

Research and Application of the System of Electric Power Engineering in the Huangling Mining 2 × 300MW Power Plant Construction Period

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Abstract. A lot of things that need to be managed in the thermal power projects. In this process, many factors are constrained and associated each other, that all aspects of works are plan organize, coordinate, control and management Legitimately are the guarantee of success. In the process of building the Huangling Mining 2 × 300MW power plant, through the use of the electricity project management system, preparation office, supervision, design, construction, and other units gather into a platform. The major event, the document marking, project, contract management, material supply, acceptance settlement integrate information platform. Preparatory Office can control of the project's funding, schedule, quality, safety In every moment. it can easily coordinated, Controlled, and managed works.

Introduction

With the development of the national economy and people's living standard continues to improve, demand for electricity is increasing in Society, that Improved the speed of construction of thermal power plant project and build the Power plant high quality and efficiency are very important to Promote the development of the electric power industry. [1] The infrastructure phase of the power plant is a very special period, not only the construction period is very long but also a very large number of related departments and personnel are contained. During this period.

Project funds are invested numerously, a lot of affairs appear, Inextricably link between project managers and construction unit and project supervision. Usually during this period these cases can cause a large amount of information. For example the message of budget information, cash flow information, the contract is signed and the implementation of information and the progress of the project information, material information, equipment information, etc. these information are important, complex, complicated. How can grasp and utilize these information correctly and promptly, We integrate the various pieces of information together, and handling and processing. So that the information becomes centralize and transparent. To the policy-maker provides essential, rich decision information, provides a good information management to the superintendent. [2-3]

Project background

Huangling mining industry group limited liability company 2×300MW low heat value resources-comprehensive utilization power plant is a key project in accordance with the scientific concept of development thinking. It build a resource-saving enterprise, developments recycling economy, extends the industrial chain, expands the corporate economy of scale.

Power Plant is located in Xiyu Village Shuanglong Town Huangling County, Project investment 30 billion yuan. the fuels that The project needs are the gangue and coal sludge and coal, These fuels come from the Huangling mining industry No. 2 coal mine coal dressing plant. After the completion of the 2 × 300MW LHV resources comprehensive utilization of power plant engineering, it will become a strong power of support points in the Yan'an south electrical network. and Generate 40 billion kWh of power per year, Annual output value will reach 15 billion yuan. It is energy-saving, environmentally friendly, clean, efficient recycling economy project.

We estimate that about 2.7 million tons low heat value coal gangue, middlings and slime are consumed per year, and that the environment are Cleaned up. The project will bring significant social, economic and environmental benefits for us.

The overall system design of electricity project management

A The Goal of Construction

The system learns from the international state-of-the-art project management concepts, Preparation, office supervision, design, construction, and other units are concentrated to a platform. The information highway for Participation units is build. The major events of the project, document marking project investment completed, drawings, design, supervision, contract management, material supply, acceptance settlement, and other content are involved. Preparatory Office can control over the project funding, schedule, quality, safety at the real-time.

All aspects of work are coordinated, controlled and managed in the process of power plant construction. The system improves the efficiency, Standardizes management processes, Reduces management costs, enhance the quality of personnel and technological innovation capacity of the power plant, Improve the level of plant management.

B The design conceptions

The nine knowledge of system and the five basic process about project management and are the theoretical basis of the system. executive system of the project is the basis of practice. the system uses advanced project management techniques, brings about Association management to core elements of Project management. The system that Software tools as a carrier, that Integrate of standard methods of the implementation system of the project management, that Maturity of Project Management is diagnosed through the evaluation system of project management, continue to improve the level of enterprise project management.

C The overall architecture

System frame construction is shown in Fig. 1.

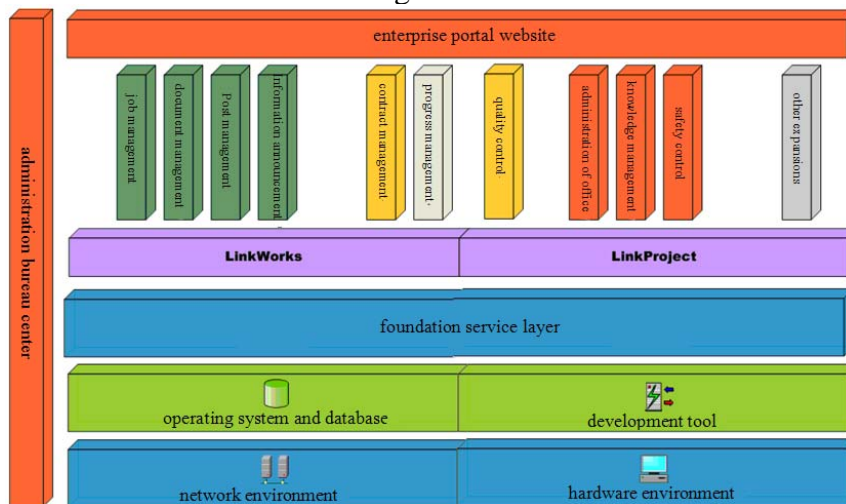


Figure 1. System frame construction chart

The system is a n-layer architecture software platform, Including service layer, communication level and application layer.

The service layer The service layer mainly realizes the functions in three aspects. First it realizes with the connection of operating system and database, next it is responsible for the global administration of basic data (E.g. organizational structure data and authority list data, etc.), finally Simultaneously controls and dispatches the operations of various subsystems

The communication level that is based on service layer is a stable and highly effective communications platform. It provides open CORBA standard and it makes each software subsystem interconnect in network to realizes the instant messenger the ability.

The service layer and communication level same place constitutes a software slot construction, they Provides the authorization service, the CA safety certificate service and the flow service news service foundation. The uniformity and integrity of critical data obtained the guarantee, thus all

sorts of issues has been avoided that subsystem independent operation.

The application layer is a software slot, it establishes on the software slot construction by service layer and communication level constitution. So long as the application software conforms to the standard of slot, it can realize the administration bureau and data sharing.

The management system adopts the design idea of software bus, it has realized the software slot-type open structure, on this basis, the application of joint operation and project management are build.[4-6]

The main function of system

In the system, authorized personnel of Owners, supervision, design units, construction units can land system and work together, the information, documents, data are transferred and shared. The main function of system is as follows:

1) Comprehensive information issue

The system uses the Internet/Intranet technology, in the intranet of project department, the information issue system was established, it Provides various information services for user by means of the standard Internet browser. The information issue system Including owner information, overseeing information, design information and construction information four big columns can glance over and issue the information.

2) Project document management

Because the project documents are the process information record that participates in all parties communicating, therefore it holds the important position in the management. This module including two parts, separately is the documents circulation management and documents document management.

3) Job management

In the job management function, works among various departments and personnel are assigned and coordinated, staff personally work task reasonable was arranged and processed. It has the following major function: Work summary and Role management (schedule), Address book and so on.

4) Progress management

The progress schedule of project must manage according to rank, through level-to-level administration of plan, not only makes the entire project achieve the master plan and coordination, but also reduce consumer's risk in the progress.

5) Contract Management

The contract fund management is the core of contract management function, in the entire life cycle of project contract, contract signing, the contract execution, the alteration of contract, the contract payment, the contract settlement as well as the contract reminded are managed scientifically and Normatively. It can realize according to various means statistics contract, checks the operational practice of contract. Finally, achieves the network management of contract comprehensive and entire process to construct grade, examination, filing-up, classification, change and other aspects.

Applied Effect

The electric power project management system construction is the systems engineering of synthesis many science and technology, the application technique and managerial technique. Its implementation goal is to realize the information sharing in the four communities of project department more preferably, to rationally assign the resources, to raises the working efficiency, to control cost and Increases the profit income.[7-8]

The system had considered strictly the progress, resources, expense project and other key aspects, have realized to the forecast of progress of work stage existing problem, comprehensive coordinated engineering construction progress. Generally, the time is 18 months, through optimized relations between time and resources, and uses the frontline adjustment construction schedule, shortening the time 20%.

So far,the project has saved the work material expense 400,000 Yuan,and Reduced approximately 20 project management personnel.If a person receives 80,000 Yuan every year,the construction department will saves the fund about 1.56 million Yuan.

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