16 December 2022

Mr Leigh Spencer
Project Manager
Queensland Competition Authority

Dear Leigh

DBIM comments on the discussion paper for the QCA's climate change expenditure review 2022-23

Dalrymple Bay Infrastructure Management Pty Ltd (**DBIM**) appreciates the opportunity to comment on the QCA's discussion paper *Approach to climate change expenditure* issued in October 2022.

Please find attached DBIM's comments, which include a paper *Climate-related risks and regulated infrastructure* by Frontier Economics.

DBIM has provided a complete version of its comments for the QCA's consideration, and a version suitable for public access which has removed any material DBIM considers confidential. The redacted information is listed below, consistent with the QCA's confidentiality claim template.

Description of the information	Nature of confidentiality claim	Damage to commercial activities	Access restriction	Public interest
Appendix 3 – DBIM insurance information	The information contains market knowledge provided to DBIM under certain confidentiality provisions	Disclosure of this information may breach DBIM's contractual terms	The information should not be made available in the public domain	The public interest is sufficiently served by other summary-level information provided by DBIM

If you need any further information, please contact me directly.

Yours sincerely,

Jonathan Blakey
Chief Commercial & Sustainability Officer
Dalrymple Bay Infrastructure Limited

Dalrymple Bay Infrastructure

Climate Change Expenditure Review

DBIM submission to the QCA

16 December 2022

Dalrymple Bay Infrastructure Management Pty Ltd
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Contents

1 Executive summary

1 The QCA is seeking stakeholder submissions by 16 December 2022 on whether its existing regulatory frameworks are sufficiently robust to accommodate climate change related expenditure. Dalrymple Bay Infrastructure Management Pty Ltd (**DBIM**) provides its views on these matters in the context of the various assessment processes that the QCA conducts from time to time, including its assessments of draft access undertakings.

2 DBIM is of the view that its current Access Undertaking (**AU**) is sufficiently flexible to accommodate and incentivise climate change related expenditure. The existing mechanisms for non-expansionary capital expenditure (**NECAP**) and Expansions at Dalrymple Bay Terminal (**DBT**) are well understood by stakeholders, and DBIM will continue to seek the endorsement of the terminal Operator and its customers (**Users**) for any such expenditure.

3 However, the appropriate investment incentives and regulatory certainty would be further promoted if the QCA's regulatory framework specifically provided for climate change related expenditure. To this end, DBIM proposes that the QCA considers the following actions:

3.1 clarify that the economic efficiency objective under Part 5 of the *QCA Act* encompasses climate risk mitigation and sustainable procurement;

3.2 publish a guide that gives regulated entities greater confidence about the basis upon which climate change related expenditure will be assessed and approved; and

3.3 set out the framework that the QCA will use for any ex-post assessments, if it considers that such assessments are necessary.

4 DBIM encourages the QCA to consider implementing these suggestions to provide additional certainty for regulated infrastructure owners, customers and stakeholders, and to create appropriate incentives for regulated entities to manage climate change related risks efficiently.

2 Background

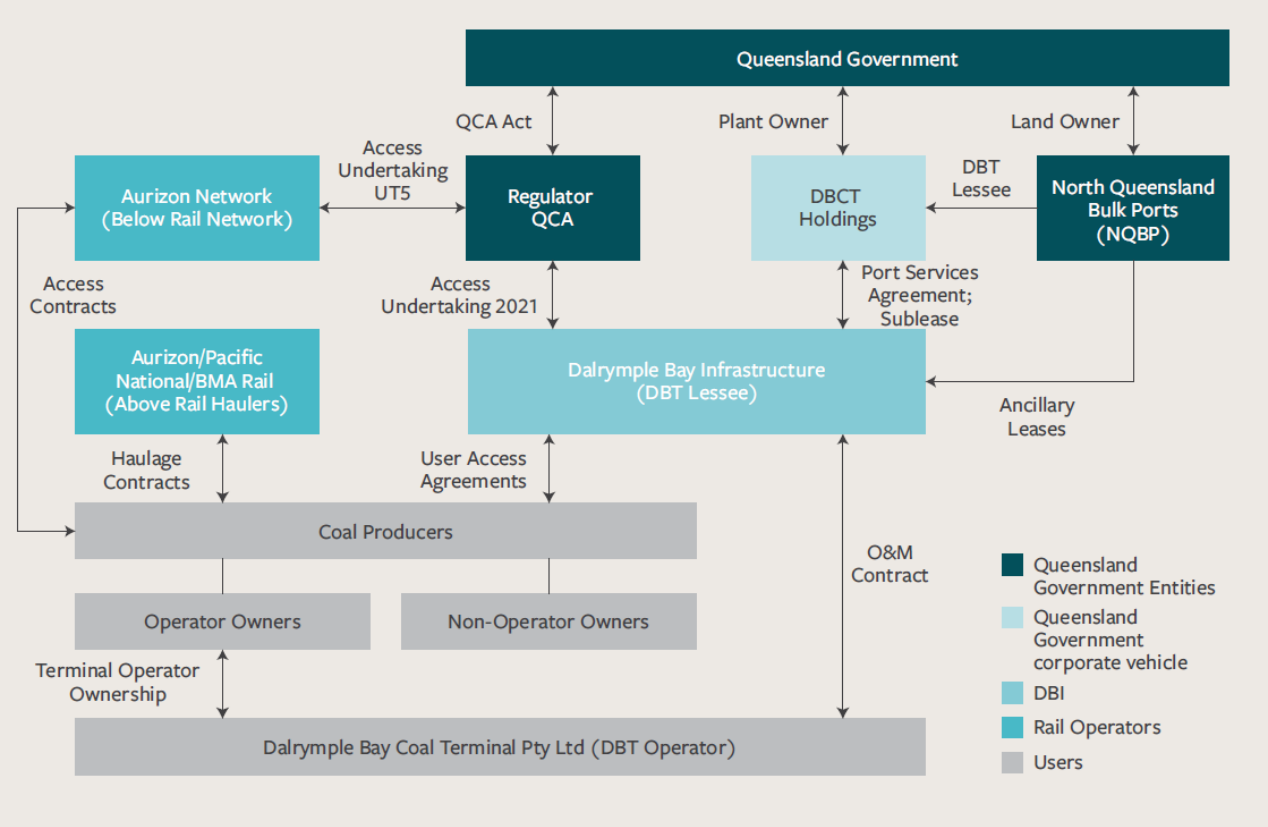
Dalrymple Bay Terminal (DBT)

5 DBT is a multi-user coal export facility located 38 kilometres south of Mackay at the Port of Hay Point. DBT is declared for third party access under Part 5 of the QCA Act, with the principal instrument of regulation under the QCA being the DBCT 2021 Access Undertaking.[1]

6 DBT is owned by the Queensland Government through its wholly-owned entity DBCT Holdings Pty Ltd. DBT is leased to DBT Investor Services Pty Ltd (**DBT Trustee**) as trustee for the DBT Trust which sub-leases it to DBIM.[2] These entities are wholly owned by Dalrymple Bay Infrastructure Limited (**DBI**) which is listed on the ASX.

7 DBIM's key stakeholder relationships are shown below.

Figure 1: Key infrastructure relationships[3]



8 The day to day operation and maintenance of DBT is subcontracted to Dalrymple Bay Coal Terminal Pty Ltd (**DBCT P/L**) as the terminal operator[4] (**Operator**) under the Operation and Maintenance Contract (**OMC**). The Operator is owned by a majority of the existing users of DBCT.

[1] The DBCT 2021 Access Undertaking was approved by the QCA on 1 July 2021

[2] DBIM is 100 percent legally owned by its listed Australian parent, Dalrymple Bay Infrastructure Pty Limited (**DBI**). This submission refers to the lessee entities of the terminal collectively as "DBIM", and to DBIM's ownership as "DBI"

[3] Refer DBI Sustainability Report 2022 Figure 1 Key Stakeholder Relationships, p. 9

[4] Note that the terminal operator for the purposes of the Access Undertaking (DBCT Pty Ltd), is different to the terminal operator for the purposes of the QCA Act (DBIM). In this submission any references to Operator are to the user-owned DBCT Pty Ltd.

Climate change expenditure review

9 In October 2022, the QCA issued its discussion paper *Approach to climate change related expenditure* (**Discussion Paper**),[5] seeking input from its regulated entities as to the effectiveness of existing regulatory frameworks in supporting climate change expenditure.

10 The QCA is seeking stakeholder submissions by 16 December 2022 on whether its existing regulatory frameworks are sufficiently robust to accommodate climate change related expenditures. DBIM's views on these matters are provided in the context of the various assessment processes that the QCA conducts from time to time, including assessment of draft access undertakings.

11 Key issues to be considered by the QCA include:

11.1 whether ex-ante approval or ex-post approval of funding is more appropriate, given the need for efficient incentives to undertake timely adaptation and mitigation expenditure;

11.2 the evidentiary burden to support the approval of such expenditure, and processes to expedite approvals;

11.3 mechanisms to provide greater confidence that appropriate climate change related expenditure will be approved;

11.4 mechanisms to facilitate consideration of trade-offs between repairing and upgrading assets in an environment of increasing climate events;

11.5 the relevance of the resilience of the regulated business and customers' willingness to pay for this;

11.6 the balance and trade-offs between regulated businesses' costs (capital and maintenance) and service levels;

11.7 the merits of proactive versus reactive expenditure; and

11.8 comments on other matters stakeholders consider are appropriate and material in supporting climate change related expenditure.

Submission on climate change expenditure review

12 Consistent with the Discussion Paper,[6] DBIM has identified the areas of its business that are impacted by climate change expenditure considerations, the nature of the related expenditure, and the relevant assessments conducted by the QCA that may address such expenditure (note: the table below is not exhaustive).

Table 1: Areas where DBIM activities impacted by climate change expenditure

Area	Nature of expenditure	QCA Assessments	AU impacts
Terminal Infrastructure Charge	Cost of debt Cost of equity Corporate overhead (staffing, carbon offsets, ESG compliance, transition programs, financial reporting & audits, insurances and consulting services) Tax allowance	2026 DAU In event of disputes	s.5 s.11.4

[5] QCA website Climate change expenditure review 2022–23
[6] QCA Discussion Paper on Climate change expenditure review 2022–23 October 2022

Area	Nature of expenditure	QCA Assessments	AU impacts
NECAP expenditure	Sustainability and carbon mitigation projects Carbon offsets Insurances Risk provisions	Prudent NECAP	s 12.10(b)(1) s.12.10(c)
Expansion expenditure	Contractor sustainability measures Carbon offsets Sustainability initiatives Insurances Risk provisions	TCMP CEA Prudent capex	s.12.5
OMC expenditure	ESG compliance costs Operator-initiated sustainability programs Operator-held insurances Good Operations and Maintenance Practice including additional capital and other expenditure to achieve environmental compliance	2026 DAU	Schedule I

13 DBIM welcomes the opportunity to comment on the matters in the Discussion Paper raised as part of the QCA's Climate Change Expenditure Review (**Review**), and has structured its response as follows:

13.1 Section 3: Impact of ESG considerations on business - including the motivations to undertake climate change related expenditure such as the social licence to operate and the expectations of financiers;

13.2 Section 4: QCA Regulatory Framework – including proposed actions the QCA could consider to provide additional regulatory certainty and incentives for firms to undertake climate change related expenditure;

13.3 Appendix 1: DBIM response to some QCA consultation questions; and

13.4 Appendix 2: Frontier Economics report: *Climate-related risks and regulated infrastructure*

13.5 Appendix 3: Confidential report on DBIM recent experience obtaining insurance for DBT

3 Impact of ESG considerations on business activities

14 This section explains how ESG considerations have affected business activities.

15 Recent regulatory action on climate change in Australia includes:

15.1 the Federal Government legislating an emissions reduction target of 43% below 2005 levels by 2030 and net zero emissions by 2050 for Australia;[7] and

15.2 Energy Ministers agreeing to a new National Energy Transformation Partnership on 12 August 2022 including an emissions objective.[8]

16 In the remainder of this section DBIM:

16.1 describes the concept of a social licence to operate, the relevance of mitigating the effects of climate-change and growing recognition of the relationship between a strong social licence to operate and the long-term success of a business;

16.2 explains that the focus of investors, customers and the wider community on whether businesses operate in line with community expectations on climate change has created an imperative to measure, report and standardise their performance against those expectations;

16.3 highlights how stakeholder expectations on mitigating the effects of climate change has profound consequences on the financial system;

16.4 explains how community expectations on climate change also have important implications for transactions with other businesses, and the cost of those transactions;

16.5 illustrates the consequences of falling short of social expectations in relation to climate change; and

16.6 highlights examples of climate related initiatives undertaken by other businesses.

17 The Frontier Economics report in Appendix 2 provides further analysis of these topics

Social licence to operate

18 ESG considerations (including climate change) have led to the expectation of action on minimising the negative impacts of climate change. Stakeholder expectations are reflected in the concept of a social licence to operate.

19 Social licence to operate can be defined as:[9]

> ... an intangible, dynamic construct that broadly refers to the ongoing acceptance of an entity (individual, project, organization and/or industry) by its stakeholders, as evidenced by the entity's ability to engage with its stakeholders and respond to the ever-changing demands on, and expectations of, the entity...

20 A social licence to operate is the acceptance by stakeholders of a business's activities and practices, and in addition to formal legal and regulatory licences, is an important consideration in the ongoing sustainability of the business.

21 The benefits of a social licence to operate are credibility with stakeholders, improved corporate reputation, long-term business success, ongoing access to resources, improved market competitiveness and more

[7] *Climate Change Act 2022* (Cth) s 10(1).
[8] Energy Ministers, *Meeting Communique*, 12 August 2022, pp 2-3.
[9] Hurst, B, Johnston, K and Lane, A, *Engaging for a social licence to operate (SLO)*, Public Relations Review, 46(4), 2020, p 8.

effective employees.[10] The loss or weakening of a social licence to operate can result in reduced access to upstream and downstream markets, boycotts or protests, community anger, increased regulation, loss of reputation and potentially the ultimate failure of the business.[11]

22 A feature of a social licence to operate is that it cannot be defined or measured by reference to a universal set of criteria. Rather, it is context specific and the stakeholder expectations against which it is assessed are constantly evolving.

23 The issues that govern a social licence to operate form a part of ESG considerations. Notwithstanding the importance of each element of ESG, it is climate related considerations that often receive the most prominence, particularly for businesses exposed to coal.

24 Businesses in coal-exposed industries are perceived to score poorly against climate related criteria and therefore have an increased incentive to undertake initiatives consistent with ESG considerations.

25 ESG considerations imply that long term profitability will be supported by a strong social licence to operate. Put simply, taking appropriate action on climate change is consistent with the commercial interest of a business.

Climate change related disclosures

26 Stakeholder expectations in regard to ESG outcomes have provided a drive to standardise the reporting of the performance against those expectations.

27 A number of internationally-recognised frameworks have been developed to assist businesses in their assessment, explanation and disclosure of ESG considerations (including climate change related risks and opportunities), i.e.:

27.1 the Task Force on Climate-Related Financial Disclosures (**TCFD**), which is a leading standard for climate related risk disclosure – its recommendations were first issued in 2017 and updated in 2021;[12]

27.2 the International Sustainability Standards Board (**ISSB**), which was established by the IFRS Foundation in 2021 to develop a comprehensive, global baseline of sustainability disclosure standards;[13]

27.3 the Value Reporting Foundation (**VRF**), which included disclosure requirements for sustainability metrics by sector and industry and was consolidated into the IFRS foundation in 2022;[14]

27.4 the Climate Disclosure Standards Board (**CDSB**), which provides two frameworks for reporting on environmental and climate change reporting, along with other matters,[15] and also provides resources and technical expertise for implementing the TCFD Recommendations – the CDSB was also consolidated into the IFRS Foundation in 2022 but will remain relevant until the ISSB publishes its IFRS Sustainability Disclosure Standards.[16]

27.5 the CDP (formerly the Carbon Disclosure Project), which collects, assesses and discloses information on the environmental performance of companies (and their supply chains), cities and regions, with a focus on climate change, water security and forests;[17] and

[10] Hurst, B, Johnston, K and Lane, A, *Engaging for a social licence to operate (SLO)*, Public Relations Review, 46(4), 2020, pp 2-3.
[11] Hurst, B, Johnston, K and Lane, A, *Engaging for a social licence to operate (SLO)*, Public Relations Review, 46(4), 2020, p 3.
[12] Australian Accounting Standards Board, and Auditing and Assurance Standards Board, *Globally consistent reporting for sustainability-related information: Australian perspectives*, December 2021, p 16.
[13] See: IFRS, *International Sustainability Standards Board*; IFRS, ISSB: Frequently Asked Questions
[14] See: SASB, *About*; IFRS, *IFRS Foundation completes consolidation with Value Reporting Foundation*, 1 August 2022.
[15] Australian Accounting Standards Board, and Auditing and Assurance Standards Board, *Globally consistent reporting for sustainability-related information: Australian perspectives*, December 2021, p 16.
[16] IFRS, *IFRS Foundation completes consolidation of CDSB from CDP*.
[17] Australian Accounting Standards Board, and Auditing and Assurance Standards Board, *Globally consistent reporting for sustainability-related information: Australian perspectives*, December 2021, p 16.

27.6 the Global Reporting Initiative (**GRI**), which provides a comprehensive framework for reporting ESG disclosures.

28 The Australian Accounting Standards Board (**AASB**) has announced that it will develop sustainability-related financial reporting standards for Australia, based on the ISSB's standards that it expects to be published around the end of 2022, 'to meet the evolving information needs of primary users'.[18]

29 The primary purpose of international standards for reporting is to help investors and other market participants make decisions. Although sustainability reporting is voluntary in Australia, it is becoming increasingly common for large businesses to report ESG disclosure information.

30 Trends in ESG reporting and the potential implications for carbon intensive industries are described further in the Frontier Economics report in Appendix 2.

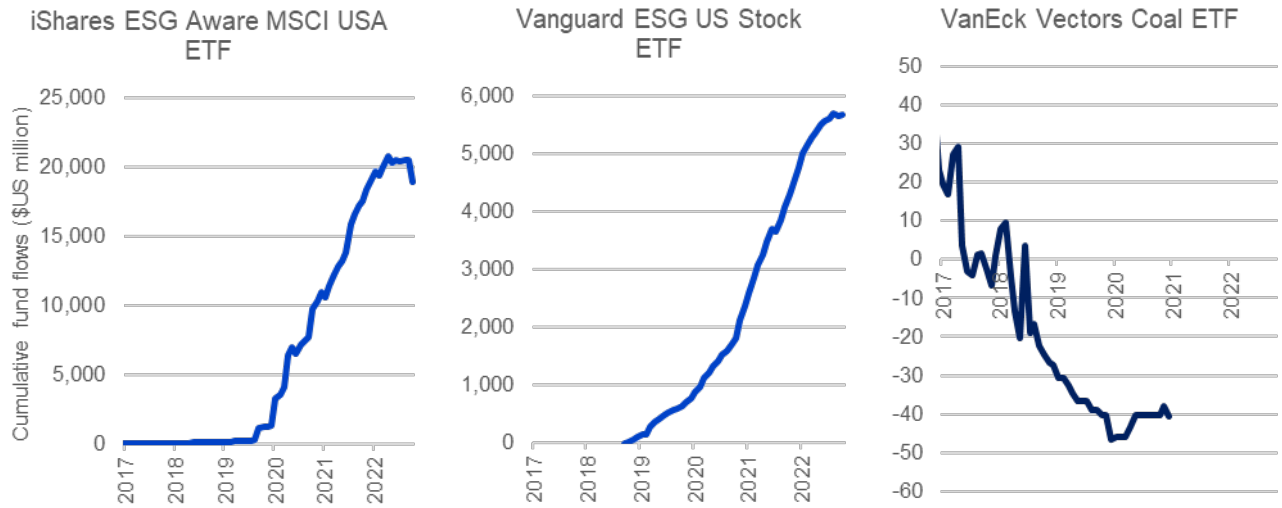
31 DBIM publishes an annual sustainability report and is committed to aligning its climate change related risks with the TCFD recommendations.[19]

Reallocation of capital

32 The focus on ESG considerations has profound consequences on the financial system, particularly in relation to the allocation of capital between different industries and businesses, and the cost of that capital. Investors are increasingly making investment decisions based on how businesses score when assessed against climate related criteria.

33 The resulting reallocation of capital is illustrated below. by reference to the rapid growth in funds invested into two major ESG exchange-traded funds (ETFs), and out of the only coal ETF, which has since closed.[20]

Figure 2: Cumulative fund flows for select ESG and coal ETFs



34 The principal effect of this reallocation is to reduce the availability and increase the cost of capital for businesses that are perceived to score poorly against climate related considerations.

35 One of the earliest policy initiatives in relation to ESG considerations was the 2005 establishment of 'principles for responsible investment', now known as PRI, which were developed by international

[18] Australian Accounting Standards Board, *Project insights: Developing sustainability-related financial reporting standards in Australia*, 28 June 2022, pp 3-5.
[19] See: DBI Sustainability Reports
[20] Barron's, *The only coal ETF is closing. What it means for investors*, 17 December 2020.

institutional investors in a process convened by the Secretary-General of the United Nations.[21] The PRI comprise six principles directed at bringing investment and social objectives into alignment, with signatories to the PRI managing $US103.4 trillion of assets in 2020.[22]

36 The European Commission has since established the High-Level Expert Group on sustainable finance[23] and China is establishing a green financial system alongside its 2020 commitment to achieve carbon neutrality by 2060.[24]

37 The effects of ESG considerations on the investment decisions of major financial institutions and their customers are underlined by the stances of three major institutions involved in the global capital allocation process, being BlackRock, Vanguard and State Street Global Advisors.

38 Each of these institutions incorporates climate related considerations in its investment practices, as described in the report that accompanied DBI's August 2021 submission to the QCA's Rate of Return review (noting elements of that submission remain confidential as indicated in original submission).[25]

39 The CEO of Blackrock highlighted in a letter to clients in January 2022 that:[26]

> Most stakeholders – from shareholders, to employees, to customers, to communities, and regulators – now expect companies to play a role in decarbonizing the global economy. Few things will impact capital allocation decisions – and thereby the long-term value of your company – more than how effectively you navigate the global energy transition in the years ahead.
>
> It's been two years since I wrote that climate risk is investment risk. And in that short period, we have seen a tectonic shift of capital. Sustainable investments have now reached $4 trillion. Actions and ambitions towards decarbonization have also increased. This is just the beginning – the tectonic shift towards sustainable investing is still accelerating…

40 Further, Fitch Ratings (**Fitch**), Moody's Investor Services (**Moody's**) and S&P Global Ratings (**S&P**) all incorporate ESG considerations in their credit rating decisions.[27]

41 Each of Australia's major banks – Westpac, CBA, ANZ and NAB – have publicly supported the goals of the Paris Agreement and the transition to a low carbon economy, and have instituted policies regarding their lending practices to the coal sector.[28]

42 The Frontier Economics report in Appendix 2 provides a survey of how the financial sector is increasingly recognising climate related risks in its investment decisions involving carbon intensive industries.

Effects on business-to-business transactions

43 In addition to influencing the decisions of consumers, ESG considerations also influence supply chains, with businesses facing increasing pressure not to transact with businesses that are perceived to score poorly against climate related criteria.

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[21] PRI, *Principles for responsible investment – An investor initiative in partnership with UNEP finance initiative and the UN global compact,* 2020, p 6.

[22] PRI About

[23] HLEG on sustainable finance, *Financing a sustainable European economy – Interim report,* July 2017, p 9.

[24] *The People's Bank of China and six other agencies jointly issue "Guidelines for establishing the green financial system"*

[25] HoustonKemp, *ESG considerations and the rate of return*, 24 August 2021, section 2.2.

[26] Fink, L, *The power of capitalism,* Letter to CEOs

[27] See: Fitch Ratings*, ESG in credit 2020 – White paper*, 2020, p 6; Moody's Investor Service, *Moody's approach to assessing ESG in credit analysis*, 25 October 2017, p 1; and S&P, *ESG in credit ratings – Overview*.

[28] See: Westpac, *Climate change – Position statement and 2023 action plan,* p 6; Commonwealth Bank of Australia, *Annual report 2020*, p 43; ANZ, *Climate-related financial disclosures,* 2020, p 1; and NAB, *ESG risk management*.

44 These business-to-business decisions appear to be informed by sentiment, rather than objective facts. This is reflected in the important (but little-appreciated) distinction between metallurgical and thermal coal.

45 In its submission to the QCA's Rate of return Review in 2021, DBIM outlined its own experiences relating to ESG (noting the information flagged as confidential in that submission remains confidential),[29] and further outlines its recent experience in obtaining insurance for DBT in Appendix 1.

46 The integration of ESG considerations into investment decision-making of stakeholders has had significant repercussions for DBIM, as a business that operates in the supply chain for metallurgical coal. DBIM has found that metallurgical coal is being perceived increasingly negatively and that many ESG policies do not distinguish between metallurgical and thermal coal, and the fundamental role metallurgical coal will play in the energy transition.

Consequences of not achieving of ESG expectations

47 The relationship between ESG considerations and the ongoing success of a business is marked by the consequences of not achieving stakeholders' ESG expectations (including climate change targets). Such consequences can include negative media coverage, reputational impacts, activism, political pressure, and potential disruption to operations.

48 Further, the focus of attention on a particular businesses or project can quickly magnify, and then persist for an extended period.

49 In November 2022, the insurance broker AUB Group was confronted by investors at its annual general meeting in relation to its provision of services to proponent of that project.[30]

50 Similarly, escalating perceptions of insufficient action on climate change has precipitated a prolonged period of controversy and disruption for AGL, a major energy generator and retailer.

51 In May 2021, AGL became the subject of a campaign by Greenpeace Australia, with the release of an investigative report and a parody advertising campaign referring to AGL as Australia biggest climate polluter. AGL then brought court proceedings against Greenpeace that attracted widespread attention.

52 AGL's proposed demerger of its coal-fired power plants in 2021, which was expected to postpone their closure, precipitated investor-led activism. In 2022 one investor acquired an 11.3% shareholding in AGL which prevented the proposed demerger and influenced AGL's decision to exit coal power by 2035, a decade earlier than previous planned.

53 This investor also recently nominated four candidates as Directors of AGL's board, all of whom were elected as Directors, despite the existing board opposing three candidates.

54 ESG considerations are increasingly shaping the political landscape in which businesses operate. Perceptions of insufficient action on climate change by the previous federal Coalition government contributed to its loss in the 2022 election, with the success of independent and minority party candidates with progressive positions on climate change, in what is often referred to as a 'teal' and 'green' wave.[31]

[29] DBI Submission dated 24 August 2021, see: DBI Submission

[30] See: Insurance News, *AUB slammed over Adani links*, 7 November 2022.

[31] See: Sydney Morning Herald, *Green Wave in Brisbane gives party influence over Labor government*, 22 May 2022; and Australian Financial Review, *Teals and Greens are now the third wave*, 22 May 2022.

Climate related initiatives

55 ESG considerations typically include new initiatives to mitigate and adapt to the impacts of climate change. It is prudent for businesses, particularly those in the coal supply chain, to endeavour to achieve ESG commitments, including those related to climate change.

56 Examples of such initiatives by DBIM's customers and similar industrial businesses include:[32]

56.1 Several mining companies, including BHP and Yancoal, have joined together to undertake a global 'Charge On Innovation Challenge' which seeks to develop concepts for the electrification of haul trucks[33] – the electrification of haul trucks would reduce a significant proportion of Scope 1 emissions at mines generated from diesel consumption;

56.2 Rio Tinto committed to achieving net zero Scope 1 and Scope 2 emissions by 2050, with intermediate reduction targets consistent with the Paris Agreement's 'stretch goal'[34] – its initiatives include a 1.6 megawatt (MW) solar farm at its Weipa bauxite mine in Queensland, with an additional 4MW solar plant and 4MW battery expected to be completed in late 2022;[35]

56.3 Anglo American has sourced the supply of 100 per cent renewable energy for its operations in Australia from 2025[36] to effectively remove all Scope 2 emissions from its metallurgical coal business in Australia and support its progress to achieving its goal of carbon neutral operations by 2040;

56.4 Whitehaven Coal is undertaking a feasibility study to consider implementing a solar photovoltaic electricity generation system at its Narrabri mine[37] and has developed an internal emissions tracking system that provides more frequent and granular information about past and forecast emissions;[38]

56.5 Stanmore Coal created a subsidiary, Stanmore Green, which is exploring diversification opportunities in the renewable energy space, and through which Stanmore Coal is developing strategies to introduce renewable power and alternative power sources into its operations;[39] and

56.6 BlueScope Steel is investigating a pilot-scale 10 MW electrolyser and infrastructure to facilitate the use of hydrogen in its blast furnace and is developing solar projects across its operations.[40]

56.7 Similarly, DBIM has committed to a target of achieving net zero Scope 1 and Scope 2 emissions from DBT operations by 2050 and is actively working on a strategy to shorten that timeframe.

Conclusion

57 ESG considerations (including climate change) have led to the expectation of action on minimising the negative impacts of climate change. Stakeholder expectations are reflected in the concept of a social licence to operate. Businesses are increasingly recognising that ESG considerations will support their long-term success. Climate related considerations have influenced the financial system and the willingness of businesses to transact.

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[32] Note that some mines are subject to the 'Safeguard Mechanism', which requires the highest emitting facilities in the resource and industrial sector in Australia to ensure their net annual Scope 1 emissions remain under a specified baseline.

[33] Charge On Innovation.

[34] Rio Tinto, *Our approach to Climate Change 2021*, p 1.

[35] Rio Tinto, Rio Tinto to triple Weipa solar capacity and add battery storage to help power operations

[36] Anglo American, *Anglo American sources 100% renewable electricity supply for Australian operations*, 16 November 2022; and Stanwell reaches 100% green energy deal with Anglo American - Stanwell

[37] Whitehaven Coal, *Mining for a sustainable future | Sustainability report 2022*, p 42.

[38] Whitehaven Coal, *Sustainability Report 2021*, p 31.

[39] Stanmore Coal, *Sustainability report*, December 2021, pp 4, 21.

[40] BlueScope Steel, *Sustainability summary 2021/22*, p 10.

58 For many businesses, climate change adaptation and mitigation expenditure in response to ESG concerns is relatively new and evolving. Many regulatory regimes do not explicitly provide for such expenditure, and regulated businesses face additional hurdles in demonstrating that the expenditure is necessary and prudently incurred, particularly in the absence of any precedents, or in cases where the expenditure may otherwise appear voluntary or discretionary (e.g. to achieve interim climate change targets set by the business). Under these circumstances, the regulated business may determine that it is more prudent to defer such expenditure until it is required by legislation. Consequently, the broader climate change actions and targets of state and federal governments may not be reflected in the businesses they regulate, possibly to the detriment of economic efficiency, the climate and the public interest in the longer term.

59 In the interests of promoting climate change adaptation and mitigation actions consistent with the broader objectives of governments and stakeholder views, it seems reasonable for the QCA to consider that the related expenditure may be necessary and prudently incurred, even if perceived as 'voluntary' or 'discretionary' in nature. It is DBIM's view that that the existing mechanisms under which it is regulated by the QCA are sufficient for the purpose, and that the QCA may only need to publish guidelines and clarifications on how it intends to assess such expenditure in order to provide regulated entities such as DBIM with the required level of regulatory certainty, and to remove any disincentives, for climate change related expenditure. These issues are discussed in more detail in the next section.

4 QCA Regulatory Framework

60 The QCA's existing regulatory framework may not always provide the level of regulatory certainty required for regulated entities to efficiently manage the risks associated with climate change because:

60.1 expenditure related to climate change often generates positive externalities;

60.2 the frequency, nature and impact of climate related events in the future is highly uncertain;

60.3 the regulated business and its customers may have different views on the nature of those risks;

60.4 there can be a significant delay between incurring costs and regulatory approvals which may disincentivise investment; and

60.5 the scale and speed of investments necessary to address climate change risks require a greater degree of flexibility than is immediately apparent under the current regulatory framework.

61 DBIM suggests that the QCA's regulatory framework may be improved by the QCA:

61.1 clarifying that the economic efficiency objective under Part 5 of the *QCA Act* encompasses climate risk mitigation and sustainable procurement;

61.2 publishing a guide that gives regulated entities greater confidence about the basis upon which climate change related expenditure will be assessed and approved; and

61.3 setting out the framework that the QCA will use for any ex-post assessments, if it considers that such assessments are necessary.

62 DBIM encourages the QCA to consider implementing these suggestions, which will:

62.1 provide additional certainty for regulated infrastructure owners, customers and stakeholders; and

62.2 create appropriate incentives for regulated entities to manage climate related risks efficiently.

63 The Frontier Economics report in Appendix 2 provides an evaluation of the features of a regulatory framework that could promote prudent and efficient climate change adaptation expenditure.

Incentives to manage climate related risks in the existing regulatory framework

64 The QCA's traditional framework for approving expenditures by regulated entities focuses on evaluating whether expenditures have been incurred prudently in terms of:[41]

64.1 scope – whether the works are needed;

64.2 standard – whether the works are of an appropriate standard and not over-designed; and

64.3 cost – whether the costs are reasonable for the work done.

65 The QCA has also made several variations to its regulatory frameworks over time, such as:[42]

65.1 the streamlined approval process for NECAP in the DBCT Access Undertaking, which deems the NECAP prudent if it has been recommended by the independent Operator and approved by the existing users of the coal terminal; and

[41] QCA, *Approach to climate change related expenditure*, Discussion paper, October 2022, pp 16-18.
[42] QCA, *Approach to climate change related expenditure*, Discussion paper, October 2022, pp 10-11.

65.2 customer approval processes for expansionary capital expenditure, such as the processes contained in Aurizon Network's 2017 Access Undertaking and the '60/60' requirements in the 2021 DBCT Access Undertaking.

66 Over the last two decades, this framework has worked well for assessing capital and operating expenditures, particularly where:

66.1 the proposed investments are strictly necessary to provide the regulated service; and

66.2 the risks, costs and benefits associated with such expenditures can be identified and allocated effectively between the regulated party and its customers.

67 In such cases, the regulatory framework has provided incentives for regulated businesses to make appropriate investments, with reasonable certainty that their efficient costs will be recovered over time by investing in accordance with the framework.[43]

68 However, the regulatory framework may not always provide the level of regulatory certainty required in regard to assessing the adaptation and mitigation expenditure required to address climate related risks, since:[44]

68.1 these expenditures tend to generate positive externalities, such that the regulated entity or some or all its customers may be reluctant to incur these costs since they may not receive all of the benefits arising from the expenditure;

68.2 the frequency, nature and impact of climate related events in the future is highly uncertain, which may make it difficult to identify the benefits associated with the expenditure;

68.3 the regulated entity and its customers may have different views on the nature and amounts of expenditure that is required to meet ESG expectations, including for climate change;

68.4 there is a delay between expenditure and the associated regulatory approvals; and

68.5 the scale and speed of investments necessary to respond to climate related risks require a greater degree of flexibility than is possible under the current regulatory framework.

69 As described in the previous section, these issues arise in an environment where the entities regulated by the QCA, including DBIM, are facing pressure to address climate concerns due to:[45]

69.1 potential climate related physical risks in the form of extreme weather events that may result in increased disruptions to regulated businesses and supply chains;

69.2 legislative trends towards net zero policies;

69.3 ESG considerations that constrain access to financial markets and increase the cost of transacting with other businesses; and

69.4 public perceptions that shape social licence to operate and reputational concerns.

70 These concepts are described further in the Frontier Economics report in Appendix 2.

71 As such, regulated infrastructure providers such as DBIM, like other businesses in similar industries, have a commercial incentive to manage climate related risks in order reduce disruptions to their businesses, lower their costs and meet their legislative obligations. This incentive is strengthened further for regulated infrastructure providers with relatively low ESG ratings.

[43] QCA, *Approach to climate change related expenditure*, Discussion paper, October 2022, p 19.

[44] See: QCA, *Approach to climate change related expenditure*, Discussion paper, October 2022, pp 16-17.

[45] DBI's Sustainability Report 2022 discusses some of the physical risks and climate related transitional risks faced by DBI. See: Dalrymple Bay Infrastructure, *Sustainability Report 2022*.

72 DBIM's role in the coal supply chain and the tendency for stakeholders to overlook the distinction between metallurgical and thermal coal amplifies its need to invest in maintaining and strengthening its social licence to operate, particularly in relation to mitigating the effects of its business on climate change.

73 However, weighing against these necessary initiatives are the disincentives in the current frameworks created by regulatory uncertainty and risks under the current framework, in which regulated businesses face uncertainty in relation to the recovery of efficient expenditure in relation to climate change.

74 As an example, DBIM notes that the current regulatory framework does not enable it to assess accurately its ability to recover the costs of NECAP in some circumstances. In particular, DBIM's Access Undertaking states that NECAP will be considered prudent if it is unanimously approved or not objected by all Access Holders whose Access Charges would be impacted, otherwise DBIM would need to apply to the QCA for a NECAP Prudency Ruling that deems the NECAP to be prudent.

75 As an example, under the provisions in s.12.10(b) of the AU (Presumed Prudency for NECAP), if the terminal Operator recommended climate change related expenditure, and the existing terminal Users unanimously approved that expenditure, then DBIM would have a high level of certainty that the costs would be recovered. However, if those conditions did not apply, then DBIM would have a lower level of certainty that the expenditure would be recovered. This is because the expenditure would be subject to the provisions in s.12.10(c) (NECAP Prudency Ruling)[46] which may require an ex-post assessment by the QCA. If DBIM incurred the climate change expenditure voluntarily or without the Operator's recommendation or unanimous User approval, there remains a risk that the QCA may not rule the expenditure as being prudent. There does, however, remain scope under the existing s12.10(c) for DBIM to seek a Prudency Ruling on expenditure ex-ante. This would provide regulatory certainty and incentive (or remove disincentives) for DBIM to proceed with efficient climate related capital expenditure. In the absence of an ex-ante Prudency Ruling, the lack of regulatory certainty regarding climate change related expenditure would act as a disincentive, and DBIM may defer the expenditure until it was required by legislation, or until the QCA provided more guidance on how such expenditure would be assessed.

76 Specifically, DBI considers that the QCA should consider refining the regulatory framework to remove the present uncertainty (and the associated disincentive) to incur efficient adaptation and mitigation expenditures that address climate related risks. In doing so, the QCA will promote regulatory certainty and transparency over future NECAP Prudency Rulings, and the added guidance will also serve as a starting point for facilitating constructive engagement between DBIM and Access Holders regarding climate change related NECAP.

77 The Frontier Economics report in Appendix 2 discusses the importance of providing regulated businesses with a realistic opportunity to recover past prudent and efficient expenditure over the long-term—as a means of incentivising future prudent and efficient investment that would benefit consumers.

Improvements to the existing regulatory framework

78 Figure 1 of the QCA's discussion paper sets out examples of how the current regulatory framework to assessing the prudency and efficiency of capital and operating expenditures may be applied to adaptation and mitigation expenditures in relation to climate related risks.[47] Table 2 reproduces the tests shown in the QCA's example.

Table 2: Current regulatory approach to adaptation and mitigation expenditures – QCA example

Area	Adaptation expenditure	Mitigation expenditure
Scope	What is the expected cost of the event (damage) occurring?	Is the level of emissions reduction reasonable?

[46] DBI, *Dalrymple Bay Coal Terminal 2021 Access Undertaking*, July 2021, paras 12.10(b)(2), (c).
[47] QCA, *Approach to climate change related expenditure*, Discussion paper, October 2022, p 18.

Area	Adaptation expenditure	Mitigation expenditure
Standard	What is the specification for infrastructure to address the scope? What alternative methods have been considered?	What is the appropriate way to mitigate emissions: reducing or offsetting them? Is the preferred way appropriate, given the alternatives?
Cost	Are the construction costs efficient?	If emissions are being reduced, are the construction costs efficient?

Source: QCA, *Approach to climate change related expenditure*, Discussion paper, October 2022, p 18.

79 DBIM considers that the QCA's example provides an appropriate starting point for improving the current regulatory framework. In addition, DBIM suggests that the QCA can improve the existing regulatory framework further by:

79.1 clarifying that the economic efficiency objective under Part 5 of the *QCA Act* encompasses climate risk mitigation and sustainable procurement, particularly where the investment:

79.1.1 generates substantial positive externalities in relation to environmental and climate considerations;

79.1.2 is consistent with government targets and ambition;

79.1.3 is necessary for the regulated entity to remain sustainable, such as maintaining long term access to financing through financial markets;

79.1.4 is necessary to address the ESG considerations of the regulated entity; and/or

79.1.5 promotes the long-term interests of users in terms of:

(a) reducing the long run cost of supplying services; or

(b) increasing the prospect of supply over the long run by ensuring the commercial sustainability of the business;

79.2 publishing a guide that gives regulated entities greater confidence in relation to the basis upon which climate change related expenditure will be assessed and approved, with detailed guidance on the approach that the QCA will take for assessing the prudency and efficiency of adaptation and mitigation expenditures in relation to climate related risks, including setting out:

79.2.1 research that the QCA will undertake to evaluate whether expenditure is consistent with ESG considerations, e.g.:

(a) benchmarking against the initiatives undertaken by other businesses; and/or

(b) engaging with stakeholders in relation to the nature and cost of initiatives required achieve ESG expectations.

79.2.2 additional breadth regarding the range of outcomes that the QCA considers to be prudent under the ESG umbrella but may not be caught under existing prudency assessment criteria, such as initiatives for community involvement and partnerships that arise from ESG considerations;

79.2.3 additional depth regarding the factors that the QCA will consider when choosing between multiple options for achieving the same objective – DBIM suggests that the QCA's approach should:

(a) prioritise direct mitigation options where possible; and

(b) consider carbon offsets as a means for capturing elements that are difficult or impossible to abate, such as DBIM's target to achieve net zero Scope 1 and Scope 2 greenhouse gas emissions from DBT by 2050;

79.2.4 the QCA's own primary research regarding stakeholders' views concerning the appropriate balance between the benefits of addressing climate related risks versus the costs of adaptation and mitigation expenditure;

79.3 setting out the framework that the QCA will use for any ex-ante assessments and ex-post assessments (if it considers that such assessments are necessary), including:

79.3.1 delineating which issues the QCA will consider as part of its ex-post assessment and which issues will only be assessed ex-ante;

79.3.2 describing the principles that the QCA will apply when carrying out its ex-ante and ex-post assessments; and

79.3.3 setting out how the QCA's assessments will affect the cost recovery of the regulated entity.

80 In DBIM's view, an ex-post only review mechanism would generate significant uncertainty in light of the evolving and difficult to measure nature of ESG considerations. Rather, a robust guideline, supported by an ex-ante approval process, would be significantly more effective at promoting regulatory certainty and efficient climate related expenditure.

81 While the QCA is not seeking submissions on the appropriate quantum or design of rates of return, DBIM notes that the allowed rate of return is intertwined closely with regulated entities' incentives to manage climate related risks.

82 Specifically, the changes that the QCA makes in relation to the regulatory framework will affect regulated entities' ability to access capital. Allowing regulated entities such as DBIM to comply with carbon-neutral legislative policies and improve their ESG profile will enable the entities to lower their cost of capital by reducing any 'ESG premium' that the market applies to their operations. Conversely, a regulatory framework that gives regulated entities less incentive to comply with carbon-neutral legislative policies and improve their ESG profile will likely increase any 'ESG premium'.

83 DBIM encourages the QCA to consider its framework in the context of the relationship between addressing climate related risks and the extent to which the cost of capital is affected by ESG considerations.

84 The Frontier Economics report in Appendix 2 describes approaches and techniques to assessing climate change related adaptation expenditure.

85 The remainder of this section provides further details about each of the three suggestions set out above.

Clarifying the economic efficiency objective under Part 5 of the QCA Act

86 DBIM suggests that the QCA should clarify the economic efficiency objective under Part 5 of the *QCA Act* to encompass climate change risk mitigation and sustainable procurement. In this submission, DBIM notes several relevant categories of investments, including:

86.1 where the investment generates substantial positive externalities, which also may be recognised in legislation and government policies; and

86.2 where the investment has an impact on dynamic efficiency.

87 The QCA's *Statement of Regulatory Pricing Principles* similarly identifies that externalities reflect the costs and benefits to society, and that regulations such as taxes and subsidies may be designed to correct for such externalities in regulated utility markets, i.e.:

> Externalities sometimes arise in regulated utility markets and regulations may be designed to correct for them. One way to correct for externalities is through externality taxes for negative externalities and subsidies for positive externalities. The taxes or subsidies should be set at levels that cause individuals or firms or government entities to behave as if they were taking the

> externalities into account in their economic decisions. Without such taxes or subsidies, the market price will not reflect the costs and benefits of the externalities to society.[48]
>
> …Any relevant externalities must also be accounted for when assessing economic efficiency. [49]

88 DBIM agrees with the QCA. Incorporating these externalities can best be achieved by strengthening the QCA's guidance on the relevance of climate related expenditure to the efficiency-based objective of Part 5 of the *QCA Act*.

89 There have been several legislative and policy developments since the QCA published its *Statement of Regulatory Pricing Principles*, such as:

89.1 the Federal Government legislating an emissions reduction target of 43% below 2005 levels by 2030 and net zero emissions by 2050 for Australia;[50] and

89.2 Energy Ministers agreeing to a new National Energy Transformation Partnership on 12 August 2022 including an emissions objective.[51]

90 Recent legislative and policy developments – as described in section 3 – recognise that the addressing the externalities associated with carbon emissions and climate related risks also promotes social objectives, as well as economic efficiency.

91 Finally, DBIM notes that the increasing importance of ESG considerations is likely to have an impact on dynamic efficiency. The QCA's *Statement of Regulatory Pricing Principles* describes dynamic efficiency as:[52]

> any aspect of economic efficiency with a time dimension, for example, the timely and profitable introduction of new products, services and cost-reducing innovations.

92 The QCA also observes that improvements in dynamic efficiency can generate larger gains than improvements in productive efficiency, and that there can be trade-offs between allocative and dynamic efficiency.[53]

93 DBIM agrees with the QCA's observations. Investments directed at climate risk mitigation and sustainable procurement can promote the interests of customers in the long term by lowering long run costs through improving access to a greater pool of capital providers and suppliers, at lower cost.

94 In summary, DBIM encourages the QCA to strengthen its guidance in relation to the relevance of climate related expenditure to the economic efficiency objective under Part 5 of the *QCA Act*.

Prudency and efficiency of adaptation and mitigation expenditure in relation to climate change

95 DBIM suggests that the QCA should provide detailed guidance on the approach that it will take for assessing the prudency and efficiency of adaptation and mitigation expenditure in relation to climate related risks. This includes the breadth of outcomes that the QCA will consider to be prudent, as well as additional depth about the QCA's method for choosing between multiple options.

96 One potential approach for identifying the breadth of prudent outcomes is for the QCA to be informed by the practices of other businesses. An illustrative range of climate related expenditure undertaken by other businesses is highlighted in section 3.

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[48] QCA, *Statement of Regulatory Pricing Principles*, August 2013, p 18.
[49] QCA, *Statement of Regulatory Pricing Principles*, August 2013, p 34.
[50] *Climate Change Act 2022* (Cth) s 10(1).
[51] Energy Ministers, *Meeting Communique*, 12 August 2022, pp 2-3.
[52] QCA, *Statement of Regulatory Pricing Principles*, August 2013, p iv.
[53] QCA, *Statement of Regulatory Pricing Principles*, August 2013, pp 7-8.

97 It would also be necessary to account for differences between social expectations on climate change between industries and businesses. For instance, it is likely that a business that operates in the coal industry or which are highly carbon-intensive would need to undertake more initiatives than businesses in industries that are perceived to score better against climate related criteria.

98 When choosing between multiple options for achieving the same objective, the QCA should consider factors such as:

98.1 the relative costs, benefits and risks that are likely to arise for each option;

98.2 whether an option is the most direct available method for achieving the objective;

98.3 whether the regulated entity is in the best position to evaluate the merits of each option; and

98.4 whether the regulated entity can control the eventual outcomes of each option.

99 For DBIM, relevant considerations may include disclosures in its published Sustainability Documents as among the other factors that the QCA will have regard to, in any assessment of climate change expenditure for NECAP or Expansions at DBT,[54] including the scope, standard, specifications and cost, as appropriate. Relevant Sustainability Documents encompass climate change, ESG and sustainability, and may comprise:

- the DBI Sustainability Strategy 2020 and any future updates, developed jointly with the independent user-owned Operator;
- the DBI Sustainability Reports, which provide updates to the Sustainability Strategy and reports on progress on important milestones. These reports are published annually, most recently in 2022;
- any Sustainability Frameworks or action plans, developed specifically for NECAP works or Expansions; and,
- any other relevant publicly available climate change related documents, such as DBIM's customers' sustainability strategies or commitments.

100 DBIM considers that, in general, the QCA's approach should prioritise, where possible, direct mitigation options for circumstances where the costs, benefits and risks of these options can be evaluated easily by the regulated entity, and where the regulated entity largely controls the outcomes of such options. The QCA should also consider carbon offsets as an alternative option for mitigating emissions that are more difficult to abate, where the marginal price of carbon offsets reflects the efficient costs of meeting the net zero policy commitments.

101 Finally, DBIM suggests that the QCA could consider a regular process to solicit views from stakeholders regarding the appropriate balance between the benefits of addressing climate related risks versus the costs of adaptation and mitigation expenditures. This form of primary research can include regular consultations with diverse groups that include:

101.1 citizen focus groups and other interest groups;

101.2 business representatives such as the Chamber of Commerce and Industry Queensland;

101.3 independent experts; and

101.4 an independent panel established by the QCA.

102 These groups should include a diverse mix of interests and levels of technical expertise. Their feedback will provide additional credibility and transparency over the QCA's process for assessing the prudency and efficiency of a regulated entity's adaptation and mitigation expenditures. The QCA's consultation with the

[54] For NECAP, under s12.10 of the AU. For Expansions, under s12.5 of the AU

stakeholders will ensure that a diverse range of perspectives are considered, which is likely to be responsive to some of the ESG considerations faced by the entities that it regulates.

103 DBIM encourages the QCA to provide additional details about the approach that it intends to use. This will give regulated entities the certainty that they need to be able to undertake efficient expenditure on climate risk mitigation. The concept of resilience as it relates to prudent and efficient expenditure is described further in the Frontier Economics report in Appendix 2.

Framework for any ex-post assessment

104 DBIM suggests that if the QCA considers ex-post assessments of adaptation and mitigation expenditure remain relevant, then it should set out the framework that it will use for carrying out such ex-post assessments.

105 The framework for assessing the prudency and efficiency of adaptation and mitigation expenditures should involve:

105.1 using an ex-ante review process to confirm whether an investment is prudent and efficient; and

105.2 using the ex-post review process to review the regulated entity's methodology for identifying the lowest cost investment, if the QCA considers that such an ex-post review is necessary.

106 Under this framework, the bulk of the QCA's assessment is carried out during an ex-ante review process, during which it will assess whether the proposed capital expenditure is prudent and efficient before the regulated entity begins incurring and recovering the relevant capital expenditure.

107 To the extent that the QCA considers it necessary to conduct ex-post assessments of adaptation and mitigation expenditures, DBIM considers that such an ex-post review should focus exclusively on assessing the process that the regulated entity used to identify the lowest cost investment. The ex-post review should not include assessing the magnitude of outturn costs incurred on the adaptation and mitigation expenditure.

108 In particular, DBIM suggests that the QCA's ex-post review can include evaluating whether the regulated entity has:

108.1 used an appropriate procurement process to identify the lowest cost investment for achieving the objective of managing climate change related risks;

108.2 entered appropriate contracting arrangements for the investment; and

108.3 taken reasonable steps to minimise the risk of cost overruns.

109 DBIM considers this framework promotes appropriate incentives for regulated entities to minimise the cost of investments associated with managing climate change related risks, since it ensures that regulated entities such as DBIM take on only the risks that are within its control without being liable for risks outside of its control.

111 The role of ex-post reviews in incentivising prudent and efficient adaptation expenditure is described in the Frontier Economics report in Appendix 2.

Appendix 1 DBIM response to QCA consultation questions

The climate action problem

(1) To what extent are the risks of more frequent or severe extreme weather events already impacting the businesses of regulated entities? Please provide evidence where available and appropriate.

At this stage, DBIM does not have evidence that any impacts are directly attributable to climate change.

(2) Is there evidence to suggest that regulated entities are facing difficulties in accessing insurance for their assets or accessing insurance at reasonable cost? Is self-insurance thereby becoming a more prudent option for these businesses?

DBIM is required by its project and financing agreements to have in place appropriate insurance policies to protect its business and the terminal. In recent years, it is DBIM's experience that due to DBT's unique properties (i.e. coal adjacent, port infrastructure, natural catastrophe zone) the appetite of insurers to provide DBIM and DBT with coverage is diminishing. As a result of the swift withdrawal of insurers and the subsequent reduction in competition, the pricing of the key insurance policies to protect DBIM and DBT has been increasing significantly over the past few years. Confidential Appendix 3 includes further detail on DBIM's recent experience in obtaining insurance for DBT.

It is DBIM's expectation that over the medium to longer term DBIM or the Operator, or indeed the supply chain as a whole, may need to set up some form of self-insurance or industry mutual fund. In this case, regular premium contributions would be required to ensure the self-insurance fund is sufficient to cover any potential damage as a result of an insurable event.

(3) Most organisations, including regulated entities, now have detailed climate change strategies and planning documents in place. To what extent are these strategies a response to government policies, and to what extent are they externally driven (e.g. in response to financing requirements or shareholder activism)? Do these external drivers put pressure on businesses to exceed the minimum requirements of government policies?

In 2019, DBI commenced development of a formal Sustainability Strategy jointly with the terminal operator DBCT Pty Ltd (**Operator**), building on programs and initiatives already in place for safety and environment, and encompassing climate change, ESG and sustainable development. Although DBI and the Operator maintain a strong traditional focus on safety and environment, the formalisation and publication of the Sustainability Strategy responded primarily to expectations of its financiers, specifically the increasing influence of ESG drivers of finance providers. DBI was mindful of the sentiment of ratings agencies, investors and financiers, and the direction of government policy development. To date, DBI has not experienced any direct or explicit activist activity either from shareholders or activist organisations.

DBI identified Climate Change as a key risk factor for business over time in its prospectus[55] that:

"The absence of regulatory certainty, global policy inconsistencies and direct regulatory impacts (such as carbon taxes or other charges) each have the potential to adversely affect DBI's operations – either directly or indirectly, through suppliers (to the extent that any resulting increased costs are not able to be passed through to Users) and User demand. Changes to steel making processes, including the use of other reducing agents, such as hydrogen, as an alternative to metallurgical coal and the availability and cost of substitutes for steel such as aluminium, composites and plastics, could adversely affect the demand for metallurgical coal. Also, the growth of alternative energy options, such as renewables, disruptive power generation technologies and changes in community or government attitudes to climate change could also result in further development of alternative energy industries and broader mainstream acceptance of alternative energy options which could result in a material reduction in the demand for thermal coal.

Negative perceptions of Users of DBT and their mines or the coal industry generally may adversely affect DBI's business and reputation. The coal industry may generate negative public sentiment with certain stakeholder groups (particularly in relation to thermal coal) due to the perception that coal adversely impacts the global environment. Any such adverse

[55] DBI website Prospectus issued by Dalrymple Bay Infrastructure Limited (ASX:DBI) 20-Nov-20 p143

public sentiment may result in adverse reactions to DBT's current operations, including through public protests, and may impact on the operations of DBT and, longer term, DBI's business and revenues.

Adverse physical effects of climate change on DBI's operations could include increased storm and cyclone intensities. DBI may not be able to insure against these business interruptions, either adequately, at a reasonable cost or at all, in the future (see Section 7.1.16). The impact of climate change may also increase competition for, and the regulation of, limited resources, such as power and water or impact on the availability of capital to companies connected (directly or indirectly) to the coal industry. These factors could materially and adversely affect the expansion of DBI's operations and the ability of DBT to operate efficiently."

DBIM has established a target of Net Zero Scope 1 and Scope 2 emissions at DBT by 2050, which is similar to the targets of other stakeholders as indicated in the table below.[56]

Entity	Net Zero Target or Commitment	Interim ambition	References
Federal Government	2050	43% by 2030	Climate Change Bill 2022
Queensland Government	2050	30% by 2030	Queensland Climate Action emissions and targets
DBI	2050		DBIM Sustainability Report 2022
Aurizon	2050	10% by 2030	Aurizon 2022 Sustainability Report
Anglo American	2040	30% by 2030	Anglo American 2021 Sustainability Report
Glencore	2050	50% by 2035	Glencore Climate Report 2021

(4) Are regulated entities being encouraged or pressured by their customers to take further action on climate change? For example, do customers want regulated entities to reduce their scope 2 emissions by using an increasing proportion of renewable energy in their businesses? How do customers value actions taken by regulated entities that might provide for the customers to claim reduced scope 3 emissions in their supply chains?

The Operator is independent of DBIM and is owned by a majority of Users. As outlined in this submission, DBIM considers that climate change related expenditure is consistent with Good Operations and Maintenance Practice.

Recently the Operator accepted an increase in the annual cost associated with procuring its electricity with 100% renewable benefits in the form of LGCs from 1 January 2023.[57] Users have taken similar steps to eliminate their Scope 2 emissions, for example Anglo American will effectively remove all Scope 2 emissions from its steelmaking coal business in Australia from 2025 through an agreement with Stanwell to provide renewable power.[58]

DBIM, the Operator and Users consult regularly on matters relating to the terminal, including in the Throughput Maximisation Meetings (TMT), Stakeholder Operational Monthly Meetings (SOMM), Throughput and Capacity Forums, and annual OMC planning meetings. Other examples of customer-supported climate change related expenditure are outlined in the table below.

Climate change related expenditure	Type	Charge	Cost $m	Comments
Water Quality Improvement Project	Adaptation	TIC (NECAP)	55.2	Reconfigure industrial water system to minimise risk of dam overflow due to high rainfall events
Berth Mooring Hook Load Cell Installation	Adaptation	TIC (NECAP)	2.6	Install mooring rope tension warning system to reduce potential for rope failure during severe weather events
L15 Gallery Sheeting Project	Adaptation	TIC (NECAP)	2.4	Additional conveyor cladding to prevent saturation of coal during high rainfall events

[56] This information is indicative only and ambitions may not necessarily align. For example, the base year for emissions reductions may vary, definition of Net Zero may include carbon neutral, reductions may not include Scope 3.

[57] Renew Economy 17 November 2021 Queensland's biggest coal export terminal goes 100 pct renewable, with certificates

[58] Queensland Government Media Statement 16 November 2022 Stanwell reaches 100% green energy deal with Anglo American

Climate change related expenditure	Type	Charge	Cost $m	Comments
Industrial Dam Drying Slab Project	Adaptation	TIC (NECAP)	1.4	Upgrade drying capacity for increasing volumes of recovered coal post WQIP
Power Purchase Agreement	Mitigation	HCV		Offset 100% of Scope 2 emissions with surrender of large scale generation certificates (LGCs)

Effectiveness of existing regulatory frameworks

(5) Do the QCA's existing regulatory frameworks create appropriate incentives for regulated entities to efficiently manage risks associated with climate change? If not, how might the frameworks be improved in this regard?

DBIM considers that while its existing regulatory framework can accommodate climate change related expenditure, more clarity on how the QCA intends to assess the prudency and efficiency of such expenditure will create appropriate incentives to efficiently manage the risks associated with climate change (as outlined in the submission).

(6) Are existing mechanisms in the QCA's regulatory frameworks for dealing with newly arising expenditure requirements (e.g. pass-through mechanisms, review events and draft amending access undertaking (DAAU) processes) sufficient to deal with climate change related expenditure? If not, how might these mechanisms need to be amended?

During the FEL 2 Study for the 8X Expansion Project, DBIM assessed the potential for the project to achieve Net Zero emissions, such that all emissions due to the related construction works were abated. DBIM engaged a consultant to estimate the emissions and propose options for achieving Net Zero. The design of the 8X Expansion Project is consistent with the standards and specifications currently in place at the terminal. Significant quantities of steel and concrete will be used in construction, as well as fuel for construction vehicles and equipment. At this time, emissions from fuel, steel and concrete are difficult to abate, with no viable alternatives available. DBIM has considered the merits of using Australian Carbon Credit Units (**ACCU**s)[59] to offset those emissions. DBIM sought guidance from regulatory precedent indicating that expenditure on ACCUs might be considered prudent.

In November 2021, the QCA published its draft report of the Seqwater bulk water price review.[60] The QCA indicated it was receptive to climate change mitigation measures, where they were consistent with community expectations. However, the QCA found that Seqwater's proposed $6.9m expenditure for carbon offsets was not efficient, as it did not follow Seqwater's own emissions reduction hierarchy. Instead, the QCA recommended a $17.9m capex allowance to bring forward a number of energy efficiency initiatives, which would reduce costs to users and reduce emissions during operation.

DBIM currently considers the risk that expenditure on ACCUs would not be considered prudent is too great. As a result, if more certainty as to prudency could not be obtained, the relevant emissions would remain unabated and therefore a Net Zero Project would not be feasible under the circumstances. Expenditure on carbon offsets was disincentivised in this example.

The QCA addresses the purchase of offsets in section 2.3.1 of the Discussion Paper. DBIM understands there is debate about the appropriateness of certain sources of carbon credits. However, DBIM would not purchase ACCUs or any other form of carbon credit unless the QCA indicated that such expenditure may be considered prudent. Further, if DBIM purchased those carbon offsets in good faith on the basis of the QCA's indication, then at the time of any ex-post review of capital expenditure (possibly many years later), the QCA would consider the circumstances at the time the expenditure was incurred.

[59] An Australian Carbon Credit Unit represents one tonne of carbon dioxide equivalent (tCO2-e) stored or avoided by a project, and issued by the Clean Energy Regulator

[60] Refer QCA > Seqwater bulk water prices 2022–26 > Draft report to the Queensland Government November 2021 p28-29

(7) The QCA's standard approach to assessing the prudency and efficiency of capital expenditure claims by regulated entities involves applying frameworks that assess scope, standard and cost. Are these existing frameworks suitable for assessing climate change related expenditures? And do they provide the right incentives for entities to appropriately have regard to climate change considerations—and alternative ways of achieving the desired objectives—when undertaking expenditure? If not, how should they be enhanced? For example, in considering the prudency of capital expenditure, is there a trade-off between efficiency and least cost, and robustness and resilience? If so, how can these trade-offs be managed?

For DBIM, the current assessment of scope, standard and cost has worked well to date, particularly if the scope is approved in advance, as it is (by Users) for NECAP works under s.12.10(b) of the AU, and (by the QCA) for Expansion works under s.12.5 of the AU.

In the case of s.12.10(b) of the AU, the works only proceed if the Operator has recommended the expenditure and if the Users unanimously approve the implementation of the works. In the event that unanimous approval is not achieved for a part of the works (for example, if one of the number of projects which form the NECAP Series is not approved by one User), then that project is treated separately in accordance with s.12.10(c) of the AU. DBIM may still undertake the works, provided it can mitigate the risk that the expenditure may not be considered prudent by the QCA. DBIM can usually rely upon precedent, if the work is of the type that has previously been considered prudent by the QCA.

However, with no guidance from the QCA, whether in the form of a standalone QCA guide or an ex-ante Prudency Ruling under 12.10(c), there currently remains a risk that climate change related expenditure forming part of NECAP works assessed under 12.10(c) might not be considered prudent in a number of circumstances, for example:

- If the expenditure includes any carbon offsets, which the QCA previously indicated was not efficient in a separate process
- If the expenditure otherwise relates to the DBIM Sustainability Strategy, which is a voluntary standard that does not form part of the formal standards and specifications in place at the terminal. For example, the Sustainability Strategy calls for contractors to implement a number of sustainability measures in their contract works, which may increase their costs. Such measures may be that the steel used in critical structures must be Australian-sourced (which is of a higher quality, with higher safety factors and consequently the sections are larger and the structure is heavier) in order to best mitigate potential climate change related risks in the future.
- If the benchmarks used by the QCA or its advisors did not account for ESG-related impacts on processes and controls. For example, the availability of lump sum contracts appears to be increasingly difficult, where original equipment manufacturers (**OEM**) are no longer available due in part to OEMs exiting the coal sector due to ESG concerns.

DBIM does not propose any drafting amendments with respect to s.12.10 of the AU. Instead, DBIM proposes that the QCA remains flexible in the factors it has regard to in its prudency assessments. This is accommodated already in s.12.10(c) by the non-exhaustive list of matters the QCA must have regard to. The key issue here is that DBIM is unlikely to proceed with any capital works unless it has a high level of confidence that the expenditure would be considered prudent by the QCA.

(8) Are processes in the regulatory frameworks that are designed to provide regulated entities with a degree of certainty to make investment decisions (e.g. provisions that allow for preapproval of the scope of projects or customer vote mechanisms) sufficiently flexible to enable climate change related investments to proceed where appropriate?

The AU currently has such mechanisms for NECAP in s.12.10(b) and for Expansions in s.12.5.

The s.12.10(b) 'streamlined' process provides for the NECAP expenditure to be presumed prudent, if:

- It complies with the definition of capital expenditure in the AU;
- It is recommended by the (independent) Operator; and
- It is unanimously approved by Users.

This up-front process addresses the key elements of prudent expenditure and does not require an ex-post review by the QCA. Consequently, it provides the highest degree of certainty prior to the investment decision. If clarity or guidance is provided by the QCA on how it will assess climate change related expenditure, this will be facilitative of the existing 'streamlined' process in enabling climate change related investments to proceed as appropriate.

The s.12.5 process requires QCA approval of the scope, standard and specifications as part of the Terminal Capacity Expansion Application (**CEA**). This provides a reasonable degree of certainty prior to the investment decision. If the QCA also considered the Sustainability Documents as part of its assessment of the CEA and the ex-post prudency assessment, then this would provide a higher degree of certainty prior to the investment decision.

Historically, the QCA has provided ex-post Prudency Rulings and approved $68m of non-expansionary capital expenditure under s.12.10(c), associated with some important programs including the SR1 Replacement Project (**RL3**), and Phase 2 of the Water Quality Improvement Project (**WQIP2**). These works were similar to works the QCA had approved previously in the 7X Expansion Project (**7X**). By providing ex-ante Prudency Rulings, and if the QCA provided certainty as to the scope and limitations of its ex-post reviews on expenditure relating to climate change, for example to the circumstances prevailing at the time, for consistency with sustainability objectives, government legislation and societal expectations, then more certainty will exist for DBIM to undertake such expenditure.

Corporate and regulatory insights

(9) How should differences between regulated entities' willingness to supply and customers' willingness to pay for adaptation and/or mitigation expenditure be reconciled? What if the willingness to pay differs among customers or groups of customers? In considering these matters, how should potential externalities be assessed? This includes positive externalities that may accrue to the broader community from increased mitigation activities.

[Refer Frontier paper]

(10) How do organisations justify climate change related expenditures to their boards and other internal stakeholders? To what extent can these processes inform the QCA's assessment of this type of expenditure?

DBIM's internal approval processes require the justification of the expenditure based on a range of factors:

- Is the expenditure necessary - for example for matters relating to compliance with safety, environmental or other legislative requirements, lease obligations, underlying project arrangements, etc.?
- Does the expenditure meet the prudency requirements of the AU?
- Are the risks associated with project appropriately mitigated?
- Is the expenditure consistent with the company's strategy and its stakeholders' views - for example DBI's Sustainability Strategy, expectations of its financiers, insurers and the broader community?
- Will the expenditure earn a reasonable return on and of capital?

If the answer to all these questions is Yes, then DBIM may consider approving the expenditure.

The factors for climate change related expenditure are not notably different to any other type of capital expenditure. These factors are closely linked to the factors the QCA would consider in any ex-post review. However, climate change related expenditure (particularly mitigation) is a new type of expenditure which has not previously been considered in isolation. Consequently, the development of a robust Sustainability Strategy informed the Board of the practical aspects of such expenditure, and embedding the strategy within DBI's governance structures (as shown in table below). For example, in adopting a target of Net Zero Scope 1 and Scope 2 emissions at DBT by 2050, it is important to not only make the commitment, but to also integrate the target in all activities at the terminal. For example with relation to DBT, a majority of its Scope 1 and Scope 2 emissions will be mitigated by a Power Purchase Agreement with 100% renewable benefits in the form of LGCs for the period to 31 December 2030. The related additional costs form part of the Operating and Maintenance Costs.

Table 3: Progress against commitments made in 2021 Sustainability Report

FY-20/21 strategic commitments	Actions at a glance
Develop a net zero roadmap for our Scope 1 and Scope 2 greenhouse gas emissions	• Prepared a Net Zero Strategy for the terminal to become Net Zero in operational emissions by 2050.[34] This may include the use of approved offsets, including LGCs.
Review Scope 3 emissions and assist our partners to reduce their emissions where feasible	• Identified an initial boundary for our Scope 3 emissions, which is proceeding through an internal materiality assessment.
Embed climate change strategy and risk management within governance structures	• Undertook a materiality assessment of 28 key issues across four themes: people, environment, business performance, community & partnerships. • Updated the charters of our Board, Finance and Audit Committee and the Compliance, Risk and Sustainability Committee to ensure the oversight and monitoring of existing and emerging climate-related risks are clearly detailed responsibilities of the Board and the Board's committees. • Reviewed DBI's risk appetite relating to climate-related risks and reframed DBI's Enterprise Risk Registers to better capture climate-related risks, including both transition and physical risks. This update will ensure that climate-related risks better inform strategic decision-making across the organisation. • Conducted a detailed climate-related physical risk assessment of DBT over various warming scenarios.
Report on progress in line with recommendations of the TCFD	• Performed a gap analysis against the recommendations of the TCFD, with the findings used to inform our actions during FY-21/22 and disclosures in this report.

Mitigating the emissions associated with the construction works for the NECAP program and the proposed 8X Expansion Project is another important priority, consistent with the Sustainability Strategy and subsequent Sustainability Reports. The Sustainability Report 2022 demonstrates further progress in this area, with the preparation of an 8X Sustainability Framework, which (among many other sustainability considerations) will seek to address the hard-to-mitigate emissions from the use of steel, concrete and transport fuels. The Sustainability Framework for 8X is currently under development but is expected to become a template for future NECAP construction works.

The DBI Sustainability Strategy, Reports and Frameworks (**Sustainability Documents**) will inform the mitigation and adaptation works required to achieve the Net Zero Scope 1 and Scope 2 emissions target at DBT by 2050, and the adaptation works required to promote the terminal's resilience to the impact of climate change. The Sustainability Documents will evolve over time to account for any changes in internal governance, government policy, the requirements of financiers, new reporting obligations, and new technology and practices.

Therefore, DBIM proposes that the Sustainability Documents should also inform the QCA's assessment of the expenditure associated with climate change adaptation and mitigation works, as it relates specifically to the circumstances of DBT and DBIM.

Appendix 2 Climate-related risks and regulated infrastructure – Frontier Economics

frontier economics

Climate-related risks and regulated infrastructure

A report for Dalrymple Bay Infrastructure | 9 December 2022

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Cover picture sourced from Dalrymple Bay Infrastructure.

1 Introduction

1.1 Background

The Queensland Competition Authority (QCA) is reviewing whether existing regulatory frameworks are sufficiently responsive to support prudent and efficient expenditure in an environment of climate change, and how best the QCA can support expenditure by regulated entities in response to climate change. The QCA has published a discussion paper seeking comments on matters including:[1]

- Climate-related risks and drivers; and
- The effectiveness of existing regulatory frameworks to accommodate and create appropriate incentives to manage climate change risks; and

The QCA explains that the purpose of its review is to: [2]

> *Consider whether our regulatory frameworks are sufficiently robust and flexible to support appropriate climate change related expenditures by entities and to provide the right incentives for such expenditures to be undertaken in a prudent and timely manner*

This review is occurring against a backdrop of increased occurrence and intensity of extreme weather events in Queensland, which have been underpinned by long term changes in temperature and rainfall.[3] Increasingly, climate-related and broader Environmental, Social and Governance (ESG) risks are driving government policy and private sector investment expectations.[4]

The QCA recognises that, "regulated entities are increasingly factoring in climate change considerations into decision-making, particularly in the context of long-lived assets."[5] In discussing this matter, the QCA has identified two types of climate change expenditures that may be incurred by regulated businesses in responding to climate change related risks:[6]

- Adaptation expenditure: focusing on enhancing the resilience of infrastructure to better cope with climate change and extreme weather events; and
- Mitigation expenditure: which relates to reducing Scope 1, 2 or 3 greenhouse gas emissions.

1 Queensland Competition Authority 2022, *Discussion paper Approach to climate change related expenditure*, October.

2 Queensland Competition Authority 2022, *Approach to climate change related expenditure*, October, p. 2.

3 Queensland Government 2020, *State of the Environment Report 2020*, https://www.stateoftheenvironment.des.qld.gov.au/climate/climate-observations

4 Queensland Government 2021, *Queensland Sustainability Report 2021*, https://www.treasury.qld.gov.au/programs-and-policies/esg/

5 Queensland Competition Authority 2022, *Approach to climate change related expenditure*, October, p. 6.

6 Queensland Competition Authority 2022, *Approach to climate change related expenditure*, October p. 2.

The QCA also raises a number of concerns about the impact of climate change expenditure on customers, including:[7]

- Pressure on regulated businesses to respond to climate change risks may result in "capital expenditure being ill-planned, ill-timed, not fit for purpose, ill-designed or made obsolete;" and
- Where this could, "have implications for customers through increased costs to fund works or through disruption impacts."

The QCA's discussion paper is a comprehensive survey of the climate change related issues touching on its regulatory frameworks. The QCA's release of its discussion paper and its intention to review the regulatory framework against current and emerging climate-related risks represents best regulatory practice.

1.1.1 Dalrymple Bay Infrastructure's light handed regulatory framework

Dalrymple Bay Terminal (DBT) is the world's largest metallurgical coal export facility, located south of Mackay, about 900 km north of Brisbane, servicing mines in the Bowen Basin and acting as a vital link in the global steelmaking supply chain (**Figure 1**).

The QCA has approved the 2021 Access Undertaking introducing a lighter-handed regulatory framework in the form of a 'negotiate-arbitrate' pricing regime (in respect of the 5-year period from 1 July 2021). As a result, DBI must negotiate the price for access with its customers.[8]

As part of the ongoing regulatory regime, Dalrymple Bay Infrastructure (DBI) is required to submit an Access Undertaking to the QCA for approval every five years. In the event of a pricing dispute, the QCA may act as arbitrator. In arbitration, the QCA is required to look beyond cost-reflective price parameters such as a reasonable return on and of DBI's investments in the terminal, and to take account of the value attributed to the services provided to DBT's customers.[9]

In October 2022, DBI reached agreement on pricing and commercial terms for a ten year period to June 2031, with all of its existing customers, under the light-handed regulatory framework.[10]

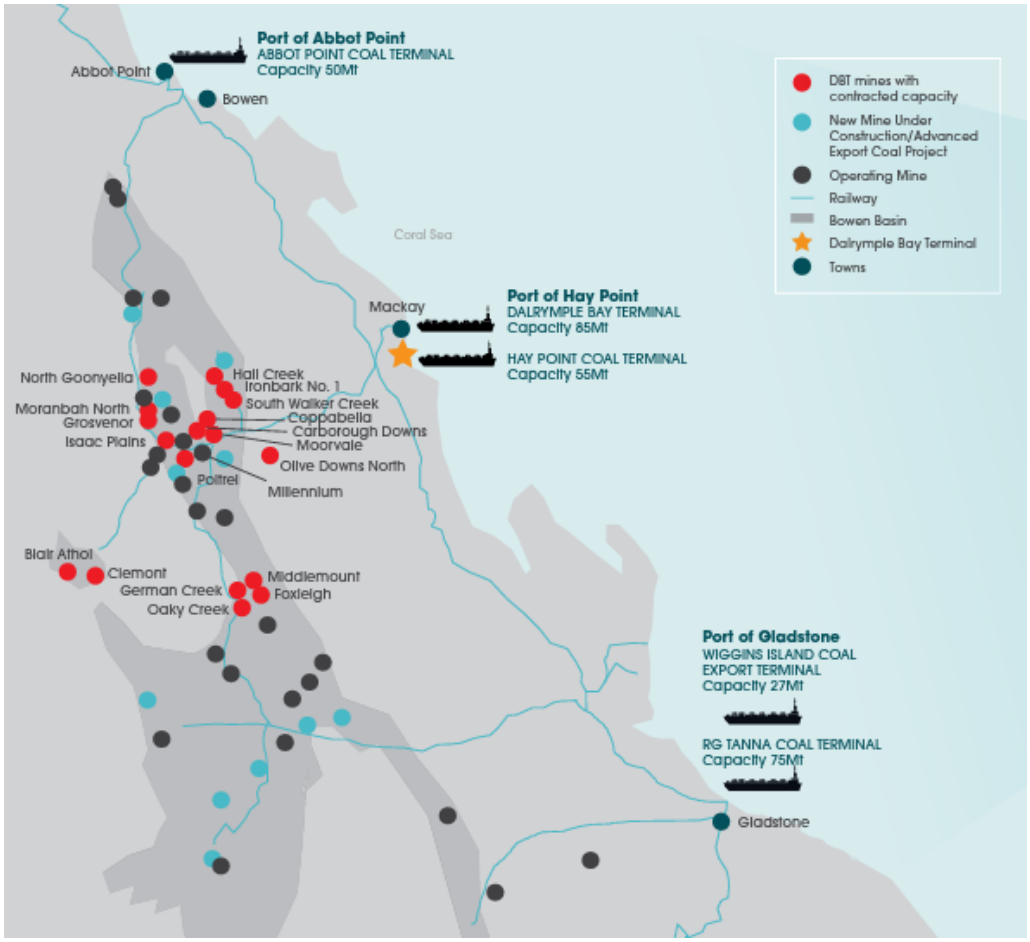
[7] Queensland Competition Authority 2022, *Approach to climate change related expenditure*, October, pp. 1-2.

[8] Dalrymple Bay Infrastructure 2021, *Annual Report 2021*, p. 36.

[9] Dalrymple Bay Infrastructure 2021, *Queensland Competition Authority confirms move to Light Handed Regulatory Framework,* 31 March.

[10] Dalrymple Bay Infrastructure 2022, *DBI announces 10 year pricing agreements and significant increase in distribution guidance,* 11 October.

Figure 1: The Dalrymple Bay Coal Terminal



Source: DBI 2021, Annual Report 2021, p. 6.

1.2 Our instructions

DBI has asked Frontier Economics to provide advice on:

- Environmental, Social, Governance (ESG) as a risk driver, particularly climate-related risks as they relate to regulated infrastructure providers such as DBI;
- How economic regulators in other jurisdictions have adapted their regulatory frameworks in response to growing ESG risks; and
- The advantages to regulated infrastructure providers and their customers in the QCA adopting a clear ex-ante regulatory framework for climate-change related adaptation expenditure.

We understand this work may support DBI's submissions in relation to the QCA's climate change expenditure review 2022–23.

1.3 Key findings

There is a clear case for the QCA to endorse an ex-ante assessment framework to guide the regulatory treatment of climate change related expenditure. The framework should be evidence-

based and pragmatic so as to best manage the inherent uncertainty across a range of potential climate futures.

This approach will best allow for regulated entities to integrate climate-related risks into their expenditure plans, based on the information available to them, and promote their customers' long-term interests.

Key findings:

- ESG is a risk driver for regulated infrastructure providers such as DBI. Growing ESG expectations, by investors, customers, and communities, result in new adaptation and mitigation expenditure requirements for regulated networks;
- Economic regulators have a role to play in both facilitating the transition and in managing climate-related risks. In practice, regulatory frameworks in other jurisdictions are seeking to adapt to climate-related risks, oftentimes needing to facilitate investment by regulated businesses before uncertainty is resolved; and
- We support the QCA's intention to develop an ex-ante framework that provides guidance to regulated entities about how it will assess climate change related risk and expenditure. This proactive approach represents regulatory best practice.

2 ESG and climate change related risk

This section describes recent trends in ESG expectations from investors, stakeholders and communities and the potential implications of this for regulated infrastructure providers' prudent and efficient (adaptation and mitigation) expenditure.

2.1 Climate-related risks and expectations are mainstream

There was a time when environmental, social and governance (ESG) and, in particular, climate issues were a niche concern of a select group of stakeholders. That time has long since passed, and now the consideration of ESG risk factors has become an integral part of investment analysis and decision-making processes. Climate risks can manifest in two ways:

- Physical Risks: Physical risks arise from climate-and weather-related events. Specific weather events can be considered as acute risks, and the longer-term shifts in climate patterns as chronic risks; and
- Transition Risks: Transition risks arise from the process of adjusting toward a lower-carbon economy. This reassessment could modify the value of assets and liabilities, thereby altering the risk profile of the firm.

Uncertainty is an inherent feature of climate risk (**Box 1**) and businesses are investing significantly to better understand the risks ESG factors (especially climate change) pose to them and their customers (**Figure 2**).

Figure 2: Climate-related risks, opportunities, and financial impact

Source: Task Force on Climate-related Financial Disclosures.

The Taskforce on Climate-related Financial Disclosures (TCFD) reporting framework has emerged as the global benchmark in climate risk identification and reporting.[11] It seeks to make businesses' climate related disclosures comprehensive, consistent and transparent. TCFD enables effective investor analysis of a company's demonstrated performance of incorporating climate related risks and opportunities into businesses' risk management, strategic planning and decision making. Other economic regulators have had utilised the TCFD when considering how to incorporate climate change related risks into their regulatory frameworks.[12]

The TCFD was set up in 2017 by the Financial Stability Board – an international body of regulators, treasury officials and central banks – to provide voluntary recommendations on how business could voluntarily disclose the risks and opportunities from climate change.

Box 1: Uncertainty is intrinsic to climate change risk

Uncertainty is intrinsic to climate risk. It is established that the climate is changing but not precisely how fast or in what ways. Nor can we fully anticipate the social and economic consequences of these changes or the steps that governments will take to reach net zero emissions. There are several distinguishing features of climate risk when compared to other types of risk:

- Increasing – The level of physical climate risk will likely continue to increase globally even in scenarios of declining future greenhouse gas emissions;
- Non-linear – The impacts of climate change are likely to be felt in a non-linear way as hazards reach thresholds beyond which the affected physiological, infrastructure, or ecological systems work less well or break down altogether;
- Spatial – Climate hazards manifest locally, and the direct impacts of climate related risk need to be understood in the context of geographically defined areas – there are variations between countries and within countries; and
- Under-prepared: The pace and scale of adaptation required to manage climate risk is uncertain, and oftentimes involves sunk costs.

Source: Frontier Economics

Understanding and acting on climate-related risks is driven by market forces

Globally, asset owners and investors continue to incorporate ESG criteria into investment analysis and decision-making processes. The emergence of responsible investment proponents, such as the United Nations Principles for Responsible Investment (PRI), has encouraged a fundamental change in investment practices whereby investors specifically employ ESG factors to enhance returns and better manage risk. Having been established in 2006, the PRI now has almost 4000 signatories – including Australian banks, pension funds, and other investors – with just over US$121 trillion AUM as of March 2021.[13]

11 Frontier Economics 2022, *The dollars and sense of climate risk*, https://www.frontier-economics.com.au/publications/the-dollars-and-sense-of-climate-risk

12 For example, Commerce Commission 2022, *Part 4 Input Methodologies Review 2023 Framework paper* 13 October.

13 PRI 2021, *Enhance our global footprint*, accessed 23 November 2022, https://www.unpri.org/annual-report-2021/how-we-work/building-our-effectiveness/enhance-our-global-footprint

Australian ASX100 companies are keeping up with global benchmarks in reporting the risks associated with climate change, and in setting carbon targets (as measured against the world's largest 250 businesses, i.e., G250). In 2022, of ASX100 businesses:[14]

- 90% acknowledge financial risks of climate change in their annual or integrated reporting (compared to 64% of the G250); and
- 89% have carbon reduction targets in place (80%, G250) – 66% of which are linked to the Paris Agreement target of 2°C (55%, G250) – with the vast majority disclosing how they intend to achieve these targets and none relying solely on carbon credits.

This performance reflects the now near consensus view in Australian business that, "climate represents a first order risk to the Australian economy, the financial system and investors."[15]

Climate-risk reporting is mainstream, and may become mandatory

With growing levels of disclosure, concerns around the quality and consistency of climate-related risks have emerged.[16] Efforts to integrate climate-related reporting being underway at an international level. Most significantly, the International Financial Reporting Standards (IFRS) Foundation—the peak global financial accounting standards body required for use by more than 140 jurisdictions around the world — set up the International Sustainability Standards Board (ISSB) to create a common investment language for climate and ESG-related reporting. The ISSB has since released two exposure drafts:[17]

- IFRS S1: Which would require companies to disclose information about all of their significant sustainability-related risks and opportunities; and
- IFRS S2: Which aims to provide a global baseline for consistent and comparable climate-related disclosures, incorporating recommendations from the TCFD.

These moves are supported by Australian business. In July 2022, Australian peak business and finance bodies, representing more than 400 companies, made a joint submission to the ISSB supporting the development of clear and comparable climate disclosures.[18] [19]

Looking ahead, it is likely that the trend toward mandating climate-related disclosures will continue. Mandatory climate risk disclosures have been announced in jurisdictions including the UK, the EU, Hong Kong, Japan, Singapore, Switzerland and New Zealand. Significantly, the United States Securities and Exchange Commission has proposed rules to enhance climate-related risk disclosure drawing from the TCFD recommendations. Collectively, these actions have set norms

14 KPMG 2022, *Sustainability Reporting Survey 2022, https://home.kpmg/au/en/home/insights/2022/10/sustainability-reporting-survey-2022.html*

15 Australian Banking Association 2022, *Major consensus reached on Australian climate risk reporting*, 1 August, https://www.ausbanking.org.au/major-consensus-reached-on-australian-climate-risk-reporting/?utm_source=miragenews&utm_medium=miragenews&utm_campaign=news

16 ASIC 2021, *What is "greenwashing" and what are its potential threats?*, July, https://asic.gov.au/about-asic/news-centre/articles/what-is-greenwashing-and-what-are-its-potential-threats/

17 IFRS 2022, *General sustainability-related disclosures*, https://www.ifrs.org/projects/work-plan/general-sustainability-related-disclosures/

18 Australian Banking Association 2022, *Consultation on [Draft] IFRS S1 and S2 Climate-related disclosues*,15 July, https://www.ausbanking.org.au/submission/issb-sustainability-related-financial-information-climate-disclosures/

19 The ISSB was established in November 2021 at the COP26 climate conference in response to strong demand from public authorities and market participants for high-quality, globally consistent sustainability disclosures.

and expectations for Australian businesses to develop their own disclosures, and to act on this information to manage climate change related risks.

The identification and disclosure of climate-related risks may also become material to the attraction of capital, as lenders may see issuers as lower risk. For example, HSBC notes that as it relates to mitigation activities and access to debt:[20]

> *If a borrower can show that their emissions pathway for their activities aligns with lending institutions' pathways broadly, it becomes much easier for the bank to lend to that borrower*

These market and regulatory shifts are most likely to continue to impact carbon exposed firms, incentivising greenhouse gas mitigation and changing financing and business models.

These trends have particular implications for carbon exposed firms

Businesses are operating in a legislative and policy environment which is increasingly aligned to climate and sustainability goals. Climate and sustainability policy is still evolving and future legislation or pledges by governments are more likely to tighten commitments rather than loosen them.[21] For the first time, in 2022 Australia has legislated economy-wide emissions reductions targets of:[22]

- reducing net GHG emissions to 43% below 2005 levels by 2030; and
- reducing net GHG emissions to zero by 2050.

These targets are interpreted to be consistent with the Paris Agreement and Australia's formal Nationally Determined Contribution (NDC) submitted in June 2022.[23] Complementing this legislation are a range of international climate commitments that Australia is a party to, including recent agreements to take action on reducing methane emissions and protect forests from deforestation.[24]

Sub-nationally, all Australian States and Territories have stated or made commitments to reach Net Zero by 2050. For example, the Queensland Climate Action Plan 2030 sets targets including:

20 HSBC 2022, *Stepping up: Why more Australian companies are embracing ESG*, 15 July, https://www.business.hsbc.com.au/en-au/insights/sustainability/why-more-australian-companies-are-embracing-esg

21 For example, Federal Minister for Financial Services Stephen Jones noted in an interview that Australia is currently "five to 10 years behind the rest of the world in regards to ESG regulation" and that he will investigate the possibility of legislating ESG definitions in 2023. Pro Bono Australia 2022, *Government to "drill down" on possible ESG legislation in early 2023*, 15 August, https://probonoaustralia.com.au/news/2022/08/government-to-drill-down-on-possible-esg-legislation-in-early-2023/

22 Parliament of Australia 2022, *Climate Change Bill 2022,* https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/Bills_Search_Results/Result?bId=r6885

23 Importantly, the *Climate Change Act 2022 (Cth)* also includes a provision that new or adjusted NDCs must be a more ambitious target than the NDC preceding it.

24 Australian Government Department of Foreign Affairs and Trade, *International cooperation on climate change*, https://www.dfat.gov.au/international-relations/themes/climate-change/international-cooperation-on-climate-change#action-biodiversity

- 30% emissions reduction below 2005 levels by 2030; and
- Zero net emissions by 2050.

The Queensland Government was also the first state in Australia to release a Sustainability Report where it stated:[25]

> *The Queensland Government has a key role in managing the state's environment, communities, and financial resources for future generations. It acknowledges the increasing expectations of the global community to demonstrate its approach to considering Environmental, Social and Governance (ESG) factors in its decision-making.*

While these economy-wide targets may appear symbolic in nature, they establish policy settings and market expectations with could have implications for businesses operating in carbon intensive industries.

The financial sector and the cost and access to capital

As the QCA notes, the businesses it regulates under part 5 of the QCA Act all have significant exposure to carbon intensive industries and may be, "particularly affected by climate change, not just in their operations, but in related areas such as access to finance too. However, it may also be also the case that infrastructure providers may be able to gain equity and debt financing if they reduce their scope 2 emissions." [26]

We agree with the QCA's statement. The financial sector is beginning to limit financing for fossil fuel projects, although the shift remains in the early stages. These actions could manifest in two related ways:

- Limitations in access to capital for carbon intensive projects; and/or
- Increases in costs of capital for carbon intensive projects.

A growing number of banks and asset managers around the world, including in Australia (**Table 1**), are placing restrictions on their lending and investment activities for fossil fuel projects. Further, in 2020, Blackrock—the world's largest asset manager with almost US$9 trillion of assets under management—announced that it would exclude from its discretionary actively-managed portfolio companies that generate more than 25 per cent of their revenues from thermal coal production.[27]

25 Queensland Treasury, *Environmental, Social and Governance*, https://www.treasury.qld.gov.au/programs-and-policies/esg/

26 Queensland Competition Authority 2022, *Approach to climate change related expenditure*, October, p. 15.

27 S&P Global Market Intelligence 2021, *Blackrock heading to net zero holds large fossil fuel investments for now*, 12 February, viewed 28 November 2022, https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/blackrock-heading-to-net-zero-but-holds-large-fossil-fuel-investments-for-now-62628334

Table 1: Restrictions on fossil fuel financing by major Australian financial institutions

Institution	Type	Assets/ market cap	Fossil fuel	Restrictions
Aware Super	Asset Manager	A$145 billion (assets)	Coal	Divesting from companies that derive more than 10 per cent of their revenue from thermal coal by October 2020.
UniSuper	Asset Manager	A$102 billion (assets)	Coal	Divested from companies that derive more than 10 per cent of their revenue from thermal coal.
Macquarie Group	Asset Manager/ Bank	A$70 billion (market cap)	Coal	Will fully divest from the coal sector by 2024.
HESTA	Asset Manager	A$68 billion (assets)	Coal	Will fully divest from companies deriving more than 15 per cent of revenue from thermal coal.
ANZ	Bank	A$73 billion (market cap)	Coal	Will not finance new builds of conventional coal-fired power plants.
Commonwealth Bank of Australia	Bank	A$181 billion (market cap)	Coal	Zero thermal coal exposure by 2030.
National Australia Bank (NAB)	Bank	A$99 billion (market cap)	Coal	Effectively zero thermal coal exposure by 2030 (aside from residual performance guarantees on existing coal mines)
NAB	Bank	-	Oil / gas	Will not finance oil/tar sands extraction projects or oil and gas projects in the Arctic or Antarctic.
Westpac	Bank	A$83 billion (market cap)	Coal	Zero exposure to companies with >%5 of their revenue derived from thermal coal mining by 2030.
Export Finance and Insurance Corporation	Export Credit Agency	-	Coal	Excludes coal power unless Ultra Super Critical with emissions <750g CO_2/kWh.
IAG	Insurer/ Reinsurer	A$12 billion (market cap)	Coal	Ceasing underwriting entities predominately in the business of extracting fossil fuels and power

Institution	Type	Assets/ market cap	Fossil fuel	Restrictions
				generation using fossil fuels by 2023.
QBE of Australia	Insurer/ Reinsurer	A$19 billion (market cap)	Coal	Zero thermal coal exposure by 2030.
Suncorp	Insurer/ Reinsurer	A$15 billion (market cap)	Coal	Zero thermal coal exposure by 2025.
Suncorp	Insurer/ Reinsurer	-	Oil / gas	Phase out direct investment in oil and gas exploration and production by 2040 with interim targets for 2025 and 2030.

Source: Frontier Economics.

Until recently, China was a major lender for new coal financing, but at the UN General Assembly in September 2021 announced it would cease funding for overseas coal projects.[28] Soon after this announcement the Bank of China announced in would cease new funding for overseas coal projects by the end of 2021.

If these trends continue, it is likely that the cost of capital for new carbon intensive projects will continue to rise. There is an emerging literature on this topic, and there is some evidence to suggest that the global debt markets are regearing to manage climate risk. For example, an Oxford Sustainable Finance Programme study found that loan spreads for coal mining companies increased by 54% from 2007-2010 to 2017-2020 after analysing loan information from 12,072 loan deals between 2000 and 2020.[29] Conversely, Apergis et al., observe that better ESG scores were associated with a lower cost of unsecured debt in the primary market for companies listed on the S&P over the period 2010-2019;[30]

Focusing on emissions, empirical evidence finds some support for Scope 1 and Scope 2 emissions[31] intensity of a business increasing the cost of debt, for example:

28 World Economic Forum 2021, *China set to remove overseas coal power funding – but will it invest in renewable energy instead?,* October 6, viewed 28 November, https://www.weforum.org/agenda/2021/10/china-set-to-remove-overseas-coal-power-funding-but-will-it-invest-in-renewable-energy-instead/#:~:text=Three%20days%20after%20Xi%27s%20speech,are%20not%20yet%20under%20construction.

29 Oxford Sustainable Finance Programme 2021, *The Energy Transition and Changing Financing Costs.*

30 Apergis, Poufinas & Antonopoulos 2022, *ESG Scores and Cost of Debt.*

31 Scope 1 covers emissions from sources that an organisation owns or controls directly – for example from burning fuel in our fleet of vehicles; Scope 2 are emissions that a company causes indirectly when the energy it purchases and uses is produced. Note that Scope 3 encompasses emissions that are not produced by the company itself, and not the result of activities from assets owned or controlled by them, but by those that it's indirectly responsible for, up and down its value chain. An example of this is when we buy, use and dispose of products from suppliers; Scope 3 emissions include all sources not within the scope 1 and 2 boundaries.

- For Australia, Jung et al., find a positive relationship between the cost of debt and carbon risk (defined as total scope 1 greenhouse gas emissions divided by sales revenue) for 78 companies listed on the ASX over the period 2009-2013;[32]
- In the syndicated loan market, Ehlers, Packer & de Greiff observe that Risks premiums were charged to borrowing firms with higher carbon intensities since the Paris Agreement, but the level of the premium was small and predominantly captured scope 1 emissions;[33]
- For U.S. public non-financial companies, Seltzer et al., observe over the 2009-2017 period, poor environmental performance, including having a more significant carbon footprint, is associated with lower credit rating and higher bond yield spreads; [34]
- For syndicated loans originated in the Asia Pacific region, The Hong Kong Monetary Authority finds that banks in the region have started to price-in carbon risks for loans to emissions-intensive sectors (scope 1 and 2 emissions to revenue) since the Paris Agreement. On average, banks are estimated to charge a higher lending spread to a high emitting firm by 23 basis points; and[35]

Despite findings such as these, the literature is not clear on the impact on the cost of borrowing, and some studies fail to identify a statistically significant pricing of carbon risk.[36]

2.2 DBI is managing climate change related risks

As outlined above, lenders, shareholders, businesses and governments are increasingly recognising the potential materiality of ESG and climate-related risks – including as it relates to carbon exposed businesses. As a result, businesses such as DBI are reporting their climate related issues and disclosing how they are mitigating risk.

In November 2022, DBI released its Sustainability Report 2022 comprehensively building upon its inaugural Sustainability Report in 2021 and based upon its 2020 DBT Sustainability Strategy.[37] Within the report, DBI outlines the results of its stakeholder materiality assessment conducted in 2022, compared with that it conducted in 2019. DBI observes:[38]

32 Jung, Herbohn & Clarkson 2016, *Carbon Risk, Carbon Risk Awareness and the Cost of Debt Financing.*

33 Ehlers, Packer & de Greiff 2021, *The Pricing of Carbon Risk in Syndicated Loans: Which Risks Are Priced and Why?*

34 Seltzer, Starks & Zhu 2022, *Climate Regulatory Risks and Corporate Bonds.*

35 Hong Kong Monetary Authority 2021, *Research memorandum 06/2021 Effect of climate-related risk on the pricing of bank loans: Evidence from syndicated loan markets in Asia Pacific,* 13 August, https://www.hkma.gov.hk/media/eng/publication-and-research/research/research-memorandums/2021/RM06-2021.pdf

36 For example, Mastouri et al., observe that when controlling for credit rating, sector exposure, size, and economic output, utilities, materials, and energy firms do not face a statistically significant higher cost of borrowing – despite their higher climate policy risk. Mastouri, Mendiratta & Giese 2022, *Corporate Bonds and Climate Change Risk*, 3 October.

37 Dalrymple bay Infrastructure 2022*, Sustainability Report 2022*, https://dbinfrastructure.com.au/wp-content/uploads/2022/11/DBC0007-SR22-PFOa_web_spreads.pdf

38 Dalrymple bay Infrastructure 2022*, Sustainability Report 2022*, p. 28, https://dbinfrastructure.com.au/wp-content/uploads/2022/11/DBC0007-SR22-PFOa_web_spreads.pdf

Consistent with global indicators, stakeholders placed a higher priority on addressing climate change, renewable energy transition and greenhouse gas emissions than in 2019. Particular emphasis by external stakeholders was made to be transparent on progress of the management of climate risk and decarbonisation

In its 2022 Sustainability Report, DBI also reports the relevant climate-related issues that it has considered and responded to, including:

- Decarbonisation: DBI developed a Decarbonisation Roadmap to target DBT's Scope 1 and Scope 2 emissions. DBT has secured arrangements for 100% of its electricity requirements with 100% renewable benefits in the form of LGCs from 1 January 2023. This will cover 98% of DBT's Scope 1 and Scope 2 greenhouse gas emissions per year;
- Climate change resilience and adaptation: In 2021-2022, DBI undertook a climate-related scenario analysis to explore a range of plausible future outcomes, and to identify potential risks and plan how to best mitigate their impact against a backdrop of significant uncertainty. Areas of possible vulnerability include coastal inundation, soil movement and flooding;
- Transition risk and coal demand: Metallurgical coal made up 75% of DBT's throughput in FY21/22 and DBI expects that significant metallurgical coal volumes will continue to be exported through DBT beyond 2050; and
- Transition risk and access to capital funding: The response of capital markets to climate-related risk may restrict the availability and increase the cost of funding for DBI and its customers. In response, DBI has prioritised its ESG performance and reporting and is undertaking ongoing TCFD alignment in climate-related risk reporting. We have been advised by DBI that in order to participate in capital markets, it needs to undertake these activities.

Importantly, DBI's actions to identify and manage climate-related issues in consultation with its customers occurs within a context of regulation by the QCA.

2.3 Climate-related risk exposure and regulated infrastructure

The vulnerability of regulated infrastructure to climate change and its effects will depend upon a variety of factors, including the type of infrastructure, its location, design, age, and the particular climate change-related risks to which the infrastructure might be subject. The extent to which regulated infrastructure is resilient to climate change (e.g., extreme weather events) will depend, at least in part, upon the extent to which the regulatory framework allows businesses to make investments that can adapt their assets to climate change.

There is a risk that existing regulatory frameworks may not appropriately incentivise prudent investment in the resilience of Queensland's regulated infrastructure. The QCA articulates the potential consequences of these challenges as:[39]

[39] Queensland Competition Authority 2022, *Approach to climate change related expenditure*, October, p. 1.

the risks of capital expenditure being ill-planned, ill-timed, not fit for purpose, ill-designed or made obsolete may impact not only the regulated entity. They can also have implications for customers through increased costs to fund works or through disruption impacts. These risks may be accentuated given the speed and scale of the changes being made in relation to climate change.

In considering the efficacy of the QCA's existing frameworks the first place to start is the expenditure objective of prudency and efficiency.

Prudent and efficient climate-related expenditure is also resilient

The QCA's regulatory framework does not need to be overhauled to incorporate climate-related expenditure. The QCA's standard approach to assessing the prudency and efficiency of capital expenditure claims involves applying frameworks that consider the scope, standard and cost of the project.[40] This standard approach can be applied to climate-related adaptation expenditure being investigated by the QCA, broadly defined as:

- Adaptation expenditure focused on enhancing the resilience of infrastructure to better cope with extreme weather events. Such expenditure includes replacement capital expenditure, enhanced greenfield expenditure and asset upgrades; and,

In discussing whether its standard frameworks are suitable for assessing climate change related expenditures the QCA presents a fundamental question:[41]

For example, in considering the prudency if capital expenditure, is there a trade-off between efficiency and least cost, and robustness and resilience? If so, how can these trade-offs be managed?

Regarding the nature of these trade-offs, prudent and efficient adaptation expenditure should imply that the project in question provides a cost effective means of delivering climate-resilient infrastructure services. Investing in infrastructure that is vulnerable, by design, to an accepted range of climate-related risks and uncertainties will likely cost less in the short term but should not be deemed prudent and efficient. That is, climate-resilience is a necessary condition to project prudency and efficiency. This should be the test applied to proposed climate-related expenditure.

The QCA applied this principle in the Toowoomba Range Stabilisation Project referenced in its discussion paper. That is, the scope of the project was based on uncertain future climate-related events and was tied to the reliability of service and preventing or mitigating future disruptions.[42] A similar example applying to DBT is provided in Box 2.The QCA may consider formalising this approach into an ex-ante framework for climate adaptation expenditure.

40 Broadly, scope considers if the works are needed, standard looks to ensure the works are at an appropriate standard and not over designed, and cost considers whether the expenditure reasonably reflects the work done.

41 Queensland Competition Authority 2022, *Approach to climate change related expenditure*, October, p. 22.

42 Queensland Competition Authority 2022, *Approach to climate change related expenditure*, October, p. 21.

Box 2: DBT WQIP Program

In February 2012, extremely high rainfall caused slumping of the coal stockpiles on a scale never seen before at the terminal. The runoff into the Industrial Dam included a high proportion of fine coal particles, and the high volume caused the overflow of the Industrial Dam into Sandfly Creek exceeding DBT's allowable release limits. Despite extensive mitigation works within the design parameters of the existing facilities, a similar situation occurred twice in the following wet season.

The three-phase $60m Water Quality Improvement Project (WQIP) was then proposed as a NECAP program to minimise the likelihood of the discharge of fine coal particles from the Industrial Dam into Sandfly Creek. The proposal was recommended by the Operator and was approved unanimously by all Customers. On completion of the works, all expenditure was assessed as prudent by the QCA in accordance with s.12.10 of the DBCT Access Undertaking and was included in the asset base.

While the term climate change was not used at the time, this expenditure would be consistent with climate change adaptation works. The application for approval of WQIP Phase 2 indicates the balance between capital expenditure and efficient adaptation, particularly in relation to the size of the new facilities constructed.

Source: Refer QCA website NECAP Expenditure: WQIP Phase 2 Application p5-6

Ex-ante regulatory certainty is likely to incentivise prudent climate change related expenditure

Prudent and efficient climate adaptation expenditure can and should be incorporated into the QCA's regulatory framework. As a result of this investigation, the QCA:[43]

> *[I]ntend[s] to develop a framework that provides guidance to regulated entities about how the QCA will assess climate change related expenditure and to create incentives for entities to act prudently and in a timely manner when undertaking such expenditure.*

Amendments to the regulatory framework will be required to account for the unique and significant uncertainty that is intrinsic to climate risk (Box 1), We consider amendments should be consistent with the following principles:

- Assessment of prudency and efficiency should be made up front based on the information available at the time, appropriate analysis, and in consideration of customer endorsements;
- Ex-post climate-related expenditure reviews should consider the circumstances at the time the investment was made (that is, the QCA should rule out optimising with the benefit of hindsight); and
- regulatory and legal requirements.

[43] Queensland Competition Authority 2022, *Approach to climate change related expenditure*, October, p. 2.

We address the issues related to adaptation expenditure below.

2.3.1 Adaptation expenditure

As the QCA's discussion paper explains, adaptation expenditure involves enhancing the resilience of the assets and infrastructure used to deliver services in response to anticipated events arising from climate change (e.g., future extreme weather events, such as storms and flooding). Disruptions to service delivery due to events related to climate change can impose significant economic costs on customers by:

- Resulting in lost consumption opportunities to end-customers; and/or
- Disruptions to the supply chains and lost revenues to businesses that rely on the regulated services as inputs to their own production activities.

Therefore, it can be prudent for regulated businesses to incur adaptation expenditure because such expenditure can enhance security of supply and the reliability of the regulated services. That, in turn, can avoid or reduce the economic harm that would otherwise be faced by customers as a consequence of climate change related disruptions.

Addressing uncertainty over the need for adaptation expenditure

As the discussion paper notes, the key challenge associated with assessing the need for adaptation expenditure is the uncertainty over the level of resilience required by regulated businesses against future climate change related events, and over the appropriate timing of such investments.[44] This uncertainty derives from the difficulty associated with forecasting accurately, over the relatively long lives of infrastructure assets:

- The nature, frequency and timing of extreme climate change events; and
- The impact of such events on regulated assets, and the extent to which supply may be disrupted.

Such forecasting is challenging because the nature of future climate change means there is very little historical information or experience that would be useful in informing the optimal extent of investment in future resilience.

The challenge this creates for the QCA is whether it is reasonable to approve adaptation expenditure by regulated businesses if the optimal level of climate resilience, and the optimal timing of such investment, is uncertain. If a certain level of adaptation expenditure is approved by the QCA, but it turns out that:

- A lower level of resilience than was approved would have been sufficient; and/or
- The investment could have been deferred because the climate events the adaptation expenditure was designed to manage did not occur in the timeframe that was anticipated,

then customers would have (with hindsight) paid a higher cost for the regulated service than was required.

A cautious regulatory response to this concern would be for the QCA to wait until uncertainty over the need for adaptation expenditure is resolved before allowing it. However, by the time the uncertainty is resolved it may be too late to build the resilience required to prevent major supply

[44] Queensland Competition Authority 2022, *Approach to climate change related expenditure*, October, p. 7.

disruptions. That is, the true need for adaptation expenditure may be revealed only once major climate events have occurred or are imminent—by which time it may be impossible to avert the losses that customers may suffer from being unable to access supply.

In our view, it is unavoidable that both regulated businesses and the QCA will have to make decisions about the required level of resilience, and the appropriate timing of adaptation expenditure, in an environment of significant uncertainty. In such circumstances, decisions about the appropriate level of adaptation expenditure should be made by weighing up the expected costs to customers of:

- having to pay for more resilience than is actually required; and
- insufficient investment in regulated infrastructure that results in unreliable or insecure supply.

For the reasons explained below, the likely asymmetry of these costs to customers would favour erring on the side of more investment in climate resilience than less, even when there may be significant uncertainty over the need for such expenditure.

The trade-off between efficiency and resilience

A key question raised in the discussion paper is whether there is a trade-off between efficiency and least cost, and robustness and resilience.[45] Undoubtedly, investment that increases the resilience of regulated assets to climate change events would also result in customers paying more for regulated services. However, in return, customers would expect to receive the benefit of a more reliable and secure supply of regulated services. That is:

- If regulated businesses invest in *more* resilience than is required, then customers would pay more than the efficient costs required to prudently deliver the regulated services; but
- If regulated businesses invest in *less* resilience than is required, then customers would suffer the costs associated with climate change related interruptions to supply.

Since the economic losses associated with unserved demand can be very large—especially in relation to infrastructure that is used to deliver essential services—the harms suffered by customers as a consequence of insufficient investment in resilience are likely to outweigh the harms suffered by customers as a result of regulated businesses investing in too much resilience.

The principle that the societal costs arising from inefficient underinvestment in regulated assets likely exceed the societal costs associated with overinvestment in regulated assets has been expressed by the Productivity Commission:[46]

[45] Queensland Competition Authority 2022, *Approach to climate change related expenditure*, October, p. 22.

[46] Productivity Commission (2013), Electricity Network Regulatory Frameworks, Inquiry Report, Volume 1, No.62, 9 April, p. 31

Under incentive regulation, under-remuneration is likely, ultimately, to lead to larger costs than over-remuneration of an equal magnitude. This is because the costs of underinvestment affect the long-run provision of reliable network services to consumers.

The same principle has been recognised and adopted by the New Zealand Commerce Commission when setting the allowed Weighted Average Cost of Capital (WACC) allowance for regulated businesses:[47]

In our view, it is appropriate to use a WACC significantly above the mid-point estimate for price-quality path regulation. This is because the potential costs of under-investment from a WACC that is too low are likely to outweigh the harm to consumers (including any over-investment) arising from a WACC that is too high.

We consider that the main reason to set a WACC percentile above the mid-point is to mitigate against the risk of under-investment relating to service quality generally, and contributing to major supply outages in particular. However, compared to setting the WACC at the mid-point, a WACC uplift should also reduce the risk of under-investment in other types of investment as well.

Underinvestment in climate resilience may very well result in customers suffering more harm (as a consequence of disrupted supply and unmet demand) than the harm they might suffer as a result of overinvestment in climate resilience. In these circumstances, our view is that uncertainty over the appropriate level or timing of investment in resilience is not sufficient reason to disallow adaptation expenditure proposed by regulated business designed to manage climate risks. In our view, the QCA should therefore favour the allowance of proposed adaptation expenditure, unless there is clear evidence that such expenditure would be imprudent or inefficient. This is a version of the *precautionary principle*—i.e., the idea that it is better to be safe than sorry.

Investing incrementally vs. investing to take advantage of economies of scale

The most restrictive approach a regulator could take to its assessment of proposed adaptation expenditure would be to reject all such proposals unless and until there is little or no uncertainty over the need for such investments. As explained above, that approach could result in customers suffering significant economic harm and is therefore not recommended.

A more nuanced approach would be for regulators to allow regulated businesses to invest in resilience incrementally in response to uncertainty about the future. That is, rather than building a large amount of resilience upfront (some of which could turn out to be unnecessary), regulated businesses could be allowed to increase their resilience gradually over time. Under this approach, adaptation expenditure could be pared back or halted altogether if it becomes clear that less resilience is required than may have been anticipated initially.

47 New Zealand Commerce Commission, Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services, Reasons paper, 30 October 2014, p. 11.

Whilst appealing in principle, the main drawback to this approach is that investing incrementally can be more expensive over the long-term than building more upfront, because the latter can generate large economies of scale. The DBT WQIP Program is an example of where the best solution was an investment in a dam, rather than incremental mitigation activities (Box 2).

The real options literature recognises that there is a trade-off between the flexibility that can be gained by investing cautiously and incrementally in response to uncertainty, and the cost savings that can be realised by investing at scale. The seminal text on real options analysis by Dixit and Pindyck (1994) explains this trade-off as follows:

> *As students of economics or business learn early on, economies of scale can be an important source of cost savings. By building a large plant instead of two or three smaller ones, a firm might be able to reduce its average cost and increase its profitability. This suggests that firms should respond to growth in demand for their products by bunching their investments, that is, investing in new capacity only infrequently, but adding large and efficient plants each time.*
>
> *What should firms do, however, when there is uncertainty over demand growth (as there usually is)? If the firm irreversibly invests in a large addition to capacity, and demand grows only slowly or even shrinks, it will find itself holding capital it does not need. Hence when growth of demand is uncertain, there is a trade-off between scale economies and the flexibility that is gained by investing more frequently in small increments to capacity as they are needed.*[48]

In the context of adaptation expenditure, regulated businesses could be allowed to either:

- make small, incremental investments over time in response to the need for greater resilience. This approach would limit the risk of regulated businesses inadvertently investing in more resilience than is actually required to deliver their services reliably—because the level of resilience that is built can track actual need more closely; or
- make larger, lumpy investments in resilience ahead of need in order to realise scale efficiencies. These efficiencies would ultimately be passed through as savings to customers.

Which of these approaches would be most optimal (from the perspective of customers) will depend on how large the economies of scale associated with making large, upfront investments are compared to the potential overinvestment costs that could be avoided by customers if regulated businesses were to invest incrementally. The DBT WQIP Program (Box 2) is an example of a project in which a larger investment is ultimately more efficient that smaller, incremental and ongoing investments.

Ex-post reviews may disincentivise prudent adaptation expenditure

Under its existing framework, the QCA can undertake ex-post assessments of the prudency and efficiency of expenditure. In an ex-post review, a regulator may undertake the review with the benefit of hindsight, rather than just the information that was available to the regulated business

[48] Dixit, A. K., Pindyck, R. S. (1994), Investment under uncertainty, Princeton: New Jersey, p. 51.

at the time it made those investments. Consistent with QCA practice, we consider that the regulator should only take into account information available at the time the expenditure was incurred.

Ex-post prudency and efficiency reviews of adaptation expenditure in particular poses significant risks for regulated businesses because of the significant uncertainty over the true level of resilience that may be required over very long asset lives to manage climate risks and over the optimal timing of such investments. If the QCA were to determine after the fact that particular adaptation expenditure was not actually required—because the climate risks those investments sought to manage did not eventuate—then those investments could be disallowed ex-post, and the business would be prevented from recovering those costs. Effectively, those investments would become stranded, even if those expenditures would have been judged ex-ante to be prudent. Further, the existence of this regulatory uncertainty would act as a disincentive to invest in adaptation expenditure in the first place.

The greater the uncertainty over the need for adaptation expenditures, the greater will be the risks to regulated businesses of being unable to recover those costs, if subject to broad or unlimited ex-post reviews.

In those circumstances, regulated businesses may be reluctant to make investments in future resilience that would in fact have been prudent and necessary to manage climate risk. If such investments are foregone or delayed inefficiently, that would be to the detriment of customers, who would have to bear the costs of supply disruptions arising from extreme climate events.

In our view, the significant uncertainty that is often associated with adaptation expenditure means that the QCA should be cautious about undertaking ex-post prudency and efficiency assessments in relation to such investments—or should limit the scope of such reviews—given the disincentives they may create for regulated businesses to make prudent and efficient investments in resilience.

A reliance on ex-ante frameworks, on the other hand, will limit the degree of regulatory uncertainty imposed on the regulated entity. The QCA's proposed provision of upfront guidance on climate expenditure will go a long way to dealing with the issues described above, and thus will incentivise prudent and efficient adaptation expenditure. This is consistent with regulatory practice as outlined in section 3.3.

2.3.2 Allowing full recovery of prudent and efficient expenditure

Much of the discussion paper focusses on how the QCA should assess future proposals for climate change related expenditure. The discussion paper notes correctly that responses to climate change may mean that regulated businesses that are exposed to the coal industry in particular may face a risk of being unable to recover over the long-term capital costs that were prudently and efficiently incurred in the past.[49]

We agree with the QCA's observation that the existing regulatory framework is (in principle) capable of addressing such risks—for, instance, by allowing the adjustment of depreciation profiles. However, we think the interests of customers would be promoted if the QCA could set out clearly that:

- its regulatory framework should provide regulated businesses with a realistic opportunity to recover past prudent and efficient expenditure over the long-term—as a means of incentivising future prudent and efficient investment that would benefit consumers;

[49] Discussion paper, pp. 27-28.

- regulatory allowances should be set such that capital expenditure that is deemed to be prudent and efficient at the time it was made may be recovered over the expected economic life of the regulated assets;
- the expected economic life of the regulated assets is the period over which the assets are expected to generate economic returns to investors (which may be shorter than the design life of those assets); and
- the expected economic life of the regulated assets should be reassessed periodically (since market circumstances can change over time), using up-to-date information available at that time. This assessment should include consideration of climate-related risks and other relevant criteria.

3 Assessing climate change related expenditure

This section proposes features of an ex-ante framework that could be adopted by the QCA that would, in our view, promote prudent and efficient climate change related expenditure.

3.1 Prudency and efficiency of expenditure

As outlined above, the QCA's traditional framework is flexible enough to assess properly the prudency and efficiency of climate change related expenditure. Hence, the existing regulatory framework does not require wholesale change that incentivises prudent and efficient climate change related expenditure, while promoting the Object of Part 5 of the QCA Act (**Box 3)**.

Box 3: Object of Part 5

The object of this part is to promote the economically efficient operation of, use of and investment in, significant infrastructure by which services are provided, with the effect of promoting effective competition in upstream and downstream markets

Source: Queensland Competition Act 1997

3.1.1 An ex-ante framework for climate change related expenditure

Major climate change related expenditures should be supported by justifications of proposals which make a compelling case for adaptation and mitigation investments, recognising the significant uncertainty that often exists about the optimal scale and timing of such expenditure. Equally, the QCA should not, when confronted with this uncertainty, be overly cautious about approving adaptation expenditure under conditions of unavoidable uncertainty that may in fact be prudent and efficient and should provide upfront guidance on how it will assess proposed expenditures.

Central to the QCA incentivising regulated businesses to respond appropriately to climate change risks is the need to incorporate climate resilience into its assessment of prudency and efficiency. Given the characteristics of climate change related risks, including how they relate to fossil fuel exposed businesses, we think the QCA should develop a climate change related expenditure framework that:

- is ex-ante in nature;
- relies on the justification for the proposed expenditure;
- includes in its ex-post review mechanisms a consideration of uncertainties related to climate-related risk; and
- is proactive in managing long-term demand uncertainty.

Collectively, an expenditure framework with these features will facilitate investment under uncertainty and provide advantages to both regulated infrastructure providers and their customers. Adopting this approach will:

- promote the economically efficient operation and use of regulated infrastructure through:
  - Investment in prudent and efficient levels of infrastructure resilience, providing asset reliability and security of supply consistent with meeting customers long term demand for regulated services; and
  - Reasonable investment in decarbonisation activities, where such investments: appropriately improve environmental outcomes (i.e., internalise negative environmental externalities created by the business) when delivering regulated services, are supported by customers, are consistent with the Sustainability Strategy of the business (e.g. in the case of DBIM, that has been developed jointly with the user-owned independent operator), or are required by government regulations or statute aimed at the regulated businesses directly.
- promoting economically efficient investment in regulated infrastructure through:
  - Providing up front regulatory certainty about how regulatory proposals for climate-related expenditure will be assessed, and what ex-post review uncertainties the regulated entity will be exposed to; and
  - Providing a transparent framework for user engagement in investment decisions.

Taken together, the adoption of an expenditure framework consistent with these principles would, in our view, promote the public interest, including the public interest in upstream and downstream competition in markets.[50]

3.2 Assessing adaptation and mitigation expenditure

We consider the QCA's discussion paper has broadly captured the key issues surrounding climate-change expenditure, and we are supportive of the QCA's efforts to develop a fit-for-purpose framework to address increasing uncertainty and provide clarity about how it intends to assess climate change related expenditure in future.

The following sections discuss potential conceptual approaches the QCA might adopt to assess the prudency and efficiency of adaptation and mitigation expenditure.

3.2.1 Adaptation expenditure

The QCA framework for assessing climate change related expenditure should, in our view, recognise explicitly that investments to enhance the resilience of the network to more frequent and larger extreme weather events promote the long-term interests of customers—by improving security of supply and reliability. The key consideration for the QCA is how much future network resilience may be optimal for consumers to pay for, given uncertainty about future the frequency and severity of future extreme weather events that are capable of disrupting supply.

[50] Consistent with s 138(2)(d) of the QCA Act 1997.

These considerations may be informed by the vulnerability of the entire supply chain to climate change related risks, that is, recognition could be given to the case that large scale events may impact infrastructure across the supply chain and not just DBT.

Establish the tools to support investment in resilience

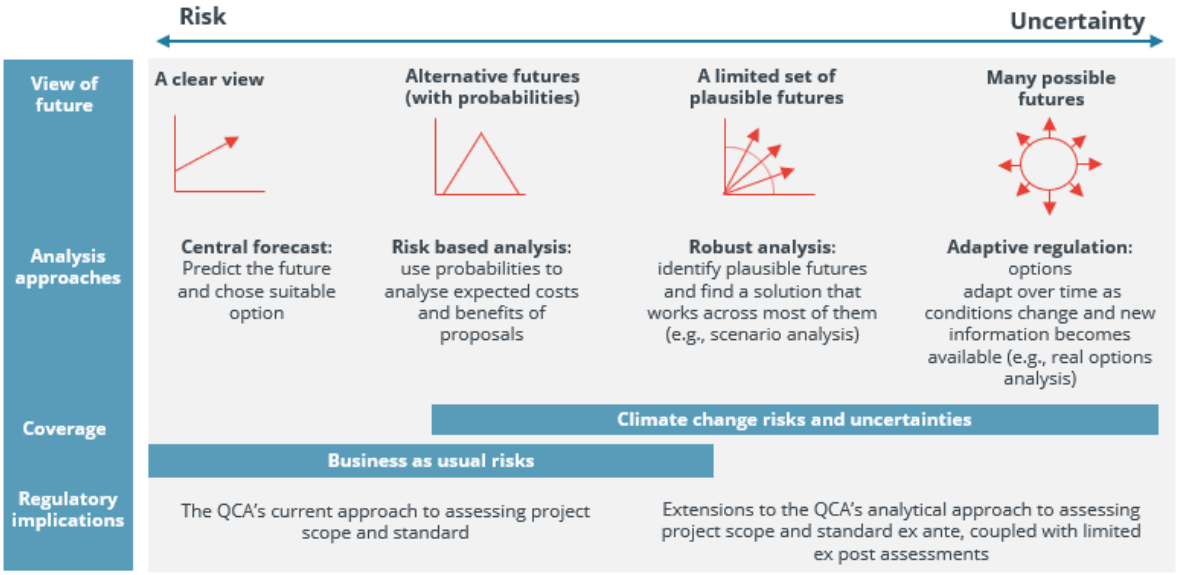
Prudent and efficient adaptation expenditure should provide for, in expectation, the lowest cost resilient regulated service for consumers. In assessing prudent and efficient adaptation expenditure the QCA should encourage regulated entities to pragmatically incorporate the uncertainty inherent in climate change related risks into their project proposals. In its guidance on risk and uncertainty analysis, Infrastructure Australia states that:[51]

> *Accounting for uncertainty requires a different approach from that used for project risks due to the greater challenges in quantifying the likelihood and consequences of events.*

There are a range of tools that are suited to considering and responding to risk and uncertainty in infrastructure planning, which may be useful on establishing a guidance framework for climate change related expenditure.

Figure 3 presents a range from risks, ranging from clearly predictable probabilities and consequences, to uncertainties that in extreme cases have many possible future states.

Figure 3: Tools to analyse risk and uncertainty



Source: Infrastructure Australia; Frontier Economics.

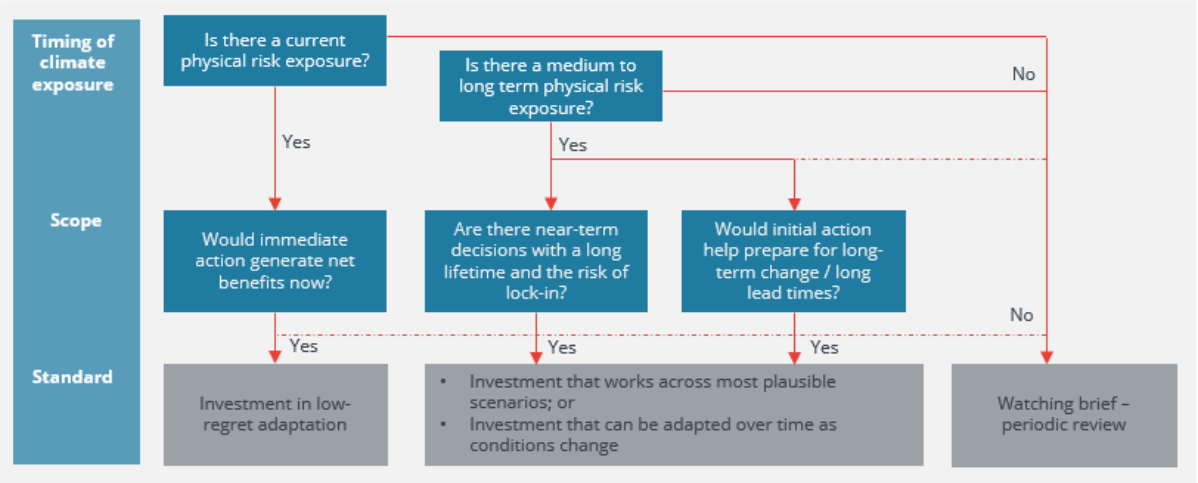
In developing its climate change related expenditure guidance framework, the QCA may consider pragmatic applications of the following techniques:

[51] Infrastructure Australia 2021, *Guide to risk and uncertainty analysis technical guide of the Assessment Framework*, July, https://www.infrastructureaustralia.gov.au/guide-risk-and-uncertainty-analysis

- **Scenario analysis**: Assessing outcomes for different but plausible climate scenarios. Depending on the investment alternative scenarios might be modelled in detail or the expected outcomes considered in a more qualitative way. DBI assessed the physical climate risk exposure on DBT across different climate scenarios based on data in the IPCC Assessment Report 5 under time horizons out to 2030, 2040, and 2100. This analysis will allow DBI to focus on areas of DBT which were flagged as having possible vulnerability.[52]
- **Real options analysis**: Analysis of future scenarios which could occur and how alternative strategies of proposals perform under these scenarios. Based on this analysis, the proposal can incorporate flexibility in the investment response to uncertain future outcomes and value how this flexibility impacts the costs and benefits. While challenging to undertake in practice, the concepts of real options can be used to incorporate flexibility to adapt into an investment plan.[53]

Incorporating these tools will better enable the valuation of resilience benefits, and provide an expenditure framework for customers to understand, engage and accept the investment proposal put forward by the regulated entity. Importantly, these tools can be incorporated into the QCA's assessment of adaptation expenditures scope and standard (an illustrative example is provided in **Figure 4**).

Figure 4: Illustrative decision-making process for assessing adaptation expenditure



Source: Frontier Economics

The upfront regulatory certainty provided by a clear ex-ante expenditure guidance will facilitate prudent and efficient investment in asset resilience ahead of time, avoiding inefficient disruptions to supply and ensuring that regulated businesses can provide a level of asset resilience that best benefits the long-term interests of its customers.

Once climate adaptation projects are approved by the QCA, the regulated business should be given the opportunity to recover its efficient costs fully.

52 Dalrymple Bay Infrastructure 2022, *Sustainability Report 2022*, p. 35–36.

53 For example, see: Coast Adapt 2017, *What is a pathways approach to adaptation?*, viewed 28 November 2022, https://coastadapt.com.au/pathways-approach

The framework should allow for the recovery of efficient costs

As discussed in section 1.1.1, once adaptation expenditure has been incurred any ex-post reassessment of prudency and efficiency should be based on the same set of circumstances and criteria as the ex-ante assessment. This approach is consistent with QCA practice, and that applied in other access regimes such as the Pilbara Networks Access Code which states that:[54]

> *the arbitrator must only take into account information and analysis that the NSP could reasonably be expected to have considered or undertaken at the time that it committed to the relevant capital expenditure.*

It is important to extend this principle to also recognise that for projects lasting multiple years regulated entities may make prudent and efficient changes in project expenditure based on a set of changed circumstances not known before the project started. Disconnects between ex-ante and ex-post assessments will impose significant uncertainty on regulated businesses. This may deter businesses from making prudent and efficient investments to manage climate change related risks if there is a risk that investments that were allowed as prudent and efficient ex-ante might be disallowed ex-post.

3.2.2 Incentivising prudent and efficient investment in regulated infrastructure

As the discussion paper recognises, climate change risks can alter the economic lives of regulated infrastructure and affect the ability of regulated businesses to recover prudent and efficient costs incurred in the past. The QCA's normal practice is to review the expected economic life of regulated assets at each regulatory determination. When doing so, the QCA should explicitly take account of the impact of climate change related risks on the economic life of regulated assets.

3.3 Regulatory practice

Ex-ante frameworks complemented by limited ex-post adjustments are common

We have undertaken a review of how different economic regulators determine how much capital expenditure can be allowed in a regulatory period. Typically, they rely on ex-ante frameworks, with limitations placed on ex-post adjustments.

As noted above, any disconnect between ex-ante and ex-post assessments imposes uncertainty on regulated businesses, which may deter businesses from making prudent and efficient investments if there is a risk that investments that were allowed as prudent and efficient ex-ante might be disallowed ex-post. This drives regulators to limit ex-post adjustments.

Through our survey, we determined that:

[54] Pilbara Network Access Code, https://www.wa.gov.au/system/files/2021-06/Pilbara%20Networks%20Access%20Code.pdf p. 57.

- The Australian Energy Regulator (AER) limits ex-post review to actual capital expenditure in excess of allowed expenditure determined ex-ante.[55] The AER does not have any powers under the National Electricity Rules to conduct any ex-post reviews of operating expenditure. In practice, the AER undertakes ex-post reviews of capital expenditure very rarely—even if the businesses have spent more than their regulatory allowances. Further, when undertaking an ex-post review, the AER must only consider information and analysis that the regulated entity could reasonably be expected to have considered or undertaken at the time that it undertook the relevant expenditure.[56]
- The Essential Services Commission (ESC) of Victoria defines, ex-ante, what is considered prudent and efficient capital expenditure based on the type of capital expenditure,[57] placing significant emphasis on actual capital expenditure meeting customer expectations based on what was agreed with the regulator and customers ex-ante.[58] For major capital projects, the ESC requires business cases and significant stakeholder consultation to demonstrate that projects are in customers best interests.
- The Independent Pricing and Regulatory Tribunal (IPART) undertakes ex-post assessments, but it only reviews historical capital expenditure by exception.[59] This means that, broadly speaking, if the regulated entity spends within allowances, IPART is unlikely to re-assess the efficiency or prudency of expenditure. Exceptions suggested by IPART include for regulated entities spending on very large capital projects and spending above the capital expenditure allowance, among others.[60]
- Like the AER, the Independent Competition and Regulatory Commission (ICRC) limits ex-post review of Icon Water's actual capital expenditure to those in excess of the allowable expenditure determined ex-ante. Only capital investments the ICRC determines as prudent and efficient will be included in the regulatory asset base for the next period.[61]
- Water infrastructure providers in the Murray-Darling Basin must comply with the Commonwealth Government's Water Charge Rules 2010 (WCR). The WCR limits the scope of any ex-post adjustments to only capture expenditure that was made in relation to a major project not previously approved, a project with a scope which differs materially from what was approved, or a project with expenditure materially exceeding the amount approved.[62]
- The New Zealand Commerce Commission does not subject any actual expenditure by gas pipeline businesses to an ex-post efficiency test, rather relying on ex-ante revenue allowances

55 AER, *Capital expenditure incentive guideline for electricity network service providers*, November 2013, pp. 13-20.

56 AER, *Capital expenditure incentive guideline for electricity network service providers – Explanatory statement*, November 2013, p. 64.

57 ESC, *2023 water price review – guidance paper*, October 2021, pp. 32-37.

58 ESC, *2023 water price review – guidance paper*, October 2021, p. IV.

59 IPART, *Final technical paper – Our water regulatory framework*, November 2022, p. 49.

60 IPART, *Final technical paper – Our water regulatory framework*, November 2022, p50.

61 ICRC, *Water and sewerage services price regulation: incentive mechanisms – Issues paper*, December 2019, pp. 13-14.

62 Australian Government, *Water Charge Rules 2010*, Schedule 2 Item 2, October 2020. The ACCC expands on rationale for limited ex-post review in its review of the WCR (see: ACCC, *Review of the water charge rules – Final advice*, September 2016, pp. 171-172).

that incentivise businesses to minimise costs to maximise profits, subject to meeting quality standards.[63]

In our view, there is a strong case for limiting the ex-post review of adaptation expenditure, given the significant uncertainty about the extent of future resilience that is actually needed in order to supply regulated services reliably to consumers. If the full quantum of adaptation expenditure undertaken by regulated businesses can be reviewed ex-post, when faced with material uncertainty over the need for future resilience, it is likely that regulated businesses will propose only those investments in adaptation that they are confident will not be disallowed with hindsight. This is likely to result in imprudently low investment in resilience as regulated businesses seek to minimise asset stranding, and a less reliable services to consumers than would be efficient.

To address this problem, the QCA may consider not conducting ex post reviews for adaptation expenditure. Alternatively, consistent with current QCA practice, when undertaking a ex post review, we consider that the QCA should only take into account information and analysis that the regulated business could reasonably be expected to have considered or undertaken at the time of the investment.

63 New Zealand Commerce Commission, *Default price-quality paths for gas pipeline businesses from 1 October 2022 – Final reasons paper*, May 2022, pp. 105-106.

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Appendix 3 Confidential report on DBIM recent experience with obtaining insurance for DBT

[redacted]