

Submission to Productivity Commission Inquiry into 'Barriers to Effective Climate Change Adaptation'

The Australian Green Infrastructure Council (AGIC) commends the decision by the Federal Government to request the Productivity Commission to undertake an inquiry into regulatory and policy barriers to effective climate change adaptation. AGIC and its members recognise that there are significant barriers to effective climate change adaptation. In response to these barriers, the AGIC national infrastructure sustainability rating scheme has been designed as the first rating scheme anywhere in the world to explicitly consider climate change adaptation. The AGIC infrastructure sustainability rating scheme is to be launched nationally on 29 February 2012.

Background on AGIC's Infrastructure Sustainability Rating Scheme

AGIC is an industry-developed not-for-profit national association with 89 member organisations employing over 70,000 people. AGIC was formed to advance sustainability outcomes in infrastructure. The principal means AGIC will achieve this will be through developing and operating an industry-compiled voluntary rating award scheme. AGIC's National Infrastructure Sustainability Rating Scheme aims to deliver outcomes beyond regulatory requirements, and support and encourage infrastructure projects and their stakeholders to innovate and deliver high value, sustainable outcomes. The scheme has been under development for just over three years. An investment in excess of \$3.0M to date has been made by industry stakeholders, including the Federal Government, through cash and in-kind to develop the scheme.

The AGIC scheme will:

- benchmark, advance and promote the concepts and knowledge of sustainable outcomes throughout the design, construction and life cycle of infrastructure solutions, and
- recognise and reward organisations that deliver sustainable solutions in the design, construction and operation of our national infrastructure.

AGIC's rating scheme will apply to the following infrastructure types:

- roads and tunnels
- railways and bridges
- airports
- ports and marinas
- cycle and pedestrian pathways
- distribution grids

- water collection, distribution and treatment infrastructure
- telecommunication infrastructure
- civil engineering headwork's of industrial plants.

To promote awareness of sustainability throughout the life of infrastructure assets, AGIC will make awards at three stages - at the end of the planning and design phase, at the end of the construction or implementation phase and at regular intervals during its operational phase. Recognising the significance of Australia's huge legacy of existing infrastructure assets, awards under the AGIC rating scheme can be made to both existing infrastructure assets and new infrastructure projects.

The scheme comprises six themes - Management and Governance; Using Resources; Emissions, Pollution and Waste; Ecosystems and Biodiversity; People and Place; and Innovation. Within each theme there are from one to five categories. Climate Change Adaptation is one of five categories in the Management and Governance theme. Significantly, Climate Change Adaptation was the first of the 17 categories developed for the AGIC rating scheme, with funding provided by the NSW Department of Environment, Climate Change and Water.

AGIC engaged several consultants and other organisations to develop the categories within the rating scheme. Funding support for this work included funds provided by the Federal Government through the Department of Climate Change and Energy Efficiency and the Department of Infrastructure and Transport. AGIC then consolidated the material into a manual and rating tool. It subsequently undertook two rounds of pilot trials. In the first round the scheme was trialed on a water project and a transport project, both in Queensland. The second round of pilot trials, just concluded, involved a further 12 projects across Australia. Following the pilot trials, the rating tool and training manual are being updated in preparation for the national launch of the scheme in Parliament House Canberra on 29 February 2012.

Current Major Barriers to Effective Climate Change

AGIC considers that two of the main barriers to effective climate change adaptation are:

1. Lack of clear guidance on adaptation 'best practice' for infrastructure, which includes:
 - i. in most jurisdictions there are no regulatory or statutory imperatives requiring that potential future climate change risks to a proposed development be addressed
 - ii. until now, no guidelines or standards were available on whether, how and when to implement climate change adaptation
 - iii. uncertainty about climate change projections at specific future times - due to uncertainties about the future rate of climate change and how to select from the range of plausible climate change projections
 - iv. for several key climatic variables, a lack of definitive climate change projections at the fine spatial and temporal scales required to assess vulnerabilities (e.g. extreme rainfall, tropical cyclones, hail storms, electrical storms)

2. Discounting of long-term costs and benefits, which includes:
 - i. adoption of discount rates that give rise to short-term benefits and costs that dominate a project's modelled financial/economic performance
 - ii. failure of financial/economic models to adequately account for externalities, such as costs to the environment or to stakeholders when a vital infrastructure service is curtailed or disrupted by adverse climate change impacts, or the benefits of adaptation
 - iii. difficulty of quantifying future climate change impact costs and adaptation benefits, for use in financial/economic models and business cases
 - iv. performance bonuses and penalties that encourage CEO's and boards to focus on the near-term performance (of infrastructure, investments and operations) and discourage consideration of longer-term performance, such as the likely adverse impacts of climate change
 - v. inability of investors or purchasers to assess the climate change vulnerability or resilience (and sustainability generally) of a particular infrastructure project or asset.

Clarification and commentary on these barriers to effective climate change adaptation for the infrastructure sector is provided below.

Regulatory Responses

In regard to possible regulatory responses, the inquiry's issues paper asks for comment on whether any new regulations are justified to facilitate adaptation, and what would be the costs and benefits to the wider community?

In the above list of the main barriers to adaptation, item 1i is the absence of regulatory or statutory imperatives requiring that adaptation is addressed. The only exception to this is in Queensland. There, consideration of climate change risks and adaptation responses is one of the requirements in the generic terms of reference issued by the Department of Environment and Resource Management (http://www.derm.qld.gov.au/services_resources/item_details.php?item_id=206013) for environmental impact statements (EIS) for proposed major projects.

As well, a Queensland Government Cabinet directive requires that all submissions made to it for approval of major projects include a climate change impact statement (CCIS) (<http://www.premiers.qld.gov.au/publications/categories/policies-and-codes/handbooks/cabinet-handbook/assets/ccis-guidelines.pdf>) that addresses both climate change mitigation and adaptation aspects.

Importantly, these two imperatives have been framed to ensure that climate change risks and adaptation opportunities are always considered when planning and procuring major projects in Queensland, thereby reducing the potential for significant legacy climate risks to critical infrastructure and services supporting urban settlements and economic development.

Although sea level rise needs to be considered when assessing proposed major coastal and port developments in some other Australian jurisdictions, the requirements to comprehensively assess broader likely climate change impacts and adaptation opportunities are currently unique to Queensland.

It is recommended that this inquiry consider the value of applying these requirements throughout all Australian jurisdictions.

Government provision of public goods

The inquiry's issues paper cites research and information as examples of necessary commodities that may be underprovided by the market, but which can directly influence how households and businesses adjust to the impacts of climate change. The paper asks whether providing such research and information is an appropriate role for government. In the above list of adaptation barriers item 1ii was the lack of clear guidelines or standard for climate change adaptation.

Note that Australian guidelines and standards for climate change adaptation have been, and are currently being, developed. Recently, AGIC updated its own climate adaptation guidelines focusing on infrastructure (http://www.agic.net.au/agic_climate_change_adaptation_guideline_v2.1.pdf). Further guidance will be provided in the infrastructure sustainability rating scheme to be launched shortly.

Another significant current development is a principle-based standard for climate change adaptation for settlements and infrastructure (DR AS 5334) by Standards Australia. This emerging standard has received strong support and input from AGIC and other stakeholders and is due to be finalised and released in early 2012. See the draft standard at:

([http://www.asbec.asn.au/files/DR AS 5334 Draft Adaptation Standard 8Sept2011.pdf](http://www.asbec.asn.au/files/DR_AS_5334_Draft_Adaptation_Standard_8Sept2011.pdf))

For adaptation barriers 1iii and 1iv, uncertainties and knowledge gaps in climate change projections are the subject of ongoing research by CSIRO and others, but such barriers to adaptation are outside the scope of the present inquiry. However it is noted, that whilst considering barriers to effective adaptation, although the technical literature provides a wealth of information about climate change projections, these are often not presented in terms that allow them to be applied to climate change risk assessments of infrastructure projects or assets around Australia.

Market Failures

The inquiry's issues paper asks about possible market failures inhibiting adaptation. The second main barrier (item 2i), - the discounting of long-term costs and benefits, and how this discourages climate change risks assessment and adaptation - is very much within the inquiry's scope.

It is noted that discount rates commonly adopted mean that the financial viability of an infrastructure project is largely determined by its costs and benefits over the first decade or so. Subsequent benefits (in the form of avoided or reduced costs of climate change impacts) in later decades are commonly deemed to be insignificant. In contrast, any additional up-front costs of adaptation measures may, if large enough, impair the project's financial viability. However, given

the very long life of most major infrastructure assets, it is easy to identify assets that will be unaffected for the next few decades, but could become inoperable or uneconomic later this century as a result of sea level rise, increased rainfall intensities, reduced average rainfalls, extreme weather events or other climate change impacts.

Guidance on more appropriate discount rates would enhance the investment evaluation techniques used by government and private sector investors, helping them to better appreciate the climate change risks to proposed infrastructure investments and thereby promoting greater climate change resilience of new or existing infrastructure assets. AGIC's draft infrastructure sustainability rating scheme has a category specifically on Decision Making which addresses the incorporation of sustainability aspects into project or asset decision making including the proper consideration of the infrastructure lifecycle (through selection of factors such as discount rates). It would be very helpful if the Commission provided guidance on the selection of discount rates, for use in project or business financial/economic modelling, that better ensure an appropriate weight is given to potentially significant medium to longer term implications of climate change.

Making adaptation effective

The inquiry's issues paper asks how uncertainty can be addressed in the context of adaptation to climate change. This is a key over-riding challenge for climate change risk assessment and adaptation planning, and covers various dimensions of uncertainty – scientific, economic, policy, social etc. Over time, the degree of uncertainty may diminish, but delaying decisions and adaptation actions now because of uncertainty is likely to result in a greater legacy of infrastructure vulnerable to climate change impacts. We need to address climate change risks as infrastructure is designed, constructed and operated, recognising the inherent uncertainties faced. Some approaches commonly used include:

- 'no regrets' – implement actions that have net benefits regardless of the rate of future climate change
- adaptive management - a structured, iterative process of optimal decision making in the face of uncertainty, with an aim to reducing uncertainty over time via system monitoring (ref http://en.wikipedia.org/wiki/Adaptive_management)
- 'trigger points' - pre-determined thresholds which, when reached, require taking some adaptive actions (e.g. raising height of a sea wall when sea level rise causes the sea wall to be overtopped regularly).

How the AGIC Scheme will help address barriers to effective adaptation

In summary, the AGIC national infrastructure sustainability rating scheme represents a significant initiative that will help address several key barriers to effective climate change adaptation by:

- providing clear guidance on current adaptation 'best practice' in the infrastructure sector

- encouraging and rewarding innovations in adaptation and for achieving benchmarks in adaptation performance
- promoting climate change adaptation during the whole life span of infrastructure assets
- providing a benchmark that investors and purchasers can use to assess the climate change resilience of infrastructure they are considering purchasing
- influencing the tendency to discount long-term climate change impact costs.

Ongoing discussion opportunities

AGIC would like to propose further discussions between AGIC and the Productivity Commission in regard to:

1. how the AGIC rating scheme can best be used to promote climate change adaptation for infrastructure
2. ways to address the current focus on short-term performance of infrastructure, and discounting of medium to longer-term performance, such as climate change risks and impacts
3. identify and explore synergies and opportunities to improve infrastructure resilience to climate impacts

Thank you for this opportunity to comment.

Yours faithfully

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