

Just the FAQs

Chinese Green Energy Certificates (GECs)

9 August 2023

Contact for this FAQ:

David Fishman

Senior Manager

dfishman@lantaugroup.com

+86 185 1619 4400

Last week, China's National Development and Reform Commission (NDRC), Ministry of Finance (MoF), and the National Energy Administration (NEA), released NDRC (2023) Document No. 1044, with the lengthy but important title: *"A Notice on Doing a Good Job in Full Coverage of Renewable Energy Green Power Certificates and Promoting Renewable Energy Consumption"*.

The release of this document marks the start of a new era for China's domestic renewable energy certificate (the Green Energy Certificate or GEC) as an instrument to track renewable energy consumption. To kick off this era, let us review 12 of the most commonly asked questions about China's renewable energy certificate scheme while examining the effects of the new policy.

What is a Renewable Energy Certificate?

ANSWER: A renewable energy certificate (REC) is a marketised instrument that represents and enables tracking of generation and consumption of green electricity. Usually, one REC represents one megawatt-hour (MWh) of green power. The "marketised" part means that it may be traded between buyers and sellers, at a value determined by economic forces. Another term for this class of instrument is the "Energy Attribute Certificate" or EAC, a broader term for renewable energy certificates that is more common outside of North America, likely to avoid confusion with "REC" instrument that serves as the renewable certificate scheme in the USA and Canada. The Chinese domestic version of this instrument is the Green Energy Certificate, or GEC.

Is it normal for a country to have its own renewable energy certificate system like the GEC? What happens in countries that don't have their own certificate system?

ANSWER: Many countries or regions have a local certificate. Besides RECs in North America and GECs in China, the certificate used broadly across Europe is called the Guarantee of Origin (GO), while Australia uses something called a Large-scale Generation Certificate (LGC). Not every country or region has its own national certificate scheme, however. For countries that don't have a national system, certificates may still be issued and verified according to the International Renewable Energy Certificate (I-REC) Standard or other arrangements such as TIGRs (Tradeable Instruments for Global Renewables). I-RECs and TIGRs are used to prove green power consumption in countries that don't have their own certificate programme or where existing programmes are limited in scope or relatively new (for instance, China).

Using unbundled certificates to offset brown power consumption remains a viable choice for decarbonisation of power consumption.

How are these Certificates bought, sold, and used?

ANSWER: Chinese GECs are issued by the Renewable Information Management Center (RIMC) 国家可再生能源信息管理中心. Currently GEC can only be traded once to avoid market speculation. Certificates are traded from renewable generators to power customers to prove the consumption of green electricity. In some cases, the green certificate is transferred directly to the power customer together when they buy green electricity from the generator via a Power Exchange. This is a “bundled” certificate and provides clear supporting evidence that the power customer bought and consumed the green electricity. This certificate may be used as renewable consumption proof to their government, their investors, or any voluntary green consumption programme they participate in, like RE100. Chinese GECs come automatically bundled with purchases of green power from a renewable generator or power retailer, with the transfer backed by smart contracts on a blockchain.

By contrast, when the certificate is traded to a buyer without the purchase of green electricity, this is called an “unbundled” certificate. In China, unbundled GECs may be purchased in small volumes on the official green certificate trading platform, or in bulk by negotiating directly with a generator. In this scenario, the power customer is actually still using brown power, but paying a renewable generator for certificates that represent green power generated somewhere else and consumed by other power customers. The unbundled certificate model as practiced around the world is considered controversial by many climate stakeholders.

Why is use of unbundled certificates controversial?

ANSWER: Using unbundled certificates to claim consumption of renewable energy can be controversial because their consumption doesn’t change the electricity actually consumed by the power customer and doesn’t contribute to renewable additionality. Some climate sector stakeholders consider this to be a form of “greenwashing”, only taking on the appearance of climate-friendly actions without a material change in energy consumption behaviour. This is an issue common to unbundled certificates around the world.

Can unbundled certificates still be useful decarbonisation tools?

ANSWER: In TLG’s view, using unbundled certificates to offset brown power consumption remains a viable choice for decarbonisation of power consumption. The key is to ensure the green power associated with the unbundled certificate has not been claimed by any other entity as its own green consumption (as this would constitute double counting) and is retired after being traded once from generator to customer. Additionally, we advise unbundled certificates to be sourced from a generator within the same grid system as the power customer (to comply with the requirements for “same market boundaries” expressed by programmes like CDP).

It’s worth pointing out that that in many power markets around the world, unbundled certificates are often the *only* scalable option to offset brown power consumption, due to scarcity of renewables in the market, insufficient grid infrastructure to connect renewable generation to power customers, or utility design that doesn’t allow customers to choose what kind of power they consume. While China does have other options, scarcity of renewable supply in coastal provinces can still be a serious limitation. Despite their shortcomings, unbundled certificates are sometimes the best available choice.

With this new policy, China has gone from having one of the more restrictive scopes for certificate issuance, to one of the broadest.

Are unbundled Chinese GECs strong decarbonisation instruments?

ANSWER: Today, we consider modern Chinese GECs to be robust instruments, but this was not always the case. Historically, Chinese GECs had high likelihood to have been double counted with other renewable consumption claims. Early renewable projects were able to simultaneously issue GECs and other environment certificates such as the China Certified Emission Reduction (CCER). Many early GECs were issued to subsidised renewable projects to compensate for delayed subsidy payments, meaning those GECs had very little additionality and may have received both GECs and subsidy payments for the same generation. In more recent years, a new problem emerged: unsubsidised projects may have been able to off-take power to the grid company while selling unbundled GECs associated with that generation to customers at the same time. Since the grid companies used their power contract to claim renewable consumption for the China Renewable Portfolio Standard (RPS), where the grid companies may trade any surplus consumption, this created a clear double-counting scenario. These issues led programmes like RE100 to only conditionally accept GECs as proof of renewable consumption over the last few years.

However, in the new policy, the GEC is clearly defined as the sole instrument in China used to verify renewable consumption (thus, if renewable power is purchased via contract, but is not explicitly bundled with GECs, green attributes do not transfer to the power buyer, and they are essentially buying brown power). This has strengthened the robustness of the GEC considerably. The policy also urges the carbon market to align with the green power market to eliminate double issuance of CCERs and GECs. As with all unbundled instruments, however, potential buyers should still make independent efforts to verify the quality of any GECs purchased.

What kind of power generators can issue a green energy certificate in China?

ANSWER: Previously, only utility-scale solar and onshore wind could issue GECs. With this new policy, China has gone from having one of the more restrictive scopes for certificate issuance, to one of the broadest. According to the new GEC policy, generation types that may issue tradable GECs now include all wind power, including distributed and offshore wind, all solar power, including distributed and utility-scale solar, hydropower, biomass-to-power, geothermal power, and wave power.

Distributed solar is a notable and important new addition to this list, as rooftop solar currently comprises the majority of solar capacity in China, but rooftop solar plants in China were unable to issue GECs under the previous policy regime. This change was made possibly to enhance project returns for rooftop developers in oversupplied regions with weak power market prices (e.g., Shandong).

Another important feature of this policy is the way it treats the newly added eligibility of hydropower. Under this new policy, legacy hydropower grid-connected before 1 January 2023 can generate GECs, but they are not tradable; they automatically transfer to the regulated off-taker (the grid company) so it may claim green power consumption. On the other hand, new hydropower (grid-connected after 1 January 2023) may generate tradable GECs, but only if it sells its power on a merchant basis (i.e., marketised offtake). This was likely put into place to allow some hydropower to begin issuing GECs *without* causing a flood of inexpensive, potentially double-counted certificates associated with regulated, fixed-price hydropower.



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How about subsidised projects? Can they sell GECs?

ANSWER: Yes, the new policy allows for renewable projects that receive national subsidies to also sell GECs, provided the associated power is sold via the market and the ultimate subsidy received is reduced by an amount corresponding to the value of the GEC.

This new development reflects the evolving rules about green trading for subsidised projects. Originally, green power trading was only available for unsubsidised projects. Later, China began allowing subsidised projects to trade green power, provided they gave up their subsidies. This was attractive to some projects built in the later years of the subsidy scheme, since their subsidy levels were already low and they could see better returns by giving up the subsidy and selling green power (with a GEC) instead. Projects with higher subsidy levels found this arrangement unattractive, however, and naturally refused to give up their subsidies, which limited the green power supply available for market trading.

Recently, China began to allow even subsidised renewable projects to sell power in the markets, as long as they give up a portion of their subsidy corresponding to the GEC value. While this arrangement is more complex than the previous system, it expands the supply of green power in the market and allows subsidised projects to sell GECs without creating double compensation.

The GEC is the only instrument accepted as compliance proof for China's RPS scheme.

How do the changes to GECs affect compliance for China's Renewable Portfolio Standard (RPS)?

ANSWER: China released its newest quota requirements for RPS in August 2023. Obligated entities include grid companies, power retailers, direct-supply power customers, and certain high-consuming industrial segments. Since the new policy confirms the GEC is the only certificate that represents renewable energy generation and consumption in China, it is the only instrument accepted as compliance proof for China's RPS scheme. Power end-users will need to hold GECs to maintain compliance. Grid companies and retailers will need to either hold GECs themselves or demonstrate their customers hold GECs in order to maintain compliance.

What about I-RECs, TIGRs, or other domestic certificates?

ANSWER: Although there are still renewable projects issuing I-RECs and TIGRs in China, the only entities that should consider buying these are those trying to meet international voluntary compliance programmes like RE100, as I-RECs are not acknowledged by the Chinese government and cannot be used for RPS compliance. Because tens of millions of I-RECs have already been generated in China and have not yet been consumed by end-users, it is likely that two parallel markets will emerge in the short term, one using international instruments for voluntary compliance programmes and one using GECs for Chinese RPS compliance. Over the longer term, we expect the Chinese supply of I-RECs and TIGRs to dwindle as more generators will choose to issue GECs.

Additionally, some Chinese provinces have issued their own renewable certificates in the past, notably Sichuan, which issued green certificates for hydropower. These local certificates cannot be used for Chinese domestic compliance now, although it might be possible to use them for other voluntary programmes, for as long as they are still issued. Their future is now quite uncertain, but they will likely be phased out.

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About the Author:

David Fishman is a senior manager at The Lantau Group with 9 years of experience in the Chinese power sector, covering nuclear, coal, solar, wind storage, and grid infrastructure. At TLG, he focuses on our transactional and commercial due diligence work for energy developers, lenders, and financiers looking to buy, sell, or invest in Mainland China energy assets. His work in China also involves supporting MNCs with their evaluation and execution of their long-term power strategies, including evaluation and procurement of low-carbon power and renewable energy certificates. David is based out of the TLG office in Shanghai, serving the needs of our customers across Mainland China.

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How does this new policy affect the carbon credit market and CCERs?

ANSWER: This GEC policy poses a key question to the other major tradable environmental instrument in China, the China Certified Emissions Reduction (CCER). The GEC is intended to be the only recognised green attribute instrument in China, but the CCER itself also embodies green attributes, or at least it's supposed to, which makes its status more unclear now. CCER issuance has been suspended since 2017 but is widely expected to relaunch later this year in support of the 2nd compliance cycle for China's Emissions Trading Scheme. If the GEC holds monopoly status for embodiment of green attributes, then the CCER will have to be redefined to avoid overlap.

Any other important implications of this policy?

ANSWER: The policy emphasizes that power customers who can prove consumption of renewable energy by holding GECs will not have such power consumption counted towards their total energy consumption and energy intensity control quotas (i.e., the so-called Dual Controls). This will encourage end-user consumption of GEC-backed renewable energy in segments with strict Dual Controls benchmarks, especially for industrials struggling to meet those benchmarks.

Will these new rules for GECs change your company's approach to decarbonisation planning in China? Are you still trying to figure out how your strategy needs to evolve to account for China's rapidly changing energy sector? Perhaps we missed a key GEC question that you're still looking for an answer on? The Lantau Group can help. With over a decade's experience in the Chinese energy and electricity segments, and a roster of full-time staff on the ground in Shanghai, few other market consultants can match our team's depth of Chinese power policy and economic expertise.

To get started, just reach out to our Projects team at projects@lantaugroup.com or contact the author directly at dfishman@lantaugroup.com.

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