ADDITIONAL REVISIONS TO THE LSSF PROCEDURES AND METHODS

SCADA Generation

The analysis of the LSSF compared two different Test case scenarios against the No Test scenario. The first Test scenario utilized actual water releases and Glen Canyon dam constraints in the Hydro LP model and the result was an optimized generation pattern. The second Test scenario utilized the actual generation pattern obtained from Supervisory Control and Data Acquisition (SCADA). SCADA is a centralized remote control system which includes the transmission of numerical quantities and alarms to and from generation stations, substations, and other electrical facilities to a control center. The SCADA system is not completely accurate. There are a few hours that show no generation or generation numbers that are too high to be realistic. When this occurred the preceding hourly generation was extended to cover the incorrectly reported data.

Load Data

The initial analysis of SLCA/IP Customer Electrical Demand was developed the following way: First, Western determined the AHP amount of capacity and energy using the monthly volumes described above. With these AHP values, the authors used a "synthesized" hourly electrical load pattern that did not exceed the AHP, met the other Western scheduling requirements, and maximized the amount of on-peak power scheduled. The resultant hourly values were used as the inputs in the Hydro-LP model run for base case hourly electrical demands.

The hourly electrical demands for this analysis of the LSSF were obtained the following way: load values for the study were based on historical values. The load data used was comprised of a weekly average per month of CRSP scheduled customer load obtained

from a Colorado River Energy Distributors Association (CREDA) survey of its members. CREDA is a non-profit organization representing consumer-owned electric systems that purchase federal hydropower and resources of the CRSP. CREDA was established in 1978, and serves as the "voice" for its members in dealing with the Bureau of Reclamation (as the generating agency of the CRSP) and Western (as the marketing agency of the CRSP). CREDA members are all non-profit organizations, serving nearly 3 million electric consumers in the six western states of Arizona, Colorado, Nevada, New Mexico, Utah and Wyoming.

CREDA polled CRSP customers on their usage for a week for each month throughout a year. Western has made minor modifications to these data to account for the fact that CRSP customers include utilities which are not members of CREDA.

Aside from the base electrical demand generated 24 hours a day, load is distributed into three categories—residential, commercial and industrial. Monday through Friday, demand increases in the morning hours as residential power use increases to prepare for the work day. The demand continues to increase as commercial and industrial centers begin operating and peak demand continues throughout the day as commercial and industrial centers maintain operation. Demand declines as commercial and industrial operations cease and the work day ends. Demand continues to decline until nighttime when most households sleep, and base electrical generation occurs. Sunday and Saturday show lower peak generation because they are not typical work days. A comparison of the electrical demand data is contained in Figure 1.

Figure 1 -- Comparison of Electrical Demand (Load) Data

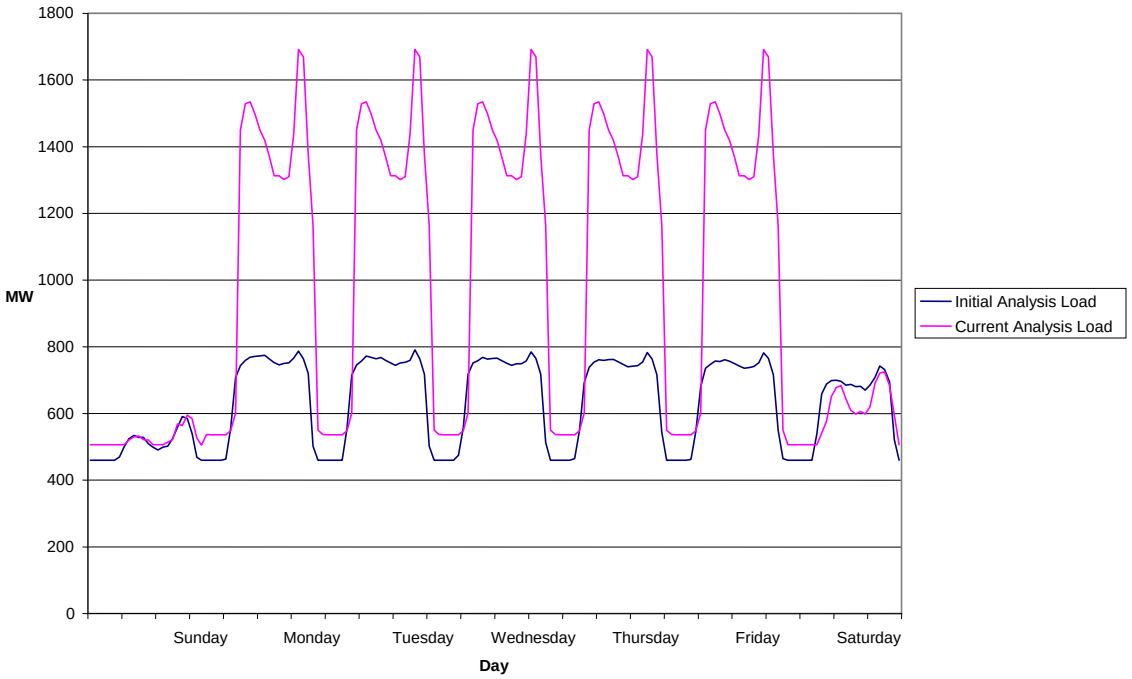

Figure 1 shows a difference in magnitude between the two loads, but the basic load pattern remains the same. Furthermore, the load used for the current analysis maintains a higher generation pattern on every day except Saturday and Sunday. At the time the initial LSSF study was analyzed, dependence of demand constraints was thought to be high. However, based upon further study results and comparison of the LSSF generation output using the two different load patters, Hydro-LP sensitivity to load inputs is low compared to price inputs and dam constraint variables. A comparison was made between the weekly initial base case generation output and the weekly current base case generation output and no difference exists. The change in load pattern does not change the validity of the base case generation for comparison purposes between the base case and Test case and the base case and SCADA.