Barriers for energy efficiency

Title:

Disagreement about fact acceptance.
(Compressed air consumption in the plant)

Section:

Detailed analysis

Category:

Presentation of results to the client

Industry:

Foundry

Summary:

Convincing the plant personnel about the findings in some cases are very difficult. And in few cases in order to keep the client in good terms, the audit firm may have to delete certain measures from the report. Normally this occurs where the concerned persons have made some effort in the past, which has resulted in energy inefficiency in present operations.

Back ground:

A foundry had several pneumatic molding machines, pneumatic grinding tools and cleaning nozzles etc, which require the compressed air for the operation of the plant.

The plant had two large reciprocating compressors, of which one is operated to generate the compressed air. During the study of the plant, the compressed air consumption was estimated in two ways

1. By monitoring the loading and unloading of the compressor by isolating the section after section and also for the total the plant

2. By considering the utilization factor of compressed air users and the design air consumption

During the study the plant was operating at a load where it is about 50-60% of the installed capacity. In actual practice this is the normal load of the plant for the past five years since the plant belongs to specialized jobbing foundry.

When the air estimation was carried out (after repeated trial four times), if was found that the actual consumption (estimated by loading and unloading the compressor) is almost 1.5 times than that of rated consumption of the equipment.

The rated consumption, which is estimated, after considering the allowances, utilization factor, rated consumption at full load operation.

The factors contributing for high consumption was examined and identified that huge consumption is due to operation of the air consuming equipment at much higher pressure than required. The required pressure of the operation of most of the equipment was 4.5 – 6 kg/cm^{2}g, while operating pressure is about 8.0 kg/cm^{2}g. This was explained to the plant in detail.

Somehow the co-ordinator (who is also in-charge of auxiliaries) was not willing to accept the fact. The team also tried to convince him by reducing the pressure setting operating them. Though there was significant reduction of air consumption and no complaint was received from the user areas during the trial period. Even after the successful demonstration of the trial he said that he is not convinced about the trial. Apart from this he was very co-operative and also accepting all other proposals for implementation (started initiation for most of the measures).

During the concluding stage of the audit, the company invited the audit team for dinner. Over dinner, the co-ordinator gave a hint that the compressor was recently procured by him and the capacity requirement had been estimated by him. He somehow felt the audit had revealed an error made by him and hence, his reluctance to accept an energy-saving measure in the report which would document the problem.

Message learnt:

Energy audit is not a fault finding mission. Detailed energy audit is a systematic approach to identifying energy saving proposals and involves detailed evaluation for the techno-economics. Any mistakes made by the plant personnel and revealed during the audit have to be tactfully dealt with.