IFS Applications™ at PKE SA

PKE SA is presently the largest producer of electrical energy in Poland. The total electric horsepower installed by this company amounts to 4952.7 MWe, with a total thermal power of 2399.7 MWt. The company controls 14% of the domestic electrical energy market and 16% of the local thermal energy market. The value of PKE S.A.'s sales amounted to over 3.6 billion PLN in 2003. The company employs a staff of 6,100. PKE composed of the following power stations:

- The Jaworzno III power station in Jaworzno (1635 MWe)
- The Łaziska power station in Górne Łaziska (1155 MWe)
- The Łagisza power station in Będzin (840 MWe)
- The Siersza power station in Trzebinia (786 MWe)
- The Katowice Combined Heat & Power generating plant in Katowice (135 MWe)
- The Halemba power station in Ruda Śląska (200 MW)
- The Blachownia power station in Kędzierzyn-Koźle (165 MWe)
- The Bielsko-Biała Combined Heat & Power generating plants (162.7 MWe)

Advantages:

- Uniform data acquisition systems,
- The integration of data and information within the company,
- The automation of many business processes,
- Improvements in fuel economics,
- Rapid access to management information,
- The shortening of decision cycles.

In accordance with general trends

The world of power generation is dominated by large power companies that control the majority of this market. In Europe, the largest such concerns include the Swedish company Vattenfall, Germany's RWE, the French EdF, Britain's National Power and in Spain, Endesa and Iberdola. Large scale economic institutions are more easily able to minimise unit costs and limit their original costs, thereby more easily competing with other entities operating on the market. The Polish power industry is divided into four sectors — power generation, transmission of electrical energy, distribution and sales. Approximately 70 independent enterprises operate in the first three of these sectors and several hundred smaller companies handle the sales side.

Firstly finances

In PKE's presently operating power stations, various financial and accounting applications have been used. IFS Financials used in three of its power stations also differ, for example in their accounts plans, adapted to work in different organisations. This company was formally established in June 2000. In September 2000, a uniform concept was developed to handle the financial and accounting side of all PKE's entities and shortly after the IFS Financials took over the handling of all financial transactions based on a book-keeping function capable of simultaneously embracing these operations in several entities.

Using this above mentioned capability of the already implemented IFS Financials system, every power station is defined as a separate company working on its own data and running its own accounts, based on a uniform plan of accounts for the entity, guaranteeing that accounting records are governed by common principles. The minuteness of detail of the central plan of accounts ensures a complete record of accounting events in accordance with the requirements of the legal regulations in force and also takes into account the needs of the individual power stations with regard to their own internal analyses.

What next?

Following the implementation of the IFS Financials throughout the whole company, PKE's board of directors decided on the unification and integration of the remaining management support solutions used in all the entities making up the PKE company. The systems chosen were: IFS Distribution, IFS Maintenance, IFS Fuels,

IFS Document Management and the IFS Personal Portal solutions. Implementation of the selected IT tools was begun sequentially. A project organisation was appointed, along with five implementation teams.

PKE S.A.'s Chief IT Development Specialist Piotr Tudzierz: "We initially installed IFS Distribution, IFS Maintenance and IFS Fuels in the Katowice Combined Heat & Power generating plant. We chose one of our smaller entities for this exercise, because we wanted to conduct a model implementation in order to get to know the problems that might occur in this type of implementation. For us, this was a bit like an exercise on a military firing range and the experience gained was of great assistance during the work on the second stage, namely in the simultaneous implementation of these three modules in the other smaller power stations — Halemba, Blachownia and the Bielsko-Biała Combined Heat & Power generating plants. The third stage involved an *upgrade* of IFS Financials in all PKE power stations and an *upgrade* of IFS Distribution, IFS Maintenance and IFS Fuels in the PKE entities already using those applications for several years, namely the Jaworzno III, Łaziska and Siersza power stations. The fourth and final stage, begun in 2004, involved the implementation of IFS Maintenance, IFS Distribution and IFS Fuels in the Łagisza power station, this implementation being concluded by March 2004."

Topology

Implementation of the 2000 version of IFS Financials was based on a centralised model — a single server at head office and a single database serving all users in the field of finances. So it has remained to the present day. The supplementary IFS systems, i.e. IFS Distribution, IFS Maintenance and IFS Fuels operate in a topology spread out over four servers. The chief element of the database for these applications is located in the Management Centre and serves five smaller power stations and the head office, while three larger — Jaworzno III, Łaziska and Siersza have their own servers to meet the needs of these applications. In the area of finances, IFS Applications operates in a centralised topology. For the remaining modules, IFS Applications operates in a dispersed topology.

Piotr Tudzierz: "Implementing these applications, we came to the conclusion that it would be best to use the already existing IT infrastructure in these power stations. At the time of installation, PKE power stations had servers with an already satisfactory computing power and up till now the IT environments of these institutions serve the applications being used perfectly well. Considering the topology of the company's whole IT system, we were also afraid about whether it could cope with our telecommunication links. It should be remembered that there are some 2,300 IFS Applications users in the company, of which approximately 1,100 are defined on the server in the head office, with several hundred in the company's three larger entities. However, the decision to go for a dispersed solution was based on the necessity of using the existing hardware infrastructure."

IFS Financials

IFS Financials Implementation Team Manager Ryszard Mamcarz: Our owning a uniform finances application quickly proved advantageous, thanks to the uniform database and access to information directly from head office. Persons with the appropriate entitlements have direct access to all the information accumulated in the database. Reports to meet the needs of regular analyses are drawn up directly. We treat the system as a work tool, we use standard reports, reports created on our instructions and also create reports ourselves using standard tools, such as Crystal Reports, or the SQL query language. The large amount of data accumulated in the system ensures us total liberty in the creation of these reports."

IFS Fuels

Fuel costs make up approximately 50% of the company's operating costs. In the course of a year, we must record the delivery of among other things some 10 million tons of coal, 40 thousand tons of fuel oil and approximately 30 million cubic metres of gas. Every delivery of fuel has to be measured, for every delivery there are set parameters allowing us to rationalise the company's operating costs. PKE is the first entity with its own fuel base at its disposal, composed of two mines — the Sobieski and Janina Energy Mining Works (Zakłady Górniczo – Energetyczne), which account for 30 – 40% of the company's fuel needs. Every delivery, even from our own works, has to be recorded and must also comply with our quality and price parameters. Apart from its own supplies, PKE has over 30 different fuel suppliers. Controls governing the performance of these contracts with regard to quantity, value and quality are maintained on a regular basis. Currently, the system automatically

checks that deliveries agree, chemically analysing fuel deliveries against contracts and warns our staff when it becomes necessary to intervene with suppliers. Hand checking such numbers of analyses and contracts would be a very heavy task.

IFS Fuels Implementation Team Manager Tomasz Szynol: "The implementation team was extremely committed to their task because there was so much at stake. The fuels area of our operations requires the generation and external transmission of complex reports. Having a uniform system for data acquisition, it is at last possible to integrate all those entities that generate such reports. Carrying out such operations by hand was complicated and so, when the opportunity arose to automate these actions, the task of implementation was approached with considerable enthusiasm. Some 40 people now use the Fuels module. This system presently makes it possible to prepare such necessary reports on a regular basis. Thanks to automation, those 40 people control almost 50% of the company's costs without any difficulty. Apart from fuels purchase costs, other essential factors are the directions of deliveries and the forwarding agents responsible for deliveries. The IFS Fuels module fulfils the role of controlling the chain of deliveries, making it possible to control everything, optimise delivery and inventory ratios (distances and type of forwarding agent) and permits us first and foremost, to collect essential information quickly and in a uniform fashion, making it possible to identify the direction of deliveries and the distances involved in the planning of further deliveries of coal. Until now, this had been a quite difficult task."

IFS Distribution

IFS Distribution was implemented earlier in three power stations. Despite the fact that this was a single tool, various approaches were used. In the large power stations, more areas were embraced by this module, whereas in the smaller power stations, not all the procedures connected with distribution and logistics were assisted. For this reason the principle was agreed upon that the module implemented throughout the whole company would be the resultant solution from the best versions of the three largest power stations – Jaworzno, Łaziska and Siersza. Thus the implementation the IFS Distribution system was begun by deciding upon a uniform version for the whole company.

IFS Distribution Implementation Team Manager Wiesław Kula: "Logistics serves all areas and procedures connected with distribution as well as related procedures. In our case, we did not limit ourselves to materials turnover, but have many procedures that are related to distribution data, such as GUS (Central Statistics Office) reporting and annual requirement plans to assist public orders. Also such areas as the purchase and distribution of work clothes, the tools department (apart from the purchase of tools, the supervision of their use — at any given moment we can locate a given tool). We would also like to support the process of purchases connected with public orders and purchases connected with achieving the ISO 14000 norm."

Sales is a separate part of the IFS module and the tool to serve this area was specially developed to meet the needs of the company, the result of the special kind of invoices used for supplying electrical energy. In view of the specific nature of sales of electrical energy and heat and the particular sales environment — invoices, attachments, listings and the way accounts are settled, this process was separated from the basic distribution system. The differences are small, mainly concerning documents created and the invoices themselves, whereas the philosophy of sales as ordered by the customer remained unchanged.

IFS Maintenance

Maintenance administration is an internal activity within the company and is not subject to external accounting controls. The specifics of implementing IFS Maintenance differed from the implementation of other IFS modules also with regard to the number of users, as these modules have the most users of all. In the beginning, we took an approach similar to that for other modules, but this was soon abandoned.

IFS Maintenance Implementation Team Manager Rafał Bryjak: "It turned out that the IFS Maintenance module, originating from the newest version of IFS Applications, is richer in terms of functionality than its predecessors. So we together co-ordinated and approved a single version for all the company's entities. This process involved several stages:
In the first, a uniform version of the software was laid down and approved. In the second stage, this version was implemented in order next to carry out an *upgrade* in those power stations where older version of the software was being used. In the three largest power stations, the modules operate on their own servers, while the remaining five entities use a common database on the head office's server. Today, a single version of IFS Maintenance operates throughout the entire company. In practical terms, there are employees in every organisational cell of the company with the capability of reporting faults, reserving materials, ordering services, conducting accounts etc. Thus this module serves the largest group of users, amounting to approximately 1000 people."

Operation

Internal communication is carried out via an internal WAN (wide area network) constructed on the basis of a fibre optic network and radio line. In the event of a breakdown, arrangements have been made for backup solutions using ISDN connections. The continual evolution that business entities are subject to under conditions of free competition requires the use of a suitably flexible IT system enabling the correction and adaptation of IT tools to current economic processes. The solutions implemented within the company integrate the company's management at the finance, distribution, maintenance, records and fuel economy levels. Solutions have also been implemented to facilitate accessing information from the system at the management level, namely the IFS Personal Portals. The use of such IT tools does not require acquaintance with the system. It is sufficient to define in the portal the kind and scope of information required in order to shortly obtain the report requested. This considerably facilitates the work of PKE's management staff. The company's standard database environment is Oracle. All systems operate on this platform, both those installed to assist management and those systems for billing customers, metering systems and sales systems. We are presently establishing a data warehouse to meet the needs of our management staff and this will be a central repository for analytic data.

Plans: centralisation?

Following the completion of the system's implementation and in the course of the first months of normal operation, it became apparent that there was a need to centralise the dispersed model that had been approved for the IFS Maintenance, IFS Distribution and IFS Fuels. The best solution seems to be a database centralisation for the whole company according to that which was accomplished in 2001 for the IFS Financials module. As a result of introducing such a solution, all business data contained in all IFS Applications and relating to all PKE entities would be accumulated and processed by a single server located in the company's head office.

The arguments for database centralisation of IFS Applications are as follows:

- regular checks that business processes are being correctly conducted in all PKE entities from a single user's account without the necessity of additionally logging in to the three remaining databases,
- unrestricted access to all business data from a single source and in consequence, easy consolidation of data relating to all PKE entities in reports and accounting,
- uniformity of installations and system versions,
- easier administration,
- fewer faults and their easier solution.

Piotr Tudzierz: "However, the most important argument for a database centralisation of IFS Applications is to be found in the lower running costs of a central installation compared to the dispersed installation and the lower periodic investment expenditures for the purchase or modernisation of servers for IFS Applications. Instead of maintaining and periodically replacing or modernising four servers, those costs can be borne in respect of just a single unit."

Software

In all 9 organisational entities:
IFS Financials,
IFS Distribution,
IFS Maintenance,
IFS Fuels,
IFS Documentation,
IFS Personal Portals
The Oracle database system

The system and hardware platform

The Management Centre — 2 x IBM RS/6000 in an HACMP cluster
The Jaworzno Power station — 2 x IBM RS/6000 in an HACMP cluster
The Łaziska power station — SUN V880 and UE450 as Oracle standby
The Siersza power station — SUN UE450 and UE250 as Oracle standby
Workstations — Windows 2000 and XP
About 2,300 IFS Applications system users

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