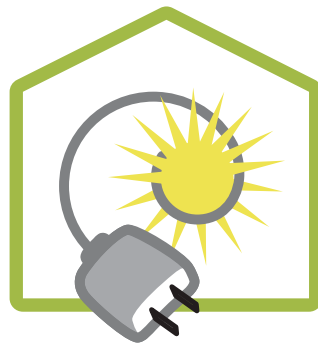
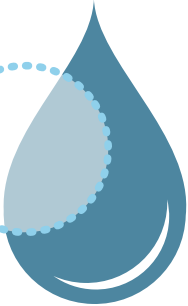
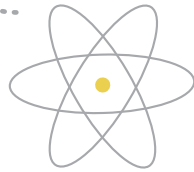




Looking Back to Look Ahead

AN ANALYSIS OF PROVINCIAL
14TH FIVE-YEAR PLANS
(2021-2025)

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About the California-China Climate Institute

The California-China Climate Institute was launched in September 2019 and is a university of California-wide initiative housed jointly at UC Berkeley's School of Law and the Rausser College of Natural Resources. It is Chaired by Jerry Brown, former Governor of the State of California, and Vice-Chaired by the former Chair of the California Air Resources Board Mary Nichols. The Institute also works closely with other University of California campuses, departments and leaders. Through joint research, training and dialogue in and between California and China, this Institute aims to inform policymakers, foster cooperation and partnership and drive climate solutions at all levels.

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Executive Summary

In September 2020, China announced “dual carbon” goals (双碳目标 | shuangtan mubiao) to peak its carbon emissions by 2030 and carbon neutrality by 2060. Meeting these goals will require a major transformation of China’s energy system and changes throughout different sectors of the Chinese economy.

China has used five-year plans – vast undertakings involving hundreds of national and provincial government agencies – to orchestrate larger changes in its economy since its first such plan took hold in 1953. China’s 14th five-year plan (2021-2025) provides a window on the country’s pivot towards a lower carbon economy, but did not begin in time to incorporate China’s dual carbon goals. As preparatory work gains momentum for the 15th five-year plan (2026-2030) – which will encompass China’s 2030 carbon peaking goal – insights from the 14th five-year planning period can help to guide efforts.

This report examines policies and measures to mitigate and adapt to climate change in China’s 14th five-year plans. The analysis covers national and provincial overall framework plans, as well as sector-specific plans for energy, transportation, buildings, industry, and environmental conservation. Drawing on successes and shortcomings of the 14th five-year plans, the report provides recommendations for enhancing how climate change mitigation and adaptation are incorporated into the 15th five-year planning cycle.

SIGNS OF PROGRESS, FRICTION, AND INNOVATION

The report highlights the significant progress made by China’s national government and provincial governments in their 14th five-year plans, in terms of laying a foundation for reducing greenhouse gas (GHG) emissions and adapting to climate change in the coming decades. This foundation includes administrative changes, such as inter-agency coordination on policies to improve air quality and reduce GHG emissions, as well as policy changes to conserve ecosystems, sequester carbon, and facilitate climate adaptation (Section 2.2.2). This foundation also includes significant changes in industrial policy, including plans to massively expand renewable energy (Section 3.1) and implement low-carbon industrial transition strategies (Section 3.2). It also includes targets and strategies for greening the transportation (Section 3.4) and building sectors (Section 3.5).

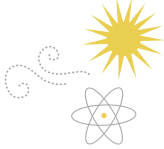





At a provincial level, efforts to lay this foundation were uneven. Perhaps contrary to perception, five-year planning in China is not a top-down process. The 14th five-year plans have reflected tension between national climate goals and various degrees of provincial alignment with them. Several provinces in China’s northern regions have been clearly out of step with national goals for carbon intensity (Section 2.2.1), whereas other provinces have been on target for 2030 goals. All provincial FYPs have emphasized a low carbon transition for energy, buildings, industry, and transportation (Section 2.2.1, Sections 3.1-3.5). Some provinces have developed detailed plans for greening specific sectors, whereas other provinces have had limited detail or entirely lacked plans for some sectors (Sections 3.1-3.5).

Even so, the 14th five-year plans have shown how policy innovation and problem solving at the provincial level can trickle up to the national level. For instance, 11 provinces have developed plans for addressing and adapting to climate change in the 14th five-year planning cycle, even though China did not have a national framework for climate adaptation until 2022 (Section 2.2.2). Even for sectors where national government agencies did provide a high-level framework, provinces have developed strategies – for the electrification of heavy trucking in Shanxi, for example, or for efficient multi-modal transport systems in Jiangsu and Shanghai (Section 3.4) – that were tailored to their economic realities. The diversity of approaches in the 14th five-year plans illustrate that, as in the U.S., Chinese provinces serve as important laboratories for climate policy innovation.

KEY HIGHLIGHTS

China's national goals for reducing carbon dioxide (CO₂) emissions have historically been in intensity terms – i.e., CO₂ emissions per unit of GDP. Meeting China's dual carbon goals, however, will require absolute reductions in CO₂ emissions. Neither national nor provincial 14th five-year plans have incorporated absolute limits on emissions. Instead, the 14th five-year plans have continued the central government's historical preference for CO₂ intensity goals, which are set at 18% below the 2020 level by 2025, and 65% below the 2005 level by 2030 (Section 2.2.1).

Ultimately, reductions in CO₂ and other GHG emissions will come from changes in energy and land use in specific sectors. At a sectoral level, several themes have emerged in the 14th five-year plans.

 <p>ENERGY SUPPLY</p>	<p>Provincial plans had a strong focus on renewable energy. The sum of provincial goals for solar and wind generation (1,236 GW) and hydropower (423 GW) by 2025 exceeded the national government's goals for solar and wind (1,200 GW by 2030) and hydropower (380 GW by 2025). There has been less clarity in provincial plans or national direction on how to transition away from China's historical reliance on coal. (Section 3.1)</p>
 <p>INDUSTRY</p>	<p>Provincial plans for decarbonizing industry focused on energy efficiency, consistent with national goals (i.e., a 13.5% reduction in industrial energy intensity between 2020 and 2025). Some provinces have included strategies for low-carbon fuels and technologies such as hydrogen and carbon capture, utilization, and storage (CCUS). (Section 3.2.)</p>
 <p>TRANSPORTATION</p>	<p>Most (21) provinces have set targets for reducing CO₂ emissions from transportation that were close to the national government's 5% goal (i.e., a 5% reduction in CO₂ per passenger or per ton-kilometer by 2025, relative to the 2020 level). Electrification has been a common decarbonization strategy across provinces, but plans have diverged in their focuses and priorities. Seven provinces have developed specific plans for green transportation. (Section 3.3.)</p>
 <p>BUILDINGS</p>	<p>Nearly all (26) provinces have set goals for energy efficiency and onsite renewable energy consumption that were consistent with national goals (i.e., a 30% improvement in building energy efficiency and 8% onsite renewable energy consumption by 2025). Coastal provinces have been more ambitious in their goals. (Section 3.4.)</p>
 <p>NATURE-BASED SOLUTIONS</p>	<p>Nearly all (27) provinces have set targets for expanding forest coverage, with about half (15) establishing targets for wetland protection. (Section 3.5.)</p>
 <p>CLIMATE CHANGE ADAPTATION</p>	<p>Thirteen provincial climate adaptation plans have included strategies to enhance capabilities to monitor and assess climate-related risks, prioritize food security and climate-sensitive industries, and protect public health. (Section 3.6.)</p>

RECOMMENDATIONS FOR THE 15TH FIVE-YEAR PLANNING CYCLE

Drawing on analysis of the 14th five-year plans and a review of successes and challenges in their implementation, this report outlines several recommendations for better incorporating climate change mitigation and adaptation into the 15th five-year planning cycle (Section 4).

Providing clear national guidance and coordination. Clear national guidance – perhaps in the form of a national framework for climate change mitigation and adaptation, combined with ongoing consultation and coordination with provincial agencies – would help to better align national and provincial goals, set expectations for which plans provinces should develop and what they should contain, and coordinate mitigation and technology strategies across provinces.

Setting provincial carbon caps. Total CO₂ emissions targets (i.e., caps, in million tons of CO₂ per year), specific to each province, would better align provincial planning with the dual carbon goals and encourage provinces to plan in more detail for meeting these targets.

Prioritizing provinces that are falling behind of the national “dual carbon” schedule. Several industrial provinces (i.e., Heilongjiang, Inner Mongolia, Liaoning, Ningxia, and Xinjiang) are not on track to meet 2030 carbon intensity goals. Challenges remain to adapt their industrial and economic growth models. These provinces could be prioritized for engagement, national investment, technical assistance, and demonstration projects during the 15th five-year plan.

Aligning climate policy with other environmental goals. An important step during the 14th five-year plans was the development of national frameworks to link air quality policies with GHG emission goals, and environmental conservation policies with carbon sequestration and adaptation programs. National government agencies could deepen these links in the 15th five-year plan by encouraging provincial agencies to undertake joint planning, providing methodological frameworks and technical support for multi-objective planning, and encouraging coordination between sectoral and environmental compliance plans.

Coordinating energy supply planning across regions. Provincial plans for energy supply will likely need to continue to prioritize cross-province coordination in the 15th five-year plans, through regional and national planning for energy transport networks and emerging electricity markets. In addition, clarity from national agencies on how coal will be regulated would assist energy supply planning efforts at the provincial level.

Accelerating industrial transformation. China’s 15th five-year plans provide an opportunity to move beyond energy efficiency as the main strategy for reducing industrial GHG emissions by expanding new technologies (e.g., electrification, hydrogen, CCUS), new regulatory approaches (e.g., GHG emissions standards for carbon intensive industries, expanded cap-and-trade), new incentives, GHG reporting and disclosure tools, and “circular economy” concepts. Because provinces naturally want to protect their competitive industries, progress in reducing industrial GHG emissions will likely require national leadership and coordination.

Incentivizing green transportation and electrifying private vehicles. Provinces should consider developing green transportation plans to coordinate multi-modal green transportation development, including private vehicle electrification, and to deploy associated infrastructure. In addition, provinces and cities could further incentivize the decarbonization of the shipping and aviation activities by empowering the private sector, i.e., ports and airlines.

Promoting energy efficient buildings, green building materials, and onsite clean energy consumption via financial incentives and other means.

Diversifying how provincial progress is evaluated. Provinces face varied challenges in reducing GHG emissions due to differences in their natural resources and socioeconomic conditions. In the 15th five-year plan, national government agencies could develop a framework for goals and evaluation metrics tailored to the specific circumstances of different regions and/or individual provinces.

In the journey to achieve carbon neutrality, China and the U.S. have much to learn from each other in the coming years, as China develops and implements its 15th five-year plan. For instance, California's experience with GHG target setting, long-term planning for GHG emission reductions, and joint planning for air quality and GHG co-benefits can all provide important insights for Chinese government agencies. At the same time, U.S. federal and state agencies can learn from China's successes in electrifying transportation and its innovations in decarbonizing its industries. Furthering dialogue between China and the U.S. will help both countries consolidate their gains and strengthen their transition to lower carbon economies.