

Wisconsin Public Power and Primavera: Integration Helps Construction of New Power Plant

Project Management Highlights:

- Integrated system includes Oracle, PeopleSoft and Primavera for scheduling and project controls
- Use Primavera system to deliver project early despite starting 13 days behind schedule
- Primavera aids in Sarbanes-Oxley reporting
- Coordination with contractors possible through web-based contract management.



Near the quiet villages of Rothschild and Kronenwetter, along the lazy Wisconsin River just south of Wausau, lies a 345-acre site where feverish activity began in October, 2004 – the building of a 500 megawatt coal fired electric generating power plant, known as Weston 4. It will join three other Wisconsin Public Service Corporation (WPSC) coal fired power plants that have been in operation at the site since Weston 1 (60MW) began feeding the electric grid in 1954, followed by Weston 2 (90MW) in 1960, and then Weston 3 (360MW) in 1981.

The Weston 4 project was approved by the Public Service Commission of Wisconsin in September, 2004. Scheduled for completion in 2008, the \$752 million Weston 4 plant will use clean coal technology and low sulfur fuel – a high-efficiency boiler will use state-of-the-art emission controls to minimize environmental and social impacts – to meet the needs of central and northeastern Wisconsin's anticipated two to three

percent annual growth in electrical demand. Need for the new plant was identified in early 2001 when Wisconsin Public Service conducted an electrical generation study and found that additional capacity would be required. Phil Hayes, project manager for Weston 4, says, "We look at what our projected load growth will be, look at measures of energy conservation, and see where the curve effectively meets. That lets us know when we will have a deficit in capacity relative to our projected growth.

"Today, our need is coming from our native load and the additional sale of energy to wholesale customers in our service territory." Public Service will share ownership of Weston 4 with the Dairyland Power Cooperative, whereby WPSC will receive 350 MW and Dairyland will get 150 MW of power when the unit comes on line.



Choosing the right software

Facing the largest project in the history of the company, WPSC had to find a way to manage the project efficiently, including coordinating the project data with the organization's financials. WPSC was already using Primavera scheduling software for the new large-scale plant, but soon began exploring an additional Primavera solution – Expedition – with the goal of integrating both project management solutions with its Oracle-based PeopleSoft accounting system, housed in Green Bay, about 100 miles away from the Weston site.

Weston 4 Project Accountant Jill Badtke explains that selecting the right project management software solution was not an easy decision. “When I came on board the project in 2003, we were already using Expedition, but we weren't sure it was the path we wanted to take going forward.” WPSC then formed a project team that included employees from both WPSC and Washington Group International, the contracted construction management company, to evaluate both Expedition and a competitor's system. “After comparing and contrasting the two products,” Badtke says, “the team knew that given the Web-based functionality of Expedition, it was the appropriate software to use for the project, particularly since team members needed to access information from multiple company locations. Badtke explains, “We wanted to use the Web-based capability of Expedition with our external contractors, and the competing software just couldn't offer us that.”

Making it all work together

Integrating Expedition with the organization's PeopleSoft General Ledger software was next on the agenda. Badtke says, “Our IT group was very instrumental in building a code with tables to collect actual project costs from PeopleSoft on a monthly basis. We created a one-way feed of information from PeopleSoft to Expedition. Everything that goes through our PeopleSoft system is keyed off a purchase order number. When we set up our purchase order numbers in Expedition, we make sure the numbers match the numbers entered in PeopleSoft in order to line up our costs.” Once the integration was completed, it was time to bring the contractors on board, adding another level of complexity to the program. WPSC realized it would need additional help in getting the most efficiency out of the software and turned to Catalyst Inc. for guidance.

“We had our external contractors set up their Requests for Information (RFIs) in Expedition,” says Badtke. “Catalyst was very instrumental in personalizing the RFI module for us, creating instructions that we could provide to our external contractors. Now, when new site contractors are ready to begin work on site, we have an initial meeting with them and establish that all RFIs will be entered through Expedition. We provide a copy of the instructions and go through a review of Expedition. We currently have several hundred RFIs in the queue, so they are jumping on board with that.”

A collaborative effort

The construction schedule – integrating the logic-based design, procurement, and start-up schedules – was built by Black & Veatch, Overland Park, Kansas. WPSC selected Black & Veatch to provide design, procurement and start-up services for the Weston 4 project based on WPSC's need to award 25 to 30 site construction contracts with coordinated start dates, end dates, and other interface dates included in Weston 4's contract document. “We needed the schedule up front during our procurement phase,” says Bryce Fielder, Weston 4 project planner. “Black & Veatch tackled that for us, and put together a Level Two Plus schedule that they loaded with estimated activities, budgeted man-hours and quantities. Now, once we award a contract and get a contractor's schedule, the Washington Group scheduling team replaces the estimated quantities with the actual ones, and from there, we can calculate earned value.”

A program under development

The Weston 4 project management group is still expanding the software to further take advantage of its functionality. “We plan to build a management level schedule as a summary,” says Fielder, “but it’s something we haven’t yet tackled. Once a month we provide a status report to management that includes all kinds of information – from safety to schedule to earned value charts, cost information, contingency reports, site photos, engineering progress. It’s a pretty comprehensive report totaling more than 120 pages.”

Change management is another area that is critical for WPSC. Badtke says, “We’re putting a lot of focus on the Primavera change management module. Budget and commitment trends as well as all Field Authorizations, Requests for Modification Proposals and final Change Orders are entered in Expedition.” And adds Fielder, “It also fits in with our scheduling programs. We generate project cash flow out of the Primavera scheduling software, so I focus on the financial side as well. One of the reasons we went with Expedition is because of its ability to interface seamlessly with the scheduling software. We haven’t linked those up directly yet due to our immediate needs, but we are looking to do that in the future. We plan to import actual costs into the cash flow schedule and generate the remaining costs over the time-distributed curve.”

WPSC is also improving its meeting minutes with Primavera document control functionality. A majority of the project meetings conducted for Weston 4 are captured in Expedition. Hayes says, “We track all our action items – and the software is very powerful – by having a central database for all our communication on issues or action items, the tracking of them, how the initial RFI came up and how it’s finally dispositioned. When you have that all within a single database, it heads off lots of problems you might otherwise have. The last thing we want to do is to get into any litigation on a project. As long as we can document meetings and agreements – even if they are outside our contractual terms – and leave a paper trail, it bodes well for our position and for any future issues that might arise.”

Further, says Badtke “The procedures we established in Expedition followed our own corporate internal policies. Because of Sarbanes-Oxley, we had to change things as a



company from an internal control perspective. We made sure that the procedures we set up in Expedition fit our corporate policies and were going to work.”

One terrific set of tools

Today, the team is benefiting from the innovative things it is doing with its schedule. Fielder explains, “We have a master schedule that has four pieces – engineering, procurement, construction and startup. Each of those has its own schedule, and they are completely integrated. Engineering activity drives procurement, which drives construction that leads to startup. So we have about a 14,000 to 15,000 activity master schedule that is maintained by three schedulers at the Weston 4 site. We also have a live link over the Web to Black & Veatch in Overland Park, where a scheduler works in real-time on our server in Green Bay.”

And best practices are always top of mind for the group. Hayes explains, “You always have the advantage of hindsight at the end of the day. If something we planned didn’t work out, we can go back and refresh the model and put in what the actual costs were, what the actual best practices were, and those that paid the greatest dividend. We can then capture those in our lessons learned database and apply those practices to our next project.

“With Expedition, we have accurate real-time data that we can use to make those decisions. Add that to the smooth integration with PeopleSoft and the Primavera scheduling software all working in sync, and you’ve got one terrific set of tools.”

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