

- c) Perform some heuristics to repair the initial solution to meet the minimum up/down time constraints at period inserted into the load peak.
- d) Perform some to repair the solution obtained in Step 2 to meet minimum up/down time constraints of all periods.
- e) Calculate the production costs by economic load dispatch (ELD) and startup costs by applying some heuristics. Add the both costs to get the total operation costs.

6. Results

Table3: Solutions for improved priority list method

<i>Time in hours</i>	<i>Production cost</i>	<i>Startup cost</i>
1	13683	0
2	14554	0
3	16809	900
4	18589	0
5	20020	560
6	22387	1100
7	23262	0
8	24150	0
9	27251	860
10	30058	60
11	31916	60
12	33890	60
13	30058	0
14	27251	0
15	24150	0
16	21514	0
17	20642	0
18	22387	0
19	24150	0
20	30058	490
21	27251	0
22	22736	0
23	17684	0
24	15427	0
total cost	559887	4090

7. Conclusion

The improved priority list is simple and more efficient than conventional priority list method. All the associated constraints are met in the results. The Economic Dispatch (ED) is solved using the lambda iteration method. The simplicity of the improved priority list and fast calculation of ED leads to a methodological and competent method in comparison with conventional method. After calculation it is concluded that the consideration of minimum up and down constraints are necessary to minimize the overall cost.

References

- [1] J. Wood and B. F. Wollenberg, Power Generation, Operation, and Control, 2nd ed., vol. 37. New York: John Wiley & Sons, Inc, 1996, p. 569.
- [2] N. P. Padhy, "Unit commitment-a bibliographical survey," IEEE Trans. Power Syst., vol. 19, no. 2, pp. 1196–1205, May 2004.
- [3] Y. Tingfang and T. O. Ting, "Methodological Priority List for Unit Commitment Problem," 2008 Int. Conf. Comput. Sci. Softw. Eng., no. 2, pp. 176–179, 2008
- [4] I. Damousis, "A solution to the unit commitment problem using integer-coded genetic algorithm," IEEE Trans. Power Syst., vol. 19, no. 2, pp. 1165–1172, 2004.
- [5] T. Sum-im and W. Ongsakul, "Ant colony search algorithm for unit commitment," in IEEE International Conference on Industrial Technology, 2003, 2003, vol. 1, pp. 72–77.
- [6] Z.-L. Gaing, "Discrete particle swarm optimization algorithm for unit commitment," in IEEE Power Engineering Society General Meetin 2003, vol. 1, pp. 418–424.
- [7] J. Ebrahimi, "Unit commitment problem solution using shuffled frog leaping algorithm," IEEE Trans. Power Syst., vol. 26, no. 2, pp. 573– 581, 2011.
- [8] D. Srinivasan and J. Chazelas, "A priority listbased evolutionary algorithm to solve large scale unit commitment problem," in 2004. International Conference on Power System Technology, 2004 PowerCon2004., 2004, vol. 2, pp. 1746–1751.