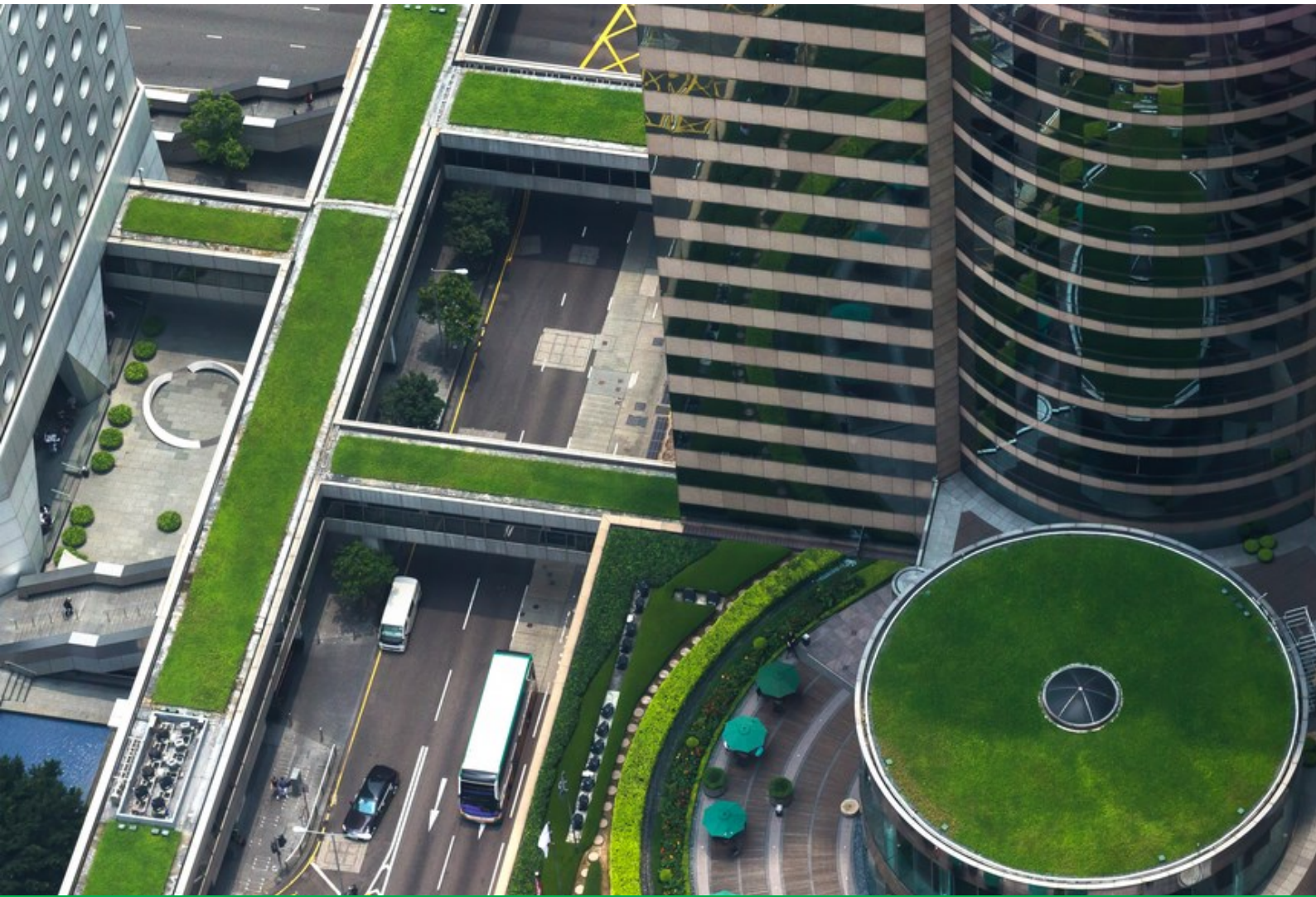




BUSINESS
ENVIRONMENT
COUNCIL
商界環保協會



Building a Greener and Smarter Hong Kong

June 2023

About BEC

Business Environment Council Limited ('BEC') is an independent, charitable membership organisation, established by the business sector in Hong Kong. Since its establishment in 1992, BEC has been at the forefront of promoting environmental excellence by advocating the uptake of clean technologies and practices which reduce waste, conserve resources, prevent pollution and improve corporate environmental and social responsibility. BEC offers sustainable solutions and professional services covering advisory, research, assessment, training and award programs for government, business and the community, thus enabling environmental protection and contributing to the transition to a net-zero economy.

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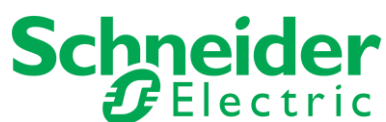
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This project is supported by



Foreword

Environmental sustainability has received unprecedented attention and support in the past few years, both globally and locally. A growing number of businesses in Hong Kong are putting forth more ambitious targets to decarbonise, in response to stakeholders' concerns and the international trend.

BEC is among the pioneers in Hong Kong to promote the concept of ESG and has been advocating innovative solutions for environmental issues. In the year of its 30th anniversary, BEC conducted this study to understand the latest sustainability landscape among businesses in Hong Kong, identify the challenges and opportunities, and explore the way forward for corporate sustainability.

I would like to take this opportunity to acknowledge the support of Schneider Electric in this study, and express my gratitude to the organisations that helped disseminate the survey as well as the respondents and participants who contributed their opinions, ideas and time. Riding on the insights gained from this study, BEC will take lead in working with its members and the wider business community to foster the sustainability ecosystem, working with different partners to build capacity and encourage the adoption of innovative practices, and planning to build a bright future together in a bid to strive towards the goal of carbon neutrality.



Simon Ng
Chief Executive Officer
Business Environment Council

Corporations have a vital role in combating climate change and must meet a 1.5-degree trajectory by 2050. They need to save 10-15 gigatons of carbon emissions between now and 2030. Unfortunately, not all the organizations are navigating the fastest path forward. They need to act 3 times faster, and 3 times more in decarbonization and the sustainable energy transition.

Yet, we still have time to get back on track. Digital + Electric = Sustainable, is the equation of future, driving the success in sustainability. Electricity makes energy green, and digital innovation makes energy smart.

Digital defines new levels of efficiency. We live in a new age of remote work and operations requiring smart digitalization. Digital brings greater safety, reliability, efficiency, and sustainability. We see an exponential growth in digital – the number of IoT devices will be increased significantly by 6 times, from 8 billion to 50 billion, and the amount of computing workloads will up by 8 times by 2030, according to Schneider Electric™ Sustainability Research Institute.

Electrification is crucial for accelerating towards decarbonization. It's going to change energy usage and supply profoundly. One of the biggest migrations of energy we see is the switch to electric vehicles. Electrification will also transform the supply side with the ability to generate, store and send it to someone else, in order to have better use of distributed energy sources.

Time is of the essence, but it's not too late. Partnerships with corporates are our greatest assets – we need to do this together. We are glad to support BEC in conducting this study, learning how the businesses in Hong Kong to strategize, plan and act on sustainability and decarbonization, and the way forward in building Hong Kong as a greener and more sustainable city.

Looking ahead, as the leading Impact Company, we are committed to doing even more, even faster. Our mission is to be the digital partner for efficiency and sustainability.



Jonathan Chiu
President
Schneider Electric Hong Kong

Executive Summary

Project Background

The HKSAR Government announced that Hong Kong will strive to achieve carbon neutrality before 2050, and subsequently published the [Hong Kong's Climate Action Plan 2050](#) (CAP2050) and [several other policy blueprints](#) regarding Hong Kong's interconnected environmental issues in 2021. Business Environment Council (BEC) conducted this study to capture the latest sustainability landscape in Hong Kong. Valuable feedback is obtained from a total of 205 respondents in a range of industries, and three focus group discussions of business leaders with sustainability responsibilities. These were undertaken between August and September 2022. The main insights are summarised as follows.

Current State of Sustainability Landscape and Company Perception

According to the survey, organisations are starting to integrate sustainability into their businesses, with 84% of respondents state that sustainability is a core part of their organisation's strategy. However, more resources and planning are needed as only around half (49%) of the respondents reflected that their organisations currently have dedicated sustainability team and governance approach, and a same portion of them have comprehensive sustainability strategies and policies in place. Businesses are confident in aligning with climate-related initiatives and targets, with 69% of respondents stating that their organisations' efforts are strongly or generally aligned with CAP2050, and 60% of respondents have public commitments on decarbonisation. The positive outlook is mainly driven by the changing expectation of consumers and stakeholders; 51% of respondents face increased pressure to reduce emissions in their business offerings.

Obstacles to Sustainable Strategy Implementation and Target Setting

However, the survey shows that understandings of specific instruments remain inadequate. For example, only 28% of respondents know what the Sciences Based Targets Initiative (SBTi) is about, and 21% of them have a clear understanding of the Task Force on Climate-Related Financial Disclosures (TCFD). Top three challenges are: changing longstanding business practices or organisational mindsets (62%), balancing between realistic and aspirational targets (55%), and accessing accurate data and information (41%). Due to these complications, 14% of respondents are not confident that their organisation will achieve the committed decarbonisation targets.

Highlights of Focus Group

Participants from all three focus group discussions, with topics on low carbon and net-zero buildings, waste management, and smart transport, pointed out the needs for the government's support and guidelines.

In the low carbon and net-zero buildings focus group, we observed that Hong Kong's net-zero building development remains at a rudimentary stage due to several constraints, from climate to building design and material availability. The high-density and high-rise environment combined with the lack of open spaces also pose challenges. While onsite renewable generation may not meet the energy demand, progressive grid decarbonisation would help. Participants in the waste management and circular economy focus group pointed out that Hong Kong's recycling industry development remains immature. In many cases, direct disposal of waste streams remains less costly than recycling the materials. The Government is anticipated to issue more guidelines to foster proper recycling of types of materials. The Government may also conduct industry consultations to provide financial incentives for the recyclers, which can in turn increase participation and innovation towards more circular models.

The transport industry is moving to utilise software and applications to plan routes and distribute goods to reduce vehicle mileage and improve efficiency. The sector is keen on exploring new technologies like alternative fuels or autonomous driving. Financial support from the Government to encourage early adoption of low carbon vehicle is welcome. The Government's further commitment to build a charging network, as well as a power grid that can support simultaneous charging for electric vehicles would be appreciated.

Unlocking sustainability potential in energy management and digital strategies

Companies need to leverage resources and momentum to formulate forward-looking energy management strategies to better meet the emission targets. Currently, only 42% of respondents consider that their organisations are doing well in transitioning towards renewable energy sources. Barriers include uncertain regulations in supply market (69%), volatile prices (53%) and supply chain reliability (36%). The Government may help secure reliable renewable energy supply and lead with examples at its premises.

Regarding improvement of energy efficiency, go digital is a way forward. Respondents acknowledge that digital analytics is value-adding in the areas of monitoring the organisation's sustainability performance and optimisation of operation efficiency, productivity, and reliability. 52% of respondents pursued digital solutions to lower carbon footprint in the past 12 months while only 21% consider that they are fully utilising technologies to operate more sustainably. 16% of the respondents showed an increase in investment in digitalisation in the past 12 months. The Government could simplify the application of government funding for the transportation industry to introduce new technologies. It should coordinate trials for autonomous driving in certain areas, which enhance the feasibility of new technology in Hong Kong. Industries and the government need to work together to create financing schemes that create synergy and ensure sustained benefits.

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1. Background and Study Approach

1.1 Background

The sustainability landscape in Hong Kong has transformed at a pace that is undeterred by the pandemic. The launch of the HKSAR government's Climate Action Plan 2050 in October 2021 and subsequent carbon neutrality target have kick-started target-setting and decarbonisation efforts by companies. In the journey of target-setting or decarbonisation, a company faces a plethora of challenges in emissions data tracking and analysis, as well as in energy efficiency and management.

In recent years, digital solutions that contribute to energy efficiency and carbon management (e.g., Building Management Systems, Building Information Modelling, or Carbon Emissions Accounting Systems) have greatly improved in their functionality to match the needs of companies' sustainability pursuits. However, many companies are still under-utilising available solutions for reasons including the lack of available financing; or insufficient use-cases which provide financial indicators such as Return-On-Investment to create buy-in from decision-makers within a company.

With a goal to understand the current challenges faced by companies with the above points, BEC has conducted a two-part study in partnership with Schneider Electric named "Building a Greener and Smarter Hong Kong". With the public dissemination of this report with its comprehensive insights, BEC hopes to assist companies in taking the steps necessary to accelerate their sustainability initiatives.

1.2 Study Approach and Respondents Demographics

The first part of the study consists of a survey which is divided into 6 sections:

1. Respondent Demographics
2. Sustainability Landscape
3. Decarbonisation and Target Setting
4. Energy Supply Market and Renewable Energy Transition
5. Digital Transformation
6. Sustainable Finance

The survey has been widely circulated with the membership base of BEC, as well as BEC’s connections with business associations and consulates. Over the response-period between August to September 2022, over 200 business leaders with sustainability responsibilities or interests in Hong Kong companies have provided their response. The chart below illustrates the sector that they represent.

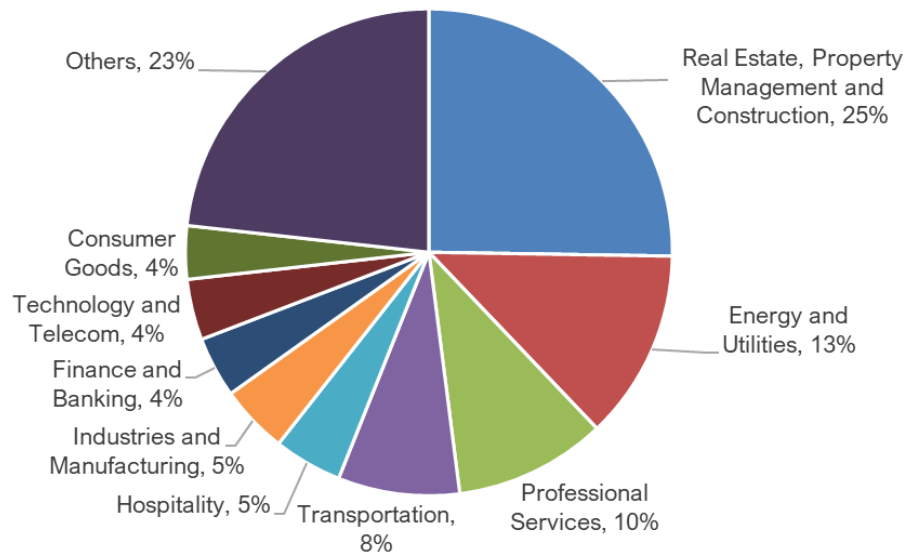


Figure 1. Industry Sectors of the Survey Respondents

The distribution of the respondent’s organisational role should also be noted. Since there are no conditional questions depending on the respondent’s organisational role, and respondents in managerial level makes up more than 50% of total respondents, this affects the interpretation of the aggregate data depending on the question. For example, for questions relating to the direction of the company which are best answered by executive level, or questions relating to the operational details best answered by operational level, the results could only be indicative, as the response is subjected to the respondent’s cross-functional understanding of the topic.

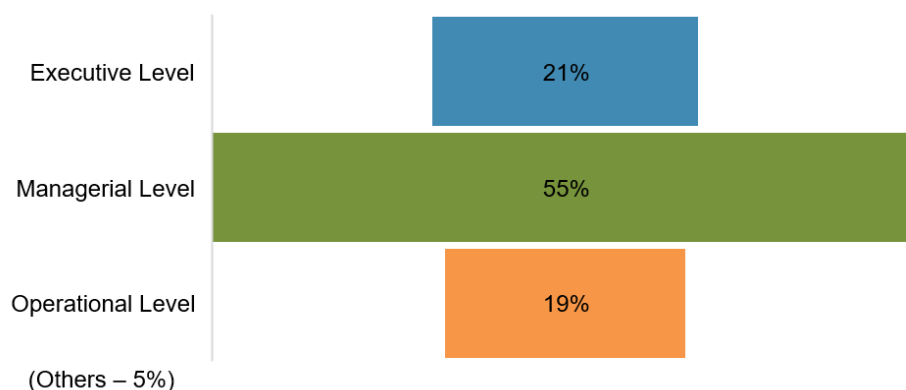


Figure 2. Role of Respondent within the Organisation

The second part of the study consists of three focus-group interviews that are carried out in parallel of the survey in September 2022. The three focus-group interviews centred on the sustainability topics of “Low Carbon and Net-zero Buildings”, “Green and Smart Transportation”, and “Waste Management and Circular Economy” respectively. 40 interviewees participated in the three focus groups.

The goal of the focus-group interviews is to generate insights which will enrich the research findings. As such, the guiding questions follows a similar logic to the survey and prompt interviewees to provide qualitative insights in the current status, challenges and opportunities, and enabling factors among three topics.

1.3 Report Structure

The report follows the structure of the 5 main topics of the study (information on demographics of respondents already covered in this section). In each section, the study results will be presented first, followed by the analysis to the results. The raw data of the survey, making up of 31 questions is also presented in the appendix of the report.

2. Sustainability Landscape

This section explores the organisation’s attitudes towards sustainability as well as the understanding and alignment of sustainability terms and initiatives. Based on any gaps or mismatch observed, the readers may get a general understanding of where industry pain-points exist.

2.1 Attitudes towards Sustainability

Study Results

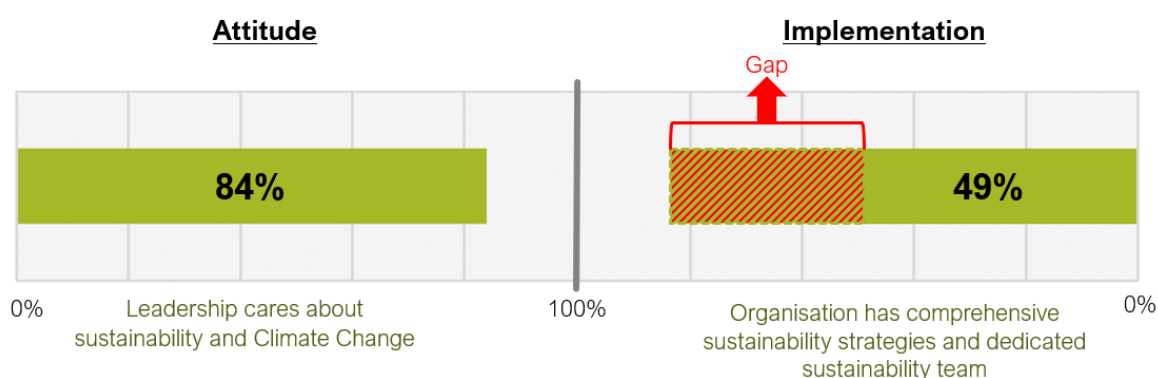


Figure 3. Gap between Sustainability Attitude and Implementation

It is observed that there is a gap between the attitude and implementation of sustainability strategies. This is illustrated by the findings that the majority (84%) of the respondents believe that their ‘Leadership cares about Sustainability and Climate Change’, but only around half of noted that their ‘Organisation has comprehensive sustainability strategies and a dedicated sustainability team’ (49%).

Table 1. Impact of Climate Change to Organisation in last 12 months

Impact of Climate Change to Organisation in last 12 months	% of Respondents
We see the behaviour, wants and/or needs of our customers and/or key stakeholders are being reshaped by climate change	69%
We are facing increased pressure to consider carbon footprint in the design and/or delivery of our products, solutions and/or services	51%

In cross-examining the above finding with another question in the study on how climate change affects the organisation, we may understand why an overwhelming 84% majority of leadership cares about sustainability and climate change – it is revealed that 69% of respondents see their ‘Customers’ and stakeholders’ behaviour, wants, and needs are being reshaped by climate change; and 51% of the respondents ‘Faces increased

pressure to consider their carbon footprint in designing and delivering their products, solutions, and services.’ Both factors directly impact the revenue and bottom line of the organisation and therefore, is naturally an area of concern for leadership.

Analysis

A potential reason as to why this perceived priority from leadership is not translated into a comprehensive strategy could be due to the inability to identify an appropriate approach for the organisation. There has been a lot of experimentation and debate on whether sustainability should be pursued using a ‘top-down’ or ‘bottom-up’ approach. A ‘top-down’ approach would mean that leadership takes charge of the direction and resource allocation of an organisation’s sustainability strategy, as noted by to May Tan, an independent non-executive director of CLP Holdings¹, where *“Leadership set key performance indicators to include climate change and sustainability initiatives by employees and departments as part of their goals.”* A ‘bottom-up’ approach would be more reliant on working-level initiatives and insights to make decisions, for example, where a procurement team is to decide how to best engage their suppliers to reduce Scope 3 emissions.

Given the equal importance of the two, there is a need for a functional unit such as a dedicated Sustainability team to exist mid-way with the purpose of bridging the communication between leadership and working level, such that a more holistic approach can be taken when formulating a sustainability strategy. However, this is dependent on multiple factors such as the size or the industry of the organisation. For smaller companies or organisations that belong to an industry that is less carbon-intensive, leadership could adopt a sustainability approach that cascades down to different teams and clearly communicate contributing actions instead of setting up a dedicated sustainability team.

Above all, it is important to integrate sustainability into the business strategy of an organisation, and if needed, make any necessary changes or look for alternatives to shift

¹ SCMP, HSBC and CLP directors say corporate boards must take lead on driving sustainability practices, compliance (Sep 2022) [Link](#)

away from sustainability malpractices. This will be the biggest challenge faced by organisations, as supported by a finding in the study, with 62% of respondents stating that ‘Changing longstanding business practices and organisational mindsets’ as one of the top sustainability challenges. However, organisations will not have the option to shy away from this change as this is the most direct way to ensure that all levels of an organisation will have intrinsic motivations to act sustainably.

2.2 Understanding and Alignment of Terms and Initiatives

Study Results

There are two questions in the survey that examine the respondent’s understanding and alignment of sustainability terms and initiatives, based on self-assessment. The table below lists the results in the order of highest to lowest understanding and alignment levels.

Table 2. Understanding and Alignment of Sustainability Terms and Initiatives

	Sustainability Terms and Initiatives	Solid and Average Understanding	Strong and General alignment	<i>Difference</i>
Set 1: Basic Reporting	Environmental, Social, Governance (ESG)	92%	N/A	<i>N/A</i>
	Corporate Social Responsibility (CSR)	90%	N/A	<i>N/A</i>
Set 2: Climate Commitments	Carbon neutrality	87%	72%	<i>15%</i>
	Net-zero commitments	82%	69%	<i>13%</i>
	Hong Kong's Climate Action Plan 2050	80%	69%	<i>11%</i>
	The Paris Agreement	72%	66%	<i>6%</i>
Set 3: Reporting Standards and Initiatives	Global Reporting Initiatives (GRI) Standards	59%	54%	<i>5%</i>
	Science Based Targets Initiatives (SBTi)	58%	50%	<i>8%</i>
	Sustainable finance	55%	N/A	<i>N/A</i>
	Task Force on Climate Related Financial Disclosures (TCFD)	50%	50%	<i>0%</i>
	Sustainable Accounting Standards Board (SASB) disclosures	40%	37%	<i>3%</i>

Analysis

The assumption here is that if the organisation understands the terms and initiatives, it is more likely able to formulate strategies that align with them. The results data may be viewed in three ways, first and second being the understanding and alignment as stand-alone insights, and the third way would be to cross-examine the two and uncover areas where there might be a gap, and then to investigate why might an organisation face difficulty or challenges in the given area. As such, the results are separated into three sets for the purpose of analysis.

Within **Set 1**, ESG and CSR relate to the most basic requirements in sustainability reporting, and they have long been regarded as must-haves for most organisations given that relevant disclosure is now intricately linked with a company's overall performance and are key indicators for investors and clients alike. The high level of understanding (over 90%) is expected for the two.

Within **Set 2** are climate commitments that relate to decarbonisation, including Carbon neutrality, Net-zero commitments, Hong Kong's Climate Action Plan 2050 and The Paris Agreement. Since the Paris Agreement came into effect for Hong Kong in 2016, the government, particularly the Environmental Protection Department (superseded by Environmental and Ecology Bureau), has stepped up efforts in setting relevant policies and targets that would generate emission reductions. In particular, the high-profile launch of the Climate Action Plan 2050 (CAP2050) along with the national carbon neutrality goal for 2060 has prompted many organisations to set aligning targets. Therefore, it is expected that organisations will also have a sufficiently high level of understanding (72 – 87%) in these areas. This result is encouraging, and it ties back to the need for sustainability strategies to be a firm-wide initiative that transcends functional teams, with the responsibility for emissions reduction well-communicated with each team.

However, this set of items is also where we see the most difference between understanding and alignment, particularly with Carbon neutrality and Net-zero commitments. This reflects the general consensus that target-setting towards such commitments cannot be taken lightly, and companies should take a comprehensive approach in reviewing their current state against their ambition in determining the feasible

reduction rate and timeline. More analysis on target-setting is examined in the next section of this report.

Within **Set 3** are Reporting Standards and Initiatives. These items generally have understanding levels of below 60%, and alignment levels as low as 37%. The Global Reporting Initiatives (GRI) Standards were established as far back as in the year 1997 and are the first global standards in sustainability reporting surrounding ESG. Task Force on Climate Related Financial Disclosures (TCFD) and Sustainable Accounting Standards Board (SASB) disclosures could be considered more advanced and even less accessible to in-house staff due to the component of financial estimation in climate-related risks and opportunities. The relatively low understanding and alignment of these reporting standards could be due to two causes:

- i. First, the respondent may not be directly involved in the drafting of the ESG or CSR reports. Considering that 55% of the respondents are in the managerial level, it is possible that they do not have specific insights into reporting standards. Also, depending on the company size, it is becoming commonplace for some companies to employ consultants to complete their reports, therefore, staff that are in operational roles might only be involved in supplying data to the consultants.
- ii. Second, the sustainability disclosure of the respondent's organisation lacks a systematic approach or framework, the consequence is that the users of the data lack comparative results amongst companies to determine performance levels.

In conclusion, the sustainability regulatory requirements in the market will only become more stringent and complex as time goes on. As demonstrated by the introduction of the International Sustainability Standards Board (ISSB), it aims to consolidate various standards launched by different organisations over the years and enhance comparability of corporate performance. Moreover, companies are now required to strategise for the transition to low carbon business models, on top of the scenario analysis and quantification of financial impact of climate change that are previously required by the TCFD framework.

Table 3. Introduction of Major Sustainability Reporting Frameworks and Standards over the years²

Acronym	Full Name	Year of Establishment
GRI	Global Reporting Initiative	2000
IFRS Foundation	International Financial Reporting Standards Foundation	2001
PRI	Principles for Responsible Investment	2006
CDSB	Climate Disclosure Standards Board	2007
IIRC	International Integrated Reporting Council	2010
SASB	Sustainability Accounting Standards Board	2011
TCFD	Task Force on Climate-Related Financial Disclosures	2015
NGFS	Network for Greening the Financial System	2017
SFDR	Sustainable Finance Disclosure Regulation	2019
ISSB	International Sustainability Standards Board	2021

From a regulator’s point of view, this aggressive progression is inevitable if their ultimate motive is to ensure visibility and comparability for investors and the public. In order for organisations to be well-prepared and not constantly in a state of catching up, there needs to be sufficient staffing allocated in-house, or resources allocated to engage external consultants to measure the impact of new standards, and subsequent action required by organisations.

² SCMP, Hong Kong’s role in the global standard to cut through the alphabet soup of ESG rules (Jan 2022), [Link](#)

3. Decarbonisation and Target Setting

3.1 Decarbonisation

Study Results

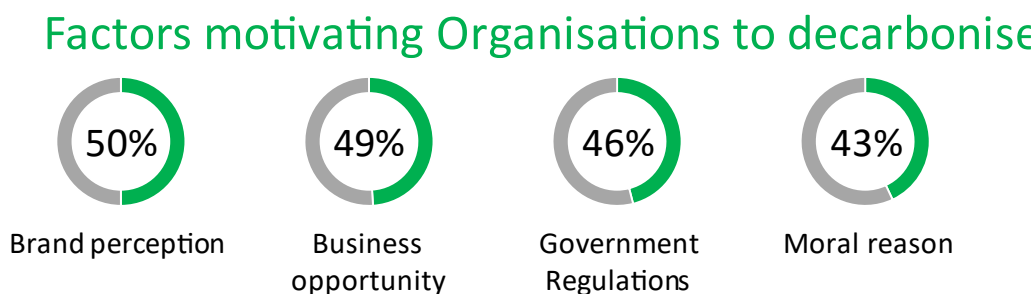


Figure 4. Factors motivating organisations to decarbonise

Analysis

When looking at the top drivers motivating Hong Kong organisations to decarbonise, the strongest drivers are brand perception (50%), business opportunity (49%), government regulations (46%) and moral reason (43%). The first two is consistent with the previous finding in that organisations are most driven by factors that affect their revenue. The third items demonstrates that there is still a critical role that government needs to play to push the market. The fourth on moral reason is and encouraging to see as it demonstrates that the public overall has a heightened awareness on the urgency of climate change and is motivated by reasons beyond business or compliance needs.

To decarbonise Hong Kong, the CAP2050 outlines four major strategies, namely net-zero electricity generation, energy saving and green buildings, green transport and waste reduction. The three focus-group interviews in this study were structured in a way to address topics on building, transport and waste, which are aligned with the Government’s decarbonisation strategies. Focus-group summaries are shared at relevant parts of the report to provide additional insights from companies on these decarbonisation areas, starting with waste management and circular economy, and net-zero buildings below.



Focus-group Interview – Waste Management and Circular Economy

Achieving circularity within recycling industry as opportunity for decarbonisation, but government direction and support are needed

To achieve a real long-term decarbonisation, the society must transition from a take-make-dispose linear economy to a closed-loop ecosystem that is as circular as possible, to reduce resource depletion and greenhouse gas emissions at all life stages of different products and services.

Participants in the hospitality and construction industry have expressed two shortcomings of the recycling industry within Hong Kong. First is the limited types of wastes that could be upcycled into useful materials locally, largely due to the difficulty to secure appropriate locations and the lack of an economical ecosystem. For example, there are countries which can take old and worn pillows from hotels and upcycle feathers into raw filling materials for winter coats. Second is the strict quality requirement of the incoming materials by recycling companies. Due to this fact, construction companies need to do double handling work to ensure the quantity and quality of the construction waste meet the recycling companies' requirements; and when they cannot be met, the construction companies have no choice but to export the materials abroad or send them to landfills for lower disposal costs.

Overall, participants agreed that a lack of guidelines and transparency regarding waste recycling hindered the willingness to recycle. The government needs to provide layman guidelines on different types of waste or materials, to ensure a wider understanding of how to recycle properly with the existing recycling infrastructure. For the types of systems and infrastructures that are not yet in place in Hong Kong, the Government needs to conduct industry consultations to understand the financial support and incentives needed to foster an effective and economical ecosystem, which can in turn increase participation and innovation towards more circular models.



Focus-group Interview – Net-Zero Buildings

Challenges in the construction and property development industries to achieve net-zero buildings throughout lifecycle

Net-zero building development remains at a rudimentary stage due to several limitations, from climate to building design and materials availability. Hong Kong's sub-tropical climate will be hot and humid in summer. The high-density and high-rise environment and lack of open spaces are unique challenges to developing net-zero buildings in Hong Kong. Air conditioning consumes significant amounts of electricity and energy. Limited space for photovoltaic (PV) modules leads to local renewable energy generation not meeting the energy demand for buildings in Hong Kong. Besides, there are many composite buildings in Hong Kong with partly domestic and partly non-domestic purposes. The complex type of buildings makes setting up local baselines applicable to all buildings more difficult.

Besides, most construction materials are not locally manufactured but imported overseas. The supply of low carbon construction materials became unstable due to the disruptions to the global supply chain caused by the Covid-19 pandemic and geopolitical instability. Therefore, it is challenging to reduce building embodied carbon in Hong Kong through material procurement.

The Government should take the leading role in gathering opinions and information from the construction and buildings industry, formulate standards and guidelines to motivate sectoral decarbonisation and boost the development of net-zero buildings in Hong Kong. The Government should also incentivise the existing buildings with fragmented ownership to retrofit and install PV panels in the buildings to increase energy efficiency and reduce energy dependence.

3.2 Target Setting

Study Results

The study examines level of ambition in the decarbonisation and target setting goals of organisations. The diagram below presents the results in the order of ascending ambition. The results show that 60% of respondents have made public commitments to reduce carbon emissions. This could be seen as the baseline expectation for companies that are required to publicly report on sustainability performance. For those that are not required to publicly report, the baseline expectation would be to consider reducing carbon emissions and measure carbon footprint, which are the first steps to a decarbonisation strategy. However, there is still a small number of respondents (5% and 8% respectively) that have yet to progress to this stage. At the other end of the spectrum, it is observed that 24% of the respondents have established a Science Based Target (SBT).

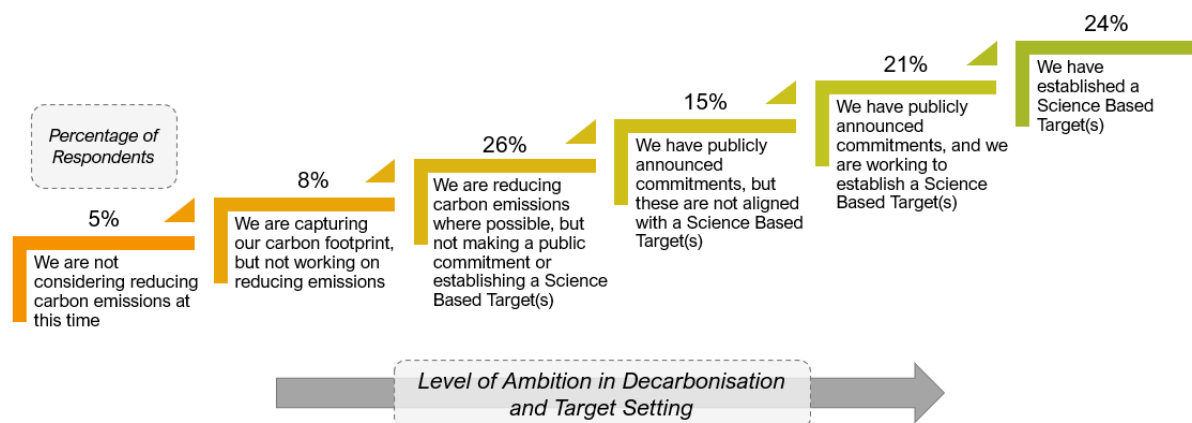


Figure 5. Level of Ambition in Decarbonisation and Target Setting

Analysis

To understand the overall ambition level of the respondents, and the magnitude of the difference in ambition level of the top and bottom performers, one must understand the requirements of establishing an SBT. An SBT is a stringent target, its scope coverage could extend beyond Scope 1 and 2 emissions to Scope 3 depending on the materiality of such emissions to an organisation. Moreover, as SBT emphasises absolute reductions with offsets not counted towards the target. At this level of target setting, an organisation needs to have sufficient transparency into not only their value chain emissions but also the methods of potential reductions, whether in energy efficiency

technologies that can be retrofitted in the near future, or alternative procurement decisions that lead to lowered emissions.

Given the high requirements of establishing an SBT, having 24% respondents that are able to establish an SBT is an unexpectedly large proportion which may not reflect the state of the wider market. In comparison to at the actual numbers of companies committed to SBT noted in their official site, only 44 Hong Kong companies have committed to SBT, among which, 17 of have approved targets and 19 companies have committed to net zero³. This positive skew in results could partially be explained by the fact that 29% of the study respondents are from companies that are listed on the Main or Growth Enterprise Market (GEM) board in Hong Kong, indicating the likeliness that they have been subjected to higher expectations from investors in disclosure, sustainability performance and ambition.



Figure 6. Concerns over Feasibility of Achieving Targets

The study has also collected views from the respondents on the achievability of the committed targets, as well as any qualitative feedback. Among which, 14% of respondents stated that they are not confident that their organisation will achieve the committed decarbonisation targets. The finding could be explained by two potential reasons. First reason arises with similar reason to the perception-implementation gap that we observed in Section 2.1 of this report, where an organisation lacks a detailed roadmap that lists the required actions and reduction potential. Respondents have also expressed that factors such as policies, regulations or available investments also hugely impact the

³ SBT – Companies that are taking Action, [Link](#)

feasibility of their committed targets. The second reason is when an organisation has committed to overly ambitious targets. This phenomenon is particularly common for longer-term targets that extend beyond the next decade (especially with lots of new net-zero commitments emerged), where it is no longer clear who is accountable for seeing the target through to fruition, and it is difficult to tie the target to the KPI of specific teams or individuals.

4. Energy Supply Market and Renewable Energy Transition

This section summarises the need for companies to tap into the growing supply and accessibility of renewables to hedge against the inherent risks of fossil fuels as an energy source. Companies should also gather momentum and formulate forward-looking energy management strategies to mitigate emissions to the greatest possible extent.

4.1 Risks and Volatility in Energy Supply Market

Study Results

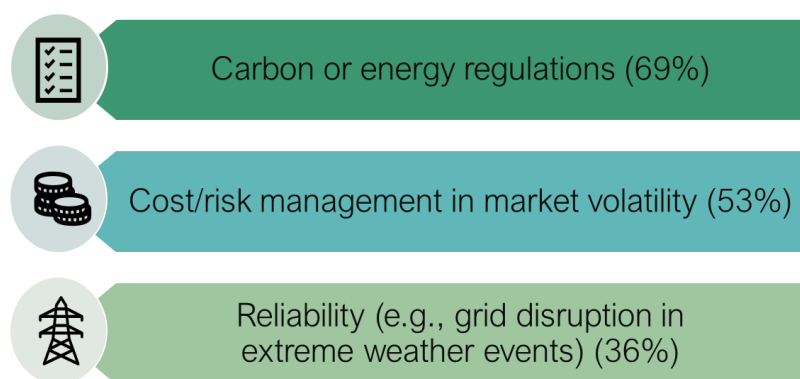


Figure 7. Top 3 risks in Energy and Resources Supply Market

Respondents named the top three risks that they encounter in the energy and resources supply market as carbon or energy regulations (69%), a volatile market (53%), and reliability of supply (36%).

Analysis

The energy market is inherently tied to the geo-political landscape. The Ukraine war and the subsequent Russian oil sanctions have caused an energy price hike with impacts felt beyond Europe. While the Hong Kong economy is relatively less reliant on direct oil and gas usage (little demand for gas heating, relatively low car ownership), the decision of the government and electricity companies to install gas-fired generating units and an offshore natural gas terminal to meet the city's decarbonisation goals has led to the pressure to increase electricity tariffs. In November 2022, the two utility companies announced price adjustment. For HK Electric customers, bills will be 45 per cent higher than a year earlier,

while CLP customers will face charges that are 20 percent higher⁴. At a household level, this might not have a significant impact, given that electricity tariff only takes up 2% of Hong Kong families' median household income⁵, and the energy suppliers have also tried to minimise the impact by rolling out subsidy schemes of up to HK\$200 million to support grassroots families. However, at the commercial level, particularly in the property sector, companies would feel the impact of such a price hike.

Given that most companies are in a passive position regarding fluctuations in the local electricity tariff, it is not surprising that they will explore means to diversify their energy source and mitigate the reliance on the grid. It can be observed from one of the survey results that some respondents are starting to consider energy management strategies beyond energy efficiency, such as energy harvesting or energy storage. But mainly, energy efficiency methods will be of top priority. This result demonstrates that the respondents are cognizant of the “carbon management hierarchy”⁶, which dictates that energy efficiency should come first as an organisation's energy management strategy, then onsite renewable energy, then renewable purchasing, and lastly, carbon offsetting.

⁴ RTHK - Govt must help with 'outrageous' hikes: economist (Nov 2022) [Link](#)

⁵ SCMP - Hong Kong environment minister vows to limit increase in electricity tariffs (Oct 2022) [Link](#)

⁶ 100% Renewables – Typical Carbon Management Hierarchy (Aug 2018) [Link](#)

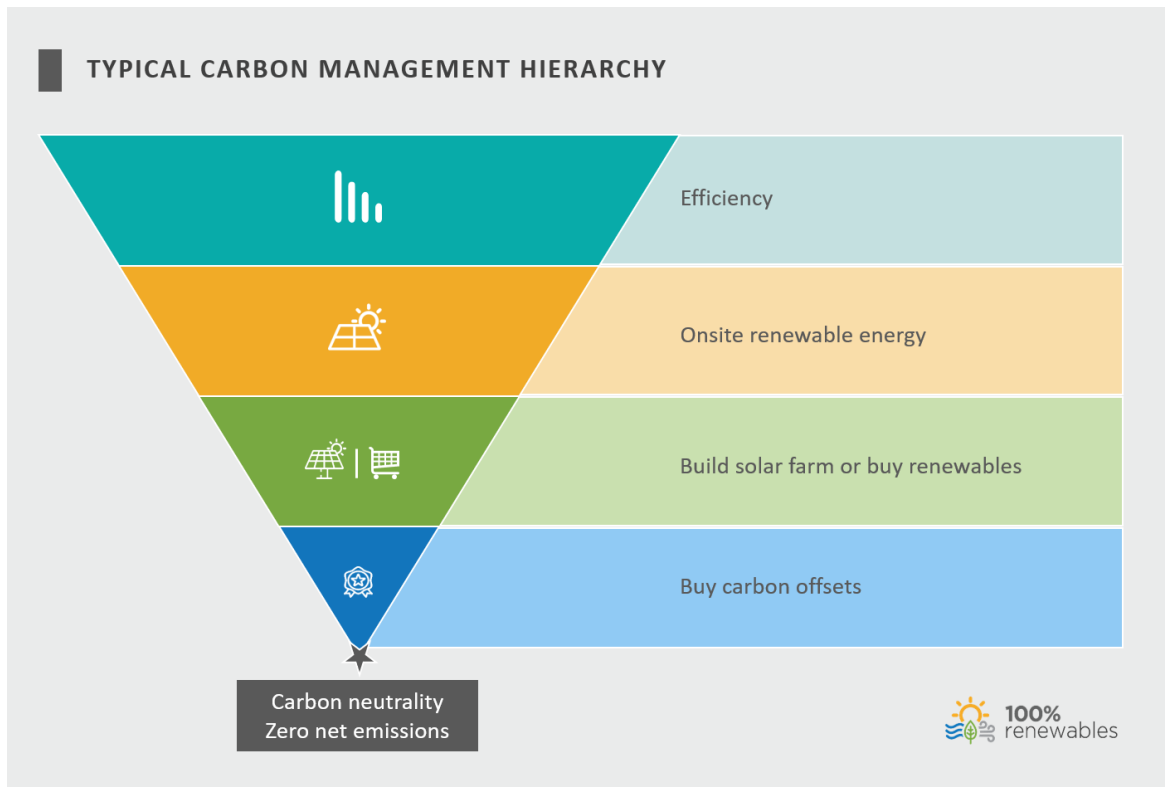


Figure 8. Typical Carbon Management Hierarchy

4.2 Renewable Energy Transition

Study Results

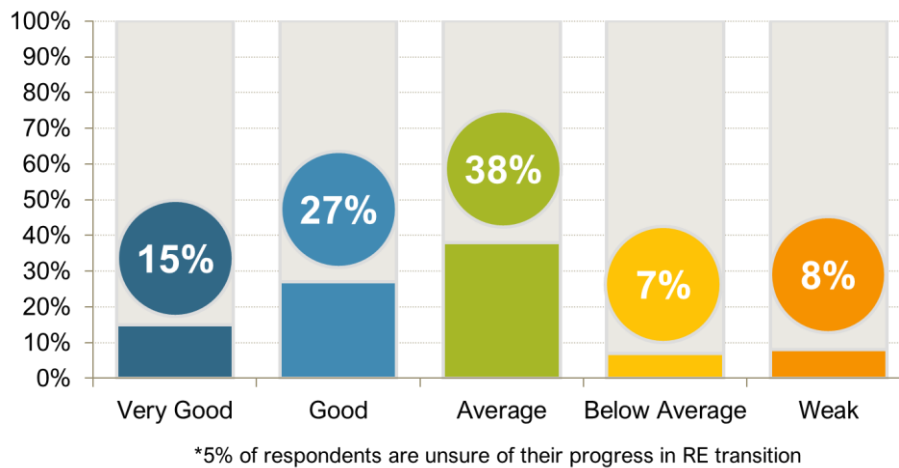


Figure 8. Self-Evaluation on Progress towards Renewable Energy Transition

Currently, a total of 42% of respondents consider that their organisations are doing “Very Good” or “Good” in transitioning towards renewable energy sources based on self-assessment.



Figure 9. Renewable energy capacity and usage

Up to 49% also note an increase in renewable energy capacity and usage. This suggests that a positive overall trend in renewable energy transition.

Analysis

It should be noted that despite the respondents showing a positive trend in renewable energy transition, the actual actions that they are partaking likely include purchases of renewable energy certificates (RECs), or power purchase agreements (PPAs). The survey did not generate detailed insights on how many respondents are installing onsite renewables, and transition to renewable energy for most users is still highly dependent on the local fuel mix for electricity generation. Based on CLP data, the conventional forms of renewable energy sources (wind, solar, hydro) only account for 1% of the fuel type for electricity generation. Nuclear can be considered a form of clean energy, but it is by definition not renewable. Similarly with natural gas, it is not renewable but in place to act as a transitional fuel source, or an option to diversify and hedge against risks in other fuel sources.

2020 CLP Electricity Output by Generation Fuel Type

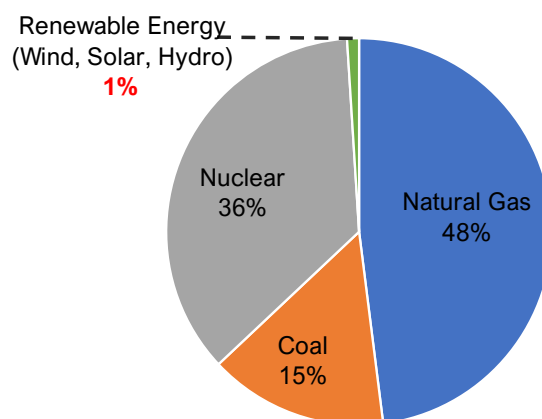


Figure 10. 2020 CLP Electricity Output by Generation Fuel Type (Source: CLP⁷)

⁷ CLP Official Site – Power Generation Information. [Link](#)

Hong Kong will be highly reliant on China's renewable developments in the long term. Being connected to the China Southern Power Grid means that the electricity companies can leverage renewable infrastructure developments proximate to Hong Kong, such as the Zhuhai Jinwan Offshore wind farm⁸ that started operation in April 2021. However, given that the energy demands from neighbouring cities such as Zhuhai and Shenzhen are equally high, the electricity companies and the HK government will have a hard task in negotiating for renewable energy to be apportioned to HK.

Local NGOs have been calling Hong Kong to invest more in renewable energy to make the city more independent in energy production, as most of the energy source in Hong Kong is imported⁹. Other experts from academia points out the potential for a substantial number of solar panels to be installed in 'dead spaces' around the city, such as the roofing on highways. Such spaces will likely be government-owned and hence, it also is an opportunity for the government to demonstrate leadership in the renewable energy transition.

⁸ Xinhua Global Link – Large offshore wind farm in Greater Bay Area gets grid-connected (Apr 2021) [Link](#)

⁹ SCMP – Hong Kong environment minister vows to limit increase in electricity tariffs in face of double-digit percentage rise in bills amid global energy crisis (Oct 2022) [Link](#)



Focus-group Interview – Transportation

Adoption of cleaner and low-carbon fuel technologies in transportation

Although technological innovation for Hong Kong transportation has been moving in the right direction, the adoption of cleaner and low-carbon fuel technologies (biodiesel, liquefied natural gas and hydrogen) is still hampered by the lack of a clearly defined regulatory framework. Focus group participants pointed out that there is no regulation for the pilot scheme for new clean fuel technologies, and the electrical vans cannot drive on highways due to outdated rules.

The cost of purchasing clean and low-carbon vehicles is high, and it is necessary to have financial support from the Government to introduce new technology. Government support is also essential for upgrading or developing the infrastructure. For example, the Government needs to establish a comprehensive and proper electric vehicle charging network comprising public and private charging facilities. The Government should also establish a grid network that can support simultaneous charging for electric vehicles and ensure our future economic and social activities can grow without the risk of energy insecurity.

5. Digital Transformation

Study Results

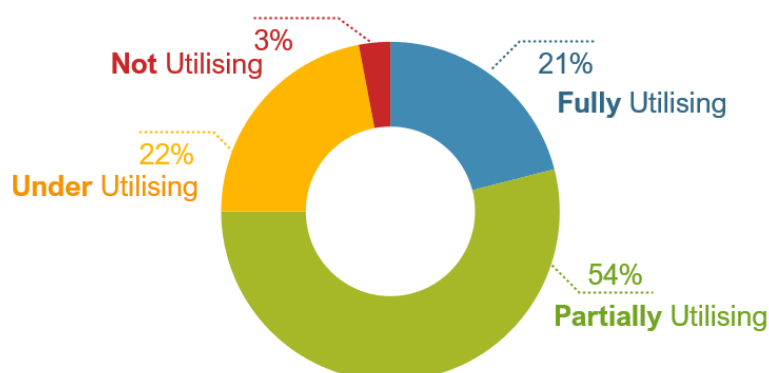


Figure 11. Self-Evaluation on Technology Utilisation for more Sustainable Operations

Only 21% of the respondents stated that their organisations are fully utilising new technologies to operate more sustainably. There is a large, untapped opportunity for new technologies to play a vital role in the sustainability efforts of organisations.

What aspect is Digital Analytics most value-adding to your organisation?
(Percentage that is ranked as top 3)

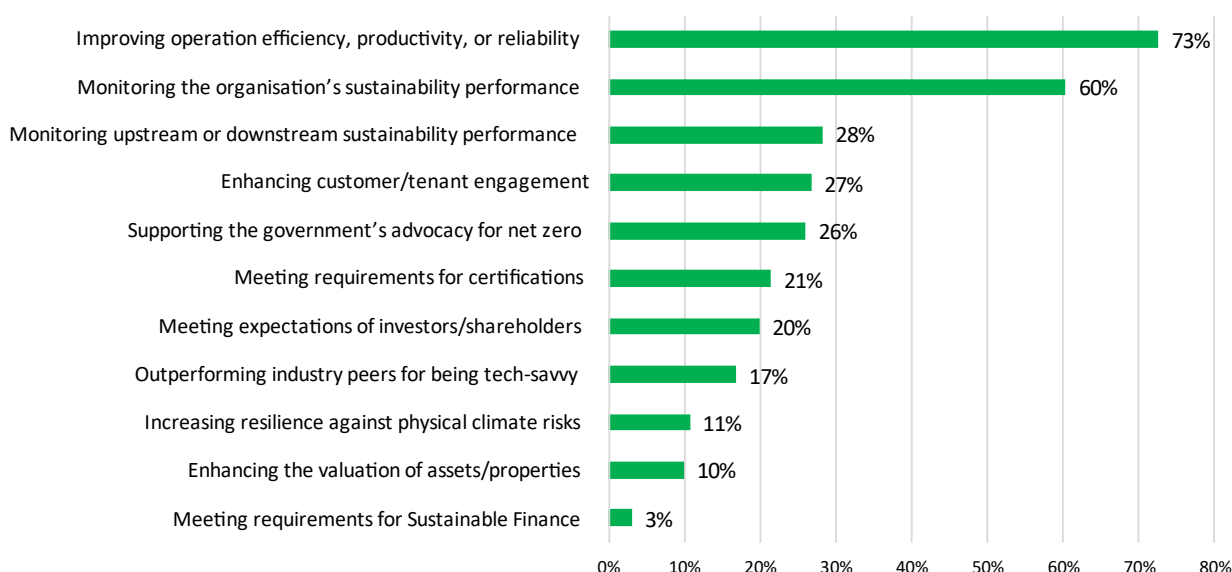


Figure 12. Aspects that are most value-adding to organisations

The survey also inquired on what aspect is digital analytics most value adding to respondents. 73% of respondents ranked “improving operational efficiency” as their top 3 options, followed by “monitoring of an organisation’s sustainability performance” (60%). While only 28% respondents placed “monitoring of upstream and downstream performance” as their top 3 option, this is expected to increase in importance as more

organisations commit to more ambitious decarbonising targets extending to their supply chain and become obligated to report on their Scope 3 emissions. Another option with a surprisingly low response rate of 11% is the “Increasing resilience against physical climate risks”. Given the extensive physical damage after Typhoon Mangkhut in 2018, and the increasing trend to report on financial impact from climate risks in frameworks such as the TCFD, organisations have an urgent need to explore how digital technologies would improve the accuracy of such predictions.

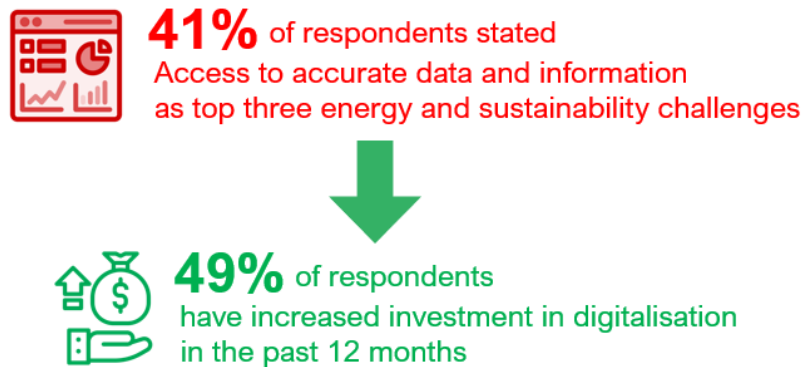


Figure 13. Accessibility of Sustainability data and Increased investment in Digitalisation

Given that visibility and accessibility of an organisation’s sustainability performance is a material issue to most respondents, the result of 41% of respondents ranking having “access to accurate data and information” as top three sustainability challenges means that organisations have a critical and urgent problem to be solved. Respondents also demonstrate the acute need to address this problem, from the result where 49% of the respondents have increased their investment in digitalisation in the past 12 months. Digital solutions such as IoT technologies in Building Management Systems will greatly address this challenge as data will be stored in real-time, even with analytics functions embedded.

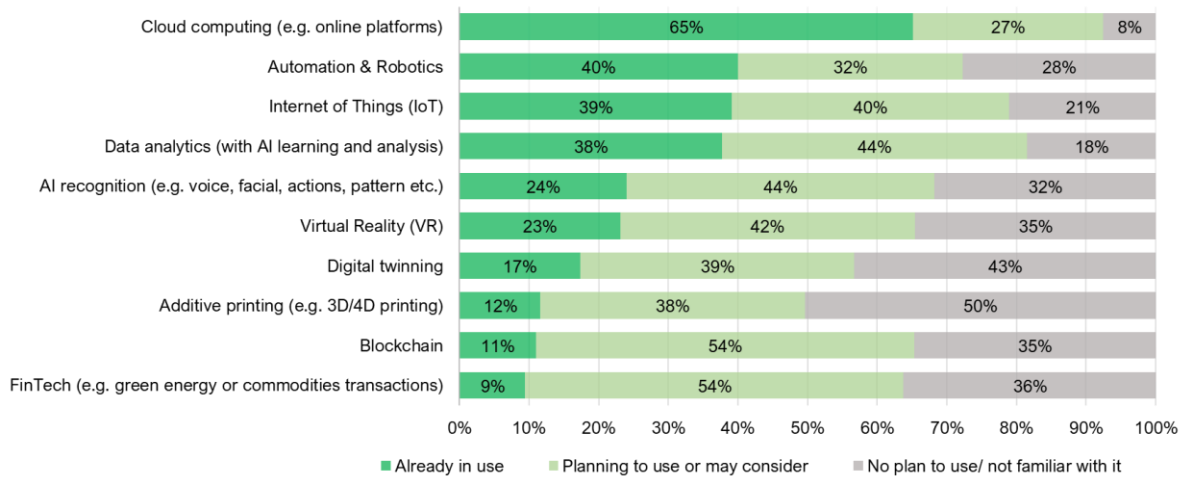


Figure 14. Utilisation Rates of Digital Technologies by Organisations

To gain a deeper understanding of the utilisation rates of different digital technologies currently available in the market, respondents are asked whether they are already using, considering using, or have no plans to use a given technology. The question is interesting as of most the technologies in the option are seen as mature technologies and yet, the utilisation rate is still not as high as expected. The analysis below will try to provide an explanation to this phenomenon based on industry expert views and provide suggestions to overcome this.

It should also be noted that the result in this question is dependent on the distribution of the industry sectors of the respondents. As seen in Section 1.2 of this report, respondents in the manufacturing industry only make up of around 5% of the total population. Therefore, technologies that are more related to manufacturing (robotics, additive printing) should be considered separately. For the purpose of this report which focuses more on the general need of energy use monitoring within buildings, a separate industry-specific analysis is not included. However, such a data point would be useful if one were to look at the technology utilisation in the field of re-industrialisation and Industry 4.0, which are mega-trends in recent years.

Analysis

Perhaps the biggest barrier that companies face in implementing digital technologies is the uncertainty in financial and technical considerations¹⁰. For example, understanding the pay-back period of a new technology, or the compatibility of the new technology with the existing or parallel systems. Both of these issues are complex in nature and must be further examined in their nature and solutions.

Firstly, it is difficult to generate comparable financial pay-back figures given that the users of a certain technology could vastly vary in their business nature and the way they are adopting technology. This makes it difficult to present a business case to decision-makers within a company and obtain buy-in and funding for such a technology. One industry player that is tackling this issue is the Hong Kong Airport Authority with the introduction of the Greenovation Fund in December 2022, which aims to share the financial risk bore by their business partners by subsidising the cost of adopting new technologies that contributes towards decarbonisation. However, it should also be noted that there are also many costs besides the upfront cost of purchasing and installing new technology, for example, in staff training or any data migration actions.

Secondly, the issue of compatibility is a sensitive issue for most solution providers. This is due to a market phenomenon called a “Lock-in Effect”¹¹, where the solutions cause a customer to become dependent on a vendor for a certain service, to the point that they are unable to use another vendor without substantial switching costs. Such a phenomenon is more common when the market is concentrated with a few key players, pushing up the barrier of entry. However, the trend in the digital market technology space now is becoming more decentralised, with more competitive players entering the market. Hong Kong Science and Technology Park held an event in October 2022 (HKSTP Openhouse¹²) with the aim to showcase 1000+ technology ventures for investors and

¹⁰ BEC EnviroSeries Conference November 2022 – Sharing by Prof Davis Bookhart, Director of Sustainability/ Net-Zero Office at The Hong Kong University of Science and Technology ([Link](#))

¹¹ Model Thinkers – Lock-in Effect. [Link](#)

¹² HKSTP Openhouse Event on 7 Oct 2022. [Link](#)

corporate users, such an event is helpful for users to assess and compare new technologies. Equally important, is for the solutions providers to be transparent and open for collaboration such that profitability can be achieved in the long term based on maintaining relevance and providing added value for consumers. For example, within BEC's network, we can see a lighting-as-a-service provider has started a collaboration with a local building management system provider to integrate their software management systems. Such an arrangement may also be ideal if a certain provider is focused more on the hardware and would benefit from leveraging collaboration with software-focused provider.

Given the reasons above, it is expected to see a low adoption rate of technologies despite a high maturity for most technologies. But given the multiple drivers mentioned in the earlier sections of this report such as the need to have greater visibility into sustainability performance and to adhere to stricter regulations, it is likely that companies will start to find that the cost of inaction outweighs the cost of technology adoption.



Focus-group Interview – Transportation

Potential of New Technologies for Enhancing Efficiency in Transportation

Transportation and logistics organisations are utilising software and applications to plan routes and distribute goods to reduce vehicle mileage and improve efficiency in their daily operations. Truck drivers use mobile apps to make appointments for pick-up, which reduces waiting times and saves fuel. A public transport service provider plans to apply the 5G-supported queueing monitor to adjust service frequencies to enhance the public's experience and maximise service efficiency. Software needs to be user-friendly, customisable, and reasonably priced. Apart from software for daily operation enhancement, autonomous driving could also be developed in Hong Kong to improve operational efficiency and safety while mitigating the issue of a lack of drivers.

The Government could simplify the application of government funding for the transportation industry to introduce new technologies. The government should coordinate trials for autonomous driving in certain areas, which enhance the feasibility of new technology in Hong Kong.

6. Sustainable Finance

Study Results

The questions related to Sustainable Finance in the survey aims to reveal the general uptake of sustainable finance, usage of funds, and any barriers to securing the finance.

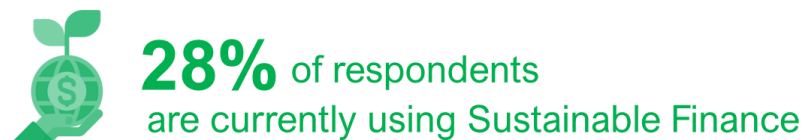


Figure 15. Respondents that are engaged in Sustainable Finance

Expected Amount of Sustainable Finance in current Financial Year (HKD)

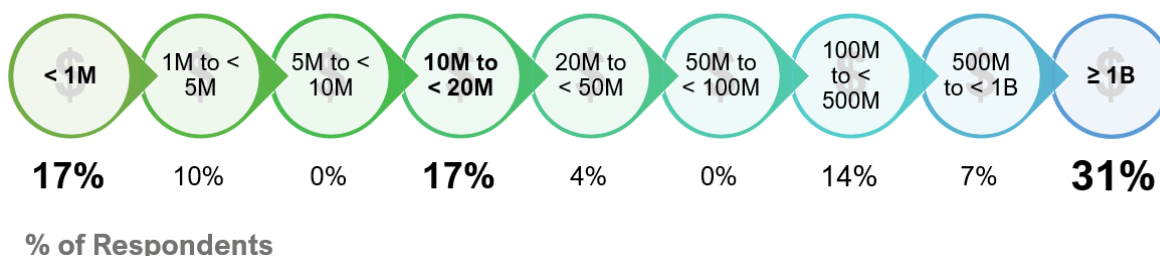


Figure 16. Expected Amount of Sustainable Finance (HKD)

Currently, only 28% of respondents are currently using sustainable finance. The expected amount of sustainable finance available in the current financial year is also surveyed – and the results appear to be skewed, with 31% of respondents stated an amount over 1 billion HKD, and 17% of respondents stated an amount below 1 million HKD.

Table 4. Priority Uses of Sustainable Finance Proceeds




<p>Top Priority (Above 60% of respondents)</p> <ul style="list-style-type: none"> Renewables Energy efficient equipment, e.g. new chillers, heat pumps 	
<p>Medium Priority (20 – 40% of respondents)</p> <ul style="list-style-type: none"> Green architecture, e.g. natural ventilation/lighting, green roof Digital analytics for energy or sustainability E-mobility e.g. EV, EV chargers, electric ferries Waste management, e.g. waste recycling facilities, waste-to-energy Carbon technologies, e.g. carbon capture, storage, upcycling Electrification, e.g. fuel-switching from gas/diesel to electricity 	
<p>Low Priority (Below 20% of respondents)</p> <ul style="list-style-type: none"> Energy storage Smart grids Pollution control, e.g. installation of afterburners, scrubbers, dust filters R&D for new cleantech Micro-generation, e.g. fuel cells, energy harvesters, combined heat and power Biodiversity, e.g. forestation 	

Table 5. Factors that Organisations Consider when Sourcing Sustainable Finance (SF)

Category	Sub-Category	% of Respondents
Policy	Government incentives on SF	56%
	SF regulations and standards	35%
Commercial	Capabilities of your counterparts	29%
	Capabilities of green solution providers	26%
	Supporting services in the market, e.g. consultants, reviewers	21%
	Reference cases in the market	21%
Financial/Economics	Amount of financing	15%
	Interest rate of financing	15%
	Risks of financing	15%
	Demand for SF in the market	12%
	Transaction cost	12%
	Mechanism to keep track of use of proceeds	12%
	Access to financing in China (potential closer HK / China integration)	9%
	Macroeconomic situation	6%
Organisational	Staff expertise in SF	6%
	Organisation reputation in sustainability	6%
	Organisation's SF experience in other locations	6%

Analysis

In reviewing the accessibility of sustainable finance options to respondents, it should be noted that the higher the amount of the sustainable finance, the harder it is to secure such funding. Therefore, the skewing to the category of below 1 million HKD that is observed is likely a positive sign, implying that funding of this scale is becoming more accessible for organisations, and perhaps with lower barriers of entry and red tape surrounding the process.

Regarding the priority use in sustainable finance, it is not surprising to observe that renewable energy procurement and energy efficiency equipment is considered priorities for over 60% of respondents. Other options that are presented in the survey are still considered experimental and high-risk for most respondents. Similar to the points raised in the previous section of this report, organisations will need more time to build confidence and assimilate successful use cases in order to create buy-in from decision-makers.

Regarding factors that organisations consider when sourcing sustainable finance, it is interesting that the option of “Staff expertise in SF” is only considered by a mere 6% of respondents. This potentially indicates that the operations and decisions on sustainable financing are still very much outsourced to consultants, investment banks, etc, supported by the option “Supporting services in the market, e.g., consultants, reviewers” being considered by 21% of the respondents.

The high placement of policy considerations further supports the widespread belief that governments have an instrumental role to play in fostering a robust sustainable finance ecosystem. In October 2022, the Hong Kong Exchanges and Clearing Limited (“HKEX”) launched Core Climate, an international carbon marketplace designed for the trading of voluntary carbon credits and instruments around the world. Along with the recent growth in green bonds issued by the HK government, this will allow companies to access more overseas funding.

7. Conclusion

In conclusion, survey results indicated that respondents have a well-developed understanding of sustainability-related reporting standards and commitments. However, most do not have adequate alignment with these initiatives, likely due to uncertainty in the incremental action points that a company needs to take. This is further reflected by the gap in the decarbonisation target ambition and the confidence in the ability to achieve them, with up to 14% of respondents not confident that they will achieve the set targets.

Regarding energy, the uncertainty in price and supply caused by the geopolitical conflict in Ukraine has trickled down to effects that are felt by local organisations in Hong Kong. However, the silver lining is that local organisations are further pushed to diversify and shift their energy usage away from non-renewable sources, with 49% of respondents reported that they have increased their renewable energy usage. While the two local electricity companies have an instrumental role to play in assisting companies in the shift to renewable energy, for example in expanding the offering on RECs and PPAs, companies may also reduce their reliance on the grid by tapping into many onsite renewable energy generation options. This will also build their long-term resilience against adverse weather events that will disrupt the grid.

On digitalisation transformation, the main observation is that organisations are slow and cautious to tap into maturing solutions available in the market. Within internal operations, digital analytics are still the most value-adding to organisations in the aspect of traditional energy efficiency optimisation and performance monitoring (ranked as top 3 by 73% and 60% of respondents respectively). However, the potential added value that new digital solutions could bring to customer and tenant engagement are largely overlooked (only 27% of respondents ranked as top 3). The slow adoption stems from uncertainty in financial and technical considerations. As such, progress will be highly dependent on the ability of the market to accumulate and share successful use cases to create buy-in, and for synergetic collaborations that will benefit the end-users.

Lastly, sustainable finance is an area where companies have the least control in comparison with other areas explored in this study given that the availability and

accessibility are still largely dependent on government incentives and regulations. It is optimistic that the Government and the HKEX have the intention to position Hong Kong as a global sustainable financing hub and allow local companies more access to overseas funding, as demonstrated by the step to launch of Core Climate, a carbon trading platform.

All in all, uncertainty is the overarching theme across results seen in all the areas in the study. For larger corporates, particularly ones with the need to decarbonise their supply chain, collaboration in the form of technology/systems integration, or joint application to financing could yield benefits stemming from economies of scale.

Acknowledgements

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Supporting Organisations

(in alphabetical order)

ADVANTAGE AUSTRIA - Austrian Trade Commission
Consulate General of the Kingdom of the Netherlands
Drink Without Waste
Finnish Chamber of Commerce in Hong Kong (FinnChamHK)
German Industry and Commerce Ltd. / econet
GREEN Hospitality
Hong Kong General Chamber of Commerce (HKGCC)
Hong Kong Green Building Council (HKGBC)
Hong Kong Liner Shipping Association (HKLSA)
Hong Kong Small and Medium Enterprises Association (HKSME)
SME Sustainability Society (SMESS)
Swedish Chamber of Commerce in Hong Kong (SwedChamHK)
The British Chamber of Commerce in Hong Kong (BritChamHK)
The European Union Office to Hong Kong and Macao
The Hong Kong E-Vehicles Business General Association (HKEV)
The Hong Kong Registered Contractors Association (HKRCA)

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Appendix

Summary Results of Survey “Building a Greener and Smarter Hong Kong”¹³

1. Including yourself, approximately how many full-time staff are employed by your organisation in Hong Kong?

Answer Choices	Responses
1 to 9	11%
10 to 49	17%
50 to 99	14%
100 to 249	11%
250 to 499	8%
500 to 999	7%
1000 or more	31%
Don't know	1%

2. Is your organisation (or its group) a listed company?

Answer Choices	Responses
Yes, it is listed or is controlled by/controlling a company listed on the Main Board/GEM Board of the Stock Exchange of Hong Kong.	29%
Yes, it is listed or is controlled by/controlling a company listed outside Hong Kong.	18%
No, it is not listed and is not a subsidiary/associate/joint venture of, nor controlling, any listed companies.	54%

3. Is your organisation (or its group) a BEC member?

Answer Choices	Responses
Yes	63%
No	30%
Unsure	8%

4. What level of management responsibility do you hold in your current position?

Answer Choices	Responses
Owner / Proprietor / Founder	9%
Board Member	2%

¹³ A total of 205 effective responses collected from both English and Chinese versions of the survey. Not all responses answered all questions, while some questions would be skipped, depending on answers provided. Percentages are rounded to the nearest percent, thus may appear not adding up to 100 or respective totals as quoted in the text.

CEO/CXO/CTO/COO/Managing Director/President	10%
Senior Management/Senior Vice President/Vice President/Senior Director / Director	29%
Senior Manager/ Manager	26%
Member of the Sustainability, Operations, Technology, Engineering, Real Estate or Facilities Management Teams	19%
Other (please specify)	5%

5. Regardless of the particular job that you do, in what industry does your organisation work?

Answer Choices	Responses
Construction / Building	17%
Energy and Utilities (including renewables, efficiency)	13%
Other (please specify)	11%
Professional Services	10%
Commercial Real Estate	9%
Transportation	8%
Hotel / Hospitality / Tourism	5%
Industries and Manufacturing	5%
Finance / Banking	4%
Technology / Cloud / Data / Telecom	4%
Consumer Goods	4%
Government	4%
Non-profit / NGO	3%
Education / School Administration	2%
Media / Communications	2%
Food & Beverage	2%
Healthcare / Biotech / Pharma	1%

6. Which of the following does your organisation (or its Group) currently have?

Answer Choices	Responses
Ad hoc volunteering / community based engagements	56%
Regular sustainability/ESG/CSR report	53%
ESG strategy and framework	51%
Specific emissions reductions / climate targets	51%
Comprehensive sustainability strategy and policies	49%
Dedicated sustainability team and governance approach	49%
Other sustainability / ESG targets	49%
CSR strategy	45%
Minimum sustainability strategies and policies	33%
Sustainable financing (e.g. green bonds/loans)	23%

7. How do you agree with the following statements?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I believe our organisation is operating in a sustainable way	24%	55%	14%	6%	1%
Sustainability is a core part of our organisation's strategy	38%	46%	9%	7%	0%
Our leadership team cares about sustainability & climate change	47%	38%	12%	4%	0%
Employees in our organisation are engaged with its sustainability efforts	26%	50%	16%	9%	0%
I believe our organisation has a strong focus on lowering its greenhouse gas emissions	31%	42%	20%	6%	1%
Our organisation provides a high degree of transparency in disclosing sustainability issues and performance	28%	38%	24%	8%	2%
Given the tightening regulations around sustainability and climate-related reporting, we are concerned about the cost associated with what it will take to comply	20%	44%	26%	10%	0%

8. Please indicate your understanding of the following terms and initiatives.

	Solid Understanding	Average Understanding	Limited Understanding	No Understanding
Corporate Social Responsibility (CSR)	53%	36%	9%	1%
Environmental, Social, Governance (ESG)	50%	43%	6%	1%
Carbon neutrality	44%	42%	13%	0%
Net-zero commitments	36%	46%	17%	1%
Hong Kong's Climate Action Plan 2050	35%	45%	13%	7%
The Paris Agreement	32%	40%	24%	4%
Global Reporting Initiatives (GRI) Standards	27%	33%	29%	11%
Science Based Targets Initiatives (SBTi)	28%	31%	26%	16%
Sustainable finance	16%	39%	37%	8%

Task Force on Climate Related Financial Disclosures (TCFD)	21%	30%	32%	18%
Sustainable Accounting Standards Board (SASB) disclosures	8%	32%	45%	15%

9. How integrated do you consider your organisation's sustainability efforts are with the following targets, initiatives, and disclosure frameworks?

	Strongly aligned	Generally aligned	Not aligned	I'm unsure
Carbon neutrality	27%	45%	16%	12%
Net-zero commitments	29%	40%	17%	13%
Hong Kong's Climate Action Plan 2050	29%	40%	13%	17%
The Paris Agreement	20%	46%	17%	18%
Global Reporting Initiatives (GRI) Standards	18%	36%	17%	29%
Science Based Targets (SBTs)	17%	33%	25%	25%
Taskforce on Climate Related Financial Disclosures (TCFD)	11%	39%	19%	31%
Sustainable Accounting Standards Board (SASB)	6%	31%	23%	40%

10. How well do you think your organisation is utilizing new technologies and technology solutions to operate more sustainably?

Answer Choices	Responses
Fully utilising	21%
Partially utilising	54%
Under utilising	22%
Not utilising	3%
Unsure	0%

11. Which of the following best describes your organisation's commitment to carbon reduction?

Answer Choices	Responses
We have established a Science Based Target(s)	24%
We have publicly announced commitments, and we are working to establish a Science Based Target(s)	21%
We have publicly announced commitments, but these are not aligned with a Science Based Target(s)	15%
We are reducing carbon emissions where possible, but not making a public commitment or establishing a Science Based Target(s)	26%

We are capturing our carbon footprint, but not working on reducing emissions	8%
We are not considering reducing carbon emissions at this time	5%

12. Please indicate your organisation's commitment on decarbonisation and its time frame¹⁴

Target Scope		
	Own operations	Entire value chain
Near-term target	52%	17%
Long-term target	37%	41%

Target Level					
	Net-zero	Carbon neutral	Other absolute target	Intensity target	Not applicable
Near-term target	8%	19%	32%	11%	30%
Long-term target	41%	33%	3%	0%	22%

Target Year						
	2025	2030	2035	2040	2050	Other
Near-term target	16%	38%	10%	3%	0%	3%
Long-term target	0%	8%	5%	5%	59%	2%

13. How confident are you that your organisation will achieve its targets (as indicated above)?

Answer Choices	Responses
Very confident	31%
Quite confident	47%
Not very confident	13%
Not confident at all	1%
Unsure	7%

14. Please rank in order the top three drivers for your organisation to decarbonise.

Answer Choices	Responses ¹⁵
Brand perception	50%
Business opportunity	49%
Government regulations	46%

¹⁴ Percentages based on total number of validated responses to this question with reclassification of near/long-term targets.

¹⁵ Percentages of selecting the choice as top 3 against total number of responses to this question. The same applies to summary results provided in similar "rank top three" questions below.

Moral reason	43%
Opportunity for savings	29%
Resilience against disruption	19%
Customer pressure	17%
Financial market pressure	12%
Board pressure	12%
Value chain risk	12%
Other climate-related risk (Please specify)	6%
Employee pressure	3%

15. How has climate change affected your organisation in the past 12 months?

Answer Choices	Responses
We see the behaviour, wants and/or needs of our customers and/or key stakeholders are being reshaped by climate change	69%
We are facing increased pressure to consider carbon footprint in the design and/or delivery of our products, solutions and/or services	51%
Our emissions and impact on climate change has become more important to our employees	34%
The impacts of climate change have affected our supply chain or supply chain costs	22%
Extreme weather events have caused financial or physical damage to our organisation or its assets	19%
The impacts of climate change have affected our logistics or logistics costs	18%
Extreme weather events have caused financial or physical damage to the assets of one of our suppliers or business partners, which has had a flow-on impact to our organisation	13%

16. How well do you consider your organisation is transforming towards renewable energy sources?

Answer Choices	Responses
Very good	15%
Good	27%
Average	38%
Below average	7%
Weak	8%
Unsure	5%

17. How well do you consider your organisation is performing in energy efficiency and management?

Answer Choices	Responses
Very good	22%
Good	40%
Average	28%
Below average	4%

Weak	7%
Unsure	0%

18. What means are your organisation using to help achieve its energy goals?

Answer Choices	Responses
Demand - Enhance (e.g. more energy efficient equipment/resources)	66%
Demand - Reduce (e.g. demand response, time limit of use, less power equipment, office space, workforce etc.)	59%
Supply - Renewables (e.g. onsite or offsite solar, wind)	55%
Demand - Digitise (e.g. digital analytics for energy management/optimisation)	47%
Demand - Electrify (e.g. EV, electric heating, electric kitchen)	42%
Supply - Offset (e.g. renewable energy certificates, carbon credits)	31%
Supply - Recycle (e.g. combined heat and power, energy harvesters)	30%
Supply - Purchase (e.g. power purchase agreements, green tariffs)	26%
Demand - Balance (e.g. energy storage, smart grids)	22%

19. Please rank in order the top three existing or potential risk that your organisation concerns about, regarding its energy and resources supply.

Answer Choices	Responses
Carbon or energy regulations	69%
Cost/risk management in the face of volatility	53%
Reliability (e.g. grid disruption in the form of extreme events or utility destabilisation)	36%
Carbon price changes	32%
Scarcity of other raw materials	27%
Resilience (e.g. competing market priorities around fuel type; intermittency of renewable penetration)	24%
Other geopolitical considerations	19%
Cybersecurity breaches	14%
Water scarcity	13%
Other climate change related impacts (please specify below)	9%

20. Please rank in order your organisation's top three energy and sustainability challenges in the past 12 months.

Answer Choices	Responses
Changing longstanding business practices and organisational mindsets	62%
Striking a balance between realistic and aspirational targets	55%
Access to accurate data and information to guide efforts	41%
Lack of internal skill sets and capability	37%
Measuring and managing energy usage	32%
Gaining access to sufficient investment	22%

Developing basic infrastructural support	19%
Building a plan where energy assets act as assets rather than liabilities	16%
Other (please specify below)	9%

21. In the past 12 months, how have changes in the energy market and energy supply tension/instability affected your organisation, in each of the following aspects?

	Increased	Somewhat increased	About the same	Somewhat decreased	Decreased	I'm unsure
Exposure to energy volatility	10%	31%	45%	5%	1%	9%
Overall energy consumption	8%	14%	49%	12%	7%	10%
Revenue	7%	10%	52%	8%	5%	18%
Renewable energy purchasing	7%	21%	49%	2%	2%	20%
Investment in energy efficiency	15%	25%	43%	1%	2%	15%
Investment in digitisation	16%	33%	36%	1%	0%	15%

22. In the past 12 months, did your organisation pursue any of the strategies below in managing energy/resource supply and usage?

Answer Choices	Responses
Increasing digital solutions and processes to lower carbon footprint	52%
Increasing renewable energy capacity / usage	49%
Improving data management systems for sustainability and energy data	43%
Having, using or retrofitting buildings that are more efficient / healthier	42%
Reducing regular air travel	42%
Adapting more circular business model, goods or services	40%
Scenario planning for climate change	29%
Reviewing supply chain dependency on natural resources	20%
Distribution or decentralisation of energy resources (e.g. energy storage, microgrids, fuel cells, hydrogen etc.)	17%
No changes / I'm unsure	13%

23. Please indicate if your organisation is utilising technologies below.

	Already in use	Planning to use	May consider	No plan to use/ not familiar with it
Cloud computing (e.g. online platforms)	65%	14%	14%	8%
Automation & Robotics	40%	15%	17%	28%

Internet of Things (IoT)	39%	21%	19%	21%
Data analytics (with AI learning and analysis)	38%	25%	19%	18%
AI recognition (e.g. voice, facial, actions, pattern etc.)	24%	16%	29%	32%
Virtual Reality (VR)	23%	9%	33%	35%
Digital twinning	17%	13%	26%	43%
Additive printing (e.g. 3D/4D printing)	12%	9%	29%	50%
Blockchain	11%	20%	35%	35%
FinTech (e.g. green energy or commodities transactions)	9%	15%	39%	36%
Others (please specify below)	0%	4%	13%	83%

24. Please indicate if your organisation is utilising technologies below for energy management.

	Already in use	Planning to use	May consider	No plan to use	Irrelevant to us
Generation – Renewables	53%	12%	9%	6%	20%
Generation - Fuel cells	9%	11%	27%	18%	36%
Generation - Combined heat and power	15%	6%	28%	17%	35%
Transmission - Energy storage	15%	7%	30%	15%	33%
Transmission - Smart grids	14%	7%	29%	14%	36%
Transmission - DC power grids	8%	6%	26%	17%	43%
Consumption - E-mobility	20%	13%	27%	12%	27%
Consumption - Chiller optimisation	37%	9%	20%	6%	29%
Consumption - Heat pumps	23%	6%	26%	10%	35%
Consumption - Demand response	27%	11%	27%	10%	26%
Consumption - Automatic or remote control, e.g. with timers, sensors etc.	56%	10%	18%	3%	13%
Others (please specify below)	14%	5%	19%	5%	57%

25. Please rate the importance of digital analytics in helping your organisation to achieve the following purposes/goals.

	1 (Least important)	2	3	4	5 (Most Important)	Not pursuing
Sustainability monitoring (e.g. scopes 1, 2 and 3 carbon footprint)	2%	2%	16%	29%	44%	7%
Workplace efficiency	2%	6%	15%	37%	35%	5%
Workforce well-being	2%	8%	18%	34%	32%	7%
Predictive maintenance	1%	5%	20%	32%	34%	9%
Energy management (e.g. chiller optimization)	3%	3%	13%	34%	37%	10%
Power load management	2%	5%	15%	36%	30%	13%
Resource management (e.g. water, waste, materials etc.)	2%	5%	17%	41%	32%	3%
Simulation for sustainable design	4%	7%	25%	24%	28%	11%
Others (please specify below)	5%	5%	11%	16%	0%	63%

26. Please rank in order the top three applications/aspects that you consider digital analytics are adding most value to your organisation.

Answer Choices	Responses
Improving operation efficiency, productivity, or reliability	73%
Monitoring the organisation's sustainability performance (e.g. Scopes 1 & 2 emissions)	60%
Monitoring upstream or downstream sustainability performance (e.g. supply chain management)	28%
Enhancing customer/tenant engagement	27%
Supporting the government's advocacy for net zero	26%
Meeting requirements for certifications (e.g. BEAM Plus/LEED, WELL, GreenOrg etc.)	21%
Meeting expectations of investors/shareholders	20%
Outperforming industry peers for being tech-savvy (e.g. brand-building, industry awards etc.)	17%
Increasing resilience against physical climate risks (e.g. typhoon, flooding etc.)	11%
Enhancing the valuation of assets/properties	10%
Meeting requirements for Sustainable Finance	3%
Others (please specify below)	2%

27. How does your organisation plan to fund energy and sustainability initiatives in the future?

Answer Choices	Responses
Self-financing (CapEx, e.g. buy EV)	61%
Self-financing (OpEx, e.g. buy recycled paper)	56%
Sustainable financing tools (e.g. green bonds/loans)	31%

Energy performance contracting	15%
Procurement savings used to fund projects	15%
Energy-as-a-Service models	13%
Asset leasing	8%

28. Does your organisation engage in sustainable financing? (Either currently handling sustainable financing or planning to do sustainable financing, examples include green/social/sustainability-linked loans/bonds, ESG/thematic investment products)

Answer Choices	Responses
Yes	28%
No	72%

29. If your organisation is the issuer/borrower, what are the planned uses of proceeds from sustainable financing?

Answer Choices	Responses
Renewables	62%
Energy efficient equipment, e.g. new chillers, heat pumps	60%
Green architecture, e.g. natural ventilation/lighting, green roof	38%
Digital analytics for energy or sustainability	35%
E-mobility e.g. EV, EV chargers, electric ferries	30%
Waste management, e.g. waste recycling facilities, waste-to-energy	27%
Carbon technologies, e.g. carbon capture, storage, upcycling	24%
Electrification, e.g. fuel-switching from gas/diesel to electricity	22%
Energy storage	19%
Smart grids	19%
Pollution control, e.g. installation of afterburners, scrubbers, dust filters	16%
R&D for new cleantech	16%
Micro-generation, e.g. fuel cells, energy harvesters, combined heat and power	14%
Biodiversity, e.g. forestation	5%

30. Please rank in order the top three factors when you are considering a SF project?

Answer Choices	Responses
Policy - Government incentives on SF	56%
Policy - SF regulations and standards	35%
Commercial - Capabilities of your counterparts (financers/financees)	29%
Commercial - Capabilities of green solution providers	26%
Commercial - Supporting services in the market, e.g. consultants, reviewers	21%
Commercial - Reference cases in the market	21%
Financial/ Economics - Amount of financing	15%
Financial/ Economics - Interest rate of financing	15%
Financial/ Economics - Risks of financing	15%

Financial/ Economics - Demand for SF in the market	12%
Financial/ Economics - Transaction cost	12%
Financial/ Economics - Mechanism to keep track of use of proceeds	12%
Financial/ Economics - Access to financing in China (potential closer HK/China integration)	9%
Financial/ Economics - Macroeconomic situation	6%
Organisational - Staff expertise in SF	6%
Organisational - Organisation reputation in sustainability	6%
Organisational - Organisation's SF experience in other locations	6%
Others (please specify below)	0%

31. What is your organisation's expected amount of sustainable financing in the current financial year (in HKD)?

Answer Choices	Responses
< 1M	17%
1M to < 5M	10%
5M to < 10M	0%
10M to < 20M	17%
20M to < 50M	4%
50M to < 100M	0%
100M to < 500M	14%
500M to < 1B	7%
≥ 1B	31%