

fuel type (oil, coal, gas) and firing method. Studies are presently being done to delineate the optimum methods available.

The cost of retrofitting industrial boilers is highly uncertain since space limitations and other restrictions can cause significant variations.

B.5.2 NO_x and SO₂ Control Technologies Available

The dual-alkali wet flue desulphurization process is the dominant sulphur oxide control technology for industrial boilers. Sodium once-through systems are used in industries which produce a sodium-containing waste stream such as pulp and paper and textile mills (from de-ionizer recharging). There are two commercial installations of the lime spray dryer SO₂ control process. The cost of SO₂ control technology varies as a function of boiler size, load factor, and fuel sulphur content. Thus the uncertainty in capital and annual costs can be large. The capital costs and operating costs shown in Figures B.5.1 and B.5.2 can be in error by as much as ± 40 percent.

Frequent operating or other scheduled shutdowns in some industries could create problems in the operating reliability of some control processes. The disposal of scrubber sludge also presents a problem.

Field trials are underway on retrofitting a coal-fuel unit to the low-NO_x firing mode through burner modifications. Although these are being performed in a utility unit, the technology is expected to be available to the larger-sized industrial coal-fired units. Feasibility studies and modification scheduling are being conducted for the retrofitting of an industrial coal-fired unit to Limestone Injection/Multi-stage Burners for the simultaneous reduction of SO₂ and NO_x. This field trial is being performed on a military base in New Brunswick and is expected to demonstrate this technology further, for use in the large industrial and utility boiler sector.

The construction of a fluidized bed combustion unit is scheduled for early spring 1981. The operation of this unit will provide data on reliability, costs and performance of simultaneous sulphur and nitrogen oxide control from high-ash, high-sulphur coals in addition to other coals presently available in eastern Canada.

B.5.3 Residential and Commercial Combustion Units

Control technology in these sectors has not progressed as rapidly as for the larger boilers, primarily because of the considerably smaller emission reduction potential for this sector. However, research has estimated that some emission reduction is economically possible for commercial and residential boilers.