Step-by-step Implementation of the Dual Control Targets, Together for a Carbon-Neutral Future

Johnson Controls

Executive Summary

Climate change, caused by greenhouse gas emissions into the atmosphere since the industrial era, has become an imminent global crisis. Since President Xi Jinping announced, at the 75th session of the United Nations General Assembly in 2020, that China would reach carbon peak by 2030 and achieve carbon neutrality by 2060 (hereinafter referred to as the "dual carbon" target), clearly expressing China's medium- and long-term decarbonization goals and determination, carbon peak and carbon neutrality have taken on unprecedented strategic significance in China and around the world.

As the largest developing country and the biggest carbon emitter, China is in a difficult position of having to continue developing while reducing emissions. Under such pressure, China's achievement of the "double carbon" target requires joint efforts at the local and industrial levels, tapping into their respective emission reduction potentials, and dividing and implementing responsibilities at all levels.

According to the "Outline of the 14th Five-Year Plan and 2035 Vision" released in 2021, the target is to reduce energy consumption per unit of GDP by 13.5% by 2025 compared to 2020, and CO_2 emissions per unit of GDP by 18% compared to 2020. This signals China's intention to strengthen energy intensity control and means that China will promote high-quality social development through a "dual control" of carbon emission intensity and total carbon emissions.

This paper explores the unique challenges of China's carbon neutrality by studying the experiences of 18 countries that have reduced carbon emissions, but sustained economic growth, as well as looking at how to break the barrier of carbon neutrality through the implementation of dual control at each level. From the perspective of dual control at the enterprise, regional and national levels, three policy recommendations are proposed: (1) For enterprises, encourage them to improve production efficiency and reduce carbon emission intensity by means of economic policies such as tax incentives and discounted electricity prices; (2) For industrial parks and local governments, remove barriers to cross-sectoral resource

coordination by means of policies, exploit the potential of local renewable resources, realize regional comprehensive energy utilization according to local conditions and industries, and improve the efficiency of comprehensive regional primary energy use; (3) For the development of a national carbon trading market for the building industry, enhance the capability to measure carbon emissions in buildings, and create a data base for the establishment of the building industry's carbon market.

Johnson Controls believes that the buildings as the main carriers of industrial and commercial economic activities, have the potential to drive the sustainable transformation of the whole economy. We will continue to use our building industry expertise to make further suggestions for China's urban development and help China move towards a carbon-neutral future!

1、Preface

Working Group I's contribution to the "Sixth Assessment Report" of the Intergovernmental Panel on Climate Change, released in 2021, makes clear that we are already approaching the 1.5-degree Celsius warming limit set by the Paris Agreement. The current national targets are insufficient even to achieve the 1.5-degrees Celsius temperature control goal[1]. Climate change is already a crisis, as evidenced by the increasingly frequent and catastrophic extreme weather events around the globe over the past year. In 2021, global CO_2 emissions rebounded, approaching the 2019 peak in the pre-Covid era[2].

In 2021, China's economy exceeded CNY 110 trillion, making it the second largest economy around the globe. At the same time, its annual CO_2 emissions accounted for more than 30% of global emissions that same year, indicating that China's carbon reduction process is critical to global climate change actions.

In September 2020 at General debate of the 75th session of the United Nations General Assembly, President Xi Jinping for the first-time clarified China's timeline for achieving carbon neutrality. He announced China's goals of reaching carbon peak before 2030 and achieving carbon neutrality before 2060 (hereinafter referred to as the "dual carbon goals"). President Xi clearly expressed China's mid- and long-term decarbonization targets and determination. At the Climate Ambition Summit 2020, President Xi Jinping further added that China's "Nationally Determined Contribution (NDC)" would be increased from a 60-65% reduction in CO_2 emissions per unit of GDP at 2005 levels, to a reduction of more than 65%.

As the largest developing country and the biggest carbon emitter, China is confronted with the challenge of developing while also reducing carbon emissions. In this context, China's "dual carbon goals" aim not only to control the total amount of emissions, but also to promote high-quality social development by focusing on carbon emission intensity control and supplementing it with total carbon emission control (hereinafter referred to as the dual control). According to the "Outline of the 14th Five-Year Plan and 2035 Vision" (hereinafter referred to as "14th FYP") released by the State Council in 2021, the target is to reduce energy consumption per unit of GDP by 13.5% by 2025 and reduce CO_2

[1] WMO. (2020). Carbon dioxide levels hit new record; COVID impact 'a tiny blip'. https://news.un.org/en/story/2020/11/1078322

[2] International Energy Agency. Global Energy Review 2021.

emissions per unit of GDP by 18% compared to 2020. This demonstrates strengthening of the national energy intensity control.

In 2022, the implementation of the “dual carbon” goals will officially enter an “accelerating track”. The “dual carbon” goals will not be achieved overnight but rather as part of a broad and profound economic and social systemic change. As the carrier of major economic activities as well as a large carbon emitter, the construction industry will be the most likely focus area for leveraging significant energy intensity reductions. In this paper, we review the carbon reduction paths of 18 countries and analyze the unique challenges and potential paths for China’s carbon neutrality. We will then propose a step-by-step approach to carbon neutrality from the enterprise, regional and national levels.

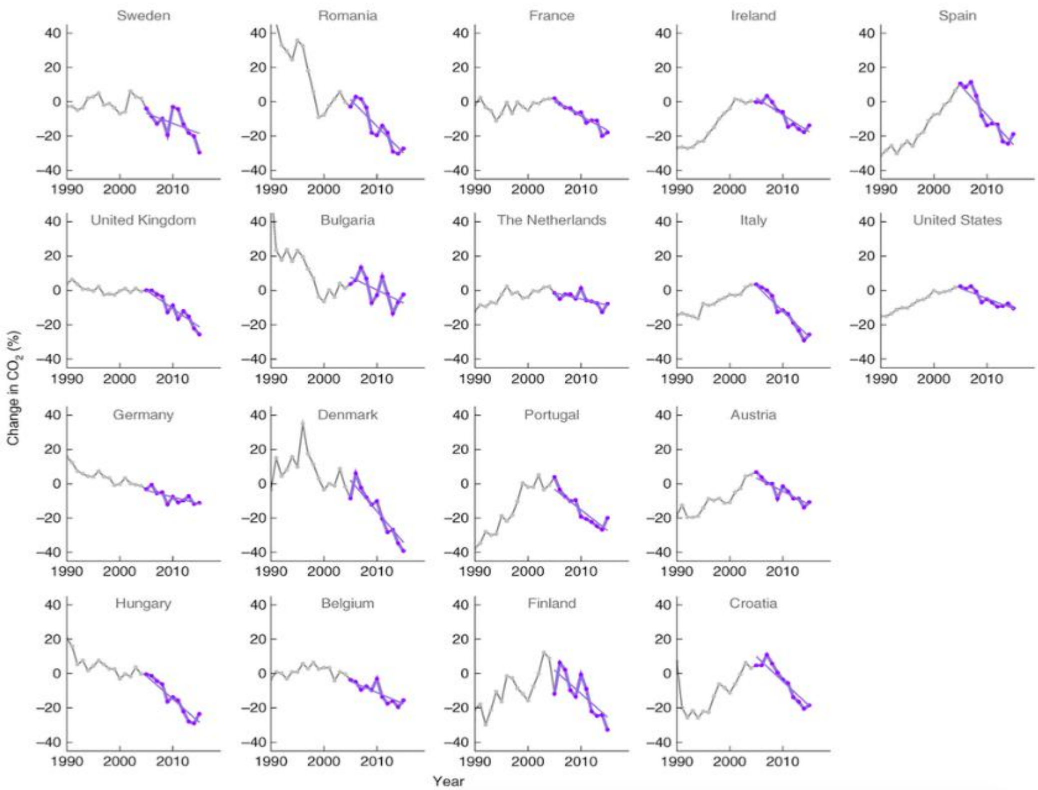
2、The Challenges and Solutions in China’s Path to Carbon Neutrality

Since President Xi Jinping announced China’s “dual carbon” goals, reaching carbon emissions peak and carbon neutrality have taken on unprecedented strategic significance. However, due to its ongoing rapid development, China will face significant challenges reducing its carbon emissions.

The first challenge in realizing the “dual carbon” goals lies in considering economic and societal development and protecting production and people’s lives. Since the 13th FYP, every district obtained positive results in dual control of energy consumption. However, the management of energy consumption lacks flexibility, resulting in the disruption of people’s everyday lives. During the 36th Political Bureau collective study on achieving the carbon peak and carbon neutrality goals in January 2022, President Xi Jinping emphasized that “reducing emissions does not reduce productivity, and it is not the same as no emissions”. It further confirms that reducing carbon emissions while sustaining continuous growth is necessary. A “one size fits all” policy disrupts everyday life and production of regions and enterprises, thus affecting their economic development.

The second challenge in realizing the “dual carbon” goals is that the current clean energy supply cannot meet demand. It cannot be denied that using the existing clean energy system to completely eliminate the use of fossil fuels would be challenging for China in the short to medium term, especially regarding its reliance on coal. In 2020, China’s renewable energy generated 2.2 trillion kWh of power, a 9.5% increase from 2012. China’s non-fossil fuel energy currently accounts for 15.9% of its total energy consumption. According to the 14th FYP, China expects non-fossil fuel energy to make up about 25% of its energy consumption by 2030. While China leads the world in annual renewable energy increases, it is incapable of achieving 100% clean energy alternatives in the short to medium term. Considering energy security, China's "dual carbon" goals cannot completely rely on alternative energy sources.

To overcome these challenges, we evaluate the methods other countries have used to attain uninterrupted economic growth, while simultaneously reducing carbon emissions. Between 2005 and 2015, 18 countries saw a 2.2% reduction in annual carbon emissions from fossil fuel. Overall, their economies sustained growth, demonstrating that economic development is separate from CO_2 emissions. Although these 18 countries represent less than 10% of all countries in the world, they are responsible for 28% of global CO_2 emissions from fossil fuels.



Changes in CO_2 emissions from fossil fuel combustion for 18 countries with declining emissions during 2005-2015[3].

Data from the International Energy Agency @IEA/OECD

Within these 18 countries, only the United States is a non-European country. Its carbon reduction strategy revolves around the use of solar power to replace coal. On the other hand, Eastern European countries, which are part of the European

[3] Countries are ordered by how soon their emissions peaked and began to decline. Le Quéré et al (2019). Nature Climate Change.

Union (EU), have decreased their carbon emissions by phasing out previously inefficient infrastructure. Furthermore, they must comply with the EU's rigorous environmental standards. Despite the fact that these countries have different conditions and methods regarding energy use, there are three common elements amongst them all: reducing dependence on fossil fuels, decreasing the overall need for energy and developing a robust policy framework.

Given China's energy system's significant reliance on coal, as well as the difficulties that increasing production poses in terms of reducing energy requirements, based on:

*Total energy demand = production * energy use efficiency*

the experience of these 18 countries, we can learn that promoting the employment of efficient energy use needs a strong national policy framework in order to increase productivity while lowering energy demand.

In the fossil fuel- dominated energy structure, there is a relatively direct correspondence between energy consumption and CO_2 emissions. However, with the increasing deployment of renewable energy and the establishment of a resource recycling system, the correlation between energy consumption and CO_2 emissions decreases. Therefore, the premise of the policy recommendations in this paper is to take the actual carbon emissions generated as the incentive constraint standard, create conditions to realize dual control of energy consumption to dual control with carbon emission intensity control as the focus and total carbon emission control as the supplement as early as possible, and reduce total carbon emissions while ensuring steady development of productivity.

In the following chapter, we take the initiative of enterprises as the starting point and put forward policy suggestions to motivate them to meet the dual control requirements; then we take regional energy optimization as the feasibility basis and propose policies for regional dual control. Finally, we recommend a strategic vision of achieving dual control and gradually moving towards "carbon neutrality" nationwide and suggest improving the technical capacity of carbon tracking and carbon interrogation in the building sector to lay the data foundation for a national carbon market.

3 、 Policy Suggestions for Graded and Progressive Implementation of Dual Control

In this chapter, we will discuss the step-by-step implementation of dual control requirements.

At the enterprise level, we suggest setting dual control" standards according to industry or regional characteristics; improving economic instruments such as taxes and preferential tariffs to motivate enterprises to actively reduce energy consumption intensity through saving energy, reducing emissions, improving production efficiency, and actively adopting green technologies.

At the regional level, we recommend removing barriers to cross-sectoral resource collaboration, coordinating comprehensive regional energy use, and improving the efficiency of comprehensive regional primary energy use.

At the national level, we propose promoting the construction of an asset carbon measurement capacity of high-emission enterprises, institutions, and landmark buildings, so as to lay the data foundation for the carbon trading market to limit carbon emissions by economic means.

Recommendation 1: **Encourage enterprises to improve production efficiency and reduce carbon emission intensity with economic policies.**

- Refine dual control standards according to the characteristics of the industry or region. Improve relevant economic policies and give tax reduction and discounted electricity prices to entities that exceed the dual control standards or effectively implement innovative clean production methods such as comprehensive resource utilization, energy performance contracting, and innovative renewable energy use, etc.

Due to differences among regions and industries, the energy intensity of each enterprise varies greatly. Several carbon emission intensity control industrial and regional guidelines have already been released. However, more differentiated and refined dual control standards as well as corresponding incentive policies are needed to stimulate the internal drive of each carbon emission source to improve energy saving performance, optimize energy use, improve production efficiency and reduce carbon emission intensity.

Therefore, we suggest that under the control of total carbon emissions, local governments should set dual control standards for energy consumption according to industry characteristics and actual operation, improve and implement economic policies to promote energy conservation, and exert economic leverage to motivate enterprises to improve production efficiency and reduce carbon emission intensity. Tax incentives could be given to enterprises that complete the dual control targets, have outstanding green production performance, or implement green projects such as energy and water conservation and environmental protection, comprehensive utilization of resources, and contract energy management. Utilizing this approach, enterprises are encouraged to actively adopt carbon reduction measures and improve operational efficiency to maximize the economic output per unit of energy consumption.

In addition, different production processes have demands for heat of different temperatures, and also produce hot and cold water, steam and other by-products. If the cold and heat sources generated by other processes can be fully utilized in different processes, the demand for primary energy or electricity can be reduced without decreasing production capacity. For example, the lithium battery production process is long, with many nodes and high precision, and has both cooling and heating needs, and the main energy consumption comes from the equipment that provides various cooling and heating sources for the control of the production process. If the different production processes can be arranged in an integrated manner, and the different heat sources can be put to their best use, the energy demand of the enterprise and its energy expenditure can be significantly reduced, maximizing the outputs generated by one unit of energy.

Similarly, energy saving technology within a single building, renewable energy deployment, and integrated energy use can also be utilized in government buildings, commercial centers, hospitals, schools, and other buildings with different functions.

Case study:

The Johnson Controls Asia Pacific Headquarters Building in Shanghai is the first triple-certified green building in China, with three-star China Green Building Design Label Certification, IFC-World Bank Group EDGE (Excellence in Design for Greater Efficiencies) Certification and LEED (Leadership in Energy and Environmental Design) New Building Platinum Certification. The building integrates building technologies of HVAC, security, building automation, and digital solutions: the building's Distributed Energy Storage (DES) can store electricity at the right time according to the operations, charge it through a photovoltaic system installed on the roof, and be integrated into the Metasys® building automation systems for unified monitoring and management, distributing electricity to facilities when needed; the floor air supply system sends air from floor to ceiling and cooling/hot water from the building's interior equipment, saving 9% energy exceeding the baseline requirement; the intelligent and efficient lighting system can be integrated into the Metasys® building controls system, including LED lights, occupancy sensors, daylight sensors, etc.; the curtains can be automatically adjusted according to the light conditions throughout the day to maintain good indoor lighting conditions and maximize energy savings; the building also collects rainwater from the roof and condensate from the air conditioner, enabling water recycling. Over 45% energy savings and over 42% water savings compared with peer buildings have been achieved through applications of cutting-edge technologies, including HVAC, security, building controls, and digital solutions.

Recommendation 2: Remove barriers to cross-sectoral resource cooperation, coordinate integrated regional energy consumption, and boost integrated regional primary energy efficiency.

- Break through barriers across sectors at the administrative implementation level and encourage enterprises to convert and transport surplus energy (such as heat, steam, biogas, etc.) for a charge to other enterprises or communities in the area.

China has abundant industrial waste heat resources, particularly in the steel, non-ferrous metal, chemical, cement, building materials, petroleum and petrochemical, light industry, coal industry, and other industries, However, waste heat resource utilization in China is at a relatively low level. Industrial waste heat recovery is one of the key strategies to accomplish clean heating services in the industrial areas in North China, where heavy industries are concentrated with great economic and environmental cost benefits.

"Energy matching" between the two sides frequently faces administrative, infrastructural, and monetary hurdles since the energy provider and energy user belong to separate companies. Businesses that try to use their excess heat energy for clean heating in the surrounding areas run into problems like not being able to secure licenses or the cost of clean heating being higher than coal-fired heating boilers, resulting in energy waste.

Therefore, we recommend removing as many policy barriers as possible that obstruct collaboration among various stakeholders, including government, enterprises, and users. We also suggest unblocking both supply and demand and assisting cross-sectoral resource coordination, complemented by adequate administrative and infrastructure support. When a single company or building has excess energy, the government should enable and encourage the business to convert and transfer the excess energy (hot water, steam, biogas, etc.) to other adjacent businesses or communities for a price. Enterprises that actively promote clean energy usage should be given economic policy assistance to encourage them to engage in a comprehensive regional energy use transformation and lower regional energy intensity.

Case study:

The new site of Hebei Iron and Steel Group Shijiazhuang Iron & Steel Company is situated in the western part of Shijiazhuang city, in the Jingxing Mining District. 8 million square meter surface of Jingxing Mining District and its adjacent counties are planned as collective heated areas. The energy station built by Johnson Controls adjacent to Shigang's new site in Xinyue Coking Plant recovers the waste heat of industrial circulating water, meeting the heating demand of 3-4 million square meters. The low temperature heat recovered subsequently provides clean heating for the Jingxing Mining District and the surrounding communities, annually saving 33,400 tons of standard coal and reducing about 86,840 tons CO_2.

- Support the capacity building of energy metering and integrated energy planning of industrial parks, establish regional renewable energy inventory and integrated regional energy utilization mechanism. Systematically investigate available energy, supply and demand conditions, energy "leakages" due to rough energy use, and actively explore resource recycling and resource "supply and demand matching" mechanism.

Industrial parks, the energy-intense areas, account for roughly 70%[4] of total energy consumption in China and could be responsible for emission reduction in the industrial and building sectors. In our on-site visits, Johnson Controls discovered that awareness of renewable resources varies by areas, and local governments' officials and park managers do not have a thorough understanding of the regions' energy map, resulting in a substantial number of accessible resources being neglected and squandered.

By-products such as hot/cold water and steam generated by different enterprises in an industrial park have huge potential to be used by other enterprises, forming a "supply and demand matching" mechanism among different enterprises. For example, by-products such as high-temperature flue gas, steam and cooling water produced by petrochemical enterprises in the same park can be recovered through heat exchange, thermal conversion or heat pump systems and then used in nearby enterprises with heat demand, thus improving the comprehensive energy use efficiency and lowering the energy intensity of the industrial park.

At the planning stage of the industrial park, the managers can require potential tenants to provide energy demand and consumption plans as part of their application for occupancy. In this approach, they can promote energy clustering and cooperation among enterprises in the park by establishing the "supply and demand matching" mechanism, and thus make a reasonable allocation of energy consumption clusters in the industrial park. To guarantee that park users have enough (but not excessive) energy supply, the managers must predict and manage each user's demand based on the application for occupancy and energy management system. Building and process clustering, energy exchange, collaborative manufacturing, and other methods can be used to create this collaboration. As a unification of the industrial park, the park's businesses have a decreased need for primary energy while maintaining productivity, lowering total

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[4] China Energy News. (2020). Shanghai Smart Energy Project Creates a "Paradigm for Energy Conservation in Industrial Parks". https://newenergy.in-en.com/html/newenergy-2390376.shtml

energy intensity. The park can assess energy use through continuous energy audits after operation and support enterprises to join the energy management system to systematically explore energy use efficiency improvements and renewable energy opportunities.

- <u>Fully exploit regional energy potential, coordinate and plan the comprehensive use of regional energy, and deploy distributed energy according to the regional energy situation.</u>

Similar to the logic of designing a "supply and demand matching" mechanism in industrial parks, local governments should be encouraged to form a stable regional energy investigating mechanism to systematically understand the regional energy endowment, including fossil energy, renewable energy, energy surplus from industrial production, etc., in order to achieve integrated use of regional energy.

The regional coordination of energy inter-allocation and recycling of different production capacities and energy consuming units, combined with the development and utilization of renewable energy sources, offers a tremendous potential for regional energy self-supply. Natural heat sources such as natural water and soil, or renewable resources such as domestic sewage, can be an important part of the regional energy map. If we can clearly plan the regional renewable energy reserve and deploy the corresponding distributed energy sources, we can effectively replace fossil energy and achieve clean regional heating and cooling.

Due to different geographical conditions, climatic characteristics and industrial structures, energy resources vary greatly from region to region across the country, making it difficult to meet the demand for clean cooling and heating in a uniform way. Winter heating has developed a range of approaches of collective and distributed heating in the frigid regions of northern China after decades of expertise. In contrast, the Yangtze River basin and its environs in central China are the "hot summer and cold winter" areas and there is no collective heating option. With a total area of 1.8 million square kilometers, a population of about 550 million and a GDP of about 48% of the country, it is the most densely populated and economically and culturally active region in China[5]. In addition, the extreme weather in the south has been frequent in the past decade or so, the summer cooling and winter heating problems in the "hot summer and cold winter" areas will pose a serious challenge to the regional power grid load and achieving the "dual carbon" target.

[5] Information Center of the Ministry of Construction. Current Situation of New Building Energy Conservation in Hot Summer and Cold Winter Areas and Implementation of "Design Standards for Energy Efficiency of Residential Buildings in Hot Summer and Cold Winter Areas" (2007).

According to China's "Energy Supply and Consumption Revolution Strategy (2016-2030)", the energy transition will be both distributed and centralized, with a concentration on dispersed usage, and will encourage the development of a large share of renewable energy. This also outlines national macro-level requirements for urban area buildings to encourage renewable energy investment.

Johnson Controls believes that CBDs and development zones, which have a large number of public buildings, can benefit from such an integrated distributive energy system. Distributed energy has the benefits of efficient energy use, low loss and pollution, flexible operation, and economical feasibility, etc. It can deliver the exact desired temperature hence minimizing the loss in the transmission, and thus maximizing the energy utilization efficiency. Therefore, it is also one of the most economical ways to solve the problem of summer cooling and winter heating in "hot summer and cold winter" areas. The prerequisite for this is a precise grasp of the region's renewable resources. The most fundamental and promising means to reduce carbon emission intensity in the building sector is to increase the proportion of renewable energy use and reasonably allocate the production and consumption of solar, wind and other renewable energy sources. This path is in line with China's macro, medium and long-term economic planning for energy structure transformation.

Case study:

The energy station at the Beijing Municipal Administrative Center started its operation in 2018. It is China's top-ranked single geothermal cooling and heating integrated energy station. The heat pump system provides centralized cooling for the office space in the summer, and in the winter, it provides centralized heating, resulting in an integrated energy supply system that is operational throughout the year. Compared with traditional energy sources, the geothermal system replaces about 12 million m^3 of gas per year, which is equivalent to 15,000 tons of standard coal and a reduction of 40,000 tons of CO_2, which is equivalent to planting about 100,000 more trees in the administrative center. The combination of high efficiency centrifugal heat pump and energy storage technology makes the heating energy cost of the energy station significantly lower than that of gas heating, which ensures the economic rationality of the project while achieving clean heating and comprehensive benefits to the environment, economy, and society.

Recommendation 3: Improve the capability of buildings to measure carbon emissions and establish a database that can be used when building the carbon market.

- <u>Implement the carbon data disclosure of buildings, and promote the building carbon ledger process.</u>

On July 16, 2021, China's national carbon emission trading market was officially launched. The first group within the market consisted of 2162 key enterprises in the power generation industry. They managed 4.5 billion tons of CO2, earning China's carbon market the title of the largest carbon market in the world. The building industry currently is not included in the national carbon market, however, with the deepening of the building industry carbon trading pilot in Shanghai and Shenzhen, more and more industries will move towards entering the national carbon market. When this happens, the layout of the carbon trading market via building energy efficiency, collection and disclosure of carbon data, ledger audit, etc., will become the norm of the building industry.

Limited resources are a prerequisite for formation of a market. Only when building owners and operators realize how important energy savings can be as a resource will they strive to reduce emissions, set higher sustainability goals, and participate in carbon market transactions to allocate resources with more flexibility.

Case Study:

The success of Tokyo's Cap-and-Trade program for large facilities can be used as a reference. From 2002 to 2009, while the project was in its early stages, large buildings were required to report energy consumption and carbon emission data, thereby establishing a database for large-scale building emissions. Based on 8 years of accumulated data, Tokyo officially launched the emissions trading scheme in 2010, compelling large buildings, including factories, to participate in the program. The energy-saving target of large buildings changed from the voluntary 2% to mandatory 25% by 2020. If additional emission reductions are achieved, emissions can be sold on the market for buildings that do not meet emission standards to purchase. As of 2016, Tokyo's building sector has reduced emissions by more than 25%[6].

- <u>Promote the upgrade of building digitalization, popularize building carbon tracking and carbon measure technology.</u>

Given that the national carbon market has just been launched, and the carbon market of each industry is still immature, it is necessary to obtain the carbon emission data of the building industry, which is both representative and universal, and to consolidate the development of the local building carbon market. These are necessary preparations for the larger-scale carbon trading pilot in the building industry, and even for its inclusion in the national carbon trading market. We

[6] Tokyo Metropolitan Government. (2016). Tokyo cap-and-trade program achieves 25% reduction after 5th year. http://www.kankyo.metro.tokyo.jp/en/climate/cap_and_trade /index.files/3c08a5ad895b513 0cb1d17ff5a1c9fa4.pdf.

believe that the digital upgrade of key emission units, government buildings, buildings of state-owned enterprises and public institutions, and landmark buildings, etc., and the popularization of carbon tracking and carbon measurement equipment are the necessary technical foundation to realize the carbon emissions management throughout the building industry from the national level.

The government can thus make use of the massive data resources to study the building energy-saving design standard system, refine the control index of building carbon emissions, and finally determine the emission quota allocation and market price mechanism of the carbon trading market.

The government, as a result, can utilize the tremendous amount of data resources to thoroughly research standards systems of building energy conservation, refine the building carbon emission control targets, and ultimately discuss topics related to the carbon trading market such as the carbon quota allocation, the market price mechanism, etc.

4、Closing remarks

China is already ahead of most countries by writing “carbon neutrality” into policy documents. Based on the national circumstances, China must optimize energy efficiency and ensure energy security through efficient energy use under the current energy structure, optimal allocation of supply and demand, and enhancement of green energy capacity. By gradually implementing the dual control of carbon emission intensity and total carbon emissions, China will realize combined achievements of economic development and carbon neutrality, thus promoting high-quality development. In this paper, we share our views on the path of dual control from the following levels: encouraging enterprises to actively improve energy efficiency, optimizing comprehensive regional energy consumption, and coordinating carbon emissions in buildings. We hope to provide reference for China to explore the path of carbon neutrality.

Johnson Controls has long been committed to creating a safe, comfortable, and sustainable world. As the global leader in smart, healthy and sustainable buildings, our mission is to reimagine the performance of buildings to serve people, places and the planet. Through energy-efficient resolutions and smart building technologies, we provide large public buildings, such as office buildings, hospitals, schools, airports, factories, and commercial complexes, with the opportunity to move into a carbon-neutral future. Through green consulting, comprehensive energy planning, energy saving and efficiency resolutions, carbon measurement and carbon tracking technologies and deep data insights, we help lead enterprises, regions and wider sectors to achieve dual control goals. With building technology as the fulcrum, we will pivot the sustainable upgrading of industries and communities and work together for a carbon neutral future!