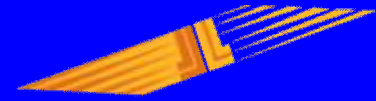


# Energy Management at NZRC



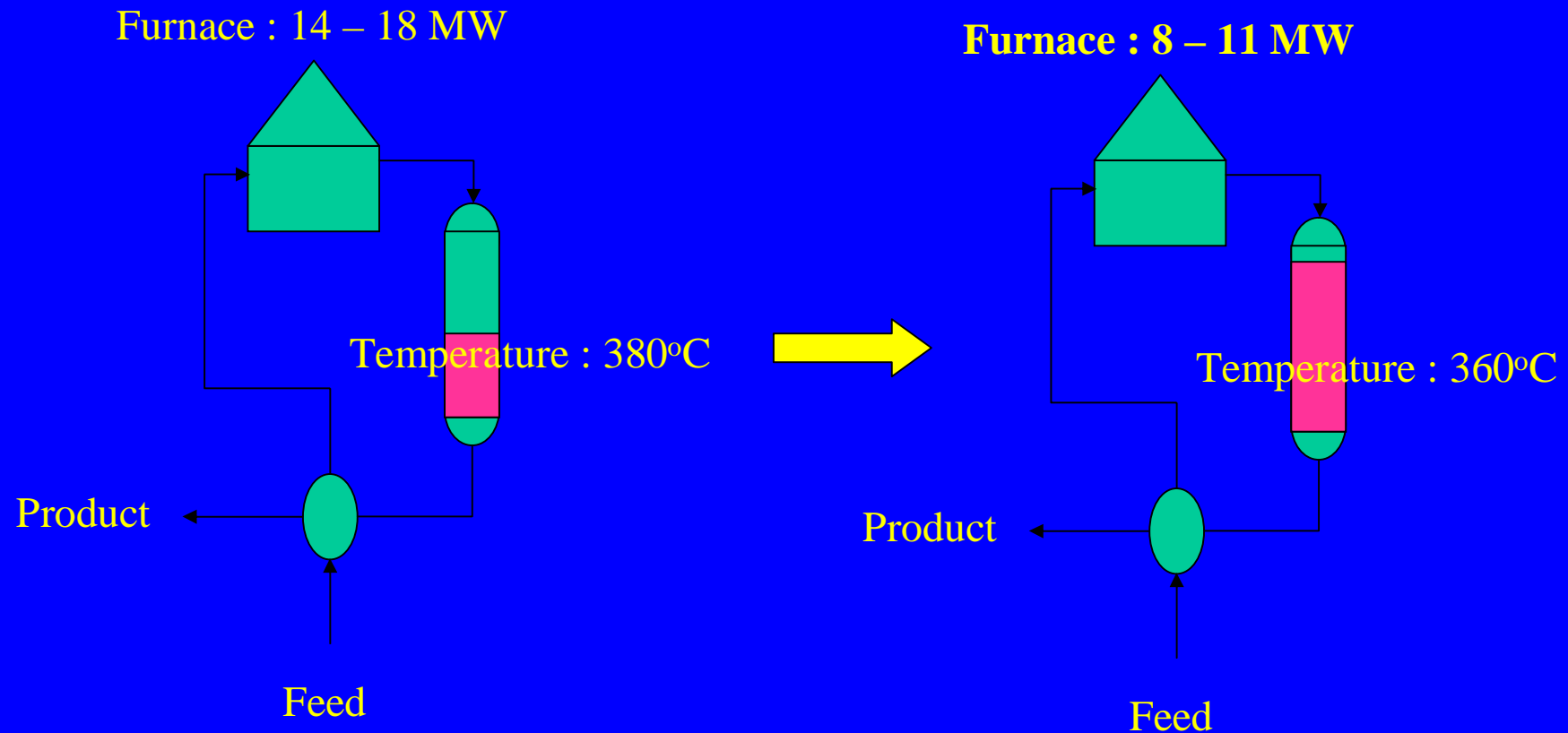
The New Zealand  
REFINING COMPANY LTD

- Direct Energy Costs – approx 1/2 of operating costs
- Energy sources include Electricity, Liquid fuel and Fuel gas (incl. Nat gas)
- The process is Carbon Intensive (CI)
- Any reduction in CI is consistent with making more profit
- Energy reduction is KING for CAPEX justification

# Existing and Energy Initiatives

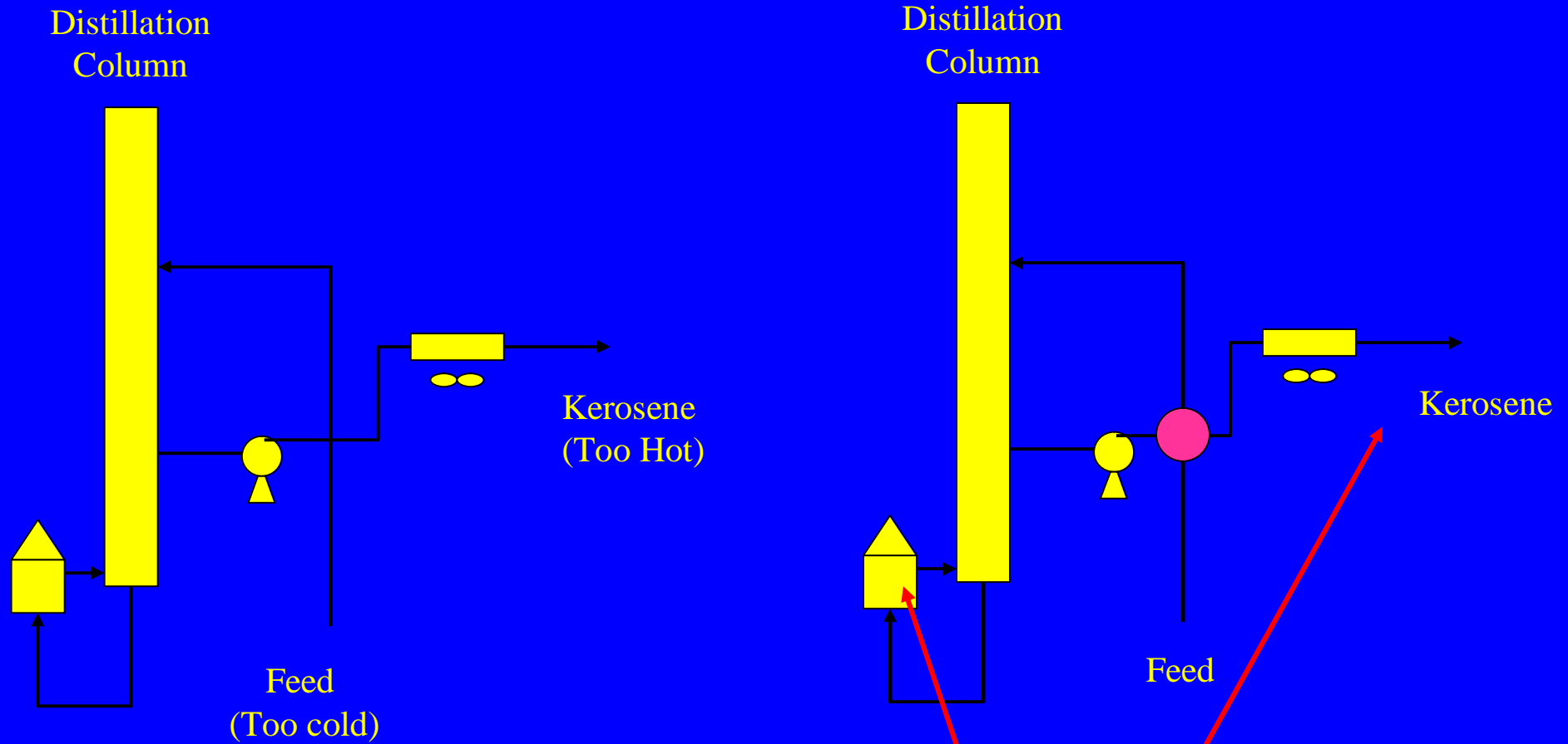
- **Steam Team** : Maintenance (Payback : < 1 year)
- **Hydrogen Recycle Compressor** – Less H<sub>2</sub> to Fuel Gas
- **Heat Exchanger Reconfiguration** (Keep Energy in Process)
- **Hydro Cracker Catalyst Improvements** (Approx 4000 tCO<sub>2</sub>/yr)
- **Heat Exchanger Cleaning Management** (Clean the right one @ the right time)
- **On-line furnace Cleaning** (Payback 7 months – no production loss)

# Catalyst Example of Energy Reduction



**Approx : 6 to 7 MW reduction is Furnace Fuel consumption  
OR 4000 tCO<sub>2</sub> pa**

# Keep the Heat in the Process!



- Reduced Furnace Duty (Energy)
- Lower Kerosene Temp –  
Don't have to reduce production (HSE)

**The End**