

Med *Clean* *Propre* *Limpio*


No. 55
Pollution prevention case studies

Reuse of energy from a steam condenser

Company background

Croatian Electric Utility Company - Thermal Power Plant (TPP) Sisak (Croatia).

The TPP Sisak is the biggest thermal power plant in the electric energy system of Croatia. It produces 11.2% of total electric power of the Croatian Electric Utility Company and 31% of the installed power in the thermal power plants in Croatia.

The workforce of the company is 228 employees and its capacity, 1,800,000 MWh/year.

Industrial sector Production of electricity.

Environmental considerations

The TPP Sisak uses water from the River Sava as a cooling medium in a turbine condenser unit.

An inlet pipeline transports the water from the River Sava to a water conditioning/decarbonisation unit, where it will be used. The temperature of water for this process unit has to be over 15 °C.

During winter (approximately 6 months/year), water from the river Sava is too cold to be used directly, and for this reason it must be heated by means of steam produced in a heat exchanger.

Background

The company consumed a considerable amount of energy in producing the steam necessary for the heat exchanger unit that heats water from River Sava.

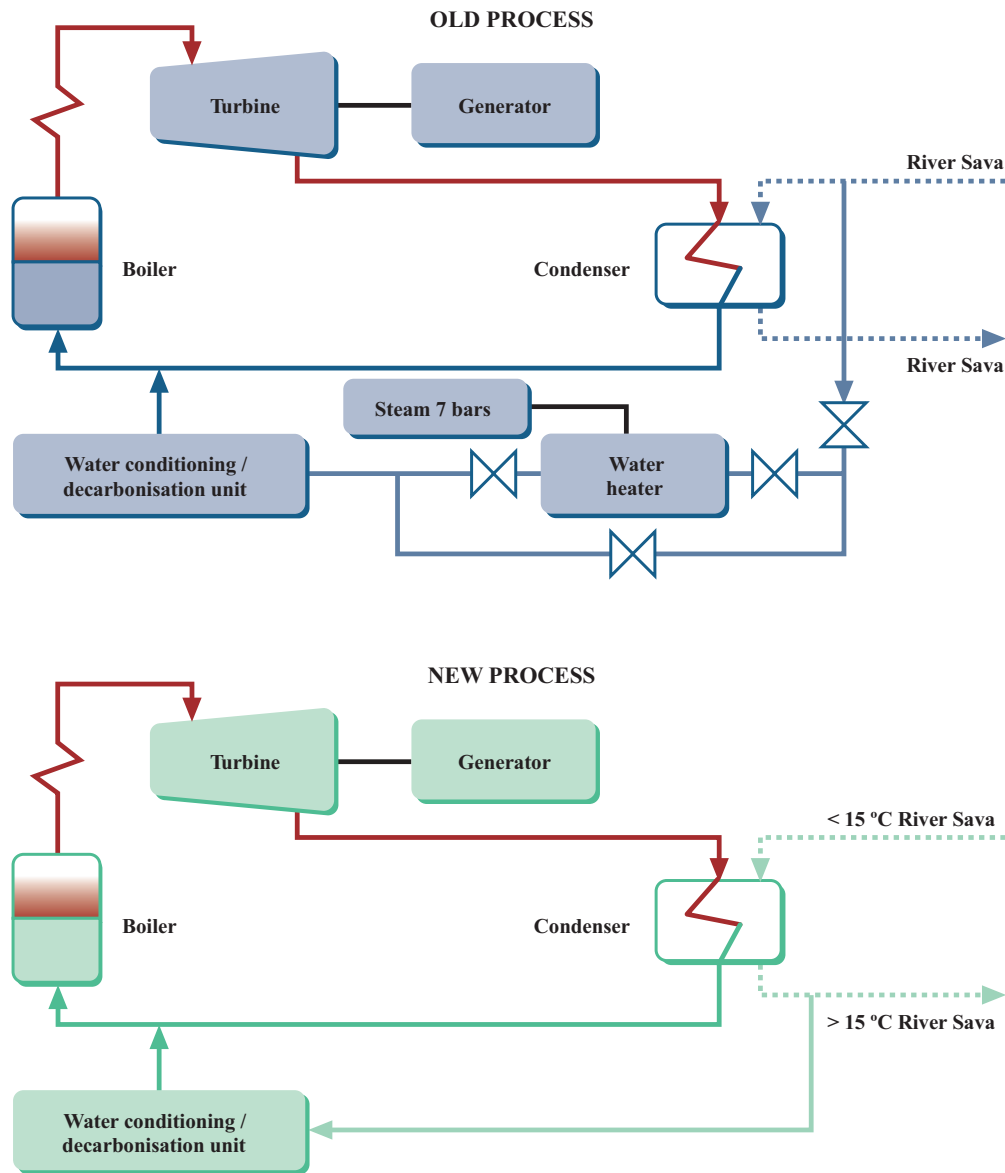
Summary of actions

By implementing a simple modification in the pipe network, the inlet water for the water conditioning/decarbonisation unit is now taken from the outlet of the turbine condenser unit.

This water is hot enough to be used directly in the water conditioning/decarbonisation unit. Therefore, it is not necessary to heat it through the steam produced in the heat exchanger system.

With this action, a large amount of steam is saved, thus, reducing energy consumption of the company.

Diagrams



Balances

Material balance

Reduction in cooling water (m ³ /year)	432,000
Reduction in steam production (t/year)	7,174

Economic benefits

Savings (€ /year)	73,273.51
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Investment (€)

414.5

Payback period

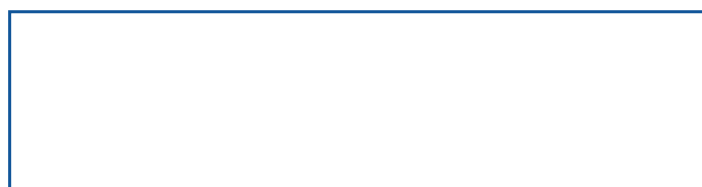
2 days

Conclusions

With the implementation of this alternative of process modification, the company has considerably reduced the use of energy (fuel gas). Thus, the Sisak thermal power plant has achieved important economic benefits that made it possible to pay back the investment almost immediately.

NOTE: This case study seeks only to illustrate a pollution prevention example and should not be taken as a general recommendation.

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