Global Green Growth Institute

Energy Efficiency Services Limited

Federation of Indian Chambers of Commerce & Industry

Scaling Up of Investments through ESCO Mechanism in MSME Clusters by Deploying Standard Energy Efficient Technologies (SEET)

Federation of Indian Chambers of Commerce and Industry (FICCI) in association with Energy Efficiency Services Ltd. (EESL) is implementing a project funded by Global Green Growth Institute (GGGI) titled "Scaling Up of Investments through ESCO Mechanism in MSME Clusters by Deploying Standard Energy Efficient Technologies (SEET)". The project activities will be executed in 3 MSME clusters of Haryana (a) Rice Mill Cluster in Karnal (b) Textile Cluster in Panipat (c) Mixed Industry Cluster in Kundli, Sonipat

The overall project objective is to create an eco-system to accelerate adoption of Energy Efficient (EE) Technologies by MSMEs through innovative financing mechanism supported by ESCOs, Financial Institutes (FIs); deployment of Standard Energy Efficient Technologies (SEET) already identified under the EESL UNIDO MoMSME (GEF-5) Project in the targeted clusters; aggregation of demand of EE Technologies and developing suitable IT Tools for improving efficacy of the program implementation at large scale.

Brief Note on Technology

Name of the Technology:	**Screw Air Compressor with Variable Frequency Drive (VFD) & Permanent Magnet Motor**
Expected Type of Major Energy Saving	☒ Electrical ☐ Thermal
Old Technology to be replaced	Reciprocating Air Compressors / Inefficient Air Compressors
Brief about the New Technology	The package of **Screw Compressor with VFD & Permanent Magnet Motor** offers flexibility to operate air compressor to meet varying air requirement without compromising on performance and Energy Efficiency. Each component of this technology has added advantages over conventional reciprocating or Screw compressor with standard motor ▫ **Permanent Magnet Motors** offer increased efficiency compared to standard motors. The rotor is made up of a permanent magnet. ▫ Motor is directly connected to the screw arrangement of the compressor which nullifies the transmission loss of a belt- driven system (3% to 5%). Such a direct drive system enhances the overall efficiency of the system. ▫ Permanent Magnet Motor is maintenance free ▫ VFD provides soft starting, enabling controlled acceleration and deceleration ▫ VFD keeps desired line pressure constant, adjusting automatically according to system air consumption by varying motor speed ▫ Through VFD, compressor operating range reduces from 1-2 kg/cm2 to 0.2- 0.4 kg/cm2. ▫ VFD with highly efficient rotary screw compressor can cater to fluctuating compressed air requirement efficiently

Success Story: Demonstration in MSME Clusters

Year of demonstration		
Location of MSME Cluster	:	Bhestan, Gujarat
Type of Cluster	:	Textile
Name of the MSME Unit	:	Narayan processor
Baseline Specific Energy Consumption	:	0.27 kWh/cfm
Resulted Specific Energy Consumption	:	0.17 kWh/cfm
Annual Energy Saved	:	1,87,651 kWh
Annual Money Saved	:	Rs. 14,20,000
Total Project Cost	:	Rs. 16,00,000
Simple Pay-back Period	:	13 Months
Life of New Technology	:	15 Years
Warranty of the New Technology	:	

Before

After

Benefits Incurred from the Project

- Reduction in specific power consumption by 40%
- Replacement of multiple compressors with one compressor
- Reduction in maintenance cost and break-down time by 50%
- Noise free operation

For more details, Please visit https://msme.eeslindia.org/

Availability of Technology Locally	☒ Yes ☐ No
Probable Technology Providers	• Ingersoll Rand https://www.ingersollrand.com • Atlas Copco https://www.atlascopco.com • Venus air compressors https://www.venuscompressors.co.in • Kaeser air compressor https://www.kaeser.com • CompTech https://comptechcompressor.com
Supply & Implementation	Typical Delivery time : 3-5 Weeks Ease of Implementation : ☒ High ☐ Medium ☐ Low Is unit shut-down required: ☐ Yes ☐ No ☒ Partial Implementation by: Jointly by Vendor & Plant, packaged product Buy-back Option: No
Financing Options & Models	☒ Self-Financing ☒ Private ESCO ☒ EESL ☒ Local Bank

WAY FORWARD

Expression of Interest (EoI):

The MSME Unit shall submit the EoI as per the format to FICCI duly signed by the plant authority/ authorized representative

Baseline Study:

FICCI shall conduct the baseline study "Free of cost". The study consists of collection of relevant data from the industry and few technical measurements. The baseline study may take maximum "One Day".

Selection of ESCOs/ Technology Provider:

To be indicated later

For further information, please contact any of the following

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