

Training of Trainers (TOT) workshop on Compressed Air System

11th February 2020 | Ahmedabad

IGES and TERI organised a Training of Trainers (TOT) workshop on Low Carbon Technologies (LCTs) and best practices in the compressed air system on 11th February 2020 at Ahmedabad. The key objective of the TOT was to build the capacities of energy auditors and energy managers in the state of Gujarat on new and efficient technologies and practices in compressed air systems. About 32 participants attended the workshop, including energy consultants from private firms as well as representatives of industrial units. Two JITMAP partners—Gujarat Energy Development Agency (GEDA) and Gujarat Industrial and Technical Consultancy Organisation Limited (GITCO)—also participated in the workshop.

Mr Rajesh Kansara, Sr. Project Executive – E-mobility, Energy Efficiency, GITCO welcomed the participants and outlined the objectives of the workshop. Mr Toshinori Hamaguchi, Team Manager, IGES provided a background of JITMAP and the various initiatives undertaken so far. Mr Nabaraj Nandi, Research Associate, TERI thanked IGES for the successful collaboration, and for bringing Japanese experts to India under the JITMAP initiative supported by the Ministry of the Environment, Government of Japan (MoEJ).



Mr Tsukasa Saito, Compressed Air System Expert, made a detailed presentation on ‘Japanese Low-carbon Technology (LCT) and Best Practices – Case of Compressed Air Systems’. His presentation highlighted the energy conservation measures that can be undertaken on compressed air systems, and the significant reductions in CO₂ emissions that can be achieved. He highlighted the rising trend of CO₂ emissions in India by drawing comparisons with countries like USA, China, Russia, Japan, Thailand and Vietnam. He pointed out that the industrial sector consumes about 40% of India’s energy, of which 5–25% is consumed by the compressed air system alone. Some of energy saving measures highlighted by him are summarized below:

- Reducing air leakages (10–40% energy savings)
- Optimum piping size & design (7–20 % energy savings)



- Favourable environmental conditions (7–15% energy savings)
- Optimum pressure settings for reciprocating, screw type (savings 8–16% energy savings)

He substantiated his points with various case studies to present a more practical perspective on the issues. He also provided guidelines on selection and operation of air compressors, and mentioned new technologies like oil-free air compressors and energy efficient motors. His presentation provided a set of check points for compressed air system, including the following:

- Stop high pressure operation, and stop the supply of air to non-use area.
- Reduce compressed air pressure based on need.
- Repair compressor system and air leakage points.
- Replace an old compressor with high-efficiency product.
- Recover energy such as exhaust hot air.
- Shut down the supply of compressed air during night time and during breaks such as lunch time



His presentation was followed by an interactive question and answer session with the participants. The session was moderated by Mr Ketan Kakkad, Sr. Consultant, GITCO. The participants raised queries about

measurement procedures to be adopted for compressed air systems and new instruments/ tools being used in Japan for the purpose. Specific queries were also raised, such as on the allowable pressure drops across distribution lines and receiver tanks, and the recommended material for construction of the pipelines. Questions on best operating practices (BOP) to be adopted to maintain lower specific power consumption were also discussed.



Key takeaways

- TOT workshops are useful platforms to disseminate knowledge on LCTs and BOP among energy consultants and energy managers, who in turn could disseminate the knowledge across a larger group of industrial units.
- The participants greatly appreciated the knowledge shared by the Japanese experts, and reiterated that more such initiatives should be undertaken to build local capacities.

- Feedback from the participants indicated their interest in future TOT programs on technologies related to chillers, steam boilers, hot water generators, and so on.