

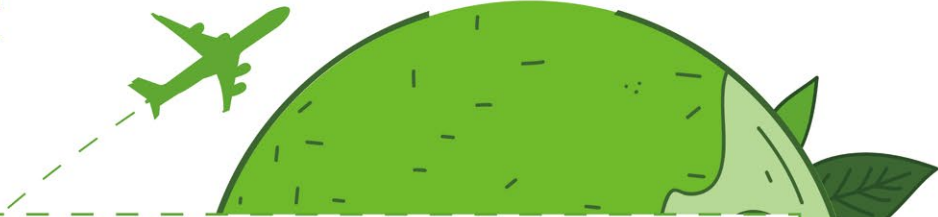
The Internationalization of the China GHG Voluntary Emission Reduction Program

the Carbon Offsetting and Reduction Scheme for
International Aviation

—— *CORSIA*




INTRODUCTION



The voluntary carbon market (VCM) is an important component of a country's efforts to achieve carbon neutrality and promote global climate governance. Since the China GHG Voluntary Emission Reduction Program (the CCER program¹) was launched in 2012, the voluntary carbon market has made a positive contribution to realizing carbon emission reduction targets throughout society at low costs and serving green and low-carbon development. In the process of building a community with a shared future for mankind and global climate governance, advancing the diversification and application of the CCER program is a concrete initiative to contribute China's wisdom and strength to the global fight against climate change.

In March 2020, the CCER program was approved as a supply mechanism of Eligible Emissions Units (EEUs) in the pilot phase (2021-2023) of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), a key step in the internationalization of the CCER program. The CORSIA is an initiative proposed and established by the International Civil Aviation Organization (ICAO) in 2016 to achieve the goal of zero growth in international aviation carbon emissions from 2020 onwards through market-based measures (purchase of EEUs). The CCER program has become an EEU supply channel in the pilot phase of the CORSIA, providing an offset option for civil aviation enterprises across the world to contribute on global aviation emissions reduction, bringing opportunities to its own program development worldwide and playing a key role in driving global climate governance and international cooperation. Currently, the CCER program is not involved in the re-assessment of the eligibility for EEUs organized by ICAO in early 2022 for later phases of the CORSIA.



From the perspective of improving the CCER program, this report explores the development of the CCER program against the backdrop of the CORSIA and systematically reviews the status of CCER development and the status of CORSIA implementation; and from the perspective of continuing the CCER program's supply of EEUs, it presents a comparative analysis of the design, implementation and other elements of the CCER program and the CORSIA. The report also gives a prospect of the international application and internationalization process of China's Certified Emission Reductions (CCERs) with the purpose of serving global climate governance and offers ideas and recommendations for the future development of the CCER program.

¹ The credits generated by China GHG Voluntary Emission Reduction Program (CCER program) are the China's Certified Emission Reductions (CCERs).

About The Guangzhou Emissions Exchange (CEEX)



The Guangzhou Emissions Exchange (CEEX) was co-founded by the Guangdong Provincial Government and the Guangzhou Municipal Government, under the pilot Emissions Trading Scheme (ETS) endorsed by the central government. It was designated as the sole auction and trading platform for carbon emissions allowances in Guangdong and was one of the first organisations certified by the NDRC as a CCER (China Certified Emission Reduction) trading platform. CEEX is the only organization within the Guangdong-Hong Kong-Macao Greater Bay Area selected for both the pilot ETS and the Pilot Zone for Green Finance Reform and Innovations.

About Environmental Defense Fund



Founded in 1967 and headquartered in New York, Environmental Defense Fund (EDF) is one of the world's leading environmental organizations. Areas that EDF works in include: climate and energy, oceans, ecosystems, health, etc. Since inception, EDF has been guided by principles of science and economics to find practical and lasting solutions to the most serious environmental problems.

Environmental Defense Fund (EDF) has been working in China since 1991. EDF China program endeavors to help China effectively achieve goals for environmental protection and low-carbon development through market mechanism. In 2017, EDF registered as the first foreign NGO under the supervision of China's Ministry of Ecology and Environment.

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CHAPTER I

Overview of the China GHG Voluntary Emission Reduction Program (the CCER Program)

I. Development of the CCER Program

2012

In 2012, the National Development and Reform Commission of China (NDRC) issued the *Interim Measures on the Management of the GHG Voluntary Emission Reductions (Fagai Qihou [2012] No.1668)* (the “*Interim Measures*”), marking the establishment of the China GHG Voluntary Emission Reduction Program (the CCER program). Under the *Interim Measures*, emissions reductions generated by voluntary emission reduction projects should be registered by competent national authorities in the national voluntary emission reduction trading registry. The registered emissions reductions are named as China Certified Emissions Reductions (CCERs), which can be traded in exchanges that have been put on record. All institutions and enterprises registered in China are allowed to participate in the trading of GHG voluntary emissions reductions.

2015

In January 2015, the national voluntary emission reduction trading registry was officially launched. For the development of emissions reductions, all enterprises and legal persons registered in China can apply for the registration of GHG voluntary emission reduction projects and emissions reductions.

2017

In March 2017, the National Development and Reform Commission (NDRC) officially released the *Announcement on Suspending the Applications for GHG Voluntary Emission Reduction Trading Methodologies, Projects, Emissions Reductions Issuance, Validation and Certification Bodies, and Exchanges*, hitting the pause button on the development of new projects and the issuance of emissions reductions under the CCER program. At present, national authorities are actively preparing for the upgrading and relaunch of the CCER program.

The CCER program prior to such suspension basically followed the framework of the Clean Development Mechanism (CDM) for the development process, which consisted of six steps: project document design, project validation, project registration, project implementation and monitoring, emissions reductions verification and certification, and emissions reductions issuance. Moreover, national authorities once published 12 batches of 200 methodologies, which were divided into three categories: voluntary emission reduction methodologies for conventional projects (109 methodologies), voluntary emission reduction methodologies for small-scale projects (86 methodologies), and voluntary emission reduction methodologies for agriculture and forestry projects (5 methodologies). In these methodologies, there are 173 derived from CDM.

By the end of August 2022, the CCER program had published 2,871 validated projects, approved and registered 1,315 projects and issued more than 77 million tonnes of CCERs to 391 projects. The nationwide accumulated trading volume of CCERs is over 449 million tonnes which had been traded majorly by agreement transaction or online trading. Of the nine exchanges on record, those in Shanghai, Guangdong, Beijing and Shenzhen dominated the trading volume, with details shown in Figure 1-1.

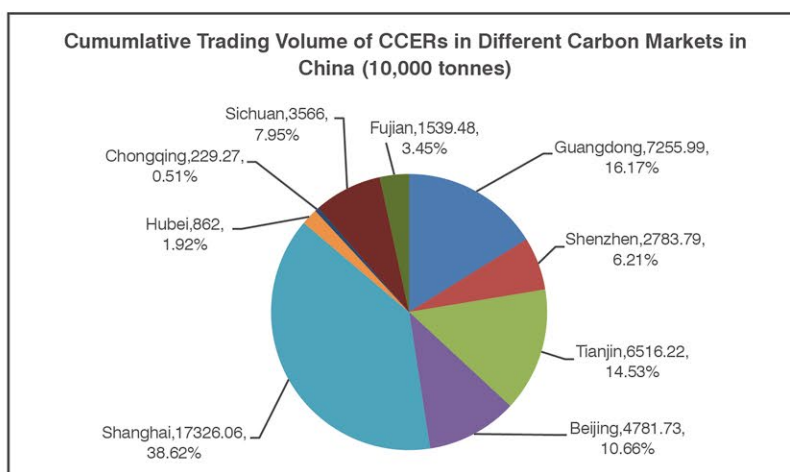


Figure 1-1 Trading Volume of CCERs (in 10,000 tonnes) at Each Exchange (as at the End of August 2022, Based on Statistics from Local Exchanges)

At present, both the national and local carbon markets allow the use of a certain percentage of CCERs to offset emission allowances for compliance. According to the National Center for Climate Change Strategy and International Cooperation (NCSC)², around 60 million tonnes of CCERs have been used to offset emission allowances in allowances in both national and local carbon markets. In the first compliance period of the national carbon market, about 34 million tonnes of CCERs were retired for fulfilling the compliance obligation.

² Source: A May 26 post titled "High-quality Voluntary Emissions Reductions are the Key to Achieving Climate Change Targets" by Environmental Defense Fund on its official WeChat account (<https://mp.weixin.qq.com/s/sfJYNBuucyepIS5MQPwHKA>, accessed June 14, 2022)

II. Significance and Implications of the CCER Program

As a supplemental option for compliance in the national and local carbon markets, CCERs can help enterprises covered by carbon markets comply at low costs; allowing the use of CCERs for carbon market compliance is also a flexible measures of regulating prices in the national carbon market. CCERs is an important option for business or social activities that wishes to achieve low-cost emission reduction or carbon neutrality. Meanwhile, the additional financial benefits generated from the development and trading of CCERs can also incentivize emissions reductions in sectors not covered by carbon markets, thereby promoting the application of more low-cost emission reduction technologies and projects, and lowering the overall emission reduction costs in society.

First of all, the CCER program can reduce the compliance costs of enterprises covered by carbon markets. CCERs are equivalent to allowances when they are used in carbon markets for compliance purposes, which can increase the supply of compliance instruments, reduce the equilibrium price, and then cut the compliance costs of enterprises covered by carbon markets. Generally speaking, the prices of CCERs are generally lower than those of allowances for the same period, thus reducing the compliance costs of enterprises.

Second, the CCER program can act as a flexible measures of regulating market prices. The offsetting mechanism design can help keep market fluctuations under control by regulating the supply of CCERs in addition to allowances, thus ensuring market stability and enabling price signals to effectively reflect the emission reduction costs.

Third, the CCER program can spur more application of low-cost emission reduction technologies and projects. The development and trading of CCERs may increase the return on investment and development of emission reduction projects, and therefore boost the popularization and application of low-cost emission reduction technologies. The economic and technologies stimulus from the development of CCERs will in turn promote the scale effect of emission reduction projects, further reduce the development costs of these projects, facilitate implementation of more low-cost emission reduction projects and lower the overall emission reduction costs in society. In addition, while ensuring environmental integrity, the use of CCERs for carbon market compliance through the carbon market offsetting mechanism can stimulate emissions reductions in sectors not covered by carbon markets but with lower emission reduction costs, further reducing the overall emission reduction costs for the whole society.

CHAPTER II

Comparison between the Elements of the CCER Program and the CORSIA

I. Background of the CORSIA



According to the IPCC report³, the global transport industry emitted approximately 8.9 billion tonnes of CO₂ equivalent in 2019, accounting for 15% of global direct and indirect emissions, and of which carbon emissions from international aviation took up around 7%. The International Civil Aviation Organization (ICAO) estimated⁴ that GHG emissions from international aviation would continue to grow rapidly, which might rise up to around 950 million tonnes by 2050, about 1.6 times the 2019 level, posing huge emission reduction pressure to the international aviation industry. Carbon emissions from international aviation involve countries and regions with different laws and standards. To effectively curb carbon emissions, ICAO is attempting to establish an international emission reduction mechanism that targets the international aviation industry to manage and curb carbon emissions from the industry in a unified manner.



³ Dhakal, S., J.C. Minx, F.L. Toth, A. Abdel-Aziz, M.J. Figueroa Meza, K. Hubacek, I.G.C. Jonckheere, Yong-Gun Kim, G.F. Nemet, S. Pachauri, X.C. Tan, T. Wiedmann, 2022: Emissions Trends and Drivers. In IPCC, 2022: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [PR. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926.004

⁴ ICAO Committee on Aviation Environmental Protection. Report on the feasibility of a long-term aspirational goal (LTAG) for international civil aviation CO₂ emission reductions. 2022.

The 39th Session of the ICAO Assembly in 2016 adopted Resolutions A39-2 (*Consolidated statement of continuing ICAO policies and practices related to environmental protection—Climate change*) and A39-3 (*Consolidated statement of continuing ICAO policies and practices related to environmental protection—Global Market-based Measure (MBM) Scheme*), deciding to adopt the “Carbon Offsetting and Reduction Scheme for International Aviation” (CORSIA). This is the first global market-based measure for industry sector, and aims to achieve the goal of carbon neutral growth (CNG) in international aviation carbon emissions from 2020 onwards through market-based measures, which means starting from 2021, the increase in carbon emissions from international aviation over the 2020 average should be offset by the purchase of corresponding EEU or the use of sustainable aviation fuels (SAF).

In June 2018, ICAO opened the channels for applying for CORSIA EEU. From January 1, 2019, airlines worldwide began to implement the Monitoring, Reporting, and Verification (MRV) of carbon emissions at the request of ICAO, thus building the data basis for the official launch of the CORSIA. In March 2020, CCER program was approved as one of the emission reduction mechanisms for the pilot phase (2021-2023) of the CORSIA (the CORSIA is implemented in three phases: a pilot phase (2021-2023), a first phase (2024-2026) and a second phase (2027-2035)).

The 41st Session of the ICAO Assembly in October 2022 adopted *Resolution A41-20: Consolidated Statement of ICAO's Continuing Policies and Practices Relating to Environmental Protection - General Provisions, Noise and Local Air Quality*, and *A41-22: Consolidated statement of continuing ICAO policies and practices related to environmental protection – Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)*. The resolutions encouraged ICAO and Member States to work towards long-term global aspirational goal (LTAG) of net-zero carbon emissions by 2050, and confirm that the baseline for calculating the CORSIA offsets obligation is equal to the amount of international aviation emissions in 2019 for 2021-2023, and 85% of the amount of international aviation emissions in 2019 for 2024-2035. The percent sector industrial in a given year is set as 100% for offset obligation calculation during the period of 2021-2032, and 85% for offset obligation calculation during the period of 2033-2035.



II. Elements of the CORSIA

The CORSIA consists of elements such as coverage, MRV, eligible fuels, EEU and Central Registry.

▼ CORSIA Coverage

Participation in the CORSIA is subject to requirements at both State and aeroplane operator levels. The requirements for State participation in the CORSIA are listed in Table 2-1. According to ICAO, as of July 2022, 115 countries confirmed to participate in the CORSIA's pilot phase in January 2023, while China has not yet announced whether it will participate.

Table 2-1 Rules for State Participation in the CORSIA

Participants	Pilot Phase (2021-2023)	First Phase (2024-2026)	Second Phase (2027-2035)
States	Voluntary participation	Voluntary participation	Conditions for mandatory participation: States that have an individual share of international aviation activities in revenue-tonne-kilometers (RTKs) in year 2018 above 0.5% of total RTKs or whose cumulative share in the list of States (from the highest to lowest amount of RTKs) reaches 90% of total RTKs Exemptions: Least Developed Countries (LDCs), Small Island Developing States (SIDS), and Landlocked Developing Countries (LLDCs) are exempt

Aeroplane operators are subject to two types of obligations: MRV obligations and compliance obligations, as shown in Table 2-2.

Table 2-2 Rules for Aeroplane Operator Participation in the CORSIA

Participants		Pilot Phase (2021-2023)	First Phase (2024-2026)	Second Phase (2027-2035)
Aeroplane operators	MRV obligations	Aeroplane operators that produce annual carbon emissions more than 10,000 tonnes from the use of aeroplanes with a maximum take-off mass (MTOM) greater than 5,700 kg conducting international flights (with the exception of humanitarian, medical and firefighting flights) (MRV is required regardless of whether their administering State is participating or not in the CORSIA). In addition, the CORSIA also encourages MRV among Aeroplane operators who do not meet the threshold.		
	Compliance obligations	<p>(1) The administering State of the aeroplane operators must participate in the CORSIA.</p> <p>(2) The emissions subject to offset: increased carbon emissions under MRV from international flights between the States participating in the CORSIA, where “increased” means any increase above the baseline level.</p>		

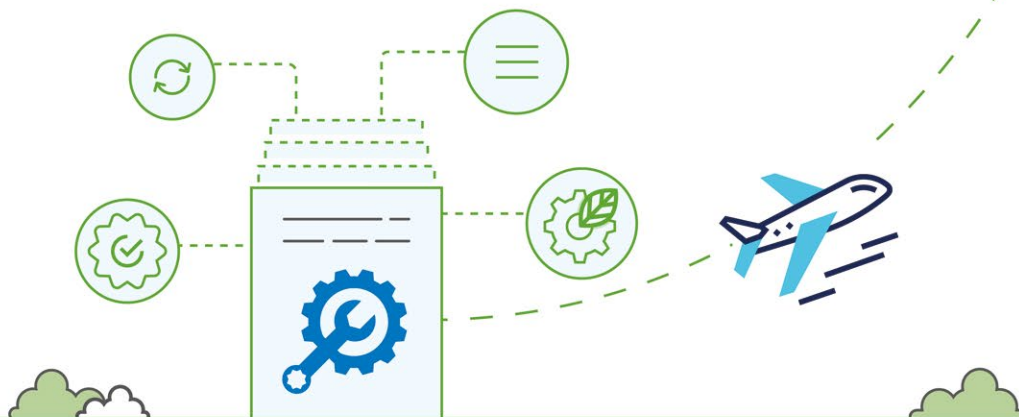
Note: New entrant aeroplane operators of international flights in 2021 and beyond will be considered for inclusion in management under the above-mentioned rules after three years of operations or when the emissions from their international flights exceed 0.1% of the total emissions in 2020.

▼ CORSIA's MRV Rules



MRV is primarily used to collect the data on aeroplane operators' carbon emissions from international aviation for each year, and is composed of monitoring, reporting and verification. ICAO has required all States to implement MRV from January 2019.

The MRV process of the CORSIA program (shown in Figure 2-1) involves: (1) Aeroplane operators shall develop carbon emissions monitoring plans which are submitted to the competent authority of their administering State for approval; (2) Aeroplane operators shall draft annual carbon emissions reports after monitoring according to the monitoring plans; (3) After completing annual carbon emissions reports, aeroplane operators shall submit unverified reports to competent national authorities; (4) Competent national authorities organize carbon emissions verification upon receipt of the unverified reports; (5) Aeroplane operators entrust accredited third-party verification bodies to verify their annual carbon emissions reports, and the entrusted third-party verification bodies issue verification reports; (6) Aeroplane operators and verification bodies submit to competent national authorities verified carbon emissions reports and verification reports respectively; (7) Competent national authorities, upon receipt of the verified carbon emissions reports, inspect the data in the carbon emissions reports to fill data gaps and correct errors; (8) Competent national authorities compile the data in the carbon emissions reports submitted by aeroplane operators and submit it to ICAO; (9) ICAO notifies competent national authorities and a operators of necessary information, including emission baselines, offsets, etc.



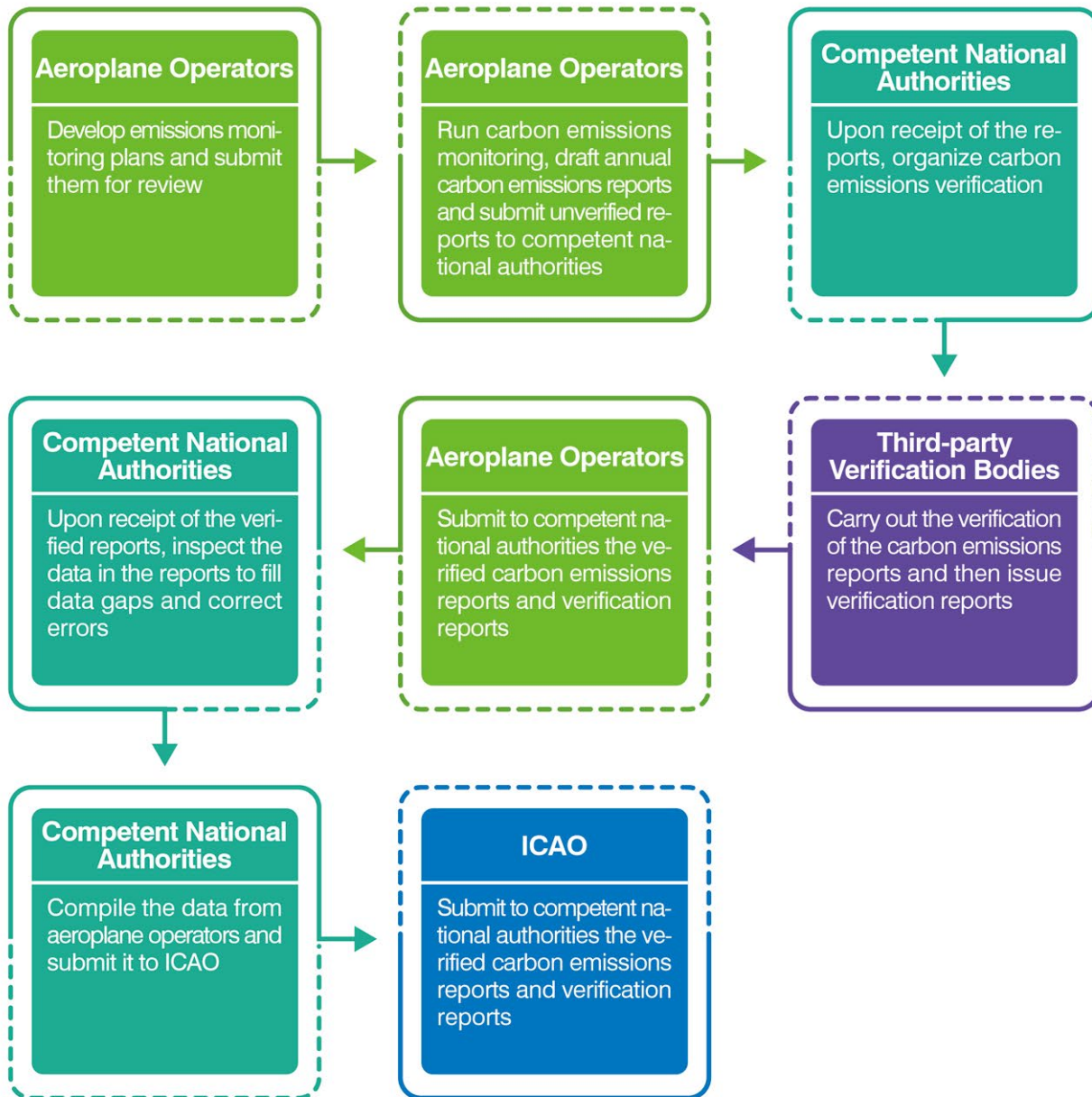


Figure 2-1 The MRV Process Under the CORSIA Program

■ 1. Applicability of MRV

MRV under the CORSIA rules has a scope of application, such as annual carbon emissions and flight types. See Table 2-2 for specific conditions.

■ 2. Monitoring

Aeroplane operators should develop carbon emissions monitoring plans as required. These monitoring plans are implemented on a per-flight basis and cover: (1) Aeroplane operator identification; (2) Fleet and operations data; (3) Methods of calculating emissions; (4) Data management, data flow, control systems, risk analysis, and data gaps. For the calculation of emissions, the CORSIA program provides six methods. Five of the methods calculate carbon emissions by obtaining the fuel consumption of each flight, which is common approach of calculating carbon emissions; the rest one employs CERT, a carbon emission calculation tool provided by the CORSIA, which can only be used to calculate carbon emissions from aeroplane operators that emit less than 500,000 tonnes annually.

■ 3. Reporting (from Aeroplane Operators to Competent National Authorities)

After a full year of monitoring according to the monitoring plans, aeroplane operators should prepare annual carbon emissions reports, which include: (1) Aeroplane operator identification and activities; (2) basic information underlying the emissions reports; (3) fleet and fuel type; (4) fuel density; (5) emissions between States or between airports; (6) data gaps and data management. After completing the annual carbon emissions reports, aeroplane operators should submit the reports to competent national authorities as soon as possible for verification. Carbon emissions reports are prepared on an annual basis and are required to be submitted by the end of May of the following year.

■ 4. Verification of Carbon Emissions

Prior to the engagement of third-party verification bodies, aeroplane operators may organize voluntary self-verification by referring to the method in the verification guidance provided by the CORSIA. Third-party verification bodies should complete verification reports after verifying the carbon emissions reports. Then, both aeroplane operators and verification bodies should submit the verified carbon emissions reports and verification reports accordingly to competent national authorities, which should be submitted by the end of May of the following year. Upon receipt of the verified carbon emissions reports, competent national authorities will validate the data in the carbon emissions reports to assess data integrity.

Aeroplane operators should entrust third-party verification bodies to carry out verification and the entrusted third-party verification bodies should be accredited to ISO 14065:2013 and meet other relevant CORSIA requirements. The national accreditation body (such as, China National Accreditation Service for Conformity Assessment (CNAS)) will assess third-party verification bodies in accordance with *Conformity assessment—General requirements for accreditation bodies accrediting conformity assessment bodies* (ISO/IEC 17011). Competent national authorities will then submit the list of accredited bodies to ICAO, which will put on records and publish the list. Aeroplane operators may choose any of the accredited verification bodies and entrust it to carry out verification. As of December 2021, there were 77 accredited third-party verification bodies worldwide, of which seven are China-based.

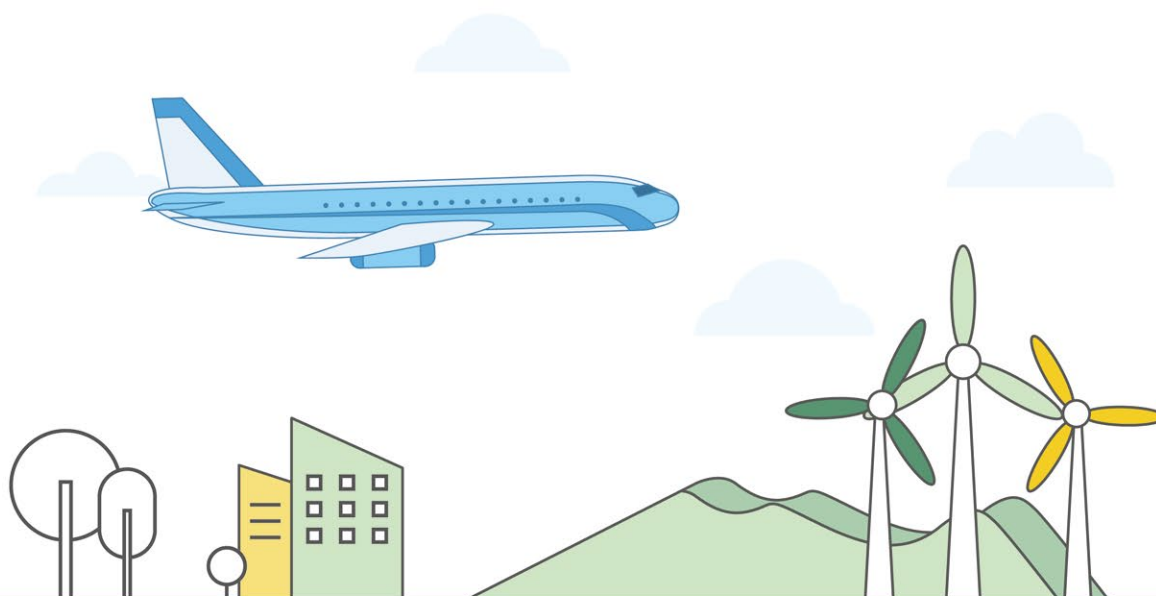
■ 5. Reporting (from Competent National Authorities to ICAO)

Upon receipt of the verified carbon emissions reports submitted by aeroplane operators, competent national authorities will prepare and compile data in a certain format. Data to be submitted to ICAO includes⁵ : (1) the total annual carbon emissions (including those resulting from the use of eligible fuels) attributable to the State between each “State pair”; (2) the total annual carbon emissions (the part subject to offsets) attributable to the State between each “State pair” and the total annual carbon emissions (the part not subject to offsets) attributable to the State between each “State pair”; (3) the total annual carbon emissions (the part subject to offsets) attributable to each aeroplane operator, and the total annual carbon emissions (the part not subject to offsets) attributable to each aeroplane operator. The data should be submitted yearly by the end of August each year in 2020 and 2021. Since 2022, the submission deadline will be by the end of July each year.

▼ The Implementation Status of MRV in China's Civil Aviation Industry

China has introduced two sets of guidelines for the calculation of carbon emissions from aviation: one is the *Notice on the Preparation of Carbon Emissions Reporting and Verification and Emissions Monitoring Plans for 2019*, issued by the national climate authority, and a series of guidelines it involves (relevant notices issued every year), which stipulate that qualified civil aviation enterprises should carry out MRV. This set of guidelines lays down the standards for calculating GHG emissions from China's civil aviation industry and mainly serves the construction of the national carbon market.

The second set of standards includes the *Interim Measures for the Management of Monitoring, Reporting and Verification of Carbon Dioxide Emissions from Civil Aviation Flight Activities*, issued by the civil aviation authority in 2018 as required by the CORSIA, the *Guidelines for Preparing Verification Reports on Carbon Dioxide Emissions from Civil Aviation Flight Activities (2020 Edition)* and the *Template for Verification Reports on Carbon Dioxide Emissions from Civil Aviation Flight Activities (2020 Edition)*, both issued in 2020. This set of standards is mainly developed for the implementation of the CORSIA.



▼ CORSIA's Offsetting Mechanism

■ 1. Calculation of Carbon Emission Offsets

The CORSIA has developed a phased approach to the calculation of carbon emission offsets, gradually shifting from the initial allocation of carbon emission offsets by sector to the allocation by individual aeroplane operator, as shown in the formula below.

$$OR_y = \%S_y \times OE_y \times SGF_y + \%O_y \times OE_y \times OGF_y$$

Where, OR_y is an aeroplane operator's offsetting requirements in the given year y ;

OE_y is an aeroplane operator's CO₂ emissions in the given year y ;

$\%S_y$ is the percent sectoral in the given year y (2021~2032: $\%S_y = 100\%$; 2033~2035: $\%S_y = 85\%$);

$\%O_y$ is the percent individual in the given year y ($\%O_y = 100\% - \%S_y$);

SGF_y is the sector's growth factor in the given year y ;

OGF_y is an aeroplane operator's growth factor in the given year y .

Besides, aeroplane operators who use CORSIA eligible fuels can generate emissions reductions, which can be deducted from their carbon emission offsetting requirements, as shown in the formula below. The use of eligible fuels by aeroplane operators need to be included in their monitoring plans, and the details of the use of CORSIA eligible fuels should be stated in the carbon emissions reports.

$$FOR_c = (OR_{1,c} + OR_{2,c} + OR_{3,c}) - (ER_{1,c} + ER_{2,c} + ER_{3,c})$$

Where, FOR_c is an aeroplane operator's total final offsetting requirements in the given compliance period C ;

$OR_{y,c}$ is an aeroplane operator's offsetting requirements in the given year y ($y=1, 2$ or 3) of the compliance period C ;

$ER_{y,c}$ is the emissions reductions from the use of CORSIA eligible fuels in the given year y ($y=1, 2$ or 3) of the compliance period C .



■ 2. Offsetting Compliance

As a compliance period of the CORSIA lasts three years (the first compliance period is from 2021 to 2023), carbon emission offsets are cumulative over the three years. CORSIA compliance means offsetting any increase (above the baseline level, calculation methods as previously described) in carbon emissions with EEUs. The compliance process is shown in Figure 2-2.

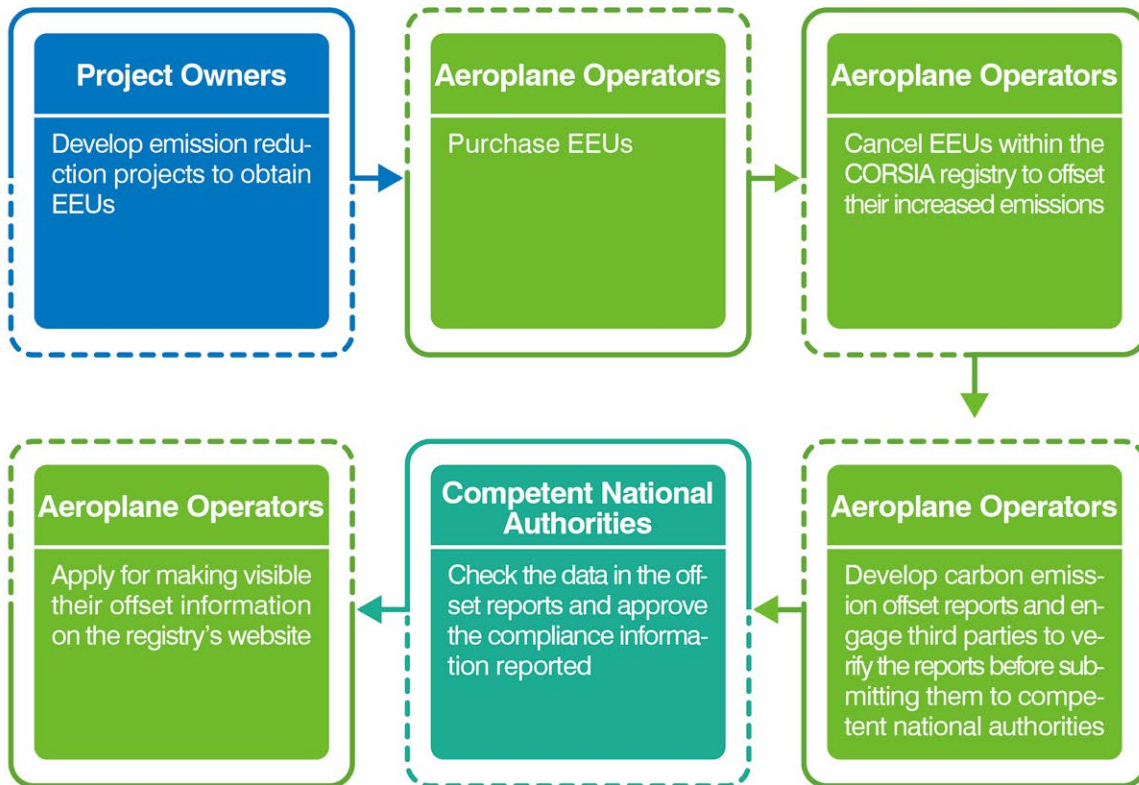


Figure 2-2 CORSIA Compliance Process

▼ Emissions Unit Criteria (EUC)

EEUs for compliance purposes are emission reductions issued through accredited emission unit programs or emission reduction projects that meet relevant conditions and standards required by the CORSIA, and can be purchased from voluntary carbon emission reduction trading markets. The EUC covers 11 program design elements and 8 carbon offset credit integrity assessment criteria, as shown in Table 2-3. Program design elements are mainly used to assess whether an emission reduction program can meet CORSIA requirements, while environmental integrity assessment criteria are primarily used to assess whether a specific emission reduction project or methodology meets the requirements.

Table 2-3 Emissions Unit Criteria (EUC)

Program Design Elements Criteria	Carbon Offset Credit Integrity Assessment Criteria
<ul style="list-style-type: none"> • Clear methodologies and protocols, and their development process 	<ul style="list-style-type: none"> • Additionality
<ul style="list-style-type: none"> • Scopes 	<ul style="list-style-type: none"> • Carbon offset credits must be based on a realistic and credible baseline
<ul style="list-style-type: none"> • Offset credit issuance and cancellation procedures 	<ul style="list-style-type: none"> • Carbon offset credits must be quantified, monitored, reported and verified
<ul style="list-style-type: none"> • Identification and tracking 	<ul style="list-style-type: none"> • Carbon offset credits must have a clear and transparent chain of custody within the offset program
<ul style="list-style-type: none"> • Legal nature and transfer of units 	<ul style="list-style-type: none"> • Carbon offset credits must represent permanent emissions reductions
<ul style="list-style-type: none"> • Validation and verification 	<ul style="list-style-type: none"> • A system must have measures in place to assess and mitigate incidences of carbon leakage
<ul style="list-style-type: none"> • Program governance 	<ul style="list-style-type: none"> • Carbon offset credits are only counted once towards a mitigation obligation
<ul style="list-style-type: none"> • Transparency and public participation 	<ul style="list-style-type: none"> • Carbon offset credits must represent emissions reductions, avoidance or carbon sequestration from projects that do no net harm
<ul style="list-style-type: none"> • Safeguards system 	
<ul style="list-style-type: none"> • Sustainable development criteria 	
<ul style="list-style-type: none"> • Avoidance of double counting, issuance and claiming 	

III. Comparison between the Elements of the CCER Program and Relevant Elements of the CORSIA

Both the CCER program and the CORSIA contain elements such as registry, trading and compliance mechanisms, and EUC. The consistency between the relevant elements of the two systems in terms of standards and processes contributes to the inclusion of CCERs in the CORSIA as an accredited emission unit program. However, although the emissions reductions generated by the CCER program have been accepted as EEU's in the CORSIA in its pilot phase, there are differences between the elements of the CCER program and those of the CORSIA, mainly in terms of registry, compliance mechanism and EUC.

▼ Registry

CORSIA Central Registry (CCR) is CORSIA's central registration system, which is still under construction. ICAO has stipulated the specific functions (data collection, receipts collation, data analysis and management, data release, etc.) and access restrictions (each country's CCR account and access to the CCR will be recorded) of the CCR. On the contrary, having been in operation for many years in China, the CCER registry possesses functions such as the creation, issuance, allocation, holding, transfer, compliance, voluntary cancellation and retirement of emissions units, basically in line with the functions of the CCR.

In terms of system security, the CCER registry has put in place various measures to ensure the security of the system, such as the four-eyes principle, internal and external network isolation, physical isolation, firewalls, data transmission encryption, authentication for key operations, operation audits and operation recording, which are basically consistent with the requirements of the CCR.

The CCER registry needs to be designed functionally and technically compatible with the CCR and be prepared for future connection. As the CORSIA requires each country to have only one account in the CCR, the carbon trading authority of China needs to conduct feasibility analysis and risk evaluation for the alignment of the CCER registry with the CCR and to study whether a special account should be set up for such alignment as well as how to realize the transfer of emissions units and enhance data security.

▼ Compliance Mechanism

As shown in Table 2-4, the compliance process under the CORSIA is similar to that for CCERs. The difference is that compliance under the CORSIA requires not only the cancellation of emissions units in CCR, but also the preparation of an emission offset report and the engagement of a third-party verification body, which carries out verification and then issues a verification report; the verified emission offset report and the verification report should be submitted to the competent national authority, which should check the data in the offset report and then report the relevant emission offset information to ICAO.

Table 2-4 Comparison between the CORSIA Compliance Process and the CCERs Compliance Process

Element	CORSIA	CCERs Compliance
Process	Purchase of emissions units ▼	General holding account ▼
	Cancellation of emissions units ▼	Exchange trading account ▼
	Preparation of an offset report ▼	Compliance account ▼
	Approval of the offset report ▼	Cancellation
	Offset information disclosure	

It should be noted that if an emission reduction program, such as the CCER program, is not connected to the CCR, it will be required to enter emissions units in the CCR and cancel the corresponding emissions units in the registry of the emission reduction program. The dual operation of entry and cancellation is not only cumbersome, but also brings the potential risk of double counting. Therefore, the extent to which the registries of global emissions unit programs, including the CCER program, are aligned with the CCR and the data accessibility will be major tests of CORSIA compliance risk control.

▼ Eligibility Requirements for Emissions Reductions

■ 1. Comparative Analysis Based on CORSIA EUC

CORSIA Emissions Unit Criteria (EUC) unfold at two levels: one is program design elements eligibility criteria (11); the other is carbon offset credit integrity assessment criteria (8). As these criteria are general in nature, ICAO has introduced detailed supplementary information for assessment of CORSIA emissions unit eligibility criteria, breaking each criterion down into several sub-items to comprehensively evaluate the compliance of emissions units. Specifically, the 11 CORSIA design elements eligibility criteria cover 33 sub-items, and the CCER program shows gaps in terms of three criteria, namely offset credit issuance and retirement procedures, legal nature and transfer of units, and program governance, as shown in Table 2-5. The eight environmental integrity criteria cover 46 sub-items, and the CCER program also shows gaps in the three criteria of additionality, that carbon offset credits must represent permanent emissions reductions, and that a system must have measures in place to assess and mitigate against potential increase in emissions elsewhere, as shown in Table 2-6.

Table 2-5 Comparison of Alignment with Design Elements Eligibility Criteria

Criterion	No.	Question	Comparative Analysis
Offset credit issuance and retirement procedures	5	Are there any procedures in place for unit discounting?	The <i>Guidelines on Validation and Verification of GHG Voluntary Emissions Reduction Projects</i> provides for detailed rules for the implementation of voluntary emission reduction projects in China. It lays down carbon credit issuance and retirement procedures, as well as the rules and procedures related to the duration and renewal of crediting periods, but no procedures for unit discounting.
Legal nature and transfer of units	18	Does the program define and ensure the basic attributes and property aspects of a unit, and disclose to the public?	China lacks national level laws and regulations for its carbon market and has not yet enacted any regulations that define and ensure the legal nature of carbon credit units. The competent authority in charge of carbon market is stepping up the legislation process to improve regulation of the carbon credit market.
Program governance	26	Can the program demonstrate up-to-date professional liability insurance policy of at least USD 5 million?	A professional liability insurance policy is mainly set up to prevent the collapse of the CCER program. As China's voluntary emissions unit program is mostly established and managed by the government for the time being, which is less market-based and low-risk, such policy is not suitable for the domestic market.

Note: the numbering indicates the serial number of the sub-items in EUC.

Table 2-6 Analysis of Alignment with Environmental Integrity Criteria

Criterion	No.	Question	Analysis
Additionality	4	If the program designates certain activities as automatically additional (e.g., through a "positive list" of eligible project types), does the program provide clear evidence on how the activity was determined to be additional?	Not applicable, as none project activity under the program will be designated as automatically additional.
Carbon offset credits must represent permanent emissions reductions	21	What is the minimum scale of reversal for which the program provisions or measures require a response? (Quantify if possible)	<p>Currently, methods and instruments to avoid reversal of emission reduction are under consideration by the CCER program. For example, introducing a plan of interest subsidies for the emission reduction units generated from projects in afforestation; for the projects of reforestation, agriculture and CCUS sectors, an emission reduction units pool can be established for future possible compensations; the life-cycle management would be introduced for the emission reduction units generated from projects in afforestation, reforestation and agriculture sectors. China mentioned in the Application Form submitted to the CORSIA: "activities in the afforestation, reforestation, agriculture and CCUS sectors are excluded for consideration under the CORSIA." If these risky projects are excluded before the establishment of reversal mechanism, the risk of reversal events can be minimized, and most of current CCER projects are new and renewable energy projects, implying a sufficient supply of emission reduction projects to the CORSIA.</p>
	22	For sectors/activity types identified in the first question in this section (Item 20, see Note), are there any procedures/provisions in place to require and support these activities to undertake a risk assessment that accounts for, <i>inter alia</i> , any potential causes, relative scale, and relative likelihood of reversals?	
	23	For sectors/activity types identified in the first question in this section (Item 20, see Note), are there any procedures/provisions in place to require and support these activities to monitor identified risks of reversals?	
	24	For sectors/activity types identified in the first question in this section (Item 20, see Note), are there any procedures/provisions in place to require and support these activities to mitigate identified risks of reversals?	
	25	For sectors/activity types identified in the first question in this section (Item 20, see Note), are there any procedures/provisions in place to require and support these activities to ensure full compensation for material reversals of mitigation issued as emissions units and used toward offsetting obligations under the CORSIA?	
	26	Are there any provisions in place that confer liability on the activity proponent to monitor, mitigate, and respond to reversals in a manner mandated in the program procedures?	
	27	Are there any provisions in place that require activity proponents, upon being made aware of a material reversal event, to notify the program within a specified number of days?	
	28	Are there any provisions in place that confer responsibility to the program to, upon such notification, ensure and confirm that such reversals are fully compensated in a manner mandated in the program procedures?	
	29	Does the program have the capability to ensure that any emission units which compensate for the material reversal of mitigation issued as emissions units and used toward offsetting obligations under the CORSIA are fully eligible for use under the CORSIA?	
	30	Would the program be willing and able, upon request, to demonstrate that its permanence provisions can fully compensate for the reversal of mitigation issued as emissions units and used under the CORSIA?	
A system must have measures in place to assess and mitigate the risk of carbon leakage	33	Are there any provisions in place requiring activities that pose a risk of leakage when implemented at the project-level to be implemented at a national level, or on an interim basis on a subnational level, in order to mitigate the risk of leakage? (If necessary)	<p>It requires that offset credits must be generated from projects that do not result in leakage of carbon emissions, and offset credit programs should establish a system for mitigating leakage of emissions. In <i>the Guidelines on Validation and Verification of GHG Voluntary Emissions Reduction Projects</i>, Chapter II, Sections III and VIII provides for the calculation of the project emissions, baseline emissions, leakage and emission reduction; Chapter II, Section V requires that the implementation of the registered voluntary emission reduction projects shall be monitored in accordance with the approved monitoring plan. In the methodologies related with leakage emissions, it is clearly stipulated that the parameters related to leakage emissions shall be monitored, and relevant leakage emissions shall be taken into account in the calculation of emissions reductions. However, China's CCER projects are implemented within China, and even in administrative areas such as provinces and cities.</p>

Note: Item 20. List any emissions sectors (if possible, activity types) supported by the program that present a potential risk of reversal of emissions reductions, avoidance, or carbon sequestration, the Application Form submitted by China states that emission sectors or activity types supported by this program that may present a potential risk of reversal of emissions reductions, avoidance, or carbon sequestration, include project activities in the afforestation and reforestation, agriculture and CCUS sectors.



■ 2. TAB Recommendations on the CCER Program

The Technical Advisory Body (TAB) of the CORSIA Council completed the assessment of the CCER program in March 2020 and recommended that the CCER program was eligible to supply CORSIA EEU's, while noting that there were still some imperfections, mainly in terms of the additionality of emissions units and double counting.

TAB found that not all emission reduction projects in the CCER program met the EUC criterion of additionality (Carbon offset programs must generate units that represent emissions reductions, avoidance, or removals that are additional), and that the CCER program did not have procedures in place to ensure the additionality of emissions reductions⁶. Therefore, the CCER program will need to readjust the demonstration of the additionality of its projects or the positive list, or adopt more sound and reasonable measures to ensure the additionality of emissions reductions.

TAB also noted that the CCER program did not meet the EUC criterion of avoidance of double counting (Emissions reductions are only counted once towards a mitigation obligation). The problem of double counting and double claiming is common for all programs, which is not attributable to these programs themselves, but to climate negotiations, and can be well solved if countries clarify the relationship between the use of emissions reductions and nationally determined contributions (NDCs) in climate negotiations. For the CCER program, the competent authority, specifically the Ministry of Ecology and Environment, has indicated its willingness to put in place the measures to avoid double-claiming of emissions reductions in the context of the Paris Agreement and the United Nations Framework Convention on Climate Change (UNFCCC), for example, adopting the relevant rules pertaining to internationally transferred mitigation outcomes (ITMOs) in Article 6.2 of the Paris Agreement.

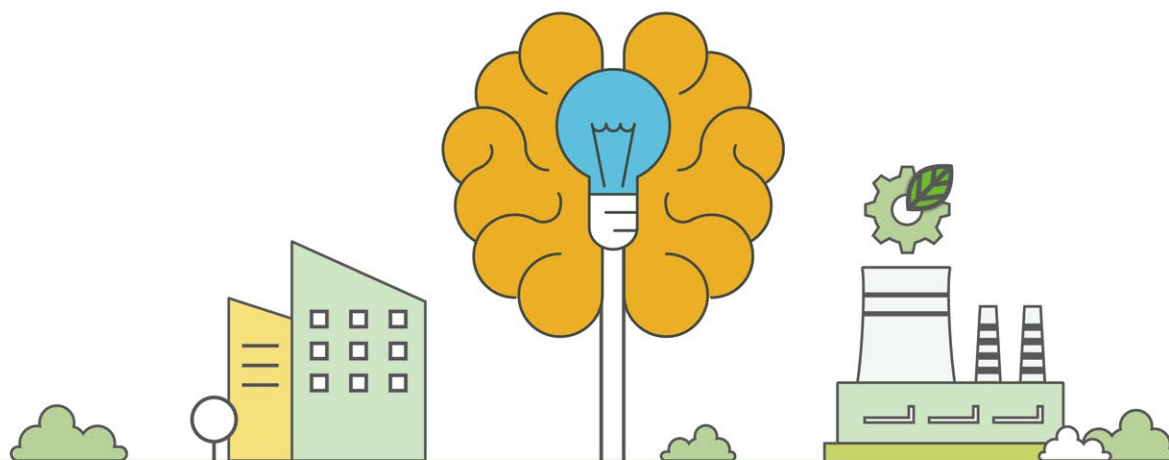


CHAPTER III

Reflections on the Future Development of the CCER Program

By establishing the voluntary carbon market, China has not only spurred the low-carbon transition of energy consumption and industrial structure, and encouraged active social participation in carbon emission reduction activities, but also lived up to its commitments as a participant, contributor and leader in global climate governance. This makes China a pacesetter in the development of global voluntary emission reduction projects.

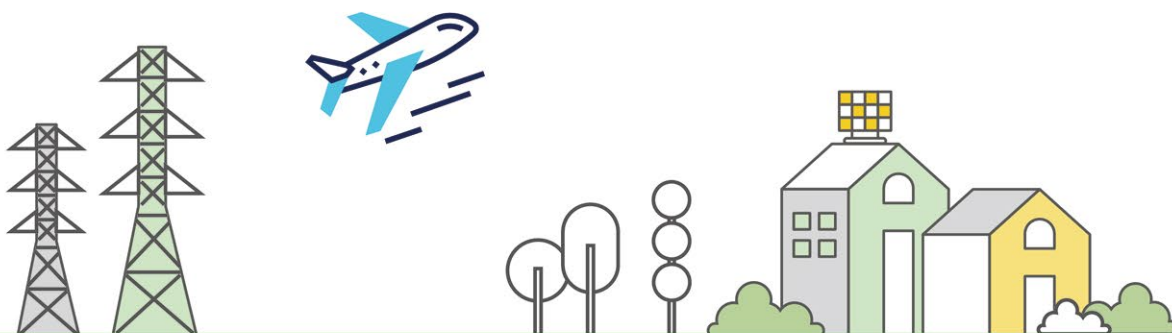
The CCER program has become a channel to supply EEU in the pilot phase of the CORSIA, which represents a milestone in the internationalization of the CCER program and will become an important link for China's international cooperation in carbon markets and a key tool for global climate governance. As the demand for CCERs and for the internationalization of CCERs continues to expand, it is particularly important to further smooth the international access to CCERs and strengthen CCERs' contribution to global climate governance while the program serves the national goal of carbon peaking and carbon neutrality.



I. Accelerate the Reform of the CCER Program to Serve the Carbon Neutrality Goal

In the context of the goal of peaking carbon emissions before 2030 and achieving carbon neutrality before 2060 (the “dual carbon” goal), all sectors and industries have actively responded to carbon neutrality, with many enterprises or institutions purchasing CCERs for cancellation/retirement and announcing carbon-neutral operations and even carbon-neutral investments and financing, with a view to fulfilling their social responsibilities or implementing carbon neutrality. From the perspective of carbon markets, the CCER program was originally designed to promote emission reduction while meeting enterprises’ compliance needs. It can not only meet the compliance needs of compliance carbon markets, but also satisfy the carbon offset needs of voluntary carbon markets. From a technical perspective, CCERs are reduced carbon emissions based on the baseline emission levels, and the vast majority of CCERs are not negative emissions, but it is undeniable that the purchase of CCERs and other emissions reductions for cancellation to declare a commitment to carbon neutrality has gradually become an important way of practicing carbon neutrality in the market, providing more possibilities for voluntary and non-profitable CCERs usage scenarios. From a functional perspective, the use of CCERs has a direct impact on both compliance carbon markets and carbon neutrality. For example, the quality of CCERs affects market prices and the excessive use of CCERs undermines the effectiveness of compliance carbon markets on leveraging the real emission reductions.

In order to better serve the goals of achieving carbon peaking and carbon neutrality, the CCER program should be improved to create synergies among carbon emission reduction, pollution abatement, green growth, and development; and be reformed to enhance the quality of emission reductions, ensure the effectiveness of climate finance, and guarantee the positive environmental and social impacts of emission reduction projects.



II. Pave the Way for the International Access to CCERs

To pave the way for the international access to CCERs, it is essential to create high-quality emissions reductions that meet relevant standards and requirements on the one hand, and to develop convenient circulation channels on the other hand. In terms of creating high-quality emissions reductions, the CCER program boasts two foundations: First, development procedures and technical standards are derived from the Clean Development Mechanism (CDM), a mature international emission reduction program. The methodologies of the CCER program have covered all of the fields involved in CDM methodologies, laying the basis for the alignment of CCERs with international standards. Second, the CCER program has basically met the criteria of CORSIA's pilot phase and is being upgraded and improved with the expectation of opening international access. However, the CCER program still faces certain challenges for generating globally competitive high-quality emissions reductions. At present, traditional mainstream global emission reduction programs represented by the Verified Carbon Standard (VCS) and the Gold Standard (GS), as well as new emissions reduction mechanisms recently adopted at the meeting of the Parties to the Paris Agreement (CMA) under Article 6.4 of the Paris Agreement (the emissions reductions generated from their activities tentatively known as A6.4ERs), are continuously improving their programs design and upgrading relevant quality requirement. To enhance the international recognition, improve the quality of emission reductions and maintain competitiveness, the CCER program needs to push forward with reform and innovation, considering the new international circumstances and requirements.

In terms of developing convenient circulation channels, the CCER program faces greater challenges. First, under the *Interim Measures*, domestic and foreign institutions, enterprises, groups and individuals are allowed, in principle, to participate in the development, trading, and cancellation of CCERs, but so far, no individuals or foreign institutions have participated. Second, the current demand for CCERs comes mainly from the domestic market, and no CCERs have been used in the countries along the Belt and Road Initiative (BRI) and other overseas countries, indicating a lack of experience in overseas circulation and cancellation. Finally, policies and infrastructure for cross-border circulation of CCERs are yet to be ready, including the Paris Agreement rules on core issues such as NDCs and double counting, and mechanisms for cross-border capital flows involving carbon trading. In order to facilitate the global circulation of CCERs, it is necessary to further clarify the institutional arrangements on NDCs counting for cross-border circulation of emissions reductions that is in line with the Paris Agreement rulebook, and introduce measures that facilitate cross-border circulation of CCERs.

III. Enhance the Role of CCERs in Promoting Global Climate Governance

Having driven low-carbon social transformation and technological innovation and provided corresponding financial support, the CCER program is an essential tool to effectively mitigate global climate change and promote sustainable development. As an important participant in global climate governance, China should not only vigorously propel green transformation domestically, but also actively participate in international cooperation on climate governance; in particular, it should continue to play the role as an important participant, contributor and leader in advancing the BRI countries' green development and the BRI countries' cooperation on carbon emission reductions. Promoting the integration between the CCER program and the BRI countries' green development, and accelerating the building of a BRI voluntary carbon market will be potential key pathways for enhancing the role of CCERs in promoting global climate governance:

Firstly, the CCER program has opened the door for CCERs globalization as it becomes a channel to supply EEUs in the pilot phase of the CORSIA. Driven by the Paris Agreement, the NDCs set by countries have created the potential demand for emissions reductions. This will provide opportunities for the internationalization of the CCER program to further satisfy the demand for emissions reductions from the international community.

Secondly, the ITMOs proposed in Article 6.2 of the Paris Agreement provide a paradigm for international carbon market cooperation including the BRI countries, and promote the establishment of a Belt and Road carbon market based on voluntary emissions reductions to be an enabler for implementing international cooperation on carbon markets and advancing global climate governance, thereby facilitating the low-carbon development of BRI countries.

Finally, the State Taxation Administration issued the *Guideline on Preferential Tax and Fee Policies for Green Development* in May 2022, proposing “corporate income tax breaks for the implementation of CDM projects and certain preferential tax and supportive policies for wind, hydro and photovoltaic power generation industries”, which will help further spur the development of CCERs-based low-carbon industries.



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