

40%-60% of industrial energy usage released as waste heat.
USA manufacturing industries emit energy of **10 quads / year**
(equivalent of 127 days of import of oil).
Only **33%** of fuel converted as useful energy in automobiles.

Glass

Molten Metal

Ethylene

Cement Industries

Primary Aluminum

Steel Industries

Ind/ Com Boilers

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IPCC reported that at the current level of greenhouse gas emission, we could pass the 1.5C marker as early as 2030 and further increment will unleash floods, deadly storms and droughts.

If your industry involves in any **HEATING** process, then around **40%** of your **PROCESSING COST** are going as **WASTE** into the atmosphere...

In addition to the wastage, you load **MORE INVESTMENTS** on cooling systems...

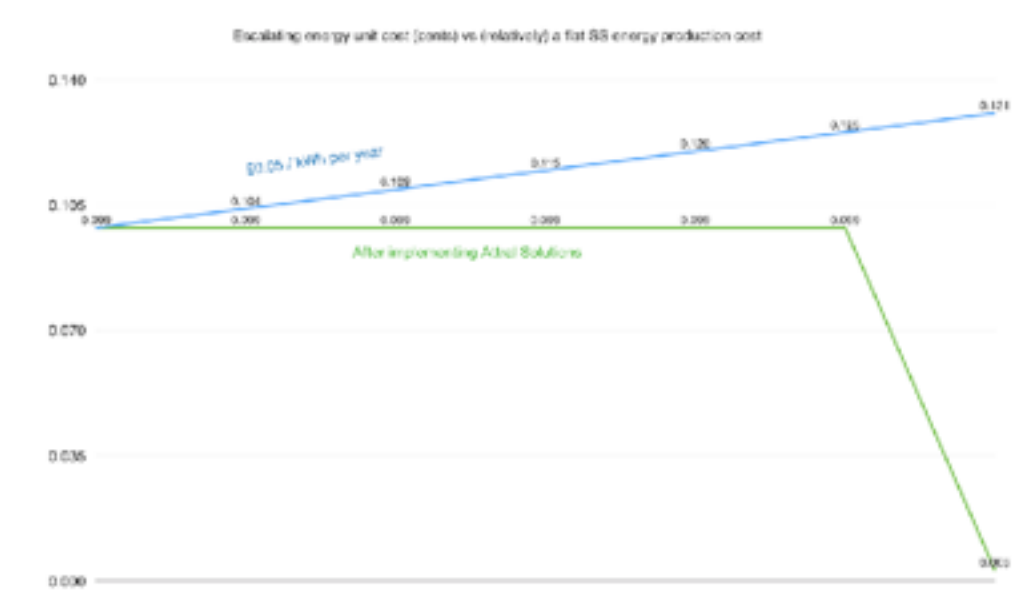


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- **Financial Benefits**

- **7% - 12%** operation cost recovery
- Savings up to **\$ 0.05 per unit per year** during ROI periods
- Savings up to **\$ 0.3 per unit** after ROI period
- Nearly free power after ROI periods
- **Accelerated** depreciation
- **Carbon** rating benefits

Energy Cost over 6 years

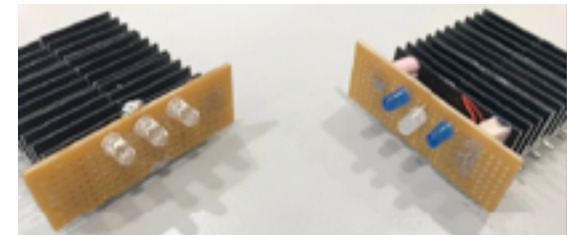


The average cost of a typical WHR system is \$3 million per MW of power produced. TEG is \$3000 / kW

- Attral helps you recover your operation wastage using Solid State technology.
- Around 10% to 15% of operation cost recovery.



Recovering waste heat energy with solid state technology to convert heat into electricity...



Compact, Low Investment, No Maintenance, low space occupancy, Quick ROI, Efficiency ~ 10 - 15 %.

Our Delivery:

~ 100kW between the temperature range of 50 C - 300 C...
 conversion efficiency about 7 - 12%...
 life (duration) about 15 years...
 Voltage requirements can be tuned to the requirements...
 AMC about 3% of the invoice