

## **S04-G1-01 “Environmental Protection Technologies of Electric Utility Industries ”**

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### Abstract

#### 1. Foreword

"Sustainable growth" is a common goal that should be adopted by all countries in the 21st century, and within this growth, environmental protection is one of the most important issues. As Japan is a country with meager energy resources, it must import roughly 80% of its energy resources from abroad. For these reasons, Japan has expended maximum efforts to ensure environmental protection while continuing to strive to make effective use of energy.

For example, the Tokyo Electric Power Company has worked to achieve an appropriate balance among energy resources, which in the year of 2000 comprised 44% nuclear power, 35% LNG-fired power, 10% oil-fired power, 4% coal-fired power, and 7% hydroelectric power.

The aggressive use of nuclear power and early adoption of LNG firing have greatly contributed to environmental protection. During the period of rapid economic growth in the 1960s, air pollution in the form of soot, dust, sulfur oxides and nitrogen oxides posed a major problem for Japanese society. The environmental protection technologies that had been studied made great leap forward, and now rank among the most advanced in the world.

#### 2. TEPCO Strategies for Environmental Protection

##### (1) Measures to prevent air pollution

Air pollution has been prevented by installing advanced exhaust gas processing facilities, and by adopting other measures.

- \* Concentration of chimneys, increase of chimney heights
- \* Use of low sulfur fuels such as LNG, naphtha, Minas (Indonesia) crude oil
- \* Adoption of two-stage combustion, premixed-combustion burners
- \* Installation of electrostatic precipitators, exhaust gas desulfurization facilities, exhaust gas denitrification facilities
- \* Installation of on-line air monitoring systems for administrative authorities

##### (2) Measures to prevent water pollution

- \* No reagents whatsoever are added to seawater used as coolant for condensers.
- \* Temperature increase of discharged water is controlled to within 7 deg with use of a deep

seawater intake system.

\* Water discharged from equipment cleaning is coagulated, precipitated and filtered. Also, daily-use discharge is subjected to activated sludge processing and denitrification under rigorous management, which actually exceeds discharge-related regulations.

### (3) Others

To achieve our target, “Rising recycling rate to 100% by 2005”, we are promoting our Reuse, Reduce & Recycle Program. We promote the use of green zones within power facilities as a means of natural environmental protection. Some measures are taken in designing placement, shape, color, and other aspects of the facilities to blend in with the scenery of the surrounding area.

### 3. Conclusion

As Japan is a country with limited land area and with much of its population concentrated in urban areas, the protection of our environment is an issue of utmost concern. Our wide array of sophisticated technologies for environmental protection is available upon request to help African countries.