

GUIDANCE NOTE 2

CHP SCHEME DESCRIPTION

GN2.1

The CHP Scheme description requires:

- Economic sector
- CHP Scheme status (operating, or mothballed) and statement of billing arrangements
- CHP Scheme diagrams (including boundary definitions)
- Heat profiles (for CHP Schemes with heat rejection facility)
- Details of equipment within the CHP Scheme
- Details of monitoring arrangements (boundary)
- Details of the Meter Point Reference Number(s) if appropriate (stated on gas bill)
- CHP Scheme Total Power Capacity (TPC)
- Details of additional equipment

PROCEDURE FOR COMPLETING THE SCHEME DETAILS SECTION OF THE OPERATIONAL SUBMISSION JOURNEY

GN2.2

The following paragraphs address, step-by-step, the requirements for completion of the Scheme Details sections of the submission journey, referring where appropriate to other Guidance Notes.

CHP Scheme Identification

GN2.3

This information relating to the site name, company name and site reference, and economic sector will be completed during the user and scheme creation and registration process. The site reference is the unique CHPQA reference number automatically assigned by the application system.

CHP Scheme Description

GN2.4

Information on the Scheme is required in the Scheme Details section of the submission journey, including a simple line diagram showing the CHP Scheme and its relationship to the site as a whole. The CHP Scheme energy flow diagram is a copy of the line diagram marked up to show typical energy inputs, heat outputs and electrical and mechanical power outputs. It should also show mass flow rates, temperatures and pressures.

For Simple Schemes (refer to Guidance Note 0), only an Energy Flow Diagram is required, and a generic Scheme Energy Flow Diagram is given in the document “Generic Scheme Energy Flow Diagrams” which may be used for this purpose. If

using this please fill in the missing details corresponding to your scheme.

CHP Schemes with any form of heat rejection should provide heat output profiles and a heat load duration curve.

The submitted line diagrams should clearly show the CHP Scheme boundary.

- Refer to GN11 for guidance on CHP Scheme definitions and boundaries.
- Refer to GN12.2 to 12.4 for guidance on scheme line and energy flow diagrams.
- Refer to GN12.5 for guidance on heat profiles and load duration curves.

Any change in scheme details will require the submission of revised information alongside the submission of the previous year's performance data (from 1 January of next calendar year).

CHP Scheme Details (List of Equipment)

GN2.5

Applicants must provide a list of all prime movers, heat recovery equipment, and boilers within the CHP Scheme boundary.

For a Simple Scheme, this will be represented by a single reciprocating engine only.

Where exhaust gases are used for direct heating with or without additional fuel, e.g. in dryers, this equipment must be included. All equipment must be identified by tag numbers, and the list must include maximum capacities in terms of power generation (referenced to ISO conditions) and/or heat. Where a prime mover drives a mechanical load (e.g. a pump or a compressor), the mechanical power output is to be converted to an equivalent electrical output using a multiplying factor of 1.05.

- Refer to GN12.3 & 12.6 for guidance on equipment list.
- Refer to GN15 & 16 for guidance on energy outputs.
- Refer to GN15 & GN22 for guidance on mechanical output.

CHP Scheme Details (List of Monitoring Arrangements)

GN2.6

This requires a list of all installed metering equipment that will be used to monitor the performance of the CHP Scheme. Where an indirect method is proposed to derive an unmeasured input or output, supporting calculations must be included as attachments to the Scheme Description.

- Refer to GN12.3 for guidance on meter tag and GN 12.7-GN12.13 for guidance on monitoring arrangements.
- Refer to GN13 for guidance on CHP Scheme monitoring.
- Refer to GN14 to 16 for guidance on input/output metering requirements.
- Refer to GN20 to 22 for guidance on indirect monitoring methods.
- Refer to GN17, GN18 & GN21 for guidance on determination of monitoring uncertainties and bias (errors).

- Refer to GN19 for adjustment of energy inputs and outputs for excessive uncertainty.

Simple schemes with a Total Power Capacity ≤ 500 kWe using natural gas engines which are listed on the CHPQA Unit List are allowed to:

- calculate the fuel input, if unmetered, by dividing the Total Power Output by the appropriate power efficiency from the CHPQA Unit List.
- (only for cases where there is no heat rejection facility) calculate the heat output using the appropriate heat:power ratio (h:p) from the CHPQA Unit List.

CHP Scheme Capacity (Simple Schemes)

GN2.7

This requires the description of the CHP Scheme capacities:

1. CHP Total Power Capacity (CHP_{TPC}). Rated electrical/mechanical output of the generator as provided by the manufacturer.
2. CHP MaxHeat Output - For schemes with no heat rejection facility MaxHeat can be assumed to be the heat output at full load of the CHP scheme or, where not known, 1.5 times the CHP_{TPC}. For schemes with a heat rejection facility, MaxHeat will usually equal the scheme heat output at full load.

CHP Scheme Capacity (Complex Schemes)

GN2.8

This requires the description of the CHP Scheme performance at two conditions:

1. CHP Total Power Capacity (CHP_{TPC}) (referred to ISO conditions)
 2. The CHP Total Power Capacity at MaxHeat conditions (referred to ISO conditions)
- Refer to GN12.14 for detailed guidance on CHP Scheme Capacity.
 - Refer to GN12.5 for detailed guidance on the Heat Load Duration Curve.
 - Refer to GN27.4 for detailed guidance on calculating MaxHeat.

Supporting Documentation

GN2.9

Throughout the Scheme Details section of the Operational Submission journey, various documents are requested as supporting evidence. These include, inter alia:

- Scheme line and energy flow diagrams
- Annual and daily heat profiles
- Heat load duration curve
- Prime mover specification sheets
- Metering specification sheets
- Metering calibration certificates
- Other supporting documents and calculations