

# ENERGY MANAGEMENT - TO DO OR DIE

## A frank discussion on the future costs of energy for metal finishers

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The days of cheap energy provision are over and energy intensive manufacturers are being forced to re-assess their relationship with one of the most critical areas of their operation.

Metal Finishing plant is one of the highest energy users.

Eskom has increased the cost of electricity by **300% in 7 years** whilst even though the price of fuel and gas has fluctuated it has increased by less **50% over the past 7 years**.

Heating of solutions and ovens comprises between 100% and 70% of our energy costs. Many different methods of heating are available to the Metal finisher with huge savings namely:

Method	Source	Cost	Energy in kW	Cost per kW	% Saving
Electric Elements	Eskom	R 1.80	1	R 1.80	0.00%
Heat Pumps	Eskom	R 1.80	3	R 0.60	66.67%
Hot Water Boiler	LP Gas/kg	R 16.00	11.65	R 1.37	23.89%
Diesel	Diesel	R 10.00	10.5	R 1.00	44.44%
Sasol Gas	Sasol Gas/GJ	R 139.00	278	R 0.50	72.22%

The comparisons above show industry needs to be informed of the costs and the projected costs of electricity as the energy source for heating. The prices will vary and each manager should investigate their current heating costs with direct comparisons on operational needs and available alternatives.

The direct savings and the projected savings will convince most plant managers to convert where possible to alternative energy sources. Other factors which will influence the decision are:

1. Heating up time is in most cases reduced drastically and in some cases by 70%. A typical immersion heater plant will take 5-7 hours

to reach operational temperature where the alternatives vary between 2 – 4 hours.

2. Risk of fire is almost removed totally as most plant fires can be traced back to immersion heaters setting the polypropylene alight due to liquid levels dropping and safety circuits not functioning correctly. In some cases the actual heaters set alight acting as an ignition source.
3. Scale build up on elements heating phosphate process solutions can be eliminated by CIP addition to the heat exchanger circuit.
4. Some electric ovens with archaic designs are inefficient and expensive to run. Modern oven design with Infra-red preheat zones, cross flow gas curing chambers and air curtains will reduce running cost, start up times and increase production and quality.

South African Industry needs to compete in an ever shrinking world against global players and energy has become a major factor in our cost of production. It is not all doom and gloom; we just need to think a little outside the box. ↻

