

## Margins shrinking, Capital availability is tight, but you can still save energy!

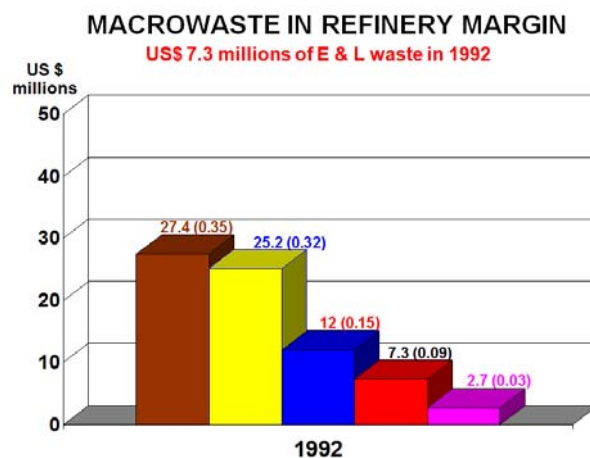
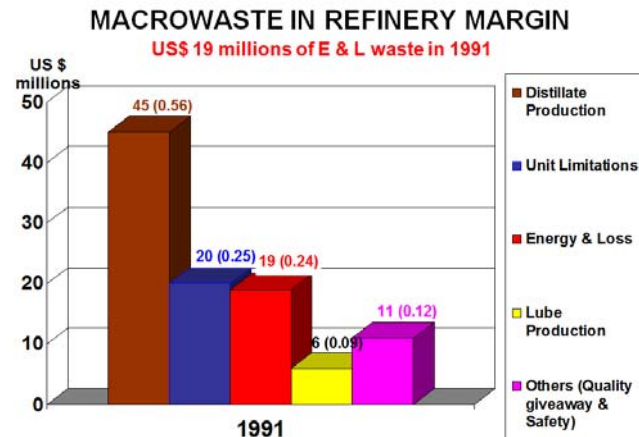
To all **our** friends working in Petroleum refineries,

Since the second half of 2008, almost all the petroleum refineries in the world are facing the problem of shrinking Refining Margin. **Recession in the global economy, dropping demand for petroleum products (5 to 7%) and market price fluctuations are two main reasons.** Since you have no control on the main reasons, this Newsletter focuses on the points that are within your control. It is still possible to control the *shrink* in the refinery margin. Here I would like to share my experience in successfully moving forward when the oil price dropped very low in the late-eighties and nineties.

In May 1991, I was given the responsibility of reducing energy expenditures at **the** Refineria Isla, Curacao. This occurred just a few years after Shell Holland handed over the operation of this refinery to PDVSA driven by a high-level, multinational agreement.

The market conditions were suffering and the standard refinery fuel (SRF) cost was hitting negative values at the Curacao refinery. In spite of the market challenges, our efforts, within one year, reduced the **macro waste** of energy & loss from 24 cents/bbl to 9 cents/bbl. The 15 cents/bbl waste reduction in Energy & Loss released \$12 million dollars worth of more saleable fuels to the market (in 1992 prices), instead of internal energy consumption.

The following charts indicate the **macro waste** analysis of the refinery margin 1991 & 1992;



**Similar positive results could be achieved at your refineries as well.** Reducing the purchased energy cost by about 2%, without significant capital investment at any refinery is a realistic opportunity. Having gone through this once, I firmly believe that I am not overstating the purchased energy cost reduction by 2%. A generalized approach based on our efforts taken at Curacao refinery (where we did achieve about 12% reduction) has been reported on page 2.

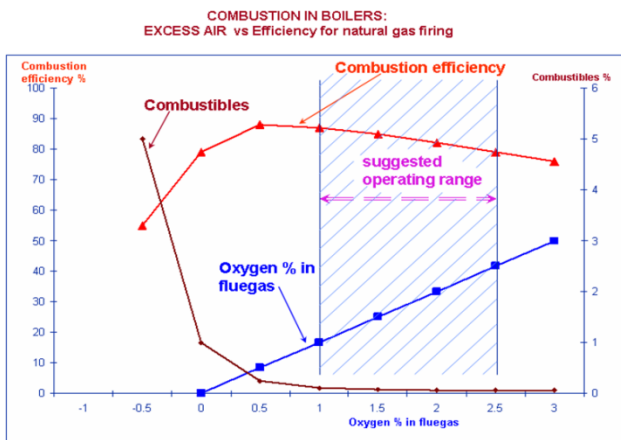
## Reduction of purchased energy cost of without significant capital investment

It is very important that the first step is to initiate an energy use accounting system to benchmark and monitor the progress of the efforts. The Solomon Associates, who have contracts with nearly every refinery in America, incorporate a comprehensive energy accounting package. Relevant data from this may be used to develop a quick and simple energy monitoring system to track the results of efforts we can propose and implement.

Set up a Task Force to integrate and undertake the following 4-simple tasks.

1. Initiate a Heater (Furnace) Tuning program with the help of the Task Force
2. Organize on-site workshops at each unit that has a major Heater / Furnace / Boiler
3. Refresh all Operators with on-site training on Fuel Efficiency fundamentals. **Provide a pocket book of energy fundamentals to all technical and operating personnel.**
4. Maximize the use of internal fuels to reduce the use of purchased fuels & imported Electricity.

The task details for the above need to be clearly defined by an experienced engineer to help the plant operators to follow easily. Each major heater needs to be field-tuned to set the target operating level as shown below;



The suggested target range is neither new nor unrealistic. But still I have observed only less than 5% of the heaters are operated at optimum excess air levels. The tough part of this task is convincing the plant operators to shift from their comfort zone to optimum operating zone. Seeking the assistance of an external expert may be worthwhile to succeed in this critical aspect. Giving this task as an **add-on** responsibility to an in-house engineer may achieve only partial success. It is not the fault of the hunter when he **has** to chase several rabbits at the same time.

Implementing the above tasks does not require big capital investment, but a strong commitment from the top management. The top-management commitment alone will insure the participation of the relevant in-house employees and the success of the whole effort. The results of carrying out the above tasks are usually measurable at the end of the first year itself and also it would be very significant if your purchased fuel bill is over \$25 million annually. **The major spin-off benefit of this exercise would be a motivated in-house team. The external assistance could be the only major cost of this effort and typical payoff period would be 2 months.**

Shrinking margin is a challenge now. Capital projects may be on hold. But you can still move forward and improve. It may be worthwhile to look back and redefine your plant's Heater / Furnace Tuning program.

*For questions on this Newsletter, please contact;*

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