

Guidelines for Promoting Community Boiler for Cluster of Small-Scale Industries



CENTRAL POLLUTION CONTROL BOARD
(Ministry of Environment, Forest and Climate Change, Govt. of India)
Parivesh Bhawan, East Arjun Nagar
Delhi-110032

(June, 2023)

Guidelines for Promoting Community Boiler for Cluster of Small-Scale Industries

1. Background

According to the Ministry of Micro, Small and Medium Enterprises (MSMEs), Govt. of India, there are about 10.5 million small scale industries (SSI) located in the country, with a large number of SSIs located in the states of Uttar Pradesh (16.23%), Andhra Pradesh (8.32%), Maharashtra (7.64%), Madhya Pradesh (7.54%) and Tamil Nadu (7.49%). About 44% units are in the service sector, 40% units are engaged in manufacturing & allied activities and 16% units are engaged in repair and maintenance activities. It is assumed that units engaged in manufacturing & allied activities have installed steam boilers for manufacturing activities. Depending upon the scale of operation and requirement of steam, there are about 4 million steam boilers with capacities ranging from less than 2 TPH to more than 15 TPH.

Industrial steam boilers are one of the sources of air pollution in the country. In case of SSIs, the presence of small and numerous steam boilers poses a challenge for enforcement and maintaining ambient air quality. Potentially, the need of multiple small industries can be met with a centralized facility supplying steam to these small units. Such a concept is called as 'common boiler' or 'community boiler', which is essentially a centralized system of boilers within an industrial area to generate steam for supply through a pipeline network to its member industrial units. This concept of community boiler has been adopted in clusters of small-scale industries at Surat, Vapi and Ankleshwar in Gujarat.

2. Need of Community Boiler in the country

Installation, operation and maintenance of small boilers require huge investment. In addition to this, the unit is required to install air pollution control devices individually and further these units would require to obtain consent from the concerned State Pollution Control Board (SPCB)/Pollution Control Committee (PCC). Besides, this requires regulators also to monitor large number of small boilers. To solve the above issues, there is a need to explore and promote installation of community boilers in clusters of small-scale industries.

3. Benefits and Shortcoming of Community Boiler

The concept of community boiler for small scale industries in the cluster would be techno-economical and eco-friendly. There are several benefits of switching from small boiler to Community boiler, and these are as follows:

- a) Reduction in:
- air pollution sources (centralized boiler instead of multiple small boilers);
 - burden of regulating number of small-scale industries in cluster;
 - financial burden on industries for installation and maintenance of boiler, air pollution control devices (APCDs) and handling of fuel;
 - ash generation and its handling cost;
- b) Community boiler will provide a continuous supply of saturated steam for use in processing and manufacturing industries. Generation of electricity in the community boiler will meet the in-house electricity requirement and can potentially supply surplus power to other industrial units.
- c) Community boiler with adequate pollution control equipment may result in improvement of air quality in the surrounding areas.
- d) Community boiler uses highly efficient technology, like Fluidized Bed Combustion (FBC) boilers which are managed by specialists, thus results into reduction of air pollution, reduce occupational hazards/risks and better quality of steam production.

Major drawback of community boiler concept is the shutdown period, which can be overcome by installing a stand-by boiler.

4. Guidelines for Promoting Community Boiler for Cluster of Small Scale Industries

- i) For new industrial clusters, Town Planning Department/Industrial Estate Development Department of the State/UT should have Community boilers as part of the utility sector for an industrial area in their respective development plan. The concerned department should also allot requisite land for such infrastructure during initial development phase of the area.
- ii) For existing industrial clusters, concerned SPCB/PCC should carry out a feasibility study in terms of identification of cluster(s), availability of land for establishment of “Community boiler” and capacity & no. of community boilers required to be installed in their State/UT.
- iii) Community boiler shall comply with the emission norms for boilers notified by the Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India.

- iv) Community boiler to be equipped with skilled manpower for its operation & maintenance, automatic fuel feeding, captive power plant for generation of electricity, adequate pollution control equipment, permanent source emission monitoring facility (like portholes, platforms and ladders), Online Continuous Emission Monitoring System (OCEMS) and infrastructure for reuse of condensate.
- v) Community Boiler Proprietor, Member industrial unit and Industrial Area Development Agency should sign an agreement for supply of steam, electricity, layout of pipeline network and supply of condensate for long-term operation of this establishment.
- vi) Structure built for installation of pipeline network in an industrial cluster of small-scale industries should be at least eight meters above the road level or as per the provisions of the National Highway Rules and applicable state government rules/regulations. The community boiler layout pipeline network design should be duly approved by concerned agencies.
- vii) Community boiler should supply saturated steam continuously and surplus electricity to member industrial units for use in processing & manufacturing industries and to meet electricity requirement, respectively.
- viii) Community boiler should be equipped with economizer and air pre-heater to enhance boiler efficiency and energy savings.
- ix) Community boiler should maintain a minimum temperature to minimize emissions of volatile organic compounds (VOCs) and other organic gases.
- x) Community boiler should install a control panel for automatic distribution of steam to the client and monitor leakage in pipeline network through heat mapping to minimize steam and energy losses.
- xi) Community boiler should use only approved fuel prescribed by SPCBs/PCCs in their consent.
- xii) Member industrial units should return condensate water to community boiler for reuse. Industries with steam consumption above 2 TPH may return good quality condensate to the community boiler to the extent possible.
- xiii) To overcome the issue of shutdown period, a stand-by boiler should be installed.
- xiv) Community boiler should ensure proper ash and wastewater management.

- xv) Community boiler should comply with the rules and regulations relating to health & safety aspects of workers and the environment. An audit by an authorized safety auditor should be carried out on half yearly basis.
- xvi) Community boiler should maintain an emergency management team as per the provisions of the Boiler Act, 1923 and the Electricity Act, 2003.
- xvii) A district level committee comprising representatives of SPCB/PCC, Town Planning Department, Industrial Estate Development Department, Forest Department, Electricity Department, Water Department, Industry Boiler Inspector and representatives of industries/industrial association should be constituted to promote the concept of community boiler in their respective jurisdiction headed by District Magistrate/Deputy Commissioner of the District and also develop a mechanism for fast tracking approval of project for installation of Community boiler as proposed by concerned SPCB/PCC in their jurisdictions and also, develop a mechanism for financial assistance for the project.

In this regard, a corpus fund may be created which would include contribution from SPCB/PCC (i.e. some percentage of environmental compensation collected, etc.), State Government, Industries, etc.

- xviii) SPCBs/PCCs should revise consent to operate for industries where Community boiler have been installed and the individual boilers are kept as stand-by or dismantled.
