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Indus3Es
Industrial Energy and
Environment Efficiency



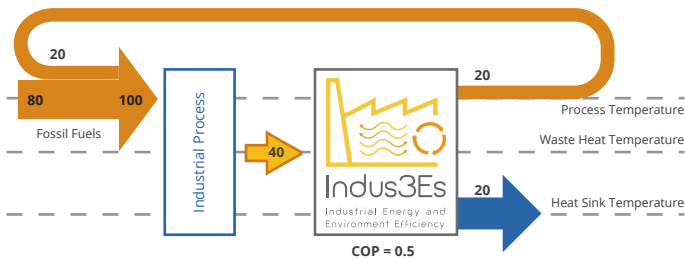
Indus3Es Project

New technologies for
utilization of heat recovery in
large industrial systems

www.indus3es.eu



Large quantities of waste heat are continuously rejected from industries. Most of this waste energy is of low-quality and is not practical or economical to recover with current technologies. The Indus3Es project will develop an innovative Absorption Heat Transformer (AHT) focused on low temperature waste heat recovery (below 130°C).



The System will effectively recover and revalorize around 50% of the low temperature waste heat, increasing the quality of the waste source to the required temperature and reusing it again in the industrial process.

The single effect heat transformer technology is effectively a single effect absorption chiller working in reverse mode. It consists of one condenser, one evaporator, one absorber and one

generator. In contrast to absorption chiller, in a heat Transformer, absorber and evaporator operate at higher pressure than condenser and generator. Waste heat is fed into the evaporator and generator and upgraded/revalued heat at an increased temperature level is extracted from the absorber.

Impact

✔ Economic

Savings up to 20% of energy consumption & increasing by 25% of energy efficiency.

✔ Environmental

The AHT technology will contribute to the EU objective of reducing energy consumption by 20%.

✔ Social

Energy efficiency stimulates economic activities and companies investments in this sector, improve their experience and increase competitiveness, as well as potentially contribute to bringing jobs back.

Indus3Es final results

The AHT system has been successfully installed at the power plant of the Tüpraş petrochemical facilities. The waste-heat source for the activation of the AHT system comes from the oily condensate flash steam tank. In order to recover the heat from the oily condensate flash steam, demineralized water sent to the boilers, which is considered constant throughout the year and equal to 65 °C, is first preheated by this waste source which is at about 100 °C. The remainder of the waste-heat is used for powering the AHT, resulting in a stream at about 140 °C, which upgrades the demin-water circuit to 135 °C before this is sent to the boilers.

According to the first monitoring results the installation of the AHT could suppose, for 20 years using phase up to following consumption and economic savings:

- Total Primary Energy Savings: 70,622,152 kWh primary energy;
- Total CO2 emission savings: 9,974 tones CO2;
- Total Economic Savings: 1,752,047 €.