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Second Party Opinion

Henan Civil Aviation Development and Investment Group Green Finance Framework

June 12, 2024

Location: China Sector: Air Freight and Logistics

Alignment With Principles

Aligned = 🗸 Conceptually aligned = 🐧

Not aligned = X

- ✓ Green Bond Principles, ICMA, 2021 (with June 2022 Appendix 1)
- ✓ Green Loan Principles, LMA/LSTA/APLMA, 2023

See Alignment Assessment for more detail.

Light greer

Activities representing transition steps in the near-term that avoid emissions lock-in but do not represent long-term low-carbon climate resilient solutions.

Our <u>Shades of Green</u> Analytical Approach >

Strengths

The eligible projects in renewable energy include a blending rate for sustainable aviation fuel (SAF) that exceeds the EU mandated requirement. In addition, the production of SAF abides by strong criteria, coming from 100% waste and residue feedstocks, and with a lifecycle emissions ceiling below the EU Renewable Energy Directive (RED II) requirement.

Weaknesses

Henan Civil Aviation (HNCA) operates freighters in the aviation sector. While the procurement of SAF could contribute to decarbonizing meaningfully HNCA's portfolio, green building projects may only reduce marginally the transition risks the company faces in its high-emitting operations.

Areas to watch

Point-based systems of green building certifications do not necessarily require minimum performance improvement thresholds. The framework's eligible green buildings project expects minimum energy savings, which mitigates the risk.

HNCA is yet to articulate a plan to reduce buildings' lifecycle emissions and their indirect exposure to fossil fuels.

HNCA's disclosures are limited, and it is yet to publish a sustainability report. This is common for Chinese local government-owned entities.

Eligible Green Projects Assessment Summary

Eligible projects under issuer's green finance framework are assessed based on their environmental benefits and risks, using Shades of Green methodology.



Investment in the procurement of SAF from biomass waste and municipal solid wastes.

Green Buildings Light green

Acquisition, construction, and maintenance of buildings that have received or are expected to receive the selected green building

See Analysis Of Eligible Projects for more detail.

certification.

Issuer Sustainability Context

This section provides an analysis of the issuer's sustainability management and the embeddedness of the financing framework within its overall strategy.

Company Description

HNCA is a Chinese state-owned entity incorporated in 2011, as approved by the Henan provincial government. It is an aviation investment company based in Zhengzhou city of Henan province. HNCA primarily engages in (1) air freight investment (through its wholly owned offshore subsidiary HNCA Luxembourg S.A.R.L. and a 35% equity interest in Cargolux Airlines International S.A.), (2) air cargo transportation, (3) aviation leasing (of aircrafts and aviation equipment such as engines), and (4) aviation logistics services (such as freight forwarding). HNCA also engages in other ancillary business operations, such as aviation manufacture, general aviation, cultural tourism, aviation infrastructure, fund management, aviation training, and engineering consulting, among others.

In 2022, HNCA had revenue of Chinese renminbi (RMB) 5.8 billion (US\$800 million). The bulk of HNCA's operating income, amounting to RMB3.5 billion, came from air freight (62%), which includes the share of profit from Cargolux.

Founded in 1970, Cargolux is one of the largest cargo operators in Europe, and currently operates 14 scheduled flights from Zhengzhou per week, connecting to 15 overseas destinations, including Luxembourg, Milan, Chicago, and Atlanta.

HNCA operates its direct air cargo transportation business through China Central Longhao Airlines Co. Ltd. This subsidiary has 14 cargo aircrafts operating 79 freight routes to 50 domestic and international destinations, with an operating income of RMB76 million (14% of operating income). Aviation leasing (12%), aviation logistics services (8%), and ancillary business (4%) round up HNCA's operations.

Material Sustainability Factors

Climate transition risk

Climate transition is a highly material issue. Currently, air transport accounts for 2%-3% of global greenhouse gas (GHG) emissions, according to the International Environmental Agency (IEA), but the proportion is gradually increasing. While there are alternative transportation modes with lower carbon intensity over short distances (for example, railroads), substitution risk remains low, with the bulk of airline traffic being long distance. Reducing emissions is difficult and expensive. Airlines face increasing pressure to use more sustainable jet fuel (which is currently available in limited quantities and several times more expensive than kerosene) and the risk of higher taxes or costs through emission trading schemes (ETS). There will be a need to continue investing in more fuel-efficient planes, accelerating the normal trend toward upgrading with more technologically advanced aircraft. More radical changes in propulsion, such as hydrogen (which would require more far-reaching redesign of planes and ground infrastructure) and electric batteries (which appear to be feasible only for small, short-range planes) are unlikely over the next decade, in our view. The construction and operation of aviation infrastructure also have substantial effects on GHG emissions, due to land use changes and reliance on carbon-intensive materials such as steel and cement. China has national commitments to reach peak carbon emissions before 2030 and achieve carbon neutrality by 2060. It has introduced the national ETS since 2021 to regulate the power sector's emissions, with an expectation to expand to cover more sectors, including domestic aviation (source: International Carbon Action Partnership).

Pollution

Aircraft emit air pollutants, such as nitrogen oxides and particles. For instance, the Organization for Economic Co-operation and Development (OECD) reports that air pollution, including that from transportation, is responsible for more than 3.5 million deaths globally every year and causes health problems for many more people. Beyond the impact on air quality, especially around airports, airlines also cause noise pollution, which affects people living near airports and within busy flightpaths. As almost all airports are near or in major cities, this affects the quality of life for many people globally. Some countries have regulated aircraft noise for several decades and tighter standards have significantly reduced noise. Pollution is also a factor during decommissioning because scrapping poses environmental risks, including the release of hazardous substances that are no longer permitted. The industry has made some progress toward reducing pollution through regulation, engine improvements, safety procedures, and, in some cases, changes to equipment. China currently regulates its air quality through the Ambient Air Quality Standards (GB 3095-2012) (source: Ministry of Ecology and Environment of the People's Republic of China), which stipulates the classification and items of pollutants, limit of average time and concentration, and monitoring methods, among others.

Physical climate risks

Acute weather events, such as storms, can complicate operations and immobilize aircrafts and damage other air transportation assets. They may also limit the accessibility of the infrastructure essential to the industry, including airports and aviation centers, and increase the risk of accidents. Airports will also be affected by higher temperatures, rising sea levels, and increased precipitation. Over time, both acute and chronic risks--changing temperatures and increased frequency of storms--may shorten the useful life of aircrafts and infrastructure and could suspend transportation or disrupt supply chains. This could have widespread implications for stakeholders across a region or within (and even beyond) the service area of the damaged infrastructure. These necessitate designing and building infrastructure that is resilient to known and projected climate hazards during the construction phase. The likelihood of damage to assets due to extreme weather increases without adaptation, more so in regions exposed to climate hazards. Unabated climate change could lead to GDP losses of 0.5%-2.3% as early as 2030 for China, according to the World Bank. Chinese provinces account for half of the most exposed global spots to extreme weather events by 2050 (source: Sydney-based research firm XDI, as referenced by the South China Morning Post).

Biodiversity and resource use

Bio-jet fuels are used in air transport as a means of tackling climate change by diversifying energy sources away from conventional jet fuels. Buyers of SAF, through their responsible sourcing policies, must ensure that suppliers have implemented the necessary safeguards to mitigate direct and indirect land use change, for example, by applying exclusions to first-generation feedstocks. However, the production of biofuel feedstocks can have significant and immediate effects, including habitat loss and fragmentation, and the use of agrochemicals. The net impact varies considerably and may be either negative or positive, depending on the feedstock used, the previous land use, and the management practices applied. In 2022, the Civil Aviation Administration of China proposed to increase SAF consumption to 50,000 tons by 2025. The industry is currently looking into the production of SAF from agricultural and forestry wastes (source: IEA Bioenergy T39 Biofuel News). Beginning in 2025, fuel uplift at EU airports must contain at least 2% SAF. The percentage will increase gradually every year, with mandates including 6% by 2030, 20% by 2035, and 70% by 2050. These requirements will apply to all flights originating in the EU, regardless of destination (source: International Trade Administration).

Employment practices

Recruitment, retention, and training of the workforce are important issues for airlines, and key to maintaining or growing their competitive position, particularly during periods of staff shortages. Main stakeholder-related considerations may stem from career opportunities (especially for flying crews), employee diversity (low share of female pilots, for example), fatigue (due to noise, irregular schedules, jet lag, and exposure to passengers' stress), and employment uncertainty due to industry cyclicality. These could result in lower service quality, high turnover, and potentially safety issues, affecting customers. Labor relations management is important, as operational disruptions due to strikes or other workforce actions can significantly affect users and cause material financial damage. Airline strikes are generally not as common in Asia as other regions. In China, organized labor strikes are similarly very unusual (source: Center for Aviation).

Issuer And Context Analysis

The framework's eligible projects aim to address climate transition risk, which is a material sustainability consideration for HNCA. SAF and green building project support climate change mitigation by alleviating GHG emissions. The latter contains embodied emissions during constructions, which takes up part of the expected allocation. They align with HNCA's vision to promote, and contribute to China's 14th Five-Year Strategic Plan for environmental protection and the development of a low-carbon economy. However, such high-level vision has not translated into any decarbonization targets. In contrast, Cargolux aims to achieve carbon neutrality by 2050, and has implemented measures such as upgrading freighters to improve fuel efficiency, investing in SAF, procuring electricity from renewable sources, and installing solar panels, as well as switching fossil-fuel trucks to low-carbon alternatives (e.g. hydrogen or electricity).

HNCA is yet to report on its sustainability performance. Apart from the annual commitment to disclose the expected and actual impact of financed projects, HNCA does not have any concrete plans to publish a sustainability report or related disclosures. This limits insight on the company's agenda to address material sustainability factors and on how other activities affect sustainability performance beyond the projects included in this framework. This situation is largely comparable to other local government-owned entities in China. On the other hand, Cargolux has a track record of sustainability disclosures referencing the Global Reporting Initiatives (GRI) standards since 2017. Majority (>99%) of its GHG emissions in 2022 came from scope 1 aircraft and company vehicle's fuel emissions (4,639,207 tCO2e), with the remaining scope 2 deriving from gas-related emissions at its offices and facilities. Cargolux stated that 100% of its electricity came from renewable sources. It is also looking to assess its scope 3 emissions but has not communicated a specific timeline.

The use of waste-based biofuels as feedstocks for Cargolux's SAF contributes to the repurposing of materials. Reusing wastes and residues, and by-products that might otherwise be unused, landfilled, or decomposed supports a circular economy and reduces the need for virgin resources. In a wider context, HNCA's strategy in managing pollutions, such as air and noise pollution, appears limited to abiding by laws and regulations. There is a risk of double counting of the SAF's sustainability impact, since Cargolux is equity-accounted in HNCA's books.

HNCA and Cargolux's assessment of their exposure to physical risk assessment is limited.

HNCA operates its aviation business in the Zhengzhou city of Henan province in China, with some exposure to Luxembourg through Cargolux. Flight destinations span over 70 locations globally, with varying degrees and types of physical climate exposures, contributing to diversify such risks. HNCA indicated it has implemented adaptative measures for the operations of aircrafts and fixed building assets in response to some weather events, such as fire hazards and heavy rainfall. Nevertheless, both companies are yet to systematically conduct physical risk assessments against any future climate scenarios.

HNCA carefully manages biodiversity risks from biofuels and related to the eligible building construction. Cargolux's SAF program requires the use of waste, residues, and by-products as feedstocks to contain risks associated with biodiversity and land use change in the supply chain. On the other hand, HNCA stated that the eligible building project involves unused and previously developed land, which should limit adverse impacts to any natural habitat.

Policies are in place to ensure quality employment practices. HNCA and Cargolux both have policies on talent attraction, development, and labor relations management to maintain a high service quality. Employee health and safety are also being taken care of; training is provided regularly. However, a strike did occur at Cargolux in September 2023. An agreement on salary increment was reached swiftly after three days, which limited the disruptions on operations. On the other hand, the risk of operational disruptions is lower for HNCA because strikes are rare in China.

Alignment Assessment

This section provides an analysis of the framework's alignment to Green Bond and Loan principles.

Alignment With Principles

Aligned = 🗸

Conceptually aligned = O

Not aligned = 🗶

- ✓ Green Bond Principles, ICMA, 2021 (with June 2022 Appendix 1)
- ✓ Green Loan Principles, LMA/LSTA/APLMA, 2023

✓ Use of proceeds

The framework's environmental project categories are shaded in green. HNCA commits to allocating the net proceeds or an amount equivalent to the proceeds issued under the framework exclusively to finance or refinance eligible green projects. Please refer to Analysis of Eligible Projects section for more information on our analysis of the environmental benefits of the expected use of proceeds. The maximum look-back period for refinanced projects is three years after issuance, in line with market practice.

✓ Process for project evaluation and selection

HNCA's green financing working group comprises representatives from the finance and accounting, construction, legal, audit, strategy, and general management departments. The group will meet to evaluate and select projects presented by the Financial and Construction Management department according to the framework's eligibility criteria. The screening process will include the preparation and review of feasibility report by third parties to identify and manage environmental and social risks for each project. Shortlisted projects will be presented to the board of directors for approval. During selected projects' design and development stage, HNCA will conduct an additional environmental protection survey to mitigate potentially negative environmental impacts. HNCA will publicly disclose in its annual report the risk management policies for addressing environmental and social risks associated with projects. The framework includes exclusion criteria that reference the International Finance Corp.'s exclusion list.

✓ Management of proceeds

The net proceeds of each green financing transaction will be deposited in HNCA's general funding accounts and earmarked for the allocation to eligible projects within three years from the date of issuance. HNCA will track the allocation of net proceeds and monitor all outstanding transactions, including periodically reallocating proceeds from projects that cease to be eligible to replacement projects that comply with the eligibility criteria. Pending (re)allocation, net proceeds will be held in cash deposits.

✓ Reporting

HNCA commits to reporting the allocation of the net proceeds, including a description of the invested projects, and their expected and actual environmental impacts. Disclosing both the expected and actual impact of funded projects adds to the understanding of their performance. The information will be made publicly available (which may include the company website or annual report) on an annual basis until full allocation of the net proceeds.

Analysis Of Eligible Projects

This section provides details of our analysis of eligible projects, based on their environmental benefits and risks, using the Shades of Green methodology.

Over the three years following issuance of the financing, HNCA expects to allocate the net proceeds or an amount equivalent to the proceeds exclusively for the acquisition and use of SAF, as well as a new green building project under construction.

Overall Shades of Green assessment

Based on the project category shades of green detailed below, and consideration of environmental ambitions reflected in HNCA's green finance framework, we assess the framework light green.

Light green

Activities representing transition steps in the near-term that avoid emissions lock-in but do not represent long-term low-carbon climate resilient solutions.

Our <u>Shades of Green</u> <u>Analytical Approach</u> >

Green project categories

Renewable energy and decarbonization

Assessment

Description



Investment in the use of renewable fuels from biomass waste and municipal solid wastes, i.e. Cargolux's SAF Program

Analytical considerations

- The use of renewable fuels from feedstocks of biomass wastes and residues, by-products, and bio-based municipal solid waste support climate change mitigation. The company commits to setting a lifecycle emissions threshold of 45 gCO2e per millijoule (mJ) of fuel for eligible SAFs, which aligns with the EU Renewable Energy Directive (RED II). For production commenced after January 2021, the RED II requires any biofuels qualified as renewable energy sources to achieve at least 65% reduction in emissions (i.e., 61 gCO2e/mJ) against a fossil fuel baseline of 94 gCO2e/mJ (source: European Parliament). HNCA quoted from the International Air Transport Association (IATA) and regards SAF to have a carbon footprint 70%-80% lower than that of conventional aviation fuels. In addition, waste-based biofuels generally carry less land use change risks than crop or feed-based feedstock. They contribute to repurposing materials by reusing these wastes and residues that might otherwise be unused, landfilled, or decomposed. Nevertheless, the procurement of SAF will be used in a mix with conventional fossil fuel-based aviation fuel, which implies carbon lock-in risks. This supports our Light green assessment.
- According to the company, Cargolux will primarily use SAF for its flights between the Luxembourg and Zhengzhou airports. For each flight, Cargolux will procure 80 tons of SAF from the Luxembourg airport's fuel reserve via the NATO's Central European Pipeline System (CEPS). Cargolux's Boeing 747-400 and 747-8 freighters' tanks contain 217 tons and 239 tons of fuel, respectively (source: Aviation Week and Space Technology). That means 33%-37% of SAF will be blended and used per flight, the remaining being conventional aviation fuel, which emission intensive from the production and combustion standpoint. That said, the blending ratio exceeds the existing EU mandate of 2% SAF requirement. The transportation of raw materials and fuels could also be a significant source of GHG emissions in the supply chain. Cargolux aims to prioritize local sourcing, by collaborating with suppliers in Europe (e.g. France and Norway). Having lifecycle emissions ceiling brings a layer of safeguards.
- According to HNCA, Cargolux's SAF is primarily made from biomass waste and residues, by-products (e.g., waste fat, used oil and grease), and bio-based municipal solid waste (e.g., food waste). Waste and residue feedstocks imply lesser land use change or biodiversity risks compared with food or crops feedstocks (e.g., corn, sorghum, and beets). Nevertheless, the company has not explicitly ruled out the possibility of using palm oil refining residues (PFAD), which indirectly links to associated deforestation and land use change risks. HNCA indicated that the major SAF supplier selected (i.e., Finland-based Neste Oyj, link to SPO) has demonstrated strong sustainability commitments, which align with those of Cargolux. Lifecycle assessments, certifications, direct and indirect land-use change risks are among the considerations factored into the feedstock and supplier selection process.

Second Party Opinion: Henan Civil Aviation Development and Investment Group Green Finance Framework

• Cargolux's operations and its feedstock supply chain are exposed to physical climate risks. For example, extreme weather and sea level rise might impact air transport, aircraft performance, and airport capacity. Similarly, the availability and quality of water, as well as extreme weather patterns, such as flooding, may also impact indirectly the availability of feedstock. The framework does not provide information on the projects' considerations to assess, address, or mitigate physical climate risk. Food crops have more direct exposures to physical climate risks. HNCA stressed that Cargolux's commitment to source 100% waste and residue feedstocks, and that could partially mitigate its physical risk exposure.

Green Buildings

Assessment

Description

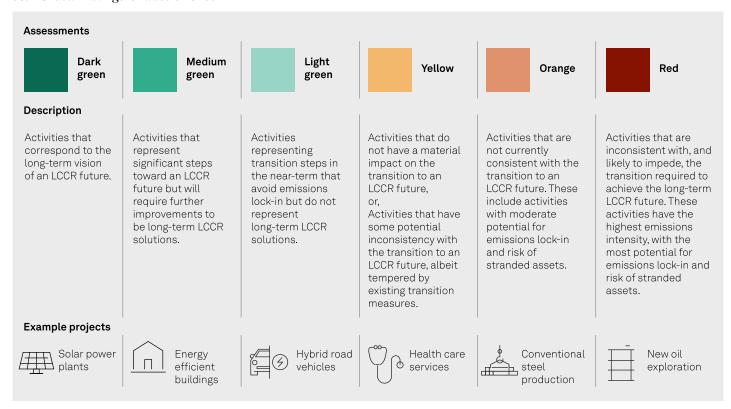


Acquisition, construction, and maintenance of buildings that have received, or expect to receive the following recognized green building certification of Chinese Green Building Evaluation Standards (GB/T 50378) – 2 star or above (Design/Operations Label).

Analytical considerations

- HNCA will allocate part of the net proceeds to the ongoing construction of the BAA (China) Aviation Training Center (BAA Center) in Zhengzhou city (close to the airport), which has received Chinese Green Building Evaluation Label 2-Star (Design). This green building project supports climate change mitigation by alleviating GHG emissions associated with energy use. According to the project's Energy Conservation Plan, the company will install energy efficiency equipment (e.g., centralized cooling and heating, and lighting system) in the building, which is expected to achieve 6%-8% energy efficiency below the national regulation requirements. The project also includes other environmental benefits, such as improved water efficiency. Nevertheless, there is no specific consideration for embodied emissions during construction, which contribute to emissions lock-in. The BAA Center is also inherently linked to the high-emitting aviation sector, which supports our light green assessment.
- HNCA indicated that the BAA Center will be mainly for office use (e.g., training and administrative purpose), with a small portion
 of service apartments. Industrial buildings or any building used by fossil-fuel companies will not be financed under this
 framework.
- According to HNCA, heating and cooling of the BAA Center will be sourced from the national electricity grid and heat network, which coal still largely dominates (see "China to raise share of non-fossil fuels in total energy mix to 18.3% in 2023," S&P Global Commodity Insights, April 13, 2023). Gas-fired boilers may also be used as backup heating equipment. While we acknowledge the potential technological limitations that lead to the need of direct fossil-fuel heating, the lack of a concrete plan to gradually reduce exposure to fossil fuels or transition to low-carbon alternatives may introduce associated lock-in risks. The company stated that it will exclude the financing of fossil-fuel-based equipment in the eligible green building project.
- Construction of new building requires significant raw materials with considerable embodied emissions and associated climate impacts. The Environmental Conservation Plan shared by HNCA does not specify any plans or thresholds regarding the building's lifecycle emissions. While the BAA Center relies on its Chinese Green Building Evaluation Label 2-star to address some environmental impacts, such as material sourcing, energy, water, and waste management, the certification's point-based system implies that the framework's targeted certification could be achieved without thoroughly addressing each environmental aspect.
- Buildings are exposed to physical climate risks, including rising sea levels, flooding, typhoons, and thunderstorms in Henan province. The framework does not include systematic assessment of physical climate risks for the eligible building. According to HNCA, the third-party feasibility study and environmental survey will broadly address climate emergency events. For instance, the former includes project-design stage risk identification and assessment; the latter informs mitigation measures during the project development stage. According to HNCA, the building is designed with prevention and emergency control measures against physical climate risks, such as flooding and fire hazard. The measures include drainage and sprinkler systems.
- The biodiversity risk appears low because the BAA Center is planned on a government-approved unused plot, which is part of a largely developed site with limited additional impact on biodiversity. As part of the project's requirement, HNCA has conducted feasibility study and environmental protection survey for the government's approval, which includes proposals of associated environmental risk mitigation and control measures.
- The Energy Conservation Plan states that the project will address water efficiency, such as implementing rainwater harvesting and reuse. It expects to collect up to 3,296 m³ per year, which will be used for irrigation and cleaning purposes.

S&P Global Ratings' Shades of Green



Note: For us to consider use of proceeds aligned with ICMA Principles for a green project, we require project categories directly funded by the financing to be assigned one of the three green Shades.

LCCR--Low-carbon climate resilient. An LCCR future is a future aligned with the Paris Agreement; where the global average temperature increase is held below 2 degrees Celsius (2 C), with efforts to limit it to 1.5 C, above pre-industrial levels, while building resilience to the adverse impact of climate change and achieving sustainable outcomes across both climate and non-climate environmental objectives. Long term and near term--For the purpose of this analysis, we consider the long term to be beyond the middle of the 21st century and the near term to be within the next decade. Emissions lock-in--Where an activity delays or prevents the transition to low-carbon alternatives by perpetuating assets or processes (often fossil fuel use and its corresponding greenhouse gas emissions) that are not aligned with, or cannot adapt to, an LCCR future. Stranded assets--Assets that have suffered from unanticipated or premature write-downs, devaluations, or conversion to liabilities (as defined by the University of Oxford).

Mapping To The U.N.'s Sustainable Development Goals

Where the Financing documentation references the Sustainable Development Goals (SDGs), we consider which SDGs it contributes to. We compare the activities funded by the Financing to the International Capital Markets Association (ICMA) SDG mapping and outline the intended linkages within our SPO analysis. Our assessment of SDG mapping does not impact our alignment opinion.

This framework intends to contribute to the following SDGs:

Use of proceeds

SDGs

Renewable Energy and Decarbonization



7. Affordable and clean energy*

Green Buildings



11. Sustainable cities and communities*

^{*}The eligible project categories link to these SDGs in the ICMA mapping.

Related Research

- China to raise share of non-fossil fuels in total energy mix to 18.3% in 2023, April 13, 2023
- Analytical Approach: Shades of Green Assessments, July 27, 2023
- Analytical Approach: Second Party Opinions: Use of Proceeds, July 27, 2023
- FAQ: Applying Our Integrated Analytical Approach For Use-Of-Proceeds SPOs. July 27, 2023
- ESG Materiality Map: Airlines, July 20, 2022

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