

AIR PROTECTION FROM POWER INDUSTRY EMISSIONS

1.1. Nitrogen oxide emission reduction

Conclusions to § 1.1

From the concept of environmental policy of RAO "UES of Russia" follows that a share of thermal power plants of the holding accounts for about 14% of the volume of pollutants, emitted into atmosphere from all industrial enterprises and transport in the Russian Federation [4].

It is clear that the main pollutants of atmosphere are nitrogen oxides, as generation of two thirds of all electricity due to gas combustion automatically reduces emissions of sulfur dioxide and ash particles.

Recently, the combined efforts of research, design organizations and thermal power plants of RAO "UES of Russia" resulted in achievement of considerable success: new technologies of arrangement of furnace process and methods of cleaning flue gases from NO_x have been designed, tested on prototypes and widely implemented in power industry.

The most advanced technical solutions have been considered by boiler factories in Russia.

As the main method of nitrogen oxide emissions reduction it's decided to use technological measures, requiring less costs.

From the mentioned above, it is clear that the essence of

technological methods of NO_x reduction is modernization of the furnace process, at which a rate of NO_x formation reduces and at the same time, conditions for intensification of reduction reactions are created. Under these conditions a part of the already formed nitrogen oxides transfers into the harmless molecular nitrogen.

In cases when none of the applied methods of NO_x emission reduction doesn't result in the desired efficiency, there can be used their combinations (certainly, considering the expected consequences relating to economic efficiency and reliability of the boiler plant).

Application of plants for cleaning the flue gases from nitrogen oxides should be carried out if a combination of the regime-commissioning activities and use of technological methods doesn't provide the required reduction of NO_x emissions (which maybe, for example, in regions with high background ambient air pollution).

The majority of these methods can be implemented at the existing equipment without excessive capital expenditures.