Abstract:

The objective of the present paper is to simulate the performance of hybrid solar thermal power plant under Hassi R'Mel climatic conditions. Taking into account some environmental factors, modeling of the different parts of the power plant are carried out to arrive at a quantitative assessment. The simulation study shows that the power plant without solar energy input operates in part load as a combined cycle and produces about 134 MW. During sunny periods, the amount of solar energy input in the steam cycle increases the steam turbine output and thus improves the integrated plant performance. Consequently, the overall net efficiency will be higher than the efficiency at night. The highest value 67% is reached in summer. In warm day, the integrated solar combined cycle system ISCCS offers better performance compared with conventional combined cycle power plant.