

## Case Study: Refrigeration Audit: Performance at various loads

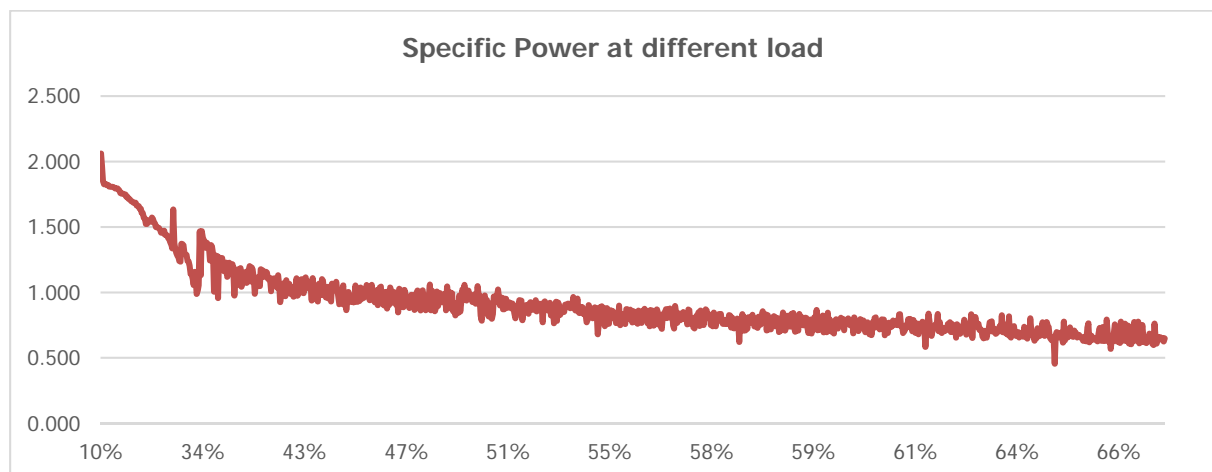
### SENERGY Consultants (P) Ltd

#### Background:

While conducting energy audit for the BPO (Business Process Outsourcing) office, the performance of refrigeration compressor was monitored throughout the day (24 hours) to analyze the impact of loading pattern on the performance.

#### Operating Scenario:

- The occupancy was 100% during normal business period (8 hours); which dropped down to 60% during second shift and 25% during the night shift.
- The centralized chilling system comprised of a screw chiller with primary and secondary pumping system.
- The individual AHUs (Air Handling Units) were provided with two way control valves on chilled water pipe line to monitor flow based on temperature. The AHUs were closed during non-working period, so was the chilled water flow rate.
- The secondary pumps were provided with variable speed based control



#### Energy Conservation Measures:

The above concerns and issues were addressed by

- Procuring a smaller refrigeration compressor and operating it during third shift as well as part of the second shift.
- Minimizing operation of refrigeration compressor below 50% load by readjusting set point and the control logic.

#### Outcome:

- The overall energy consumption of the refrigeration compressors reduced by around 7.5%

SCPL-CS-14

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03, Aastha II, B S Devshi Road, Govandi East, Mumbai 400 088, India.

Phone: ++91 22 2555 3297

Email: [senergy@vsnl.com](mailto:senergy@vsnl.com)

Website: <http://www.senergy-india.com>