system strategy has been determined in accordance with the applicable technical standard(s). |
| 2.1.22. | 3 | Confirm that a Resilience Strategy has been developed and that the assumptions made and methodology used to determine the strategy are reasonable. |
| 2.1.23. | 3 | Confirm that a repair and replacement strategy has been developed in accordance with the applicable technical standard(s). |
| 2.1.24. | 2 | Confirm evidence of the access rights for construction and maintenance for the network has been provided. No review of contents is required. |
| 2.1.25. | 5 | Undertake an in-depth review to confirm that the Water Quality Strategy is in accordance with the applicable technical standard(s) and is suitable given the system characteristics. |
| 2.1.26. | 4 | Review the Water Quality Recording Programme to confirm that it has been developed in accordance with the applicable technical standard(s).<br>Undertake a sample check of the water quality parameters and KPI thresholds to confirm they are acceptable.<br>Undertake a sample check of the number of recording locations to confirm they are suitable given the system characteristics. |
| 2.1.27. | 3 | Confirm that oxygen ingress has been minimised in accordance with the applicable technical standard(s). |

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| Technical Requirement | Minimum Level of Assessment | Assessment Procedure |
|---|---|---|
| 2.1.28. | 3 | Confirm that the risk of areas of stagnation has been mitigated in accordance with the applicable technical standard(s). |
| 2.1.29. | 3 | Confirm that water quality equipment has been specified in accordance with the applicable technical standard(s). |
| 2.1.30. | 3 | Confirm that the methodology used to select the pipework insulation type and thickness is in accordance with the applicable technical standard(s). |
| 2.1.31. | 5 | Undertake an in-depth review to confirm that the inputs, assumptions, and methodology used to calculate the network heat losses in in accordance with the applicable technical standard(s).<br>Undertake an independent calculation to confirm the accuracy of the outputs. |
| 2.1.32. | 3 | Review the outline commissioning plan to confirm the inputs are correct, key items are present, the time order of activities appears reasonable and is in accordance with the applicable technical standard(s).<br>This Assessment Procedure is only applicable at Stage 3. |
| 2.1.33. | 3 | Review the Acceptance Testing methodology and criteria to confirm that the inputs and criteria are correct and key items required to demonstrate performance are present.<br>This Assessment Procedure is only applicable at Stage 3. |
| 2.1.34. | 3 | Review the list of specialist Heat Network design items to be completed at the Construction Design stage to confirm that the performance specification is present, specification requirements are appropriate for the item type and the applicable HNTAS standards are present.<br>This Assessment Procedure is only applicable at Stage 3. |
| 2.1.35. | 3 | Review the required drawings and schematics to confirm they are in accordance with the applicable technical standard(s). |
| 2.1.36. | 4 | Confirm that the Technical Parameters Schedule has been completed (all parameters present, and references to correct documents present). |

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| Technical Requirement | Minimum Level of Assessment | Assessment Procedure |
|---|---|---|
| | | Undertake a review of a sample of parameters to confirm the accuracy of sampled outputs. |

*Table 2: Assessment Procedures for Technical Requirements at Stage 2: Developed Design and Stage 3: Technical Design for the District Distribution Network*

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## 2.2. Assessment of Performance Monitoring Requirements

For each HNTAS Performance Monitoring Requirement, the Assessor shall follow the Assessment Procedures and minimum Level of Assessment specified in Table 3.

| Performance Monitoring Requirement | Minimum Level of Assessment | Assessment Procedure |
|---|---|---|
| 2.2.1. | 5 | Undertake an in-depth review to confirm that the Metering and Monitoring Strategy is reasonable in the context of wider system design and characteristics, and is in accordance with the applicable technical standard(s). |
| 2.2.2. | 4 | Review the KPI Schedule and ensure that the applicable District Distribution Network KPIs are present, and the schedule contains the required content.<br>Undertake a sample check of KPIs to confirm the suitability of KPI thresholds and the required measurement points for sampled KPIs. |
| 2.2.3. | 4 | Review the Monitoring Points Schedule to confirm that the Monitoring Points required to measure KPIs (listed in KPI Schedule) are present in the Monitoring Points Schedule, and that the schedule contains the required content. |
| 2.2.4. | 5 | Undertake an in-depth review of the Monitoring Points specification to confirm that it has been determined in accordance with the applicable technical standard(s).<br>Undertake a sample check of the meter sizing methodology and outputs to confirm that the sizing is acceptable.<br>This Assessment Procedure is only applicable at Stage 3. |
| 2.2.5. | 5 | Undertake an in-depth review of the ARMS specification to confirm that it has been developed in accordance with the applicable technical standard(s).<br>This Assessment Procedure is only applicable at Stage 3. |
| 2.2.6. | 4 | Undertake a sample review of the data flow diagram(s) to confirm that the inputs are accurate and the diagrams are suitable for the sampled items.<br>This Assessment Procedure is only applicable at Stage 3. |
| 2.2.7. | 4 | Undertake a review of the schematics to ensure that a sample of necessary Monitoring Points are |

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| Performance Monitoring Requirement | Minimum Level of Assessment | Assessment Procedure |
|---|---|---|
| | | present and are labelled with the unique ID code correctly. |

*Table 3: Assessment Procedures for Performance Monitoring Requirements at Stage 2: Developed Design and Stage 3: Technical Design for the District Distribution Network*

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