



With its two reservoirs, Mooserboden and Wasserfallboden, Kaprun was the first power plant in Verbund, Austria's largest energy producer and transporter.

HYDRO-POWER PROFITS FROM SOFTWARE INTEGRATION

In order for facility maintenance and plant technicians in over 100 power plants to access technical documents more quickly, Austria’s largest electricity producer Verbund is building an integrated solution for planning and maintenance.

By 2012 VERBUND-Austrian Hydro Power AG (AHP) will have invested approximately 365 million Euros in the Hydro-power plant Limberg II. Limberg II is a pump-storage plant which uses the approximately 360 meter difference in height between the two impounding reservoirs Mooserboden and Wasserfallboden lakes to produce enough electricity to accommodate times of especially high demand by the Austrians. If there is too much electricity in the grid, it pumps the water into the higher impounding reservoir for the next peak time.

By the time Limberg II opens for business approximately 10,000 technical documents will have accumulated, which describe in detail each smallest part of the cavern facility. Some of these are made up of several hundred data pages of technical drawings, parts lists or Piping and Instrumentation (P&I) diagram.

VERBUND-Austrian Hydro Power AG is meeting this flood of documents with an integrated IT solution for planning and maintenance of its power plant based on SAP EAM. The goal is an improvement of operational business processes with the continuous digital illustration of all provisions and malfunctions. A variety of tasks will be automated such as the creation of orders and notifications based on stored maintenance plans or resource planning based on the electronic shift schedule. Also the users can access the central data pool across locations, which shortens research times and avoids redundancy. This IT solution is also used by the sister company VERBUND-

Austrian Thermal Power GmbH & Co KG for their thermal power plant facilities.

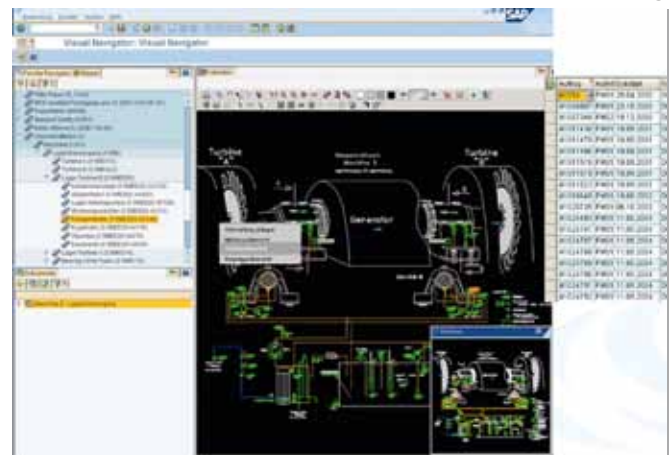
CIDEON Software is supporting the implementation of this system with consulting services and products to integrate external data sources and a convenient user interface for non-CAD users.

Company-wide solution

Austria’s leading electricity producer decided several years ago, to build a company-wide system for the technical Facility Management. This is a challenging task for Engineer Dr. Karl Dorfmeister from the technical planning and operations coordination department at AHP, “because the sales world differs greatly from the technical world when it comes to their requirements.” An extensive project team analyzed the current maintenance processes and tested the first pilot facility followed by an evaluation.

The core of the solution uses the technical facilities management in SAP in a Citrix environment, which the company uses due to its many locations. A variety of modules are built onto this core which will be implemented gradually. VERBUND-Austrian Hydro Power is putting this solution into practice in the pilot project Limberg II. This con-

Screenshot with drawing



struction project offers the welcome advantage that newly created technical documents can flow into the solution without converting medias. Most of these documents are construction and machine parts plans in AutoCAD format DWG, which originate from external partners such as engineers offices or vendors. This file type is rarely a useful format, in which to make the facility history accessible to a broad group of users. Therefore the CIDEON Conversion Engine converts these files into PDF/A so that they can be read by anyone and are suited for long term archiving.

The CIDEON Import-PDM extracts the information contained within the DWG and allows it to flow in a structured manner into SAP as a document information record with attributes and classification data. The control file checks for a special character which confirms that the R&I schemes are detected and the links with the maintenance objects are generated.

Individual enhancements

In the course of the import the solution also extracts the KKS description. The power plant description system (KKS) describes any number of large units in a plant, which allows every object down to the smallest resource to be clearly labeled. The standard structure is made up of the category technical place (TP), equipment and materials. After the extraction the KKS description is reviewed and derived from the TP number which corresponds with SAP. CIDEON enhanced their standard Import module for this.

The import starts by opening a plan file in AutoCAD which searches for matching data fields and then reads the information from the data fields. The interpreted KKS description is inspected to see whether the defined criteria are met, are not duplicated and are in accordance with logical structural rules. Possible typing errors or incorrectly loaded plans will be discovered at this point.

Based on the verified KKS description the CIDEON Import-PDM creates a TP number, which is accepted by SAP. The KKS description "LCA11 AP610 AC22" is converted to the "BAW=LAC11 AP610 AC22" TP number. "This automation saves us so much manual work around the management of drawings", stated Dr. Karl Dorfmeister.

Another project specific enhancement is that the module generates the object link with the vector coordinate in the plan file. The user is able to move from the technical place to the appropriate coordinate in the engineering drawing with only a few clicks.

The electricity producer decided on CAFM specialist, CIDEON Software, because similar organizations with regard to size and industry are among their references. Additionally both companies were familiar with each other due to smaller projects over a long period of time. "We value CIDEON's approach", said the SAP EAM coordinator. Other advantages he mentioned were short reaction time and "the consultants do not speak technical jargon."

Efficient operations

The data, which was imported into SAP, can be used efficiently by the employees for example for the internal approval and release processes via SAP Business Workflows. The Redlining function provides a convenient feature, with which authorized users can effectively insert their comments virtually into a plan. In contrast to the paper option with handwritten notes the digital entries are immediately visible for other colleagues, as they are lo-





Danubian power plant Ybbs-Persenbeug

cated in a separate layer on top of the original drawing. Both the drawing and the layer make up the most current release of a plan.

The Redlining function is available in Publisher, an intelligent viewer which provides a user interface for non-CAD users. Using this CIDEON component the users can not only view the actual drawing, but can also retrieve the various supplementary information about the linked technical places in Tooltips by rolling the mouse over the appropriate position. When necessary attributes or class data can be modified and saved in SAP.

Two additional CIDEON tools support the operations personnel in their daily resource planning. Typical tasks, such as “Where are open error messages” or “Which maintenance tasks are next” can be queried. The Visual Reports and Visual Navigator modules distribute the results in an attractive way: Not columns of numbers rather graphically

processed and based on the imported plans. The user interface is straightforward and easy to use – and varies deliberately from the SAP environment look and feel, see Photo 5. “That is important when it comes to getting the employees on-site to accept the system”, stressed Dr. Karl Dorfmeister.

For an even better overview CIDEON enhanced Visual Reports with an individual function, which highlights TP numbers in distinct colors for open error messages and orders. Based on ad hoc queries the proper technical documentation can be displayed on the computer screen within seconds. “A clear cut improvement compared to previously when storage in folders was tied to a location”, explained the SAP EAM coordinator.

The underlying data originates in SAP and in the future will illustrate the entire facility history – from construction drawings and R&I schemes to notifications and orders and finally to audit report and measurement log.



Building site Limberg II

Outlook

VERBUND-Austrian Hydro Power AG plans to expand operation of the maintenance solution gradually and to integrate the additional newly-constructed hydropower plants in the next five years. At the same time existing technical documents will be imported whenever necessary. Because some of these are more than 50 years old and are normally only available on paper printouts, the operations employees on-site have to scan them in: a long-term endeavor. However this will ultimately allow every authorized user in the company, regardless of location in Austria, to access the technical documents in the system.

Corinna Scholz

At a glance



Company:	VERBUND-Austrian Hydro Power AG
Industry:	Energy
Users:	up to 500 people in the future; 25 concurrent users
Challenge:	Integration of diverse external CAD data sources in the central SAP-EAM and the implementation of an intuitive user interface for non-CAD users
Solution:	CIDEON Software: Import-PDM, Conversion Engine, Publisher and Visual Reports/Visual Navigator
Benefits:	Access, independent of location, to technical documents for SAP users, convenient operation, shorter research times, higher data quality and shorter release cycles.
CIDEON Service:	Consulting, workshops, concept, individual software enhancement, implementation, training, support

VERBUND-Austrian Hydro Power AG

VERBUND, Austria's largest producer and transporter of electricity, is one of the leading hydropower producers and also one of the most profitable energy utilities in Europe. With approximately 2,500 employees, the company generated 3.8 billion Euros in annual revenue in 2008.

VERBUND-Austrian Hydro Power AG (AHP) combines the operation of 108 hydropower plants and together with VERBUND-Austrian Thermal Power GmbH & Co KG's (ATP) three thermal power plants provides more than one third of the electricity consumed in Austria. Currently 26 hydropower projects are in development; the pump-storage power plant Limberg II (480 MW) in Kaprun is under construction and will be finished in 2011. ATP is currently building the Combined Cycle power plant Mellach, which will also be joining the grid in 2011 with a total power output of 832 MW.



New power plant in Gerlos