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Energy Savings in China: Don't Neglect Maintenance Measures

China has an energy problem. We read about it everywhere, especially during this extremely hot summer season. Factories are again facing forced shutdowns, several days per week. Typical media coverage features long-winded treatises on China's power grid, its lack of interconnection, regulatory changes and Beijing policy-making. These are in addition to frequent mentions about the benefits of free-markets versus planned economies, as exemplified by experience in the United States (power shortages) or Northern Europe (confusion, pollution and price increases with more to come). Nice copy, although totally irrelevant to the real question at hand: what can we do about it?

From the point of view of the facility or plant owner/operator, the only two available courses of action are 1) the construction of your own power plant (reserved for major manufacturers, requiring large investments and highly regulated – we are not going to talk about it here) and 2) energy savings. Look at your accounting books, the electricity bill represents a major operating cost.

In the past few years, all sorts of vendors have jumped into the fray, offering high-tech automated systems to reduce your energy bill, with remarkable ROI figures. A nice PowerPoint dream, but, unfortunately, disconnected to the industrial realities of China. We have seen buildings getting stuffed with sensors and intelligent instruments of all kinds, monitoring centres being set up, at the cost of millions of dollars. Most often, the result is that half of the sensors fail due to lack of related technical knowledge – and the sad conclusion is that, after all, it is cheaper to have a man behind every switch and thermostat. Welcome back to reality!

The simplest solutions regularly go unexplored. Take a look at the filters in your HVAC system, go inspect those rooftop units: have they been cleaned recently?

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Have they ever been cleaned? Yes, monthly, says the inspection report. "Seeing is believing" as Confucius once said (or was it Moses?). Dirty filters and coils can easily

result in at least a 20 per cent increase in energy consumption for your HVAC. Is the production machinery properly greased? Same story.

The almost inevitable answer is, "No." Or one of its Chinese variants, ranging from "Yes" to a more candid "We did not do it, because we know it is working well" or "It was running well until now, that's why I ticked done in the inspection report". This alone could mean a few percentage points in energy consumption for your production lines. These are rather high figures, directly linked to basic preventive maintenance activities – as simple as regular inspections, cleaning and lubrication rounds, requiring no special skills and no fancy high-tech equipment. Not sexy, but it works.

Bafflingly, this link between proper maintenance routines and energy savings is too often ignored. As is the link between maintenance and capex (the transformer you replaced after two years although the normal lifetime was 15 years). Maintenance usually represents a tiny part of the operating cost (its direct cost) and, due to lack of a multidisciplinary approach in Chinese organisations, the relationship with massive indirect costs (or losses) is almost always overlooked. We have seen cases where a one-day shutdown resulted in losses equivalent to four times the annual maintenance budget.

In large facilities, we have observed potential energy savings valued at one year of maintenance expenditures. And we have witnessed Star Trek-like computer-controlled systems being installed, at a cost of ten times the yearly maintenance budget, with little or no positive results (an increased dependency on system suppliers does not count as a positive result for the owner).

The lesson here: get back to basics, and this means preventive maintenance. Due to "cultural" reasons, if you allow me this shortcut, implementing a sustainable preventive maintenance programme is easier said than done. Experience, however, has proven that it is possible to implement proper maintenance practice with local teams, given a sound methodology that is adapted to the local way of thinking. Add in appropriate training and motivation tools, and you will get surprisingly good results.

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Now, if a plant manager reads this – sitting at his desk and cursing at the air-con which isn't cooling enough – apart from the inevitable HVAC sizing problems (courtesy of your local design institute), get those filters checked. Better still, go check them yourself, with your maintenance manager in tow. Have a nice summer!

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About SIVECO

SIVECO is the number one supplier of Facility Management (FM) and Maintenance Management Systems (MMS, also known as EAM) in Europe with around 3,000 customers in over 60 countries. SIVECO works with industry-leading customers in the manufacturing, infrastructure, and facility management markets. By implementing innovative management solutions, the company assists facility owners (and their service suppliers) in optimizing the utilization of their assets and reducing their operation costs, while improving safety and ensuring regulatory compliance. SIVECO GROUP was founded in 1986, with headquarters in Paris and global R&D in Montpellier, South of France. Global customers include the world's largest utility EDF, GDF Suez Group, Danone, Greek Olympic Facilities, Singapore Metro, etc. SIVECO China was set up at the end of 2004 in Shanghai, with already over 30 references including Beijing Oriental Plaza, Saint-Gobain, Ikea, ArjoWiggins Chenming Paper (use the Chinese name with focus on Chenming), Danfoss, etc.

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