



Research on Personnel Training Strategy of Large-scale Hydropower Centralized Control Center in New Era

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ABSTRACT

In the final analysis, the competition of economy, science and technology and comprehensive national strength in the world is the competition of talents. As an important energy supply base for national development, large hydropower centralized control center's healthy and lasting development is related to all aspects of national economic construction and comprehensive strength improvement. If you want to stand out from the fierce competition, you should first optimize human resource management. Human resources are the strategic resources of modern enterprises. Based on the characteristics and importance of large hydropower centralized control center, talent training and development is the key factor to realize intrinsically safe power station management.

Keywords: *Large Hydropower Centralized Control Center, Talent Training and Development, Intrinsic Safety.*

I. INTRODUCTION

With the substantial improvement of the performance and reliability of power generation equipment, the use of advanced information integration technology, the introduction of scientific computer management and dispatching system, the increasing power grid transmission and distribution network and the substantial increase of system reserve capacity, the remote centralized control center of cascade hydropower stations came into being, fully releasing the labor productivity, and building a "remote centralized control center, reservoir optimal dispatching center and power real-time marketing center" of hydropower stations, and "urban hydropower" also turned from a dream into a reality. As the direct participants in power production, operation, maintenance and repair, the personnel of centralized control center are responsible for the complex tasks of safety measures implementation, daily equipment monitoring, emergency treatment of abnormal equipment, external (dispatching) communication and internal work coordination. Mistakes in any aspect may bury hidden dangers for accidents and even cause adverse consequences. Therefore, the production personnel are the foundation and key to do a good job in safe production and suppress accidents, which is of vital significance to the safe and effective development of all production tasks.

II. RESEARCH METHOD

Challenges faced by personnel training of large-scale hydropower centralized control center in the new era Due to the sustained slowdown of power demand growth and the deepening of power market reform, the profitability of hydropower enterprises has been weakened, putting pressure on their operation. The production personnel of large-scale hydropower centralized control center don't go to the site to know and be familiar with the equipment, and the training focuses on the dispatching business. Some centralized control operators have short working years, incomplete field equipment mastery and lack of experience, and they often fail to make up their minds and ask for instructions from leaders when on duty, which makes it difficult to perform their duties. At the same time, the gap of salary levels in all walks of life has narrowed, and the competitive advantage of salary of hydropower enterprises has obviously decreased, resulting in the loss of a large number of key employees. The talent training, reserve and talent echelon construction of hydropower enterprises are facing a series of challenges, mainly including the following aspects:

2.1 Employees' motivation to learn is insufficient.

On the one hand, the production posts assume higher responsibility for production safety, but the salary is lower than that of non-production posts, resulting in unreasonable salary gap between production posts and non-production posts; The salary standard of some middle managers is twice or even higher than that of team leaders; General production posts are divided into primary, intermediate and senior posts, and each post is divided into five

blocks, while middle management and above managers are graded at any level. This kind of exploitation of bottom-level employees and unreasonable salary distribution severely hit the enthusiasm of employees for work and study, which is not conducive to safe production of enterprises. On the other hand, employees' promotion channels are narrow, old employees are burnout, some old employees' career promotion space has been basically capped, and their learning initiative and enthusiasm are insufficient.

2.2 The attractiveness of enterprise training methods is not enough.

Enterprise training has not kept pace with the times and lacks innovation. Some enterprises still adopt traditional training methods, such as centralized internal teaching, mentoring, help and guidance. The training methods are too single, mechanical and inflexible. At the same time, the planning of training is not strong, the training resources are scattered, and there is a lack of systematic training, so it is difficult to effectively develop the potential of personnel.

2.3 The pertinence of enterprise training is not strong.

The lack of preparatory work for training in enterprises, the lack of systematic analysis of personnel skill level and needs, and the lack of understanding of what employees need to be trained, led to a mere formality of training, with too much cramming and firefighting training to meet the actual needs of employees, which was not closely integrated with the actual production and operation of enterprises, and could not provide guidance for employees' daily work and life.

2.4 The structure of the workforce is younger, and the employees' thoughts are diversified.

The personnel structure of hydropower enterprises is characterized by youthfulness and knowledge, relatively lack of work experience, and relatively low proportion of high-skilled and professional talents. For example, young and middle-aged employees under 35 years old in a hydropower enterprise account for 89%; 88% of employees have worked for less than 10 years; Employees with bachelor degree or above account for 73%. In addition, the new generation of employees generally have good family conditions, unique, quick thinking, fashionable and diversified group characteristics, and more emphasis on self-worth, which undoubtedly brings new challenges to the traditional human resources training and development.

III. RESULTS AND DISCUSSION

Thoughts on the construction of talent training and development system for large-scale hydropower centralized control center in the new era Large-scale hydropower centralized control center should implement the strategic requirements of "strengthening enterprises with talents", closely combine the characteristics of each stage of preparation, airport pick-up and operation, and take "serving the development of centralized control center and employees themselves, striving to build five core competencies of centralized control operation, equipment maintenance, technological innovation, team building and standard setting" as the goal, and work out the human resources training and development plan and annual employee training plan, so as to achieve all employees' skills up to standard and certificates. Each major has at least 1-2 leading talents who have mastered the core technology. The business skills and work efficiency of employees in key positions have reached the advanced level of the industry, and the overall strength and use efficiency of the staff are at the advanced level of the enterprise.

3.1 Human resources training and development planning

Large-scale hydropower centralized control center should closely combine development strategy, fully consider factors such as production management mode and regional characteristics, aim at creating "learning" and "service-oriented", carry out training throughout the whole process of employees' career development, vigorously carry out training programs with management and job skills training as the core, accelerate the cultivation of professional leading talents and knowledge-based and skilled employees, and gradually form a training and development system with its own characteristics; At the same time, optimize post management, establish a talent evaluation system that pays attention to performance, step-by-step training and step-by-step promotion, maximize the potential of employees and realize the common growth of employees and enterprises.

3.2 Training of human resources and development of infrastructure

Establish and improve the organization of human resources training and development according to the needs of large-scale and high-intensity power generation tasks; Improve the staff training management system and optimize the workflow of organization management, fund management, plan implementation and effect evaluation; Fully evaluate internal human resources, establish a team of internal trainers and technical experts through scientific evaluation methods, and standardize management to maximize efficiency; Strengthen the construction of training and development software and hardware, establish a comprehensive and systematic database of human resources, training materials and professional question banks, and provide all-round and multi-level training platform for employees through the development and construction of online learning and examination system, online learning forum, multimedia classroom and technician training room.

3.3 Implementation and effect evaluation of human resources training and development.

Human resource training and development activities in enterprises usually include three links: training needs analysis and planning, training activities organization and implementation, and training effect evaluation. According to the annual work priorities and the needs of employees' career development, the training objectives are determined. With the training policy of "combining all-staff training with focus improvement, combining self-training with imparting

training, and combining on-the-job training with special training", employees are organized to actively participate, and meanwhile, process supervision and assessment are strengthened. The training effect is evaluated by discussion, investigation, assessment, evaluation by employing department and performance assessment in the later stage, and the training quality is improved, employees' participation interest is increased and training cost is reduced through improvement measures.

Talent training and development management practice of large-scale hydropower centralized control center in the new era. According to the situation and challenges faced by personnel training of large-scale hydropower centralized control center in the new era, combined with the present situation of personnel structure and industry characteristics of centralized control center, it is necessary to clarify the general direction of personnel training and development, strengthen the top-level design of personnel training, establish a training management system with clear responsibilities and efficient operation, build a learning-oriented and service-oriented enterprise, continuously improve the talent capital, provide firm talent guarantee and support for enterprises, and pay attention to the training and development measures for all-round development of employees:

3.4 Establish an incentive training management mechanism, make precise efforts, and fully mobilize the enthusiasm and initiative of personnel in learning.

Establish a scientific and reasonable salary management system. Performance management must rely on job analysis and job evaluation, and must be closely linked with the salary system. Determine the scientific performance evaluation system, supervise and improve the performance management system, and make the performance management system gradually mature and improve its level. At present, no matter whether it is social general post, professional post or management post, enterprises are all unified salary models. From the perspective of future development, its wage structure should also develop in the direction of differentiation. According to the two-factor theory, the salary structure should be divided into fixed part and floating part, and the difference of salary structure can be reflected by setting different ratios of fixed salary and floating salary and job promotion incentive mechanism.

For hydropower enterprises, technical talents and managerial talents are their core employees. Enterprises should set up different development spaces and development channels according to different development directions and ways of all kinds of talents, and "people and posts are matched, and posts are suitable for people". The participation rate of all kinds of training and the results of daily training examinations are directly related to job promotion, job competition and skill promotion, and the contents of all kinds of training are directly incorporated into the evaluation contents of job promotion, job competition and skill promotion, so as to improve the staff's awareness.

"Chief expert" incentive mechanism. Establish an "expert database" among the internal staff of the enterprise, select a group of high-quality scientific research talents and high-skilled talents who have long been rooted in the front line of scientific research and skill operation positions, have high skill level, good professional ethics and rich practical experience, and are recognized by the industry, and be appraised and hired as the "chief experts" of their major, and give attractive salary incentives to expand the growth and development channels of professional and technical talents.

Employee qualification incentive mechanism. Encourage personnel to actively participate in the continuing education and vocational training related to their own work, give corresponding rewards to those who have obtained more and higher qualifications than their own posts, and impose corresponding penalties on those who have obtained but failed to obtain their own post qualifications, so as to promote the continuous improvement of their professional and technical abilities, and connect with society and industry.

Incentive mechanism of evaluation and evaluation first. Set up a special "learning pacesetter" selection in the enterprise's evaluation and evaluation incentive content, and make great progress in professional technology through diligent study during the year. At the same time, take the initiative to undertake training obligations within the enterprise, actively carry out internal training, and select the personnel who impart professional knowledge as "learning pacesetters", award honors and give economic rewards, and play a leading role in demonstration by selecting typical trees.

3.5 Build diversified training management platform, intensive resources, and actively expand the scientific and overall nature of personnel training.

Online platform for talent training, learning and development. Establish a management platform for personnel training and learning within the enterprise, realize the integration of training resources, have the functions of online learning, examination and evaluation, upload and share the training resources such as laws, regulations, management systems and professional knowledge needed for business skills training in the management platform, so that enterprise personnel can learn and self-evaluate anytime, anywhere, and improve learning efficiency.

Simulator training platform. Establish the simulator operating system of centralized control operators with high correlation with daily work and high degree of simulation, formulate the management system of simulation training, and clarify the responsibilities, objectives, plans, training duration and coaching team of simulation training. Make use of study time and spare time to regularly carry out simulation operation training, and carry out effect inspection and evaluation, so as to improve the operation level and emergency response ability of centralized control operators.

Practical operation base platform. Establish practical training rooms for the major of equipment repair and maintenance in hydropower enterprises such as electrical primary, electrical secondary, relay protection and machinery, clarify the requirements for the duration of annual practical training, increase the practical participation of equipment repair and maintenance personnel, continuously improve their proficiency in equipment structure, principle and repair process, and enhance their hands-on ability. Trainer team platform. Select enterprise internal trainers, and implement dynamic management, encourage personnel to share knowledge and skills, and create a learning culture atmosphere for

inheriting knowledge. At the same time, a talent tutor training mechanism should be established, and mentors should be identified among experts, skilled masters, "chief experts", middle-level cadres, professional and technical leaders, and business and technical backbone teams within the enterprise, so as to effectively train talents at all levels.

Hierarchical curriculum system platform. Build a training curriculum outline, curriculum system and training standards with exclusive characteristics of talents, gradually form a normalized training curriculum system for leaders, middle-level cadres, young talents, professional and technical talents, new recruits and other types of talents, and implement standardized training to enhance the suitability of training. In view of the characteristics of large proportion of young employees and strong learning ability, the power plant actively explores ways for young employees to become talents. In the work, we take part in the research of key work and the preparation of important meetings. Promotion and other forms of training; Give full play to the advantages of technical experts' skills, and lead young employees to improve their skills through mentors and apprentices; Increase the participation of young employees in the construction, effectively reduce the training cost, and master the equipment management ability in advance.

3.6 Implement all-round training management measures, teach students in accordance with their aptitude, and effectively improve the pertinence and effectiveness of personnel training.

Organize employee skill competition. Organize employee skill competition within the enterprise, which covers all types of work, promotes learning through examination, and encourages employees to base themselves on their own duties, study technology and become talents.

Carry out all-round duty training for centralized control operators. Focusing on the centralized control operators, we will train and study the professional knowledge of hydraulic turbine attendant, automation, machinery, etc., and evaluate the learning effect, so as to ensure that the personnel are proficient and realize all-round duty.

Carry out practical ability training for maintenance personnel. Carry out practical training of maintenance standardization according to the specialty, improve the hands-on ability of maintenance personnel, comprehensively enhance the professional technical ability of personnel, and provide a strong guarantee for setting roles A and B for posts.

Carry out the training of "one specialty and many skills" for functional managers. Organize the post mutual learning plan within each functional management department, establish a multi-level and open training system, realize the "one specialization and multiple abilities" of functional management personnel, and carry out systematic and comprehensive post training, laying the foundation for the internal training of each department and the rotation of each post within the enterprise.

IV. CONCLUSIONS

Large-scale hydropower centralized control center is the development trend of hydropower in cascade basins from decentralized control to centralized control in recent years, so as to realize the optimal operation of hydropower integration. All power generation groups are vigorously developing remote centralized control construction projects in their own basin hydropower development combined with their own actual situation. In terms of personnel training, enterprises need to further change their ideas, raise awareness, actively change and innovate. Large-scale hydropower centralized control center should establish talent reserve system, vigorously implement the strategy of "strengthening enterprises with talents", strengthen the top-level design of talent training, create a dynamic, efficient and more open talent development environment, formulate and implement talent training plan, build a first-class talent team, and finally promote the smooth realization of the goal of improving quality and efficiency of large-scale hydropower centralized control center.

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