

Fuji Electric Systems Co., Ltd.

Thermal Power Plant Construction Department
Green Energy Solutions Division



Fuji Electric Systems Co., Ltd.
<http://www.fujielectric.co.jp/fes/>

Industry
Energy

Challenges

- Reducing reliance on paper-based design and approval processes
- Improving management of construction design drawings and project documentation
- Reducing operating costs and improving efficiency

Solution

- Design collaboration

Fuji Electric Systems is using Adobe Acrobat to streamline the creation, distribution, and management of construction design drawings for its geothermal power plants through enhanced digital documentation and more efficient approval and collaboration processes.

Results

- Reduced operating costs, specifically printing and storage, by as much as 20 million yen per year
- Shortened document creation and review cycles for more efficient operations
- Made it easier for employees to manage large amounts of data
- Standardized file production format for simpler sharing of files

Systems at a glance
Adobe Acrobat

Millions of yen saved each year by major international producer of thermal and geothermal power generation systems using Adobe® Acrobat® to manage large volumes of digital construction and design drawings

Increasing supplies of renewable energies

With the progression of global warming becoming increasingly serious, the shift to renewable energy resources with a lower environmental impact is now among the most pressing global challenges. Fuji Electric Systems Co., Ltd. is striving to be the leading-edge enterprise of this new 'Energy and Environment' focus, developing its business to concentrate more on services and products that contribute to society and the bottom line.

The company boasts a substantial share of the global market and offers a supply of safe, steady electric power through its high-technology thermal power generation facilities and geothermal power generation of renewable energy. "Only a dozen or so companies can manufacture these steam turbines for the power plants in the world. Four of them are Japanese companies. We specialize in the medium- to small-size thermal and geothermal power generation facilities market," says Junichi Yamamoto, lead engineer, Thermal Power Plant Construction Department, Green Energy Solution Division. "We promote world-leading geothermal projects in countries with volcanic activity—the United States, Philippines, Indonesia, Iceland, and New Zealand—to take advantage of the geothermal activity there and provide those areas with power."

To keep up with the growth in the renewable energy sector, Fuji Electric System's Thermal and Geothermal Power Generation Section deployed a geothermal power generation system worldwide to each of the markets it serves. The company introduced Adobe Acrobat Pro and Acrobat Standard software to the entire division as the standard tools to help manage the heavy volumes of electronic drawing files and to exchange design and construction drawings among the people involved on each project more efficiently. Streamlining the document management process could help reduce operating costs by as much as 20 million yen per year.

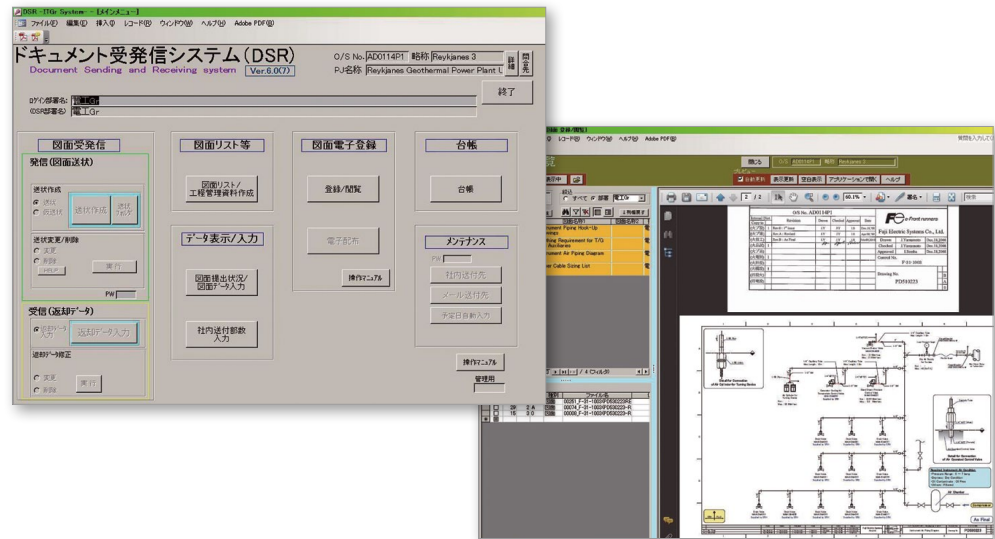
Reducing reliance on paper

When receiving an order for a whole power plant, more than ten sections of the company simultaneously participate in the various stages of the project. Drawings are issued and revised according to the progress of each section, and are then completed and delivered to each related section—including clients—and each project site at different times. In the past that led to more frequent drawing revisions which could delay final decisions and influence the completion of various stages of the project.

Typically, approximately 1,000 to 1,500 design and construction drawings are issued per project, ranging from the one-page A0 size to the 200-page A4 size drawing. When revisions were included, the total number of distributed papers could be in the tens of thousands. Printing, distributing files to participating teams—including the overseas clients and their project sites—and filing all the drawings required a lot of time and financial resources.

"With the advent and rapid adoption of the PC, networks, and the Internet in the workplace, our primary form of communication with our clients became e-mail," Yamamoto says. "However, electronic files attached to e-mails sent ahead of the paper versions were treated merely as reference materials and the files printed on paper were considered the authentic ones. With most clients and plant sites overseas, communication via e-mail is still the best solution. Further, the practical application of electronic files converted to PDF became essential with the global adoption of PDF, which made it possible to compress the size of files and also to help ensure their authenticity."

With Adobe Acrobat Pro and Acrobat Standard, Fuji Electric Systems is streamlining its operations for optimal efficiency. The solution enables the company to create, distribute, and store sensitive project design documents digitally, without the hassles and expenses of large-scale paper drawings and distribution.



In 2008, the distribution of paper drawings in-house was ended in the Thermal and Geothermal Power Generation Section since the group started to use electronic drawings converted to PDF as the new standard. However, in certain areas of the section the introduction of Adobe Acrobat was limited, and during periods of peak drawing output, many project members had to wait to use shared PCs in order to convert documents to PDF. Even then, they had to print the drawings and documentation on paper first, later scanning them to convert them to PDF, which added significantly to production timelines.

Improve efficiency and cost reduction

In July 2009, Fuji Electronic Group started a supply chain reform initiative aimed at improving cash flow by improving business efficiencies. In the Thermal and Geothermal Power Generation Section, paperless operations were proposed as a key part of this initiative.

Specifically, the company wanted to promote the use of electronic drawings and materials throughout the section by introducing the PDF conversion tool to all staff. Additionally, Fuji planned to roll out a management tool to more easily manage, retrieve, and inspect all electronic drawings. And, managers decided that by using larger screens or double screen displays to do the design work on a PC, while inspecting the electronic drawings and documentation, employees could save time and money by needing to print out as little as possible.

In the current economic climate, producing results that justify an investment in such measures section-wide was imperative. "The mere thought that we could save so much on copying costs by introducing PDF creation software would be rejected, since the paper drawings were deemed absolutely necessary throughout the organization," says Yamamoto. "I brought to the entire section's attention the merits of implementing PDF creation software: the ease of handling PDF files and how similar editing and commenting is to doing so on paper; the application of the convenient functions of Adobe Acrobat; and the possibility of reducing costs by 20 million yen per year through improvement of business efficiencies, the reduction of wasteful printing and copying, and improving data security."

Yamamoto believed that compared to the investment required, the substantial improvements in business efficiencies and projected cost reductions could lead to a smooth adoption and transition to the paperless solution.

"We considered other companies' tools for implementing PDF creation software, but we decided on Adobe Acrobat for its reliability and because of Adobe's reputation, since Adobe created PDF," Yamamoto says. "We frequently communicate with overseas clients, so we needed an international standard. Other solutions were not perfectly compatible with Adobe Acrobat and it could be a problem if the information could not be conveyed accurately because of incompatibility. Deploying Adobe Acrobat across the section alleviated those concerns."

In addition to Adobe Acrobat, the company further improved efficiencies by using the Adobe solution in conjunction with its own in-house developed Document Send & Receive (DSR) system.

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"The DSR has been used in the Thermal and Geothermal Power Generation Section since 2002," says Osamu Takada, manager, Business Planning Department, IT Promotion Team. "The group was able to streamline the document cover letter creation process and save on labor through better administration of the drawing issue/return and approval processes." The company added functionality to the DSR, such as the electronic document administration function, which controls registration of the PDF drawings and promotes the easy retrieval and inspection of the registered drawings, including the automatic distribution notification mail function.

Digitization in the future

Adobe Acrobat was recently installed on every staff member's PC. The benefits of the solution are already evident, as the distribution of paper drawings in-house has been reduced, as have other paper process-related activities such as filing, folding, and stapling.

"Not only has staff workload been reduced, but requests to the in-house copy department, operating costs, and work hours required were largely reduced as well," Yamamoto says. "We expect to continue reducing creation time for new documents because it's now easier to retrieve, inspect, and use the existing documents, thanks to files converted to PDF. I think we also can save on expenses regarding the outsourcing operation and maintenance of the storage of the finished projects."

In the future, Yamamoto is hoping to utilize Adobe Acrobat to further streamline electronic document reviews and comments, enable electronic payment through the use of digital signatures, as well as fully digitize the remainder of the approval process.

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