

CLIMATE CHANGE AND ECONOMIC RECOVERY

9

March 2021

CHALLENGES FACING AUCKLAND
BUSINESSES AND USING
RECOVERY TO BUILD RESILIENCE



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Foreword

“Climate change is the single greatest threat to a sustainable future but, at the same time, addressing the climate challenge presents a golden opportunity to promote prosperity, security and a brighter future for all.” - Ban Ki-Moon, Former Secretary General of the United Nations, 2014.

Disruptions such as climate change and global pandemics have highlighted vulnerabilities in our regional and global economy. The recently published [National Climate Change Risk Assessment](#) highlighted the challenges facing our economy as a result of climate change. The sooner we address these challenges the better, as the costs of inaction will be great. If we fail to act now, the financial, social and economic costs from climate change will continue to rise and disproportionately impact future generations, who will be left ill-prepared and unable to cope with the lasting effects.

As we shape the region’s economic recovery from the impacts of COVID-19, we have the opportunity to shape an economy that is resilient, regenerative and distributive, while giving particular urgency to tackling the climate crisis.

It is imperative that the COVID-19 economic response avoids locking Tāmaki Makaurau Auckland into a high emissions pathway. [Te Tāruke-ā-Tāwhiri: Auckland Climate Plan](#) provides us with direction for how Tāmaki Makaurau Auckland can transition to a net zero carbon economy.

While transitioning to a net zero carbon economy will pose both challenges and opportunities, transitioning successfully could deliver broader environmental, economic, social and health benefits for all Aucklanders.

To best realise the opportunities of the COVID-19 recovery, we must plan for increasing climate and non-climate related disruptions. To both mitigate and adapt to climate change, and to inform planning and decision-making for our economic recovery, we must understand the climate-related risks to our economy. Identifying and understanding these risks is the first step in helping us build our regional adaptation response.

This insights paper is mainly based on a comprehensive report written by AECOM titled *Auckland Economy Climate Change Risk Assessment* and other resources referenced throughout the paper.

This report is a resource to help the region’s businesses, organisations and leaders understand our challenges and opportunities as we work together as a region to ensure no one is left behind.

If we act now, there is time to build business and community resilience to cope with the threat to Tāmaki Makaurau Auckland posed by the physical impacts of climate change.

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Tāmaki Makaurau Auckland needs to prepare and plan for both the physical impacts of a changing climate, and the risks and opportunities of our transition to a low carbon economy.

The region has a shared roadmap for this, [Te Tāruke-ā-Tāwhiri: Auckland Climate Plan](#), providing direction for how we can transition to a resilient and net zero carbon economy. The key actions include:

- accelerating the decarbonisation of Auckland's business sector
- encouraging the adoption of innovation, green technology and circular solutions
- supporting suppliers as they transition to a lower carbon economy
- investigating and supporting the role of alternative, low-carbon fuels
- enabling fuel switching from natural gas to electricity.

These actions – our wider transition to a low carbon economy and the physical impacts of the changing climate – will impact on businesses and industries. But what are the different risks – and the opportunities – that lie ahead for Auckland's key sectors?

This report takes a closer look at these impacts. It is a tool to help the region's businesses, organisations and leaders understand the challenges and opportunities businesses in key Auckland sectors will face as Auckland moves to a net zero economy.

Physical risks and opportunities

Our current emissions pathway will see our region continue to experience an increase in climate-related impacts, such as flooding, heatwaves, drought and coastal storms.¹

We call the negative impacts arising from a changing climate **physical risks**. An example is changing rainfall patterns that produce flooding, causing physical damage to homes, businesses and critical infrastructure across the region.

A changing climate can also result in opportunities such as warmer temperatures, encouraging visitors to the region throughout the year. This may reduce the environmental pressures caused by peak tourist seasons, spreading the number of tourists visiting the region more evenly throughout the year. We call these **physical opportunities**.

Transition risks and opportunities

To reduce the impacts of climate change, New Zealand and Tāmaki Makaurau Auckland have committed to reducing greenhouse gas emissions by 50 per cent by 2030 and achieving a net zero emissions target by 2050.²

¹ Petra Pearce et al. *Auckland Region climate change projections and impacts* (Auckland: National Institute of Water and Atmospheric Research, 2018). <https://knowledgeauckland.org.nz/media/1170/tr2017-030-2-auckland-region-climate-change-projections-and-impacts-revised-jan-2018.pdf>.

² "Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan," Auckland Council, December 10, 2020, <https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-by-laws/our-plans-strategies/Pages/te-taruke-a-tawhiri-ACP.aspx>.

To meet these targets, we require an economy that does not rely on fossil fuels, known as a net zero economy. To achieve this, businesses need to operate differently, using clean and low-carbon technologies, processes and production methods. The changes needed to get us to a net zero economy are referred to as a **transition**.

Our transition needs changes at local and national levels, including policy and technology changes that will affect the way our businesses operate. For example, there may be increasing demand for locally produced goods and services as imports increase in relative price due to higher transportation costs.

This transition to a net zero carbon economy will present both challenges and opportunities to business and communities. We call these **transition risks and opportunities**, and they will be prevalent in the next few decades as we act to reduce emissions. They will vary depending on the speed and scale of transition.

Figure 1 below illustrates how risks and opportunities (physical and transitional) are caused by different drivers. Where physical risks are caused by climate changes, transitional risks are caused by changes to policy and litigation, technology, markets and reputation.

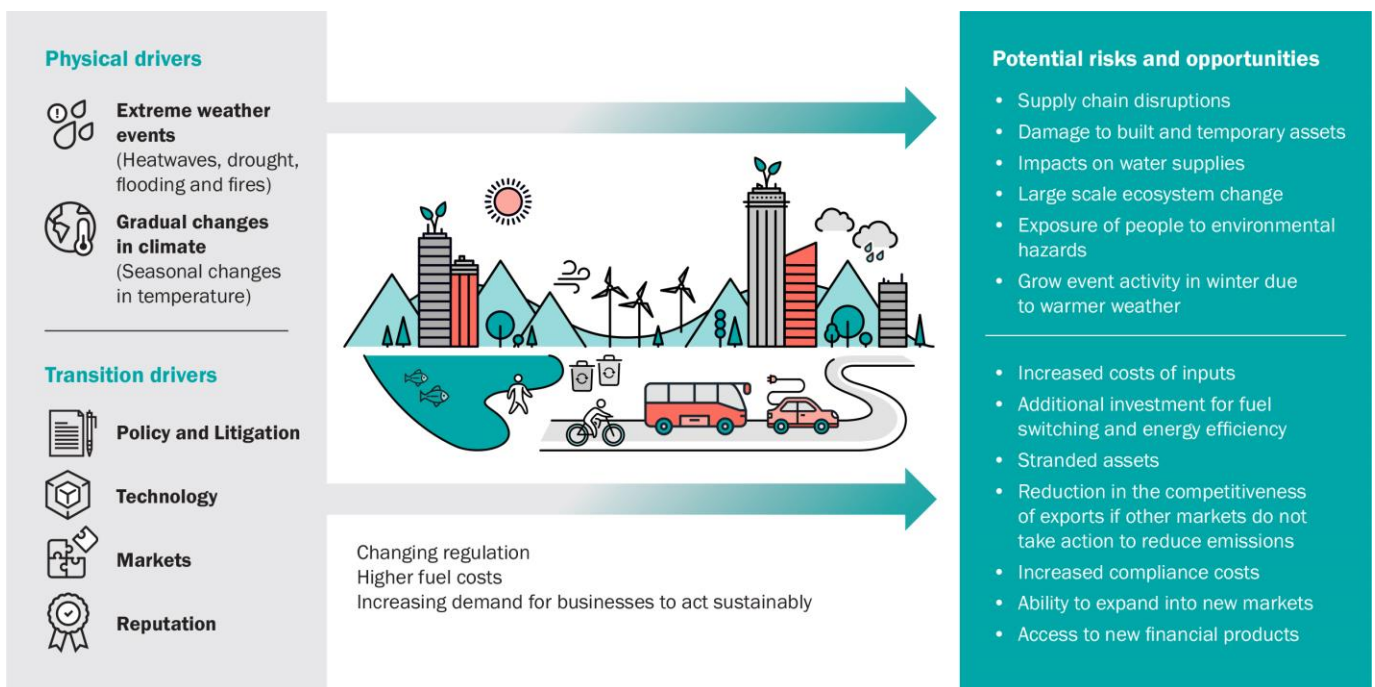


Figure 1 –Physical and transition drivers

Understanding these climate change-related risks and opportunities, and their potential impact on Tāmaki Makaurau Auckland, enables us to plan, build resilience and take advantage of opportunities. A resilient Tāmaki Makaurau Auckland will draw on the strength of its diverse communities to prepare for any changes that may eventuate, **working together as a region**.

Target sectors

Tāmaki Makaurau Auckland has a diverse economy, including many different businesses, sectors and subsectors which will experience their own unique climate change risks and opportunities.

Auckland’s economic development agency has previously focussed its efforts on four sectors that drove economic prosperity, GDP and jobs, used here as our target sectors in this report.



Food and Beverage

- Growing and producing, processing, transporting and distributing fresh, prepared and packaged food, and alcoholic and non-alcoholic beverages.



Construction

- Preparation, clearing (including demolition) and development of land, and the construction, installation, alteration, repair and deconstruction of buildings, structures and infrastructure.



Screen

- The industries that produce film and television content for domestic and international audiences and service international productions coming to New Zealand.



Visitor Economy

- Production of goods and services for consumption by visitors. It is an amalgamation of industry sectors including accommodation, transport, attractions and international education (ATEED, 2018).

Physical risks and opportunities

Physical risks, caused by changes in the climate, will impact businesses and organisations in all sectors throughout the region to varying degrees. Some of these risks to the target sectors are outlined in Figure 2.

Physical risks have varying consequences across all four target sectors, shown in Table 1. Many of these risks will have a moderate impact by 2040 and 2110.

Risks – Physical



Maritime infrastructure and maritime transport assets are damaged or destroyed

Our economy depends on both maritime infrastructure and transport assets. Storms and sea-level rise may impact port, ferry, marina and mooring infrastructure and the activities they support.



Information and Communication Technology systems are disrupted

Businesses use Information and communications technology (ICT) to connect to customers, communicate, manage operations, improve productivity, and develop new products. ICT systems may be damaged by high winds, coastal inundation and flooding, affecting business operations.



Electricity supplies are disrupted

Damage to transmission lines, structures, and substations due to storms, wildfires, flooding and coastal inundation may disrupt business. As the majority of Auckland's power is hydroelectric, water shortages may also impact hydro-based power production, increasing the cost of hydroelectricity.



Road networks are damaged or destroyed

Damage to road networks from sea level rise and flooding may disrupt business operations and reduce the efficiency of the road transport network.



Flights to and from Auckland International Airport are disrupted

Auckland Airport is the busiest airport in the country and one of New Zealand's most important infrastructure assets. The airport may be damaged by flooding and sea-level rise, disrupting the movement of people and goods.



Water supplies are reduced, disrupted or contaminated

Water is a key input to many sectors of Tāmaki Makaurau Auckland's economy. Drought, changes to humidity and evaporation, and changes to rainfall variability have the potential to reduce supplies of water. The risk of water contamination may also increase, as heavy rainfall may increase runoff into rivers and streams, contaminating local water sources.



Built assets necessary for service provision are damaged or destroyed

Built assets supporting our economy range from offices, factories, warehouses, university campuses, barns, commercial buildings, or huts along a walking trail. Coastal inundation and flooding may cause significant impacts to our built assets. Other hazards such as wildfire, storms, erosion and drought may also damage them.



Construction sites, crops and livestock, are damaged or destroyed

Other important assets that don't necessarily fall into the category of 'built assets' are at risk of damage. This includes construction sites, crops and livestock – all these assets may be damaged by extreme weather events such as floods and storms.



Disruptions to systems that are sensitive to seasonality and changes in climatic parameters

As Auckland's climate continues to change, it is projected that spring will arrive earlier, winters will be shorter and summers longer. Changes in seasonality will affect sectors that depend heavily on seasonal conditions, including agriculture, horticulture and viticulture producers, as it may be more difficult to grow crops and raise livestock. The design and construction of buildings may fail to be functional in a changing climate.



Large scale ecosystem change

Auckland may experience an increase in pests and diseases due to warmer temperatures, which may affect food producers and the screen sector due to the impacts on Auckland's ecosystem. Sea level rise may result in damage to coastlines and surrounding land, reducing land availability and impacting upon soil quality for food producers. Degradation of New Zealand's landscapes may reduce tourism demand.



People are exposed to environmental hazards

All sectors of our economy rely upon healthy, safe and productive employees. Businesses also need to ensure customers are kept healthy and safe. Warmer temperatures may encourage new diseases to be introduced which may impact the health of employees and customers. Hotter summers will impact upon cooling requirements, and businesses may need to install air-conditioning to keep employees and customers safe.

Figure 2 – Physical risks

Table 1 – Physical risks identified and their relevance to the four sectors.

Risk	Food and Beverage	Construction	Screen	Visitor Economy
Maritime infrastructure and maritime transport assets are damaged or destroyed	■	2 nd	■	■
Information and Communication Technology systems are disrupted	■		■	■
Electricity supplies are disrupted	■		■	■
Road networks are damaged or destroyed	■	■	■	■
Flights to and from Auckland International Airport are disrupted	■		3 rd	1 st
Water supplies are reduced, disrupted or contaminated	1 st	■	■	■
Built assets that are necessary for service provision are damaged or destroyed	■	■	1 st	2 nd
Construction sites, crops and livestock, are damaged or destroyed	3 rd	1 st		
Disruptions to systems that are sensitive to seasonality and changes in climatic parameters	2 nd	3 rd	■	■
Large scale ecosystem change	■		1 st	3 rd
People are exposed to environmental hazards	■	■	■	■

We have identified the top three physical risks for each sector. Many of these risks are common across at least two of the four sectors.

Opportunities will come with some physical changes. Auckland’s climate already influences the demand for, and enjoyment of, visitor experiences and major events. Weather pattern changes bringing warmer temperatures and more hot days could extend visitor and event seasons, attracting additional visitation in shoulder and off-peak periods, providing an opportunity for businesses to expand their services.

Acting now and using the COVID-19 economic reset would enable Tāmaki Makaurau Auckland to accelerate the transition to a climate-proof future and to build back better, protecting our economy and people from the threat posed by the physical impacts of climate change.

Transitional risks and opportunities

Transitional climate change risks and opportunities are broader in scope than physical risks and are dependent on a range of factors, including changes across policy, markets and technology.

The transition to a net zero carbon economy will impact all Aucklanders. Businesses will face transition risks as well as opportunities from the process of adjusting to a net zero carbon economy.

For example, all businesses will face the risk of increasing costs, as the price of carbon credits rises, particularly for high-emitting products. The Emissions Trading Scheme (ETS) is an example of a policy and market driver, putting a price on emissions for certain sectors of the economy for the greenhouse gases they emit. Products produced by high-emitting methods such as cement, steel and aluminium, will carry higher costs. An **overview of transition risks** for business is outlined in Figure 3.

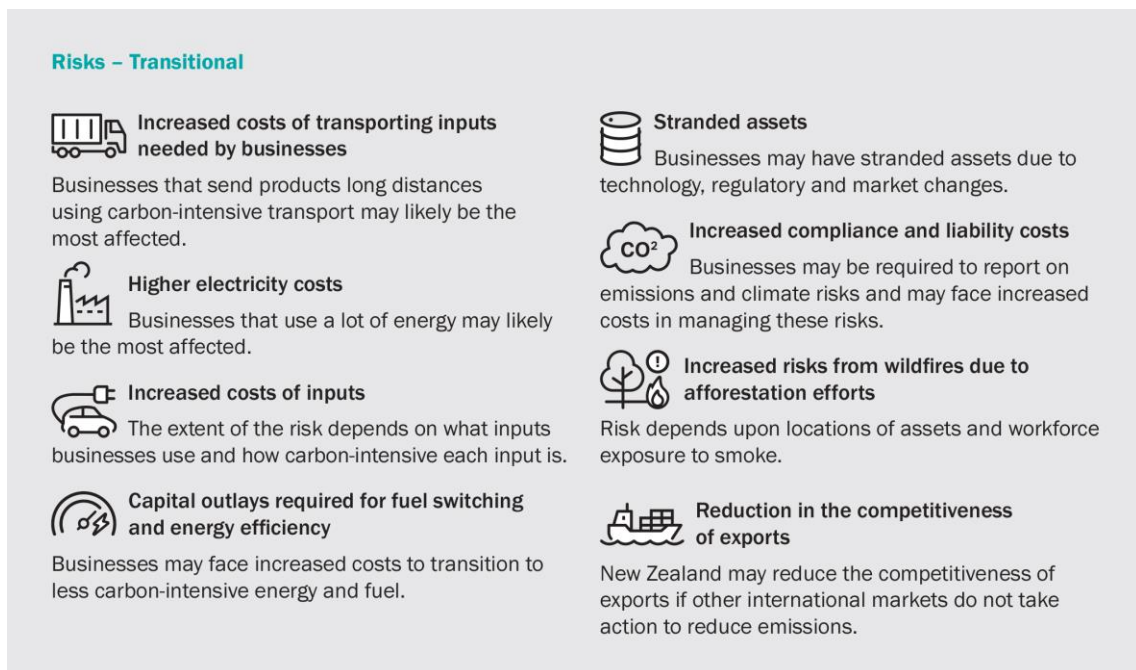


Figure 3 - Transitional risk

Sector specific transition risks

The food and beverage sector may experience:

- Lack of producer knowledge and support to transition to low carbon food and beverage production systems.
- Reduction in animal product consumption due to increasing consumer awareness about the carbon-intensive nature of livestock production systems.
- Rapid increase of input costs due to policy and market drivers (such as the Emissions Trading Scheme), causing decreasing profit margins over time.



The construction sector may experience:

- Increased costs for materials used in construction (such as fuel, steel and cement) as a result of the increasing cost of carbon.
- Rising compliance costs from net zero carbon building regulations and policies.
- Increased capital outlays required to build new assets to higher energy and water efficiency standards, and to upgrade existing assets (such as with insulation and solar panels).
- Lack of workforce capability and capacity to build net zero buildings and infrastructure.



The screen sector may experience:

- Increased costs of production due to price of carbon emissions. Data analysis has demonstrated that one average tentpole film production – a film with a budget of more than US\$70 million – generates 2840 tonnes of CO₂e – the equivalent amount absorbed by 1500 hectares of forest in a year.³
- The increased pressure to transform the industry to a cleaner and a more sustainable version.



The visitor economy may experience:

- Reduction in demand due to increased price of travel.
- Reduction in demand from national and international visitors due to increasing awareness of the significance of aviation sector emissions.



³ Arup, *A Screen New Deal: a route map to sustainable film production*, (n.p. : Arup, 2020), <https://www.arup.com/-/media/arup/files/publications/s/screen-new-deal-sustainable-film-studios-arup.pdf>.

It is difficult to predict the level of impact of transition risks on businesses. In general, the level of risk depends upon the pace of change and the ability of businesses to either absorb the costs themselves or to pass costs on to consumers.

What is clear is that Auckland businesses need to make changes, and some business may need additional support to do this. Understanding transition risks is critical to ensuring businesses are supported through this transition.

Transition opportunities

Moving towards a net zero carbon economy will provide opportunities for businesses. For example, businesses may be able to expand into new markets through the provision of low-carbon goods and services, while climate resilience innovations may lead to new business opportunities.

Key transition opportunities are outlined below.



Businesses across all four sectors may experience increased demand for locally produced goods and services, as imports increase in relative price due to higher transportation costs.

There could be increased access to new financial products to support business growth, such as green bonds, used to fund projects that can demonstrate an environmental benefit.⁴

Local communities and businesses may move towards local energy generation systems, increasing their resilience to national energy network disruptions.

The food and beverage sector may benefit from more trees being planted, resulting in less sediment runoff and cleaner waterways.

⁴ "Auckland Council Green Bond Framework," Auckland Council, April 4, 2019, <https://www.aucklandcouncil.govt.nz/about-auckland-council/business-in-auckland/docs/investor-information/green-bond-framework-4-april-2019.pdf>.

Increased regulation around building healthier, more energy efficient homes may see more business activity in the construction sector associated with retrofitting existing housing stock and making built infrastructure more resilient to climate change.

The screen sector may benefit from increased investment in technologies such as landscape scanning, augmented reality, virtual reality and animation which reduce the need to travel to sites during production.

In the visitor economy, universities may be able to develop new service offerings to attract international students for professions likely to prosper in a low-carbon economy.

Across the region, there may be increased urban and environmental amenity as electric vehicles and active travel modes are used more, seeing noise, air and water pollution fall.

Across all sectors, there are opportunities for climate innovation, using technologies to unlock the potential pathways toward substantially decarbonising our economy. Auckland could accelerate climate action by supporting cleantech and greentech start-ups, and corporate innovation to reduce greenhouse gas emissions and mitigate the worst impacts of the climate crisis. The importance of climate innovation in reaching our climate targets is also supported by a recent report published by C40 Cities and the Los Angeles Cleantech Incubator (LACI), with research support from PwC⁵.

If we seize these opportunities as we rebuild our economy, Tāmaki Makaurau Auckland can build a thriving and resilient economy for the future.

Actions for Tāmaki Makaurau Auckland

COVID-19 economic recovery needs to support actions that guide Tāmaki Makaurau Auckland towards a net zero carbon economy.

We can create a net zero economy by prioritising implementation of *Te Tāruke-ā-Tāwhiri: Auckland Climate Plan* and focusing on opportunities that support a long-term and climate-focused recovery. We will also need to⁶:

- support and encourage Auckland businesses to continue climate-positive ways of working and living
- prioritise infrastructure that supports climate-proof future⁷
- reinforce the connection between climate action and COVID-19 economic recovery
- advocate for a climate focus in government-supported future-ready industries
- support Auckland's most vulnerable communities to prepared for climate risks.

⁵ "CLEANTECH CITIES Accelerating Climate Action Through Startup and Corporate Innovation"

⁶ Consultation during the preparation of the Auckland Economy Climate Change Risk Assessment indicated additional actions while implementing the climate plan.

⁷ Climate-proofing is the process of inclusion of climate change considerations into development strategies and programmes i.e. strategies and policies are viewed through a climate change lens.

The Climate Change Commission is warning the Government not to lock New Zealand into a high-emissions future and compound the crisis with its COVID-19 economic recovery: “An economic stimulus package can either speed up or stall our progress on climate change.” – Commission chair Dr Rod Carr.⁸

We live, work and do business in times of ongoing uncertainty. We do not know how the impacts of COVID-19 will play out beyond the immediate future. We can be certain that the world’s overarching challenge – to mitigate and adapt to climate change – will persist.

As well as prioritising implementation of *Te Tāruke-ā-Tāwhiri: Auckland’s Climate Plan*, the following actions for a COVID-19 recovery have been identified through a series of internal cross-Auckland Council workshops, as they support both the transition to a net zero carbon and climate resilient economy while supporting economic recovery.

1. Ensure recovery stimulus packages:
 - a. Invest in pathways that will reduce emissions by 2030
 - b. Support business to adequately address climate risk and to capitalise on net zero emissions opportunities
 - c. Specifically benefit both small and medium enterprises and more vulnerable sectors of society. This may help reduce transition risks and build capacity.

2. Focus on retraining and redeploying labour into green jobs⁹ through:
 - a. Increasing existing career and education services for rangitahi Māori to support upskilling for a COVID-19 world. This may assist in creating an inclusive transition.
 - b. Developing long-term contracts to build capacity and provide business security may assist in the transition to a net zero carbon economy.

⁸ Michael Neilson, “Covid 19 coronavirus: Climate Change Commission warns high emission economic recovery could deepen climate crisis,” NZ Herald, April 14, 2020, <https://www.nzherald.co.nz/nz/covid-19-coronavirus-climate-change-commission-warns-high-emission-economic-recovery-could-deepen-climate-crisis/6G6TZ7YS4G5SKGJVC5NFM6R6NA/>.

⁹ The United Nations Environment Programme describes the core characteristics of a green economy as: low carbon, resource efficient and socially inclusive.

3. Support the transition to low carbon food and beverage production systems, providing industry support and training:
 - a. Supporting producers to eliminate or reduce the greenhouse gas emissions generated as part of the production process. This could be through switching to clean energy/reducing energy requirements, reducing waste, reducing or eliminating emissions intensive inputs, or increasing soil carbon sequestration. This may assist with unemployment as a result of the transition.
 - b. Support community groups, not- for-profits and marae to play a greater role in a low carbon sustainable food systems and food security.

4. Repurpose the current visitor offering to a new sustainable model in line with the *Destination AKL 2025*¹⁰ strategy and *Destination AKL Recovery Plan*¹¹. A sustainable tourism model is a balancing exercise, which aims to improve the quality of life of the host community while providing a high-quality visitor experience and maintaining the quality of the destination environment.¹² Examples include:
 - a. Tracking visitor movements through geospatial data to help with sustainable tourism planning (as demonstrated by Amsterdam, Netherlands¹³ and Portugal)
 - b. Capping the number of visitors (as demonstrated by Bhutan¹⁴)
 - c. Offering tourists free public transport, including the cost in their nightly accommodation tariff and their tourist tax (as demonstrated by Lucerne, Switzerland to reduce congestion in the city)¹⁵
 - d. Strengthening Auckland's public transport infrastructure; encouraging tourists to choose electric vehicles; and subsidising the replacement of rental vehicles with an electric fleet. In 2014 the Arizona Office of Tourism created an electric vehicle visitors' guide which included two

¹⁰ Auckland Tourism, Events & Economic Development, *Destination AKL 2025: A new direction for Auckland's visitor economy* (Auckland: Auckland Tourism, Events & Economic Development, 2018), https://www.aucklandnz.com/sites/build_auckland/files/media-library/documents/AKL_Destination_Plan_Strategy_web_v3.pdf.

¹¹ Auckland Tourism, Events & Economic Development, *Destination AKL Recovery Plan: Auckland Visitor Economy's Response to COVID-19* (Auckland: Auckland Tourism, Events & Economic Development, 2020), https://www.aucklandnz.com/sites/build_auckland/files/media-library/documents/Destination%20AKL%20Recovery%20Plan%20FINAL%20040620%20%282%29_0.pdf.

¹² World Tourism Organization, *Charter for Sustainable Tourism* (Madrid: UNWTO, 1995), <https://doi.org/10.18111/unwtodeclarations.1995.05.04>.

¹³ Gavin Haines, "Marry an Amsterdammer for the day': A very Dutch response to overtourism," *The Telegraph*, May 30, 2019, <https://www.telegraph.co.uk/travel/destinations/europe/netherlands/amsterdam/articles/a-very-dutch-response-to-overtourism/amp/>.

¹⁴ "Tourism Policy," Tourism Council of Bhutan, Accessed December 9, 2020, <https://www.tourism.gov.bt/about-us/tourism-policy>.

¹⁵ Theodore Slate, "Lucerne Tourism to provide guests with free public transport tickets," *Tourism Review*, October 17, 2016, <https://www.tourism-review.com/lucerne-tourism-to-offer-free-rides-news5157>.

itineraries that take EV drivers past tourist highlights and charging stations¹⁶

- e. Using a measurement framework to measure the transition to a sustainable tourism model, such as the Global Sustainable Tourism Council Criteria (GSTC), which may help with measuring the success of this transition by providing a set of minimum practices expected by sustainable destinations.¹⁷
5. Enhance Tāmaki Makaurau Auckland’s international education remote/distance learning offerings to assist in reducing emissions associated with the international education sector.
 6. Apply a climate change lens to short and long-term planning in the rapidly growing screen sector:
 - a. Ensure any new infrastructure is located to avoid coastal, rainfall and fire hazards
 - b. Explore how new technologies can reduce the sector's reliance on Auckland's natural ecosystems
 - c. Develop a better understanding of this sector’s greenhouse emissions and explore areas of opportunity for transformation to a low to zero carbon sector.

Remaining within the limits of Earth's ecological boundaries while continuing to ensure everyone's needs are met is a balancing act.¹⁸ Transitioning to a net zero carbon economy will contribute towards maintaining this balance. Ensuring COVID-19 recovery plans facilitate a move towards a net zero carbon economy will help us achieve this balance faster, resulting in broader environmental, economic, social and health benefits for all Aucklanders.

Auckland Unlimited will work with regional, national and international partners in the public and private sectors to support a just transition for our region, communities and economy, to a resilient and low carbon economy while recovering from the impact of COVID-19.

“If COVID-19 is a precautionary tale, it is also a crash course in the possible.”

World Economic Forum, 2020

¹⁶ Jennifer Miller, "Electric vehicle tourism," White Paper. *Phoenix: Arizona State University*, (2014), <https://fresh-energy.org/wp-content/uploads/2014/08/White-Paper-EV-Tourism-2014.pdf>.

¹⁷ Global Sustainable Tourism Council, *GSTC Destination Criteria: with Performance indicators and SDGS* (Washington: The Global Sustainable Tourism Council, 2019), <https://www.gstcouncil.org/wp-content/uploads/GSTC-Destination-Criteria-v2.0.pdf>.

¹⁸ Kate Raworth, *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist* (Vermont: Chelsea Green Publishing, 2017), <https://books.google.co.nz/books?id=9euWCwAAQBAJ&lpg=PA1&pg=PA1#v=onepage&q&f=false>.

GET IN TOUCH

Auckland Unlimited and AECOM welcome comment and feedback on this Economic Insights report.

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