15th March 2013

ENERGY SAVINGS UPDATE EMSOL MARCH 2013

Please feel free to forward this newsletter to your financial controller or others who have an interest in energy savings.

Emsol's March 2013 Update includes five energy savings topics:

- Lines Fees on the move
- Cheap energy prices can still be a big cost
- Air compressor problems?
- Boiler limits?
- How to measure energy savings

Lines Fees on the move

March is a critical month to minimise Line Fees. Most electricity line fees are reset on 1 April each year in two ways: (1) prices change - usually go up and (2) how you use electricity.

Anything that pushes up your peak load, even once in the year, can reset your lines fee for the next 12 months. This may be caused by failing power factor correction, winter heating or summer cooling, rushing production after a breakdown, or equipment control changes. In many areas of NZ, on 31 March all peak load events are "wiped clean" and the meter starts again on 1 April.

Ensure anything that will reduce peak loads is in place before 1 April or before the date you normally incur your annual peaks. In some areas of NZ peak load fees are reset monthly instead of annually.

Analysing Network Tariffs is as important for understanding how to reduce your electricity costs as tendering a new retail contract.

Cheap energy prices can still be a big cost

Electricity prices (15-25 c/kWh) are higher than most thermal fuel prices (2 – 10 c/kWh); particularly coal or wood fuel. However, the annual cost of thermal fuel is more than electricity for many businesses.

This happens when you use significantly more thermal energy than electricity. It also happens because there are more losses and inefficiencies than with electricity. When energy is cheaper, then fewer saving projects get implemented and excessive loss occurs.

I have seen businesses with many thermal energy savings opportunities untouched. For example, un-insulated steam valves are like compressed air leaks; the energy wastage from them can be stopped as part of maintenance and cost savings started immediately. Heat losses can be surprisingly 10% and minimising these will reduce the load on your boilers or heat plant, make it a cooler environment, becomes a safer, nicer place to work, and in some cases increase production.

There are numerous energy saving options in process heat systems and producing an energy balance of the system will help quickly identify these options.

Are you having air compressor problems?

In the past two months I have been to a number of businesses that have reached their limit with compressed air systems. Production has increased and the system cannot keep up.

This is the prime time to get the whole system reviewed to minimise its life cycle cost. Air compressors are small in CAPEX and big in OPEX. A $40,000 air compressor used frequently costs more than $400,000 in electricity and servicing in less than ten years. Before buying a compressor, it is worth optimising the system design to squeeze down its OPEX.

A complete evaluation of the compressed air system determines air use patterns over the whole year, considers receiver sizes, dryer types and numbers of compressors. These all have a significant effect on this large OPEX, which in turn have the same effect on your business profits.

Has your boiler reached its limit?

Is your boiler or heat plant getting near the end of its life or struggling to meet demand? Is it time for a new boiler? Maybe.

A new boiler or heat plant will be more efficient than your existing plant and therefore you will get reduced operating costs with it, which is great. An alternative option is to reduce heat demand first, and then buy a new smaller boiler/heat plant to match your needs. This will reduce both operating costs and the CAPEX needed to buy a new boiler/heat plant.

Oversized systems ensure there are fewer risks in not having enough heat and safeguards against possible growth in production; however it comes at a high cost because there are bigger heat losses (24-7) and it's a bigger CAPEX item.

Understanding heat demand patterns with production during each season is an essential ingredient to help decide the number and size of new (or replacement) boilers/heat plants needed. An in-depth study of process heat, and if relevant PINCH analysis, will identify heat demand relationships to help specify a cost efficient heat supply system. This will also identify and quantify many saving opportunities, which will range from smart control options to heat recovery.

How you can measure your energy savings

Reporting energy savings is essential to maintain an energy management programme. How do you measure energy savings reliably?

Monitoring and reporting energy use (or costs) alone will usually not show your energy savings. Normalising energy use with production can help; however this will not necessarily show your energy savings.

It is important to measure energy use against your business energy use baseline; and use an appropriate adjustment method in order to measure energy cost savings. Production and / or ambient temperature are often key influences and need adjusting for.

Two common methods include calculating an Energy Use Index or producing a Base Line using regression analysis. When production or ambient temperature vary and are key drivers then a regression analysis is an important step in measuring reliable and accurate energy savings.

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