A decomposition approach for retrofit design of energy systems in the sugar industry.
5. Conclusions

This paper introduces a new approach for the retrofit design of energy systems in sugar factories. This approach is based on system decomposition and employs a search of the best option for evaporator retrofit on the basis of extended targeting that includes simultaneous consideration of changes in the evaporation process and in the heat recovery.

The extended targeting problem is transformed to a problem of targeting under constraints and solved using a procedure that combines pinch analysis algorithm with evaporator simulator. The solution includes a complete set of process stream data making it possible to design the evaporator. The process stream data are subsequently used as input to HEN retrofit procedure based on the network pinch concept.

The effectiveness of the new design approach has been demonstrated on the example of its application to an industrial retrofit problem.