



STEAM UP

Description of System Border



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Deliverable: Description of System Border

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Description of the Deliverable:

This document defines the elements of the steam system, which will be audited during the Steam Up Audits. It determines the steam system boundary.

Summary

Within the system border to be audited are:

- Steam production
- Steam heat exchangers
- Steam usage
- District heating, only when it is just a secondary part of the installation.
- Condensate transport

D 6.1 Steam Audit System Boundary

Subject: Determine the steam system boundary for all participating countries

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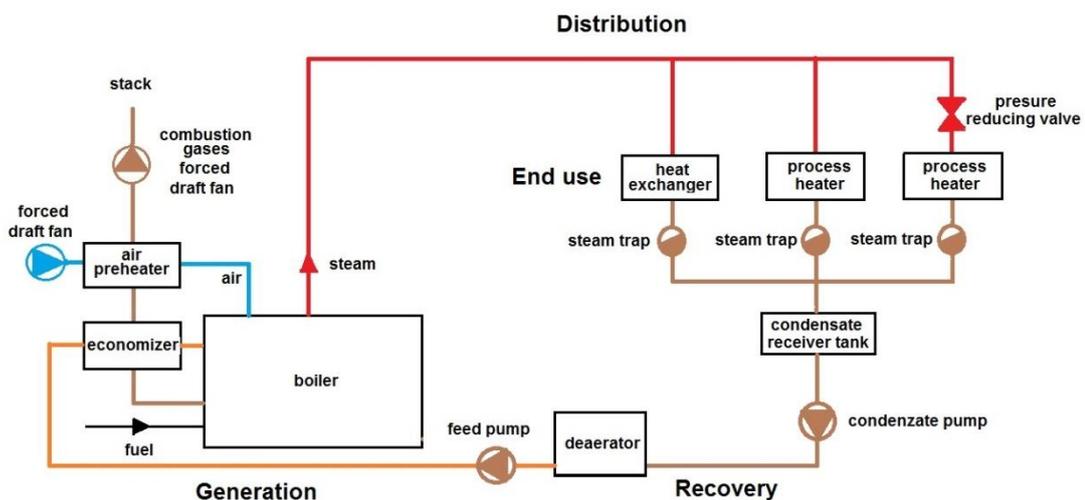
Version: 2.0



The boundary of the system concerned extends from the energy input to the heating system, whether via burning of a fuel or consuming electricity, to the point where the business purpose of generating the heat is achieved. For example, that business purpose may be to provide heat for a cooking process (in the case of an oven) or to provide heat for a drying process (such as in the case of a lumber kiln) or to induce a chemical reaction. It is important to understand the ultimate goal of a process to ensure that any potential system changes are compatible.

The system boundary is therefore defined by the points beyond which any change to the system no longer has any effect on the business purpose that the system is serving. Figure 1 shows the components within a typical system boundary, in this case a steam heating system (Energy Audit Standard for Process Heat Systems, Vers. 1.1, ECCA Business, EnergyManagement Association of New Zealand, <http://www.emanz.org.nz/energy-management-audits/industrial-audit-standards>), page 4

Figure 1: Steam systems include generation, distribution, end use and recovery of condensate



Source: ENVIROS

Figure 1: Steam System Boundary (Energy Audit Standard for Process Heat Systems, Vers. 1.1, ECCA Business, EnergyManagement Association of New Zealand, <http://www.emanz.org.nz/energy-management-audits/industrial-audit-standards>), page 4

Within the system border to be audited are:

- Steam production (utility); (boiler, burner, boiler blowdown, flue gas, economizer, pre-heating of feed-water, use of flue gas for preheating of e.g. domestic water), including water treatment
- Steam distribution, steam traps, insulation of network
- Steam heat exchangers: incl. control of heat exchanger, de-aeration, steam traps, temperature and heat demand (kW)...
- Steam usage: for buildings (heating, humidifying) and for processes (heating, drying, sterilization etc.). (temperature, steam demand, operating time)
- District heating, only when it is just a secondary part of the installation.
- Condensate transport (incl. network-piping, insulation, condensate pumps, flash steam recovery vessels)

But **excluded** from the STEAM UP Audits are: please set the exclusions in cooperation with the company, eg:

- No other utilities as CHP, turbines, steam motors.
- No district heating (as primary purpose).