



FY23 Climate and Nature-Related Risks Report

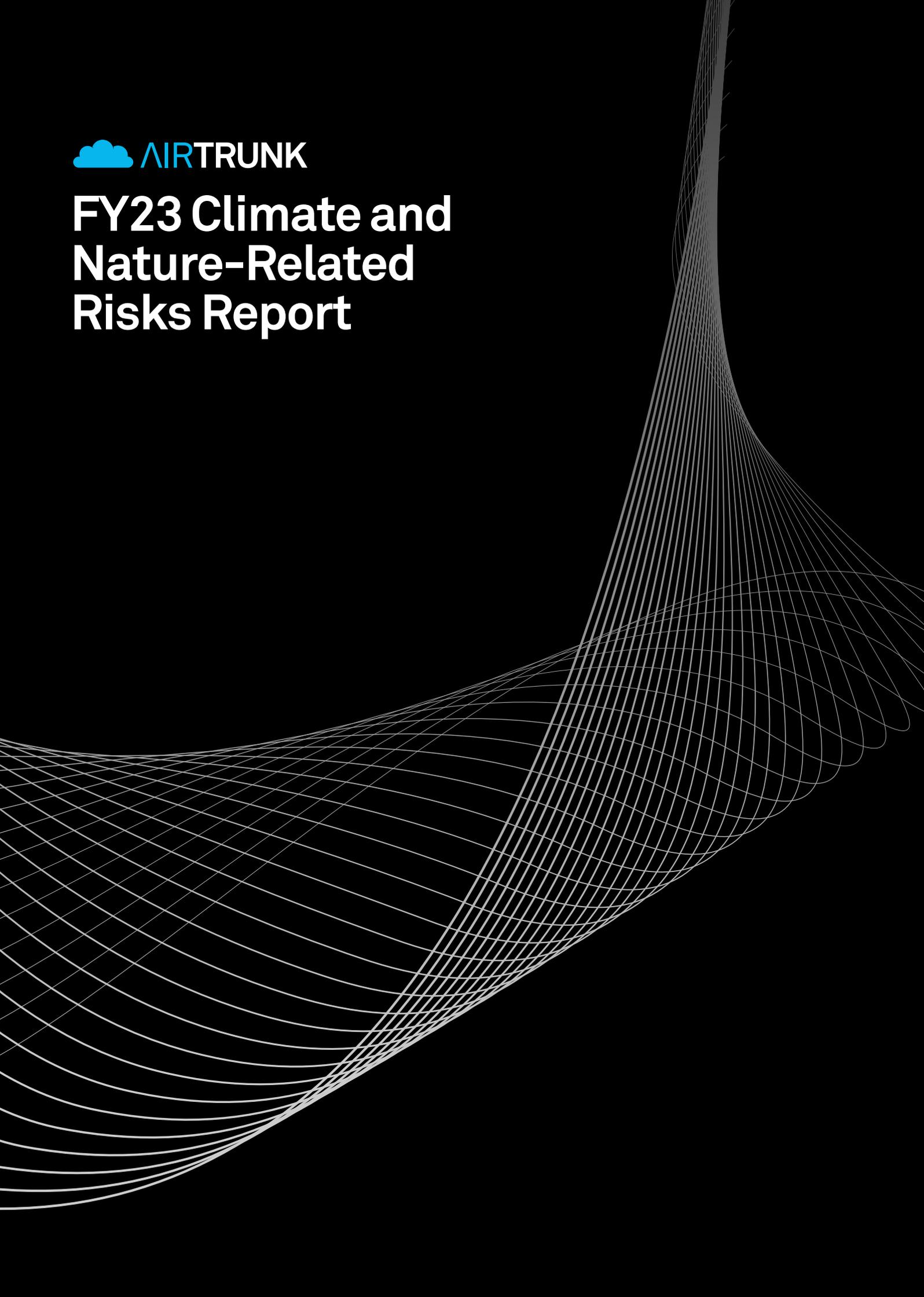


TABLE OF CONTENTS

Climate and nature risks in the hyperscale data centre context	4
AirTrunk’s journey so far	5
Climate-related risks and opportunities	6
Nature-related risks and opportunities	11

ABOUT THIS STATEMENT

These commitments are jointly made by all entities within AirTrunk Group.

Together, these entities are referred to as AirTrunk (we, us, or our).

This statement is made in relation to the financial year commencing 1 July 2022 and ending 30 June 2023.

CLIMATE AND NATURE RISKS IN THE HYPERSCALE DATA CENTRE CONTEXT

Companies, governments, and communities are increasingly impacted by the physical impacts of climate change around the world. Shifting weather patterns, intensifying natural disasters, and rising sea levels are leading to supply chain disruptions, infrastructure damage, and changing operational environments. The growing concern around climate change is also leading customers and governments to increasingly scrutinise a company's contribution to climate change and nature loss, leading to an increase in regulations and shift in customer preferences.

Climate change and nature loss require many organisations to reconsider their approach to developing and maintaining resilience strategies. Asia-Pacific and Japan (APJ), in particular, is disproportionately affected by climate change due to its geography and population density¹, therefore it is important that we:

1. Plan for increasing likelihood and severity of extreme weather, changing climatic conditions, and nature loss across different scenarios and time horizons.
2. Monitor transition related risks such as technology costs, customer preferences, and industry regulations.
3. Collaborate with a wider group of stakeholders to improve collective action and capacity to respond to climate change.

Developing mitigation and adaptation plans is crucial and, in most cases, challenging. The lack of data availability, long-time horizons of risks, and uncertainty of most climate and nature-related risks can lead to companies neglecting climate and nature-related risk planning.

However, by leaning into the challenge, companies can not only reduce risks but also open opportunities to provide better services, expand revenues, and manage costs.

To this end, AirTrunk, as the leading hyperscale data centre provider in APJ, is publicly stating its commitment to:

1. Identify impact and risk across value chain activities and geographies, beyond a facility's immediate operations.
2. Connect climate and nature/biodiversity risks, opportunities, and co-benefits where possible to progressively integrate the two considerations over time.
3. Drive system level impact by collaborating with a wider network of stakeholders, such as closely partnering with customers or participating in initiatives that develop market capacity to understand and respond to climate change and nature loss.

This report shares examples from AirTrunk's own journey towards understanding and responding to climate and nature-related risks and opportunities.

¹ McKinsey & Company, 'Climate risk and response in Asia' Report, November 2020.

AIRTRUNK'S JOURNEY SO FAR

Climate risk management has been fully embedded within AirTrunk's Enterprise Risk Management Framework and is prioritised as one of the company's top key enterprise risks. Since performing its first climate risk assessment in FY22, AirTrunk has made significant progress by quantifying several climate risks and opportunities. The scope of analysis included:

- Identifying measures to improve resilience in water stressed regions and, at the same time, taking steps towards developing AirTrunk's water stewardship strategy;
- Defining approaches to strengthen community relationships and engagement with a range of stakeholders; and
- Developing risk mitigation measures to ensure AirTrunk's ability to deliver on our Net Zero commitments across its Scope 1 and 2 emissions by 2030. Notably, the company is focused on working with its customers to transition their energy consumption at AirTrunk data centres to 100% renewable energy by 2030.

The analysis was conducted across under three climate scenarios:

- A speedy Net Zero scenario (SSP1 RCP2.6) aligned to below 2-degree world;
- A baseline scenario (SSP2 RCP4.5) aligned to current nationally determined contributions; and
- A hot house world scenario (SSP5 RCP8.5) aligned to above 4-degree world.

Additionally, AirTrunk conducted a pilot test of the Taskforce on Nature-Related Financial Disclosure (TNFD) (v.4) to better understand its impacts and dependencies on nature and manage the related risks and opportunities. The pilot was conducted at AirTrunk SGP1 data centre (SGP1) in Singapore.

The SGP1 pilot was a considered first step to measuring and addressing AirTrunk's risks and opportunities related to nature and biodiversity. A thorough assessment and strategy will follow, at which point the company will scale its efforts more deeply across its value chain and portfolio.

CLIMATE-RELATED RISK AND OPPORTUNITIES

Governance

The AirTrunk Board has ultimate responsibility for the oversight of climate-related risks and opportunities with delegated oversight responsibilities assigned to the EHS, Construction and Risk Committee (ECRC). The ECRC receives quarterly updates from the Head of Risk and Sustainability and the Senior Risk Management Committee (SRMC) which is comprised of AirTrunk’s Senior Management team. These updates are focused on providing the latest emerging risks, climate risk profile and heatmap, as well as a summary of the control environment for climate risks.

AirTrunk has appointed numerous Executives as climate risk owners. Specific priority risks have been allocated to AirTrunk’s Chief Technology Officer, Chief Development Officer, Chief Marketing Officer and Chief Legal Officer who hold the ultimate responsibility for executing responses, management of their allocated risks and reporting progress to the SRMC. All climate-related risks are discussed at the SRMC on a quarterly basis and reported at Board level through the ECRC.

Assessing and Managing Risks

AirTrunk has aligned its approach to identifying and assessing climate risks with its existing enterprise risk management framework to ensure climate risks can be easily integrated into the existing risk management processes.

To identify climate risks and opportunities, AirTrunk takes an iterative approach, continually reviewing numerous information sources, including external audits, inputs from various functions, regulatory reviews, customer and supplier feedback, climate risk experts’ advice, and site level analysis. These insights are taken into workshop settings with the SRMC to ensure all identified climate-related risks are considered and prioritised. AirTrunk’s previously identified risks are subsequently reviewed using an established evaluation matrix across likelihood and impact, relying on quantitative criteria to discern the appropriate rating.

As climate-related risks tend to manifest over longer time horizons, AirTrunk has focused on allocating an expected time horizon for each risk to reach materiality. Assessed risks are captured within its enterprise level risk register and presented to the SRMC and subsequently the ECRC for input, review and approval. For each priority risk, a member of the SRMC is allocated as the risk owner, with responsibility to manage and monitor the risk.

For the nine key risks AirTrunk prioritised, the assigned risk owners have developed 43 mitigating strategies. These strategies will be implemented in the next 24 months and closely monitored to ensure climate-related risks and opportunities are effectively and adequately managed. By aligning AirTrunk’s risk management approach for climate-related risks to its existing enterprise risk management framework, these risks can be seamlessly integrated into the company’s overall existing risk management process.

In addition, AirTrunk has assessed the full spectrum of existing enterprise level risks to understand if they may have a climate-related dimension that overlaps with identified climate risks, and whether these risks could be merged or, if identified, added to the risk register as discrete climate-related risks.

AirTrunk’s Climate Risks and Opportunities

While the type and magnitude of climatic hazards to which AirTrunk is exposed varies across APJ, general trends indicate increasing temperatures, disruption of historical rainfall patterns which can exacerbate risk of droughts, and more extreme rainfall events as key hazards across all jurisdictions. These trends are being monitored closely to ensure they are appropriately assessed based on the extent of exposure to AirTrunk.

Furthermore, governments are increasing expectations of companies to mitigate their impact and manage risks more closely.

Table 1: General trends relevant to AirTrunk in APJ

 <p>Temperatures have increased, and trends expected to continue</p>	 <p>Disruption of seasonal rainfall patterns</p>	 <p>Average and heavy precipitation projected to increase</p>
 <p>Emission trading schemes and carbon taxes under consideration or implemented in many APJ markets</p>	 <p>Governments mandating climate financial risk disclosures, for example, in Singapore and Australia</p>	 <p>Efficiency and renewable energy requirements increasing in several markets</p>

CLIMATE-RELATED RISK AND OPPORTUNITIES

AirTrunk's priority climate-related risk and opportunity areas have been identified as follows:

Physical Risks:

- **Higher than average temperatures** (Chronic Risk) which increases energy demand across AirTrunk's operations and may require new technologies.
- **Increased intensity of droughts** (Acute Risk) that could result in water disruption.

Transitional Risks:

- **Capital availability:** Increasing climate expectations from financiers to maintain preferential capital rates and access to new capital.
- **Customer preferences:** Changing customer requirements and customer technology deployment driven by customer's own sustainability frameworks, investor requirements and reputational pressures.
- **Stakeholder scrutiny:** Civil Society (communities and climate activists) and media scrutiny of the tech sector on a range of issues including but not limited to energy and water use; exacerbated by energy rationing and droughts.
- **Climate litigation and regulatory shifts:** Potential for new moratoria for data centres, energy use restrictions or carbon pricing schemes.

Opportunities:

- **Low-carbon products:** Providing innovative low carbon solutions.
- **Renewable energy:** Increasing availability of renewable energy procurement mechanisms and supply options for AirTrunk customers.
- **Resource efficiency:** Enhanced availability of technologies driving water and energy efficiencies across AirTrunk operations.
- **Green finance:** Tapping into preferential green finance to support the achievement of AirTrunk's decarbonisation and water and energy efficiency ambitions.

From AirTrunk's key risks, the company has focused its attention on those that are most material. A deeper quantitative assessment has been conducted with a list of relevant actions.

Case study: Addressing Water Stress Challenges

AirTrunk has existing water sustainability and resiliency measures in place to ensure responsible water management across its sites. These include prioritising more efficient heat rejection technologies where possible and water use management protocols when water stress is high. Expanding on existing measures, AirTrunk reviewed how water stress may change over time and across scenarios.

Water scarcity is an escalating concern in APJ, where in many markets, without rapid investment in improving water supply, water demand will likely outpace availability. This is true for almost every scenario for selected locations, as per the WRI Water Risk Atlas. If the demand-supply gap for freshwater continues to widen, the region’s ecosystems and communities will be put at risk.

AirTrunk has assessed that most of the state, municipal, and national governments in the geographies we operate have tangible plans to invest in expanding rainfall independent sources (desalination, recycled water etc.) specifically to mitigate the impact of climate change on water supply. This is expected to significantly reduce the risk of water stress at a system level in the future since there will be a lower reliance on freshwater and rain-dependent sources.

While extreme disruptions are generally mitigated and unlikely, their potential financial ramifications underscore the need for proactive measures. Prolonged water supply reductions can lead to operational outages, increased recovery costs, and necessitate substantial mitigation efforts.

The impact of water scarcity on data centres can be profound. Cooling systems, essential for maintaining optimal operating temperatures of intricate hardware and lower energy consumption, heavily depend on water. As water availability dwindles, the efficiency of these cooling mechanisms diminishes, potentially leading to overheating, equipment failures, and limited design options for future campuses necessary for high density deployments, liquid

cooling, or the ever-growing AI space. This, in turn, may cause unplanned outages, data loss, and service interruptions, impacting businesses relying on seamless digital operations.

AirTrunk has calculated financial exposure that these events would bring and are using this information to inform the most appropriate response strategy under high-impact scenarios³.

Amidst the pressing challenge of water stress, data centre companies play a pivotal role in shaping a sustainable future. By implementing strategic initiatives, companies can not only enhance their operational resiliency but also contribute to global water conservation efforts. Hyperscale data centres can explore initiatives including but not limited to, the following:

-  **Investing in Resilience:** Prioritise infrastructure investments like water recycling and storage facilities to ensure continuity during water stress events.
-  **Optimising Water Use:** Implementing water-efficient technologies and processes, such as advanced cooling systems and leak detection, reduces overall water consumption.
-  **Collaborating with Stakeholders:** Partnering with local communities and governments for integrated water resource management.
-  **Protect, Restore, and Regenerate Ecosystems:** Support habitats and ecosystems through activities and investments that help to improve the quality of water in natural bodies⁴.
-  **Harnessing Renewable Energy:** Transitioning to renewable energy sources like solar and wind power minimises water usage associated with traditional energy production.

Table 2: Water stress² across AirTrunk data centres and eligible heat rejection technologies

WATER STRESS	AIRTRUNK DATA CENTRES	ELIGIBLE HEAT REJECTION (example)
Extreme (>80%)	-	Dry rated air-cooled chillers
High (40-80%)	MEL1	Adiabatic air-cooled chillers
Medium-High (20-40%)	SYD1, SYD2, SYD3, TOK1, TOK2	Hybrid dry coolers
Low-Medium (10-20%)	-	Indirect Evaporative Cooling
Low (<10%)	HKG1, HKG2, JHB1, SGP1	Open circuit cooling towers

² World Resources Institute, ‘Aqueduct Water Risk Atlas’, June 2023.

³ Assessed as part of AirTrunk’s internal risk assessment for select data centres, cost would vary for other facilities.

⁴ Tokyo Bureau of Waterworks, ‘The Water Conservation Forest. Lush Water Resources Forests Created by Everyone’. N.D.

Case study: Addressing Water Stress Challenges

Exploring Nature and Biodiversity Intersections with Climate Risk Protecting, Restoring, And Regenerating Ecosystems That Provide Key Services

As part of AirTrunk's analysis of water related climate risk and opportunities, the company also assessed specific touch points between ecosystem services and the provision of water supply. This approach was inspired by the company's TNFD pilot.

For example, in Tokyo, the Tama river is a major source of water for Tokyo Metropolis. To ensure the streamflow of the river and conserve its reservoir, the Bureau of Waterworks manages a water conservation forest with a total area of approximately 24,000ha⁵.

These vital landscapes provide a range of essential ecosystem services that foster the health and resilience of local watersheds. By acting as natural sponges, these forests mitigate flood risks during heavy rainfall events, regulate water flow, and minimise erosion. Additionally, their intricate root systems enhance soil retention, reducing sedimentation in water bodies and safeguarding water quality.

Identifying potential ecosystem protection, restoration, and regeneration activities within AirTrunk's water supply chain is an action the company can explore that goes beyond its water resource efficiency measures.

5 Tokyo Bureau of Waterworks, 'The Water Conservation Forest. Lush Water Resources Forests Created by Everyone'. N.D.

Case study: Adapting to Low-Carbon Preferences

As the world’s largest and leading technology companies, AirTrunk’s customers have ambitious climate goals and are increasingly focused on low carbon energy sources. This could pose a key climate-related risk for AirTrunk given resource, cost and regulatory pressures, which need to be proactively measured and addressed.

To address this shift, AirTrunk has committed to achieve Net Zero across its Scope 1 and 2 emissions by 2030 and is collaborating with its customers to transition to 100% renewable energy for electricity consumed at AirTrunk data centres. AirTrunk anticipates that its customers will procure electricity from renewable energy sources by 2030, however is aware of the challenges its customers may face given complexities relating to differences in resources, funding and regulation across markets in the APJ region. There may therefore be considerable financial implications for AirTrunk to procure renewable electricity for a portion of its customers’ electricity needs, to ensure AirTrunk meets its own Net-Zero obligations.

To better understand the financial implications associated with procuring this residual renewable energy, AirTrunk embarked on a quantitative risk analysis to gain a comprehensive understanding of the financial landscape AirTrunk may encounter as it pursues its renewable energy goals.

Through this quantitative scenario analysis, AirTrunk was able to strategically evaluate the potential financial implications against the three climate scenarios.

Furthermore, the analysis quantified potential response measures and identified how AirTrunk could potentially mitigate financial risks by pre-emptively procuring renewable energy ahead of its 2030 target for the residual brown electricity consumption across its data centres.

This proactive approach safeguards AirTrunk’s financial stability and underscores its commitment to a sustainable and responsible business model. By anticipating and assessing potential financial risks and employing informed strategies, AirTrunk’s goal to achieve its Net Zero by 2030 strategy, in part, through renewable energy becomes more resilient and adaptive.

Table 3: Fiscal impact of cost of electricity transition in APJ

		Speedy Net Zero	Baseline	Hot House World
	Australia	High	High	Medium
	Japan	High	Medium	Medium
	Malaysia	Low	Low	Low
	Singapore	Low	Low	Low
	Hong Kong	Medium	Medium	Low

Legend: ● High ● Medium ● Low

NATURE-RELATED RISK AND OPPORTUNITIES

While corporate action on climate change risk, including mitigating greenhouse gas emissions, has increased significantly, there is also an increased focus on nature and biodiversity loss. Momentum is growing towards a holistic approach that includes a stronger emphasis on nature and biodiversity issues alongside broader climate change topics.

The TNFD is a new, market-led initiative consisting of a disclosure framework that allows financial institutions and companies to incorporate nature-related risks and opportunities into their strategic planning, risk management and asset allocation decisions.

In FY22, AirTrunk conducted a pilot test of the TNFD (v.4) at SGP1 to better understand its impacts and dependencies on nature and manage the related risks and opportunities. AirTrunk's pilot implementation of the TNFD framework helped to:

- Gain an initial understanding of the interactions between SGP1 and the natural ecosystem surrounding the site from a value chain perspective;
- Set the foundation to conduct similar implementations across AirTrunk's portfolio;
- Conduct knowledge sessions on the TNFD with senior management and other key stakeholders; and
- Actively participate in building a stronger framework for nature by providing feedback to the TNFD.

A key outcome of AirTrunk's pilot TNFD study was the prioritisation of the dependency on and impact to terrestrial ecosystem from the extraction/production of building, energy, and IT material. Building a data centre impacts on- and off-site biodiversity including species disturbance, habitat loss, fragmentation and pollution. Construction alone accounts for ~40% of raw material flow in the global economy, representing a key area of concern⁶. Furthermore, the solutions with which we seek to mitigate climate change, e.g. renewable energy, require a large volume of minerals to enable the energy transition.

Systemic change to address the impact of economic activity on terrestrial ecosystems requires wider industry collaboration and companies should map out their dependencies and impact to specific regions or countries to ensure material procurement is in line with targets and framework to halt biodiversity and nature loss.

The pilot implementation of the TNFD helped AirTrunk build the initial capacity required to understand the hot spots of its value chain activities with various nature and biodiversity related topics. Moving forward AirTrunk intends to focus on more granular location specific data points across its portfolio.

