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Modeling of a New Absorption Heat Pump-Transformer Used to Produce Heat and Power Simultaneously

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Highlights

- A new cycle integrating a heat-pump transformer with a turbine has been proposed
- The cycle has the capability to upgrade waste heat and produce mechanical power
- Overall energy and exergy efficiencies reached maximums of 61 % and 92 %, respectively
- The system can achieve up to 32.3 % energy savings compared with separate heat and power cycles.
- The AHPTP was integrated into a pulp and paper mill plant with considerable savings

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