Abstract: According to EU regulations, restrictions on the use of refrigerants with high greenhouse effect was begun to seek alternative refrigerants. A comparative energy and exergy analysis of R124zd (E) fluid heat pump systems with low greenhouse effect instead of R134A fluid was done. The EES program was used in the analysis. Instead of conventional heat pump systems, parallel heat pump system and heat exchanger heat pump system were used. During the analysis, different evaporator temperatures, condenser temperatures, superheating temperatures, and changes in compressor efficiencies over the heating power coefficient were investigated. When two systems were compared, it is seen that the parallel connected compressor heat pump system is more efficient than the heat exchanger heat pump system. When comparing fluids, it is concluded that the R1233zd (E) fluid was an alternative to the R134A fluid. The results were shown in graphical form. As a result, it is aimed to be a current work on the use of alternative fluids to be used in industrial applications and in the future.