

Awareness Workshop on Compressed Air System in India

25th January 2020 | Mumbai

IGES and TERI jointly organized an awareness workshop on 25th January 2020 at Mumbai, on the opportunities for Indian industries to adopt Japanese Low Carbon Technologies (LCTs) in the compressed air system. The key objectives of the workshop were to:

- Generate awareness about energy efficient air compressors and peripherals (hard technologies) along with effective operating practices for the overall compressed air system (soft technologies).
- Explore possibilities of strengthening Indo-Japan cooperation through JITMAP initiative by investigating the potential for transferring Japanese LCTs for CO₂ emission reduction.



About 60 participants attended the workshop, including representatives of industrial units, local equipment suppliers and energy consultants. The senior office bearers from local industry associations comprised Mr Ninad Jayawant, Honary General Secretary, COSIA; Mr Murli Nayar, past President, KAMA; Mr Makarand Pawar, Vice President, AAMA;



and Mr Eknath R. Sonawane, Executive Secretary, TSSIA. On behalf of the industry associations, Mr Ninad Jayawant welcomed the participants and requested them to take advantage of the event and share the technological needs of Indian industries so that IGES could bring relevant Japanese technology providers to India in the future.

Mr Pawan Kumar Tiwari, Fellow, TERI and Ms Mika Tachibana, IGES made a joint presentation on the JITMAP initiative supported by the Ministry of the Environment, Government of Japan (MoEJ). They stressed the urgent need to create awareness about various energy efficiency options among Indian industries; for, this would help to reduce their energy consumption and mitigate GHG emissions.

Mr Tsukasa Saito, Compressed Air System Expert and formerly with Hitachi Industrial Equipment System Co. Ltd, Japan, made a detailed presentation on 'Approaches for Low-carbon Technology (LCT) Transfer in Emerging Asian Economies – Case of Compressed Air Systems'. His presentation highlighted measures that significantly reduce CO₂ emissions. These measures include the following:

- Lowering of compressed air generation pressure by 0.1 MPa can reduce CO₂ emissions by almost 8%
- Proper pipe sizing and piping layout can reduce pressure loss in piping and bring down the CO₂ emission by about 5%
- Arresting compressed air leakages could prevent 20% of CO₂ emissions
- Using inverter system (VFD/ VSD) could bring about 20% reduction in CO₂ emissions
- In case of booster compressors, controlled consumption and usage of compressed air has the potential to reduce CO₂ emissions by about 30%

He further discussed the costs and effects of improving Compressed Air System by adopting both soft and hard technologies. He elaborated on the importance of measurement and monitoring of the power consumption and performance of the compressed air system regularly, and the procedures for conducting the same. He pointed out the following key areas for improving the compressed air system:

- Adopting ideal system configuration (layout) of air compressors
- Opting for oil-free compressors
- Installation of inverter (VSD/ VFD driven) in air compressors
- Avoiding pipelines with multiple bends, multiple partitions (such as check valves and other valves), small bores and longer lengths
- Selecting proper MOC (material of construction) for pipelines and adequate sizing as per application
- Installation of air flow meters on major headers to measure and monitor the air consumption in different section/ machines of the plant
- Use of booster air compressors for localized high pressure requirements
- Regular air leakage detection and pressure drop monitoring

He underlined that these points will not only improve the efficiency of the compressed air system, but will also result in environmental protection through reduction of NO_x and SO_x emissions, reduction in air and soil pollution and bringing down overall wastage.

Mr. Rajen Mehta of Efficienergi Consulting Pvt. Ltd., Mumbai made a presentation on 'Data-driven Solutions for Reliability, Efficiency and Safety in Electrical Systems'. This was followed by an interactive Q&A session. The participants wanted to know more about measurement procedures to be adopted for compressed air systems, new instruments/ tools being used in Japan, and best operating practices for lower specific power consumption.



Key takeaways

- The participants greatly appreciated the knowledge shared by the Japanese expert.
- They were also keen that more such awareness workshops on LCTs should be organized in future, as they are useful platforms to disseminate knowledge regarding LCTs among a larger group of industrial consumers and consultants..
- Feedback from the participants indicated their interest in awareness programs on chillers, boilers, hot water generators, and motor systems.