



CLIMATE CHANGE IMPACT ASSESSMENT

Discussion Paper

November 2011

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ANY COMMENTS?

This paper is being released on the Chief Minister and Cabinet Directorate website for public comment. If you would like to discuss the paper or provide feedback, you can contact **Mr. Brook Dixon** on 02 6205 0468 or Brook.Dixon@act.gov.au

Comments on the paper are due by COB Thursday, 1 March 2012.

INTRODUCTION

The ACT Government in June 2011 released for public consultation the discussion paper '*Triple Bottom Line Assessment for the ACT Government*, (1). The Triple Bottom Line discussion paper reviewed relevant practice nationally and internationally and proposed a framework for 'up-front' assessment of likely economic, social and environment impacts of new ACT Government policies or projects.

The discussion paper provides for 'stand-alone assessments' to address specific commitments made by the Government. These include assessments of:

- poverty impacts;
- gender impacts; and
- climate change impacts.

The framework is designed to address the Government's commitment to conduct climate change impact assessments, as stated in the 2008 *Parliamentary Agreement for the 7th Legislative Assembly for the ACT* (2):

'3.10 The provision of Climate Change Impact Analysis [is] to be required for all Government Bills and major policy proposals.'

The ACT Legislative Assembly passed the *Climate Change and Greenhouse Gas Reduction Act 2010* in October. The greenhouse gas emissions targets set by this Act require the Territory to reduce emissions to:

- 40% less than 1990 levels by 2020;
- 80% less than 1990 levels by 2050; and
- zero net emissions by 30 June 2060.

Meeting these legislated commitments will require an agreed program of abatement, adaptation and mitigation measures. The monitoring and assessment of ACT Government activity including through the proposed Climate Change Impact Assessments, may help inform and refine the program.

Dr Bob Webb of the ANU Climate Change Institute was commissioned by the ACT Government to assist in the development of an approach to conduct climate change impact assessments as part of the triple bottom line assessment framework.

The proposed approach includes a form to guide the assessment (*Attachment 1*). It also includes guidance to assist those preparing the assessment (*Attachment 2* for mitigation and *Attachment 3* on the approach to climate scenarios and related adaptation implications).

WHEN IS A CLIMATE CHANGE IMPACT ASSESSMENT REQUIRED?

A climate change impact assessment will be required as part of a Triple Bottom Line Assessment for all Government Bills and for all major policy proposals that have significant climate change impacts. Bills and policy proposals will be assessed with regard to two factors of climate change: mitigation (the reduction or increase of greenhouse gas emissions) and adaptation (adjusting to changes in the climate).

Mitigation implications: a policy or proposal will need to be analysed to assess its impacts on climate change mitigation objectives, especially through changes in greenhouse gas emissions (positive or negative); and whether the policy or proposal has consequent impacts on the ACT Government's legislated Greenhouse Gas (GHG) Reduction Targets.

For example, it will be important to consider whether the proposal will lead to a material change (either increase or reduction) in the ACT greenhouse gas emissions, (electricity, natural gas, transport fuels and other emissions as calculated in the ACT GHG Inventory) and how the proposal will contribute to achieving the associated ACT's greenhouse gas reduction Government targets.

Impact and adaptation implications: it will be important to consider how the proposal takes account of possible climate change impacts, including managing the associated risks and opportunities for the ACT. The frame of analysis should include current or potential:

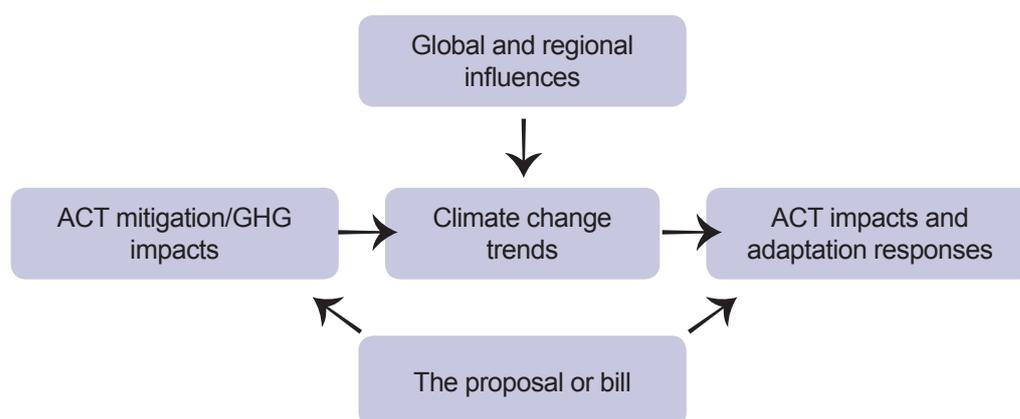
- impacts and vulnerabilities resulting from climate change;
- adaptive capacity/resilience, and
- adaptation responses.

For example, as a consequence of more extreme climatic events stormwater capacity may need to be increased to manage the risk of climate change.

ANALYSIS AND INFORMATION REQUIRED IN AN ASSESSMENT

Consideration of general mitigation and adaptation impacts and consequences should be made as part of the Triple Bottom Line initial assessment. If the impacts against either factor are significant then analysts should use the core questions contained in *Attachment 1* as the basis for assessing impact. If during initial consideration there is some uncertainty about the significance of the impact, a preliminary assessment should be conducted against the approach set out in Part A of *Attachment 1* and a decision be made to proceed with the other parts accordingly.

Figure 1: Factors in Triple Bottom Line Assessment



Factor 1: Mitigation Implications

Proponents should identify the major components of greenhouse gas emissions that may be impacted by the proposal (see *Attachment 2* for summary of current emissions by sector and ACT Government legislated targets). An estimate of the quantity of greenhouse gas emissions generated or abated (in tonnes Carbon Dioxide equivalent [CO₂-e]) should be made incorporating an associated cost/benefit analysis.

The impact could be through a variety of influences (e.g. change in overall energy demand and/or energy efficiency; change in sources of energy (renewable versus non-renewable); change in potential for carbon/CO₂ sequestration). Where a proposal is anticipated to increase emissions substantially, the assessment should include costed options for further mitigation and an estimate of the likely reductions arising from such measures.

Factor 2: Impact and Adaptation Implications

Proponents should identify the areas where there are interactions/interdependencies with climate change impact and adaptation (*Attachment 3* to this document provides a summary of climate scenarios and major areas of impact and adaptation response). The assessment should be based on currently predicted future climate change trends as an indication of the likely or potential magnitude of change. However, for proposals with very significant potential implications and/or sensitivities (e.g. water supply planning), assessment against a range of scenarios can be provided to supplement the analysis.

Proposals should outline:

- the risks to the proposal's own intent and outcomes arising from the current or potential impacts of climate change and related mitigation/adaptation measures;
- the extent to which the proposal potentially causes change to the risks and outcomes of other climate change mitigation/adaptation related policies, strategies and plans; and
- the extent to which the proposal addresses these changed risks and vulnerabilities.

PITCHING THE ANALYSIS AT THE RIGHT LEVEL

The impacts of climate change can be complex and pervasive, across social, economic and environmental dimensions. The process therefore needs to allow a practical balance – being specific enough to identify and understand the main impacts, while not requiring exhaustive and resource-consuming analysis of less important effects.

Further, in some cases strategic 'bundling' of similar proposals together to measure their aggregate impact can highlight the major interdependencies between different parts of proposals, and the areas that provide for 'win-win' and trade-off situations, that are characteristic of climate change issues. For example, the overall climate implications of an infrastructure proposal might be better addressed through a collective assessment of related infrastructure projects. This approach should foster more strategic outcomes, as well as being administratively simpler.

In some cases the appropriate 'proposal framing and scope' for the assessment might be established at whole-of-government level to ensure a strategic and holistic approach is taken. This is also consistent with the endorsed recommendations from the 2011 *Governing the City State* (Hawke) Report (3).

DIFFERENT TYPES OF PROPOSALS

Only those major proposals that identify significant climate change impacts through the overview assessment contained in the Triple Bottom Line framework will be required to perform the detailed assessment set out in *Attachment 1*.

For some proposals, addressing climate change will already be a major component or even a primary objective of the submission (e.g. submissions related to *Weathering the Change*, the *Spatial Plan*, energy policy, *Think Water Act Water*, water supply planning, emergency management strategies and plans). In these cases, it is likely that the submission or Bill will already address climate change issues and the assessment process described here should be seen as a confirmation or check-list that relevant issues have been addressed.

In other cases, the proposal will have a quite separate primary objective so that climate implications may be less obvious (e.g. individual development or infrastructure proposals; changes to operational services; health and community initiatives). In these cases the assessment process described here is likely to be the main source of climate change impact information.

APPLICATION TO BILLS

As discussed above, a climate change impact assessment will be required as part of a Triple Bottom Line Assessment for all Government Bills. The form of this assessment is being developed, but an indicative approach is outlined below.

The climate change impact assessment will be applied to bills. An overview assessment will be required for all bills by completing Part A of *Attachment 1*. Where climate change impacts are identified in Part A, further detailed analysis is required through Parts B and C of *Attachment 1*. The assessment will be included as an explanatory statement to the Bill.

Given the technical nature of some bills, certain types of bills would be exempted from the requirement for a climate change impact assessment. This would include Appropriation bills, but also statutory and legislative amendments unless climate change impacts are identified.



NEXT STEPS

1. Public consultation will be for nearly three (3) months, with comments due by COB Thursday, 1 March 2012.
2. Additionally, a limited pilot of the Climate Change Impact Assessment process is to be conducted on selected Government policy proposals.
3. The Climate Change Impact Assessment will be reviewed in light of any feedback and comment received through the public consultation process and lessons learned from the pilot.
4. It is intended that the Climate Change Impact Assessment will comprise a module or sub-component of the wider Triple Bottom Line Assessment Framework.
5. Government consideration of the final Triple Bottom Line Assessment Framework is anticipated by end-June 2012.

ACT Triple Bottom Line - Climate Change Assessment

TITLE OF THE PROPOSAL:

PART A

Overall Climate Implications Assessment:

What is the overall assessment of climate change implications for the proposal?

- a) What is the overall assessment of climate change implications related to the proposal – both positive and negative?
- b) Is the nature of the implications that: [may be both]
 - the proposal's intent/outcomes or risks are impacted by climate change implications?
 - other climate change policies/strategies/plans/programs or risks are impacted by the proposal?
 - would a modified version of the project make an additional contribution to achieving other Government environmental policies, such as *Weathering the Change*?
- c) How has the proposal addressed the implications?
 - To what extent have the most significant negative implications been able to be addressed in the proposal, and to what extent are there significant residual implications?
 - Are there additional/other options to further improve either positive or residual negative implications? (Include also possible interventions that could be mainstreamed into other relevant policies/strategies/plans).
 - Have the implications and options been discussed with other relevant agencies/stakeholders, and the feedback taken into account?
 - Where there are significant residual negative implications what is the essential trade-off involved and the basis for recommending that the proposal proceed notwithstanding the climate change implications?
- d) Does the proposal provide a basis for enhancing the ACT's underlying capability and capacity to respond to climate change through relevant knowledge development (e.g. research, education, and communication), monitoring and evaluation of outcomes, and/or development of relevant government/community partnerships?

PART B

Mitigation Assessment:

Are there implications for climate change mitigation? [See also *Attachment 2*]

- a) What aspects of the proposal might have greenhouse gas emission implications? For example, will the proposal depend on more or less fossil fuel usage or about the same?
- b) What is the estimated impact on the level of 'direct' greenhouse gas emissions in tonnes CO₂-e as accounted for under the ACT GHG Inventory?
- c) What greenhouse gas emissions offsets have been proposed to reduce the impacts of the proposal; and have they been subject to cost/benefit analysis?

PART C

Impacts and Adaptation Assessment:

How does the proposal take account of expected climate change implications? Broadly climate change in the ACT is expected to manifest as more extreme weather events more often, hotter drier summers and longer periods of drought and shifts in rainfall patterns such as drier autumns and wetter springs.

Does the proposal have implications for the ability of the ACT to adapt to changing climate including managing the associated risks and opportunities? [See also *Attachment 3* for current and potential areas of impact and adaptation response].

On the basis of a climate trends (see *Attachment 3*) are there significant (positive or negative) implications for:

- a) Current and potential climate change impacts?
- b) Adaptive capacities/resilience of those communities most impacted?
- c) The most vulnerable human communities?
- d) Current and proposed/potential adaptation policies, strategies and other responses?

Considering these climate change implications, and the intrinsic uncertainties in climate projections, what are the characteristics of the decision sought?

- a) What level of uncertainty is associated with the implications?
- b) On what time scale (short/medium/long) are the implications likely to manifest themselves?
- c) Is there a monitoring/evaluation strategy to facilitate adaptive management?
- d) Is the proposal readily reversible or flexible if the implications turn out to be unacceptable?

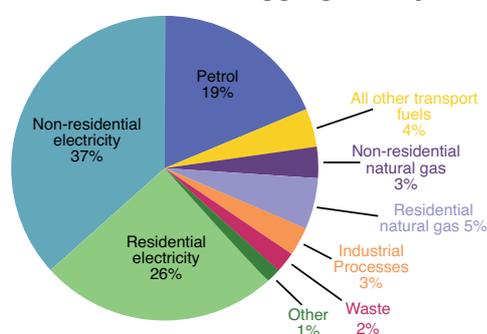
Climate Change Mitigation Assessment: Summary of current sources and targets of ACT greenhouse gas emissions

It is expected that proposals will assess the contribution (positive or negative) to the ACT's climate change mitigation strategy and in particular the ACT Government's legislated greenhouse gas (GHG) reduction targets.

This could, for example, include assessment against some of the following questions:

- Does the proposal change overall energy demand and/or energy efficiency?
- Does the proposal change the sources of energy (e.g. lower greenhouse gas emission fuels, non-renewable to renewable sources, use of waste)?
- Does the proposal change the potential for carbon sequestration?

Figure 2: ACT emissions disaggregated by sector



Source: ACT Greenhouse Gas Inventory 2008(4)

To assist in this assessment, the following table summarises the current main greenhouse gas sources and targets in kilotonnes CO₂-e for the ACT.

Table 1: ACT Emissions Targets by Sector

Source	1990 KtCO ₂ -e	2008 KtCO ₂ -e	2008 (%)	2020 KtCO ₂ -e	2050 KtCO ₂ -e	2060 KtCO ₂ -e
Energy	2973	3935	94%			
Industrial Processes	39	118	3%			
Solvent and Other product Use			0%			
Agriculture	44	25	1%			
Waste	187	104	2%			
TOTAL	3244	4182	100%			
LULUCF*	0	-28				
NET TOTAL	3244	4154		1946	649	0

* LUCUCF – 'land use, land use change and forestry' as per the Kyoto Protocol accounting rules and may include carbon sequestration and related offset activities.

These are 'direct' greenhouse gas components as accounted for in the ACT Government (2010) *ACT Greenhouse Gas Inventory 2008* (4) and legislated 2020/2050/2060 targets (5). The targets are:

- 40% less than 1990 emissions by 30 June 2020,
- 80% less than 1990 emissions by 30 June 2050; and
- the principle target is for zero net greenhouse gas emissions by 2060.

As noted in the climate change assessment process for the proposal (*Attachment 1*) the proponents may also separately identify 'indirect' greenhouse gas impacts not included in the above figures.

Climate Change Scenarios, Impacts and Adaptation Assessment

Climate change projections suggest significant changes for the ACT, but are intrinsically uncertain, especially for rainfall. Decision-making therefore needs to reflect the likelihood and direction of change, but also the uncertainty in some key variables.

BUSHFIRE

The risk of bushfire is expected to increase, due to the increase in hotter and drier weather. For example the number of days rated as high or extreme (under the old system) could increase significantly. The overall risk of bushfire is also likely to be exacerbated by fewer opportunities for hazard reduction burning (6). The extent and nature of impacts are likely to be different in forest areas (such as Namadgi) compared with grassy woodlands (such as the Canberra Nature Park) given the different fuel and topographical characteristics (6).

EXTREME HEAT

Climate change is very likely to result in higher exposure to extreme heat as the number of hot days (>35°C) and very hot days (>40°C) are projected to increase. A key data gap identified is the prevalence and extent of the urban heat island effect that is localised city 'heat traps' (6).

FLOODING AND STORMS

Since the 1970s, flood attenuation has been included as part of the integrated urban form. Open spaces, such as parks and ovals, are often used to manage and reduce potential flood hazards. The general ageing status of drainage infrastructure is an issue, as well as the need to incorporate anticipated climate change impacts into any new studies. (6)

WATER SUPPLY, QUALITY AND DEMAND

The surface runoff feeding the ACT's dams decreased from the mid 1990s. Climate projections indicate this trend is likely to continue or even worsen in the future. Water sources in the ACT are mostly rainfall dependent and, as such, are sensitive to any change in rainfall pattern. An understanding of the implementation of water-saving initiatives at the suburb level would greatly improve vulnerability assessments (6).

INFRASTRUCTURE

The ACT Government is releasing separately for public comment a discussion paper on climate change impact vulnerability assessment for public infrastructure.

NATURAL SYSTEMS

Higher temperatures, more frequent and intense bushfires and the possibility of reduced rainfall will add to pressures on the quality of key catchment areas for the ACT, as well as on landscape function and biodiversity in all areas of the ACT - see for example *Impacts of climate change on the Canberra Nature Park: Risks and responses* (6) for an analysis on the Canberra Nature Park.

MOST VULNERABLE COMMUNITIES

The most vulnerable in our society are those who will be most affected by the risks posed by impacts from climate change, that is the very old, very young, the sick, poor and least educated. In locating groupings of more vulnerable people, such as in old age residential complexes and hospitals, consideration needs to be given to mitigating all risks, including those that may be exacerbated by climate change.(1)

As noted elsewhere an integrated socio-economic assessment of climate change implications for a specific proposal also needs to take account of the likelihood of increased pressure from climate change impacts, as well as from mitigation and adaptation interventions, on prices of key resources including energy, water and food, at least in key transition phases.

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