Latin American Economy

Latin America's energy transition under the influence of COVID-19*

Zhang Rui

Abstract: The COVID-19 epidemic has had a contradictory impact on the global energy transition. That is, one impact shows contradictory results in different regions and under different conditions. The energy transition of various countries faces more complexity and uncertainty. The impact of the epidemic on Latin American energy The transformation has caused severe challenges, mainly including the tightening of energy demand, the obstacles of social isolation and the government's support for the fossil energy industry. Despite the impact of the epidemic, the energy transformation in Latin America still maintained a good momentum in 2020, the power structure continued to be clean, and renewable energy Installed capacity has grown steadily, multi-country tenders and auctions continue, significant progress has been made in new areas such as offshore wind power, hydrogen energy, and electric buses, and major regional economies have maintained their world-leading investment attractiveness. In the near to medium term, Latin America's energy transformation will Opportunities still outweigh challenges: The region has solid development momentum, which stems not only from the clean-led power development pattern and resource development advantages, but also from the positive impacts of the epidemic, such as the compression of the fossil energy industry and the trend of green recovery, as well as the epidemic In addition, the United States, the European Union and China have high enthusiasm for investment in Latin American green industries. In the future, we must focus on the stability of the transformation policies of Latin American countries and whether each country can establish a sustainable and socially equitable environment. energy transition model

Keywords: COVID-19 epidemic energy transition energy demand power development Fossil energy renewable energy

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Latin America is the leader in global energy transformation. Since the 21st century, many Latin American countries have As the core content of the country's sustainable development, we should set higher renewable energy goals and introduce a system Comprehensive support policies. At the same time, Latin America is also an early region in the world that promotes regional energy integration. Through the construction of multiple transnational power grids, it has promoted the optimal allocation of clean electricity on a large scale. ÿ In 2019, Latin America Regional renewable energy consumption accounts for 26.6% of total primary energy consumption, while the global average is ÿÿ ÿÿ ÿ Renewable energy power generation in Latin America accounts for 56.7% of the total power generation. ， The global average is ÿÿÿ ， The values of these two indicators in Latin America are much higher than other regions in the world. In 2019, Latin America can once again The amount of investment attracted by renewable energy reached a record high, reaching 18 billion US dollars, a year-on-year increase ， Among them, Brazil, of 54%. The investment attracted by Chile, Mexico and Argentina accounted for 98% of the total regional investment ÿÿ

The COVID-19 epidemic is the most serious public health crisis that mankind has encountered in the past century. Global production and life Suffering varying degrees of impact, although countries basically maintain normal energy supply, the decarbonization of the energy system The process is facing a more complex and uncertain situation. For researchers, “the epidemic requires us to Real-time analysis of the impact of large-scale, systemic shocks on energy transition."ÿ Then, the energy transition in Latin America What are the challenges brought about by the epidemic? Has its transformation situation changed direction, or will it be realized in 2020? What is the expected progress? What are the future transformation trends and driving forces? This article will first analyze this event from a global level. The impact model of the epidemic, and then based on the situation in Latin America, try to explore the above issues, and at the same time, through the study of this situation in Latin America An inspection of a “model region” demonstrates the fragility and resilience of the global energy transition in this crisis.

A global level: COVID-19’s paradoxical impact on the energy transition

Contemporary energy transition is a “socio-technical process” of decarbonizing the energy system. process), its core content is to introduce zero-carbon or low-carbon energy in the energy development and consumption links, and gradually replace

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ÿ For relevant discussion, see Wei Wei: «Policies and Best Practices in the Development of Renewable Energy in Latin American Countries», published in «Latin American Studies» Issue 6, 2016, pp. 77-94, Zhang Rui: «The Development Dilemma of Latin American Energy Integration: Taking Electric Power Integration as an Example», published in «Latin America American Studies», Issue 6, 2018, Pages 109-123.

ÿ Statistics based on the following data: BP Group Statistics Review of World Enemy rgy 2020ÿ June 2020 https: / / ÿÿÿ ÿÿ ÿÿÿ/ ÿÿ / ÿÿÿÿÿÿ / ÿÿÿÿÿÿÿÿÿ / ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ [ÿÿÿÿ ÿ ÿÿ ÿ ÿÿ]

ÿ Wang Lin: "Latin America's "scenery" power generation is strong", published in "China Energy News", Page 6, October 12, 2020.

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Replace high-carbon fossil energy and eliminate the long-term threat to human survival caused by large amounts of carbon emissions. In recent years, the energy systems of most countries have shown the characteristics of steady transformation, mainly due to the increasing maturity of renewable energy technology, the substantial decline in development costs and International consensus on addressing climate change. However, energy transition is a non-linear evolutionary process. "No matter how obvious the trend of energy transition is, under the influence of unpredictable economic, social and political changes, exceptions may occur or the transition may deviate from expectations. "ÿÿ

Judging from the situations and trends that have emerged, the impact of the epidemic itself on the energy system is indirect. It is more the changes in energy demand caused by the epidemic and the prevention and control measures taken by various countries in response to the epidemic that have a direct impact on energy transformation. These impacts are not necessarily Playing a hindering role, a specific impact shows contradictory results in different regions and under different conditions. It may be a threat or obstacle to the transformation, or it may accelerate or increase the intensity of the transformation. The author describes this type of impact as a contradictory impact. (Paradoxical INFLUENCE) The main reasons for this include: the first ÿ energy transformation as a system engineering ÿ contains political decision -making, technology research and development, planning design, project investment and operation, financing, consumer habits, etc. ÿ One factor can be possible. Impeding transformation at a certain link can also promote transformation at a certain link. Second, countries have differences in development foundations and resource endowments. When faced with the same impact, they may have completely opposite perceptions and take completely different actions. In other words, ÿ ÿ The energy transition is highly heterogeneous at the regional and national levels. Even in times of crisis, it is difficult for the transition to converge on a universal, single operating model. From a global perspective, the main contradictory impacts of the epidemic are: Including the following 4 aspects.

(1) Decline in energy demand The

epidemic has significantly reduced global energy demand. The International Energy Agency (IEA) estimates that oil, coal and gas will Global energy demand will fall by 5% compared with 2019, and , Global electricity demand falls by 2% , decline in 2020. natural gas demand will fall by 8% respectively., ÿÿ , 3% ÿÿ In some countries, the decline in energy demand will slow down investment entities' support for energy transformation. The government is not in a hurry to develop new energy resources and expand power supply capacity. It is also likely to transfer financial funds originally used for transformation to medical and health care. , social welfare fields. After the outbreak, even in European and American countries, many government-funded renewable energy demonstration projects have suffered cuts.

ÿ For related discussion, see Philip Andrews-Speed ÿ "Applying Institute nal Theory to the Low-carbon Energy Transformation" ÿ ÿÿÿÿÿÿÿÿÿÿÿÿ & ÿÿÿÿÿÿÿÿÿÿÿÿÿÿVol ÿÿ 201 6ÿ pp 216 - 255ÿ Liu Zhenya: «Global Energy Internet» Beijing: China Electric Power Press, 2015 Year, pages 85-97.

ÿ [Canada] Written by Vaklav Smir, translated by Gao Feng et al.: «Energy Transition: Data, History and Future» Beijing: Science Publisher, 2018, page 301, ÿ Issue 2,

Zhang Rui, Kou Jingna: «The Rise of Global Clean Energy Governance: Subjects and Issues», published in «Comparison of Economic and Social Systems», 2020 page 185, ÿ

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Or postponed. Some utility companies (especially power companies) lack the ability to invest in renewable energy due to reduced revenue and continue to rely on fossil energy as a source of power generation.

The decline in energy demand can also accelerate the transformation of the supply chain. In today's world, the cost of renewable energy power generation in many countries has been close to or lower than the cost of fossil fuel power generation. ÿ During the peak period of the epidemic, power demand in various countries generally fell by 15% to 30% . ÿ The supply of available power capacity in the whole society exceeds demand. Grid operators naturally give priority to accessing cheap, clean and environmentally friendly renewable energy, while putting more expensive fossil fuels behind, accelerating the cleanliness of the power generation structure. The United States and the European Union The electricity market of all countries shows such characteristics. For example, the proportion of coal power generation in the total power generation in the United States dropped from 23.3% in 2019 to 192% in 2020. The decline hit a record high. During the same period, renewable energy The proportion of power generation increased by 23%. As another example, the epidemic has depressed the overall consumption of coal, natural gas and oil in Germany. In 2020, renewable energy power generation exceeded the sum of all fossil energy power generation for the first time. This trend has also intensified some old The losses of old coal power plants forced them to withdraw from the market early. In the first half of 2020, the installed capacity of coal power plants that were phased out globally (212 GW) exceeded the installed capacity that was put into operation (183 GW). The total global coal power installed

capacity has never been higher in

history. (2) The normalization of low oil prices. The epidemic has severely hit the global oil market. International oil prices have entered a new normal of hovering at low levels. The average Brent price in 2020 was US$42/barrel, a year-on-year decrease of approximately 30%. The average WTI price was US$39. / barrel, down about 20% year-on-year . ÿ Even if the epidemic improves or ends completely in 2021, all parties generally believe that demand will be difficult to return to pre-epidemic levels in the next few years, and the room for oil price increases is very limited. In this case, some poor people Developing countries will relax their environmental protection and carbon emission standards and continue to rely on cheap oil for power generation. Due to sharp declines in income, some resource exporting countries can only withdraw their previous commitments on renewable energy development. For example, in July 2020, Kuwait Based on the financial crisis, the government decided to suspend the investment plan for the Sakyam Concentrated Solar Power Project. Low oil prices may also delay the elimination of fuel vehicles around the world and encourage Incentivize consumers to buy fuel vehicles and hinder the energy transition in the transportation sector.

ÿ According to statistics from Bloomberg New Energy Finance, photovoltaics and onshore wind power are already the cheapest sources of electricity in 2/3 of the world. See Renewable Energy World ÿ “BNEF Says Solar and Wind Are now Cheapest Sources o fNew Energy Generation for Majority of Planet " ÿ ÿÿÿÿÿÿ 2020 ÿÿÿ: / / ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ dcom/ 2020 / 04/ 28 [2021-01-30]

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ÿ Gao Ge: «Will oil prices rebound?» Economic Observer Network, January 1, 2021, http://www.eeo.com/2020/1231/452240s html [2021-01-30]

Low oil prices are driving transformation in the energy investment sector. Regardless of size, oil companies around the world are generally facing unprecedented loss pressure. In the first half of 2020, the total losses of the six European oil giants reached 54.572 billion U.S. dollars. There are a large number of oil and gas projects planned to be developed. No longer have economic extraction value. In 2020, offshore and unconventional oil and gas exploration projects with a total value of at least US$190 billion were shelved around the world. ÿ Many oil giants have adjusted the layout of their core businesses and accelerated the divestiture of high-carbon oil and gas assets. For example, BP The company (BP) suspended all oil and gas exploration plans in undeveloped countries and wrote down oil and gas assets of US$17.5 billion throughout the year. Total plans to invest US$2 billion per year in the development of renewable energy and have 20% clean energy by 2030. Assets. Low oil prices have also prompted some countries to reduce subsidies to the oil and gas sector, which means that public funds saved may flow to renewable energy.

(3) Social isolation measures in response

to the epidemic have hindered the construction of renewable energy projects. Major photovoltaic markets such as Spain, Australia, and India have implemented nationwide social isolation, making it impossible to carry out normal power station construction and equipment transportation. For example, India's photovoltaic installed capacity in 2020 is expected to be 49 GW, a 42% decrease from 2019 and the lowest level since 2016. It directly limits the country's goal of reaching 100 GW of solar energy in 2022. ÿ Household photovoltaics in some countries (such as the United States) The market has been hit hard. Due to social isolation, installers are unable to go to customers to install equipment, and marketers in the industry have difficulty exploring the market. In addition, some renewable energy projects under construction have encountered disruptions in cross-border supply chains, making it impossible to import equipment. Investors face many problems such as delays in production, rising prices of raw materials, and port fees caused by inability to receive goods in time.

Difficulties caused by quarantine measures have prompted some countries to enhance the localization of supply chains or seek resource development Flexible solutions to indirectly accelerate the energy transition. Due to the decline in the reliability of the global supply chain, some countries with technological foundations have begun to consider increasing investment in renewable energy manufacturing, especially related to the manufacturing of power generation equipment, batteries and components. This It will help drive the technological upgrading of the entire industry. Countries such as Finland, Sweden and Switzerland are trying to expand their community development capabilities for renewable energy and have increased investment in the fields of clean heat pumps, biogas energy and smart grids. (4) Economic

stimulus policies In response to the

impact of the epidemic on the economy, various countries have introduced stimulus policies. However, due to the pursuit of short-term effects, many policies are still maintaining or consolidating the high-carbon energy structure, which is likely to have a long-term negative impact on the transformation.

ÿ China Petroleum News Center: «The global energy industry forges ahead despite the wind and rain» December 29, 2020 http:// news cnpc com cn / system m/ 2020 / 12 / 29 / 030020385 shtml

ÿ [2021-01-30] Emiliano Bellini and Uma Guptaÿ "Wood Mackenzie Expects Indian Solar Installations to Drop 42% ÿÿÿÿ ÿÿÿÿ"ÿ ÿÿÿÿÿÿÿ ÿÿÿ ÿÿÿÿ ÿÿÿÿÿ: / / ÿÿÿ ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ ÿÿÿ/ ÿÿÿÿ / ÿÿ / ÿÿ [ÿÿÿÿ ÿ ÿÿ ÿ ÿÿ]

According to statistics from the think tank "Energy Policy Tracker", from the global outbreak of the epidemic in 2020 to January 2021, the public funds committed by the governments of the Group of Twenty (G20) countries totaled US$183 billion to support renewable energy. However, The financial investment to support fossil energy reaches US$240 billion. The United States ranks first among G20 members in fossil energy subsidies, reaching US$72.35 billion. ÿ In terms of specific measures, developing countries in the G20 have generally relaxed environmental regulations, and products that are harmful to the environment have In order to increase subsidies and tax cuts, Russia, Turkey, Saudi Arabia and other countries have announced major oil and gas investment plans, but their support for new energy sources is lackluster. ÿ If the global economy continues to fall into a downturn, governments may also delay the introduction or avoid the carbon pricing previously promised ÿ Reduce the motivation to transition to a low-carbon economyÿ

At the same time, "green recovery" is increasingly becoming a plan advocated and implemented globally, and may play a greater role in promoting the post-epidemic era. The United Nations and other international organizations actively advocate that countries should pursue a decarbonized recovery. Guterres said: "All All post-COVID-19 recovery plans need to accelerate the decarbonization of the global economy. Any plan to support the expensive and polluting coal or fossil fuel industries cannot be called recovery." ÿ Some regions and countries are taking practical actions to support green recovery and stimulate energy The economic and environmental benefits of transformation. For example, the European Union passed an economic stimulus package in July 2020. This plan sets energy transition as the first priority area, and clarifies that renewable energy projects with an investment amount of 25 billion euros will be tendered in the next two years, and Establish a fund of 10 billion euros to provide loans for clean power infrastructure. For another example, President Xi Jinping emphasized at the "Climate Ambition Summit" in December 2020 that countries should "find development opportunities and motivation from green development" and announced that China By 2030, "non-fossil energy will account for about 25% of primary energy consumption, and the total installed capacity of wind power and solar power will reach more than 1.2 billion kilowatts", establishing China's new goal of green, low-carbon and high-quality development.ÿ

The above analysis shows that the epidemic and various measures to respond to the epidemic have had contradictory effects on the energy transition. The uncertainty and volatility of the energy transition have therefore increased, and the transformation processes of various regions and countries have greater differences. This article will focus on Latin America's own situation, and discuss the new challenges and opportunities faced by this regional transformation.

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ÿ United Nations: «UN Secretary-General Guterres: There is no way to talk about "recovery" without decarbonization after COVID-19», September 24, 2020, http://newsun.org/zh/story / 2020 / 09 / 1067562 [2021

ÿ - 01 - 30] Xinhua News Agency: «Xi Jinping's speech at the Climate Ambition Summit (full text)», Xinhuanet, December 12, 2020, http: / / ÿÿÿ ÿÿÿÿÿÿÿÿÿ ÿÿÿ/ ÿÿÿÿÿÿÿÿ/ ÿÿÿÿÿÿÿ/ ÿÿÿÿ ÿ ÿÿ / ÿÿ / ÿÿÿÿÿÿÿÿÿÿÿÿ ÿÿÿ [ÿÿÿÿ ÿ ÿÿ ÿ ÿÿ]

2. Challenges posed by the epidemic to Latin America's energy transition

As of January 2021, Latin America is still one of the regions most severely affected by the COVID-19 epidemic in the world. The epidemic situation in many countries continues to rebound or is at a high level. The number of infected people is getting younger, and the fragile medical system has always been difficult to improve. The impact of the epidemic on Latin America The originally smooth energy transition has resulted in the following major Challenges

(1) Shrinking energy demand Due to the

impact of the epidemic, regional power demand has experienced an unprecedented contraction. According to an assessment by the Latin American Energy Organization (OLADE), regional energy demand in 2020 is expected to drop by 10% compared to 2019. Electricity in the industrial, commercial and transportation sectors Demand will drop by more than 13%. Although residential electricity consumption is expected to grow by 20%, since the industrial and commercial sector has long accounted for more than 70% of electricity consumption, and there is still widespread energy poverty in the region, the growth in residential demand cannot make up for the imbalance between electricity supply and demand.ÿ Of course, there are differences in the magnitude of decline in different countries. According to estimates by the International Energy Agency, the electricity demand in Brazil, Mexico and Argentina dropped by 4.1%, 2.5% and 1.5% in 2020, while the total electricity demand in other countries in the region dropped by 4.9%. ÿ Some mining economies and tourism economies dominate Due to large-scale shutdowns of industries, countries in some countries have experienced even greater declines. For example, the electricity demand in Bolivia and Peru in the second quarter of 2020 dropped by about 30% compared with the same period last year. The electricity consumption in some Caribbean island countries has been halved.

The direct impact of the decline in power demand on the energy transition includes two aspects. First, it reduces the income of the power sector and limits its ability to invest in the energy transition. At present, many state-owned power utilities in the region (such as Brazilian Electric Power Company, Argentina Electric Power Company, etc.) Camesa Company, Bahamas Electric Power Company, etc.) are already heavily in debt. Their reliance on government subsidies has only increased after the epidemic. In the absence of external financing, it is difficult to raise funds for new projects. Some countries (such as Argentina, Paraguay and Peru) governments have decided to suspend or postpone users' electricity bill payments, and Mexico and Chile have reduced or exempted electricity bills for low-income households. Although such relief policies focus on the overall interests of society, they have also made the power company's situation of making ends meet worse. Second, it has led to some countries The government has reduced its support for energy transition. The energy transition in some Latin American countries has not yet formed a market-led model and is extremely vulnerable to government changes and policy changes. The epidemic has undoubtedly amplified this shortcoming. For example, in May 2020, the Mexican National Energy Control Center

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(CENACE) has suspended the connection of all renewable energy projects to the grid on the grounds that power supply exceeds demand and photovoltaic and wind power affects system stability. This decision directly affects the country's 28 photovoltaic and wind power projects that are ready to go online and 16 projects under construction. The investment amount exceeded US$6.4 billion, severely damaging the confidence of domestic and foreign investors in the prospects of the industry. ÿ In December, the government once again cut off the power supply to some renewable energy projects for the same reason. From the perspective of the Mexican renewable energy industry, government departments have borrowed Due to the short-term changes in the energy system during the epidemic, it caters to President Lopez's stance of resisting energy transition and protects the monopoly of the domestic fossil energy industry.

In addition, the reduction in transportation energy consumption has also directly hit the biofuel market in Latin America. The epidemic has reduced the global demand for ethanol fuel to the level of 2013, and many countries have postponed new ethanol gasoline policies. It will be difficult for ethanol demand to increase in the next few years. Brazil As the world's second largest ethanol producer after the United States, the industry is facing greater pressure. In the 2020/2021 harvesting season, Brazil's ethanol sales volume was 20.4 billion liters, a year-on-year decrease of 11.8%. If the export increase is not included, it will only be 20.4 billion liters. Looking at domestic sales, the decline has reached 15.4% . ÿ The cash flow of some small and medium-sized ethanol production companies is under greater pressure, operating profits will fall sharply, and they are on the verge of bankruptcy.

(2) Obstacles of social isolation Social

isolation measures have seriously delayed the administrative work of the energy departments of various countries. In Latin America, low government administrative efficiency and slow approval of energy projects are "common problems" in various countries, and they are even more prominent in the context of the epidemic. For example, as of At the end of 2020, the Mexican energy regulatory authorities shelved the approval of about 200 energy projects, most of which were wind power and photovoltaic projects. The reason was that the government currently lacked manpower and was unable to work normally. The American AES Electric Company (AES) wasted time due to project approval. It took too long, and investment in a wind power project worth about US$400 million was suspended. For another example, the entire South American region did not conduct any auctions of renewable energy projects in the first half of 2020. The governments of Brazil, Colombia, Ecuador, Argentina, Chile and other countries All cited the impact of the epidemic as an excuse to postpone the originally planned auction for several months or even a year. Brazil's Ministry of Mines and Energy pushed the auction originally scheduled for March directly to 2021, and Colombia originally planned to hold the Guajira auction. The provincial wind and solar energy project auctions were held, but due to social isolation, the early-stage environmental assessment and social consultation of the project could not be started.

The widespread implementation of social isolation in various countries has also affected the progress of renewable energy projects under construction. For example, in the first half of 2020, large-scale projects under construction in many countries suspended construction or adjustment work due to difficulties in getting workers and equipment in place. The governments of some countries The previously agreed project commissioning time has also been relaxed. By 2020

ÿ Dave Graham and Diego Oreÿ "Energy Dispute Dee Pens between Mexico and Foreign Allies EU and Canada"ÿ May 17ÿ 2020 https: / / energy economical indiatimes com/ news/ renewable

ÿ [2021-01-30] Xu Jing: «Brazil's next harvest season How to affect the international market? »ÿ December 28, 2020 ÿ ÿÿÿ eCont ÿÿÿÿÿÿÿ202012280ÿÿ1ÿÿÿÿÿÿ1220 [2021-01-30]

In the second half of the year, most projects were able to adapt to isolation measures and continue construction. First, because companies gradually figured out construction methods to meet epidemic prevention needs and control the flow of people. Second, large-scale projects are usually located in sparsely populated remote areas, and the epidemic

prevention pressure is relatively small. ÿ (3) Government

support for the fossil energy industry In the face of major crises, many Latin American countries will support fossil energy as the main content of their recovery plans. For the governments of these countries, even if they declare their stance on implementing a "green recovery", "in the current situation Under the current market environment, maintaining or even strengthening the existing energy sector structure may be regarded as the easiest way to alleviate the impact of the epidemic and social inequality."ÿ It can at least reduce the loss of existing investments and maintain a certain scale of jobs. For the oil and gas industry For example, in the face of low oil prices and low demand, they can only actively seek national financial support to ease financial tensions, and at the same time take the opportunity to urge the government to relax environmental regulations and reduce taxes. Specifically, the Brazilian government in its epidemic recovery plan It has stated that it will consider oil and natural gas exploration projects in nature reserves to expand the country's oil and gas production potential. In May 2020, Argentina set the national crude oil reference price at US$45/barrel to protect the country's oil industry, but this also means that the government Carrying a huge subsidy burden, in October, the government introduced a fiscal stimulus plan for the shale gas industry in the next four years, providing subsidies for the development of local shale gas and conventional natural gas in Argentina. The total amount is expected to reach US$5.1 billion. ÿ The Peruvian government announced in August 2020 In March, an emergency resolution was issued to promote oil exploration and production, hoping to further stimulate foreign investment in Peru's oil and gas industry. The Chilean government also took similar measures, announcing that it would significantly shorten the environmental impact assessment time for oil and gas projects. Mexico's recovery plan focuses on the oil refining industry. Although the load factor of the country's refining capacity has dropped to 60-70% after the epidemic, the government plans to renovate 6 large-scale refineries and build a new Dos Bocas Port refinery with an investment of more than 8 billion US dollars. In addition, the country New coal power plants, expanded oil and gas exploration, and tax relief for state-owned oil companies will also be prioritized as economic stimulus. The Honduran Congress announced that it is preparing to amend the "Electricity Law" to seize the "price advantage" of falling oil prices and expand the country's thermal power generation capabilities.ÿ In the Caribbean, fiscal constraints may force some countries to maintain the status quo because they do not have the funds to replace existing thermal power plants. ÿ While the above policies support the fossil energy industry, they will inevitably disperse government investment and support for renewable energy, maintaining The industrial scale of high-carbon energy may even reverse the transformation results achieved by some countries.

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Li Limin: «Argentina's "big move" to boost shale industry», Published in China Energy News, November 2, 2020, Edition 05, SEforALLÿ The Recover Bet ter with Sustainable Energy Guide for Caribbe an Countriesÿ August 2020 ÿÿÿÿÿ: / / ÿÿÿ ÿÿÿÿÿÿÿ ÿÿÿ / ÿÿÿÿÿ/ ÿÿÿÿ/ ÿÿÿÿ ÿ ÿÿ / ÿÿ ÿ ÿÿÿÿÿÿÿÿ ÿ ÿÿÿÿÿÿÿÿÿ ÿÿÿ [ÿÿÿÿ ÿ ÿÿ ÿ ÿÿ]

It should be pointed out that the actual effectiveness of the above challenges still needs to be observed for a longer period of time. Some challenges
The impact (such as social isolation measures) is immediate and temporary, and will have a negative impact in the short term.
And the effectiveness of some challenges may not appear or expand until the next few years (even after the epidemic is quickly over)
(Under the circumstances). For example, it is difficult to change the weak social demand for electricity and the decline in the income of the public power sector.
The progress of projects under construction will, however, compress the already stretched investment strength of some countries and limit future
Project development, after all, "a large number of expensive existing energy infrastructures have large usage inertia, and the construction of
Setting up new power generation equipment and transmission and distribution networks requires huge capital investment"ÿÿ

The progress of Latin America's energy transformation under the background of three epidemics

Although Latin America's energy transformation has encountered obstacles caused by the epidemic, these obstacles have not shaken the foundation of the transformation.
This direction has not seriously slowed down its development speed. In 2020, the energy transition in Latin America achieved the following achievements
Significant progress

First, the regional power structure continues to be cleaner. Like Europe and the United States, Latin America has a declining overall electricity demand.
With demand declining, the proportion of clean energy in power supply has increased. According to a report by the International Energy Agency,
In 2020, the share of hydropower in total power generation in Latin America (excluding Mexico) is expected to rise to
ÿÿÿ ÿ In the first 10 months of 2020, Brazil's renewable energy accounted for 90% of total electricity generation, growing by 2% during the , Compared with 2019
same period. The proportion of photovoltaic and wind power generation in Mexico increased to 10%, compared with , The same period in 2019 was
ÿ ÿÿ , Coal-fired power generation accounts for 41% , 73% in the same period in 2019 ÿÿ

Second, the installed capacity of renewable energy in many countries has maintained steady growth. This reflects the fact that countries have overcome difficulties.
It is difficult to actively promote the planning, construction and operation of clean power projects. Take major regional economies as an example.
Brazil added 1,725 MW of wind power installations and 793 MW of solar power installations in 2020. Both accounted for 1,725 MW of new installed capacity throughout the year.
50 9% of the installed capacity will , Currently, 74.76% of Brazil's installed electricity capacity comes from renewable energy sources. ÿ 2020
In the first half of this year, Brazil's newly installed distributed photovoltaic capacity increased by 30% year-on-year to 2,987 MW, which was three times that of a ,
year ago. ÿ Argentina is expected to install more than 4,000 MW of renewable energy.
Bioenergy, the Gaocharui 300 MW photovoltaic power generation project undertaken by a Chinese enterprise has officially been put into commercial operation.

Ÿ Zhang Rui, Kou Jingna: « "Yellow Vest" Politics and Europe's Energy Transformation», published in «Reading», Issue 8, 2019, Page 5.

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It is currently the largest photovoltaic power station in the country. Chile added 6,000 MW of wind energy, solar energy and biofuel installed capacity in 2020, a record-high growth rate. The installed capacity of non-water renewable energy has accounted for 39.4% of the country's total installed electricity capacity. Among them, wind power development has accelerated significantly. The installed capacity under construction in 2020 exceeded 2,000 MW, which was 5 times the construction scale of the previous year. ÿ Colombia has 21 renewable energy projects under construction in 2020, pushing the country's wind and solar installed capacity from It increased from less than 50 megawatts in 2018 to 2,500 megawatts in 2022. In December 2020, the Mexican Public Electricity Company (CFE) proposed a plan to add 500 megawatts of renewable energy installed capacity and transform 9 hydropower stations in the next five years. The investment is expected to be US$600 million. Third, the bidding and auction of renewable energy continues. This reflects that the strong development needs of some countries have not been weakened by the epidemic, and the region still has broad investment space. The Brazilian government released in December 2020 The bidding plan for the next three years is to prepare to launch 51 GW of renewable energy projects in 2021-2022. In July 2020, the Chilean government awarded 11 renewable energy projects in the country through auction. Purpose development rights, with a total capacity of 26 GW, and total investment expected to exceed US$2.5 billion. The winning bidders include Industry giants such as Electricite de France (EDF) and Italian Electricity Company (Enel) are preparing to continue to launch 231 terawatt hours of renewable energy and energy storage tenders in 2021. The Colombian government announced in December 2020 that it will 5 GW of renewable energy will be auctioned in 2021, and the winning project is required to be connected to the grid by the end of 2022. This is the country's next step after holding its first renewable energy auction in 2019. Ecuador completed 310 GW of renewable energy in December 2020. Tenders for renewable energy projects in 2020, with a total investment of approximately US$400 million, and a 595-MW hydropower project will also be tendered in 2021. Fourth, countries continue to expand into new areas of transformation and enhance the trend of diversification of energy sources. The Brazilian government has Due to construction cost considerations, offshore wind power has not yet been developed. However, in July 2020, Bento Albuqueerque, Minister of Mines and Energy, stated that the government will initiate the development of this field, believing that the country has the potential to develop electricity before 2050. Deploying 16 GW of offshore wind power. In August, Equinor applied to the Brazilian Ministry of Mines and Energy to conduct an environmental assessment in the waters near Rio de Janeiro, and to conduct preliminary project planning for the construction of the world's largest offshore wind farm on the country's coast. This shows International investors are sensitive to policy trends. The Chilean government is committed to developing hydrogen energy. In October 2020, Chilean Electric Power Company and Chilean Petroleum Company joined forces with several multinational companies to start construction of the country's first green hydrogen plant.

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ÿ «Norwegian Equinor will build the largest offshore wind farm in Brazil» Polaris Wind Power Network September 1, 2020 http:// news bjx com cn / html / 20200901 / 1100966 shtml [2021-01-30]

When completed in 2022, it will be the largest hydrogen production plant in Latin America. In November, the Chilean Ministry of Energy launched a national green hydrogen strategy. The goal is to achieve 5 GW of renewable energy power generation hydrogen production installed capacity by 2025. By 2030, it can produce the world's largest hydrogen production plant. The cheapest green hydrogen. In 2040, the country will become one of the world's major exporters of hydrogen energy. In addition, the cleanliness of urban transportation has become an important regional transformation trend. In 2020, cities such as Bogota and Medellin in Colombia, Sao Paulo and Rio de Janeiro in Brazil have all implemented For example, Sao Paulo is preparing to put into use more than 3,000 electric buses in the next two years. Currently, five Latin American cities including Mexico City, Quito, Medellin, Santiago, and Rio de Janeiro have signed «C40 None Fossil Fuel Street Declaration»ÿ Committed to purchasing only zero-emission buses from 2025 and achieving zero-emission urban transportation by 2030.

Fifth, major regional economies show strong investment attractiveness. According to the "Global Renewable Energy Country Attractiveness Index" (RECAI) released by Ernst & Young, Latin American countries are among the 20 most attractive renewable energy markets in the world. Occupying three seats, Chile and Brazil rose from the 13th and 16th places in 2019 to the 11th and 15th places in 2020 respectively. Argentina only dropped one place and ranked 19th. Among them, Chile ranked 19th in the gathering. The attractiveness of the photovoltaic solar power generation (CSP) field ranks second only to China, ranking second in the world. Of course, the overall development of the region does not

mean that all countries maintain common progress. For example, in Mexico, although it is still advancing Clean power projects maintain development momentum, but a series of policies that suppress renewable energy in disguise have seriously affected the country's transformation prospects. In the Ernst & Young RECAI index, Mexico's investment attractiveness fell by 8 places in one year, falling to 33rd place. For example, some Central American and Caribbean countries have no time or ability to promote the development of renewable energy in the face of the epidemic. Their transformation in the initial stage may stall.

Four energy transformation drivers beyond the epidemic

Although it is currently impossible to judge the trend of the epidemic in Latin America, overall, the trend of energy transformation in Latin America is expected to continue and is difficult to reverse, mainly because the region has some solid and outstanding development momentum. These positive factors stem from both The advantages that Latin America's energy system has already developed include this

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ÿ The declaration was proposed by the C40 Cities Climate Leadership Alliance and is currently signed by 35 cities around the world. For details, see "Fossil-Fuel-Free Streets Decla ratio"ÿ October 25ÿ 2017 https: / / www c40 org / other/ green - and - healthy - streets

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Some contradictory effects of the epidemic.

(1) An unshakable power development pattern

Before the epidemic, some Latin American countries had already formed power systems with the lowest carbon emissions in the world, such as In 2019, Paraguay, Costa Rica, and Uruguay's renewable energy power generation accounted for 10% of the total power generation. The proportions are as high as 100% ÿ ÿÿÿ ÿ 98% ÿÿ For these countries, they have found their own Integrate clean resources and achieve sustainable development in the energy field. The future development direction focuses on improving The reliability and economy of clean power systems, and accelerating the energy transformation in transportation, construction and other fields. South Government decision-making and business investment in the United States have formed the development inertia of energy transition. 2010-2019 During this period, the renewable energy power generation of Chile, Brazil, Colombia, and Argentina increased by 84%, while their fossil energy ÿ ÿÿÿ ÿ ÿÿÿ ÿ ÿÿÿ ÿ power generation only increased by 59% during the same period. ÿ ÿÿÿ ÿ ÿÿ ÿ 16%. Except for Peru, the growth of renewable energy power generation in other countries in the region is greater than that of fossil fuels. The growth of fossil energy. ÿ Many Caribbean countries have focused on the development of renewable energy after experiencing many hurricane disasters in recent years. (especially off-grid photovoltaic) as an important response measure to disperse disaster risks and shape the resilience of the power system. disaster capacity. From 2015 to 2019, the Caribbean increased renewable energy capacity by 50% to 3.4 GW, with solar energy , From 2 3 growing from 330 MW in 2015 to 2019. 950 MW, an increase of almost 3 times. ÿ

(2) Economics of renewable energy development

Latin America has excellent natural conditions, good power grid infrastructure, and continuous technological advancement. Mature, the region generally has globally competitive renewable energy development costs. According to Global Energy Research by the Internet Development Cooperation Organization, solar and wind power generation in Latin America (excluding Mexico) in 2020 The average development costs of energy are the lowest in the world, which are 234 cents/kWh and 318 cents/kWh respectively. The global averages of the two are 279 cents/kWh and 408 cents/kWh respectively. South The LCOE of hydropower in the Americas is 6 cents/kWh, which is only slightly higher than the cost in Asia globally. Far lower than the world average (18 5 cents/kWh). ÿ Such advantages enable various countries to The price of electricity from various sources continues to fall and is far lower than that of fossil fuels. For example, in July 2019, Brazil

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ÿ The data is quoted from the IEA database: https: / / www iea org / data - and - statistic s? ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ ÿ ÿÿÿ ÿÿÿÿÿÿÿÿÿÿ [ÿÿÿÿ ÿ ÿÿ ÿ ÿÿ]

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ÿ Global Energy Internet Development Cooperation Organization: «Research on Global Clean Energy Development and Investment» Beijing: China Electric Power Publishing Society, 2020, page 108, page 152, page 194

In the photovoltaic project bidding, an average power purchase agreement (PPA) price of 1,75 cents/kWh was auctioned, creating a new low in global photovoltaic electricity prices. This price was only half of the Brazilian thermal power auction price in 2013. Another example is Jue Most Caribbean countries need to import fossil fuels to support thermal power generation. The cost of thermal power itself is very high. In 2020, the on-grid electricity price of thermal power in Jamaica was 30 cents/kWh, while the electricity price of renewable energy was only 8.5 cents/kWh.ÿ Barbados, the Bahamas, Puerto Rico and other countries had prepared to expand natural gas imports and build new thermal power plants. However, in view of the sharp drop in the cost of renewable energy, they have significantly changed or suspended their previous gas and electricity plans and focused on increasing photovoltaic and wind energy. The economic difficulties caused by the epidemic have obviously It will further amplify the price advantage of renewable energy. In 2020, Brazil's distributed photovoltaics achieved unexpected share growth, mainly because more and more residents realize that "generating their own electricity" can save living expenses than buying electricity from the company, and are more willing to Choose products that save money in times of economic contraction.

(3) Limited investment prospects for fossil energy. Energy transition is a process of ebb and flow of old and new energy sources. Since the epidemic, oil prices in many areas of Latin America have been far below the marginal cost of oil extraction in the region. According to the Institute of Natural Resources Governance According to the assessment, even if the price of Brent crude oil rises to US$50 per barrel, a large number of oil projects currently producing in Latin America will still not be able to achieve breakeven. When the price is lower than US$50 per barrel, Brazil, Colombia, Peru and Venezuela will have at least 40 % of the projects do not have commercial development value. ÿ This also means that many planned but undeveloped projects in the region (especially deep-sea oil and gas fields) have become stranded assets, making it difficult to invest in the short to medium term, prompting the oil and gas industry in the region to seek business Diversification and cleanliness. Many oil and gas resource countries in the region are facing a sharp drop in domestic and foreign investment. Petrobras announced in December 2020 that it would reduce its investment in exploration and production in the next five years from the original plan of US$64 billion. 46 billion U.S. dollars, and is preparing to sell its eight refineries. In the same month, the Brazilian government auctioned 35 offshore oil and gas field blocks, but the bidding was cold and only one was successfully sold. In recent years, the Argentine government has invested heavily in shale in the Patagonia region. The country has placed high hopes on oil and gas resources and regards it as a growth point for the oil and gas industry. However, in view of the current oil price situation, oil giants such as Chevron, Shell and Exxon Mobil have withdrawn their previously expressed investment intentions, and the country has been brewing for several years. The "rock revolution" is falling into a quagmire. Small and medium-sized countries in the region are under greater pressure. The cliff-like decline in oil export revenue has sounded the alarm of the "resource curse": From January to October 2020, Ecuador's

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Oil export revenue fell by 4.218% compared with the same period in 2019. ÿ , That is, it dropped from US$5.081 billion to US$29.39 Bolivia's oil export volume in 2020 is expected to drop by 35% compared with 2019, only 30% of the export volume in 2014. ÿ Some people are optimistic that the epidemic is creating new opportunities for regional oil countries. A "self-fulfilling economic prophecy" that "low oil prices mean governments must cut the budgets of their national oil companies to meet other more pressing social and health needs, which will reduce future oil production and reduce these countries' dependence on oil revenues." dependence ÿ"ÿ

The prospects for the regional coal market are even more pessimistic. Coal has long been Colombia's second largest export commodity and the country's main source of foreign exchange. Colombia's previous coal export market was mainly Europe. During 2011-2013, Europe accounted for more than 50% of its exports. However, as European countries accelerate the phase-out of coal power, the European market share has shrunk to about 10% in the past two years. The global share of coal power continues to shrink due to the epidemic. If Colombian coal is exported to Asia, compared with coal from Australia, Indonesia and Russia, Without a price advantage, the country's coal industry is already in a dilemma of finding a market. In the first 11 months of 2020, Colombia's total coal export revenue was US$3.88 billion, which was lower than the US$5.26 billion in the same period in 2019. Coal in November 2020 Monthly export revenue was US$1.5 billion, the lowest level since December 2008. (4) Regional green recovery trend Facing the impact of the epidemic on the economy and society, many countries in the region have proposed clear

green recovery strategies, or Take measures to

encourage renewable energy. The Chilean government stated that it will use 30% of the public funds in the recovery plan for sustainable and green projects, focusing on promoting the development of renewable energy. In April 2020, the country proposed a new emission reduction target and promised Achieve carbon peak in 2025 and achieve carbon neutrality in 2050, and these goals do not require obtaining international funds as a prerequisite. The Colombian government proposed the "Clean Growth Plan" in August 2020, which includes an investment of 16 billion Colombian dollars. pesos (3.5 million euros) to accelerate 27 renewable energy and transmission projects, hoping to create about 550,000 jobs. Brazil has launched a number of industrial support policies since the epidemic: President Bolsonaro in June 2020 Signed a new bill that allows all types of renewable energy projects to issue tax-free bonds. Previously, only priority projects recognized by the government had such financing rights. In July, the Brazilian government announced that 101 types of photovoltaic equipment would be included in the zero-tariff list and tax holidays

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ÿ Zhong Rui: "Colombia's coal export volume hits record low", published in "China Energy News", Page 5, January 11, 2021.

Until the end of 2021, this move aims to reduce the cost of photovoltaic development in the country and stimulate the market competitiveness of local enterprises. In July 2020, Jamaica proposed a new energy transformation goal, that is, to achieve 100% renewable energy power supply by 2037. The epidemic has also highlighted the fundamental role of electricity supply in ensuring health services, prompting some countries to accelerate transformation. For example, Haiti is a country with severe regional power shortages. Hospitals can only obtain power from the power grid for a few hours every day, which means they cannot operate at all. There is no guarantee that infected patients will continue to use ventilators. The Haitian government issued a tender for a 130-megawatt photovoltaic project in July 2020, trying to change the current situation of only 3 megawatts of photovoltaic installed capacity in the country in the short term. The World Bank also announced in 2020 In October 2016, it provided $6.9 million in emergency assistance specifically to support renewable energy projects used by medical institutions.

Regional international organizations actively guide countries to launch a green recovery. The United Nations Economic Commission for Latin America and the Caribbean released a report in October 2020, pointing out that “investment in renewable energy technology is an opportunity for the region to recover quickly in the post-epidemic era.” Before 2030, the region will The system development of renewable energy is expected to create 7 million jobs, and the photovoltaic equipment and wind power equipment manufacturing industries alone are expected to provide 1 million jobs. ÿ The Latin American Energy Organization continues to track the energy systems of various countries and pay attention to the various difficulties faced by the current transformation . ÿ It is recommended that all countries put the development of renewable energy

at the core of economic recovery. (5)

Participation of foreign countries. From the perspective of the Latin American industry, changes in the US political situation are conducive to regional energy transformation. During his tenure as Vice President, Biden paid great attention to Latin America. Regarding energy affairs, he participated in the Energy Summit organized by the Caribbean Community in 2014 and proposed the "Caribbean Energy Security Plan". This plan mainly provides renewable energy project assistance and assistance to Caribbean countries through the US Agency for International Development, the Trade and Development Agency and other departments. Countries such as Jamaica, Dominica, and Grenada have all been beneficiaries of this plan. In 2016, Biden emphasized the United States' support for geothermal development in Latin America and power interconnection projects in Central America. In addition, the Obama administration also proposed to Latin American countries The "Americas 2020 Grid Interconnection Plan" hopes that countries in the Western Hemisphere will build an intercontinental power grid that can achieve large-scale deployment of renewable energy. Based on past policies and statements before and after the election, the Biden administration is likely to promote Latin America's energy transformation in the following three aspects. First ÿ Taking combating climate change as the starting point, we will increase the transfer of renewable energy technology to Latin America and promote more US companies to invest in Latin American green industries. In November 2020, after Biden was elected, he had phone calls with the presidents of Argentina, Chile and Costa Rica. Both talked about the necessity of international climate cooperation, “Cooperation in the field of renewable energy is expected to be successful.

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It is a core pillar for building a new relationship between the United States and Latin American countries." ÿ Some commentators believe that although the Mexican government is relatively lax about energy transition, the Biden administration is expected to list climate change and renewable energy as a priority item in the bilateral agenda and restore the power of the Obama era. Second, it has prompted U.S. financial institutions and U.S.-led multilateral financial institutions (especially the World Bank, Inter-American Development Bank, etc.) to increase loans to Latin American renewable energy projects and climate adaptation projects, and Biden has already The announcement that the United States will return to the Green Climate Fund will also increase financing sources for Latin American countries. Third, the Biden administration is prepared to seek to link climate goals with trade policies, imposing carbon tariffs or taking measures to impose carbon tariffs on high-carbon emitting countries and high-carbon products. Quota measures. Latin America's energy resources, mineral resources and agricultural product exports are bound to face new requirements in low-carbon, green and other aspects. This will force some countries to adopt active transformation strategies.

European countries still have high enthusiasm for investment in Latin America's energy transformation. The region's robust infrastructure Demand, sufficient land supply, low development costs and local content requirements, a relatively stable business environment, and historically close industrial ties have all made Latin America a market where large European developers continue to focus. This basis for cooperation has not changed. Changes have occurred due to the epidemic. In the past 10 years, European developers have dominated the Latin American renewable energy auction market. Most of the top ten companies with the largest renewable energy capacity in the region are European companies, including EDF and EDF. , French natural gas group Suez (ENGIE), and Spanish Iberdrola (Iberdrola) are among the bestÿ. They are also actively participating in the latest auction plans released by Latin American countries after the epidemic. Moreover, European companies can sometimes play a leading role in transformation, such as in 2020. In May, Enel's Chilean branch announced that it would close its last coal-fired power plant in 2022, completing the decarbonization plan 18 years ahead of the previous agreement with the Chilean government. This will be the first power company in Chile to completely withdraw from the coal industry. ÿ In addition, the EU seeks to strengthen green recovery cooperation with Latin American countries. On December 14, 2020, the EU and Latin American countries held a meeting of foreign ministers. 49 foreign ministers stated in the "Joint Statement" that "a strong and sustainable green recovery must be ensured". "Recovery" and strengthen the green partnership between Europe and Latin America. In terms of specific measures, the EU will set up a 33 million euro plan to specifically support the sustainable transformation of Latin American small and medium-sized enterprises. The EU has launched a project called "LAGREEN" with a funding scale of 449 100 million euro green bond fund, led by the German government

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The EU Investment Fund has participated in financing, focusing on supporting the green recovery of Latin America. The Chilean green hydrogen plant mentioned above has received support from the fund as a pilot project. EU countries will strengthen cooperation with Latin American countries on hydrogen energy, especially evaluating Latin American countries. production capacity potential and help interested countries build regulatory systems. ÿ The EU's advanced hydrogen energy layout in Latin America is expected to help some countries become green hydrogen exporters and shape a new pattern of global clean energy trade in the future. China will

continue to play a leading role in Latin America's energy transformation process Play an active role. In recent years, with its advanced industrial chain and technical level, China has deeply participated in the development of renewable energy in regional countries, provided a large number of high-quality and low-cost power equipment, and delivered world-class experience in electric field and grid operation and maintenance, forming a A mutually beneficial and win-win cooperation pattern for both parties. In the face of the impact of the epidemic, in July 2020, State Councilor Wang Yi mentioned at the special video conference of China and Latin America and the Caribbean Foreign Ministers in response to the new coronavirus epidemic that China is willing to continue to work together under the framework of jointly building the "Belt and Road" Countries in the region are deepening cooperation in infrastructure, energy and other fields, and promoting China and Latin America to strengthen cooperation in the field of clean energy. ÿ These statements reflect China's strategic emphasis on Latin America's energy transformation needs and the direction of green cooperation between China and Latin America. Currently, large-scale investments by Chinese energy companies Continue to flow to Latin America: In November 2020, the State Power Investment Corporation successfully completed the acquisition of Zuma Energía, a large clean energy platform company in Mexico. This is the first major direct investment by a Chinese power company in the Mexican power market, and it is also the first major direct investment in Latin America in 2020. The largest renewable energy M&A project. In the same month, State Grid Corporation of China acquired CGE, Chile's largest power distribution company. The total transaction amount reached 2.57 billion euros. It was one of China's largest investment projects in Chile in recent years and helped Chile shape its renewable energy. In 2020, a large number of Chinese electric buses (mainly BYD and Yutong) were put into operation in the Latin American market, accounting for more than 90% of the electric buses in operation in the region. By the end of 2020 and 2021 In January, BYD won two consecutive bids for electric bus orders from Colombia, totaling nearly 1,000 units, fully demonstrating the potential for cooperation between China and Latin America in transportation transformation. For Chinese industries, it is necessary to closely follow the specific policies for green recovery in Latin American countries and pay attention to In response to the needs of regional countries in emerging fields such as energy storage, ultra-high voltage, smart grids, electric vehicles, hydrogen energy, and offshore wind power, we must be prepared to seize market opportunities, plan business layout, and promote diversified, technology-intensive international production capacity cooperation. ÿ

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«Work together to respond to the challenge of the epidemic and promote the construction of a community with a shared future for China and Latin America and the Caribbean - Keynote speech by State Councilor Wang Yi at the special video conference of China and Latin America and the Caribbean Foreign Ministers in response to the new coronavirus epidemic», China-CELAC Forum website, July 24, 2020 ÿ ÿÿÿ: / / ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ / ÿÿ / zyxw/ ÿ1ÿ0 0484 htm [2021-01-30]

Five conclusion

This article puts forward the concept of contradictory impacts, emphasizing that the epidemic is a "risk amidst the crisis" for the global energy transition. Some impacts pose imminent challenges, but they also generate momentum that needs to be grasped. Challenges brought by the Latin American epidemic In the future, the uncertainty of regional energy transformation will increase, and it may even have a serious impact on individual countries and individual industries. At the same time, Latin America's energy transformation has maintained a steady development trend. On the whole, opportunities outweigh challenges. The foundation of most countries The demand for facilities, technology improvement, and policy support remain unabated. The momentum of Latin America's transformation is still significant, forming a favorable situation for the development resilience of the energy system, clean and low-carbon investment inertia, and international cooperation.

In the near and medium term, the following four aspects of energy transition in Latin American countries deserve continued attention and analysis: First, whether each country's energy transition policy can maintain stability, which is related to the shaping of the business environment and the confidence of domestic and foreign investors. It is also related to whether countries can truly implement their climate emission reduction commitments. Second, whether countries can establish sustainable development business models, which is related to the role positioning of the public and private sectors and the interest pattern of the energy industry. Third, whether countries' fossil energy industries can and how to adapt to the current transition. The experience of European countries shows that energy transition can easily cause damage to the interests of certain groups (such as workers in the fossil energy industry and communities that rely on oil and gas development), thereby triggering social conflicts and political tensions. Fourth, countries outside the region are The trend of competition and cooperation in the Latin American energy market, especially how China can maintain its advantage in more intense market competition and how to open up new opportunities for third-party market cooperation.

(Editor Huang Nian)