

The "14th Five-Year" policy trends for renewable energy development in China by technology



RE-project and energy storage capacity binding regulation

The market-oriented¹ wind power and solar PV projects approved since 2021 need to meet the preconditions for grid connection through the construction or purchase of energy storage and peak shaving capacity. The National Development and Reform Commission (NDRC) clearly stipulates that each new power generation project needs to be equipped with a minimum energy storage or peak shaving capacity of 4hr/15% of rated power, and the projects with an equipped ratio of more than 20% has the priority in grid connection.

They can implement energy storage/peak shaving capacity through self-construction, joint construction or purchase, and projects that choose to purchase peak shaving services are encouraged to sign long-term contracts for more than 10 years. Pumped hydro storage, chemical energy storage power stations, gas power plants, CSP plants, or flexible retrofit of coal power plants can all be included in energy storage/peak shaving projects. The equipped projects should be in the same province as the power generation project, and should be commissioned and connected to the grid simultaneously with the power generation project. At present, the equipped ratio of energy storage/peak shaving project to power generation project is unified throughout the country, while each province can make appropriate dynamic adjustments based on actual conditions. From 2022, the NDRC will update this ratio every year.²

References

[1] In May 2021, the NDRC published the Wind Power and Solar PV Project Construction Rules in 2021, clarifying the newly approved wind and solar PV installed capacity will be classified as guaranteed capacity and market-oriented capacity. Guaranteed capacity refers to the newly-added grid-connected capacity required to complete the provincial consumption target. The market-oriented capacity refers to projects that exceed the guaranteed capacity, yet the developers still want the project to be connected to the grid. These projects should be connected to the grid under the premise of sufficient dispatchable power sources and loads.

[2] “国家发展改革委 国家能源局关于鼓励可再生能源发电企业自建或购买调峰能力增加并网规模的通知, 发改运行〔2021〕1138号,” National Development and Reform Commission and National Energy Administration, 29 July 2021, accessed at https://www.ndrc.gov.cn/xgk/zcfb/tz/202108/t20210810_1293396_ext.html; Shi Jingli, “权威解读！刚刚发改运行〔2021〕1138号文发布,” China Energy Daily, 10 August 2021, accessed at <https://baijiahao.baidu.com/s?id=1707710817653495244&wfr=spider&for=pc>.



County-wide rooftop solar PV pilot program

China has abundant building roof resources, characterized by scattered distribution and small project scale, which to some extent restricts its scale-up development process. As a consequence, the National Energy Administration (NEA) requires local governments to voluntarily initiate the county-wide (city, district) rooftop solar PV pilot project. This requires the county (city and district) government to lead projects and cooperate with power grid companies and project developers in determining construction scale, operation mode, income distribution and policy support plans of the rooftop solar PV system. This must happen in accordance with the principle of “building as much as possible within the areas that have suitable conditions”. For areas selected in the rooftop solar PV pilot program, more than 50% of the total rooftop area of government buildings should be able to install roof-top solar PV system; 40% and above for schools, hospitals, village committees and other public buildings; 30% and above for industrial and commercial factory buildings; and 20% and above for rural household rooftops.³

The NEA specifically stated that this is not an administrative order, and whether or not to conduct pilots and how many pilots are to be conducted is determined by local governments based on their actual conditions. The final plan needs to be reported to – however, not approved by – the NEA. Regarding the concern of potential monopoly of installation contracting, the NEA has clarified that the market of project construction is to be open to all eligible engineering and equipment companies and determined through marketization principles. In addition, the approval and grid connection of utility-scale and distributed PV projects being processed in the region shall not be suspended because of the pilot.⁴

References

[3] "国家能源局：《关于报送整县（市、区）屋顶分布式光伏开发试点方案的通知》，" *National Energy Administration*, 20 June 2021, accessed at <http://www.chic.org.cn/home/index/detail?id=1100>.

[4] "对分布式光伏电站整县推进政策的疑问？对分布式光伏电站整县推进政策的疑问？," *National Energy Administration*, 9 July 2021, accessed at http://www.nea.gov.cn/2021-07/09/c_1310051436.htm.



Add 50 GW of BIPV from 2021 to 2025

During the 14th Five-Year Plan period, the national target is to add more than 50 GW of Building Integrated PV (BIPV). Coordinate the building application of solar PV and solar thermal systems based on solar energy resources, building conditions, and energy demand. Carry out regional distributed solar PV demonstrations with intelligent solar PV system as the core and energy storage and building power demand response as the carrier. Encourage the government to invest in public welfare buildings to strengthen the application of solar PV; promote solar thermal technology in public buildings with stable hot water demand; promote passive solar houses in rural areas.⁵

References

[5] "关于印发“十四五”建筑节能与绿色建筑发展规划的通知，建标〔2022〕24号," *Ministry of Housing and Urban-Rural Development*, 1 March 2022, accessed at http://www.gov.cn/zhengce/zhengceku/2022-03/12/content_5678698.htm.



Offshore wind is ready for scaling-up development

The NEA recently stated that China's offshore wind power now has a solid foundation for large-scale development. As one of the key areas of renewable energy in China, offshore wind power will present new development trends during the 14th Five-Year Plan period: 1) The layout of wind farms will shift from coastwise to deep-sea; 2) There will be more large-scale bases; 3) Integration of offshore wind power projects with marine farms, offshore oil and gas, seawater desalination, hydrogen energy, energy storage, and other energy or resources; 4) After the central subsidy is withdrawn, enterprises will rely more on the technical level of the industry and their operating conditions to make decisions, and give full play to the role of marketization. To this end, the government will organize the preparation of the *National Deep-Sea Offshore Wind Power Plan*, to orderly promote the pilot demonstration of deep-sea projects, actively promote the construction of offshore energy islands, and the exploration of "Power to X" such as offshore wind power hydrogen production.⁶

In order to facilitate the layout optimization and demonstration projects of deep-sea offshore wind, the NEA will focus on researching and formulating deep-sea offshore wind power planning and management methods, exploring the model of unified project development and power transmission, accelerating the organization of demonstration projects, planning and deploying a batch of deep-sea offshore wind power bases in areas where conditions permit, as well as forming a pattern of large-scale development.⁷ This will also help promote the construction of "offshore energy islands."⁸

References

[6] "权威声音 | 国家能源局王大鹏：海上风电是可再生能源发展的新领域，也是风电发展的重要方向," *National Energy Administration*, 16 November 2021, accessed at https://www.thepaper.cn/newsDetail_forward_15417258.

[7] "权威声音 | 国家能源局王大鹏：加快研究制定全国深远海海上风电规划和管理办法," *National Energy Administration*, 9 July 2021, accessed at https://www.thepaper.cn/newsDetail_forward_13524351.

[8] *Offshore energy island: an offshore energy system that collects tidal, wave, offshore wind and solar, and other forms of energy at sea, and comprehensively utilizes these renewable energy resources to produce electricity, desalinate seawater, salt and hydrogen, so as to serve islands that far from the mainland, offshore platforms and mariculture industry.*