

6. Conclusion

This study has presented a swarm based approach that can be useful in Load Flow Analysis (LFA) of a power system where the ABC_Gbest fared better than the other ABC techniques giving the least or best cost (power mismatch) and Voltage profile has been found to improve better. The ABC_Gbest LFA simulations gave least fitness or best cost (i.e. power mismatch). This occurred after a little over 14,000 max-cycles. The transmission line from bus 20 to 21 had losses in all the three ABC variants due to overloading, distance and aging of the line. Both the real and reactive power flow can be affected by the change in bus voltage angles and voltage magnitude respectively as lines with the highest amount of real and reactive loss are those connected to buses with lowest voltage angle magnitude respectively. It is recommended that the lines with high power losses be modified to reduce losses and increase performance and efficiency by replacing old lines with lines whose conductors have large cross sectional area by conductor bundling of the old lines and also through the use of unified power flow controllers (upfc). It is known that line length affects the line performance; it is recommended that the line length be stipulated properly in the system to help in the analysis, lines having high power losses, compensated to reduce losses.

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