

A Vista Implementaion for the Central Valley Project

Client:
Western Area Power
Administration
and the US Bureau of
Reclamation

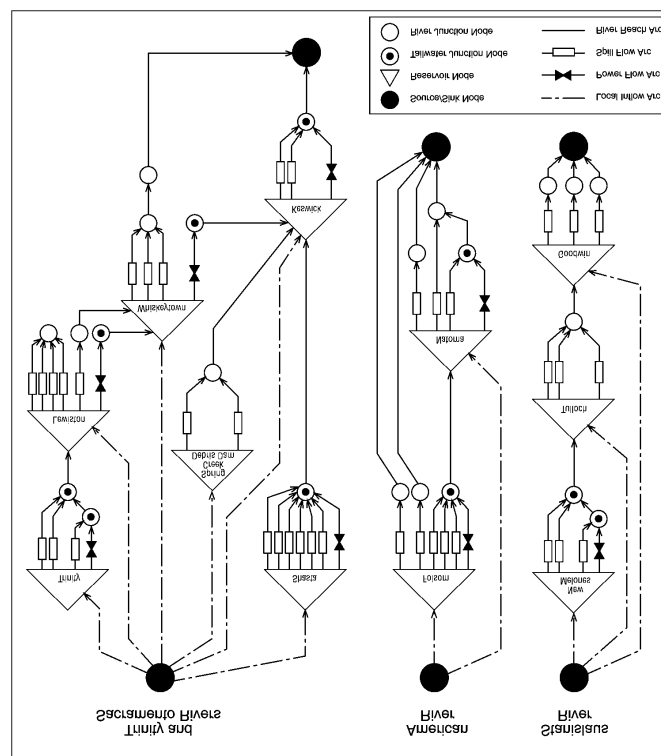
Location:
California, USA

Project Year:
2004

Customer Environment

The Western Area Power Administration (WAPA), along with the US Bureau of Reclamation (USBR) administer the Central Valley Project (CVP), located in the northern region of California. The CVP system includes the following:

- upper system on the Trinity-Sacramento River comprising five power plants totaling 1260 MW and three seasonal reservoirs
- two power plants totaling 230 MW and one seasonal reservoir on the American River
- a 383 MW powerplant with a seasonal reservoir on the Stanislaus River
- several other run-of-river plants in the region.



Challenge

The new mandate of WAPA, brought about by energy deregulation, provides the opportunity to buy and sell energy in combination with generation from corporate generation assets; and thereby maximize profit through enhanced production and power marketing strategies.

WAPA and USBR are committed to operating the system in a manner that maximizes efficiency and achieves business objectives, while at the same time attending to multiple objectives, including power, pumping load, fishery, flood control, recreation, temperature regulation, contaminant dilution and irrigation. Because these many uses can compete with each other, coordination of the river's operations is critically important.



WAPA and USBR cannot maximize generation profit at the expense of other water uses and consequently the management team concluded a decision support system would be invaluable to optimize hydropower generation without compromising the recreational activities and environmental goals.

Solution

In June 2002, WAPA contracted Synexus Global to perform a pilot study on the upper system. The objectives of the study were to

- demonstrate that *Vista* can meet the constraints and optimize generation by producing long- and short-term generation schedules in real-time operations under current environment
- demonstrate the potential revenue increase associated with the optimization process by producing schedules under future conditions representing market-driven operations.

In September 2003, following successful completion of the pilot study, WAPA together with the USBR contracted Synexus Global for full *Vista* implementation in phases. *Vista* was configured to represent CVP's hydroelectric facilities in the Trinity-Sacramento, American and Stanislaus Rivers as well as aggregation of run-of-river plants on other rivers as external energy sources. *Vista* explicitly provides long-term water management guidance and short-term dispatch of the generating units on these three main rivers on hourly basis. The several water resources and power transmission constraints are also modeled.

Vista is installed on both WAPA and USBR networks with varying levels of security. The system will utilize database replication techniques, between the two locations, that will allow maximum uptime with little or no user downtime or administrative intervention. *Vista* DSS facilitates the

- integration of real-time pricing data with the operating constraints to maximize revenues
- sharing of operations planning and scheduling information including SCADA data between WAPA and USBR staff on a real-time basis
- integration of long-term inflow forecasts generated by USBR staff and short-term inflow forecast provided by NWS River Forecast Center in the planning and scheduling processes
- sharing of operational data and constraints between WAPA and USBR
- staff preparation of standard planning and scheduling business process reports.

Client Benefits

WAPA and USBR can now collaborate and share information in a manner that was not previously possible. USBR can now share long-term operations plan with WAPA more efficiently, and WAPA is now able to schedule detailed generation in the short term to meet physical and environmental constraints, maximize revenues and control financial risks inherent in market-based operation.

Call Us to Learn More

Tel: 514-844-8900

E-Mail: sales@synexusglobal.com