



# Practical Experience of Optimizing Talent Management System in State-Owned Enterprises

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**Abstract.** Talent resource is the most precious resource, and talent advantage is the most fundamental advantage. Talent management in state-owned enterprises is helpful to accelerate the transformation of "the first resource" of talents into "the first advantage". Based on the principles of typicality and popularization, this paper sorts out the practice of China Nuclear Power Engineering Co., Ltd. and China General Nuclear Power Group, and provides practical reference and experience enlightenment for the optimization of talent management system in state-owned enterprises.

**Keywords:** Talent management, System optimization, Practical experience.

## 1 Introduction

In the new era, strengthening the construction of talent management system in state-owned enterprises and establishing an outstanding talent team with "dedication to patriotism and courage to innovate and create" is an important guarantee for supporting the reform and development of state-owned enterprises, making them stronger and better, and expanding state-owned capital<sup>[1]</sup>. It is also the political mission and responsibility of state-owned enterprises to practice the strategy of strengthening the country through talents. The talent management of state-owned enterprises should follow the laws of market and enterprise development, closely focus on the strategic goal of state-owned enterprises' reform and development, actively and boldly explore, improve and form an attractive and internationally competitive talent system, constantly improve the system and mechanism of talent development, increase the intensity of market-oriented selection and employment, and implement a more open and flexible talent policy; Formulate a flexible and easy-to-use talent introduction policy, do a good job in the training of classified talents and echelon construction, implement effective incentive measures, increase the intensity of market-oriented incentives, and maximize the motivation and passion of all kinds of talent officers to start businesses. Vigorously create a cultural atmosphere for entrepreneurs, and support the realization of the goal of building state-owned enterprises into world-class enterprises with the actual results of talent work<sup>[2]</sup>.

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## 2 China Nuclear Power Engineering Co., Ltd.: Building a Systematic Talent Development System

China Nuclear Power Engineering Co., Ltd. is the general contractor with R&D and design of nuclear engineering as the leader, which integrates all functions of R&D, planning, design, general contracting, nuclear power plant operation support service and project supervision. It is the largest comprehensive nuclear power overall research and design unit in China. The company's main business areas involve pre-project planning, project consultation, engineering design, environmental assessment, project evaluation, general contracting, equipment procurement, material ordering, construction management, commissioning, project supervision, bidding agency and personnel training.

(1) Build a "one core" six-story double-tower talent echelon system.

Based on the talent ability level, CNNC has built a pyramid-shaped talent pool covering six levels of "sharp, refined, high, medium, young and few", and pushed forward the identification and selection of outstanding talents and the cultivation of core backbone. On this basis, we will establish a talent pool at all levels as a backup object for training, that is, the "sub-tower" of talent support, and build a "six-storey and double-tower" target talent echelon. By combining the personnel tags of talents with different fields and levels, the location of the main tower of different talents is judged, and the update and change of personnel tag attributes are considered, so as to finally realize the dynamic update of the pyramid-shaped talent pool.

(2) Create a "five-dimensional system" to support the lift together.

Based on the "six-story and two-tower" talent echelon, CNNC has established a reserve training system, a talent carrying system, a talent evaluation system, a salary incentive system and an institutional system covering four major fields, and promoted the construction of a five-dimensional talent development support system with systematic thinking and standardization concepts.

Guided talent development as the core drive, supporting the company's core talent backup training system. Implement the mechanism of "one person, one policy", sort out 35 scientific and technological talents in the talent pool of "six-story twin towers", clarify the conditions for recommending and reporting their awards, papers, patents and other indicators, and help cultivate people to set short-term and long-term goals according to their own conditions. Relying on the core scientific research of major projects, a "full chain" talent bearing system covering basic frontiers, applied research and major task areas is formed, which is suitable for talents of different ages, levels and types.

Adhere to both introducing talents and cultivating talents, and give consideration to the coordinated development of basic talents and applied talents, forming a win-win situation for both companies and talents. Complete the optimization scheme of the company's chief experts, scientific and technological leaders and professional leaders, emphasize the combination of post setting and major scientific research projects of the company, and adopt the mechanism of "revealing the list and taking the lead" to solve the most urgent scientific research problems. Guided by innovation value, individual ability and organizational contribution, an objective and diversified talent evaluation

system is established. We should change the practice of simply taking academic qualifications, papers, patents and the amount of funds as the criteria for talent evaluation, and solve the problem of unilaterally benchmarking salary and resource allocation with talent "hats".

From the ability development, work performance, team recognition, personnel training and other multi-dimensional classification evaluation. With the vision of improving the quality of talents and forming a strong competitiveness of the company, we will implement a differentiated incentive system that conforms to the objective laws of engineering and scientific research. Build a salary incentive system based on value contribution, further increase subsidies and incentives for key scientific research, technical backbones at all levels of major projects, project backbones and business backbones, and realize more scientific incentive distribution.

Take refined management as an opportunity to establish an institutional system that runs through all aspects of talent work. Establish a dynamic talent pool selection mechanism based on ability and contribution, a talent pool lift training system with precise application at different levels, a talent pool exit mechanism with assessment of actual contribution as the core, an incentive mechanism suitable for talent development level and training objectives, a talent pool team support mechanism that plays a leading role, and a talent pool information update mechanism that is continuously optimized and updated. Release the company's talent development program as a top-level system document to solidify the talent development system<sup>[3]</sup>.

### (3) Focus on the cultivation of key talents in "two special topics"

In the face of the unprecedented changes in the past century, it has become an irresistible trend to speed up the cultivation of young talents with global vision and high-level international talents. CNNC boldly uses young talents and encourages them to take the lead and play the leading role. By recommending and applying for the "Young Talents Program" of the group company, we will select an appropriate proportion of young talents in scientific and technological posts and project posts as part-time young scientific and technological assistants, assistant to the general manager of the project and joint training between schools and enterprises, so as to continuously improve the abilities of young talents in all aspects, so that they can be fully supported in the critical period of becoming talents and release their innovative energy. China National Nuclear Engineering aims to cultivate international talents by developing international projects. Through the exchange and cooperation with international organizations such as ITER International Science Project and Pakistan Karachi Nuclear Power Overseas Project, the whole chain training of expatriate project personnel, domestic support personnel, overseas local personnel and related engineering design and project management personnel will be realized. Adhere to the training policy of being based on actual combat, keeping close to business and highlighting practical results, and use a few years to cultivate a group of talents with overseas engineering experience, international exchange and cooperation experience, and international market development vision and ability, which can support the company's internationalization strategy implementation and business development.

### (4) Promote the coordinated development of the "four major fields" talent team.

As the only nuclear power engineering general contracting company of China National Nuclear Corporation, CNNC covers four business modules: scientific and technological innovation, project management, engineering technology and operation management. Based on the framework of "six-storey twin towers", the company focuses on the construction of scientific and technological talent teams and promotes the development of talent teams in four major fields.

First, continue to build a team of high-level scientific and technological innovation talents. Build a high-level R&D design platform, strengthen the post experience of major projects, follow the law of scientific and technological innovation and the law of talent growth, and steadily improve the level of the company's scientific and technological innovation talent team with the goal of stimulating the innovation vitality of scientific and technological talents.

The second is to improve the formation of high-efficiency project management talent team. Cultivate a team of project management talents covering the whole process of nuclear power and nuclear chemical projects, and continuously improve the general contracting ability of projects.

The third is to continuously optimize the team of high-skilled engineering and technical personnel. Fully support the company's technical services to implement the vertical integration strategy in the field of nuclear engineering, build a team of engineering and technical personnel in the whole cycle of procurement, commissioning, operation and maintenance, accelerate the digital transformation and upgrading of smart nuclear power, and build a professional platform with small core and large collaboration.

The fourth is to speed up the training of high-standard management talents. Improve the management concept of management talents, strengthen the positive role of connecting the preceding with the following, and cultivate multi-level, high-quality and professional management talents by means of external secondment and internal rotation exchange.

With the solid implementation of the "1-5-2-4" talent development system, China National Nuclear Engineering Corporation (CNNC) has continuously built the competitive advantage of talents, providing solid talent support for building an innovative model technology research and development highland and a strong modern nuclear engineering industrial chain, and accelerating the construction of a comprehensive international first-class nuclear energy engineering company with advanced R&D and innovation capabilities.

### **3 China General Nuclear Power Group: Building a Talent Management System with Nuclear Power Science and Technology Talents as the Core**

China General Nuclear Power Group (hereinafter referred to as "CGNPC"), formerly China Guangdong Nuclear Power Group, headquartered in Shenzhen, Guangdong Province, is a central enterprise that has gradually grown up with China's reform and opening up and the development of nuclear power industry. With the mission of "de-

veloping clean energy and benefiting human society", CGNPC has built a 6+1 industrial system after more than 40 years of development, and its business has covered nuclear energy, nuclear fuel, new energy, non-power nuclear technology, digitalization, scientific and technological environmental protection, industrial finance and other fields. CGNPC attaches great importance to the research and development of nuclear power-related technologies, and has built a talent management system covering talent training, talent incentive and talent guarantee with nuclear power science and technology talents as the core.

(1) To pay attention to project training and form an echelon talent training path.

Focusing on the construction of talent system, CGNPC has implemented three major projects, namely, the training of technical and technical personnel, the training of scientific research personnel and the training of functional personnel, among which the training of technical skills and scientific research personnel is the core. The training of technical skills and scientific research personnel is mainly based on nuclear power operation projects, and the training of scientific and technological personnel is realized through different types of projects by adopting the project-based team operation mode. Under the project system, the responsibility of cultivating scientific and technological talents is fully compacted to the general manager of the project and transmitted to the commander-in-chief of each major and special project. In addition, chief experts are set up at the group level, and each chief expert is explicitly required to train a reserve scientific and technological talent. These reserve scientific and technological talents come from different member units and form an echelon of scientific and technological talents within the member units.

(2) To strengthen the welfare of talents and give adequate protection to scientific and technological talents.

In terms of salary and treatment, the treatment of scientific research sequence will be higher than that of other positions such as functional sequence at the same level, especially the chief expert (including the chief commander of strategic projects), whose salary and welfare treatment are the same as those of managers at the same level. In terms of housing security, we can provide housing for high-level talents in Shenzhen or provide housing subsidies. In terms of medical education guarantee, the medical treatment of high-level scientific and technological talents refers to the treatment of managers, and the company can provide medical support for them, in addition to assisting in the education and enrollment of children of relevant talents<sup>[4]</sup>.

(3) To organically combine short-term and long-term incentives, and constantly improve the incentive system.

CGNPC has established a short-term and medium-term incentive system based on researchers. In the short term, based on the post, technical incentives, including research grants, are given to scientific researchers, which are closely linked to project implementation and are usually paid during the project implementation period. In the short term, incentive awards for tackling key problems have been set up, such as the autonomy of key R&D projects and the strategic projects of the Group. Every year, according to the research and development progress of the project, it will be issued after review. In the medium and long term, the Group has established and implemented the medium and long-term incentive measures for scientific and technological talents

covering the "1+8" rules. In the "1+8" project, equity incentives include equity incentives for listed companies, equity incentives for technology-based enterprises and virtual equity dividends for employees. The scope of equity incentives includes not only managers and high-level technical posts, but also researchers and leading talents. In terms of post dividends and project income dividends, Suzhou Institute and Design Institute have recorded post dividends, and at the same time, some major research projects have also formulated incentive schemes for project income dividends; In terms of scientific and technological honor, a patent gold award has been set up, and special incentives can be given to international standards that can expand the influence of the group by participating in or leading the formulation<sup>[5]</sup>.

## 4 Conclusion

The high-quality development of state-owned enterprises cannot be achieved without strong talent support, strengthening the construction of talent team, introducing more high-quality and compound talents into enterprises, rationally allocating talent structure, ensuring the scientific and rational construction of talent team, giving full play to talent advantages and ensuring the sustainable and high-quality development of state-owned enterprises<sup>[6]</sup>. By optimizing the talent management system can break the traditional employment mechanism and introduce competition mechanism. Through scientific talent management, it can reduce the waste of human resources, help realize the rational allocation of human resources, improve management efficiency and stimulate the internal vitality of enterprises. By establishing modern enterprise system and optimizing talent management system, the governance level of state-owned enterprises can be improved. It is helpful for state-owned enterprises to attract and retain innovative talents, promote technological innovation and management innovation, promote the renewal and iteration of internal knowledge and maintain the competitiveness of enterprises.

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