

**Thermal Energy**

**Solution Card No.4: Installation of indirect contact Economizer on exhaust gases for makeup water preheating**

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| **Solution Card No.4: Installation of indirect contact Economizer on exhaust gases for makeup water preheating** | | |
| **Inputs** | | |
| Hotel | \*\*\* | |
| Boiler Type | Fire Tube Boilers / Water Tube Boilers | |
| Fuel Type | Natural Gas / Diesel / LPG | |
| No. Of Units | 1 | |
| **Assumptions** | | |
| Operating Condition | \*\*\* TPH @ \*\*\* bar | |
| Exhaust air Flow Rate | \*\*\* m3/hr | |
| Exhaust Gas Temperature | \*\*\* °C | |
| Ambient Temperature | \*\*\* °C | |
| Exchange Rate | 16 EGP/USD | |
| Consumption Profile | \*\*\* hr/day | \*\*\* days/year |
| **Constraints** | | |
| Fuel prices | \*\*\* EGP/MBTU (2020/2021) | |
| **Proposed Solution** | | |
| Makeup Water Flow Rate | \*\*\* m3/hr | |
| Preheated Water Temperature | \*\*\* °C | |
| Annual Energy Saving | \*\*\* kWh (\*\*\* MBTU) | |
| **Economic Features** | | |
| Average CAPEX | EGP \*\*\* | |
| OPEX | Low | |
| Annual saving | EGP \*\*\* | |
| Payback period | \*\*\* year | |
| Lifetime | 15 years | |
| Annual CO2 Reduction | \*\*\* tCO2e | |