Queensland Competition Authority

Discussion paper

Approach to climate change related expenditure

October 2022

Level 27, 145 Ann Street, Brisbane Q 4000
GPO Box 2257, Brisbane Q 4001
Tel (07) 3222 0555
www.qca.org.au

We wish to acknowledge the contribution of the following staff to this report:

Ravi Prasad, Leigh Spencer and Stephen Wisenthal

PURPOSE OF THIS PAPER

Entities operating in sectors regulated by the QCA are increasingly considering climate change when making spending and investment decisions.

While we have mechanisms and frameworks to assess whether expenditure is prudent and fit for purpose, we are considering whether they appropriately support climate change expenditure, including that such expenditure be undertaken in a timely manner.

This discussion paper seeks stakeholders' comments on matters including:

- the risks and drivers of climate action
- the effectiveness of existing regulatory frameworks to accommodate and create appropriate incentives to manage climate change risks
- corporate and regulatory insights on how climate change is managed by other organisations.

The purpose of this paper is to help us consider whether we need to refine our regulatory approaches, given the climate change risks and opportunities that now confront regulated entities. We also note that the policy and regulatory environment relating to climate change matters is evolving rapidly.

Stakeholders' comments across all sectors regulated by us are due by 2 December 2022.

We will then produce a draft position paper for stakeholder comment, followed by a final position paper that outlines our views on the above matters.

For further information about this project, please contact Leigh Spencer on 07 3222 0555.

SUBMISSIONS

Closing date for submissions: 2 December 2022

Public involvement is an important element of the decision-making processes of the Queensland Competition Authority (QCA). Therefore, submissions are invited from interested parties concerning this discussion paper. The QCA will take account of all submissions received within the stated timeframes.

Submissions, comments or enquiries regarding this paper should be directed to:

Queensland Competition Authority
GPO Box 2257
Brisbane Q 4001

Contact: Leigh Spencer

Tel (07) 3222 0555
Fax (07) 3222 0599
www.qca.org.au/submissions

Confidentiality

In the interests of transparency and to promote informed discussion and consultation, the QCA intends to make all submissions publicly available. However, if a person making a submission believes that information in the submission is confidential, that person should claim confidentiality in respect of the document (or the relevant part of the document) at the time the submission is given to the QCA and state the basis for the confidentiality claim.

The assessment of confidentiality claims will be made by the QCA in accordance with the *Queensland Competition Authority Act 1997*, including an assessment of whether disclosure of the information would damage the person's commercial activities and considerations of the public interest.

Claims for confidentiality should be clearly noted on the front page of the submission. The relevant sections of the submission should also be marked as confidential, so that the remainder of the document can be made publicly available. It would also be appreciated if two versions of the submission (i.e. a complete version and another excising confidential information) could be provided.

A confidentiality claim template is available on request. We encourage stakeholders to use this template when making confidentiality claims. The confidentiality claim template provides guidance on the type of information that would assist our assessment of claims for confidentiality.

Public access to submissions

Subject to any confidentiality constraints, submissions will be available for public inspection at our Brisbane office, or on our website at www.qca.org.au. If you experience any difficulty gaining access to documents please contact us on (07) 3222 0555.

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1 ABOUT THE INVESTIGATION

1.1 Context of the investigation

Climate change is leading to more adverse weather events and more unpredictability in these events. While rainfall and streamflow has increased in some parts of Australia, and decreased in others, heavy rainfalls are becoming more frequent and intense. There has also been an increase in extreme fire weather and in the length of the fire season. Compound events are also occurring more frequently when extreme weather and climate events occur consecutively within a short time, or when multiple types of extreme events coincide.[1]

At the same time, there has been an increase in greenhouse gas emissions, with the global annual mean carbon dioxide concentration reaching 410 ppm and the CO2 equivalent of all greenhouse gases reaching 508 ppm in 2019.[2]

In response, governments have made a range of commitments in respect of climate change. There has also been an increasing focus on climate change and broader environmental, social and governance (ESG) matters from consumers, investors, insurers and banks.

In this context, climate change is likely to present a range of risks and challenges to regulated entities going forward, particularly in an environment where they have to manage risk, including transition risk, and build resilience across the supply chain amid increasing uncertainty and change.

Key risks include:

- damage to infrastructure—including due to changes in weather patterns as a result of climate change (such as flooding or rising sea levels) or increased heat stress
- changing market conditions—including due to changes in customer demand (such as reduced demand for thermal coal)
- evolving government policy—including Commonwealth and state emissions reduction targets (and the implications for entities making long-lived investments in this context)
- funding, insurance issues and/or other related corporate pressures—including where access to funding or insurance is tied to emissions levels or to the achievement of emissions reduction targets, or where other businesses in the supply chain place pressure on regulated entities to reduce emissions
- investor preferences—including where investors decline to invest in particular 'dirty' industries or reduce investment in those industries
- reputational issues—where pressure to reduce or offset emissions is viewed as being consistent with an entity's social licence to operate.

In this environment, 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

[1] BOM and CSIRO, *State of the Climate*, 2020, pp. 1–2, 8. See also The McKell Institute, *The Cost of Extreme Weather, Building resilience in the face of disaster*, September 2022.

[2] BOM and CSIRO 2020, *State of the Climate*, pp. 1–2, 18. Carbon dioxide concentrations were below 300 ppm before the industrial revolution.

impacts. These risks may be accentuated given the speed and scale of the changes being made in response to climate change.

There may also be opportunities for regulated entities, including through cost savings and innovation across supply chains.

Given these considerations, we think it is timely to 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.

1.2 What matters are we investigating?

Climate change expenditures by regulated entities can be broadly divided into two categories:

- *Adaptation expenditure* focuses 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

  A typical example could relate to replacing or upgrading an asset to reduce the expected impact of a future weather-related event (like flood damage).

- *Mitigation expenditure* focuses on reducing carbon dioxide equivalent emissions. Such expenditure relates to responding to changes in government policies, responding to community sentiment or due to external corporate factors (such as funding requirements) and maintaining a social licence to operate.[3]

  A typical example could relate to direct expenditure, such as converting a fleet of vehicles with internal combustion engines to electric motors, or indirect expenditure, such as the purchase of offsets.

That said, there may be other types of climate change related expenditure that are relevant to regulated entities, and we welcome feedback on these.

1.3 Scope of the review

This review considers whether existing regulatory frameworks are sufficiently responsive to support prudent expenditure in an environment of climate change, and how best the QCA can support expenditure by regulated entities in response to climate change.

In doing so, we intend 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. The focus of this paper is not on the level of various inputs to the building blocks methodology, including rates of return, as we consider these matters can be appropriately accommodated within the existing assessment frameworks.[4]

[3] For example, the Commonwealth Bank of Australia has announced that large customers that do not outline their emissions reduction plans by 2025 will not be served by the bank. See Commonwealth Bank, *2022 Annual General Meeting—Chair's Address*, October 2022.

[4] Stakeholders' views on these matters should be provided in the context of the various assessment processes that we conduct from time to time, including assessment of draft access undertakings.

Key issues that we intend to consider include:

- 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
- the evidentiary burden to support the approval of such expenditure, and processes to expedite approvals
- mechanisms to provide greater confidence that appropriate climate change related expenditure will be approved
- mechanisms to facilitate consideration of trade-offs between repairing and upgrading assets in an environment of increasing climate events
- the relevance of the resilience of the regulated business and customers' willingness to pay for this
- the balance and trade-offs between regulated businesses' costs (capital and maintenance) and service levels
- the merits of proactive versus reactive expenditure.

We are also open to comments on other matters stakeholders consider are appropriate and material in supporting climate change related expenditure.

1.4 Review process

We seek stakeholders' views by 2 December 2022 on whether our existing regulatory frameworks are sufficiently robust to accommodate climate change related expenditures.

While the timing of our considerations will be guided by the nature of stakeholder comments received, an indicative timeframe for key milestones for this review is provided below.

1.5 Consultation questions

While we are interested in stakeholders' comments on all aspects of our regulatory frameworks, and how they may apply to climate change related expenditures, we ask stakeholders to consider, in particular, those matters relating to spending on adapting to climate change and mitigating emissions. The following consultation questions are intended to help guide preparation of stakeholder submissions in response to this discussion paper.

Our questions roughly cover three areas:

- What is the problem being considered?

- How well do our existing regulatory frameworks for assessing investment and operating expenditure proposals apply to climate change related spending?
- What insights can improve or adapt the existing frameworks to better accommodate climate change considerations?

The rest of this discussion paper provides the background and rationale for the consultation questions that we are seeking responses on from stakeholders. Note that the questions have been grouped in a particular way in the list below, based on the three areas identified above, but appear in a somewhat different order when repeated in the subsequent text (based on the part of the discussion to which they best relate).

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.

(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?

(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?

(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?

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?

(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?

(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?

(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?

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.

(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?

(11) How do organisations consider different types of mitigation expenditures? How do they decide between alternative options (e.g. direct mitigation versus purchase of offsets) and justify those decisions? What lessons can be learned for the QCA's regulatory processes?

(12) What lessons can be learned from the insurance industry's assessment of climate change related risks? How should the QCA approach the assessment of actuarial information provided to it as part of future expenditure claims?

Does the QCA's approach to assessing self-insurance claims provide a model for assessing proposed climate change related spending? What might the criteria be for a climate change related application? What types of supporting material should an entity provide?

(13) Do stakeholders have experiences with other regulatory work or frameworks, in Australia or overseas, that the QCA ought to have regard to in undertaking this climate change project? If so, what lessons could be learned from such experiences?

2 CLIMATE CHANGE RELATED EXPENDITURE

2.1 The need for climate change related expenditure

Given the increasing likelihood of climate events and the evolving climate commitments of governments, regulated entities are increasingly factoring in climate change considerations into decision-making, particularly in the context of long-lived assets.

That said, the nature and objectives of such expenditures differ between those focused on adaptation to climate change and those aimed at mitigation of emissions.

2.2 Adaptation expenditure

2.2.1 What is adaptation expenditure?

Adaptation expenditure involves enhancing the resilience of infrastructure in response to actual or anticipated events arising from climate change.

Adaptation expenditure could take many forms. It can include building new infrastructure or enhancing existing infrastructure that is designed to manage climate related weather events (such as flood defences); or it can relate to upgrading other existing infrastructure to enable it to better withstand climate events (such as building roads and bridges to higher standards or raising them).

Adaptation expenditure can occur when existing capital assets reach the end of their useful lives and are due to be replaced, or when existing capital assets are pre-emptively upgraded. Alternatively, adaption expenditure can also occur when upgrading brownfield sites or when undertaking greenfield expenditure.

Increasingly, adaptation expenditure is being considered by regulated entities as they develop their operational or master plans. It is also being incurred on an ad hoc basis.

For example, the 2021 Dalrymple Bay Coal Terminal (DBCT) Master Plan notes:

> Climate change considerations (i.e. adaptation and resilience) have been examined in terms of appropriate and additional infrastructure within the marine environment.[5]

Likewise, Aurizon said in its 2021 Sustainability Report:

> Our operations and associated infrastructure are largely concentrated in climatic regions that could trend towards hotter and drier conditions. The key regions in which we operate, such as North and Central Queensland, might also experience increasingly severe weather events across a broader geographic region over the coming decades.
>
> …
>
> To date, an adaptive design approach and incremental experience-driven improvements have added to the resilience of our fixed network assets. … Building our understanding of climate models and exposures will aid in the development of new adaptive measures or expansion of existing controls across broader geographic regions to improve operational resilience.[6]

[5] DBI, *Dalrymple Bay Infrastructure Management Master Plan 2021, Expansion Opportunities at Dalrymple Bay Terminal*, 2021, p. 62.
[6] Aurizon, *2021* Sustainability Report, p. 52.

Adaptation expenditure to increase resilience to climate change events (such as increased storms or higher temperatures) can take various forms, including:

- replacement capital expenditure—for example, where damaged or life-expired assets are replaced with capital assets of a higher standard to better withstand climate events. An example is upgrading rail infrastructure to better accommodate heat stress (namely replacing wooden sleepers with concrete sleepers).[7] Replacement capital expenditure would ordinarily not change the configuration of the broader infrastructure
- enhanced greenfield expenditure—for example, where the development of new infrastructure is configured to better withstand anticipated future climate events
- asset upgrades—for example, where existing assets that are not necessarily life-expired are upgraded. This could include where existing dam walls are raised, flood levees enhanced, or bridges upgraded to address increased bridge scour[8] from higher precipitation levels
- additional maintenance expenditure—for example, from greater precipitation or heat stress causing damage to assets
- specific projects—for example, where new works are undertaken to improve the resilience of the existing infrastructure.

The above matters involve issues regarding the need for works to be undertaken in response to climate change, the appropriate level of climate resilience that is necessary and the timing for any works.

A further challenge with adaptation expenditure is that it may involve expenditure on long-lived assets in an environment of uncertainty about climate impacts. In considering the impacts of climate change on road and rail infrastructure, the European Commission said:

> Protection of river bridges may be needed over the next decades for about 20% of the stock in order to mitigate scour risk associated with increasing river flood. Given that bridges are designed for long life spans (>100 years) and that their maintenance and repairing activities have to be planned long in advance, future climate-related risk should be included in corresponding prior cost-benefit studies.[9]

Consultation question 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.

[7] European Commission, *Impacts of Climate Change on Transport: A focus on road and rail transport infrastructures*, JRC (Joint Research Centre) scientific and policy reports, 2012, p. 44.

[8] Bridge scour is the process of erosion around a bridge foundation caused by flooding—as defined by the Ohio-Kentucky-Indiana Water Science Center (*Bridge scour countermeasures*, US Geological Survey website, US Government, 28 July 2016, accessed 7 October 2022).

[9] European Commission, *Impacts of Climate Change on Transport: A focus on road and rail transport Infrastructures*, JRC (Joint Research Centre) scientific and policy reports, 2012, p. 73.

Box 1: Types of adaptation expenditure—sector-specific examples

- Rail—following a flood event, a below-rail service provider seeks to rebuild damaged infrastructure (such as bridges and culverts) to a higher standard than previously existed, on the basis that climate change suggests flood events are likely to become more prevalent in the future.
- Ports—a coal terminal owner proposing an expansion of capacity seeks to build additional resilience into the expansion, for example through extra stockyard protection or more robust marine infrastructure, on the basis that cyclones in central Queensland are predicted to be more severe in future due to climate change.
- Water—a dam operator seeks to enhance or accelerate its dam safety program and expenditures, on the basis that climate change is leading to more intense and more frequent major rainfall events in south-east Queensland, thereby altering the risk profile of its infrastructure assets.

2.2.2 Insurance/self-insurance

Adaptation expenditure can mitigate some, but not all, of the risks regulated entities face from climate change in providing their services.[10] Regulated entities also seek to insure against the risks created by the range and unpredictability of weather phenomena.

The Productivity Commission has recently observed that Australian natural disaster-related insurance claims rose notably between 2005 and 2022, increasing from a yearly average of $1.5 billion to $3 billion in real terms over the period. The Productivity Commission said that 'relative changes in insurance premiums stand to play an important systemic role in helping households and businesses understand the climate risks they face.'[11]

We accept that risk should be allocated to the entity best able to manage the risk. However, we understand that some regulated entities and aspects of their supply chains are increasingly facing difficulties in gaining insurance, or securing insurance at affordable premiums.[12] Those regulated entities with exposure to thermal coal appear to be facing the largest risks. Some assets are also typically difficult to insure, such as rail track and associated infrastructure.

Consultation question 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?

We accept that the operating costs of an entity should reflect the efficient costs associated with delivery of the service.

To date, we have accepted that efficient risk management costs can include self-insurance costs, particularly if the entity is not able to obtain commercial insurance or it is not otherwise feasible.

[10] See also Insurance Council of Australia, *Climate change action*, ICA website, accessed 11 October 2022.
[11] Productivity Commission, *5-year Productivity Inquiry: A competitive, dynamic and sustainable future*, interim report no. 4, September 2022, p. 61.
[12] See QBE, *Environmental and Social Risk Framework*, v 1.1, effective 1 January 2022, QBE, accessed 11 October 2022; Suncorp, *A resilient future, Climate Change Action Plan*, September 2021, p. 11.

In a previous report on extraordinary circumstances and in the context of the 2005 Queensland Rail draft access undertaking decision, we set out the criteria for including a self-insurance premium in cash flows. We said that the service provider must:

- identify the specific risks[13] and define the specific events that it proposes to self-insure for
- identify those risks that are not already covered by self-insurance
- demonstrate that self-insurance is the most efficient and practical approach to addressing these risks
- demonstrate its commitment and financial capacity to meet the costs of a self-insured event without undue delay.[14]

In such circumstances, we envisage that the self-insurance allowance would have regard to the costs and probability of an event occurring.

In the 2005 Queensland Rail draft access undertaking decision, we also noted that any proposal to self-insure must be accompanied by supporting information that quantifies the expected incidence and cost of risk by a method which is consistent with an actuarial assessment.[15]

We have typically also provided regulated entities with the ability to use review events or cost pass-through provisions to recover large costs. Such provisions can pass the risks of climate change damage to users.[16]

We seek stakeholders' views on whether the QCA's approach to managing the risk of climate change damage to infrastructure remains appropriate in an environment where access to, and availability of, insurance may be increasingly constrained. In doing so, we seek stakeholders' views on the appropriateness of different approaches to managing the risk of climate related damage—including self-insurance, review events or cost pass-through provisions.

Criteria

There are common factors between a self-insurance claim and a proposal for an investment to adapt to climate change:

- The justification is a risk-based assessment of expected future events.
- The expected future costs of those events are uncertain.
- There are likely to be alternative approaches, including passing the risk to customers.

Given these similarities, it may be appropriate for us to publish a list of criteria for assessing a climate-based investment proposal, along the same lines as the criteria for a self-insurance claim.

[13] Such risks would include to the service provider, users and the supply chain more broadly.
[14] QCA, *General pricing principles for infrastructure investments made in response to extraordinary circumstances*, draft for comment, March 2004, p. 117. See also QCA, *QR's 2005 Draft Access Undertaking*, decision, December 2005, p. 54.
[15] QCA, *QR's 2005 Draft Access Undertaking*, decision, December 2005, p. 56.
[16] Entities regulated under Part 5 of the QCA Act can also submit a draft amending access undertaking at any time.

Consultation question 12

What lessons can be learned from the insurance industry's assessment of climate change related risks? How should the QCA approach the assessment of actuarial information provided to it as part of future expenditure claims?

Does the QCA's approach to assessing self-insurance claims provide a model for assessing proposed climate change related spending? What might the criteria be for a climate change related application? What types of supporting material should an entity provide?

2.2.3 Procedural mechanisms

There are a number of different types of procedural mechanisms that sit within our existing regulatory frameworks and provide for ex ante or ex post assessments of prudency of expenditures, or for expenditure requirements to otherwise be revisited within regulatory periods. While we consider these mechanisms have in the past been fit for purpose, we are interested in stakeholders' views as to whether such mechanisms are sufficiently flexible and nimble to appropriately consider climate change related expenditures, in an environment where the policy and regulatory requirements may be changing rapidly.

Examples of the procedural mechanisms include:

- the streamlined approval process for non-expansion capital expenditure (NECAP) in the 2021 DBCT access undertaking, which effectively provides that NECAP will be deemed prudent if it has been recommended by the independent operator and approved by the existing users of the coal terminal
- customer vote 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
- 'trigger' mechanisms that provide for variations to revenue requirements and tariffs within regulatory periods, such as the review event and endorsed variation event provisions contained in the rail access undertakings
- 'true-up' mechanisms that provide for revenue caps and reference tariffs to be updated annually (also applying in the rail access undertakings)
- the DAAU process in Part 5 of the QCA Act—for more substantive changes that may be required to approved access undertakings
- other mechanisms that provide for pricing matters to be revisited during regulatory periods, such as the mid-term pricing review that applies to the Gladstone Area Water Board (GAWB) and the reset of key revenue cap values that occurs under Aurizon Network's 2017 access undertaking.

In considering the effectiveness of these procedural mechanisms in providing for appropriate assessment of climate change related adaptation expenditure, we intend to be cognisant of recent comments by the Productivity Commission relating to what constitutes an efficient adaptation policy (and which we think are also relevant to efficient regulatory frameworks). The Productivity Commission said that an efficient adaptation policy should focus on three tasks:

- helping individuals, households and businesses to make informed adaptation decisions
- avoiding policy settings that directly or indirectly constrain those adaptation decisions

- avoiding locking in development pathways that lead to higher future adaptation costs.[17]

> **Consultation question 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?**

2.3 Mitigation expenditure

Mitigation expenditure focuses on actions to limit global warming. It can involve:

- reducing the flow of greenhouse gases into the atmosphere, by reducing sources of these gases, for example by switching to renewable energy or less intensive uses of fossil fuels
- purchasing carbon offsets that accumulate and store these gases (such as in the oceans, forests, and soil).

As with adaptation expenditure, regulated entities are increasingly considering mitigation expenditure in their planning. These considerations typically have regard to the Commonwealth or state government commitments regarding reducing climate change emissions.

For instance, the Australian Government's policy is to reduce greenhouse gas emissions by 43 per cent below 2005 levels by 2030, and to put Australia on track to achieve net zero emissions by 2050.[18] Likewise, the Queensland Government recently committed to a 70 per cent renewable energy target by 2032 and 80 per cent by 2035; a 50 per cent reduction in electricity sector emissions on 2005 levels by 2030; and a 90 per cent reduction in electricity emissions by 2035–36.[19]

Beyond mitigation targets, governments are increasingly prioritising projects and initiatives that act to reduce emissions—which may have implications for regulated sectors. For example, a 70 per cent renewable energy target will have implications for Queensland's electricity networks in respect of connection services.[20] The Queensland Government also plans to have no regular reliance on coal fired power generation by 2035.

Regulated entities are increasingly seeking to align their climate polices with those of the government.

For example, the 2021 Dalrymple Bay Infrastructure Management (DBIM) Master Plan notes:

> DBIM has also committed to achieving net zero Scope 1 and Scope 2 greenhouse gas emissions from DBT operations by 2050, and is actively working on a strategy to shorten that timeframe.
>
> DBIM has also committed to the following strategic actions:
>
> Develop a net zero road map for Scope 1 and 2 greenhouse gas emissions;

[17] Productivity Commission, *5-year Productivity Inquiry: A competitive, dynamic and sustainable future*, interim report no. 4, September 2022, p. 57.
[18] Department of Climate Change, Energy, the Environment and Water, *Australia submits new emissions target to the UNFCCC*, news release, Australian Government, 16 June 2022; *Climate Change Act 2022 (Cth)*, section 10.
[19] A Palaszczuk (Premier and Minister for the Olympics), *Energy and Jobs Plan: Premier's 2022 State of the State address*, media statement, Queensland Government 28 September 2022.
[20] See also Queensland Government, *Transitioning to a low-carbon energy sector*, n.d., p. 2.

> Review Scope 3 emissions and assist partners to reduce these where feasible;[21]

Likewise, in pursuing a goal of net zero emissions by 2050, Aurizon's Climate Strategy and Action Plan says:

> We will continue to explore renewable energy and carbon abatement opportunities to complement direct abatement initiatives and offset hard-to-abate emissions across our operations.[22]

There is also increasing pressure from entities in other aspects of the supply chain to mitigate greenhouse gas emissions. For example, BHP's policy is:

- for direct suppliers—targeting net zero by 2050 for the operational greenhouse gas emissions of its direct suppliers
- for shipping of BHP products—targeting net zero by 2050 for greenhouse gas emissions from all shipping of BHP products
- for steelmaking and other downstream processes—partnering with customers and others to try to accelerate the transition to carbon neutral steelmaking and other downstream processes.[23]

We note that the climate commitments of governments and organisations have rapidly changed over time (and have become stricter). For example, the Australian Government's floor target to reduce greenhouse gas emissions by 43 per cent below 2005 levels by 2030[24,25] is 15 percentage points more ambitious than its previous 2030 target. Likewise, the Queensland Government's recent targets are more comprehensive than previously announced and increase the short-term renewable energy target from 50 per cent to 70 per cent.

In this environment of evolving targets and commitments, regulated entities may make long-term decisions on expenditure, expansions or other projects, which involve assets with long life spans (potentially extending beyond 2050). There is a risk of asset stranding or asset obsolescence in such circumstances, particularly where asset investments do not anticipate further tightening of climate commitments by governments or organisations on which the regulated entities rely.

[21] DBI, *Dalrymple Bay Infrastructure Management Master Plan 2021 Expansion Opportunities at Dalrymple Bay Terminal*, 2021, p. 63.

[22] Aurizon Network, *Climate Strategy and Action Plan*, 2020, p. 13. See also p. 4 regarding Aurizon's Climate Strategy and Action Plan.

[23] BHP, *Climate change*, BHP website, 2022, accessed 11 October 2022.

[24] A Albanese (Prime Minister and Minister for Climate Change and Energy), *Media release*, Australian Government, 8 September 2022.

[25] Section 10 of the Climate Change Act indicates that the 43 per cent target is a floor target, with the note accompanying the section stating: 'The achievement of a target involves reducing Australia's net greenhouse gas emissions to a level that is at or below the target. Accordingly, nothing in subsection 1 limits Australia's ability to reduce its net greenhouse gas emissions beyond 43% below 2005 levels by 2030.'

> **Consultation question 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?**

2.3.1 Types of mitigation expenditure—assessing alternatives

Various options are available for a regulated entity to reduce net emissions, including (at a broad level):

- reducing emissions directly, or
- not reducing emissions directly, but instead purchasing offsets.

It is not evident that our traditional approach to assessing prudency in terms of scope, standard and cost is directly applicable to entities seeking to undertake mitigation expenditure, particularly where there may be different alternatives to achieving the same level of net emissions. There is also a threshold question of what level of mitigation expenditure is appropriate.

When we assess whether mitigation expenditure is prudent, we are likely to have regard to a number of matters including:

- Whether the choice of mitigation expenditure should be simply the least cost approach to mitigating net emissions.
- Considerations beyond up-front cost alone that may affect the choice of particular types of mitigation expenditure. For example, purchasing emissions offsets may be more flexible, particularly in an environment where governments' climate commitments are evolving (and are generally becoming stricter). And some entities are likely to be able to reduce direct emissions more efficiently than others.
- Whether mitigation expenditure should simply align with governments' policy commitments. There may be reasons/circumstances where it would be appropriate for an entity's ambitions to exceed the government requirements.
- Whether some entities should mitigate at a level less than implied by governments' policy commitments. That is, achieving targets like 43 per cent emissions reduction by 2030 and net zero by 2050 does not mean every individual business in the economy has to meet these levels. In fact, it may be inefficient for businesses that only have high-cost mitigation options to try to achieve these levels, as opposed to relying more on businesses with lower-cost mitigation options.
- The extent to which the QCA should (as an economic regulator) involve itself in attempting to consider the effectiveness or otherwise of particular offset schemes. For example, it may be sufficient for the QCA to satisfy itself that particular offset schemes have been deemed to be effective by a relevant environmental regulator like the Clean Energy Regulator.[26] Or we

[26] We note the Queensland Government accepts the use of carbon offsets. For example, in respect of Australian Carbon Credit Units administered by the Clean Energy Regulator, the Queensland Government says that '[its] $500 million Land Restoration Fund … aims to expand carbon farming, by supporting land-sector projects that generate ACCUs through various land management activities regulated by the Clean Energy Regulator with additional

might give broader regard to critiques that have been made of various offset schemes from time to time.[27]

Consultation question 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?

Consultation question 11

How do organisations consider different types of mitigation expenditures? How do they decide between alternative options (e.g. direct mitigation versus purchase of offsets) and justify those decisions? What lessons can be learned for the QCA's regulatory processes?

2.3.2 Scope 2 and scope 3 emissions

In the context of measuring and acting to mitigate greenhouse gas emissions in industrial and commercial settings, it is common for businesses (and other parties) to identify different types of emissions, in particular:

- Scope 1 emissions—these are direct emissions from a company's owned or controlled sources. Attempts to reduce these emissions in the operations of the entities we regulate may be an important part of mitigation activities undertaken by these businesses. Mitigation activities could include actions to alter fuel mixes, reduce fugitive emissions (particularly for the service providers involved in coal transportation), more efficiently operate infrastructure facilities (including dams and coal terminals) and deliver maintenance activities more efficiently. It may also involve the appropriate purchase of offsets.
- Scope 2 emissions—these are indirect emissions from purchased or acquired energy. In practice, this type of emission is likely to be the focus for the majority of mitigation activity for the entities we regulate. This is with the knowledge that these entities are generally large infrastructure businesses that consume substantial amounts of energy in their operations.

  At the same time, some questions may be raised as to where in the supply chain scope 2 emissions are appropriately accounted for with regard to some regulated entities. For example, where a below-rail network like Aurizon Network purchases electricity to on-sell to its customers (above-rail operators) for their use, it may not be clear whether the scope 2 emissions should be best attributed to the purchaser or the user. This question may also arise, for example, where a below-rail operator undertakes actions to encourage greater use of electric traction in comparison to diesel traction (by the above-rail operators). Similar issues may arise where the independent operator of DBCT (DBCT Pty Ltd) purchases

environmental, social and economic co-benefits.' See Queensland Government, *Benefits through carbon credits*, Queensland Government website 2022, accessed 11 October 2022.

[27] As an example, see: *Macintosh, A, The Emissions Reduction Fund's Landfill Gas Method: An Assessment of its integrity*, 16 March 2022. This paper suggests that in the order of two thirds of abatement credited under the Commonwealth Emissions Reduction Fund's landfill gas methods would have occurred anyway, even in the absence of incentives under the scheme.

electricity for use at the coal terminal owned by DBIM. We are interested in any stakeholder views, and implications of such views, on these matters.

- Scope 3 emissions— these are indirect emissions that occur in the value chain of the reporting business. Scope 3 emissions can be further divided into upstream and downstream emissions. Upstream emissions encompass the indirect emissions within a business' value chain related to purchased or acquired goods and services, while downstream emissions encompass the indirect emissions within the value chain related to sold goods and services, with the emissions then being emitted after they leave the control of the business.

  We are interested in understanding stakeholders' views of the importance or otherwise of scope 3 emissions in moves by businesses to mitigate emissions associated with their commercial activities, particularly as public focus on these types of emissions may become more intense over time. This is from the perspective of both regulated entities and their customers. That is, it may be that perceptions of relatively high scope 3 emissions in regulated entities' supply chains create reputational and/or financial risks for these businesses (e.g. for the coal infrastructure businesses we regulate). On the other hand, regulated entities may be pressured by other supply chain participants (e.g. customers) to reduce scope 1 and scope 2 emissions associated with the regulated businesses so that the other supply chain participants can demonstrate that they are reducing their own scope 3 emissions.

> **Consultation question 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?**

2.3.3 Coal industry issues

The monopoly businesses whose access we regulate under Part 5 of the QCA Act all have significant exposure to the coal industry. This means they may be particularly affected by climate change, not just in their operations, but in related areas such as access to financial markets too. However, it may also be the case that infrastructure providers may be better able to gain equity and debt financing if they reduce their scope 2 emissions.

The coal miners are likely to seek to reduce scope 3 emissions, to support their social licence to operate and to improve their access to funding. This would put further pressure on the regulated businesses to find ways to reduce their carbon footprints. Some additional matters that may be relevant to coal related infrastructure businesses are discussed in chapter 4.

We seek stakeholders' feedback on how the QCA might appropriately consider assessing prudency of actions proposed by the coal-exposed infrastructure businesses in response to pressures of this nature.

3 ASSESSING PRUDENCY AND EFFICIENCY

3.1 Approving prudent climate change expenditure

Our traditional framework for approving expenditures by regulated entities has been to consider whether the expenditures have been prudently incurred. That is, are the expenditures prudent in terms of scope, standard and cost?

We are now assessing whether our framework remains relevant when firms undertake climate change related expenditures, particularly in an environment where entities seek to incorporate increased resilience into assets or engage in mitigation expenditure, where such expenditure may not be strictly necessary to provide the regulated service.

3.2 QCA processes

In this context, we are seeking stakeholders' feedback as to whether our regulatory processes support prudent climate change related expenditure undertaken in a timely manner.

For example, we invite comments on whether the existing regulatory frameworks adequately accommodate prudent climate change related expenditure in the following circumstances:

- The existing infrastructure to be upgraded has not yet reached its life expired date.
- There is uncertainty about the likelihood of climate related events in the future (including where data regarding climate events may be based on historical data).
- There are differences between the willingness of a business to undertake climate change related expenditure (both adaptation and mitigation) and the willingness of users to pay for such expenditure.
- The expenditure may mitigate negative externalities that affect third parties, and the regulated party or some or all of its customers are reluctant to fund the cost.[28]
- There are disagreements between customers about the nature of the investments and the asset lives (and in the context of governments' commitments on climate reduction targets).
- Options for the replacement assets have varying asset lives.
- There is a time lag between expenditure and regulatory approval of expenditure.
- There is uncertainty about the final amount we may approve as prudent.
- Entities are seeking to undertake long-lived investments in an environment where climate policies and obligations are rapidly evolving.
- There are alternative options for mitigating emissions (including different types of direct works as well as the availability of offsets).

[28] For example, the failure to undertake adaptation expenditure such as upgrading the integrity of a dam wall may have safety implications for communities downstream in the event of a major flood. Likewise, the failure to undertake mitigation expenditure such as direct expenditure to reduce emissions contributes to greenhouse gases in the atmosphere, with broad community impacts. In such cases, it may be appropriate to weigh the costs of such expenditure against not only the benefits to users, but also to have regard to broader community benefits.

- Spending on mitigation activities is proposed, which may not be strictly necessary to provide the service.

In considering the above matters, or other matters that stakeholders consider necessary, we seek stakeholders' feedback on whether our approaches to accepting prudent expenditures for regulatory purposes need refinement or are sufficiently robust to support climate change related expenditures, particularly given the scale and speed of changes occurring in response to climate change.[29]

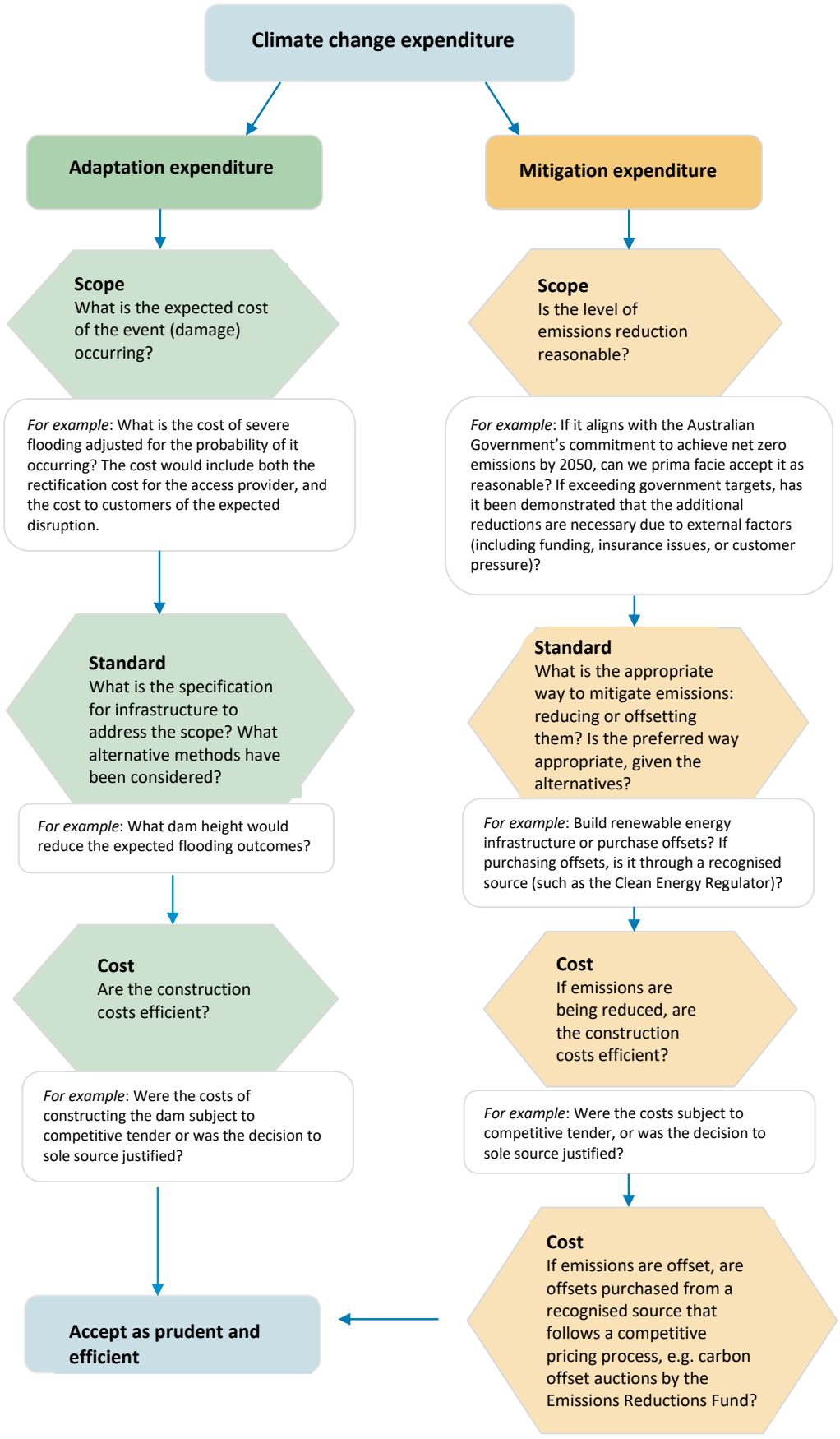
Our current approaches to assessing capital and operating expenditures across regulated sectors, and how they might be applied to climate change spending, are outlined below (Figure 1).

Consultation question 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?

[29] See AEMC, *Transmission planning and investment—stage 2*, draft report, June 2022. In this report, the AEMC considers whether the regulatory framework, which was designed to support incremental growth of transmission networks, is sufficiently flexible to manage the scale of the transmission investment and the speed of the energy transition, in response to climate change.

Figure 1: Assessing prudency and efficiency of adaption and mitigation expenditures



3.2.1 History of capital expenditure processes

The QCA has for almost two decades applied a prudency approach to assessing capital and operating expenditures.

The capital expenditure process is designed to promote appropriate investment by giving regulated infrastructure owners comfort that, if they invest in accordance with the framework, they will be able to recover their efficient costs over time. The approach considers three aspects of prudency:

- Scope—are the works needed?
- Standard—are the works of an appropriate standard and not over-designed?
- Cost—are the costs reasonable for the work done?

This section briefly reviews why and how the prudency approach for capital expenditure was developed for ports and railways and was applied to water infrastructure. It also discusses related approaches applied to operating expenditure.

The prudency approach was implemented in the middle of the 2000s, principally for the central Queensland coal infrastructure networks, in response to a rapid increase in demand for port and rail services from the coal industry. The customers wanted capacity increases, while the service providers were concerned they might not be able to recover money spent on new infrastructure.

Ports

During the investigation that led up to the approval of the 2006 DBCT access undertaking, DBIM[30] proposed that the terminal be expanded on the basis of two triggers (increased demurrage or rail transport costs) that were copied from the Port Services Agreement. But in examining this framework, we were not convinced that the proposed expansion triggers could be effectively activated to ensure that expansions occurred and delay costs were reduced.[31]

In our 2004 draft decision on DBIM's draft access undertaking, we noted:

> Incorporating a formal capacity expansion expenditure approval process into the access undertaking … has the advantage of providing certainty to DBCT Management [DBIM] as to whether expansion costs will be recognised within the RAB. In this regard, terminal expansions based on non-reference tonnes (e.g. short term contracts) may not attract the same level of assurity from the Authority as would an expansion based on long term reference tonne contracts. Moreover, the Authority believes that the absence of a process has the potential to make DBCT Management reluctant to commit to future capital investments. The Authority believes a reluctance to invest in expansions could impose greater costs on industry than the costs associated with premature or inappropriate investments.[32]

In response, in approving the first access undertaking for DBCT in 2006, we developed an expansion approval framework to facilitate and approve capital expenditure associated with terminal capacity expansions.

> The purpose of the framework was to not only encourage and facilitate capacity expansions at the terminal but to also provide regulatory certainty as to how capacity expansion costs would be assessed.[33]

[30] At the time, DBIM was called DBCT Management.
[31] QCA, *Dalrymple Bay Coal Terminal Draft Access Undertaking*, final decision, April 2005, p. 41.
[32] QCA, *Dalrymple Bay Coal Terminal Draft Access Undertaking*, draft decision, October 2004, pp. 51–52.
[33] QCA, *Dalrymple Bay Coal Terminal Draft Access Undertaking*, decision, June 2006, p. 18.

This process involved the QCA accepting upfront that capital expenditure was appropriate to be included in the regulatory asset base having regard to the scope, standard and cost of the works, if:

- the scope is consistent with the current approved Master Plan
- DBCT Management secured from access seekers firm contracts for at least 60 per cent of the proposed terminal capacity increment
- 60 per cent of existing access holders (i.e. users) do not oppose the expansion
- the standard and specifications of the proposed works and all relevant contract terms do not involve any unnecessary works or contain design standards that exceed those necessary to comply with the construction standards of the terminal
- tenderers are selected and contracts are awarded in accordance with the approved tender process (costs).[34] In other words, if there was a rigorous process for the selection of the approved tenderer, the costs were accepted as reasonable.

The expansion approval process enabled DBCT Management to gradually seek approval for various contract packages necessary for the expansion of the terminal, rather than the aggregate costs being subject to a prudency review once the works were all completed and the expansion commissioned.

These processes have been broadly retained in the 2021 DBCT access undertaking.[35]

Rail

Around the same time as the port regime was introduced, an analogous prudency process was put in place for investment in rail infrastructure, as part of a master planning framework for capacity expansions.[36] The 2006 QR Network access undertaking included measures for the maintenance of the regulatory asset base that:

- limited the circumstances under which the QCA could reduce the value of assets in the regulatory asset base[37]
- implemented a 'prudency of scope, standard and cost' approach to including new assets in the regulatory asset base
- provided for pre-approval of scope and standard (including that the scope can be pre-approved if it is accepted by customers accounting for 60 per cent of tonnages)[38]
- implemented customer groups for master planning.

This regime is still in place for Queensland Rail's West Moreton asset base. It is also included in Aurizon Network's 2017 access undertaking, although it has been supplemented (and largely

[34] QCA, *Dalrymple Bay Coal Terminal Draft Access Undertaking*, decision, June 2006, pp. 18–20.
[35] DBIM, *2021 DBCT Access Undertaking*, cl. 12.5.
[36] QCA, *QR's 2006 Draft Access Undertaking*, position paper, June 2006, pp. 4–6.
[37] The three reasons an asset's value could be reduced were discovering that it was included based on false or misleading information; a deterioration in demand to the point that prices without optimisation would result in further decline in demand (a 'death spiral'); and a clear possibility of bypass.
[38] 2006 QR undertaking, schedule FB, cl. 2.2.2(d).

replaced) by a new mechanism for Aurizon Network and its customers to agree on the scope and standard for maintenance and sustaining capital expenditure.[39]

An example of how the prudency approach has been applied for a rail project with similarities to climate change related investments is set out in Box 2.

Box 2: Toowoomba Range Stabilisation project

Queensland Rail's $20.5 million project to improve drainage and stabilise sections of slope on the Toowoomba Range crossing highlighted a number of factors that may affect future climate change related investments.[40]

While the work was not specifically justified as an adaptation in response to climate change, it was prompted by major flood events in 2011 and 2013 that caused extensive damage to Queensland Rail's steep section of track down the escarpment east of Toowoomba.

After the flood damage, Queensland Rail undertook extensive geotechnical analysis to identify sections of track that were particularly at risk of landslips from future heavy rainfall. Based on that study, it proposed works to reinforce two sections of rock and fill, supporting 530 metres of track near Spring Bluff.

Queensland Rail then sought preapproval in 2018 for the scope and standard of its planned stabilisation project, as the expected scale and cost of the project exceeded what had been included in the forecasts when its tariff was assessed (the 'capital indicator'). After the project was completed in late 2020, Queensland Rail submitted it for approval of the cost, as part of its next capital expenditure claim.

Key features relevant to future projects related to climate change include:

- The justification for the work (the 'scope') was:
  - based on uncertain future events (rather than something more tangible and measurable like an increase in contracted demand)
  - tied to reliability of service and preventing or mitigating future disruptions.
- The project reinforced the existing infrastructure without creating more capacity.
- The effectiveness of the project will only be clear after years or decades of the types of events it was designed for.[41]

As reliability of service was fundamental to the project, a key variable was the risk appetite of the customers. Queensland Rail provided letters of support from customers to accompany its initial preapproval submission.

[39] The maintenance and renewals strategy and budget process, set out in cl. 7A.11 of the 2017 Aurizon Network access undertaking, was part of a package of amendments agreed by Aurizon Network and its customers that were approved in 2019. See QCA, *Aurizon Network's 2019 draft amending access undertaking*, decision, November 2019, pp. 12–14.

[40] More information on the Toowoomba Range Stabilisation project, including Queensland Rail's submission, stakeholder comments, expert reports and our decision, is available on the QCA website at '*Capital expenditure preapproval*'.

[41] So far, the indications are good. The slope held up with no landslips and minimal damage in the heavy rain in February 2022. See Rail Express, *Works increase reliability of West Moreton line in wet weather*, 3 May 2022, accessed 13 September 2022.

Water

In general, the processes that we follow to assess the prudency and efficiency of capital expenditure as part of our regulatory roles for the water sector are similar to those used in the ports and rail sectors. However, there are some differences in how our prudency processes apply for the water sector, given specific elements of the requirements placed on water infrastructure operators (e.g. to undertake dam safety upgrades from time to time) and the evolution of the water regulatory frameworks over time.

In our 2020 final report on price monitoring for GAWB, we said that we consider capital expenditure is prudent if it:

- is required as a result of a legal obligation (compliance), new growth, replacement or renewal of existing infrastructure, or
- achieves an outcome that is explicitly endorsed or desired by customers, external agencies, or participating councils (e.g. improved reliability or quality of supply of services).[42]

We also said that we consider capital expenditure is efficient if:

- the scope of the works represents the best means of achieving the desired outcomes after having regard to the options available, including non-network solutions, and substitution possibilities between operating and capital expenditures
- the standard of the works conforms to technical, design and construction requirements in legislation, industry and other standards, codes and manuals
- the cost of the defined scope and standard of works is consistent with conditions prevailing in the relevant markets.[43]

> **Consultation question 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?**

3.2.2 Operating expenditure

Prudent and efficient spending is just as important for operating expenditure as it is for capital investment. We have pursued this objective in our periodic pricing reviews and price monitoring investigations, by examining operating expenditure through public consultation and expert reports. While capital expenditure reviews have typically been ex post, the operating expenditure

[42] QCA, *Gladstone Area Water Board price monitoring 2020–25 Part A: Overview,* May 2020, final report, p. 49.
[43] QCA, *Gladstone Area Water Board price monitoring 2020–25 Part A: Overview*, May 2020, final report, p. 50.

reviews have generally been ex ante, with the forecast costs for maintenance and other functions approved in advance for the relevant regulatory period.

In our 2020 final report on price monitoring for GAWB, we said that we consider operating expenditure is:

- prudent if it can be justified by reference to an identified need or cost driver
- efficient if it minimises GAWB's long-term costs of providing water supply services.[44]

In our recent review of Seqwater's bulk water prices for 2022–26, we specifically addressed the potential for operating expenditure to be related to climate change. We said we would consider prudent and efficient costs that were:

> reasonably required to achieve an outcome that is explicitly endorsed by customers (for example, specific reliability outcomes) or broadly accepted changes in community expectations in relation to corporate responsibility (such as commitment to climate change mitigation).[45]

This would cover both pre-emptive operating expenditure to minimise the chance of future climate related disruptions to services, and spending required for mitigation activities such as reducing carbon emissions.

3.3 Application to climate change related expenditure

In general, we consider that the mechanisms and processes we have developed over time for assessing prudency and efficiency of expenditure (capital and operating expenditure) are robust and effective across the various sectors that we regulate. However, we are conscious that the challenges presented by climate change, particularly in a policy and regulatory environment that is evolving rapidly, may raise new issues that need to be accommodated within these frameworks. We encourage stakeholders to comment on these matters—some issues stakeholders may wish to consider include:

- whether the existing processes appropriately incentivise and reward regulated service providers for setting net zero targets in alignment with government policies, and pathways to achieve those targets, as part of acting to meet their social licence expectations
- the extent to which our processes encourage service providers to develop and implement risk management frameworks and asset management plans that have appropriate regard to risks arising from climate change
- the extent to which the processes remain fit for purpose in an environment where regulated entities may need to prepare for and/or respond to more frequent or more severe climate change related significant weather events—such as cyclones, floods, major rainfall events and heatwaves
- the extent to which the QCA should have regard to climate change considerations as part of the approval process for new access undertakings under Part 5 of the QCA Act[46]
- whether the prudency and efficiency assessment processes are sufficient to enable appropriate regard to be given to the need for regulated entities to meet the legitimate

[44] QCA, *Gladstone Area Water Board price monitoring 2020–25 Part A: Overview*, May 2020, final report, p. 15.
[45] QCA, *Seqwater Bulk Water Price Review 2022–26*, final report, March 2022, p. 17. See also the discussion of greenhouse gas emissions abatement, p. 25.
[46] For example, climate change considerations may fall within the ambit of s. 138(2)(d) (the public interest) and (h) (other issues). If so, the question arises as to how much weight should be given to these considerations.

expectations of relevant third parties—including governments, investors, customers, regulators (e.g. ASIC and the ACCC) and the general community

- the potential interaction between the need for service providers to receive regulatory approval of climate change related expenditures, and obligations for the service providers to meet new and expanding risk and climate change related disclosure requirements that are externally imposed
- more generally, how effectively these processes operate in an environment where businesses face increased uncertainty around the need to undertake both adaptation and mitigation expenditures, to respond to climate change related risks and opportunities.

> **Consultation question 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?**

In some cases, the regulatory framework may also have to accommodate gaps between the businesses' willingness to undertake resilience/mitigation expenditure and users' willingness to pay for it. The willingness of different users to pay for such expenditure may also vary. For example, a miner with a short mine life may have a different view on whether long-lived asset upgrades to a rail system or port terminal should be undertaken, compared to a miner with a long mine life.

The QCA is also mindful that balancing the interests of regulated businesses and users in respect of expenditure that is motivated by climate change may impact other parties or the community at large (i.e. create externalities, positive or negative). Such impacts could be particularly relevant with regard to action or inaction in respect of mitigation activities. It may be appropriate in some cases for proposed mitigation expenditures that are not supported by a regulated entity's customers, but which would deliver positive externalities to the broader community, to be approved by the regulator—after having regard to, among other things, public interest considerations.

> **Consultation question 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.**

3.4 Other jurisdictions

Governments and regulators across Australia and around the world are seeking to implement approaches to climate change that serve public policy goals, while balancing the interests of infrastructure providers and their customers.

- For adaptation, they want to promote effective preparation for climate change while avoiding overinvestment.

- For mitigation, they look for an approach that meets, or potentially exceeds, government emissions reduction targets.

The National Infrastructure Commission, an advisory body set up by the United Kingdom government, said it is difficult to create the right incentives for infrastructure operators:

> Government, regulators and infrastructure operators need to strike a balance between short term cost saving measures, which could mean having too little spare capacity to deal with shocks and stresses, and 'gold plating' – providing excess resilience at high cost (which would ultimately fall to consumers and taxpayers). Not effectively maintaining a system can have significant costs and impacts.[47]

In Australia, the Productivity Commission said regulated (and non-regulated) businesses face challenges in determining what broad national or international emissions targets mean for their own mitigation and abatement objectives:

> Facility owners would not only need to form a view on what those aggregate emissions reduction pathways would mean for facility level benchmarks but would have to make long-run output estimates to assess what abatement options they would need to pursue in order to meet those future benchmarks. They would have to do this over a period in which consumption and production patterns will likely be changing as we enter a world of carbon constraints.[48]

Regulators in Australia have differing approaches to addressing climate change related expenditure. For example:

- In Victoria, the Essential Services Commission (ESC) suggested that water companies proposing spending on climate change adaptation and mitigation should consider its existing expenditure assessment approach.[49]
- In New South Wales, the Independent Pricing and Regulatory Tribunal (IPART) indicated that its 'standard' expectation is that a water business will propose cost-efficient spending to manage and adapt to the impacts of climate change, while its 'advanced' expectation is for climate change to be incorporated into forecasting models.[50]
- For Australian energy networks, the Australian Energy Regulator (AER) set out a detailed framework for resilience-related expenditure, including assessing risk against the cost of the investment, and demonstrating that the option chosen is the best of the feasible possibilities considered.[51]

Economic regulators outside Australia sometimes have roles that include pushing businesses they regulate to take action on climate change. For example:

- In the UK, various industry-specific regulators have explicit climate change policies promoting resilience (adaptation), mitigation, or both. These include the Water Services Regulation Authority (Ofwat)[52], the Office of Gas and Electricity Markets (Ofgem)[53], and the

[47] National Infrastructure Commission (UK), *Anticipate, react, recover: Resilient infrastructure systems*, May 2020, p. 15.
[48] Productivity Commission, *5-year Productivity Inquiry: A competitive, dynamic and sustainable future*, interim report no. 4, September 2022, p. 73.
[49] ESC, *2023 water price review*, guidance paper, October 2021 (August 2022 amendment), p. 17.
[50] IPART, *Draft Water Regulatory Framework*, technical paper, May 2022, p. 14. IPART also said it will release an issues paper in November 2022, on the next price reset for Sydney Desalination Plant.
[51] AER, *Network resilience: A note on key issues*, April 2022, pp. 11–12.
[52] See Ofwat, *Ofwat's 3rd Climate Change Adaptation Report*, January 2022.
[53] See Ofgem, *Our priorities and objectives*, viewed 11 October 2022.

Office of Rail and Road (ORR).[54] The UK government earlier this year wrote to several regulators asking them to review their regulatory frameworks for compatibility with its 2050 net zero target, and its interim carbon budgets.[55]

- The New Zealand Commerce Commission has introduced re-openers for gas pipeline companies' capital and operating costs to address unforeseen changes in policy and regulatory settings relating to climate change and the transition to net zero. The Commerce Commission also shortened asset lives to address expected reductions in the economic lives of the gas networks.[56]
- The Canadian Energy Regulator, responsible for electricity and pipeline networks, has detailed guidelines for how parties developing projects must address both climate change resilience and mitigation.[57] The Canadian government also sets out how project proponents must provide a 'credible plan for achieving net-zero emissions by 2050.'[58]

It is clear that regulators are becoming increasingly focussed on the implications of evolving climate change policy and climate related weather events for the appropriate regulation of monopoly infrastructure.

That said, it is not evident that there is a clear and consistent approach by regulators in Australia and overseas to accommodating the challenges of climate change policy in regulating monopoly infrastructure. While some regulators (like IPART) have published broad principle-based guidance notes on climate change matters, other regulators (like the AER and the Commerce Commission (NZ)) have developed more detailed frameworks and processes for considering climate change expenditures and events.

Consultation question 13

Do stakeholders have experiences with other regulatory work or frameworks, in Australia or overseas, that the QCA ought to have regard to in undertaking this climate change project? If so, what lessons could be learned from such experiences?

[54] See ORR, *Consultation on developing ORR's approach to environment and sustainable development*, viewed 11 October 2022.
[55] See Department for Business, Energy & Industrial Strategy (UK), *Strategic priorities and cross-sectoral opportunities for the utilities sectors: open letter to regulators*, January 2022, viewed 11 October 2022.
[56] Commerce Commission (NZ), *Default price-quality paths for gas pipeline businesses from 1 October 2022*, final reasons paper, May 2022, p. 7.
[57] See CER, *Filing Manual – Guide A – Facilities Applications*, including *Table A-2: Filing Requirements for Biophysical Elements*, viewed 12 October 2022.
[58] See Government of Canada, *Strategic assessment of climate change: A new impact assessment system*, viewed 12 October 2022.

4 OTHER MATTERS

While the investigation that we are commencing with the release of this discussion paper is primarily focused on climate change related adaptation and mitigation expenditures, and how these might be treated in our regulatory processes, we are aware that stakeholders may consider there are relevant linkages to some other matters that are also related to our regulatory roles. Such other matters might, for example, include:

- Financing impacts—with the knowledge that lenders, investors and insurers are all placing increasing emphasis on climate change risks and mitigation activities. Potential considerations may include:
  - Any impacts of climate change related matters on the ability of firms to raise equity and debt. The experience of listed regulated entities, such as the recently floated DBIM and Aurizon Network's parent company, may be relevant to the former. The extent to which some entities may have to pay a premium for debt finance or put more resources and effort into raising debt in potentially shallower markets may be relevant to the latter. With regard to raising debt finance, it is also possible that environmental obligations tied to financing activities may increase costs in the short term but lead to broader benefits in the longer term as entities become better able to meet lenders' requirements.
  - For coal industry exposed regulated entities, the amount of differentiation in financial markets between coal producers and other businesses in the coal supply chain—that is, the extent to which participants in these markets view coal miners and coal-related infrastructure businesses similarly, or the extent to which they take a more sophisticated view of the underlying cash flow and risk drivers of these businesses.
  - The linkages between financing matters and the adaptation and mitigation activities described elsewhere in this paper. For example, does increased adaptation expenditure to increase the resilience of infrastructure assets reduce the perceived risk levels associated with financing regulated entities? Equally, does shareholder pressure to reduce emissions mean that capital may not be available unless businesses meet certain minimum mitigation expectations?
- Other risks to infrastructure assets—including, for example, asset stranding risks. This may be most relevant to the regulated entities that have coal industry exposed infrastructure assets, noting that:
  - The long-term outlook for Queensland metallurgical coal remains strong. Resource Management International (RMI) recently concluded that the Bowen Basin, and in particular the Goonyella rail system corridor[59], is in a very strong competitive position to maintain a dominant metallurgical coal market share in the medium to long term.[60] Similarly, a recent Queensland Treasury analysis found it is likely that international demand will support Queensland's coal exports over the coming two decades, with the

[59] The Goonyella rail system corridor, leased and operated by Aurizon Network, is used to haul coal to DBCT and Hay Point Coal Terminal at the Port of Hay Point.

[60] RMI, *DBCT 2019 DAU: Review of the Economic Life of DBCT Assets*, report prepared for the QCA, February 2021, p. 4.

long-term prospects for the state's metallurgical coal likely to be more robust than for thermal coal.[61]

- The long-term outlook for Queensland thermal coal may be more problematic. In our final decision on Queensland Rail's 2020 draft access undertaking, we specifically noted that Queensland Rail's West Moreton line coal customers (who produce thermal coal) are likely to be vulnerable to sustained economic shocks.[62] That said, in 2022 prices for Queensland thermal coal have hit all-time record levels in real terms.
- While asset stranding risk may at some stage become a significant issue for one or more regulated entities, in general we think that existing regulatory processes are effectively set up to deal with such an issue—for example, through making adjustments to depreciation profiles. However, one matter that stakeholders may wish to consider is whether our regulatory frameworks' procedural mechanisms (described earlier) are sufficiently flexible and nimble to deal with occurrences like suddenly arising economic shocks.

The above matters are not the focus of this discussion paper given our initial view that these matters can be accommodated within our existing frameworks. For instance, it is open for stakeholders to make representations about the quantum of the rate of return and its components or about depreciation profiles, in light of climate change impacts, during a regulatory review—for example, a draft access undertaking approval process for a service regulated under Part 5 of the QCA Act. And we are able to consider the merits of any representations as per our processes and assessment criteria under the QCA Act (such as in accordance with the factors in s. 138(2) of the Act).[63]

That said, to the extent that stakeholders consider these other matters relevant for the purposes of this review, we request that submissions focus on how the regulatory frameworks could be amended so that stakeholders' concerns can be better considered. It may also be most effective for submissions to comment on how matters such as financing impacts and stranding risks might link to or interact with the need for regulated entities to undertake adaptation and mitigation activities.

We do not seek submissions on the appropriate quantum or design of rates of return or depreciation profiles.

[61] Queensland Treasury, *A Study of Long-Term Global Coal Demand*, September 2020, p. 3.
[62] QCA, *Queensland Rail draft access undertaking*, decision, February 2020, p. 38.
[63] We also note that important elements of our regulatory processes, such as the determination of rates of return, are well developed and have been the subject of relatively recent public reviews. For example, see QCA, *Rate of return review*, final report, November 2021.

ACRONYMS

ACCC	Australian Competition and Consumer Commission
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
ASIC	Australian Securities and Investment Commission
BOM	Bureau of Meteorology
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAAU	Draft amending access undertaking
DBCT	Dalrymple Bay Coal Terminal
DBI	Dalrymple Bay Infrastructure
DBIM	Dalrymple Bay Infrastructure Management
ESC	Essential Services Commission (Victoria)
ESG	Environmental, social and governance
GAWB	Gladstone Area Water Board
IPART	Independent Pricing and Regulatory Tribunal (NSW)
NECAP	Non-expansion capital expenditure
NSW	New South Wales
QCA	Queensland Competition Authority
RMI	Resource Management International
WACC	Weighted average cost of capital

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