



## INDUSTRIAL PROJECTS

**Project No.:** 12

**Industry:** Steel Industry

**Project Subject:**

**Power Generation Enhancement of a Steel Plant**

### Challenge:

In this project, a steel plant was studied and by using the most modern Pinch Technology, a substantial power generation in the steel complex made possible.

### Proposed Solution:

1. Identify waste heat with high Exergy content that can be retrieved as electric power.
2. Offer a model for heat recovery (and Exergy) from hot gases identified in the previous step and convert it to electric power.
3. Thermodynamic design and engineering the proposed recycling system.
4. Cost-Benefit analysis of the project.

Result: Cost-Benefit Analysis for equipping the recovery unit of steel complex with heat recovery system:

- Generated Electric Power for one module: 5,440 KW
- Generated Electric Power for three modules: 16,350 KW
- Generated Electricity Value for one module: 867,395 \$/yr.
- Generated Electricity Value for three modules: 2,602,186 \$/yr.
- Investment needed for one module: 2,437,379 \$
- Investment needed for three modules: 7,312,137 \$
- Payback Period for three modules: 33 months

### Results:

