

This abstract will be presented during LNG2023 conference on 10-13 July in Vancouver, Canada among many other innovative projects, ideas and outlooks. LNG2023 will provide a unique platform for the global LNG industry and key stakeholders to discuss, debate, and showcase the latest industry developments and opportunities.



LEAD AUTHOR

Tetsuya Ohtani
General Manager, Technology Strategist, Omega Simulation Co.,Ltd.



CO-AUTHORS

Shozo Hama
Manager Tokyo Gas Co.,Ltd, Japan

Keisuke Kawabata
Tokyo Gas Co.,Ltd.

MIRROR PLANT SYSTEM FOR LNG RECEIVING TERMINAL OPERATION

Tokyo Gas Co., Ltd. is supplying city gas to the Tokyo metropolitan area by 4 LNG terminals. Our LNG terminals have been in operation for more than 50 years, and the plant configuration has become more complex as a result of repeated expansions, requiring a high level of operational skills. We have established "Mirror Plant System" which is a unique Digital Twin technology, and developed an "automatic evaluation system" for training results that can be applied to plant operation training. This "Mirror Plant System" can calculate the unmeasurable internal temperature, pressure, and the gas quality such as calorific value, and their predicted value near future in the equipment and pipelines using dynamic process simulation model by the data collected from control system in real time. The gas quality in the near future are predicted and displayed when demand-supply balance changes by the start-up/shut-down of vaporizer, the abnormality of facility, and so on. "Automatic Evaluation System" can evaluate training status automatically and quantitatively, which is effective in improving operator skills. This system realizes comprehensive evaluation including "confirmation by visual inspection or vocalization which is an important element in preventing human error by using eye tracking and voice recognition technology.

To view the full conference agenda, visit <https://www.lng2023.org/lng-programme-overview>