

Thoughts and Suggestions on the Development of Coal Industry Association Standards

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Abstract. based on the analysis of the mine intelligent development based on requirements and association standards, this paper introduces the domestic and foreign associations' standards development and the status quo, put forward the orientation precision, to strengthen the construction of informatization, good standard quality and speed relations, fully arouse the enthusiasm of enterprises, to deal with advanced and universal relations 5 coal industry standard development.

Keywords: Coal; Association standard; Development; advice.

1. Introduction

The intelligent transformation of coal mines is an inevitable trend for the sustained and healthy development of the coal industry. It is important to achieve the goals of reducing personnel while enhancing safety and efficiency in coal mining and promoting a low-carbon transition in energy production. Since 2020, the National Energy Administration, in collaboration with the National Development and Reform Commission, Ministry of Education, Ministry of Science and Technology, Ministry of Industry and Information Technology, Ministry of Finance, Ministry of Emergency Management, and the National Mine Safety Administration, has issued the "Guiding Opinions on Accelerating the Development of Intelligent Coal Mines." This initiative aims to establish a coordinated mechanism for the intelligent development of coal mines to enhance coal supply capacity. By focusing on demonstration projects, it seeks to improve systems while advancing work efforts, leading to a comprehensive rollout of intelligent construction in coal mining. Despite beneficial attempts and explorations by local governments and coal enterprises to enhance safety and efficiency through intelligent means, numerous challenges remain in the development process. Issues such as research and development lagging behind enterprise needs, a lack of technical standards and regulations for intelligent construction, missing intelligent standards, and inadequate research and development platforms severely constrain progress in the intelligent coal mining industry.

In recent years, intelligent construction in coal mining has developed rapidly, with new products and technologies continuously emerging. However, existing national and industry standards do not meet the evolving demands of the sector. The association standards formulated by China Coal Industry Association, China Coal Society and other major social organizations within the coal industry have effectively solved these shortcomings in national and industrial standards. These association standards can stimulate market vitality within the coal sector, enhance the structure of standard supply, improve overall competitiveness in the coal industry, and promote low-carbon and sustainable development within the intelligent coal mining sector.

2. Development Recommendations of Association Standards in the Coal Industry

In recent years, under the guidance of national policies, the work on association standards has developed rapidly, and the number of association standards has reached a certain scale. This progress has significantly enhanced product value and promoted industry advancement. The development of

association standards within the coal industry has also made initial strides. As of January 28, 2022, data from a press conference held by the National Energy Administration indicated that 12 association standards related to coal mine intelligence had been issued, with nearly 100 additional association standards in project initiation. However, the development of association standards in the coal industry is still in its infancy and faces challenges such as inadequate regulatory systems, market environments, and standard frameworks. While the pace of development is slow, it is believed that through market competition and elimination, association standards that do not meet market demands will gradually be phased out, leading to a shift toward greener, low-carbon, and environmentally friendly standards in the coal sector. The development of association standards in this industry will be a lengthy process; thus, from the perspective of standardization management personnel, several recommendations for advancing association standards in the coal industry are proposed.

2.1. Accurate Positioning

The government strongly encourages industry associations, academic societies, chambers of commerce, and other social organizations with standard organization and management capabilities to develop and revise association standards based on market demands and technological innovations. Social organizations should coordinate relevant market entities according to these demands while allowing the market to select association standards based on their practicality and urgency to ensure an effective supply of valid standards. Currently, there are no administrative approvals required for initiating projects or revising and publishing association standards in China; instead, reliance on fundamental market principles allows for natural selection throughout the entire lifecycle of these standards. Association standards is different significantly from government-led standards; national and industry standards organized by government bodies primarily adhere to two basic principles: maintaining essential safety and providing a safety net. In contrast, association standards can not only ensure basic safety performance but also enhance core competitiveness while.

The association standardization within the coal industry should leverage the advantages of association standards by closely aligning with market demands and user needs in the field. This requires rapid response and follow-up actions to collaboratively establish association standards across the entire industry. Such efforts will serve as beneficial supplements to national and industry standards while improving the standards and enhancing the overall standard system's vitality within the coal sector. For emerging technological areas such as coal mine robotics and 5G applications where corresponding national or industry standards do not yet exist, timely intervention is necessary to harness innovation through giving full play to the innovation of association standards that formulate group standards in time to meet the needs of market development. In cases where existing relative technical indicators are deemed unreasonable, it is essential to utilize association standards' advanced nature to promptly establish relevant supplementary technical conditions. Additionally, when multiple related standards exist for a single topic making selection challenging, it is vital to use association standards' coordinating capability to develop timely material selection specifications.

2.2. Strengthening Information Technology Infrastructure

The principles, procedures, and methods for revising association standards in the coal industry are fundamentally consistent with those for national and industry standards; they also require soliciting opinions from peers within the same sector and addressing dissenting views seriously. However, there remains a significant gap in information technology management related to standardization. This gap manifests in two main areas:

1. The relative backwardness of standard information technology infrastructure, while national and industry standards have established comprehensive information management systems for standard revision processes that facilitate online meetings, expert voting, as well as collection and processing of opinions—the coal industry's standard revision management system has yet to be established. Consequently, tasks such as standard solicitation, review, and management rely on other internet platforms which complicate standard management.

2. The high level of expertise required for reviewing standards due to their involvement across various technical fields, including mine construction, mining equipment, coal quality assessment, and new materials—has resulted in an insufficient number of participating technical experts involved in standard formulation or revision processes. Therefore, it is crucial to enhance expert database construction efforts by recruiting more professionals from both within the coal sector as well as other relevant technical fields to participate in the formulation and revision of coal industry group standards.

2.3. Balancing Quality with Speed for Association Standard

In the process of revising or formulating new standards, there exists an inherent contradiction between speed and quality. To ensure high-quality outcomes during this process requires thorough preliminary work such as extensive market research and testing key technical indicators before engaging production enterprises, inspection agencies, certification bodies, and users in extensive technical discussions to create a draft solicitation document for feedback. Often this necessitates additional validation tests or feedback from field usage scenarios before widely soliciting opinions across the industry for further revisions. Typically speaking, developing or revising a standard can be a slow process that generally takes 2-3 years. However, due to optimized procedures driven by market forces within coal industry association standards, alongside increased work efficiency, the time required for formulating or revising these regulations can be reduced (usually around one year). Although these measures enhance speed, it is unfavorable for the healthy development of group standards to overemphasize the speed of standard preparation and revision.

3. Conclusion

Advancing the development of association standards in the coal industry is a crucial task within the broader framework of standardization efforts in this sector. Although it is still in the initial stages of exploration, various supportive measures will continue to be refined to ensure the sustainable and healthy development of association standards in the coal industry. The market-oriented nature of these association standards emphasizes meeting enterprise development needs, fostering technological innovation, and facilitating technical upgrades, thereby playing a pivotal role in bridging existing standards within the coal industry. In the context of ongoing advancements in our country's standardization initiatives, association standards in the coal sector will effectively contribute to the overall standard system and make significant contributions to the intelligent development of coal mining.

References

- [1] ZHANG Jianming, CAO Wenjun, WANG Jingyang, YANG Yang. Research on information infrastructure standard system for intelligent coal mine [J]. China Coal, 2021, 47(11): 1-6.
- [2] WANG Guofa. Speeding up intelligent construction of coal mine and promoting high-quality development of coal industry [J]. China Coal, 2021, 47(01): 2-10.
- [3] TANG Enxian, LI Chuan. Research and thoughts on several key issues of intelligent coal mine construction [J]. China Coal, 2021, 47(10): 45-48.
- [4] Ren Zhenyu. China National Institute of Standardisation Promotes Quality Improvement with Advanced Standards [N]. CHINA CONSUMER NEWS. 2021-10-14 (002).
- [5] YU Jian-ding, LI Nan-yang, LU Xuan-qi, ZHOU Sha, ZHANG Qing, ZHOU Jia, SUN Zhuo. Association Standards Promote High-Quality Development of Manufacturing Industry—Take "Made in Zhejiang" Association Standard Practice in Xiaoshan District of Hangzhou as an Example [J]. China Standardization, 2021(12): 68-70.
- [6] WAN Yu-long, OU Hui-min, WEI Jing-qiong. Research on the Development Status and Countermeasures of Association Standards Based on the Data of National Association Standards Information Platform [J]. Standard Science, 2018(07): 73-77.

- [7] YANG Xiao-qin. Analysis of the Development Status and Suggestions of Association Standards [J]. China Standardization,2022(09):64-68+73.
- [8] Zeng Fan-wei, Guo Zhi-jia, Xu Ming-ze, Li Dong. Introduction to the Association Standard “Code for Design of Offshore and Offshore Explosion Hazardous Electrical Equipment”[J]. Electric Explosion Protection,2022(01):10-12.
- [9] YI Yanlin, LI Tieyou, WANG Wanpeng, LIAO Cuilin, XU Hongquan. Status quo and the development of Association standards of hydropower equipment of China [J]. Water Resources Development Research,2022,22(02):66-70.DOI:10.13928/j.cnki.wrdr.2022.02.012.