

dentsu

# Dentsu TCFD Report 2023



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## Introduction

As awareness of the climate crisis has developed, so too has our collective understanding of the complex financial implications of physical and transition risk, both of which pose a risk to global financial and economic stability.

To better understand how dentsu might be impacted by climate change, we intend to regularly explore and enhance our understanding of climate risk – and opportunity – building a more resilient business as a result.

The following disclosure, which is aligned with the Taskforce on Climate-related Financial Disclosures (TCFD) Recommendations, details the key risks and opportunities arising from climate change, the potential impact on our business and the actions we are taking to respond.

## Governance and Risk Management

Climate change is a strategic and non-diversifiable risk with potential financial implications for dentsu, our capital providers, suppliers, and clients.

Our ability to manage climate risk relies on having engaged leadership and strong governance structures, and climate risk has been integrated into our established Governance and Risk Management processes. A schematic of the climate risk governance structure for dentsu – as of the end of the General Meeting of Shareholders on 30<sup>th</sup> March 2023 – is indicated in Figure 1, with a description of the key governance groups presented in Table 1

Dentsu’s Board of Directors delegates decision-making on climate- and sustainability-related agendas, through the Group Management Board (GMB) to both the Group Sustainability Committee and Group Risk Committee.

Our Group Sustainability Committee, chaired by Arinobu Soga, Director and Chief Governance Officer of Dentsu Group Inc., meets four times a year. The Committee monitors progress against our strategy and 2030 goals, assesses material risks and opportunities (including those related to climate change) and ensures social and environmental considerations are integrated into all aspects of our decision making. Progress updates are provided to the board twice a year. From 2022, progress on our ESG performance including the CO2 emissions reduction is a component of our executive incentive scheme. This has created visibility and sponsorship across the network as well as improved understanding of our sustainability trajectory, and the critical need to transition to an inclusive, net-zero economy.

The Group Risk Committee, which oversees the management of risks that may impede the achievement of future management goals, is responsible for identifying and assessing material risks to the Group by utilising an Enterprise Risk Management (ERM) approach. This Committee meets four times a year. The chairman of the Group Risk Committee reports important climate-related matters to the Board of Directors via the Group Management Board, contributing to Board oversight of climate change-related issues.

The ERM approach that the Group Risk Committee follows comprises four main stages: 1) risk identification, 2) risk assessment, 3) risk response, and 4) risk monitoring and reporting:

**1) Risk Identification.** Supported by Risk Committees across regions, markets and lines of business, the Group Risk Committee identifies potentially material risks and summarises them in a risk register. “Sustainability-related risks” have been identified as a major risk with the potential to affect investor decisions, and climate-related risks are integrated within this. The Group Risk Committee selects risk sponsors for each risk, with responsibility for the development of a response plan to prevent the occurrence of risks and minimise their impact should they arise.

**2) Assessment.** When risks are identified, the Group Risk Committee collaborates with risk sponsors to conduct regular risk impact and likelihood assessments.

**3) Response.** Risk sponsors determine the actions, action owners and due dates required to manage each risk and provide regular reports on their progress.

**4) Monitoring and Reporting.** The Group Risk Committee monitors the progress of actions implemented by risk sponsors, then reports to the GMB. If a significant risk escalates, risk sponsors gather information on the situation and root causes, report this to the Group Risk Committee (and subsequently the GMB) and develop and implement follow-up plans. Risk Committees exist within dentsu Japan and throughout the international business and these committees meet at least quarterly to ensure the timely capture, tracking and sharing of risk information.

Performance is disclosed annually via the dentsu Integrated Report and our annual CDP Climate Change questionnaire submission, and we continue to explore ways to improve our climate risk-related disclosures, drive wider strategic business value and meet new regulatory requirements that emerge.

#### **Identification of Priority Climate Risks and Opportunities**

In 2021, we undertook a detailed process to identify the key climate risks and opportunities facing the business. Senior managers and executives were interviewed to determine the company's most important drivers of commercial and operational performance. We then identified the ways in which climate change could impact each of these drivers to identify our key risks and opportunities. That list of priority risks and opportunities then informed dentsu's first Climate Scenario Analysis, the results of which were published in our 2022 Integrated Report.

We have reconfirmed – through analysis and internal interviews – that the priority climate risks and opportunities identified and disclosed in our 2022 Integrated Report remain material. We have built upon that list based on a qualitative risk assessment designed to explore whether certain risks might emerge more quickly and/or fundamentally than previously considered. As a result, we have added to our list of risks and opportunities as follows:

We recognise that the physical impacts of climate change might cause significant economic disruption earlier than typically projected.

We added a risk around the emergence of 'greenwashing' standards and regulation and have explicitly considered the possibility that the advertising sector may face growing pressure to eventually disclose and address 'advertised emissions'.

TABLE 1: OVERVIEW OF THE MAJOR GOVERNANCE GROUPS CONCERNING CLIMATE RISK AT DENTSU GROUP

Governance Group	Description
<p><b>Board of Directors</b></p>	<p>Dentsu’s Board of Directors (BOD) delegates decision-making on sustainability-related agendas, through the Group Management Board, to the Group Sustainability Committee.</p> <p>The BOD formulates Group-wide climate and sustainability-related strategies, while monitoring the attainment of targets</p>
<p><b>Group Management Board</b></p>	<p>The Group Management Board (GMB) is organised as the decision-making body for dentsu on the executive side, facing the Board of Directors. The GMB meets in conjunction with the Board of Directors to resolve budgetary and investment decisions, mid-term management plans, appointments, and regulatory considerations. The GMB consists of representative directors and executive officers, including executive directors.</p> <p>The GMB has responsibility for reporting important climate- and sustainability-related matters (including major risks), identified by the Group Sustainability Committee, to the Board of Directors.</p>
<p><b>Group Risk Committee</b></p>	<p>The Group Risk Committee is responsible for identifying and assessing material risks to the Group by utilising the Enterprise Risk Management (ERM) approach. To prevent the materialisation of identified risks and minimise the impact if they materialise, the Committee has selected risk sponsors and delegated the formulation and implementation of risk response plans to them. The Committee also regularly monitors the status of risks and risk response plans from the nominated risk sponsors.</p>
<p><b>Group Sustainability Committee</b></p>	<p>The Group Sustainability Committee consists of 12 senior members of dentsu who sit across a range of business functions, including Investor Relations, HR, Sustainability, Communications and Client Solutions, and has four key responsibilities:</p> <ol style="list-style-type: none"> <li>1. Monitor the execution of the sustainability strategy and the company’s progress on its long-term sustainability goals and targets, including those related to climate change and the environment.</li> <li>2. Oversee the key programmes, policies and partners required to implement the sustainability strategy.</li> <li>3. Act as a sounding board for management, providing advice and direction on matters such as: <ol style="list-style-type: none"> <li>a. how to bring the company’s purpose to life through the sustainability strategy</li> <li>b. corporate responsibility and sustainability risks to the company’s operations and reputation; and</li> <li>c. The alignment between the company’s commercial growth and brand strategies and the company’s social impact and sustainability strategy, goals and programmes.</li> </ol> </li> </ol>

# Group Meeting/Committee Structure

グループ会議体・委員会の構成

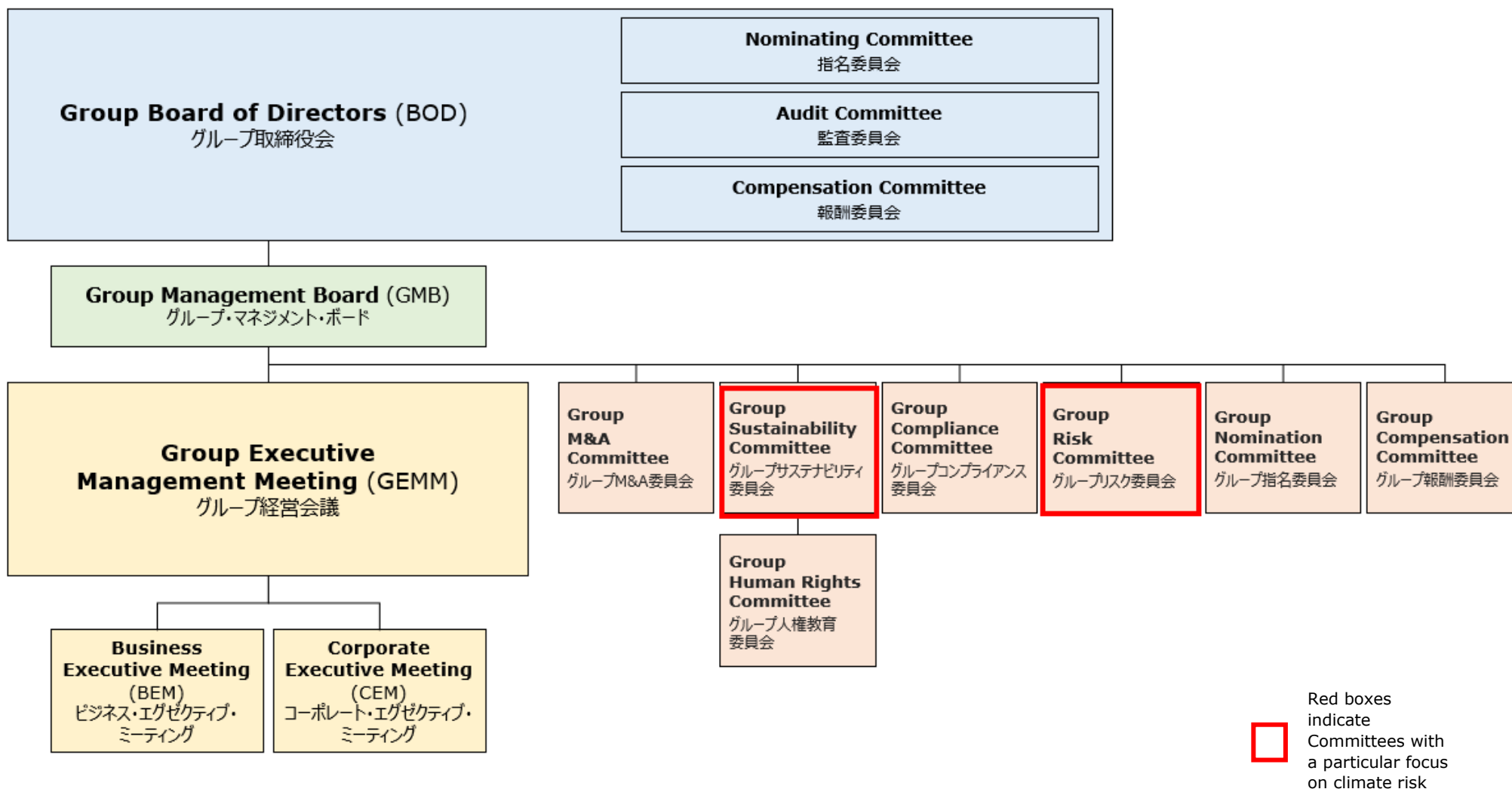


FIGURE 1: SCHEMATIC OF DENTSU'S GOVERNANCE STRUCTURE AS OF THE END OF THE GENERAL MEETING OF SHAREHOLDERS ON 30TH MARCH 2023

## Strategy

Climate change has the potential to significantly impact our business in the short-, medium- and long-term. We, our clients, and our supply chain face both physical climate risks (such as extreme weather) and regulatory, market and reputational risks associated with the shift to a low-carbon economy.

We have identified and assessed 14 climate-related risks facing dentsu. Of these, 12 are transition risks and two are physical risks. Many of these risks also represent significant opportunities for dentsu to help our clients and society adapt.

Our key climate risks and opportunities are summarised in Table 3. They are categorised according to the following timeframes:

**Short-term:** 0 – 1 years

**Medium-term:** >1 - 3 years

**Long-term:** >3 – 15 years

The magnitude of impact (Low/Medium/High) describes the extent to which the impact might affect our business.

The impact on operating profit of any given risk or opportunity in any given year within the quantitative aspect of the scenario analysis is assigned an 'impact threshold', based on a minimum Japanese Yen (¥) change in operating profit (see Table 2). The thresholds are colour coded to enable quick comparison across a series of risks and opportunities. For further detail on risk impact magnitudes, refer to Appendix 2.

**TABLE 2: DENTSU SCENARIO ANALYSIS IMPACT THRESHOLDS**

<b>Impact threshold</b>	<b>Min. change in operating profit (¥)</b>	<b>dentsu equivalent global criteria (financial)</b>
Very high risk	-¥35.8 billion	4 (Major) / 5 (Fundamental)
High risk	-¥17.9 billion	3 (Moderate)
Low/medium risk	-¥9.0 billion	2 (Minor)
Normal business	¥0	1 (Insignificant) or lower
Low/medium opp.	¥9.0 billion	Inverse of 2 (Minor)
High opp.	¥17.9 billion	Inverse of 3 (Moderate)
Very high opp.	¥35.8 billion	Inverse of 4 (Major) / 5 (Fundamental)

**TABLE 3: DENTSU'S CLIMATE-RELATED RISKS AND OPPORTUNITIES**

	Risk/ Opportunity	Business Impact	Exposure			Mitigation/Resilience Measures
			No colour = low impact; Orange = med impact; Red = high impact. (Applies to opportunities as well as risks)			
			Short	Medium	Long	
Transition Risk/Opportunity	Policy and legal	<b>Destabilising regulation</b> – New regulations associated with the transition to a low-carbon economy may destabilise client business models, increasing costs and/or requiring consumer behaviour change. There is a clear opportunity for dentsu to help clients and society adapt.				Dentsu recognises that corporate sustainability and sustainable consumption need to become organising principles behind marketing. We are exploring ways to operationalise this and believe we are well-positioned for more robust regulation.
		<b>Greenwashing regulations</b> – Advertising and marketing claims are central to accusations of greenwashing, creating risk if we fail to protect clients from emerging greenwashing regulation, and opportunity to build greenwashing-proof services.				We believe we are well-positioned for greater oversight of ‘unsubstantiated sustainability claims’ given our record of marketing clients’ climate credentials honestly and effectively.  We seek earlier, more strategic engagement with clients to produce more credible messaging and to influence product design, and have partnerships with the Cambridge Institute for Sustainability Leadership (CISL) and Earth on Board to strengthen these skills.
		<b>Disclosure requirements</b> – Climate-related disclosure requirements may increase. For the advertising sector, this could increase emphasis on ‘ <b>advertised emissions.</b> ’				We are investing in our ESG reporting capabilities and expanding the scope of our climate risk disclosures. We approach climate risk assessment and reporting as a strategic and dynamic exercise. In addition, we are developing a Nature Strategy.  Our intent is to build a client base of companies with sustainable products and business models, and to support clients with their low-carbon transition. By doing so, we will develop resilience to increased scrutiny of advertised emissions. We will help clients understand advertised emissions; help consumers to embrace less carbon-intensive lifestyles; and support brands to develop strategies and campaigns that target a more climate-conscious consumer.
		<b>Carbon pricing</b> – The introduction of carbon taxes in markets where we have a significant presence could impact our clients. Until our emissions reach zero, we also have some direct exposure.				By implementing carbon reduction programmes across our operations, we will be less exposed to carbon prices. We recognise that carbon pricing could have a significant impact on high-emitting clients. Our ambition to build a client base with sustainable products and business models will mitigate against this risk.
		<b>A changing energy landscape / energy costs</b> – The pace, scale and cost of energy transition will not only impact energy bills but will determine whether society meets its climate targets.				Dentsu is investing in energy-saving processes and behaviour change through environmental accreditation such as ISO14001 and programmes enacted by our Social Impact Champions network, made up of employees within individual markets who work to drive change. By working towards procuring 100% of our electricity from renewable sources, we mitigate against the risk of energy from high-carbon sources becoming more expensive over time, while simultaneously sending demand signals to policymakers and the wider electricity market. We remain exposed to price volatility in renewable energy and renewable energy certificates (e.g., EACs/RECs).
		<b>Global GDP change / economic disruption</b> – If climate change drives reductions in GDP, the corresponding reduction in purchasing power would impact the advertising and marketing budgets of our clients.				Our B2B2S strategy aims to build sustainable business models and future-proofed products together with our clients. This will help dentsu build resilience against the possibility that GDP is negatively impacted.  The potential social and economic disruption from crossing 2°C could be devastating. We contribute to the decarbonisation of the economy by delivering our net zero strategy and encouraging clients and suppliers to follow suit.
	Market					



		<b>Changing consumer behaviour/consumption patterns</b> – Environmental concerns are becoming central to consumers’ purchasing decisions, posing risks to laggard clients and opportunities for leaders and disruptive innovators, as well as for new marketing strategies.				We recognise the role we play in driving consumption and are embedding sustainable behaviours into our strategy and planning process. Our internal guidelines educate client-facing staff on changing dynamics regarding climate and sustainability-related issues in the markets in which we operate. This enhances our ability to support clients in an economy with changing consumption patterns.
		<b>Sector exposure</b> – Our exposure to fossil fuel intensive sectors means revenue could be at risk in the event of a rapid decarbonisation of infrastructure and disrupted supply chains.				Our internal guidelines and thought leadership educate client-facing staff on the changing dynamics of the markets in which we operate regarding climate and sustainability-related issues. We will support clients’ decarbonisation, while targeting increased exposure to companies with sustainable products and business models.
		<b>Emerging sectors</b> – There is an opportunity to win new business and grow revenue by working with companies that thrive as society decarbonises and adapts to climate change.				We will monitor the development of new industries and business models and proactively target those with significant long-term economic growth potential.
	Reputation	<b>Contentious clients</b> – dentsu may face declining revenues and/or reputational risk if we serve clients that fail to transition, become controversial or are disrupted by new entrants.				Our policy on working with potentially contentious industries requires decisions to be made by our executive leadership team in each market. By creating sustainable products and business models with clients, we minimise the risk.
		<b>Reputational damage</b> – dentsu’s own climate performance and reputation is increasingly a matter of revenue protection. Our ability to attract and retain clients, business partners, employees, and other stakeholders will depend on maintaining a reputation as a climate leader.				Dentsu has set an ambitious strategy to achieve Net Zero emissions by 2040 and is expanding its existing Science Based Target to include Japan. We have implemented carbon reduction programmes across our operations and supply chain, and publicly disclose year-on-year performance against targets. To accelerate the decarbonisation of media planning and distribution we have built a bespoke and verifiable calculator to quantify emissions. And we continue to innovate to bring low carbon solutions to our clients.
Physical	Acute	<b>Increased severity and frequency of extreme weather events.</b> The physical risks of climate change – especially extreme weather – could pose significant financial, operational, and social costs for dentsu’s clients, our own operations and supply chain. For example, heatwaves or flooding could impact employees’ ability to travel to dentsu offices, be productive and deliver services to clients.				We have undertaken a high-level risk assessment to understand the potential physical climate risks to our key sites. This informs our Resilience Management System and development of local resilience policies. We also partner with Everbridge, which provides targeted real-time alerts to monitor and assess threats to our people, property, technology, or suppliers.  Online connectivity is critical to delivery of client services, so the resilience of our cloud-service providers is a priority. We ensure this through strong personal relationships with cloud-service providers, allowing us to switch between data servers in the event of localised disruptions. We provide laptops to all employees globally to enable them to work from any location with internet access.
	Chronic	<b>Earlier and/or more severe than projected climate impacts</b> could potentially bring about (or contribute significantly to) major economic disruption.				By delivering our net zero emissions strategy, encouraging clients and suppliers to follow suit, and actively promoting new consumption patterns, we contribute to efforts to try to ensure warming is limited to 1.5 °C

## Climate-related scenario analysis

To understand the widest plausible range of potential impacts on our business, we have used the Network for Greening the Financial System’s (NGFS) *Net Zero 2050*, *Delayed Transition* and *Current Policies* scenarios as the basis for our scenario analysis.

The *Net Zero 2050* scenario limits global temperature increase to 1.5°C above pre-industrial levels (and meets the TCFD requirement to consider a scenario aligned to “well below 2°C”).

We have also built out the associated NGFS scenario descriptions to add in narrative elements that, whilst consistent with the scenario chosen, create a richer view of the societal context dentsu could be operating within.

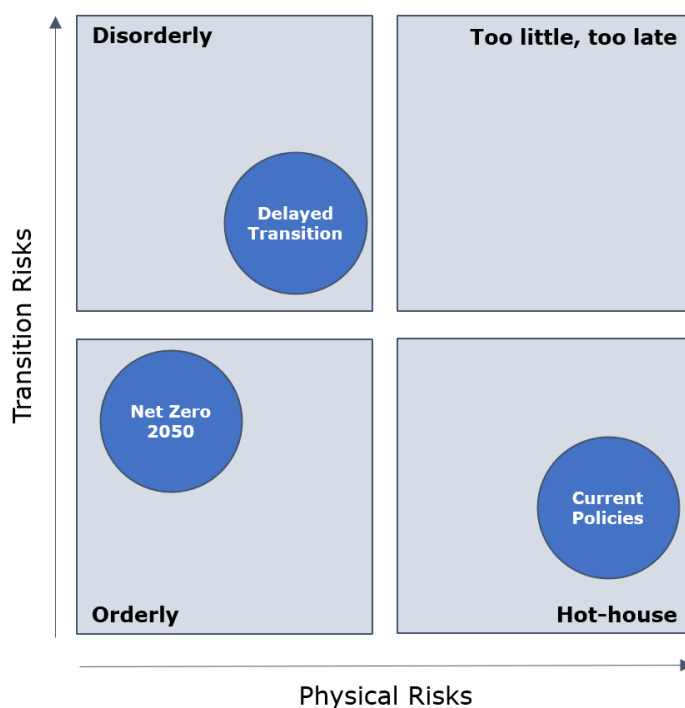


TABLE 4: THE NGFS SCENARIOS USED IN OUR CLIMATE SCENARIO ANALYSIS

NGFS Scenario	Net Zero 2050	Delayed Transition	Current Policies
<b>Description</b>	Ambitious climate policies are introduced immediately and global net CO <sub>2</sub> emissions reach zero by 2050. Warming is limited to 1.5°C.	Global net CO <sub>2</sub> emissions do not decrease until 2030. Strong policies are then enacted to limit warming to below 2°C.	Only currently implemented climate policies are preserved and emissions continue to increase beyond 2050. Warming of more than 3°C causes high physical risks.
<b>Policy reaction</b>	Immediate and smooth	Delayed	No additional policy
<b>Technology change</b>	Fast	Slow then fast	Slow
<b>Carbon dioxide removal</b>	Medium-high use	Low-medium use	Low use
<b>Regional policy variation</b>	Medium	High	Low
<b>Expanded scenario descriptions</b>	<ul style="list-style-type: none"> <li>• Ambitious climate policies - including carbon pricing - are introduced in a globally coordinated and consistent manner.</li> <li>• The economy is strong, driven by new industries providing green solutions and technologies, and by the emergence of new business models that enable customers to consume less.</li> <li>• The development of a circular economy - and a rapid energy</li> </ul>	<ul style="list-style-type: none"> <li>• Additional climate policy is not implemented until 2030, when a 'panic stations' response results in a draconian and complicated regulatory landscape.</li> <li>• The pace of the transition in the early 2030s strands a number of fossil fuel assets, raises prices for consumers, and causes significant economic disruption.</li> <li>• Science-based targets remain the voluntary target setting</li> </ul>	<ul style="list-style-type: none"> <li>• Although governments do not backtrack from current efforts, no new climate policy is implemented.</li> <li>• Over time, as physical impacts start to escalate, anger at governmental and corporate inaction creates a chaotic and uncertain environment.</li> <li>• Political fragmentation is fuelled by resource scarcity and climate-fuelled migration.</li> <li>• A linear 'take, make, and dispose' model remains the</li> </ul>

	<p>transition - disrupts legacy industries.</p> <ul style="list-style-type: none"> <li>• Consumers expect all companies to have ambitious climate action plans and science-based targets are seen as part of a basic license to operate.</li> <li>• Full life-cycle carbon accounting is the norm, and consumer-facing brands in particular demand climate 'excellence' from their entire value chains (including their advertising agencies).</li> <li>• Agencies are expected to not only report on, but to address, 'advertised emissions' - which draw attention to clients and their fundamental alignment with a low-carbon economy.</li> </ul>	<p>tool of choice through the 2020s, but without the coordination that takes place in <i>Net Zero 2050</i>, there is debate around the 'optimal' decarbonization strategies and pathways available to companies.</p> <ul style="list-style-type: none"> <li>• Competing approaches and 'solutions' are embraced by different brands (e.g., regeneratively grown beef vs alternative proteins; fossil-fuel-free vs palm-oil-free products) creating a confused - and risky - landscape for brands and advertising agencies to navigate.</li> </ul>	<p>primary model of production and consumption.</p> <ul style="list-style-type: none"> <li>• Significant 'direct action' emerges in the late 2020s and becomes increasingly unpredictable and extreme.</li> <li>• Companies on the front line of climate impacts (and their investors) become much more 'activist' in the 2030s.</li> <li>• Climate <i>resilience</i> emerges as a key differentiator of corporate climate 'leadership', featuring prominently in disclosures to investors as well as in supply-chain contracts.</li> <li>• Companies also face increasing pressure to demonstrate to employees how they will be protected from extreme weather.</li> </ul>
<p><b>High-level Implications for dentsu</b></p>	<ul style="list-style-type: none"> <li>• Clients that successfully navigate the transition to a zero-carbon economy provide an increasingly high proportion of dentsu's revenues from the mid-2020s onwards.</li> <li>• Opportunities to drive digital marketing transformation in a way which brings about meaningful change are high, and dentsu is increasingly focused on making sustainability an essential and 'tangible' element of client brands.</li> <li>• This requires dentsu to provide a 'service' to consumers on behalf of brands, educating and storytelling about sustainability, rather than simply selling.</li> <li>• Risk stems from being unable to provide the expertise required to become a trusted partner to brands undergoing such transformation; or from falling foul of increasingly stringent greenwashing regulations.</li> <li>• To ensure leading clients continue to contract with dentsu, and to ensure the attraction and retention of talent, dentsu will have to demonstrate its continued development as a 'climate leader'.</li> </ul>	<ul style="list-style-type: none"> <li>• During the 2020s, dentsu has to help its clients navigate a confusing sustainability landscape.</li> <li>• The abrupt nature of change that emerges in the 2030s results in significant structural changes to the economy - leading to a reduction in advertising budgets (especially from high-emitting clients that were caught relatively unprepared).</li> <li>• Clients with agile and low-carbon business models thrive in the disruption, provided their messaging resonates with consumers.</li> <li>• B2B advertising budgets increase as technology providers offer both decarbonisation and resilience solutions.</li> <li>• Dentsu may have to quickly increase its exposure to companies with sustainable products and business models, while staging a managed retreat from legacy industries that are unable to transition.</li> <li>• The confusing 'sustainability marketplace' that emerges in the 2020s poses risk that dentsu backs clients/ solutions whose products and/or climate positioning falls from favour in the 2030s.</li> <li>• The importance of dentsu maintaining a position of climate leadership is less critical through the 2020s in this scenario (compared to <i>Net Zero 2050</i>) but becomes just as important through the 2030s.</li> </ul>	<ul style="list-style-type: none"> <li>• The governmental drivers of action that transform the economy in the other scenarios do not appear.</li> <li>• Non-governmental actors, however, become increasingly active - especially once the physical impacts of climate change become disruptive.</li> <li>• The importance of dentsu maintaining a position of climate leadership, and/or offering services that help clients transform, is less critical, but reputation could still be important to navigate a landscape of volatile activism.</li> <li>• Dentsu could conceivably be targeted by climate activists - with its own statements of concern about climate change and consumption patterns being leveraged against it.</li> <li>• Nevertheless, the most significant risks that emerge in the longer-term pertain to the macro-economic damages caused by climate change, which suppress economic growth, destabilize society, and reduce consumer purchasing power.</li> <li>• Dentsu's physical assets - and critical external infrastructure (such as data centres) - would be most at risk under this scenario, and there are potentially significant impacts on staff well-being too, both of which could challenge operational resilience and the continuity of service provision.</li> </ul>

## Risk Assessment

We have assessed each of dentsu's key climate risks and opportunities using these three scenarios on the basis of a combination of quantitative and qualitative techniques. Risks that were deemed suitable for quantitative analysis have been analysed with reference to Phase 3 of the NGFS scenarios. Supporting charts and tables for each of these risks are provided in Appendix 1, and a more detailed overview of the methodological approach is outlined in Appendix 2.

Risk descriptions and mitigation/resilience measures for all risks are included in Table 3.

TABLE 5: RISK ASSESSMENT SUMMARY

	Net Zero 2050	Delayed Transition	Current Policies
<p><b>Destabilising Regulation</b></p> <p>Even under a best-case emissions scenario, there is a high probability that the 1.5°C threshold will be crossed - at least temporarily - within the next decade.</p> <p>This will inevitably create a societal reflection point and drive a re-evaluation of 'net zero by 2050' targets that have been adopted on the basis that they are aligned with staying under 1.5°C.</p> <p>This could result in an accelerated roll-out of climate-related regulation - including regulation that does more to <i>control</i> behaviour and consumption - and/or a substantive 're-prioritisation' of the global economy.</p>	<p>Although <i>Net Zero 2050</i> sees the rapid introduction of climate policy that drives the decarbonisation of the global economy, globally-coordinated governmental and institutional support – and systemic action – facilitate a relatively smooth transition.</p> <p>Individual companies fail to transition, but a societal safety net is in place that reduces the likelihood of destabilising regulation being introduced.</p>	<p>The probability of the 1.5°C threshold being crossed within the next decade is increased under <i>Delayed Transition</i> and could be a key driver of the roll-out of draconian policy in the 2030s.</p>	<p>There is a high probability that the 1.5°C threshold will be crossed in the next decade.</p> <p>Unlike in <i>Delayed Transition</i>, where this drives an accelerated roll-out of climate-related regulation, under <i>Current Policies</i> this simply results in a societal refocus on higher temperature thresholds, starting with 2°C.</p>
<p><b>Greenwashing regulations</b></p> <p>Regulators are increasingly investigating, and cracking down on, unsubstantiated environmental claims. This not only creates reputational and legal risk for dentsu's clients, but also potentially for dentsu itself.</p> <p>Sustainability issues are complex and dynamic, which raises the risk that <i>any</i> associated claims become controversial, yet this complexity creates a clear opportunity for dentsu to help clients develop honest yet effective messaging.</p>	<p>We expect a rapid escalation of action on greenwashing by regulators within <i>Net Zero 2050</i>.</p>	<p>We expect a rapid escalation of action on greenwashing by regulators after 2030 within <i>Delayed Transition</i>.</p>	<p>While we would not expect an increase in regulatory oversight on greenwashing in <i>Current Policies</i>, activists may well target the advertising sector, using the sector's own statements on climate leadership being used against it.</p>

TABLE 5: RISK ASSESSMENT SUMMARY

	Net Zero 2050	Delayed Transition	Current Policies
<p><b>Disclosure requirements</b></p> <p>Following the successful launch and roll-out of the Taskforce on Climate-related Financial Disclosures, momentum is growing around the Taskforce on Nature-related Financial Disclosures and a Taskforce on Inequality-related Financial Disclosures has also been launched.</p>	<p>Under <i>Net Zero 2050</i>, we expect disclosure requirements across a range of sustainability issues to increase - but that the roll-out of these would be highly coordinated. Companies will be expected to use well-rounded, multi-issue scenarios to consider a variety of sustainability risks and societal trends (rather than to use, for example, climate scenarios to explore climate risk; and nature scenarios to explore nature risk).</p>	<p>New disclosure-related Taskforces are less likely to gain traction through the 2020s under <i>Delayed Transition</i> (than in <i>Net Zero 2050</i>) and, when they do emerge, they create a confused landscape and competing narratives – increasing the reporting burden on companies.</p>	<p>No new disclosure-related Taskforces emerge in the <i>Current Policies</i> scenario but, in the 2030s, investors increasingly expect companies to provide detailed <i>resilience</i> statements regarding their exposure to physical climate risk.</p>
<p><b>Advertised Emissions</b></p> <p>The advertising sector is facing increasing pressure to disclose emissions from the uplift in sales generated by advertising. Although these emissions remain the responsibility of clients, they could influence dentsu’s reputation as a climate leader.</p> <p>To explore the potential significance of such emissions, we calculated our advertised emissions using the <i>Purpose Disruptors</i> methodology - and have then applied carbon pricing to those emissions. These numbers represent an estimation rather than an actual financial risk.</p> <p>Dentsu’s advertised emissions are many times higher than our operational carbon footprint. Total advertised emissions for 2022 are estimated at 12.8 million tonnes of CO<sub>2</sub>e, 32 times the size of our operational footprint in 2022. Most (77%) of our advertised emissions are estimated to come from four client sectors.</p>	<p>If dentsu were to become responsible for a proportion of its advertised emissions, the costs could be extremely high.</p> <p>In <i>Net Zero 2050</i>, an assumption of 25% ‘emissions responsibility’ would lead to a ~¥29,930m cost by 2030 and ~¥126,524m by 2040.</p>	<p>In <i>Delayed Transition</i>, an assumption of 25% ‘emissions responsibility’ would lead to an overall cost of ¥270,675m in 2040. (This figure is higher than in <i>Net Zero 2050</i> given the higher carbon prices in <i>Delayed Transition</i>).</p>	<p>We assume dentsu would bear no responsibility for advertised emissions in the <i>Current Policies</i> scenario.</p>
<p><b>Carbon Pricing: Scope 1 and 2 emissions</b></p>	<p>In <i>Net Zero 2050</i>, dentsu would be exposed to a substantial financial impact throughout the 2020s, peaking in 2030 at ¥252m. The impact begins to decrease on the assumption that we pursue rapid decarbonisation to meet our goal of net zero by 2040. From 2040, costs rise from ~¥88m to ~¥171m as carbon prices increase, under the</p>	<p>Under <i>Delayed Transition</i>, the impact of carbon pricing remains negligible during the 2020s, then rapidly emerges from 2031 to 2035, with estimated costs increasing from ~¥3m in 2030 to ~¥263m in 2035. As with <i>Net Zero 2050</i>, the total cost begins to decrease after 2035, owing to a deceleration in the rate</p>	<p>Due to lack of a significant carbon price under the <i>Current Policies</i> scenario, the potential cost liability for dentsu remains minimal throughout the period. The potential cost is highest in 2023 at ~¥5m.</p>

TABLE 5: RISK ASSESSMENT SUMMARY

	Net Zero 2050	Delayed Transition	Current Policies
	assumption that dentsu's emissions remain static from 2040.	of price increase and rapid decarbonisation.	
<b>Carbon pricing: Flight-related business travel</b>	In <i>Net Zero 2050</i> , substantial costs emerge as early as 2025 (~¥894m). Avoided costs - arising due to the international business' commitment to reduce flight emissions by 65% by 2030 - also emerge, creating savings of ¥151m in 2025 and ¥537m in 2030. Thereafter, the potential savings are greater than dentsu's overall cost exposure, with avoided costs of ¥2,144m in 2040 (vs an overall cost of ¥696m) and avoided costs of ¥4,640m in 2050 (vs an overall cost of ¥1,437m).	As in <i>Net Zero 2050</i> , in <i>Delayed Transition</i> , avoided costs - arising due to the international business' commitment to reduce flight emissions - also exceed overall projected costs but later in the period and at a greater magnitude. Cost up to 2030 is negligible (¥15m maximum in 2030) but increases sharply from 2030-2040. The cost is greater than under the <i>Net Zero 2050</i> scenario, reaching ¥1,022m in 2040 and ¥2,184m in 2050. Due to higher carbon prices in this scenario, the savings from avoided emissions are largest, with ¥3,277m of avoided costs in 2040 and ¥7,049m in 2050.	The <i>Current Policies</i> scenario sees negligible cost to dentsu given the lack of a strong carbon price (maximum value of ~US\$4/tonne CO <sub>2</sub> e). This creates minimal avoided costs and a maximum saving of ¥25m estimated in 2050.
<b>A Changing Energy Landscape / Energy Costs</b>  Although not factored in our quantitative analysis, there is a possibility that energy costs will <i>decline</i> in the future. Renewables are getting cheaper <sup>1</sup> , and electricity market reform could result in lower bills for companies in markets with significant renewable uptake. While we might benefit directly from such an accelerated energy transition, the impact on our clients and wider operating context would be more transformative, making it easier for all companies to decarbonise.  Conversely, a delayed energy transition would make it harder for all entities to decarbonise, exacerbate climate risks, and increase the chance of a more draconian or uncertain future response to climate change.  Continued investment in fossil fuels could lock in certain countries/geographies to future climate risk, stranded assets, energy security (and financial cost)	Dentsu's energy costs increase in <i>Net Zero 2050</i> , reaching ¥1,942m in 2030 before steadily increasing to reach ¥2,901m in 2050.	The most pronounced increase in dentsu's direct energy costs appears in <i>Delayed Transition</i> , with costs peaking at ¥3,250m in 2035 (vs ¥967m in 2022).	Dentsu's energy costs increase in <i>Current Policies</i> , although not as significantly as in the other two scenarios, reaching ¥1,453m in 2030, ¥1,935m in 2040, and 2,344m in 2050.

TABLE 5: RISK ASSESSMENT SUMMARY

	Net Zero 2050	Delayed Transition	Current Policies
challenges relating to fossil fuel supply and, where supply chain decarbonisation becomes a condition of market entry, an inherently uncompetitive economy.			
<p><b>Global GDP Change / Economic Disruption</b></p> <p>An acceleration of climate action could drive more substantive impacts than the NGFS modelled impacts suggest. The realisation of 'stranded asset' risk in the fossil fuel intensive sector (and financial institutions invested therein), could create a substantive economic shock not considered in the numbers presented here.</p>	<p>The <i>Net Zero 2050</i> scenario is characterised by a high degree of uncertainty, with large differences between the median and 95<sup>th</sup> percentile value. The overall trend, as measured by the median values, indicates negligible change in GDP before 2030 followed by a decreasing trend to 2050, with GDP decreasing by -0.02% relative to the counterfactual in 2030 to -2.24% in 2050.</p>	<p>The <i>Delayed Transition</i> scenario sees negligible change in GDP before 2030 followed by a decreasing trend to 2050. This scenario sees the most pronounced negative impacts on dentsu, with a 1.85% decrease in operating profit by 2035 and a 3.25% impact by 2040 (assuming that projected changes in GDP will directly impact our revenue on a 1:1 ratio).</p>	<p>The <i>Current Policies</i> scenario indicates no discernible change in GDP relative to the counterfactual until 2035, beyond which small changes in operating profit are observed, with a 0.11% impact in 2035 and a 0.3% impact in 2040.</p> <p>NB. The NGFS scenarios suggest that GDP is impacted by <i>transition</i> risks much more significantly than <i>physical</i> risks out to 2050. Other studies<sup>2</sup> have suggested that the physical impacts of climate change could have a much more significant impact before 2050, however - with those impacts most likely to be seen within a 'hot house' scenario such as <i>Current Policies</i>. Accelerating physical impacts could lead to the rapid financial re-evaluation of the property sector and/or significantly stress the global food system, for example.</p>
<p><b>Changing Consumer Behaviour/Consumption Patterns</b></p> <p>Not only are consumers increasingly expressing a preference for climate-friendly products, but there is growing awareness that consumption patterns <i>must</i> change to address the climate and ecological crises. If these trends escalate into a wider rethink of consumption patterns, then there would clearly be significant implications for dentsu's clients - and not just our high-emitting clients.</p>	<p>A substantive change in consumer behaviour through the 2020s is likely in <i>Net Zero 2050</i> and creates space for new consumption patterns and business models to emerge.</p> <p>Dentsu's storytelling and marketing skills will be critical to building societal acceptance for new consumption patterns - and to the clients that successfully promote and/or respond to such a shift. This creates a significant opportunity for dentsu.</p>	<p>A substantive change in consumer behaviour happens rapidly in <i>Delayed Transition</i> in the 2030s - albeit in a manner that is much less widespread and consistent than in <i>Net Zero 2050</i>. While certain climate-aware consumer demographics are enthusiastic participants, the pass-through costs of draconian regulation create a backlash against 'imposed' change. Messaging and communications become critical for brands in this volatile context, creating a significant opportunity for dentsu.</p>	<p>Consumption patterns remain based on a 'take, make, and dispose' model in the <i>Current Policies</i> scenario.</p>
<p><b>Contentious Clients / Declining Sectors</b></p>	<p>High-emitting clients, particularly those without a credible transition plan, and laggards in <i>all</i> sectors - will become</p>	<p>Compared to <i>Net Zero 2050</i>, the landscape of contentious clients is more</p>	<p>Dentsu's client list has minimal impact on its reputation and ability to position</p>

TABLE 5: RISK ASSESSMENT SUMMARY

	Net Zero 2050	Delayed Transition	Current Policies
<p>Dentsu's financial exposure to the fossil fuel intensive sector is minimal but the small number of clients we have in this sector could pose reputational risk.</p> <p>In scenarios in which concern for climate and sustainability escalates, a greater range of companies from a wider range of sectors could become controversial.</p>	<p>increasingly controversial in relatively short timeframes in <u>Net Zero 2050</u>.</p> <p>Dentsu's reputation, and ability to position itself as a climate leader, will be linked to its client list - potentially impacting our ability to recruit and retain progressive clients and staff.</p>	<p>muddled in <u>Delayed Transition</u> through the 2020s.</p> <p>Many technologies and proposed solutions compete for investment and traction in the coming decade, and while some will succeed, others will rapidly fall from favour - and become controversial - in the 2030s. Through the 2030s, dentsu's reputation and ability to position itself as a climate leader will be linked to its client list.</p>	<p>itself as a climate leader in <u>Current Policies</u>.</p>
<p><b>Emerging Sectors</b></p> <p>Companies offering low- and zero-carbon solutions are likely to attract investment in scenarios in which there is a serious effort to decarbonise society.</p> <p>Electric vehicles, alternative proteins, and green fertilisers, in particular, have been identified as potential systemic game-changers which could enable further low-carbon innovation across the economy.</p> <p>Carbon capture and storage (CCS) is an emerging sector that features prominently in most climate scenarios. We have calculated the potential size of the associated market opportunity as an illustration of the potential size of emerging markets.</p>	<p>Companies offering low- and zero-carbon solutions are highly likely to attract investment in <u>Net Zero 2050</u>, and will comprise a significant proportion of our client list.</p> <p>The CCS sector could provide dentsu with an additional ¥1,780m in operating profit by 2030, rising to ¥2,936m by 2040, and peaking at ¥3,909m in 2050.</p> <p>With increasing awareness of the unsustainable patterns of current consumption, business models that enable customers to consume less could gain considerable traction (e.g., product-to-service shifts, the sharing economy or subscription services) are also likely to emerge.</p>	<p>Carbon Capture and Storage (CCS) does not emerge at scale until the 2030s in <u>Delayed Transition</u>, but the potential increase to dentsu's operating profit (if it builds a client base in this sector) scales rapidly, resulting in an additional ¥4,596m in operating profit in 2050.</p>	<p>Even within the <u>Current Policies</u> scenario, investment in CCS is still projected to expand significantly. While the opportunity is initially small (¥267m in 2030), it increases substantially, reaching ¥1,713m in 2040 and ¥2,191m in 2050.</p>
<p><b>Reputation Damage</b></p> <p>We expect climate action to increasingly become a matter of revenue protection, with clients increasingly likely to choose agencies based on climate and sustainability credentials. Maintaining a reputation for climate leadership will also impact our continued ability to attract, recruit and develop the best people.</p>	<p>In <u>Net Zero 2050</u>, increasing attention will be paid not only to our operational excellence and ability to provide zero-carbon services, but also to our clients' emissions, reputation, and long-term sustainability.</p> <p>Almost all dentsu's income from its top 20 clients is immediately at risk in <u>Net Zero 2050</u> (97% by 2025) as they</p>	<p>As in <u>Net Zero 2050</u>, clients will increasingly choose agencies based on their climate and sustainability credentials in <u>Delayed Transition</u>. By 2035, 100% of dentsu's top 20 clients will expect strong sustainability performance.</p>	<p>While some clients will choose agencies based on climate and sustainability credentials, these organisations will remain as outliers, with most clients choosing to work (or not work) with dentsu based on technical excellence.</p>



TABLE 5: RISK ASSESSMENT SUMMARY

	Net Zero 2050	Delayed Transition	Current Policies
<p>The criteria for whether we are perceived as a climate leader will change over time, however - and will vary in different scenarios.</p> <p>To explore how this might evolve, we assigned the top 20 clients from both the international business and Japan into five tiers that represent the spectrum of climate ambition amongst our clients. We then calculated the theoretical revenue at risk if dentsu's sustainability performance is perceived by its most ambitious clients as inadequate.</p>	<p>expect strong sustainability performance from creative/media partners.</p>		
<p><b>Increased severity and frequency of extreme weather events</b></p>	<p>The risks associated with extreme weather are minimized in <i>Net Zero 2050</i> although the possibility of substantive changes in climate beyond projections cannot be discounted.</p>	<p>The risks associated with extreme weather are greater in <i>Delayed Transition</i> (than in <i>Net Zero 2050</i>) and the possibility of substantive changes in climate beyond projections cannot be discounted.</p>	<p>These risks are clearly exacerbated in the <i>Current Policies</i> scenario, with impacts projected to be most severe in equatorial and tropical regions - which could challenge dentsu's growth plans in developing markets.</p>
<p><b>Earlier and/or more severe than projected climate impacts</b></p> <p>Given that physical climate change projections do not factor in the possibility of geophysical tipping points being crossed, there is a possibility that the impacts of climate change might 'hit' sooner and or more severely than projected/assumed within the scenarios typically used for climate risk assessment. Climate change could therefore potentially bring about (or contribute significantly to) major economic disruption beyond that accounted for within the NGFS scenarios - especially at higher levels of warming. Food - and other companies dependent on agricultural inputs - would be on the front line of such impacts, and dentsu has a relatively high level of exposure to this sector - but a widespread economic shock would impact GDP and advertising spend across the board.</p>	<p>The possibility of substantive changes in climate beyond projections cannot be discounted, even in <i>Net Zero 2050</i>.</p>	<p>The possibility of substantive changes in climate beyond projections cannot be discounted in <i>Delayed Transition</i>.</p>	<p>The possibility of a climate-instigated shock to the global economy arises primary in the <i>Current Policies</i> scenario, and increases in likelihood the longer that global emissions remain unchecked.</p>

<sup>1</sup> <https://www.iea.org/reports/world-energy-outlook-2020/overview-and-key-findings>

<sup>2</sup> Research published by [Swiss:Re](#) in 2021 suggested that global GDP could be reduced by 14% by mid-century if global temperatures rise by 2.6C.

## Risk Assessment for Quantified Risks

A subset of dentsu's risks was analysed quantitatively, with the projected impact on operating profits indicated in Table 6 below. Colours indicate the magnitude of impact, with the thresholds aligned to the scenario analysis impacts thresholds, as shown in Table 15.

**TABLE 6: SUMMARY OF IMPACT OF DENTSU'S MATERIAL CLIMATE-RELATED RISKS RELATIVE TO THE SCENARIO ANALYSIS IMPACT THRESHOLDS**

Impact assessment	Primary Financial Impact Driver	Impact on operating profits																	
		Scenario 1: Net Zero 2050						Scenario 2: Delayed Transition						Scenario 3: Current Policies					
		2025	2030	2035	2040	2045	2050	2025	2030	2035	2040	2045	2050	2025	2030	2035	2040	2045	2050
Advertised Emissions	Change in Operating Costs																		
Carbon Pricing (Direct)																			
Carbon Pricing (Aviation)																			
A Changing Energy Landscape																			
GDP Change	Change in revenues																		
Emerging Winners																			
Revenue Protection																			

## Key Insights from our Climate-related Scenario Analysis

The most substantive risks, but also the greatest opportunities, facing dentsu emerge in the Net Zero 2050 and Delayed Transition scenarios. The rapid transition to a net zero economy that happens in both these scenarios (albeit only after 2030 in Delayed Transition) would have extensive implications for policy, business model innovation, technology, and consumer behaviour – driving new and destroying existing markets for media, marketing, and advertising services.

For an advertising company, this creates significant opportunity – not only to meet the needs of clients facing pressure to decarbonise rapidly but to drive the transformation required to make global consumption patterns sustainable. Our aim is to enable consumers to embrace low-carbon lifestyles and support brands to develop strategies and campaigns to meet the needs of a more conscientious consumer.

While the drivers of action that fundamentally transform the economy in Net Zero 2050 and, belatedly, in Delayed Transition do not appear in Current Policies, progressive clients are still likely to desire services that help them decarbonize, and thus positioning ourselves to take advantage of the opportunities presented by in Net Zero 2050 and Delayed Transition would do us no harm in Current Policies. Given the wider economic and social disruption that would accompany a beyond 2°C world, however, we will use our voice and influence to try to ensure that the world does not proceed along a trajectory aligned with Current Policies.

In Net Zero 2050 – and post-2030 in Delayed Transition – not only will clients expect more climate leadership from dentsu, but the business will be increasingly judged on its client list. The emissions, reputation, and long-term sustainability of the brands we service will increasingly impact our reputation.

Our clients will also be facing increased climate risk in all scenarios. Some will adapt and thrive, others may struggle. High-emitting companies – particularly those without a credible transition plan – will become increasingly vulnerable to transition risk, not only in Net Zero 2050 but also in Delayed Transition, where the rapid roll-out of draconian regulation in the 2030s could catch companies off-guard.

The physical risks of climate change – extreme weather in particular – also pose significant financial, operational, and social costs for dentsu’s clients, as well as our own operations and supply chain. Over longer timeframes, these physical risks could significantly contract GDP, which would have a corresponding impact on advertising spend. These risks are clearly exacerbated in the Current Policies scenario, but the possibility of substantive shifts beyond projections even in scenarios that restrict warming to 1.5°C cannot be discounted.

To build a client list that is resilient to climate risk, we will actively seek out promising clients from emerging sectors with consumption-tackling business models.

## Metrics and Targets

Our total carbon footprint for 2022 was 393,494 tCO<sub>2</sub>e and includes our most material emission categories across the value chain. 96% of our GHG emissions impacts sit in scope 3, which are largely accounted for by the goods and services we purchase, our business travel, employee commuting, and the indirect emissions from our energy use (Fuel & energy-related activities).

We have already undertaken significant progress to reduce our scope 2 market-based emissions through our objective to purchase 100% of our electricity from renewable low-carbon sources across our international operations where possible. We will also continue to pursue energy efficiency initiatives to reduce our fuel and energy-related activities emissions.

As part of our decarbonisation strategy, dentsu has committed to reducing scope 1, 2 and 3 emissions by 46% by 2030 and reaching Net Zero by 2040 from a 2019 baseline. The international business has also committed to reduce business-travel GHG emissions by 65% by 2030, relative to a 2019 baseline.

We will publish our annual GHG emissions and communicate our progress on targets in our Integrated Report, ESG Databook and CDP response. We will also collaborate with our partners, clients, and suppliers to continue to identify ways to streamline processes for data management, quantification of impacts and reduction of emissions in hotspot areas.

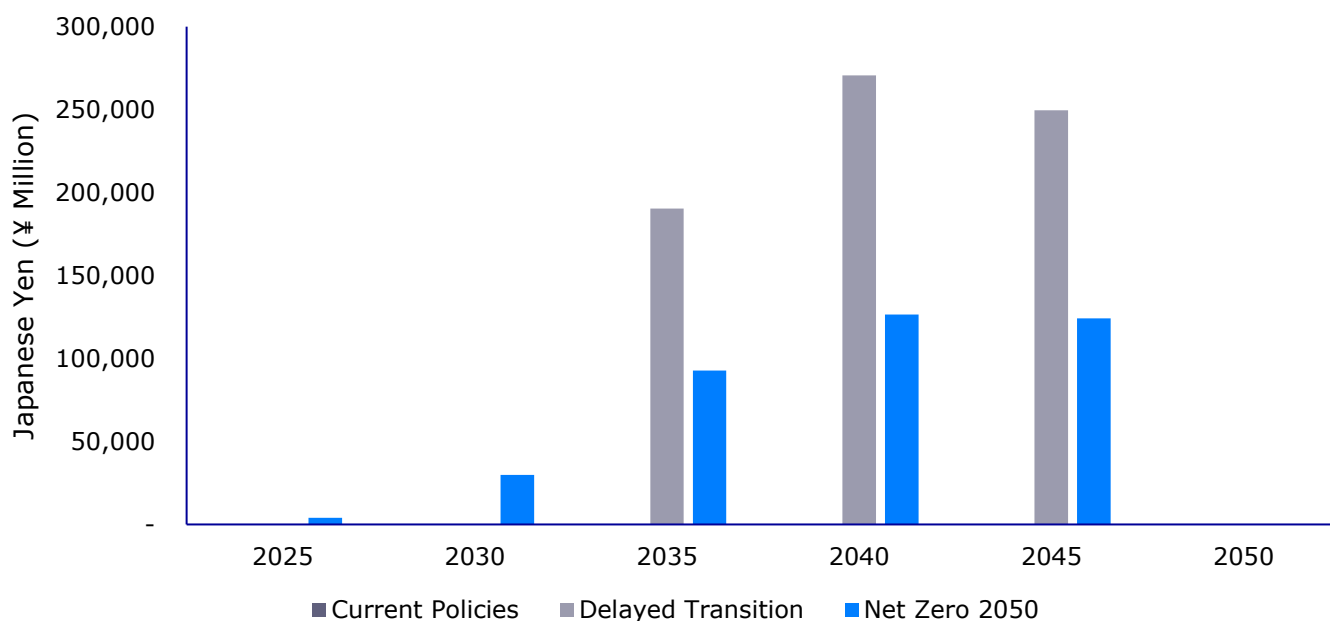
**TABLE 7: DENTSU GROUP'S CARBON FOOTPRINT FROM 2019-2022<sup>1</sup>.**

Category	2019 emissions (tCO <sub>2</sub> e)	2020 emissions (tCO <sub>2</sub> e)	2021 emissions (tCO <sub>2</sub> e)	2022 emissions (tCO <sub>2</sub> e)
<b>Scope 1</b>	<b>4,888</b>	<b>3,540</b>	<b>3,195</b>	<b>3,267</b>
<b>Scope 2 (market-based)</b>	<b>29,074</b>	<b>23,415</b>	<b>20,908</b>	<b>12,771</b>
<b>Scope 3</b>	<b>374,884</b>	<b>55,374</b>	<b>360,324</b>	<b>377,456</b>
Purchased goods and services	265,960	25,615	316,082	294,923
Fuel and energy-related activities	8,813	5,481	10,779	8,254
Upstream transportation & distribution	288	1,856	3,558	4,264
Waste generated in operations	1,246	1,098	1,207	904
Business travel	79,417	16,370	9,909	35,899
Employee Commuting	13,660	4,954	14,668	27,848
Downstream Leased Assets	3,469	N/A	331	309
Investments	2,031	N/A	3,790	5,055
<b>Total</b>	<b>408,846</b>	<b>82,329</b>	<b>384,428</b>	<b>393,495</b>

<sup>1</sup> Dentsu Japan uses a financial control approach. For owned buildings, all equity usage is recorded, including tenant usage. Dentsu will agree a consistent organisational boundary approach during 2023, as part of the integration program

# Appendix 1: Charts and Tables from Quantitative Analysis

## 1. Advertised Emissions

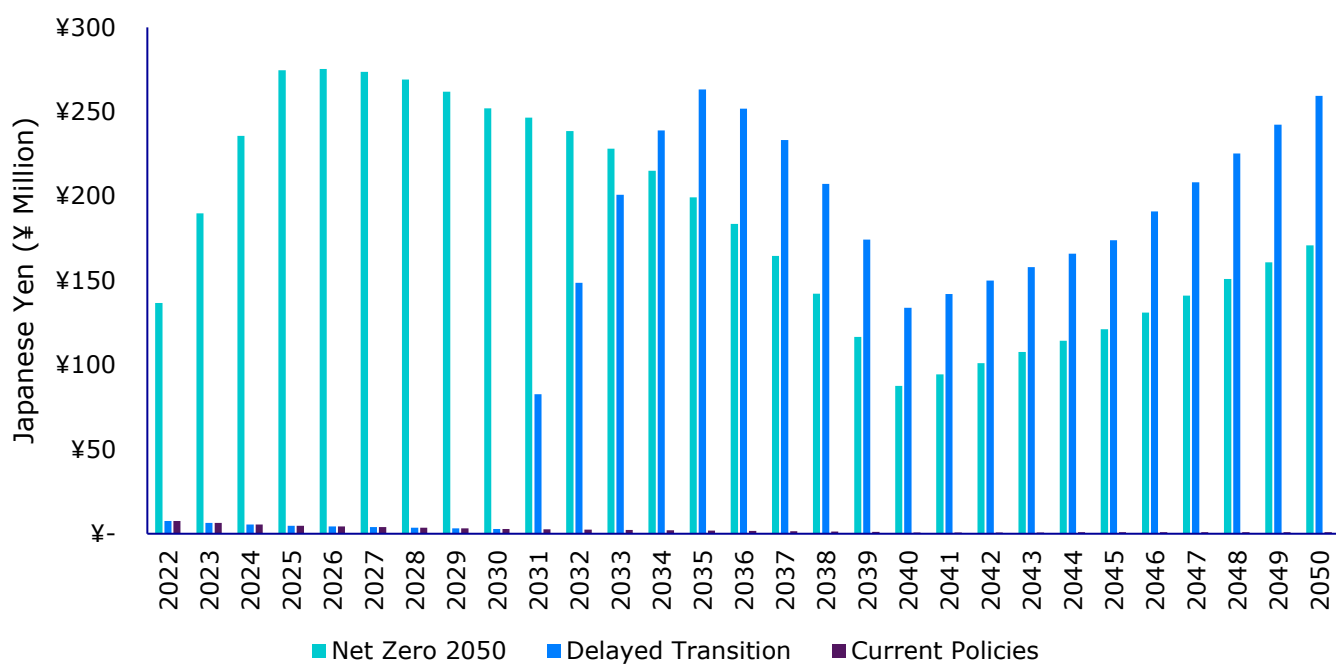


**FIGURE 2: ESTIMATED COST TO DENTSU GROUP OF THE CARBON IMPACT OF ADVERTISING, BASED ON ASSUMPTIONS AROUND THE PROPORTION OF ADVERTISED EMISSIONS THAT THE BUSINESS BECOMES LIABLE FOR**

**TABLE 8: ESTIMATED COST OF THE CARBON IMPACT OF ADVERTISING FOR DENTSU (¥)**

Scenario	2025	2030	2035	2040	2045	2050
Net Zero 2050	¥3,964m	¥29,930m	¥92,677m	¥126,524m	¥124,210m	¥0.0
Delayed Transition	¥0.0	¥234m	¥190,387m	¥270,675m	¥249,695m	¥0.0
Current Policies	¥0.0	¥0.0	¥0.0	¥0.0	¥0.0	¥0.0

## 2. Carbon Pricing (Direct)

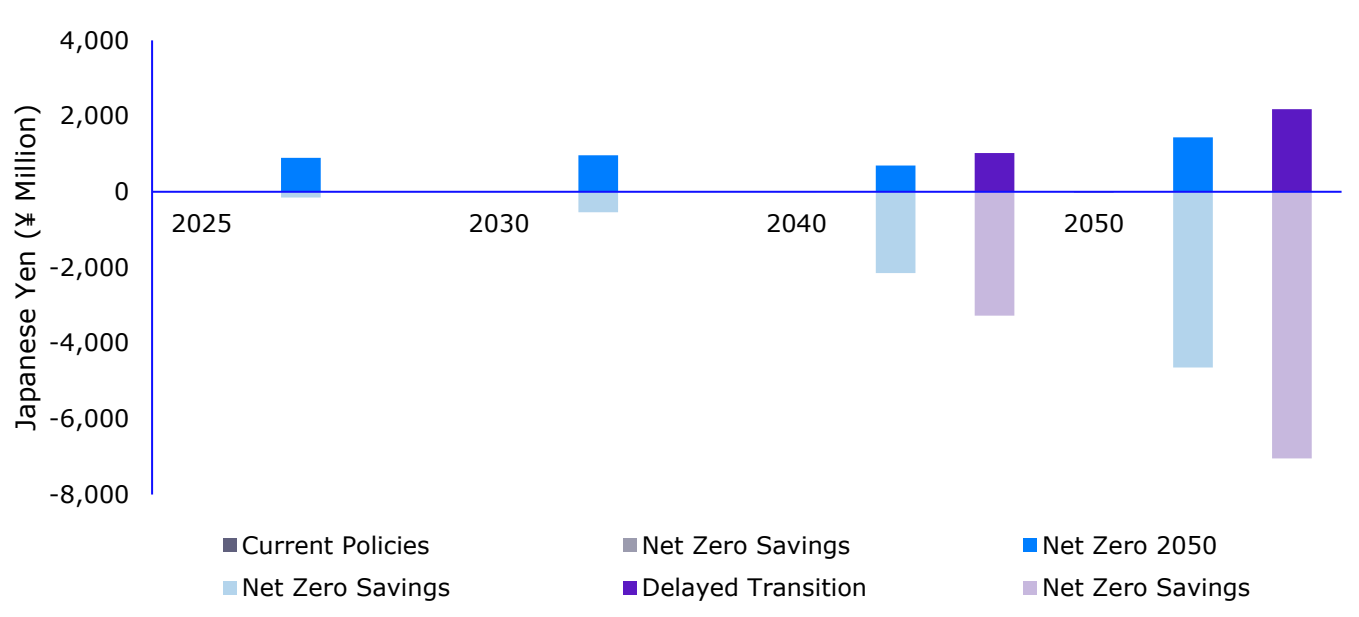


**FIGURE 3: PROJECTED COSTS OF A CARBON PRICE IMPOSED ON DENTSU'S PROJECTED SCOPE 1 & 2 EMISSIONS**

**TABLE 9: PROJECTED COSTS OF CARBON PRICE IMPOSED ON DENTSU'S PROJECTED SCOPE 1 & 2 EMISSIONS**

Scenario	2025	2030	2035	2040	2045	2050
Net Zero 2050	¥275m	¥252m	¥199m	¥88m	¥121m	¥171m
Delayed Transition	¥5m	¥3m	¥263m	¥134m	¥174m	¥260m
Current Policies	¥5m	¥3m	¥2m	¥1m	¥1m	¥1m

### 3. Carbon Pricing (Aviation)

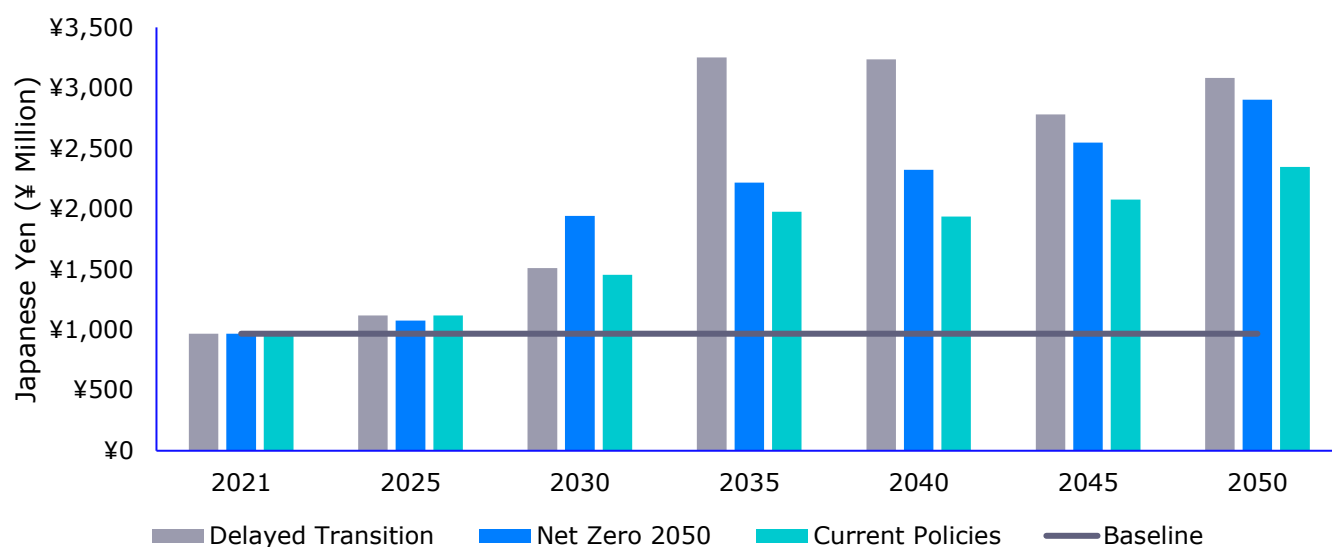


**FIGURE 4: ESTIMATED COSTS ASSOCIATED WITH THE APPLICATION OF A CARBON PRICE TO DENTSU FLIGHTS ACTIVITY (SOLID COLOURS), ALONG WITH THE ESTIMATED AVOIDED COSTS FROM DENTSU'S DECARBONISATION TARGETS (FADED COLOURS)**

**TABLE 10: ESTIMATED COSTS ASSOCIATED WITH THE APPLICATION OF A CARBON PRICE TO DENTSU'S FLIGHTS ACTIVITY, WITH THE ASSOCIATED SAVINGS FROM DENTSU DECARBONISATION TARGETS**

Scenario	2025	2030	2040	2050
Net Zero 2050	¥895m	¥963m	¥696m	¥1,438m
<i>Avoided Costs</i>	-¥152m	-¥537m	-¥2,145m	-¥4,641m
Delayed Transition	¥15m	¥15m	¥1,022m	¥2,184m
<i>Avoided Costs</i>	-¥3m	-¥2m	-¥3,277m	-¥7,049m
Current Policies	¥15m	¥15m	¥7m	¥8m
<i>Avoided Costs</i>	-¥3m	-¥2m	-¥12m	-¥25m

## 4. Changing Energy Landscape/Energy Costs



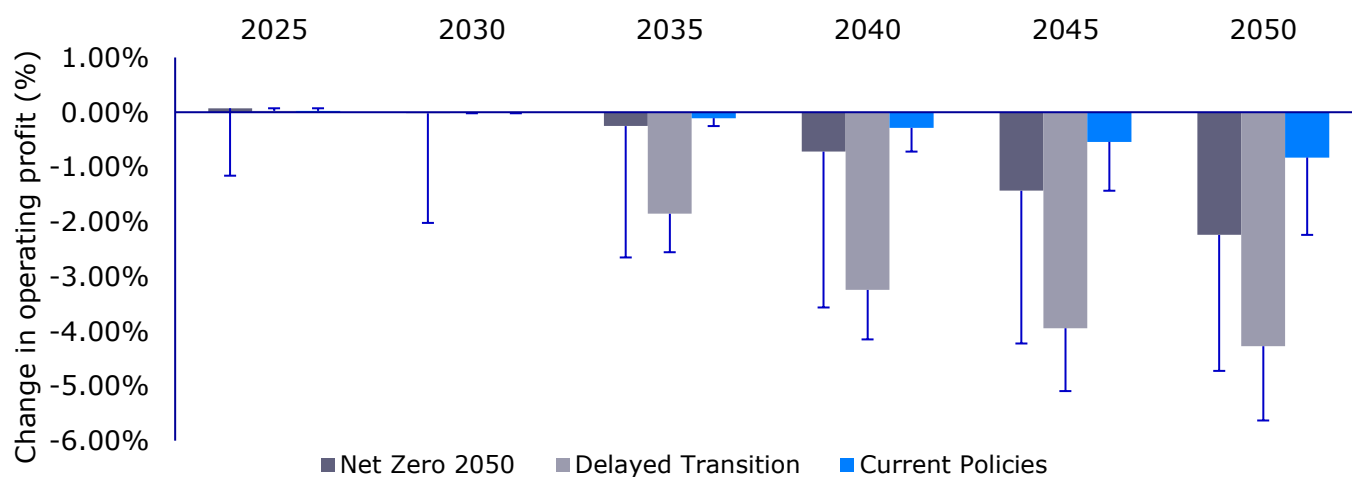
**FIGURE 5: TOTAL COST OF ENERGY (NATURAL GAS AND ELECTRICITY) ACROSS EACH SCENARIO (BARS) WITH AN INDICATION OF BASELINE COST (LINE)**

**TABLE 11: TOTAL COST OF ENERGY (NATURAL GAS AND ELECTRICITY) ACROSS EACH SCENARIO**

Scenario	2025	2030	2035	2040	2045	2050
Net Zero 2050	¥1,075m	¥1,942m	¥2,215m	¥2,322m	¥2,547m	¥2,901m
Delayed Transition	¥1,119m	¥1,510m	¥3,250m	¥3,236m	¥2,780m	¥3,081m
Current Policies	¥1,119m	¥1,453m	¥1,975m	¥1,935m	¥2,076m	¥2,345m



## 5. Global GDP Change/Economic Disruption

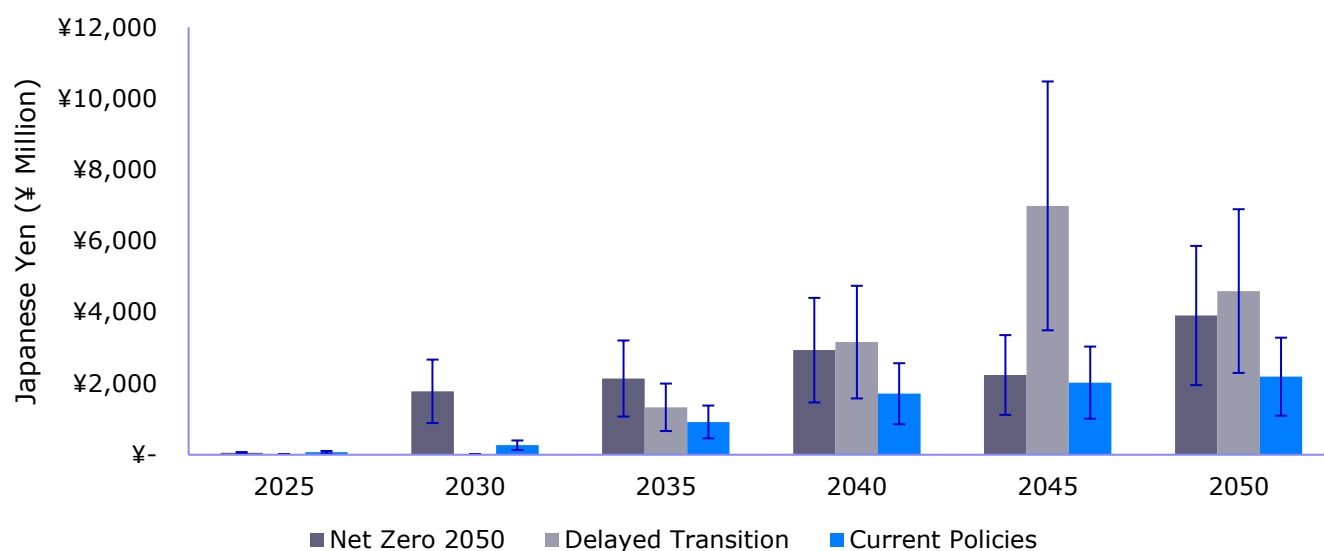


**FIGURE 6: PROJECTED IMPACT ON DENTSU'S OPERATING PROFIT DUE TO MEDIAN CHANGES IN GDP RELATIVE TO A COUNTERFACTUAL SCENARIO. ERROR BARS INDICATE CHANGES AT THE 95TH PERCENTILE.**

**TABLE 12: ESTIMATED MEDIAN GDP IMPACTS ON OPERATING PROFIT ACROSS EACH SCENARIO**

Scenario	2025	2030	2035	2040	2045	2050
Net Zero 2050	0.07%	-0.02%	-0.25%	-0.72%	-1.43%	-2.24%
Delayed Transition	0.02%	-0.01%	-1.85%	-3.25%	-3.95%	-4.27%
Current Policies	0.02%	-0.01%	-0.11%	-0.29%	-0.54%	-0.83%

## 6. Emerging Sectors

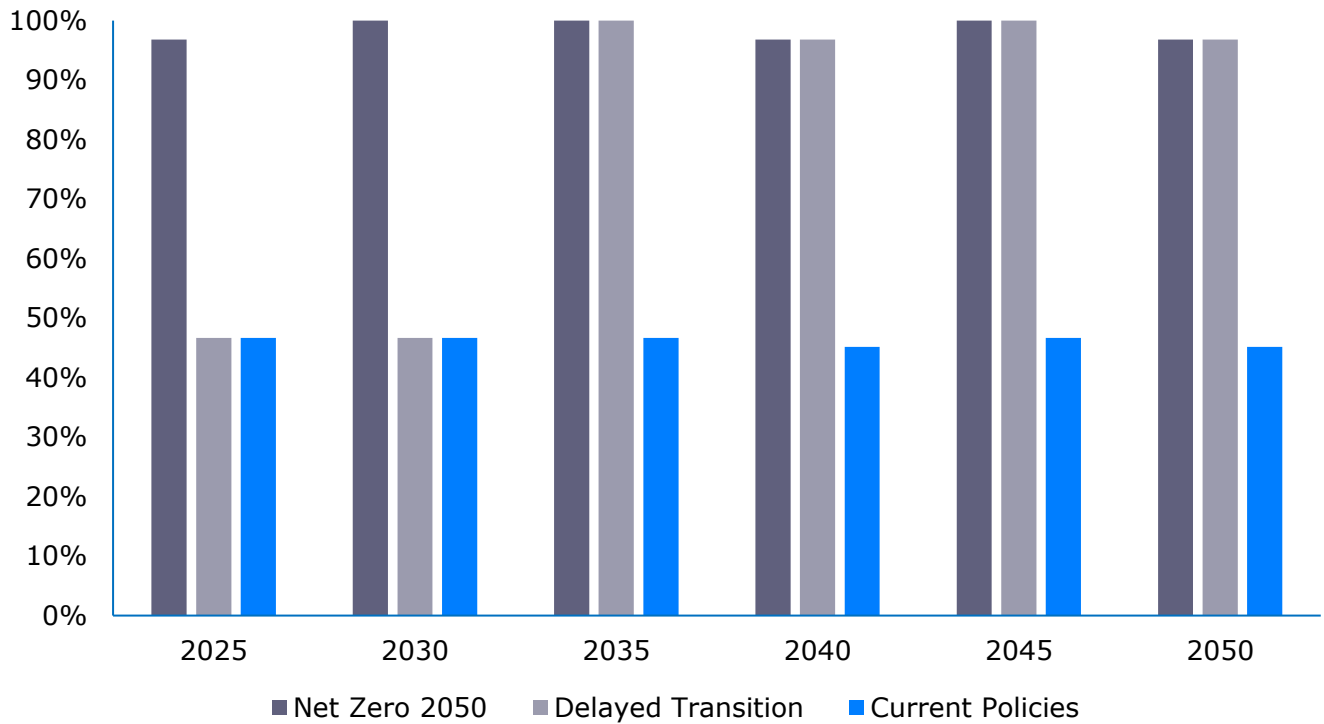


**FIGURE 7: ESTIMATED INCREASE IN OPERATING PROFIT THROUGH EMERGING CARBON CAPTURE AND STORAGE CLIENTS. ERROR BARS INDICATE A "LOW" AND "HIGH" SCENARIO, BASED ON DIFFERING ASSUMPTIONS ON DENTSU'S MARKET SHARE OF THIS INDUSTRY**

**TABLE 13: MEDIAN ADDITIONAL OPERATING PROFIT FROM CARBON CAPTURE INDUSTRY**

Scenario	2025	2030	2035	2040	2045	2050
Net Zero 2050	¥50m	¥1,780m	¥2,139m	¥2,936m	¥2,239m	¥3,909m
Delayed Transition	¥11m	¥9m	¥1,331m	¥3,162m	¥6,987m	¥4,596m
Current Policies	¥70m	¥267m	¥921m	¥1,713m	¥2,024m	¥2,191m

## 7. Reputational Damage



**FIGURE 8: PERCENTAGE OF REVENUE "AT RISK" DUE TO REPUTATIONAL CONCERNS. NOTE THAT "AT RISK" DOES NOT EQUATE TO REVENUE PROJECTED TO BE LOST.**

**TABLE 14: PROPORTION OF REVENUE "AT RISK" UNDER EACH SCENARIO**

Scenario	2025	2030	2035	2040	2045	2050
Net Zero 2050	97%	100%	100%	97%	100%	97%
Delayed Transition	47%	47%	100%	97%	100%	97%
Current Policies	47%	47%	47%	45%	47%	45%

## Appendix 2: Risk Assessment Methodologies

### Quantification of risk and opportunity

The quantitative assessment within our scenario analysis process is based on estimated impacts of specific risks and opportunities on operating profit, based on a series of high-level financial and non-financial assumptions. Our assessment does not provide accurate forward-looking financial forecasts/statements but is instead used to develop a series of illustrative 'what if?' scenarios for discussion across our business.

The impact on operating profit of any given risk or opportunity in any given year is assigned an 'impact threshold', based on a minimum Japanese Yen (¥) change in operating profit (see Table 15). The thresholds are colour coded to enable quick comparison across a series of risks and opportunities. The minimum change in operating profit is taken from the international business's global risk scoring criteria, to ensure alignment of the scenario analysis with the company's wider enterprise risk management.

**TABLE 15: DENTSU SCENARIO ANALYSIS IMPACT THRESHOLDS**

Impact threshold	Min. change in operating profit (¥)	Dentsu equivalent global criteria (financial)
Very high risk	-¥35.8 billion	<b>4 (Major) / 5 (Fundamental)</b>
High risk	-¥17.9 billion	<b>3 (Moderate)</b>
Low/medium risk	-¥9.0 billion	<b>2 (Minor)</b>
Normal business	¥0	<b>1 (Insignificant) or lower</b>
Low/medium opp.	¥9.0 billion	<b>Inverse of 2 (Minor)</b>
High opp.	¥17.9 billion	<b>Inverse of 3 (Moderate)</b>
Very high opp.	¥35.8 billion	<b>Inverse of 4 (Major) / 5 (Fundamental)</b>

### Non-financial assumptions

1. All 'Baseline/Business-as-usual' scenarios assume no climate change and therefore there is no impact on dentsu's external operating or commercial environment.
2. Whilst dentsu's net risk assessment methodology accounts for mitigating activities, each scenario presented here assumes no additional mitigation actions are taken by dentsu aside from those already in the public domain (e.g., dentsu's net zero target).
3. Financial *opportunity* thresholds are assumed to be exactly inverse to financial *risk* thresholds (i.e., a very high opportunity is an increase of  $\geq$  ¥35.8 billion in operating profit).
4. We also assume that the minimum change in operating profit for a given impact threshold remains constant through time (i.e., does not grow in line with operating profit) for simplicity of modelling and to take a highly conservative view of risk.

### Financial assumptions

1. That future operating margin is 18.3% for dentsu in FY22 and remains constant through time.
2. That future revenues will grow at a compound rate of 3.3% p.a. from FY22 onwards at the global level, under business-as-usual conditions.
3. For scenarios where an increase in operating costs is assessed, that dentsu is unable to pass this on to customers and impacts operating profits, unless a % pass through rate is explicitly stated.

### 'Carbon pricing (direct)' methodology

For determining the potential increase in operating costs from future carbon taxes under varying scenarios, the following approach was taken:

1. Calculate dentsu's estimated carbon footprint (tCO<sub>2</sub>e) based on stated decarbonisation targets. This is assumed to be a 46% reduction by 2030 and a 90% reduction by 2040 relative to a 2019 baseline. From 2030, emissions are projected to decrease in a linear trajectory, reaching a 90% reduction by 2040. From 2040-2050, emissions are projected to remain static.
2. Multiply cross-model average world carbon price (€/tCO<sub>2</sub>e) data from the NGFS Scenario Explorer<sup>2</sup> by the combined projected scope 1 & 2 values for dentsu.

### 'Carbon pricing (aviation)' methodology

For determining the potential increase in operating costs from future carbon taxes applied to dentsu's aviation activity specifically under varying scenarios, the following approach was taken:

1. Dentsu's business-as-usual emissions were calculated, assuming that dentsu make no deliberate effort to reduce aviation emissions. Therefore, projected emissions are a result of revenue growth (+3.3%) and background energy efficiency improvements in the aviation sector (2% per annum)<sup>3</sup>.
2. Dentsu's estimated aviation carbon footprint (tCO<sub>2</sub>e) based on dentsu's stated decarbonisation targets is also calculated. For the international business, this is a 65% reduction by 2030 and a 90% reduction by 2040 relative to a 2019 baseline.
3. Multiply cross-model average world carbon price (€/tCO<sub>2</sub>e) data from the NGFS Scenario Explorer by the combined projected aviation emission values for dentsu.

The overall costs were presented assuming BAU across all scenarios, along with the potential cost savings due to the pursuit of dentsu's emission reduction targets.

### 'Carbon pricing (advertised emissions)' methodology

Advertised emissions were calculated in line with the purpose disruptors methodology<sup>4</sup>, as shown in Figure 9 below.

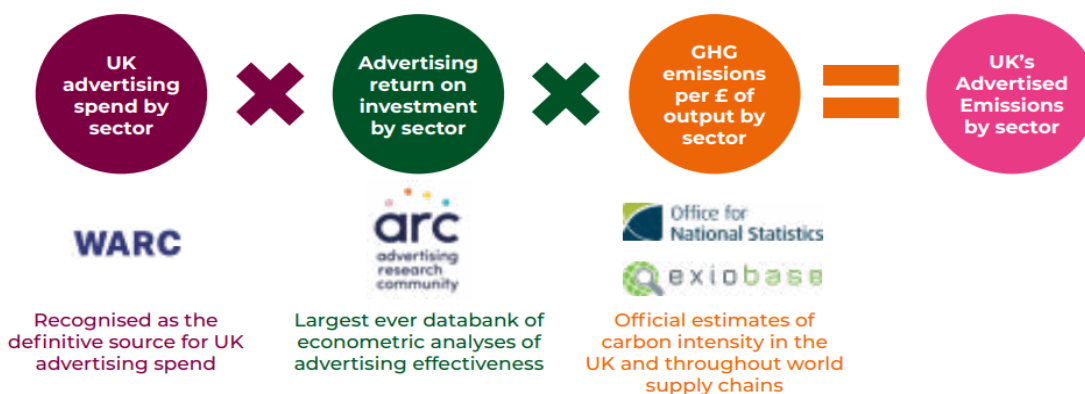


FIGURE 9: OVERVIEW OF PURPOSE DISRUPTORS ADVERTISED EMISSIONS METHODOLOGY.

Where:

- Advertising spend by sector is represented by dentsu's client income, split by sector.
- Advertising return on investment by sector is estimated through desktop research, with values of 149% for Fast Moving Consumer Goods, 602% for retail, and 371%, and 226% as a general assumption applied when sector-specific data was not available<sup>5</sup>
- GHG emissions per £ of output were estimated using EXIOBASE estimates of country-level carbon intensity by sector. The sectors represented in the EXIOBASE database differ and have overlap with dentsu's sector level data, so a mapping was undertaken to determine which EXIOBASE sectors mapped to dentsu's client sectors.

<sup>2</sup> The models used to calculate world mean carbon price were REMIND\_MAgPIE3.0-4.4, GCAM 5.3+ NGFS, and MESSAGEix-GLOBIOM 1.1-M-R12

<sup>3</sup> Destination 2050 Aviation Scenario:

[https://www.destination2050.eu/wpcontent/uploads/2021/03/Destination2050\\_Report.pdf](https://www.destination2050.eu/wpcontent/uploads/2021/03/Destination2050_Report.pdf)

<sup>4</sup> <https://www.purposedisruptors.org/advertised-emissions>

<sup>5</sup> <https://www.warc.com/newsandopinion/news/whats-a-successful-campaign-roi/en-gb/44453>

Once advertised emissions had been calculated for the baseline year, differing assumptions were made on the evolution of sector carbon intensity under each scenario.

- In the *Net Zero 2050* scenario, carbon output per sector decreased linearly from 2022 to 2050, such that carbon output per sector reached 0.
- In the *Delayed Transition* scenario, carbon output per sector was held static until 230, before decreasing at a linear rate to reach 0 by 2050.
- In the *Current Policies* scenario, carbon output per sector was assumed to remain static.

Sector ROI was assumed to remain constant, and dentsu’s client income was assumed to grow at differentiating rates, based on data provided by dentsu.

Once advertised emissions had been calculated for all scenarios across the entire study period (2022-2050), total cost was estimated through assuming dentsu would be liable to a fraction of these emissions, which differentiated by scenario (shown in Table 16).

**TABLE 16: PROPORTION OF DENTSU'S ADVERTISED EMISSIONS THAT IT IS ASSUMED TO BE RESPONSIBLE FOR**

Scenario	2025	2030	2035	2040
Net Zero 2050	2%	10%	23%	25%
Delayed Transition	0%	5%	25%	25%
Current Policies	0%	0%	0%	0%

### 'Energy costs' methodology

For determining the potential change in operating profits, relative to business-as-usual, from future changes in electricity and natural gas prices under varying scenarios, the following approach was taken:

1. Calculate business-as-usual electricity consumption (kWh) based on dentsu growth assumptions, current consumption, and an assumed background rate of efficiency increases.
2. Calculate business-as-usual cost of electricity and natural gas per annum using baseline cost of electricity from the NGFS Database, split by region<sup>6</sup>.
3. Calculate total energy consumption assuming dentsu electrifies natural gas consumption in a phased manner, up to 90% by 2040. This assumption is true across all three scenarios as it is considered consistent with dentsu’s decarbonisation targets.
4. This consumption is applied to projected energy costs within the NGFS scenario database, split by region.

### 'Global GDP change' methodology

Dentsu’s business-as-usual revenue is projected using a counterfactual GDP scenario that internalises the policy costs that have been announced to date (i.e., Current Policies). This is then compared to a variable that internalises the both the GDP costs from physical damages and the policy costs that are **additional** to those already announced. This analysis has taken the median scenario values to indicate the expected revenue damage, and the 95<sup>th</sup> percentile value to indicate the maximum revenue damage.

- This yields a GDP loss relative to the baseline across all scenarios. This value is applied to the counterfactual revenue projection to yield an estimated revenue across each of the scenarios.
- Dentsu’s revenue is expected to growth in line with GDP at a ratio of 1:1.
- The impact of revenue loss is converted to operating profit loss by assuming an operating margin of 18.3%.

<sup>6</sup> Dentsu’s regions were split into Americas, Asia-Pacific ex-Japan (APAC), Europe, Middle East, and Africa (EMEA), and Japan

## 'Reputational Damage methodology

To explore how the impact of revenue loss from dentsu's reputation amongst key accounts might play out we have assigned our top 20 clients in both our international business and Japan into five distinct tiers, with Tier 1 representing climate champions, Tier 5 representing "compliance-only" driven organisations, and Tier 2, 3 and 4, representing levels of ambition between Tier 1 and 5, as shown in Table 17.

**TABLE 17: TIER DESCRIPTIONS FOR REVENUE PROTECTION ANALYSIS**

Tier Descriptions	
Tier 1	Ambitious climate champions: These companies are aiming to create value for society and the environment beyond solely enhancing shareholder returns.
Tier 2	These companies actively pursue sustainability goals, with a leadership who are bought into, and recognise the value of sustainability as a long-term viability driver
Tier 3	These companies are actively trying to do less harm, but predominantly due to the direct cost savings potential of these measures.
Tier 4	The company is not motivated by internal forces yet, but by outside market forces. However, it is acting more proactively than just to comply with regulations.
Tier 5	Compliance-only

- Scenario weightings are based on assumptions of the minimum client "Tier" that will be requiring strong environmental performance from dentsu in a given year. If the assumed minimum tier in a year is greater than or equal to the tier that a client has been assigned, then that revenue is considered "at risk".
- N.B. "Revenue-at-risk" is not an assumption that this revenue will be lost, but rather an indication of the estimated proportion of dentsu's revenue that will be sensitive to maintenance of a strong climate reputation.

Assumptions of % revenue at risk and scenario weightings for each sector are as follows:

**TABLE 18: TIER ASSIGNMENTS FOR THE REVENUE PROTECTION RISK**

Minimum Tier	2025	2030	2035	2040
Net Zero 2050	4	5	5	5
Delayed Transition	2	2	5	5
Current Policies	2	2	2	2

## 'New industries' methodology

For determining the potential increase in operating profit from revenues from a Carbon Dioxide Removal (CDR) industry, the following calculation was applied to operating profit for each time horizon across our three scenarios:

*Estimate revenue from CDR = Investment in Carbon Capture Utilisation and Storage (CCSUS)<sup>1</sup> \* % of investment assigned to advertising industry<sup>2</sup> \* % of dentsu's market share<sup>3</sup>*

*Increase in operating profit = Estimated revenue from CDR \* operating margin of 18.3%*

Where:

<sup>1</sup> Investment in CCUS is based on the NGFS Scenario Explorer variable 'Investment-EnergySupply-CCS' and is used as proxy for the total of the CDR industry.

<sup>2</sup> % of total CCUS industry investment directed to advertising assumed to be 2% (half the level spent by the energy industry on advertising in 2016 according to a [study by Deloitte](#))

<sup>3</sup> % of dentsu market share assumed to be 5% (low), 10% (medium), or 15% (high), with a full range of calculations undertaken.

### 'Sector exposure' Methodology

For determining the potential loss of sector revenues due to reputational/litigation risks under varying scenarios, the following calculation was applied to operating profit from a given sector for a given point in time our three scenarios:

*Annual operating profit at risk = (Estimated baseline revenue from sector<sup>1</sup> x assumption of % of revenue at risk<sup>2</sup> x scenario weighting<sup>3</sup>) \* operating margin of 18.3%*

Where:

<sup>1</sup> Revenue is assumed to grow at 3.3% p.a. to 2050.

<sup>2</sup> A range of assumptions are used, based on external data and Accenture's expert knowledge of the relative resilience of sectors and companies to climate change.

<sup>3</sup> Scenario weightings are based on assumptions of the likelihood of risks materialising at a given point in time under each scenario. Weightings are based on the international business's global risk criteria for determining the likelihood of an event and are as follows:

<b>Rare</b>	10%
<b>Unlikely</b>	20%
<b>Possible</b>	45%
<b>Likely</b>	70%
<b>Almost certain</b>	90%