S4-5

Research and Development of CO_2-Capture System

Mr. Makoto Nomura
Kansai EPCO, Japan

Introduction

For many years, we have been aware that, operating as an energy enterprise, our business activities have a large impact on the environment. In particular, we have led efforts to control CO_2, one of the main greenhouse gases associated with global warming.

Precisely speaking, in 1990, we became the first Japanese electric power company to establish a philosophy regarding the protection of the global environment. Since 1991, when we first created our Global Environmental Action Plan as a business behavior guideline, we have pursued our New ERA Strategy of comprehensive preventative countermeasures against global warming.

During this time, we have worked closely with Mitsubishi Heavy Industries, Ltd (MHI) on the development of chemical absorption methods to recover CO_2 from combustion exhaust gases. One focus of this development research was to create the most efficient absorption liquid possible. In 1994, we developed a high performance absorption liquid, called KS-1 solvent, that was 20% more efficient in absorbing CO_2 than the conventional commercial process at that time, making it the most efficient in the world. Following that, we further increased efficiency by more than 10% through continued improvements in system design in areas other than the absorption liquid. At present, we have realized efficiency that is 35% greater than what was achieved in the past and we continue to lead the world in this regard. Furthermore, this technology has been commercially introduced in 6 other locations around the world, typically in applications related to increase the production of urea, and we expect that it will be applied to fossil fuel fired power generation plants as a global warming countermeasure in the near future.