A utility boiler and an industrial boiler are significantly different. Yet, because both generate steam, legislators and regulators have tended to treat them in the same fashion.

The major differences between industrial and utility boilers are in three principal areas:

- the size of the boilers,
- the application of the steam the boilers generate and
- the design of the boilers.

Size

The average new industrial boiler is a dwarf compared to the giant utility boiler. Today's typical utility unit produces 3,500,000 pounds of steam an hour; the industrial boiler 100,000. In fact, most industrial boilers range in size from 10,000 pounds of steam per hour to 1,200,000.

The size of the utility boiler allows it to enjoy significant economies of scale, especially in the control of emissions that are simply not available to the industrial unit.

The smaller industrial boilers are more numerous and tailored to meet the unique needs and constraints of widely varying industrial processes. There are about 70,000 industrial boilers in use today, compared to approximately 4,000 utility boilers. Yet, all the small industrial units combined produce only a fraction of the steam than all the large utility boilers. In addition, the nation's utility boilers consume over 10 times as much coal as the industrial boilers.

Industrial units produce less than ten percent of the emissions from the nation's boiler population, but because of their smaller size and uniqueness must pay more than utilities to remove a given amount of emissions.

Application of Steam

A utility boiler has one purpose--to generate steam at a constant rate to power turbines that produce electricity. Industrial boilers, on the other hand, have markedly different purposes in different industries. Even at a single installation, the application of steam from an industrial boiler can change dramatically with the seasons, when the steam or hot water is used for heating, as well as from day to day and hour to hour, depending on the industrial activities and processes operating underway at a given moment and their demand for steam. The possibility of such widely fluctuating demand for steam in most industrial processes means that the industrial boiler does not, in the great majority of cases, operate steadily at maximum capacity. In general, the industrial boiler will have a much lower annual operating load or capacity factor than a typical utility boiler. As a result, any added control costs have a much greater effect on the final output steam cost.

In contrast, a typical utility boiler, because of a constant demand for steam, operates at a steady state rate close to maximum capacity continuously. This basic difference in operation is reflected in proportionately

lower operating costs than is the case for industrial boilers similarly equipped. Even where peaking units operate to meet utility load swings during the days or for seasonal peak demands, the utility units' load swings are more controlled and can be balanced over the complete electric production and distribution grid. In the event of unscheduled downtime for a given unit, utility electrical generating facilities have a variety of backup alternatives. Industry, on the other hand, rarely has a backup system for steam generation. Because of the desire to keep the costs for steam production as low as possible, industry requires a high level of reliability from its boilers; industrial boilers routinely operate with reliability factors of 98 percent. Any drop in reliability for an industrial system causes loss in production and related revenues. Combustion and add-on control technologies can interfere with system reliability.

Boiler Design

Utility boilers are primarily large field erected pulverized coal, No. 6 oil or natural gas fired high pressure high temperature boilers with relatively uniform design and similar fuel combustion technologies. Industrial boilers, on the other hand, incorporate combustion systems including high pressure and low pressure, large and small, field erected and shop assembled package boilers designed to burn just about anything that can be burned alone or along with conventional fuels. Industrial boilers use many different types of combustion systems. Some of these different designs include many different types of stokers, bubbling and circulating fluidized bed combustion systems, and conventional coal, oil and gas combustion systems. In fact, the designs of individual industrial boilers regardless of fuel or combustion type can vary greatly, depending on the application of steam and the space limitations in a particular plant, while facilities at a utility plant are designed around the boilers and turbine(s) making the application of emission controls significantly more cost effective.

Conclusion

The differences between industrial and utility boilers are major. These differences warrant separate development of the laws and regulations that apply to each. Treating them both in the same fashion, simply because they both generate steam, inevitably results in unfair and inappropriate standards.

Accordingly, the Council of Industrial Boiler Owners believes that government should recognize the basic differences between industrial and utility boilers and should tailor requirements to their individual natures and to the unique situations in which each operates.

Council of Industrial Boiler Owners

The Council of Industrial Boiler Owners (CIBO) is a broad-based association of industrial boiler owners, architect-engineers, related equipment manufacturers, and university affiliates consisting of over 100 members representing 20 major industrial sectors. CIBO members have facilities located in every region and state of the country; and, have a representative distribution of almost every type boiler and fuel combination currently in operation. CIBO was formed in 1978 to promote the exchange of information within industry and between industry and government relating to energy and environmental equipment, technology, operations, policies, laws and regulations affecting industrial boilers. Since its formation, CIBO has taken an active interest and been very successful in the development of technically sound, reasonable, cost-effective energy and environmental regulations for industrial boilers.