Energy savings in the combustion based process heating in industrial sector

M. Hasanuzzaman a,⁎, N.A. Rahim a, M. Hosenuzzaman b, R. Saidur a,c, I.M. Mahbubul c, M.M. Rashid d

a UM Power Energy Dedicated Advanced Centre (UMPEDAC), Level 4, Wisma R&D, University of Malaya, 59990 Kuala Lumpur, Malaysia
b Department of Fabric Manufacturing Engineering, Faculty of Textile Manufacturing Engineering, Bangladesh University of Textiles, Tejgaon, Dhaka 1208, Bangladesh
c Department of Mechanical Engineering, Faculty of Engineering, University of Malaya, 50603 Kuala Lumpur, Malaysia
d Department of Mechatronics Engineering, International Islamic University Malaysia, 50728 Kuala Lumpur, Malaysia

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ABSTRACT

Energy efficiency and savings strategies in the combustion based industrial process heating has been reviewed comprehensively and presented in this paper. This work compiles latest literatures in terms of thesis, journal articles, conference proceedings, web materials, reports, books, handbooks on industrial process heating systems in the industrial sector. Different types of equipment used (i.e., recuperator, regenerators, heat wheels, heat pipes, economizers, etc.) and energy savings are reviewed in various industrial processes heating. Based on the review results, it is found that significant amounts of energy could be saved by using heat recovery system in the industrial process heating. By using recuperator up to 25% energy can be saved in the furnace. In the case of boiler, by using economizers 10% to 20% energy can be saved. Economic analysis shows that the payback period of recuperator and economizer are normally less than 2 years. It is also found that the payback period is lower when operating hour is comparatively high.

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⁎ Corresponding author. Tel.: +603 22463246; fax: +603 22463257.
E-mail addresses: hasan@um.edu.my, hasan.buet99@gmail.com (M. Hasanuzzaman).

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