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Research on the Strategic Conception and Realization Path of the Construction of ' Western Hydrogen Energy Financial Trading Center ' in Chengdu-Chongqing Economic Zone

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Abstract: Against the dual backdrop of the deepening global energy transition and the rigid constraints of the "Dual Carbon" goals, hydrogen energy, as a clean, efficient, storable, and transportable secondary energy source, has become a core strategic pivot for ensuring national energy security and driving industrial upgrading. The Chengdu-Chongqing Economic Zone, leveraging its solid foundation for regional coordination, leading hydrogen energy industry layout, and policy dividends from building a Western Financial Center, possesses unique endowments and realistic conditions for jointly establishing a Western Hydrogen Energy Financial Trading Center. Based on theories of regional economic synergy, financial center formation, futures market functions, and electricity-hydrogen synergy, this paper systematically deconstructs the internal logic of deep integration between the hydrogen energy industry and financial markets, and comprehensively demonstrates the strategic value and feasibility of building such a center in the Chengdu-Chongqing Economic Zone. Research indicates that establishing a Western Hydrogen Energy Financial Trading Center can effectively address the developmental constraint of lacking a financial hub in the Chengdu-Chongqing region. By adopting a futures exchange model to build a trinity trading system encompassing "spot-forward-futures," it can foster a virtuous cycle of financial capital aggregation and hydrogen energy industry upgrading, truly realizing the core essence of finance serving the real economy. Furthermore, this paper proposes practical and forward-looking construction pathways from four dimensions: innovative trading product design, establishment of a multi-tiered market structure, construction of cross-regional coordination mechanisms, and improvement of a full-chain financial ecosystem. It aims to provide solid theoretical support and systematic practical guidance for the Chengdu-Chongqing region to become a national highland for hydrogen energy financial innovation and contribute to the new pattern of Western Development.

Keywords: Chengdu-Chongqing Economic Zone; Hydrogen Energy Industry; Financial Trading Center; Futures Market; Regional Synergy; Dual Carbon Goals

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1. Introduction

1.1 Research Background

1.1.1 The Prominent Strategic Position of Hydrogen Energy in the Global Energy Competition Landscape

In today's world, energy security has transcended mere supply assurance to become a key component of national core

competitiveness, with clean, low-carbon, and diversified development becoming an irreversible trend in global energy. The explosive growth of emerging industries like artificial intelligence and the digital economy has created exponential demand for computing power, the stability and sustainability of which fundamentally depend on the innovation and upgrading of the energy system. The latest "Global Carbon Budget" report released under the UNFCCC shows that the global carbon neutrality process has entered a critical phase, creating an urgent and pressing need to replace traditional fossil fuels. Hydrogen energy, as a secondary energy source with high energy density, zero-emission combustion, and diverse application scenarios, can not only effectively link the consumption and storage of intermittent renewable energy like wind and solar, solving structural challenges such as insufficient grid absorption capacity and cross-regional transmission bottlenecks, but also play an irreplaceable role in industrial decarbonization, heavy-duty transportation, and distributed energy storage. It has become a strategic high ground in global energy competition (Lei, 2025).

Against this backdrop, major global economies have incorporated the hydrogen energy industry into their national top-level strategies. The EU released its "Hydrogen Strategy", explicitly setting targets of 10 million tons of green hydrogen production capacity by 2030 and a pan-European hydrogen network by 2050. The US, through the "Infrastructure Investment and Jobs Act", allocated $7 billion specifically for building regional hydrogen hubs to construct a full hydrogen industry chain ecosystem. China, in its "14th Five-Year Plan for a Modern Energy System", clearly listed hydrogen energy as a strategic emerging industry, proposing to "build a hydrogen energy industry innovation ecosystem and promote the demonstration and application of hydrogen energy in transportation, industrial manufacturing, distributed energy, and other fields," aiming to build a full industry chain system covering "production-storage-transportation-utilization." The scaled development of the hydrogen energy industry is no longer merely a technological breakthrough issue but also requires comprehensive support from financial markets. As a core platform for resource allocation, the construction of a financial trading center will directly determine a country's pricing power and discourse power in the global hydrogen industry.

1.1.2 Concurrent Opportunities and Structural Bottlenecks in China's Hydrogen Energy Industry Development

Currently, China's hydrogen energy industry has transitioned from the technology R&D phase to the initial industrialization phase, making significant progress in production capacity scale, technological breakthroughs, and demonstration applications. By the end of 2024, China's annual hydrogen production reached 4.1 million tons, accounting for over 30% of global production, with industrial by-product hydrogen constituting about 80%. Green hydrogen capacity is expanding rapidly at an average annual growth rate exceeding 50%, and wind-solar hydrogen production demonstration projects have covered 12 provinces and regions including Inner Mongolia, Xinjiang, and Sichuan (Zhang & Lei, 2024). Regarding application scenarios, the demonstration and application of hydrogen energy in transportation are gradually scaling up. Over 350 hydrogen refueling stations have been built nationwide, and the number of hydrogen fuel cell vehicles in operation has exceeded 12,000, forming four major demonstration clusters in Beijing-Tianjin-Hebei, Yangtze River Delta, Pearl River Delta, and Chengdu-Chongqing.

However, the scaled development of China's hydrogen energy industry still faces three major structural bottlenecks. First, constraints in storage and transportation technologies: high-pressure gaseous storage and transportation entail high costs and energy consumption, liquid storage and transportation impose stringent requirements on technology and equipment, and new storage and transportation technologies like liquid organic hydrogen carriers and solid-state hydrogen storage are still in the early stages of industrialization, yet to achieve scaled application (Lei, 2025). Second, imperfect market mechanisms: hydrogen pricing lacks a market-based mechanism, with current prices heavily influenced by multiple factors such as industrial by-product hydrogen supply, policy subsidies, and transportation distance, leading to severe volatility and unstable expectations for upstream and downstream enterprises. Third, an inadequate financial support system: existing financial services mainly concentrate on traditional models like bank credit and government industrial funds, lacking specialized risk management tools such as futures and options. The capital aggregation effect has not yet formed, making it difficult to meet the high-investment, long-cycle, high-risk financing needs of the hydrogen energy industry. Particularly regarding financial trading platform construction, China has not yet established a national hydrogen trading market, hindering the industry's transition from demonstration applications to scaled development.

1.1.3 The Strategic Positioning and Developmental Imperatives of the Chengdu-Chongqing Economic Zone

The Chengdu-Chongqing Economic Circle, as a crucial strategic pivot in China's new "Dual Circulation" development pattern, serves as the core engine for the New Western Development Strategy in the new era and a vital growth pole for high-quality development. The "Chengdu-Chongqing Economic Circle Construction Plan Outline" explicitly states that "promoting the construction of the Chengdu-Chongqing Economic Circle is a major measure for building a new development pattern with domestic circulation as the mainstay and domestic and international circulations reinforcing each other." Jointly building a Western Financial Center is one of the core tasks in constructing the Chengdu-Chongqing Economic Circle (Liu, 2024). The Chengdu-Chongqing Economic Zone possesses unique endowment advantages in hydrogen energy industry development. Specifically: Firstly, Sichuan Province holds 23% of China's hydropower resources, 19% of wind energy resources, and 22% of solar energy resources, providing ample clean energy assurance for green hydrogen production. Secondly, Chongqing, as a traditional industrial base, produces over 300,000 tons of industrial by-product hydrogen annually with a purity exceeding 99.9%, providing low-cost hydrogen source support for the initial development of the hydrogen industry. Currently, the two regions have formed the embryo of a full hydrogen industry chain covering "production-storage-transportation-utilization" and are at the national forefront in areas such as wind-solar hydrogen production, fuel cells, and hydrogen refueling station construction.

However, compared to national financial centers like Beijing, Shanghai, and Shenzhen, the Chengdu-Chongqing region consistently lacks an influential financial trading hub. The existing financial market still relies heavily on bank credit and equity investment, with direct financing instruments like futures and bonds lagging. This limits the region's capacity to mobilize financial capital and the efficiency of resource allocation, failing to meet the demands of regional industrial upgrading and high-quality development (Feng et al., 2025). With the deepening implementation of the "Chengdu-Chongqing Economic Zone Regional Plan", cross-provincial cooperation mechanisms between Sichuan and Chongqing are continuously improving, effectively internalizing the spillover effects generated by regional competition, laying a solid institutional foundation for building a financial trading center (Feng et al., 2025). In this context, jointly building a Western Hydrogen Energy Financial Trading Center becomes an inevitable choice for the Chengdu-Chongqing region to overcome financial development bottlenecks, seize the strategic high ground in the hydrogen energy industry, and serve national energy security and the "Dual Carbon" goals.

1.2 Research Significance

1.2.1 Theoretical Significance

The theoretical contributions of this paper are mainly reflected in three aspects. First, it enriches the theoretical system of regional financial center construction by building a "industrial foundation-financial support-regional synergy-institutional guarantee" quadripartite theoretical framework for specialized financial trading centers. This breaks through the traditional focus on comprehensive financial functions in financial center research, providing a new analytical perspective for building cross-regional specialized financial trading platforms. Second, it expands the application boundaries of futures market functions by integrating the price discovery, risk hedging, and resource allocation functions of futures markets with the technical characteristics and development patterns of the hydrogen energy industry, enriching the theoretical connotation of new energy finance and providing theoretical support for the deep integration of emerging industries and financial markets. Third, it deepens the practical application of electricity-hydrogen synergy theory by exploring how financial markets can promote the scaled development of electricity-hydrogen synergy models through functions like capital allocation and risk mitigation, constructing a theoretical analytical framework for "technology-industry-finance" co-evolution.

1.2.2 Practical Significance

At the practical level, this research holds significant real-world value. First, it provides a feasible pathway for the Chengdu-Chongqing region to jointly build a Western Financial Center. Establishing a Hydrogen Energy Financial Trading Center would fill the gap in regional financial trading platforms, enhancing the status and influence of the Chengdu-Chongqing region in the national financial landscape. Second, it facilitates the high-quality development of the hydrogen energy industry. A market-based pricing mechanism would form hydrogen prices reflecting real supply-demand relationships,

providing specialized risk management tools for upstream and downstream enterprises to reduce operational risks, while simultaneously guiding social capital towards the hydrogen industry to solve financing difficulties. Third, it serves national strategy implementation by providing financial support for the new pattern of Western Development. Promoting the scaled development of the hydrogen energy industry aids in achieving the "Dual Carbon" goals and ensuring national energy security, fostering synergistic development between the regional economy and the ecological environment.

1.3 Research Content and Technical Route

1.3.1 Research Content

The core research content of this paper consists of three parts. First, systematically reviewing the development status of the hydrogen energy industry and financial trading markets, clarifying the technical characteristics, development trends, and financial demands of the hydrogen industry to build the theoretical foundation for the research. Second, comprehensively demonstrating the feasibility of building a Western Hydrogen Energy Financial Trading Center in the Chengdu-Chongqing Economic Zone from four dimensions: strategic significance, policy support, industrial foundation, and financial potential, clarifying its necessity and realistic conditions. Third, designing the construction framework for the Hydrogen Energy Financial Trading Center, including innovative trading product design, the establishment of a multi-tiered market structure, the construction of cross-regional coordination mechanisms, and the improvement of a full-chain financial ecosystem.

1.3.2 Technical Route

This paper adopts a logical approach of "theoretical review-feasibility analysis-pathway design." First, through the literature research method, it systematically reviews relevant theories such as regional economic synergy, financial center formation, futures market functions, and electricity-hydrogen synergy to construct the theoretical framework. Second, using the comparative research method, it compares experiences and lessons from domestic and international hydrogen energy financial markets and regional financial center construction to provide reference for the Chengdu-Chongqing region. Third, combining the actual situation of the Chengdu-Chongqing Economic Zone, it employs a combination of qualitative and quantitative analysis. By analyzing data such as regional hydrogen industry scale, total financial resources, and policy support intensity, it demonstrates the feasibility of construction and designs specific implementation pathways.

2. Literature Review

2.1 Research on Hydrogen Energy Industry Development

Foreign scholars started research on the hydrogen energy industry relatively early, focusing on technology R&D, industrialization pathways, and policy support. The IEA's (2023) "Hydrogen Outlook 2023" report indicates that hydrogen energy has irreplaceable advantages in industrial decarbonization, heavy-duty transport, and long-haul transportation, and its scaled development requires synergistic advancement of technological innovation, policy support, and infrastructure construction (IEA, 2023). Saeed et al. (2024), through empirical studies of major global hydrogen demonstration projects, show that the electricity-hydrogen synergy model can effectively increase the absorption rate of renewable energy and reduce the carbon emission intensity of the energy system, representing a core pathway to a zero-carbon energy system. Additionally, foreign scholars have conducted in-depth research on hydrogen storage and transportation technologies, fuel cell technologies, etc., providing theoretical support for technological breakthroughs in the hydrogen industry (Saeed et al., 2024).

Domestic scholars focus on industrial policy, regional layout, and technological innovation. Based on electricity-hydrogen synergy theory, Lei Xianzhang et al. (2025) propose the development principle of "prioritizing electricity, using electricity where possible, and hydrogen where suitable," considering liquid organic hydrogen carrier technology as a key path to solving hydrogen storage and transportation challenges, with the next 5 to 10 years being a critical phase for the maturation of the electricity-hydrogen synergy model (Lei, 2025). Zhang Changling and Lei Xianzhang (2024), from the dimensions of improving industrial policy and strengthening support measures, propose pathway suggestions for China's hydrogen industry development, emphasizing the important role of financial support in the industry's scaled development (Zhang & Lei, 2024). Research by Xie Feng et al. (2025) on methanol fuel cell technology indicates that the diverse application scenarios of hydrogen provide broad space for industry development, with different types of methanol fuel cells having their own

advantages in different application scenarios, suggesting optimization of technical routes based on application needs (Xie et al., 2025). Existing research has clarified the strategic value and development pathways of the hydrogen industry, but studies on the financial support system are relatively weak, especially lacking systematic exploration of hydrogen energy financial trading platform construction, failing to effectively bridge the technical demands of the hydrogen industry and the functional supply of financial markets.

2.2 Research on Regional Financial Center Construction

Research on regional financial center construction mainly revolves around formation conditions, development models, and economic effects. Kindleberger (1974), in "The Formation of Financial Centers: A Study in Comparative Economic History", proposed that the core function of a financial center is cross-temporal and spatial resource allocation, and its formation requires favorable location advantages, a strong industrial base, well-developed financial infrastructure, and a liberal institutional environment (Kindleberger, 1974). Porteous (1995), from the perspective of information asymmetry, argued that the formation of financial centers results from information aggregation and enhanced processing efficiency; the clustering of financial institutions can reduce information asymmetry, lower transaction costs, and improve resource allocation efficiency (Porteous, 1995).

Domestic scholars have conducted extensive empirical research on China's regional financial center construction. Liu Jun (2024) pointed out that jointly building a Western Financial Center in Chengdu-Chongqing is an important arrangement related to promoting regional coordinated development and building a new development pattern with domestic and international circulations reinforcing each other, and regional legislative synergy is key to breaking administrative barriers and realizing the free flow of financial resources (Liu, 2024). Feng Guoqiang et al. (2025), using the synthetic control method and taking the "Chengdu-Chongqing Economic Zone Regional Plan" as a quasi-natural experiment, empirically showed that cross-provincial regional development planning can effectively promote regional economic growth. The mechanism lies in mitigating the negative effects of regional competition through regional synergy and market integration, internalizing the spillover effects of regional competition (Feng et al., 2025). Huang Guanghong (2025) proposed that Chongqing should enhance the internationalization level of the Western Financial Center by playing the "international card" and strengthening connectivity with international financial markets. Existing research has confirmed the importance of regional synergy, industrial base, and institutional environment for financial center construction, but has not yet involved the construction of specialized financial trading centers in the new energy sector (Huang, 2025). Discussions on the feasibility, construction pathways, and coordination mechanisms for cross-regional joint construction of specialized financial trading platforms are insufficient.

2.3 Research on Futures Markets and New Energy Finance

Research on the application of futures markets in the new energy field mainly concentrates on carbon futures and new energy raw material futures. Deng Xiying (2025) designed contract terms for carbon emission allowance futures products using Hubei carbon quotas as the underlying asset, including core elements such as trading unit, delivery method, and quotation unit. The study argued that launching carbon futures could effectively expand carbon trading volume, enhance market liquidity, and through the price discovery function, provide strong support for China to gain pricing power in the international carbon trading market (Deng, 2025). Jiang Jianmei (2024), based on the actual situation of China's national carbon emission trading market, deeply explored carbon futures contract design and pricing research. Using the expectation theory pricing model combined with the ARIMA-GARCH model, a pricing formula for national carbon emission allowance futures products was derived, and a scientifically reasonable pricing scheme was obtained with the aid of Monte Carlo simulation techniques (Jiang, 2024).

Li Liu (2025), from the perspective of dynamic margins, designed carbon futures contracts suitable for the Chinese carbon market. Using the SPAN system to estimate market volatility and calculate Value at Risk (VaR), a dynamic margin mechanism was constructed, providing technical support for futures contract design (Li, 2025). Shang Wenqing (2024), through the case study of the Tsingshan nickel price surge incident, emphasized the importance of improving rules in the commodity futures market, providing references for optimizing trading mechanisms (Shang, 2024). Existing research has

accumulated experience in designing new energy futures products and building market structures, but research on building futures trading centers specifically for hydrogen energy—a unique energy product—remains a blank. It has failed to propose systematic construction plans by combining the technical characteristics of the hydrogen industry (e.g., difficult storage/transportation, high purity requirements) with the realistic needs of regional development.

2.4 Literature Review Summary

In summary, existing research has yielded rich results from the three dimensions of hydrogen energy industry, regional financial centers, and new energy futures, but there are still three main shortcomings: First, research perspectives are fragmented, lacking systematic studies that combine the technical characteristics of the hydrogen industry, the institutional advantages of regional synergy, and the functional positioning of financial trading platforms. An analytical framework for "technology-industry-finance-region" co-evolution has not been constructed. Second, research content tends to focus on a single field, with insufficient discussion on key issues such as the feasibility, construction pathways, and coordination mechanisms for cross-regional joint construction of specialized hydrogen energy financial trading centers, especially targeted research combining the actual conditions of specific regions (e.g., the Chengdu-Chongqing Economic Zone). Third, research methods lean towards theoretical analysis or single case studies, lacking comprehensive consideration of multiple factors such as regional industrial foundation, financial resources, and policy environment, resulting in proposed schemes with limited practicality.

This paper aims to address the above research gaps. Taking the Chengdu-Chongqing Economic Zone as the research object, it systematically analyzes the internal logic of deep integration between the hydrogen energy industry and financial markets, comprehensively demonstrates the strategic significance and practical feasibility of cross-regional joint construction of a hydrogen energy financial trading center, and designs practical and forward-looking construction pathways to provide references for related policy formulation and practical operations.

3. Theoretical Foundation

3.1 Regional Economic Synergy Theory

Regional economic synergy theory originates from the synergetics of systems science. Its core proposition is that a regional economic system is a complex system composed of multiple interrelated and interacting subsystems (e.g., industrial, financial, infrastructure subsystems). Through coordination, complementarity, and advantage-sharing among subsystems, the overall efficiency of the system can be maximized (Hagerstrand, 1968). This theory emphasizes that the key to regional synergy lies in breaking administrative barriers, promoting the free flow and optimal allocation of production factors (capital, technology, talent, data, etc.), and forming regional development synergy.

In China's regional development practice, cross-provincial economic zone construction is an important vehicle for achieving regional synergy. Empirical research by Feng Guoqiang et al. (2025) shows that the "Chengdu-Chongqing Economic Zone Regional Plan" effectively promoted economic growth in Sichuan and Chongqing through mechanisms such as market integration, resource sharing, and industrial collaboration, with a more pronounced promoting effect on Chongqing's economic growth than Sichuan's (Feng et al., 2025). This research confirms that cross-provincial cooperation can effectively internalize the spillover effects generated by regional competition, reduce competitive internal friction, and form synergistic development forces. Regional economic synergy theory provides important theoretical support for the joint construction of a Western Hydrogen Energy Financial Trading Center in the Chengdu-Chongqing Economic Zone: Sichuan and Chongqing have complementary strengths in hydrogen industry, financial resources, and policy environment. Through close cooperation in policy formulation, infrastructure construction, and regulatory coordination, regional financial resources and hydrogen industry resources can be effectively integrated, achieving a "1+1>2" synergistic effect and promoting the rapid establishment and healthy development of the Hydrogen Energy Financial Trading Center.

3.2 Financial Center Formation Theory

Financial center formation theory posits that the formation of a financial center results from the combined effects of multiple factors including location advantages, industrial base, financial infrastructure, and institutional environment (Kindleberger, 1974). Kindleberger proposed that financial centers have agglomeration and scale effects, attracting elements such as

financial institutions, talent, and capital, thereby reducing transaction costs, improving information transmission efficiency, and enhancing resource allocation efficiency. Porteous's (1995) information asymmetry theory further points out that the clustering of financial institutions can reduce information asymmetry, improve the efficiency and security of financial transactions, thereby attracting more financial activities to concentrate in the region (Porteous, 1995).

Combining China's financial center construction practice, the formation of a financial center requires three core conditions: First, strong industrial support, as industrial development generates substantial financial demand, providing abundant trading underlying assets and funding needs for financial markets. Second, well-developed financial infrastructure, including trading platforms, payment and clearing systems, credit reporting systems, etc., which form the foundation for normal financial market operations. Third, a favorable institutional environment, including policy support, regulatory systems, legal safeguards, etc., which can provide stable expectations for financial institution operations and financial transaction execution (Liu, 2024). The Chengdu-Chongqing Economic Zone, as the region with the largest economic aggregate and strongest industrial base in Western China, possesses the industrial support and location advantages for building a financial center. The construction of a Hydrogen Energy Financial Trading Center will fill the gap in financial infrastructure in the Chengdu-Chongqing region, improve the regional financial ecosystem, promote the aggregation of financial resources towards the hydrogen industry, and thereby enhance the region's position in the national financial landscape.

3.3 Futures Market Function Theory

The core functions of futures markets include price discovery, risk hedging, and resource allocation (Fama, 1970; Hull, 2018). The price discovery function refers to the formation of equilibrium prices reflecting real market supply and demand through open, fair, and efficient trading mechanisms where market participants trade based on their judgments of market supply-demand relationships, providing pricing references for the spot market (Fama, 1970). The risk hedging function allows market participants to transfer price fluctuation risks to speculators willing to bear them through hedging transactions, thereby stabilizing business expectations and reducing operational risks (Hull, 2018). The resource allocation function guides social capital towards advantaged industries and high-quality enterprises through price signals, optimizing resource allocation efficiency.

In the new energy field, the functions of futures markets are fully evident. Deng Xiying (2025) noted that launching carbon futures can effectively enhance carbon market liquidity, form price signals reflecting the external cost of carbon emissions through price discovery, and strengthen China's pricing power in international carbon trading (Deng, 2025). The institutional design and functional realization of futures markets provide a mature paradigm for building a Hydrogen Energy Financial Trading Center, offering the hydrogen industry a market-based pricing mechanism and resource allocation channel to promote its scaled development.

3.4 Electricity-Hydrogen Synergy Theory

Electricity-hydrogen synergy theory is a core theory for hydrogen energy industry development. Its central proposition is that by establishing a bidirectional coupling "electricity-hydrogen" energy utilization model, integrating renewable energy like wind and solar with hydrogen technology, a complete green energy ecosystem can be formed, enhancing the flexibility, stability, and sustainability of the energy system (Lei, 2025). This theory proposes the basic principle of "prioritizing electricity, using electricity where possible, and hydrogen where suitable," emphasizing the expansion of green hydrogen application scenarios and the R&D and application of liquid organic hydrogen carrier technology.

Electricity-hydrogen synergy theory provides technical pathway support for the scaled development of the hydrogen industry: On one hand, renewable energy power generation from sources like wind and solar is intermittent and fluctuating; direct grid integration can cause grid instability. Converting surplus electricity into hydrogen for storage through renewable energy-based hydrogen production can effectively solve grid absorption challenges. On the other hand, hydrogen storage, transportation, and application can extend the renewable energy industry chain, extending clean energy from the generation end to end-use energy consumption sectors like industry, transportation, and buildings, enhancing the decarbonization capability of the energy system (Lei, 2025). This theory indicates the technical feasibility of scaled hydrogen industry development. The construction of a financial trading center will provide funding support and market guarantees for promoting the electricity-

hydrogen synergy model, guiding capital through financial markets to promote the implementation of renewable energy hydrogen production projects and the industrial application of hydrogen storage and transportation technologies.

4. Feasibility Analysis of Jointly Building a Western Hydrogen Energy Financial Trading Center in the Chengdu-Chongqing Economic Zone

The construction of the western hydrogen energy financial trading center is not only of great significance to promote the sustainable economic development of Chengdu-Chongqing Economic Zone, but also of practical feasibility. This realistic feasibility is based on the rational judgment of the Chengdu-Chongqing Economic Zone at the four levels of strategy, policy, industry and finance.

4.1 Strategic Alignment: Resonating with National Energy Security and Regional Development Strategies

4.1.1 Seizing the High Ground in Global Hydrogen Industry Competition

As a core component of the future energy system, the construction of a financial trading center for hydrogen will directly determine a country's pricing power and discourse power in the global hydrogen industry. Currently, the global hydrogen market is still in its early development stage, lacking a unified pricing mechanism and trading platform, which provides an important window of opportunity for China to seize strategic initiative. Taking the lead in building a Western Hydrogen Energy Financial Trading Center in the Chengdu-Chongqing Economic Zone can attract global hydrogen industry resources (including technology, capital, talent, projects, etc.) to agglomerate in the region, forming a hydrogen pricing system and trading rules dominated by China, enhancing China's core competitiveness in global energy competition, and providing strong guarantees for national energy security.

4.1.2 Perfecting the Functional Layout of the Western Financial Center

The "Chengdu-Chongqing Economic Circle Construction Plan Outline"explicitly proposes to "jointly build a Western Financial Center," with financial trading centers being the core vehicle and important symbol of a financial center (Liu, 2024). Currently, China has formed three national financial centers in Beijing, Shanghai, and Shenzhen, with regional futures exchanges like Dalian, Zhengzhou, and Guangzhou having well-developed layouts, forming a nationwide financial trading network. However, the Chengdu-Chongqing region, as the area with the largest economic aggregate and strongest industrial base in Western China, consistently lacks an influential national financial trading platform. The existing financial market relies heavily on bank credit and equity investment, with direct financing instruments like futures and bonds lagging, severely limiting the region's capacity to mobilize financial capital and the efficiency of resource allocation (Feng et al., 2025). Building a Western Hydrogen Energy Financial Trading Center can fill this gap in the Chengdu-Chongqing region's financial trading hub, perfect the functional layout of the Western Financial Center, and enhance the region's status and influence in the national financial landscape.

4.1.3 Assisting in Achieving "Dual Carbon" Goals and Ensuring Energy Security

As a major global energy consumer and carbon emitter, China faces concurrent pressures of energy security and carbon reduction. The development of the hydrogen industry is a strategic pathway to ensure energy security and achieve the "Dual Carbon" goals (Zhang & Lei, 2024). The construction of a Western Hydrogen Energy Financial Trading Center can, through financial leverage, guide social capital to aggregate towards the hydrogen industry, promote the expansion of green hydrogen production capacity and the promotion of electricity-hydrogen synergy models, effectively reduce reliance on fossil fuels, and increase renewable energy absorption rates. Simultaneously, the scaled application of hydrogen can drive decarbonization in key sectors like industry and transportation, providing strong support for achieving national carbon reduction targets. Moreover, hydrogen resources in the Chengdu-Chongqing Economic Zone mainly come from renewables and industrial by-product hydrogen; developing the hydrogen industry can promote resource recycling, achieving synergistic progress in economic development and ecological protection.

4.2 Policy Support: National and Local Synergistic Efforts, Solid Institutional Guarantees

4.2.1 Continuous Release of National-Level Policy Dividends

In recent years, the state has intensively issued numerous policies supporting the hydrogen energy industry and regional

financial center construction, providing clear policy direction and institutional guarantees for building a Western Hydrogen Energy Financial Trading Center. Regarding the hydrogen industry, the "14th Five-Year Plan for a Modern Energy System" lists hydrogen energy as a strategic emerging industry, proposing to "build a hydrogen energy industry innovation ecosystem and promote the demonstration and application of hydrogen energy in transportation, industrial manufacturing, distributed energy, and other fields."The "Dual Carbon" Work Plan"explicitly proposes to orderly promote the development of the hydrogen energy industry and explore the application of green hydrogen in industry, transportation, and other fields." Regarding regional financial center construction, the "Chengdu-Chongqing Economic Circle Construction Plan Outline" explicitly supports jointly building a Western Financial Center in Chengdu-Chongqing, encouraging financial innovation and cross-regional synergy. The 2025 Central Economic Work Conference proposed to support the deep integration of new energy industries and financial markets, develop green finance, science and technology innovation finance, and promote industrial upgrading, providing policy basis for building a Hydrogen Energy Financial Trading Center.

4.2.2 Continuous Improvement of Local-Level Coordination Mechanisms

The governments of Sichuan and Chongqing attach great importance to the synergistic development of the hydrogen industry and finance, issuing a series of supporting policies and establishing sound coordination mechanisms. Sichuan Province issued the "Hydrogen Energy Industry Development Plan (2023-2027)", proposing to "build a hydrogen energy financial service system, support the establishment of hydrogen industry funds, and encourage financial institutions to innovate financial products and services." Chongqing released the "Western Financial Center Construction Action Plan (2023-2025)", listing "new energy financial innovation" as a key task, proposing to "support the construction of a hydrogen energy financial trading platform and promote the deep integration of the hydrogen industry and financial markets." Additionally, Sichuan and Chongqing have established the Chengdu-Chongqing Economic Circle Financial Synergistic Development Joint Conference System, making significant progress in policy coordination, market interconnection, regulatory coordination, and information sharing (Liu, 2024), providing a solid institutional foundation for jointly building the Hydrogen Energy Financial Trading Center.

4.3 Industrial Endowment: Embryonic Full Hydrogen Industry Chain Present, Strong Industrial Support

4.3.1 Significant Advantages in Energy Resource Endowments

The Chengdu-Chongqing Economic Zone possesses abundant renewable energy resources and industrial by-product hydrogen resources, providing ample hydrogen source guarantees for hydrogen industry development. Sichuan Province's theoretical hydropower potential reaches 143 million kW, ranking first nationally. Large hydropower stations like Baihetan and Wudongde have been built, providing ample clean energy for green hydrogen production. Wind energy resources are mainly distributed on the Western Sichuan Plateau, with developable capacity exceeding 30 million KW. Solar energy resources are relatively abundant in Western and Southern Sichuan, with annual irradiance reaching over 5000 MJ/m², possessing conditions for large-scale wind-solar hydrogen production. Chongqing, as a traditional industrial base, has well-developed steel, chemical, and other industries, producing over 300,000 tons of industrial by-product hydrogen annually with purity exceeding 99.9%, providing low-cost hydrogen source support for the initial development of the hydrogen industry.

4.3.2 Preliminary Formation of Full Industry Chain Layout

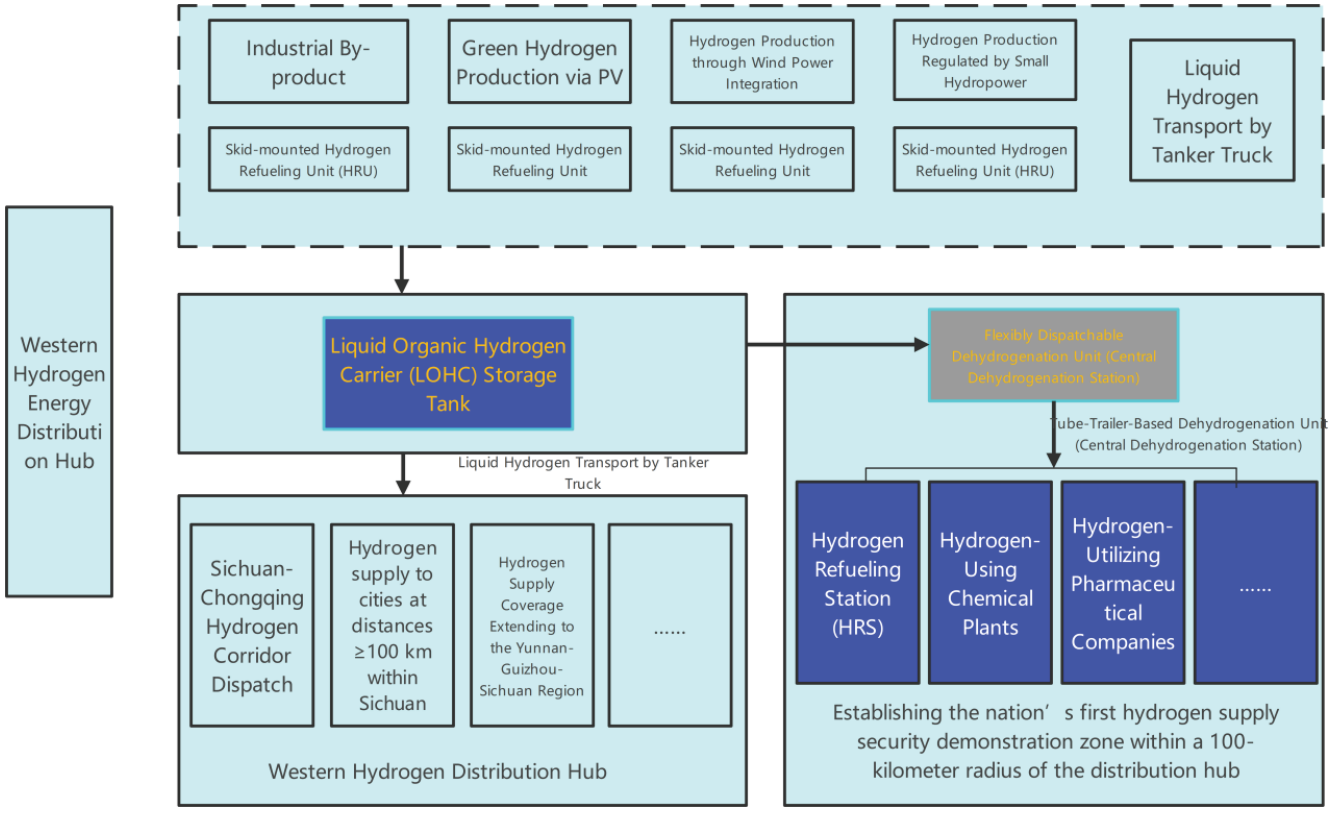
The Chengdu-Chongqing region has formed the embryo of a full hydrogen industry chain covering "production-storage-transportation-utilization," with a solid industrial foundation. In hydrogen production, enterprises like Sichuan Energy Investment and Chongqing Chemical & Pharmaceutical have established multiple wind-solar hydrogen production and industrial by-product hydrogen projects. Among them, the 500MW wind-solar hydrogen production project in Ganzi, Sichuan, is one of the largest green hydrogen production bases nationally, with an annual capacity of 20,000 tons. In storage and transportation, enterprises like Chongqing Qianwei Technology and Sichuan Academy of Aerospace Technology have made breakthroughs in high-pressure gaseous storage/transportation and liquid organic hydrogen carrier technologies, achieving scaled application. In fuel cells, enterprises like Chongqing Changan and Sichuan Hyundai have launched multiple hydrogen fuel cell vehicle models, with core components like fuel cell stacks and catalysts achieving localized production. In

applications, over 80 hydrogen refueling stations have been built in Chengdu and Chongqing, with the number of hydrogen fuel cell vehicles in operation exceeding 5,000, forming the nation's largest hydrogen demonstration application cluster.

4.3.3 Hydrogen Distribution Network Layout Aligns with Regional Development Needs

Lei Xianzhang proposed the concept of a "Western Hydrogen Distribution Center" in relevant reports, clarifying the overall layout of hydrogen supply, storage/transportation, and radiation, providing important guidance for cross-regional synergy in the Chengdu-Chongqing hydrogen industry. This concept covers core links including green hydrogen production (wind-solar hydrogen, industrial by-product hydrogen), storage/transportation systems (liquid truck transport, long-distance pipelines, hydrogen/oil storage tanks), radiation range (distant cities within Sichuan, Yunnan-Guizhou-Sichuan region), and application scenarios (hydrogenation industry, refueling stations, hydrogen-using enterprises), highly matching the hydrogen resource distribution and industrial layout of the Chengdu-Chongqing Economic Zone (see Figure 1).

Figure 1: Model Diagram of the Western Hydrogen Distribution Center (Lei, 2025)



This distribution network layout can effectively integrate hydrogen source resources and storage/transportation advantages in the Chengdu-Chongqing region, forming a closed-loop "production-storage/transportation-consumption" system. It provides a solid industrial vehicle for the Hydrogen Energy Financial Trading Center and lays the foundation for cross-regional hydrogen circulation and trading.

4.3.4 Strong Technological R&D Capabilities

The Chengdu-Chongqing region hosts numerous research institutions and universities, providing strong technological support for hydrogen industry development. Universities like Sichuan University and Chongqing University have established hydrogen energy research centers, undertaking multiple national key R&D programs in fuel cells, hydrogen production technologies, storage materials, etc. Research institutions like the Chengdu Institute of Organic Chemistry, Chinese Academy of Sciences, and Chongqing Materials Research Institute have achieved multiple patent results in key technologies like hydrogen storage materials and catalysts. The electricity-hydrogen synergy development pathway and Western Hydrogen Distribution Center concept proposed by Lei Xianzhang's team provide important technical guidance for the scaled development of the hydrogen industry (Lei Xianzhang, 2025). Additionally, the region has gathered a batch of innovative enterprises in the hydrogen field, forming a "university-research institution-enterprise" collaborative innovation technology

R&D system.

4.4 Financial Potential: Continuous Enhancement of Regional Financial Market Capacity, Sound Financial Ecosystem

4.4.1 Steady Growth in Total Financial Resources

In recent years, the financial market scale in the Chengdu-Chongqing region has continuously expanded, with total financial resources growing steadily, providing ample funding guarantees for building the Hydrogen Energy Financial Trading Center. By the end of 2024, the balance of domestic and foreign currency deposits of banking institutions in the region reached 25.6 trillion yuan, with the loan balance reaching 21.8 trillion yuan. Securities trading volume exceeded 120 trillion yuan, the number of equity investment institutions surpassed 1,500, with managed capital scale reaching 1.8 trillion yuan. The continuous growth of financial resources provides solid funding support for the construction and operation of the trading center and ample financing sources for hydrogen industry development.

4.4.2 Continuously Increasing Financial Innovation Vitality

The Chengdu-Chongqing region is at the national forefront in innovative practices in green finance, supply chain finance, sci-tech finance, etc., with continuously increasing financial innovation vitality. By the end of 2024, the balance of green credit in the region reached 3.2 trillion yuan, accounting for 14.7% of total loans. Green bond issuance reached 89 billion yuan, accounting for 8.3% of national issuance. National-level new areas like Chengdu Hi-tech Zone and Chongqing Liangjiang New Area have established hydrogen industry funds with total scale exceeding 20 billion yuan, providing full lifecycle financial support for hydrogen enterprises. Furthermore, financial institutions have innovatively launched financial products like hydrogen industry chain loans, financing leases, and intellectual property pledge loans, providing diversified financing channels for the hydrogen industry.

4.4.3 Increasingly Strong Market Demand

With the scaled development of the hydrogen industry, market demand for hydrogen financial services is becoming increasingly urgent. On one hand, hydrogen enterprises face high R&D investment and fixed asset investment, requiring diversified financing channel support. On the other hand, hydrogen prices are influenced by multiple factors like raw material prices, policy environment, and transportation distance, leading to severe fluctuations; upstream and downstream enterprises urgently need specialized risk management tools to hedge price risks. Estimates indicate that the hydrogen industry market scale in the Chengdu-Chongqing region reached 38 billion yuan in 2024 and is projected to exceed 200 billion yuan by 2030. The huge market scale provides solid demand support for building the trading center. Simultaneously, as a Western economic center, the Chengdu-Chongqing region's hydrogen market radiates to surrounding provinces like Yunnan, Guizhou, and Sichuan, providing broad market space for the trading center.

5. Construction Pathway for Jointly Building a Western Hydrogen Energy Financial Trading Center in the Chengdu-Chongqing Economic Zone

5.1 Trading Product Design: Building a Diversified and Differentiated Product System

5.1.1 Selection of Core Trading Underlying Assets

Drawing on design experience from new energy futures products like carbon emission allowance futures and lithium carbonate futures (Deng, 2025), and combining the technical characteristics and market demand of the hydrogen industry, the Western Hydrogen Energy Financial Trading Center should prioritize the selection of standardized, high-demand, significantly price-volatile hydrogen products as core trading underlying assets, specifically including:

1) Green Hydrogen: Using hydrogen produced from renewable energy (wind, solar, hydro, etc.) as the underlying asset, clarifying carbon footprint standards and certification systems for green hydrogen (e.g., lifecycle carbon intensity below 2 kg CO_2e/kg H_2) to meet green finance needs under "Dual Carbon" goals and attract environmentally-conscious enterprises and green investors.

2) Industrial By-product Hydrogen: Using hydrogen from steel, chemical, and other industries as the underlying asset, specifying quality standards like purity (e.g., above 99.9%) and impurity content, highlighting its cost advantage to serve initial market cultivation and meet demand for low-cost hydrogen sources from industrial users and the transportation sector.

3) Hydrogen Storage and Transportation Services: Using mainstream storage/transportation methods like liquid organic hydrogen carriers and high-pressure gaseous transport as underlying assets, standardizing elements like service price, transportation distance, and delivery time to address storage/transportation bottlenecks and promote cross-regional hydrogen circulation.

5.1.2 Futures Contract Terms Design

Futures contract terms should follow the principles of "standardization, operability, and risk controllability," fully considering the technical characteristics and market demand of the hydrogen industry. Specific term design is as follows:

1) Trading Unit: Set differentiated trading units based on application scenarios and market demand. For industrial users (e.g., chemical, steel enterprises), design large contracts of 10 tons/lot; for transportation sector users (e.g., hydrogen logistics companies, bus companies), design small contracts of 1 ton/lot to meet different user needs.

2) Delivery Method: Adopt a "physical delivery primary, cash delivery secondary" approach. Establish multiple delivery warehouses in the Chengdu-Chongqing region (e.g., in hydrogen industry clusters like Chengdu, Chongqing, Luzhou, Zigong), covering major production and consumption areas to facilitate physical delivery for enterprises. For trading varieties unsuitable for physical delivery (e.g., storage/transportation services), adopt cash delivery based on the delivery settlement price.

3) Quotation Unit: Use "yuan/kg" as the quotation unit. Referencing international hydrogen prices, domestic production costs, transportation costs, etc., set reasonable price fluctuation limits (e.g., daily price limits of ±5%) to balance market liquidity and trading stability.

4) Margin System: Introduce a dynamic margin mechanism (Li, 2025). Based on the SPAN system estimating market volatility and calculating Value at Risk (VaR), dynamically adjust margin ratios according to market fluctuations to balance capital usage and transaction security.

5) Delivery Months: Set monthly and quarterly delivery months. Monthly delivery meets short-term risk management needs; quarterly delivery meets long-term hedging needs, enhancing contract flexibility and applicability.

5.1.3 Derivative System Construction

Based on core futures products, gradually build a diversified derivative system to enrich trading varieties and meet different participant needs:

1) Hydrogen Options: Launch call and put options based on hydrogen futures, providing more flexible risk management tools for enterprises to hedge price risks according to their exposure.

2) Hydrogen Forward Contracts: Design customized forward contracts for large enterprises' long-term procurement needs, allowing parties to negotiate terms like price, delivery time, and location to lock in future hydrogen prices and stabilize business expectations.

3) Hydrogen ETFs: Issue Hydrogen Industry Exchange-Traded Funds (ETFs) tracking a hydrogen industry index, attracting ordinary investors to participate in hydrogen industry investment and enhancing market liquidity.

4) Carbon-Hydrogen Linked Products: Integrate with the carbon emission trading market to design linked financial products, e.g., "carbon allowance+green hydrogen" portfolio products, encouraging enterprises to reduce emissions and increase green hydrogen use for synergistic progress in carbon reduction and hydrogen industry development.

5.2 Market Structure Establishment: Building a Multi-tiered Market System with "Spot-Forward-Futures" Linkage

5.2.1 Market Tier Design

Drawing on construction experience from domestic mature futures exchanges like the Guangzhou Futures Exchange (Yang, 2024), build a multi-tiered hydrogen financial trading market system with a trinity of "spot market - forward market - futures market," where each tier complements and interacts with others:

1) Spot Market: Positioned as an immediate delivery market, providing standardized spot hydrogen trading services to meet short-term procurement needs. Its core function is forming market-based spot prices, providing a pricing basis for forward and futures markets. The trading center should establish a well-developed spot trading platform for electronic trading,

settlement, and delivery to reduce costs.

2) Forward Market: Positioned as a medium-to-short-term risk management market, providing 1-12 month forward trading services for enterprises. Its core function is helping enterprises lock in future prices and stabilize expectations. The center should formulate standardized forward contract templates while allowing parties some flexibility to negotiate terms, balancing standardization and customization.

3) Futures Market: Positioned as a long-term pricing and risk management market, launching standardized futures contracts. Its core functions are price discovery and risk hedging. Through open, fair, and efficient trading mechanisms, it forms equilibrium prices reflecting long-term supply-demand relationships, guiding social capital towards the hydrogen industry.

Linkage among the three tiers is achieved through arbitrage mechanisms: When spot and futures prices deviate, arbitrageurs conduct arbitrage trading between markets, bringing prices back to reasonable ranges and ensuring effective pricing. Simultaneously, the forward market acts as a bridge, smoothing price fluctuations and enhancing market stability and liquidity.

5.2.2 Participant Cultivation

Diversified participants are key to market activity. The trading center should attract various market entities including industry players, financial institutions, investors, and government/regulators to form a multi-tiered, diversified participation pattern:

1) Industry Players: Include hydrogen producers, storage/transportation companies, and end-users. Producers can lock in selling prices via futures to hedge against price declines; end-users can lock in purchase prices to hedge against increases; storage/transport firms can hedge transportation cost fluctuation risks.

2) Financial Institutions: Include commercial banks, securities companies, futures companies, insurers, etc. Banks can provide financing and settlement services; securities/futures firms can offer brokerage and risk management services; insurers can develop hydrogen-related insurance products (e.g., storage/transport liability, equipment damage insurance) to provide risk coverage.

3) Investors: Include public/private funds, Qualified Foreign Institutional Investors (QFII), and individual investors. Their participation enhances liquidity and aids price discovery. The center should strengthen investor education for rational investment.

4) Government & Regulators: Government departments encourage participation through policy guidance and funding support; regulators maintain order and ensure standardized operation through rule-making and enforcement.

5.2.3 Trading Mechanism Optimization

Adopt advanced trading mechanisms to enhance market efficiency and transparency, ensuring fairness, impartiality, and efficiency:

1) Trading Mode: Use electronic auction trading for fully electronic trading, reducing costs and improving efficiency. The platform must have robust technical support to handle large-scale concurrent trading with stability and security.

2) Matching Mechanism: Adopt a “price-time priority” matching mechanism to ensure fairness. Among orders meeting transaction conditions, the best-priced order executes first; for same price, the earliest-submitted order executes first.

3) Information Disclosure: Establish a well-developed information disclosure system specifying content, methods, timing, etc. The center should timely publish market info like production, inventory, demand, prices, as well as participant positions and transaction data, reducing information asymmetry and enhancing transparency.

4) Clearing & Settlement: Establish an independent clearinghouse using netting clearing to reduce counterparty risk. It should have a sound risk reserve fund system to cover losses in case of participant default, ensuring normal market operation.

5.3 Regional Coordination Mechanism: Building a Cross-Regional “Policy Synergy-Infrastructure Co-construction-Regulatory Linkage” System

5.3.1 Policy Synergy Mechanism

Drawing on experience from Chengdu-Chongqing Economic Circle financial synergy development (Liu, 2024), establish a cross-regional policy synergy mechanism to break administrative barriers and form policy synergy:

1) Establish a Joint Working Group: Composed of financial authorities from both sides (e.g., PBC Chengdu Branch,

Chongqing Office; CBIRC Sichuan & Chongqing bureaus; CSRC Sichuan & Chongqing bureaus), along with development & reform, energy, industry & information technology departments, to coordinate and advance the center's construction/operation and resolve major issues.

2) Unify Policy Standards: Formulate unified standards for market access, tax incentives, funding support, talent policies, etc., to avoid fragmentation. E.g., provide tax reductions for participating hydrogen enterprises, rental subsidies for settled institutions, and preferential settlement, housing policies for hydrogen finance professionals.

3) Share Policy Resources: Integrate policy resources like industrial funds and fiscal subsidies from both sides to jointly establish a Hydrogen Financial Innovation Fund supporting product innovation and market cultivation. Also, create a policy information sharing platform for timely release of local policies.

5.3.2 Infrastructure Co-construction

Strengthen co-construction and sharing of hydrogen industry and financial infrastructure in the Chengdu-Chongqing region to reduce costs and improve operational efficiency:

1) Co-build Hydrogen Storage/Transport Network: Jointly build cross-regional hydrogen pipeline networks and liquid organic hydrogen carrier storage bases, deeply aligning with the Western Hydrogen Distribution Center concept (Lei, 2025), forming a supply network covering Chengdu-Chongqing and radiating to Yunnan-Guizhou-Sichuan. Unify technical standards and safety norms for storage/transport to ensure smooth and safe cross-regional flow.

2) Share Financial Infrastructure: Share payment/clearing systems, credit reporting systems, financial regulatory platforms, etc., to achieve real-time fund clearing, interconnection of participant credit information, and sharing of regulatory data, lowering transaction and regulatory costs.

3) Delivery Warehouse Layout: Establish delivery warehouses in hydrogen industry clusters like Chengdu, Chongqing, Luzhou, Zigong, forming a region-wide delivery network. Warehouses should comply with national standards, have well-developed storage facilities, safety systems, and quality inspection equipment to ensure delivered commodity quality and safety.

5.3.3 Regulatory Linkage Mechanism

Establish a cross-regional regulatory linkage mechanism to maintain market order and ensure healthy development:

1) Unify Regulatory Standards: Follow the principle of "same market, same rules, same regulation" to formulate unified standards/rules, clarifying regulatory responsibilities and processes. Standards should cover market access, trading conduct, information disclosure, etc., ensuring comprehensiveness and effectiveness.

2) Information Sharing Platform: Establish a regulatory information sharing platform for real-time sharing and interconnection of regulatory data. Regulators can query participant transaction data, positions, fund flows, etc., to promptly identify potential issues.

3) Joint Enforcement Mechanism: Form joint enforcement teams for collaborative investigation and penalty of violations. Upon discovering market manipulation, insider trading, misrepresentation, etc., regulators from both sides should closely cooperate in investigation and penalties to maintain order.

4) Risk Warning Mechanism: Jointly establish market risk warning models using big data, AI, etc., to monitor price fluctuations, trading volume changes, fund flows in real-time, promptly identify and address potential problems. Issue risk warnings and take necessary measures to stabilize the market during anomalies.

5.4 Financial Ecosystem Improvement: Building a Full-Chain "Financing Support-Service Provision" Financial Ecosystem

5.4.1 Financing Support System

Provide full lifecycle financing support for the hydrogen industry to solve financing difficulties and promote upgrading:

1) Equity Financing: Encourage hydrogen enterprises to list on capital markets like Sci-Tech Innovation Board, ChiNext, Beijing Stock Exchange. Support cooperation between the trading center and these exchanges to provide listing guidance, roadshow services, etc. Also, support PE/VC funds to invest in hydrogen enterprises for equity financing.

2) Debt Financing: Support hydrogen enterprises in issuing green bonds, supply chain finance bonds, medium-term notes, etc.

Encourage banks to offer specialized loans with preferential rates and flexible terms. Encourage leasing companies to provide equipment financing lease services to ease fixed asset investment pressure.

3) Industrial Funds: Expand the scale of hydrogen industry funds in Chengdu-Chongqing, establish a Hydrogen Financial Innovation Fund focusing on supporting technology R&D, storage/transport infrastructure, and demonstration projects. Adopt a "government-guided, societal participation" model to attract social capital.

4) Policy Financial Support: Leverage policy banks to provide long-term, low-cost funding for the hydrogen industry. E.g., China Development Bank, Export-Import Bank of China can offer specialized loans for infrastructure and cross-border hydrogen trade.

5.4.2 Service Provision System

Improve financial service support to enhance market service capabilities and ensure healthy development:

1) Intermediary Services: Attract intermediary agencies like accounting/law firms, asset appraisers, credit rating agencies, quality inspection agencies to provide professional services. E.g., audit, legal consultation/contract review, quality inspection for delivered commodities.

2) Research & Consulting: Establish a Hydrogen Finance Research Center to conduct research on the industry and financial markets, providing decision-making consulting for participants. Regularly release industry development reports, market analyses, policy interpretations, etc., for business and investment reference.

3) Talent Cultivation: Collaborate with universities like Sichuan University, Chongqing University, Southwestern University of Finance and Economics to establish hydrogen finance programs, cultivating composite talent with both industry and finance knowledge. Provide on-the-job training and continuing education to enhance the professional quality of existing practitioners.

4) International Cooperation: Strengthen cooperation with international bodies like the International Hydrogen Energy Association and foreign futures exchanges to introduce advanced experience and technology, enhancing the center's internationalization. Promote cross-border hydrogen trade and financial transactions to attract foreign enterprises and investors.

6. Conclusion and Outlook

6.1 Research Conclusion

Based on regional economic synergy theory, financial center formation theory, futures market function theory, and electricity-hydrogen synergy theory, this paper systematically demonstrated the strategic significance and practical feasibility of jointly building a Western Hydrogen Energy Financial Trading Center in the Chengdu-Chongqing Economic Zone, proposing a construction pathway characterized by "product diversification, market multi-tiering, all-round synergy, and full-chain ecosystem." The main conclusions are as follows:

Jointly building a Western Hydrogen Energy Financial Trading Center in the Chengdu-Chongqing Economic Zone holds significant strategic importance. First, it aligns with multiple national strategic needs including energy security, "Dual Carbon" goals, and Western Development. Its construction can help China seize the global hydrogen industry competitive high ground, perfect the Western Financial Center's functional layout, solve the development bottleneck of lacking a financial hub in Chengdu-Chongqing, and provide financial support for high-quality hydrogen industry development. Second, the Chengdu-Chongqing Economic Zone possesses a solid foundation for building the center. Policy support at national and local levels provides institutional guarantees; a leading hydrogen industrial base provides industrial support; a growing financial market provides financial support. Third, the center should be constructed following a futures exchange model, building a multi-tiered "spot-forward-futures" linked market system, designing a diversified, differentiated trading product and derivative system, establishing a cross-regional "policy synergy-infrastructure co-construction-regulatory linkage" coordination mechanism, and improving a full-chain "financing support-service provision" financial ecosystem to ensure its healthy operation and functional realization.

6.2 Research Outlook

This research provides theoretical support and practical guidance for jointly building the center, but some limitations remain.

Future research can deepen in the following aspects:

Regarding quantitative research, this paper primarily uses qualitative analysis. Future work could construct econometric models to quantitatively analyze the center's driving effects on regional economic growth, hydrogen industry development, employment, etc., and factors affecting market pricing efficiency. Regarding product pricing, this paper proposed pricing ideas. Future research could combine the industry's cost structure and market supply-demand relationship to build more precise pricing models for scientific basis.

In summary, building the Western Hydrogen Energy Financial Trading Center is a systematic project requiring joint efforts from national policy support, local government coordination, industry participation, financial institution cooperation, and research institution support. Promoting its construction will provide powerful financial support for China's hydrogen industry high-quality development and energy transition, making significant contributions to achieving the "Dual Carbon" goals and national energy security.

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