Heat Network Technical Assurance Scheme

New Build Heat Networks

Assessment Procedures

Energy Centre

Phase 3: Construction

HNTAS-NB-AP-EC-P3

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.

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.

Contents

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 an Energy Centre Element within a New Build Heat Network in Phase 3: Construction.

This document sits within a series of Assessment Procedures for an Energy Centre, 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

Scope

This document specifies the Assessment Procedures applicable for an Energy Centre within a New Build Heat Network in Phase 3: Construction.

An Energy Centre is defined as a plant room that contains heat generation equipment; and/or equipment connecting to an energy source; or a Substation which contains heat generation equipment (e.g. building connection with heat pumps or top-up boilers).

A detailed definition of the Energy Centre is contained within the Heat Network Technical Assurance Scheme – New Build Heat Networks – Technical Specification – Energy Centre – Overview (HNTAS-NB-TS-EC-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 – Energy Centre – Overview (HNTAS-NB-AP-EC-P0).

New Build Heat Networks

There are three stages within Phase 3: Construction, which are Stage 4: Construction Design, Stage 5: Installation, and Stage 6: Commissioning. This is outlined in Figure 1.

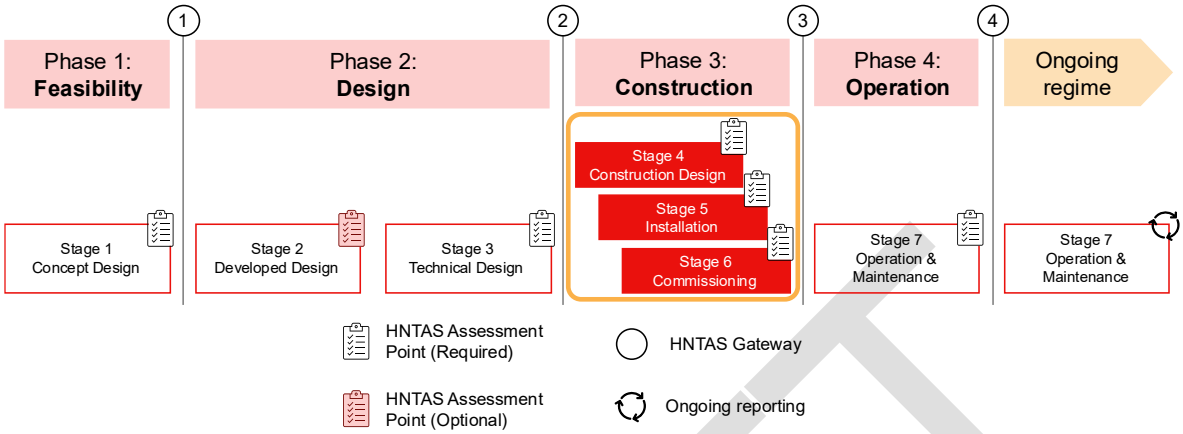

Figure 1: HNTAS New Build regime phases and stages

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 – Energy Centre – Overview (HNTAS-NB-AP-EC-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)

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.

4. Assessment Procedures for Stage 4: Construction Design

4.1. 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
4.1.1.	3	Check that a specialist has been engaged for each identified specialist Heat Network design item, and that the specialist design has been undertaken in accordance with the specification and performance requirements and identified HNTAS Technical Design requirements.
4.1.2.	4	Undertake a sample check of the Technical Submittals to confirm they have been produced in accordance with the Assessed Technical Design, contain the necessary information and have been agreed by the Designer. The sample check shall include main items of heat generation equipment, distribution pumps and expansion/pressurisation equipment. The Assessor shall undertake a level 5 assessment, which involves an exhaustive check of all Technical Submittals for that Element, if the sample check identifies non-conformities or a lack of information.
4.1.3.	3	Confirm that the pressure safety system has been specified in accordance with the applicable technical standard(s).
4.1.4.	3	Check that the document outlining the pressure characteristics of the system has been produced in accordance with the applicable technical standard(s).
4.1.5.	5	Undertake an in-depth review of the Description of Operation to ensure that it is in accordance with the applicable technical standard(s) and the control strategy in the Assessed Technical Design.
4.1.6.	4	Undertake a sample check of points schedule to confirm that the required points are present, and labelling is correct. It is noted that the points schedule will likely contain other building services. The sample check is only required for the applicable points for the Heat Network.

Technical Requirement	Minimum Level of Assessment	Assessment Procedure
4.1.7.	3	Check that a Resilience Strategy has been updated and includes all content as outlined within the evidence requirement. Check that the Resilience Strategy remains relevant to the network and has been reviewed and updated.
4.1.8.	3	Confirm that a repair and replacement strategy has been developed in accordance with the applicable technical standard(s).
4.1.9.	3	Review the filling, flushing, and water treatment/conditioning methodology to ensure that it is in accordance with the applicable technical standard(s), and that network-specific information (e.g. required velocities) is present and correct.
4.1.10.	3	Confirm that suitable provision of flushing points is included in the design of the Energy Centre.
4.1.11.	2	Check that Water Quality documentation has been kept up to date and includes all documentation in accordance with the applicable technical standard(s).
4.1.12.	3	Review the pipework pressure testing methodology to ensure that it is in accordance with the applicable technical standard(s), and that network-specific information (e.g. required test pressure) is present and correct.
4.1.13.	4	Confirm the required installation drawings and schematics have been produced and undertake a sample review to confirm that sampled drawings and schematics are in accordance with the applicable technical standard(s).
4.1.14.		Technical Change Control Procedure to be followed.
4.1.15.	4	Undertake a sample check to confirm that changes are being documented within the Change Log.
4.1.16.	4	Undertake a sample check of Construction Phase documentation to confirm that changes have been reflected in the appropriate documentation.
4.1.17.	4	Confirm all expected drawings and schematics are present. Undertake a sample check of as-installed drawings and schematics to ensure that changes made during the Construction Phase have been correctly

Technical Requirement	Minimum Level of Assessment	Assessment Procedure
		reflected and the as-installed drawings and schematics represent the actual installation and contain correct labelling. Confirm the schematic has been affixed to the Energy Centre wall (or equivalent location).
4.1.18.	4	Confirm that the Technical Parameters Schedule has been completed (all parameters present, references to correct documents present). Undertake a review of a sample number of parameters to confirm the accuracy of the sampled outputs.
4.1.19.	4	Undertake a review of a sample of documentation to ensure changes made during the Construction Phase have been correctly reflected and the as-built documentation represents the actual installed and commissioned status for the sampled items. If significant changes to the control philosophy have been made, an in-depth review (level 5) of the updated Description of Operation (post-commissioning) shall be carried out to ensure any necessary changes have been reflected in the documentation.
4.1.20.	4	Confirm that the written procedures outlining the implementation of the Disaster Recovery Plan have been produced and undertake a sample review to confirm that the procedures required in the event of a major incident are compatible with the Resilience Strategy and the relevant available network-specific information and constraints.
4.1.21.	4	Review the contents of the O&M manual to confirm that the O&M contents has been developed in accordance with the applicable technical standard(s). Review the O&M manual to confirm that the expected documentation is present. Undertake a review of a sample number of items to ensure that the updated documentation has been included.

Table 2: Assessment Procedures for Technical Requirements at Stage 4: Construction Design for the Energy Centre

4.2. 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
4.2.1.	4	Confirm that the thermal energy meters have been specified in accordance with the applicable technical standards. Undertake a sample check of meter sizing methodology to confirm that sizing is acceptable.
4.2.2.	3	Confirm that the Automatic and Remote Monitoring System (ARMS) has been specified in accordance with the applicable technical standard(s).
4.2.3.	5	Undertake an in-depth check of the KPI Schedule to confirm that all applicable KPIs and performance metrics are listed, and the Monitoring Points are correct.
4.2.4.	4	Undertake a sample check to confirm the required Monitoring Points are present, the schedule schematics and layout drawings are accurate, and the labelling of points is correct.
4.2.5.	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). Confirm that all required information is present and that the Metering and Monitoring System will enable KPIs to be accurately measured and achieved.

Table 3: Assessment Procedures for Performance Monitoring Requirements at Stage 4: Construction Design for the Energy Centre

5. Assessment Procedures for Stage 5: Installation

5.1. Assessment of Technical Requirements

For each HNTAS Technical Requirement, the Assessor shall follow the Assessment Procedures and minimum Level of Assessment specified in Table 4.

Technical Requirement	Minimum Level of Assessment	Assessment Procedure
5.1.1.	4	Undertake a sample inspection of the Energy Centre installation to confirm the installation sampled is in accordance with requirements 5.1.1-5.1.3. In relation to requirement 5.1.2, it is not required to carry out verifications of whether all exhaustive relevant standards and/or manufacturer requirements have been met, but rather shall note any non-conformities that are identified as part of a sample inspection. Undertake a review of declarations wherever non-conformities with requirements have been noted (e.g. where a manufacturer has signed off on stated requirements not being met).
5.1.2.	4	Undertake a sample inspection of the Energy Centre installation to confirm the installation sampled is in accordance with requirements 5.1.1-5.1.3. In relation to requirement 5.1.2, it is not required to carry out verifications of whether all exhaustive relevant standards and/or manufacturer requirements have been met, but rather shall note any non-conformities that are identified as part of a sample inspection. Undertake a review of declarations wherever non-conformities with requirements have been noted (e.g. where a manufacturer has signed off on stated requirements not being met).
5.1.3.	4	Undertake a sample inspection of the Energy Centre installation to confirm the installation sampled is in accordance with requirements 5.1.1-5.1.3. In relation to requirement 5.1.2, it is not required to carry out verifications of whether all exhaustive relevant standards and/or manufacturer requirements have been met, but rather shall note any non-conformities that are identified as part of a sample inspection. Undertake a review of declarations wherever non-conformities with requirements have been noted

Technical Requirement	Minimum Level of Assessment	Assessment Procedure
		(e.g. where a manufacturer has signed off on stated requirements not being met).
5.1.4.	2	Check that evidence of training and required certification has been provided. No review of the contents is required.
5.1.5.	3	Review the quality inspection report to ensure the quality inspections have been undertaken and any identified areas of non-conformities have been resolved.
5.1.6.	4	Undertake sample witnessing of filling activities to ensure sampled activities are being carried out in accordance with the Assessed Water Quality Strategy. Undertake an in-depth review of the water quality documentation to ensure water quality parameters are within their thresholds.
5.1.7.	4	Undertake a sample review of the pressure testing certification to ensure testing sampled has been carried in accordance with the assessed pressure testing methodology. Assessor can also undertake sample witnessing of pressure testing activities to improve level of confidence.
5.1.8.	4	Undertake sample witnessing of flushing activities and an in-depth review of water quality documentation to ensure the sampled activities are being carried out in accordance with the assessed flushing methodology.
5.1.9.	4	Undertake a sample review to confirm that the assessment of stagnation risk and its mitigation measures are appropriate for the system design and are in accordance with the applicable technical standard(s).
5.1.10.	4	Undertake a sample inspection of the Energy Centre insulation installation to confirm the installation sampled is in accordance with requirements 5.1.10-5.1.12. In relation to requirement 5.1.11, it is not required to carry out verifications of whether all exhaustive relevant standards and/or manufacturer requirements have been met, but rather shall note any non-conformities that are identified as part of a sample inspection. Undertake a review of declarations wherever non-conformities with requirements have been noted

Technical Requirement	Minimum Level of Assessment	Assessment Procedure
		(e.g. where a manufacturer has signed off on stated requirements not being met).
5.1.11.	4	Undertake a sample inspection of the Energy Centre insulation installation to confirm the installation sampled is in accordance with requirements 5.1.10-5.1.12. In relation to requirement 5.1.11, it is not required to carry out verifications of whether all exhaustive relevant standards and/or manufacturer requirements have been met, but rather shall note any non-conformities that are identified as part of a sample inspection. Undertake a review of declarations wherever non-conformities with requirements have been noted (e.g. where a manufacturer has signed off on stated requirements not being met).
5.1.12.	4	Undertake a sample inspection of the Energy Centre insulation installation to confirm the installation sampled is in accordance with requirements 5.1.10-5.1.12. In relation to requirement 5.1.11, it is not required to carry out verifications of whether all exhaustive relevant standards and/or manufacturer requirements have been met, but rather shall note any non-conformities that are identified as part of a sample inspection. Undertake a review of declarations wherever non-conformities with requirements have been noted (e.g. where a manufacturer has signed off on stated requirements not being met).
5.1.13.	3	Review the quality inspection report to ensure the quality inspections have been undertaken and any identified areas of non-conformities have been resolved.

Table 4: Assessment Procedures for Technical Requirements at Stage 5: Installation for the Energy Centre

5.2. Assessment of Performance Monitoring Requirements

There are no Assessment Procedures for Performance Monitoring Requirements at Stage 5.

6. Assessment Procedures for Stage 6: Commissioning

6.1. Assessment of Technical Requirements

For each HNTAS Technical Requirement, the Assessor shall follow the Assessment Procedures and minimum Level of Assessment specified in Table 5.

Technical Requirement	Minimum Level of Assessment	Assessment Procedure
6.1.1.	4	Review the commissioning plan to ensure the plan covers all required activities and provides reasonable timeframes. A sample check of the major commissioning activities shall be undertaken to ensure the sequence of the sampled activities is suitable and feasible.
6.1.2.	4	Undertake a sample review of commissioning methodologies to ensure that the sampled methodologies are in accordance with the applicable technical standard(s) and ensure that site-specific information is present and correct.
6.1.3.	4	Undertake a sample review of the commissioning records to ensure that major equipment has been commissioned in accordance with the assessed commissioning methodology and applicable technical standard(s). Undertake sample witnessing of Energy Centre equipment commissioning (dependent on Assessor judgement) to ensure sampled commissioning of equipment performs in accordance with the applicable technical standard(s).
6.1.4.	5	Undertake an in-depth review of the control system points as part of Acceptance Testing.
6.1.5.	4	Confirm that water quality parameters are being recorded at the required frequency. Undertake a sample check to confirm that water quality samples are being taken at the required number of locations and frequency.
6.1.6.	4	Undertake a sample check for a number of water quality parameters to confirm they are within their required thresholds.
6.1.7.	3	Review the Acceptance Testing methodology to ensure the testing parameters are in accordance with HNTAS Acceptance Testing Procedures.

Technical Requirement	Minimum Level of Assessment	Assessment Procedure
6.1.8.	3	Review the pre-testing report to confirm that performance appears acceptable to progress to the Acceptance Test.
6.1.9.	5	Witness the Energy Centre Acceptance Test demonstrated by the Responsible Party. Confirm that the Acceptance Test has been undertaken in accordance with the agreed methodology. Document the outcomes of the Acceptance Test to confirm that all applicable technical standard(s) have been fulfilled. More information on the required content in the Acceptance Test report is provided in Table 6.
6.1.10.	4	Confirm that the performance data is in a usable format (e.g. .csv, .xlsx). Undertake a sample review of the performance data from the Acceptance Test to ensure that sufficient performance of the system was demonstrated during the Acceptance Test.
6.1.11.	3	Review the justification for an additional test and check that this is sufficient. If an additional Acceptance Test is carried out, review the Acceptance Testing record sheet to ensure the performance achieves KPI thresholds. Undertake witnessing of the additional Energy Centre Acceptance Test to ensure performance achieves KPI thresholds (dependent on Assessor judgement).
6.1.12.	3	Review to the inputs, assumptions and methodology used to determine the condition of equipment to confirm they are in accordance with the applicable technical standard(s). Check that a Condition Audit has been undertaken, a Condition Survey has been undertaken where necessary, remedial actions have been completed where necessary, and outputs have been recorded in a condition log.
6.1.13.	3	Check that the correct handover procedures are being taken and that evidence of sign-off from the organisation responsible for the operation and maintenance of the Energy Centre has been provided.

Table 5: Assessment Procedures for Technical Requirements at Stage 6: Commissioning for the Energy Centre

Part	Report content
Part One: Static Witnessing	Evidence shall be provided that each item from each requirement has been demonstrated.
Part Two: Dynamic Operation	Data shall be presented in graphical format to evidence where requirements have been met and KPI thresholds achieved. Where thresholds have a minimum and/or maximum value, the report shall clearly state this and shall be illustrated on the relevant graphs. Data from the dynamic operation test shall be appended to the report.
Part Three: Demonstration of KPIs	Evidence shall be provided that the relevant KPIs have been achieved. This can be evidenced through the Metering and Monitoring System.

Table 6: Required content in the Acceptance Test report

6.2. 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 7.

Performance Monitoring Requirement	Minimum Level of Assessment	Assessment Procedure
6.2.1.	2	Check that photographic evidence of labelled Monitoring Points has been provided.
6.2.2.	3	Review the commissioning records to ensure that appropriate commissioning checks have been carried out on all Monitoring Points in accordance with the applicable technical standard(s).

Table 7: Assessment Procedures for Performance Monitoring Requirements at Stage 6: Commissioning for the Energy Centre