Chapter 6

Conclusions and Recommendations

6.1 Generator Maintenance Scheduling of EDL Region I Power System

Optimization technique using Dynamic Programming (DP) is applied to generator maintenance scheduling of a major hydro power system. Case study (EDL Region I system) are compared to the existing EDL generator maintenance scheduling method, the proposed method offers the following benefits.

6.1.1 Revenue

In all study cases, the proposed method result in revenue increases ranging from 1 to 26 million Baht or 0.1 to 20 percents. Major factors influencing revenue are inflow and load. Maximum revenue is during high inflow and low demand. However, maximum revenue increase is during normal inflow and high load suggesting effectiveness of the proposed method in maximizing revenue under limited water surplus.

6.1.2 Reserve Capacity

In all cases, the proposed method offer better results. If EDL reserve capacity is higher than 40 MW (set level), the proposed method will be lower. However, if the EDL reserve capacity is lower than the set level, the proposed method will be higher and over minimum reserve requirement.

6.2 Recommendations

6.2.1 Maintenance crew management

EDL region I generator maintenance crew could be limited to 45, the maximum crew required for major overhaul. The proposed scheduling method shows that one maintenance team can provide the service to all generating units in the system as there is no overlapped schedule. However EDL can limit the existing number of maintenance crew for supporting new power stations due to the difficulty of personal reduction and high demand growth of EDL system.

6.2.2 Generation Planning and Dispatching

As the proposed maintenance scheduling method included generation planning in the process, it is recommended that operation of power plants in real time should be in accordance with the generation scheduling obtained from the study. This is to ensure that the maintenance scheduled is effectively implemented.

6.2.3 Increasing Minimum Reserve

From the study, it is noted that due to increase in demand during 2003 and 2004, reserve capacity has decreased near 40 MW (The largest unit). These could be a problem in near future as demand will continue to increase. It is recommended that further investigation be carried out.

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