

February 8, 2019

Nippon Steel & Sumikin Engineering Co., Ltd.

Osaka Gas Co., Ltd.

NSENGI/Osaka Gas affiliate wins Cogeneration Award 2018 Chairman's Award **(Industrial Use category)**

The Cogeneration Award 2018*¹ Chairman's Award in the Industrial Use category has been awarded to a Thailand-based affiliated company jointly invested*² by Nippon Steel & Sumikin Engineering Co., Ltd. (Representative Director and President: Shinichi Fujiwara, Head office: Shinagawa-ku, Tokyo, hereinafter, "NSENGI") and Osaka Gas Co., Ltd. (President and Representative Director: Takehiro Honjo, Head office: Chuo-ku, Osaka, hereinafter, "OG"). The affiliate NS-OG Energy Solutions (Thailand) Ltd. (MD: Go Takei, hereinafter, "NSET"), received the award from the Advanced Cogeneration and Energy Utilization Center JAPAN (hereinafter, "ACEJ"). The co-winners were NSENGI and Luckytex (Thailand) Public Company Limited (a Thailand-based affiliate of the Toray Group that manufactures woven fabric). The award was granted for "Introduction of a Cogeneration Facility by Means of On-site Energy Supply in Thailand and Highly Efficient, Stable Operations of the Facility—a Case Study of Its Introduction in Mill No. 2 of Luckytex (Thailand) Public Company Limited."

The ACEJ highly appreciated the facility for the following reasons:

- ◆ The cogeneration facility has been introduced in Thailand in the form of an on-site energy supply system. The one-stop system covers facility planning, possession, construction, operations and maintenance as well as fuel gas procurement.
- ◆ In FY 2017, primary energy was reduced by 25%.
- ◆ The rate of operation exceeded 99%, with operations supported through a remote monitoring system by expert staff from NSET's head office in Bangkok and NSENGI in Japan. Such stable operation is remarkable in Southeast Asia, where stable operations of cogeneration facilities are unlikely due to undeveloped operations management technologies.
- ◆ A BCP (business continuity plan) has been put in place to address frequent power failures and instantaneous voltage drops. (In the event of an abnormality in grid power, self-sustaining operation of the cogeneration facility takes care of the full load of the plant, avoiding any impact on production in the plant. This shift occurs about 30 times a year.)

The award-winning cogeneration facility boasts an overall efficiency of over 90%. This high-efficiency cogeneration system mostly consists of a 7 MW-class gas turbine and a high-efficiency waste heat recovery boiler unique to NSENGI. NSET has already been operating four cogeneration facilities in Thailand including the one mentioned here. NSET will continue to support its customers' efforts toward the realization of a low-carbon society and to contribute to sustainable development of Thailand by making use of this highly-regarded operations management technology and offering highly environmentally friendly and economical energy solutions.

- *1: The Cogeneration Award, established in 2012 by the ACEJ, commends cogeneration systems that are novel and pioneering and feature new technologies and energy saving measures. The award program intends to enhance social recognition of the usefulness of cogeneration and to spread and promote even better cogeneration facilities. This is the seventh time the award has been granted. A Chairman’s Award, Award for Excellence, and Honorable Mention are given in each of the Consumer Use, Industrial Use, and Technological Development categories.**
- *2: OG has invested through its 100% owned subsidiary Osaka Gas Singapore Pte. Ltd. (CEO: Tetsuji Yoneda).**



The award certificate presentation ceremony