PRO.FILE
BY PROCAD

# With DMS and PLM on the brink of Industry 4.0

## PRO.FILE keeps processes flowing at 2G Energy

- CAD integration that benefits every designer
- DMS[tec] that makes life easier for service technicians
- Project dashboards for complete visibility

The flood of digital documents and the need to control them as part of their daily routines used to cause the employees at 2G Energy AG major headaches. But with PRO.FILE, they now have a PLM solution that allows them to document even their most complex products and to control their technical and business workflows – including a number of Industry 4.0 applications. When 2G first started to look into product and document management in 2012, they only had a spare parts catalog on their list. But when they realized just how powerful the PDM/PLM solution they had chosen really is, they quickly started to explore other far-reaching applications for the entire company. After all, the system is also a fully fledged DMS solution that includes electronic invoicing workflows and archives business documents with complete audit trails.

Founded in 1995 in Germany, 2G Energy AG is one of Europe‘s leading manufacturers of combined heat and power (CHP) plants. As a solution provider specializing in development, production, project management, and service, 2G manufactures CHP plants in the power range between 20 and 4,000 kW. A publicly listed company, 2G Energy AG employs 580 employees in its headquarters and its ten subsidiaries. So far, they have installed a total of 4,000 plants in 35 countries, for which they also provide technical assistance. In order to meet the rising demand for CHP plants, 2G needs to be able to maintain accurate product master data, bills of materials, and, most importantly, a spare parts catalog. The latter is what motivated the company to start considering the implementation of a PDM/PLM system in 2012 in the first place. Without one, it simply was not possible to structure the storage of CAD models and any related product data and to derive accurate bills of materials for the parts built. The company used to store its product data in project folders on their servers. The main disadvantages were that this would create redundant data and that CAD models would sometimes no longer work because someone had changed a file path or moved a file altogether. This would often make it difficult to retrieve the data for the most current model. And with a large portion of the spare parts found in the designs, they also lacked a basis to create a spare parts catalog from their models. Consequently, designers had to manually enter spare parts into Excel spreadsheets, which only added to their workload.

The g-box is a profitable small-scale power plant in the electrical output range of 20 to 50 kW. It is delivered as a compact, ready-for-connection module.

### What is DMS[tec]?

DMS[tec] is a discipline of document management – tailored specifically to the needs of technical companies. It lets them map their technical structures, be it plants, products, formulas, or infrastructures.

## Bridging the gap between PLM and document control

And so, in May 2012, 2G decided to implement the PRO.FILE PDM/PLM system along with interfaces with SolidWorks and Microsoft Dynamics NAV and commissioned the project. Just four months later, the solution went live for CAD purposes. “In the end, the decision was between two vendors with a very similar range of features”, explains Arne Köster, the head of the PLM project at 2G. “What we liked about PRO.FILE was the look and feel it provides. The system also has a decisive advantage in that it goes beyond simple product data management to meet the needs of traditional DMS tasks. What‘s more, the integration with Navision allows us to store documents from the ERP system. And a built-in web application is available to automate the processing of our incoming invoices.”

## Logging changes between the ERP and PDM system

The ERP interface is used to store and display bills of materials from PRO.FILE in Navision. The interface is so cleverly designed that all changes to the bills of materials transferred from PRO.FILE to Navision are logged. This makes it easier for production planners to identify changes and to systematically handle them. “The spare parts catalog and the bills of materials are a direct result of the work of our designers in SolidWorks. We now even have our own spare parts catalog department within our technical documentation unit,” points out Arne Köster.

## The “saw list” as a highlight of the SolidWorks Routing integration

The integration with SolidWorks Routing, a feature of the CAD system for the creation of pipe assemblies, is a new designer favorite. Bills of materials for a pipe assembly in SolidWorks contain sawn parts with the same item number along with the saw length for the manufacturing department to work with. This means that they do not need to create a new item number, but rather only the pipe assembly – which to Arne Köster is a significant added value and a milestone for all users who want to use the SolidWorks Routing module. “This puts us in a position where we can plan ahead much more accurately and start production early,” he explains.

> “It took no time at all for PRO.FILE to become a daily part of our marketing work.”

**Stefan Liesner,**
Head of Marketing at 2G Energy


The avus is a high-performance combined heat and power plant for high electrical power requirements (from 400 kW), which is used in industrial projects or to supply heat grids.

“It helps us reduce the number of times our welders have to work on the construction site and allows us to now create pre-assembled and pre-piped units. These are then installed on site and put into operation.”

## Electronic invoice verification, audit-proof document archiving

It is not just technical departments that need faster processing times and end-to-end visibility into their processes. More effective invoice processing means faster payments, the ability to take advantage of early payment discounts, and less archiving space wasted – these are the advantages that using PRO.FILE as an invoice receipt workflow has brought to 2G. A DMS[tec] solution like PRO.FILE is fully capable of delivering the same core functionality as any current DMS. The company‘s receives some 36,000 invoices each year and managing the internal approval and accounting processes used to be time-consuming and made it very hard to track the status of an invoice. Today, these invoices are scanned, OCR‘d (Kofax Capture), and validated. PDF files are created and archived in PRO.FILE to ensure thorough audit trails. Approvers will receive an email notification with a link to IBS Invoice, a web-based PRO.FILE invoice processing add-on delivered by PROCAD partner IBS Itsolutions GmbH. Here, they can view the archived invoice and approve it (or reject it). The transaction is then sent back to the accounting department for posting and payment. “DMS[tec] provides a complete processing history for each invoice. An audit trail is generated for each document that shows who completed what process and when. This ensures compliance and allows us to destroy the original paper documents after certification by an auditor.”

## Full visibility into service processes

There are several examples where the DMS[tec] system already serves as a gateway to Industry 4.0 by going beyond CAD integration and the archiving of business documents to integrate with other business applications. 2G was the first company to have its technical systems communicate autonomously to improve its service delivery. The modules of the CHP plants are equipped with sensors that are able to diagnose which component is failing. Many incidents no longer need to be reported by phone as the plant‘s software system will automatically create an incident ticket directly within PRO.FILE, which in turn triggers a service process. The incident tickets are categorized by discipline and then worked through by the technician responsible. Machine-to-machine communication has enabled 2G to better focus its phone support services and assign field technicians more effectively. Plants are up and running again much faster, which in turn benefits the customer.

> “Just about anything you need can be implemented quickly and relatively easily without extensive customization or programming skills. PROCAD helps us help ourselves.”

**Arne Köster,**
Head of the PLM project at 2G Energy

## The perfect combination: the “project dashboard” digital project file and airform digital forms

The company has been keenly pursuing and expanding on these types of Industry 4.0 scenarios. The introduction of the airform digital form management system has allowed them to fully integrate their field technicians with their internal processes. Orders generated in Navision are retrieved from the ERP system and made available to technicians as prepopulated forms in the airform client. Assembly reports, checklists, maintenance and commissioning records as well as a number of other forms are filled in, digitally signed, and later imported both into PRO.FILE and the ERP system for further processing.

Once the service work has been completed, PRO.FILE will automatically match any related data to the appropriate processes such as “accounting” or “material request service technician”. At the same time, the customer is provided with the relevant PDF documents. The flow of information between the systems is seamless. Arne Köster made sure of this by intelligently connecting the systems based on status changes, true to the motto: “Enter data once in the right location and have it available for everyone from there on.” Christoph Bäumer, a regional service manager at 2G, explains: “We used to have paper-based assembly reports and stacks of copies circulate around the company. Now, the PRO.FILE project dashboard allows us to instantly track the status of any report in any service region and to immediately retrieve the information our customers are looking for.”


Arne Köster, Head of the PLM project at 2G Energy.

## Conclusion

What started with an idea for a spare parts catalog turned into a well-rounded information management solution that 2G expanded over time by gradually adding new features. “The only reason we were able to do this is the highly configurable nature of PRO.FILE,” adds Arne Köster. “Just about anything you need can be implemented quickly and relatively easily without extensive customization or programming skills. PROCAD helps us help ourselves.”



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