

AN ESTIMATION OF THE ENERGY AND EXERGY EFFICIENCIES FOR THE ENERGY RESOURCES CONSUMPTION IN THE TRANSPORTATION SECTOR IN MALAYSIA

Abstract:

The purpose of this work is to apply the useful energy and exergy analysis models for different modes of transport in Malaysia and to compare the result with a few countries. In this paper, energy and exergy efficiencies of the various sub-sectors are presented by considering the energy and exergy flows from 1995 to 2003. Respective flow diagrams to find the overall energy and exergy efficiencies of Malaysian transportation sector are also presented. The estimated overall energy efficiency ranges from 22.74% (1999) to 22.98% (1998) with a mean of 22.82 ± 0.06 % and that of overall exergy efficiency ranges from 22.44% (2000) to 22.82% (1998) with a mean of 22.55 ± 0.12 %. The results are compared with respect to present energy and exergy efficiencies in each sub-sector. The transportation sector used about 40% of the total energy consumed in 2002. Therefore, it is important to identify the energy and exergy flows and the pertinent losses. The road sub-sector has appeared to be the most efficient one compared to the air and marine sub-sectors. Also found that the energy and exergy efficiencies of Malaysian transportation sector are lower than that of Turkey but higher than Norway.