

GUIDANCE NOTE 11

CHP SCHEME DEFINITION

GN11.1

The CHP site should be considered as comprising of two areas, the Utilities Area and the Process Area. The two areas are not necessarily distinct geographical plot areas within the site but, rather, areas that may be conveniently represented as shown below.

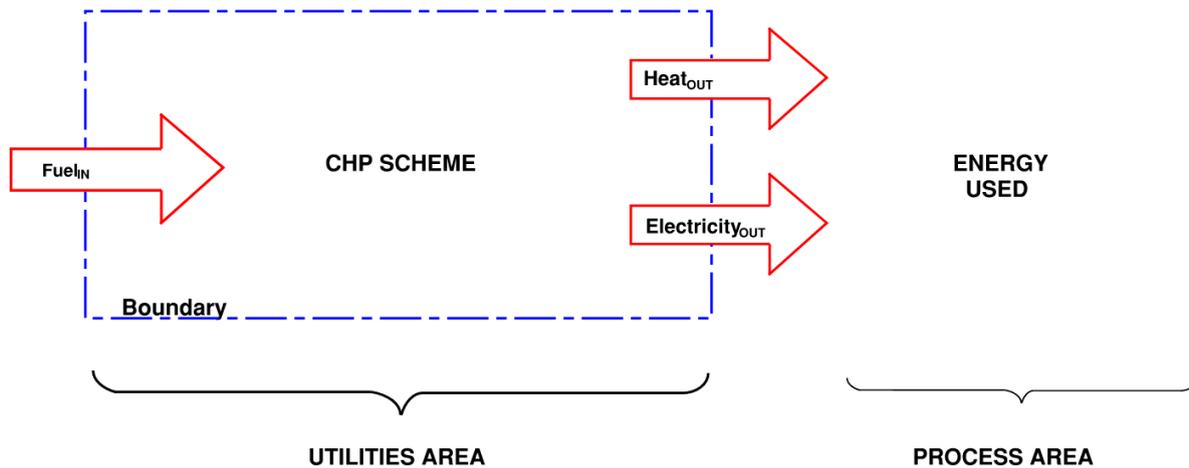


Fig GN11-1 CHP Scheme Description

UTILITIES AREA

GN11.2

The Utilities Area contains the main CHP Prime Mover(s) and associated heat recovery equipment and boiler plant. The utilities area may also include other site boilers providing that:

- they contribute to the CHP electrical/mechanical output and/or
- they are connected to the CHP heat headers and act as standby or auxiliary boilers to the CHP (i.e. not a replacement of the CHP).

GN11.3

The CHP Scheme may include prime movers, such as steam turbine-driven pumps or generators that are embedded within the Process Area. Where possible these should be shown within the main Utility boundary with the appropriate connections to the Process Area (e.g. steam in, steam out). Where this is too complex, they may be shown to be within a Utilities Island, again with the appropriate connections to the Process Area. Either way the final CHPQA analysis is identical.

PROCESS AREA

GN11.4

The Process Area makes up the remainder of the CHP site including the main process plant that consumes some or all of the CHP outputs.

CHP SCHEME BOUNDARY

GN11.5

There may be more than one possible configuration for the CHP Scheme definition, depending on the inclusion/exclusion of site boilers or other equipment. To avoid a prescriptive rule-based system for defining CHP Scheme boundaries, applicants with multiple prime movers connected in parallel by heat distribution systems, or applicants with auxiliary and back-up boilers, are permitted to determine their own CHP Scheme boundaries, subject to appropriate metering installed to support the CHP Scheme boundaries proposed.

Process waste heat boilers are neither auxiliary or back-up boilers since their function is generally an integral part of the process to which they are connected, without which the process would not be technically or economically viable; their heat output is purely a function of the process operation and is not subject to modulation or control depending on the heat demands on the CHP Scheme. Only those process waste heat boilers that generate steam which contributes to CHP power outputs may be included within the Scheme, subject to the limitations set out in GN14.7.

- Refer to GN13 for guidance on CHP Scheme Monitoring.
- Refer to GN14 for guidance on CHP Scheme Energy Inputs

GN11.6

Where prime movers are connected in series by heat distribution systems, in combined cycle mode (where the heat from one prime mover is converted to steam to supply a steam turbine) the prime movers cannot be considered separately, even if the steam turbine is located on a different site.

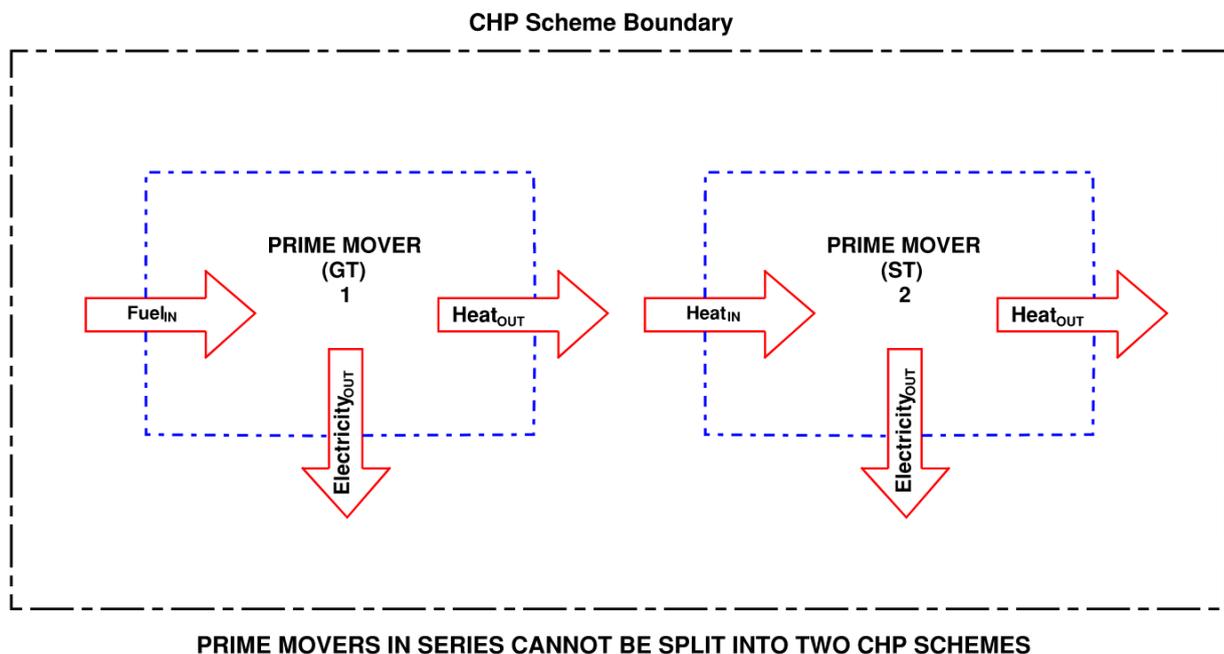


Fig GN11-2 CHP Scheme Boundary

GN11.7

Where prime movers are connected in parallel the applicant is allowed to draw the Scheme boundaries to include either one single application, or a number of separate

applications for individual prime-movers, subject to the conditions in GN11.5 & 11.6.

GN11.8

Some sites may include secondary steam turbine drives that are embedded within the Process Area. It may not always be possible to define the Scheme to include these within the CHP Scheme boundaries. However, providing the power output can be determined and monitored with the required accuracy, these should be considered as a Utilities Island. The power outputs shall then be included as equivalent electrical outputs from the CHP Scheme. The heat required to produce these additional equivalent electrical outputs must be deducted from the useful heat outputs.

- Refer to GN14 for guidance on CHP Scheme energy inputs.
- Refer to GN15 & GN16 for guidance on CHP Scheme energy outputs.
- Refer to GN22 for guidance on indirect determination of mechanical power.

GN11.9

The freedom for a site to define its own Scheme boundary permits the inclusion of auxiliary equipment. This may include auxiliary (top-up) boilers, standby (back-up) boilers, process waste heat boilers and standby generators. However, the more that these heat-only generating fuel inputs are included in the Scheme boundary, the lower the Scheme's Power Efficiency is likely to become.

GN11.10

Sites that fail to meet fully the criteria for Good Quality CHP may wish to explore alternative site boundary definitions as well as consider changed operational parameters or installation of additional prime movers.

GN11.11

Where fiscal benefits are in question, the Government will retain the right to Audit a CHP Scheme. The intention is not to encourage steam use by poor management of the steam network. Energy efficiency should be the overriding priority.