

Terms of Reference for Dual Carbon Implementation Path Research Project Consulting Services of Yunnan Airport Group Co., Ltd. (“YAG”)

1. Background

At the 20th National Congress of the Communist Party of China, a significant initiative was launched to promote green development and harmonious coexistence between humans and nature. This new approach has set more stringent standards for the construction of ecological civilization and ecological environmental protection, with the ultimate goal of achieving peak carbon dioxide emissions and carbon neutrality. It is a crucial strategic decision made by the CPC Central Committee to align the national and international goals for green development. With the proposal of the national "dual carbon" strategy, the concept of Green Airport has been endowed with a new connotation, indicating a shift from the construction of a Green Airport focusing on energy conservation and environmental protection to the construction of a Green Airport centering on carbon peaking and carbon neutrality.

YAG is a large state-owned air transportation support service enterprise directly under the People's Government of Yunnan Province and a provincial development cooperation financing platform. It manages the civil airports in the province through an integrated approach. At present, the Group operates 15 civil transport airports and 3 Class I general aviation airports. These airports together form a network system with Kunming International Aviation Hub as the core, Lijiang, Xishuangbanna and Mangshi Airports as subregional hubs,

and other regional airports as support. YAG is committed to prioritizing sustainable development by focusing on energy conservation, low carbon emissions, and green construction. As a result, the Group has made significant strides in reducing energy consumption and CO₂ emissions per passenger, achieving a leading position in the industry. Kunming Airport, as a pioneer in adopting a green model, has reaped the benefits of being the first mover. At the China Airport Construction and Development Conference held on February 22, 2023, YAG's Kunming Airport was ranked as a three-star "dual carbon" airport. Compare to the dual carbon goals, Kunming Airport has a lot of room to improve energy efficiency and increase the use of renewable energy. Besides, communication and cooperation with partners and business stakeholders in the area of environment and carbon reduction is insufficient.

The Dual Carbon Implementation Path Research is part of YAG's efforts that set dual carbon goals and formulates a comprehensive roadmap and action plan for YAG and its member airports to achieve the 2030 and 2060 carbon neutrality goals, and regain YAG's (with Kunming Airport as the focus) position as a leader in green development. These efforts are crucial for setting a path for promoting green and low-carbon development in the new era, providing planning support and specific methods and levers for member airports to carry out green airport construction, and ultimately, promoting sustainable and high-quality development of member airports.

2. Terms of Reference

The purpose of the Terms of Reference (TOR), is to identify and engage a qualified consulting company through the procurement process of the Asian Infrastructure Investment Bank (AIIB). The selected consultant is responsible to provide technical assistance to ensure that the Project adheres to relevant domestic laws, AIIB policies, and international best practices in project management, and the Project is fully completed to all quality, progress,

contract, finance, procurement, and other management requirements. Moreover, the consultant is responsible to complete all deliverables of Dual Carbon Implementation Path Research Project Consulting Services of Yunnan Airport Group Co., Ltd., and assist the Recipient in accomplishing the technical assistance tasks for components and achieving the objectives.

3. Scope of Services, Tasks (Components) and Expected Deliverables

The Contract is a lump-sum consulting service contract concluded based on a balance of both quality and cost. The Consultant will provide the Client (YAG) with consulting services for the Project in accordance with relevant requirements of AIIB's and Chinese government's policies and regulations, loan agreements and project agreements, and provide all-round technical support for the Client in the process of providing consulting services.

3.1 Scope of Services

The Consultant will assist the Client in completing the following specific work in the process of providing consulting services:

- (1) Carry out project research and consulting work and issue consulting result documents according to the requirements of this Terms of Reference. For specific tasks, see 3.2;
- (2) Assist the Client in institutional capacity enhancement and development;
- (3) Assist the Client in formulating report forms, establishing a preparation and submission mechanism required by AIIB, and completing various project progress reports and completion reports required by AIIB within a reasonable time;
- (4) Provide English interpretation and translation support for the Client;
- (5) Complete all kinds of data analysis required by AIIB and superior departments;
- (6) Assist the Client in completing other work related to the Project.

3.2 Task (Composition) and Expected Deliverables

3.2.1 Yunnan Airport Group Co., Ltd.

(1) Review the practices and explorations in carbon emissions reduction and carbon neutrality in the field of green and low-carbon development by advanced airports both domestically and internationally by analyzing the international and domestic situation, as well as the national and industry requirements for "dual carbon" policies, and identify the challenges and issues that YAG faces in achieving carbon peaking and carbon neutrality.

(2) Analyze the carbon emission status of YAG, identify major carbon emission sources, and put forward improvement suggestions and measures for major energy consumption facilities and equipment.

(3) With reference to the carbon peaking and carbon neutrality goals, predict the timeline, targets, roadmap, and action plans for carbon peaking and carbon neutrality of YAG under different scenarios.

(4) Revise and improve the top-level design of YAG for intensive conservation of resources, low-carbon operation and environmental friendliness in the whole life cycle from planning, design, construction, operation to abandonment, and put forward the medium- and long-term strategic objectives and key directions for green development of YAG.

(5) Formulate a unified data collection standard for energy consumption and carbon emission, develop standardized management tools, establish an all-round management system covering management, supervision and evaluation.

Expected Deliverables:

(1) Special Planning for YAG's Green and Low-carbon Development (2023-2035);

(2) Three-year Action Plan for YAG's Green and Low-carbon

Development (2023-2025);

(3) Report on Implementation Methods to Achieve Carbon Emissions Peak and Carbon Neutrality Goals for YAG;

(4) Regulations on Green and Low-carbon Management of YAG;

(5) Regulations on Green and Low-carbon Assessment and Evaluation of YAG.

3.2.2 International Hub Airport - Kunming Changshui International Airport

(1) Review the practices and explorations of advanced airports both domestically and internationally in carbon emissions reduction by analyzing the international and domestic situation, as well as the national and industry requirements for "dual carbon" policies, and identify the challenges and issues that Kunming Airport faces in achieving carbon peaking and carbon neutrality.

(2) Conduct research on the international and domestic green and low-carbon development status (recommend researching international airports of similar scale and the top ten airports in terms of passenger traffic in China). Study the relevant policies and regulations in the national industry and analyze the current status and development trends of the industry.

(3) Analyze the green and low-carbon construction of Kunming Airport, and analyze its advantages and disadvantages in combination with short-term and long-term planning.

(4) Study on Decarbonization Path of Kunming Airport - With reference

to the carbon peaking and carbon neutrality targets, predict the timeline, targets, roadmap, and action plans for carbon peaking and carbon neutrality of Kunming Airport under different scenarios. Also, identify the measures that need to be taken to achieve these targets.

a. Determine the carbon emissions of Kunming Airport in accordance with *ISO14064* or *GHG Protocol* in the previous year and before the COVID-19 pandemic (i.e., in 2019) in Scope 1 (direct emissions), Scope 2 (indirect emissions from purchased energy), and Scope 3 (indirect emissions from activities in the value chain);

b. Forecast the carbon emissions (Scope 1, 2 and 3) of Kunming Airport from the present to 2050 based on the expected growth of the Yunnan aviation market and the development of Kunming Airport under a normalized scenario;

c. Calculate the potential carbon emission reductions resulting from decarbonization measures implemented and planned to be implemented at Kunming Airport, and determine the remaining gap to achieve net-zero carbon emissions;

d. Study the decarbonization measures promoted by independent organizations such as International Civil Aviation Organization (ICAO), Airports Council International (ACI), other academic and research institutions, and other green airports (under normal circumstances, it is recommended to select three airports of similar scale and level as Kunming Airport in 2019) and propose decarbonization measures applicable to Kunming Airport. These

measures should cover Scope 3 emission targets, including communication and cooperation plans between Kunming Airport and airport partners or interested parties in the field of environment and carbon emission reduction. Each measure shall be accompanied by an estimate of its carbon reduction potential and an estimate of the cost of implementation;

e. Provide implementation plan recommendations for the decarbonization measures identified in Article d based on the contribution to achieving net-zero carbon emissions at the airport, maturity of the solutions, feasibility of implementing technologies, and cost-effectiveness of carbon reduction approaches;

f. Formulate the carbon emission reduction target of Kunming Airport from three dimensions: the year of achieving carbon peaking, the year of achieving a 50% carbon emission reduction, and the year of achieving net zero emission;

g. Take the proposed carbon emission reduction target of Kunming Airport as a benchmark for other airports with similar throughput, and evaluate whether the recommended targets can be achieved.

(5) Research on carbon management system and other driving factors of Kunming Airport - establish a carbon emission management system at Kunming Airport.

a. Study the measures required for the highest level of Airport Carbon Accreditation (ACA) certification, as well as carbon management systems

implemented by other green airports (suggested to study the top ten domestic airports in terms of passenger traffic and similar-level international airports). Focus on five aspects: governance structure, decision-making on zero/low carbon emissions measures, climate risk assessment and management, innovation/research and development, and partnership relationships. Study the requirements of the highest level of certification (Transition) in the ACA program, as well as the carbon management systems of other green airports (suggested to study at least three airports). Analyze and determine the best-practice pathways for these five aspects;

b. Identify the gap between the current carbon management status of Kunming Airport and the best practices listed in Article a, and provide improvement recommendations to narrow this gap;

c. Conduct a benchmark assessment to evaluate the current level of ACA that Kunming Airport can achieve, and propose optimization measures to ensure that Kunming Airport can reach the equivalent level of the next ACA certification within three years;

d. Develop a set of green publicity communication plan for Kunming Airport to convey green and low-carbon regulatory requirements and organizational goals to internal employees, and educate them on carbon emissions and management; for external parties, including passengers, airlines, on-site organizations, contractors, suppliers, lessees and other business partners, publicize and strengthen the carbon management system and encourage them

to play an active role in carbon emission reduction.. This includes creating content/materials (in formats such as presentations, reports, and webpages) related to the carbon management system. Kunming Airport can use these materials to position itself as a benchmark for carbon management systems among other airports in China;

e. Propose plans and measures to improve energy efficiency, renewable energy use and clean transportation proportion of Kunming Airport.

(6) Assist Kunming Airport in establishing the carbon emission management system according to the *Requirements for Carbon Management System* (TCCAA 39-2022) released by China Certification & Accreditation Association;

(7) Assist Kunming Airport in completing all relevant preparatory work and follow-up cooperation services in accordance with the four-star evaluation standard of China Civil Airports Association for "Dual Carbon Airport" until Kunming Airport passes the four-star evaluation certification of "Dual Carbon Airport".

Expected Deliverables:

(1) Report on Implementation Methods to Achieve Carbon Emissions Peak and Carbon Neutrality Goals for Kunming Airport, including the leading role played by Kunming Airport in low-carbon airport construction and the Implementation Plan for Demonstration Green Pioneer Airport;

(2) Establish a regular publicity and information disclosure mechanism

for the green development of Kunming Airport;

(3) The carbon emission management system of Kunming Airport passes the certification of the *Requirements for Carbon Management System* (TCCAA 39-2022) released by China Certification & Accreditation Association;

(4) Assist Kunming Airport in completing all relevant preparatory work and follow-up cooperation services in accordance with the four-star evaluation standard of "Dual Carbon Airport" until Kunming Airport passes the four-star evaluation certification of "Dual Carbon Airport".

3.2.3 Sub-regional Hub Airports - Lijiang, Xishuangbanna and Mangshi Airports

(1) Review the practices and explorations of advanced airports both domestically and internationally in carbon emissions reduction by analyzing the international and domestic situation, as well as the national and industry requirements for "dual carbon" policies, and identify the challenges and issues that Lijiang, Xishuangbanna and Mangshi Airports face in achieving carbon peaking and carbon neutrality.

(2) With reference to the carbon peaking and carbon neutrality targets, predict the targets, roadmaps, and action plans for carbon peaking and carbon neutrality of Lijiang, Xishuangbanna, and Mangshi Airports under different scenarios.

Expected Deliverables:

(1) Reports on implementation methods to achieve carbon emissions peak

and carbon neutrality goals for Lijiang, Xishuangbanna, Mangshi Airports and other subregional hub airports;

(2) According to the actual situation, assist Lijiang and Mangshi Airports in conducting "Dual Carbon Airport" assessment work.

3.2.4 Other Feeder Airports in Yunnan Province

(1) Review the practices and explorations of advanced airports both domestically and internationally in carbon emissions reduction by analyzing the international and domestic situation, as well as the national and industry requirements for "dual carbon" policies, and identify the challenges and issues that other feeder airports face in achieving carbon peaking and carbon neutrality.

(2) With reference to the carbon peaking and carbon neutrality targets, predict the targets, roadmaps, and action plans for carbon peaking and carbon neutrality of other feeder airports within the province under different scenarios.

Expected Deliverables:

(1) Reports on implementation methods to achieve carbon emissions peak and carbon neutrality goals for feeder airports and subregional hub airports in Yunnan Province;

(2) According to the actual situation, assist Dali and Cangyuan Airports in conducting "Dual Carbon Airport" assessment work.

The above deliverables in the form of reports shall be submitted in both Chinese and English.

4. Team Members and Qualification Requirements of Key Experts

4.1 Composition of Project Team

The Consultant shall set up a project team for the Project, with key members including a project leader and professionals with corresponding experience and qualifications, and submit the CVs of the proposed experts with its proposal. The project execution period is 6 months and the planned completion date is May 31, 2024. The number of personnel required by each expert shall be provided by the Client to the Consultant according to the needs of the project work. See the following table for the plan of categorized experts.

S/N	Team Member	Number	Personnel Required by Expert		
			On-site Personnel (man/month)	Off-site Personnel (man/month)	Total
1.	Project leader (key expert)	1	1	2	3
2.	Discipline director (key expert)	1	1	2	3
3.	Green airport/airport decarbonization research or consultation expert (key expert)	1	1	2	3
4.	Noise expert (key expert)	1	2	2	4
5.	Airport construction or operation management expert (key expert)	1	2	2	4
6.	Environmental expert (key expert)	1	0	1	1
7.	Professional English translator/interpreter (non-key expert)	1	0	1	1
8.	Project assistant (non-key expert)	1	1	2	3
Total					21

4.2 Desired Work Contents or Experience of Key Experts

A. Project Leader

Expert with experience in green and low-carbon (such as peak carbon dioxide emissions, carbon neutrality, net-zero carbon emissions, "dual carbon" strategy, etc.) consulting project management.

B. Discipline Director

Expert with experience in consultation for green and low-carbon (such as peak carbon dioxide emissions, carbon neutrality, net-zero carbon emissions, "dual carbon" strategy, etc.) projects and international ACA.

C. Green Airport/Airport Decarbonization Research or Consultation Expert

Expert familiar with the latest industry development trend of carbon emission management in the field of international aviation, especially the development trend and best practice of airport carbon emission management (including Scope 1, 2 and 3), and with experience in providing consulting services for green and low-carbon (such as peak carbon dioxide emissions, carbon neutrality, net-zero carbon emissions, "dual carbon" strategy, etc.) development.

D. Noise Expert

Expert with experience in the research (or consultation) on handling noise problems in airport operations.

E. Airport Construction or Operation Management Expert

Expert with experience in airport construction or operation management, especially professional experience in flight procedure design and preparation or experience in flight procedure review.

F. Environmental Management or Climate Adaptation

Environmental Expert

Expert with relevant experience in environmental management or climate adaptation research.

5. Reporting Requirements and Schedule of Deliverables

The consulting company will assist clients in writing various project management reports to be submitted to the Asian Infrastructure Investment Bank (AIIB) and the clients. These reports will be provided to clients in both electronic format (1 copy) and hardcopy format (3 copies, including versions in both Chinese and English).

Project Initiation Report: Within 15 days after the signing of the consulting services contract, the consulting company shall prepare and submit a Project Initiation Report, including a detailed work plan, staffing arrangements, report format, etc. Upon completion of the initial draft of the Project Initiation Report, it should be submitted to the client for review. After receiving the client's comments, the consulting experts should make revisions based on the client's feedback. The final draft of the Project Initiation Report should be submitted within one week of receiving the client's revision comments. If the consulting experts plan to carry out the work in a manner different from the technical proposal or include plans not covered in the technical proposal, the changes and reasons should be explained in the Project Initiation Report for client approval.

Progress Report: The consulting firm should submit monthly reports by

the 25th of each month, in a format approved by the client and the AIIB. The report should provide detailed descriptions of project implementation status, plans, and actual progress, as well as any issues encountered and the methods employed to resolve them. After receiving the client's comments, the consulting experts should make revisions based on the client's feedback. The final draft of the report should be submitted within one week of receiving the client's revision comments.

Mid-term Report: Prior to the mid-term review of the project, the consulting company will provide a detailed mid-term implementation report in a format approved by the client and the AIIB. The contents of the report include the implementation progress of various project activities, the implementation plan for remaining tasks, monitoring results of project objectives, key risks that may affect the timely completion of the project, and the achievement of development goals, as well as corresponding mitigation measures.

Final Report: After the completion of the consulting assignment, the consulting firm will provide a detailed final report in a format approved by the client and the AIIB. The report will comprehensively summarize the project implementation results, experiences, and lessons learned. The report should be initiated for writing three months before project closure and submitted for client review one month before project closure, ultimately obtaining the AIIB's non-objection.

Other reports and documents: In project implementation, assist clients in writing other reports and documents required for project management.

The consulting expert shall not submit the above report to any unit or individual without the Client's permission.

6. Items Provided by the Employer and Counterpart Personnel

(a) Services, facilities, and property provided by the Employer to the Consultant: none.

(b) Professional support counterparts assigned by the Employer to the Consultant Team: none.

7. Administrative Support

During the execution of the Contract, the Client will provide the Consultant with:

- (1) Necessary project documents, including project evaluation documents, feasibility study reports, and all design documents;
- (2) Allowing the consultants to enter relevant offices and airport sites for work;
- (3) Providing office space for consultants to work on the project site.

8. Miscellaneous

The various schedules and consulting services provided by consulting companies should ensure that they are implemented within a reasonable timeframe, assisting clients in completing all project work before the AIIB's closing date.