The Climate-Water-Energy Nexus in Australia and the United States

The value of cross-country comparison

Samuel McGlennon, Canberra
24 January 2011

Introduction

In both Australia and the US, growing populations, a burgeoning demand for stationary energy and heightening water scarcity in economically and socially critical rivers basins are well-established policy challenges in their own right. Yet there is an emerging focus on the intersections that exist across and between these broad trends. The climate-energy-water (c-e-w) nexus is an attempt to capture these interdependencies and propose an intellectual framework for addressing them.

Strong similarities, enough difference for comparison

As a policy challenge, the climate-energy-water nexus can be expected to emerge in similar fashion in Australia and the United States, both advanced economies with broad commonalities spanning demography, geography, politics and culture. The river basins which contain or supply the energy needs for increasing numbers of people are semi-arid and increasingly variable, yet the solutions proposed in to water scarcity Australia and the US – such as desalination plants and long-haul transfers – use prohibitive amounts of energy. Domestic and international pressure to reduce national carbon emissions waxes and wanes but is unlikely to abate until serious long-term policy responses are deployed.

Superficially, it may seem as though the challenges facing the Australian and US governments (and populations) are similar enough to be identical. Yet there is rich potential for insightful public policy comparison across the two countries. For instance, while Australia and the US both embody similar federalist structures, significant differences exist in the mapping and exercise of decision-making. It follows that Australia and the US might be politically suited to different forms of policy solutions. These solutions may also be potentially arrived at by different public policy means. One form of policy option which demonstrates this point is the focus in Australia on manipulating carbon in the landscape. There are further differences between Australia and the US which relate to the perception of energy and water scarcity issues – eg. discussion of energy security versus climate change, and the role of governments versus markets. Again, these differences may affect the forms of policy which are developed and yield insights to policy-makers in both Australia and the US.

Manipulating the landscape

To a much greater extent than in the US, the Australian discussion of measures to address climate change has emphasised the potential measures based on manipulating the landscape. Prominent policy proposals within this category include the on-farm production of biochar to ‘lock up’ carbon sequestered from the atmosphere, large-scale afforestation, also for purposes of sequestration, as well as the potential for production of bio-energy from forest plantation wood (for thermal energy, as distinct from the use of plant matter and waste to produce liquid bio-fuels). At least part of the reason for the prominence of these ideas in policy circles is political – they have been promoted in
an attempt to gain acceptance amongst rural communities for ‘centrepiece’ climate measures such as an emissions trading scheme.

These policy proposals involve significant trade-offs within the climate-water-energy nexus and conflict among policy stakeholders. The afforestation that is implied by all three of the examples described above will, even if implementation is carefully managed by location and extent, seriously affect run-off in watersheds. Such consequences will need to be factored into other policy and market-driven water resource management instruments (e.g., water markets, allocations and buybacks, catchment management schemes and wetland management plans). Given the similarities between the river basins of southeast Australia and the western US (semi-arid, highly variable climates, crossing state borders), the lessons derived from such policies in Australia could be of great value to US scientists and policy-makers (‘second-mover advantage’).

Perceptions of energy and water supply issues

A difference exists between how energy issues have come to be perceived in Australia and the US, which could yield useful comparative insights. That there should be a difference at all is notable given the common understanding of water scarcity within Australia and the western US as an issue of economic and social security (witness the concern in rural Australian communities in drought, and the almost existential fears of desert cities like Phoenix).

By contrast, the Australian and US experiences of increasing demand for energy differ substantially. In the US, energy supply is rightly perceived to have national security implications, and policy developments have sought to encourage a greater degree of energy independence as a result. In Australia there is no such mindset – national security is not considered a relevant prism through which to view the challenge of growth in energy demand.

Perhaps because of the absence of this impetus, there has emerged in Australia an unstated view of the innate right to energy – quite the opposite of the mentality with regards water – with the implicit expectation that governments will continue to ensure enough energy to meet demand as it grows. From a climate-energy-water nexus perspective, this makes it more difficult to recognise, let alone resolve, the tensions which exist between increases in energy demand, the need to reduce carbon emissions and the need to ensure water scarcity.

Why should US researchers and policy-makers concern themselves with Australian public policy efforts within the climate-energy-water nexus?

- Australia’s centralised and internationally recognised water governance mean the ability to enact/roll out water reforms far more rapidly and comprehensively than in the western US. Significant reform is being debated at present. This means that results, especially those that straddle the tensions between addressing energy-water scarcity, are soon likely to emerge which can then inform US efforts. (Examples include moving from gravity-fed to fossil-fuel powered movement of water along channels, construction of desalination plants in most capital cities.)
- More fragmented energy governance may stall attempts at reform (moving towards reduced carbon emissions). If this occurs then the Australian experience may
illuminate the dangers and results of attempting significant reform in a sector which has been allowed to remain only loosely coordinated.

- Australian policies which attempt to manipulate carbon in the landscape may yield significant carbon emission and environmental restoration benefits, but also carry the risk of adverse effects on water sheds. Whether and how these effects emerge, as well as what policy responses ensue, will be illuminating for countries such as the US.

- Public policy framing of the challenges within the c-e-w nexus in both Australia and the US will illuminate advantages and pitfalls which can be harnessed by policy-makers in other countries. Cultural nuances will affect the applicability and practise of these lessons, in ways which may in fact make them more rather than less useful.

**What is the potential of AUSCEW to value-add to Australian and US public policy?**

- AUSCEW can serve as a two-way conduit, both for emerging c-e-w lessons in Australia to reach US policy-makers and vice versa. AUSCEW is one of the few groups established in Australia which are engaged at exploring the climate-energy-water nexus with a highly attuned focus on the public policy lessons and toolkits needed to develop nationally-appropriate solutions. AUSCEW will be able to leverage off its connections in Australia and the US to 1) gather the insights of public policy experiences in both countries rapidly enough to render them useful to each other, and 2) develop and promote emerging decision-making tools which can help policy-makers navigate the complex tradeoffs within the c-e-w nexus.

- AUSCEW is well-placed to identify and target the advantages both countries’ cultural and political confer on them in their efforts to address c-e-w challenges. This may well lead to an espousal of different policies between the two countries, even when facing similar underlying problems. AUSCEW is also well-placed to assess the utility of emerging decision-making tools – eg. geographical mappings of c-e-w ‘hotspots’ in the US – and in turn their applicability to each country.

- Within Australia, AUSCEW is intent on helping the concept of the c-e-w nexus gain social and political traction. In playing this role, insights may emerge which researchers and thinktanks in the US can leverage in their efforts to achieve similar recognition of the c-e-w nexus as an appropriate framework for understanding the dominant resource challenges/constraints of the early 21st century.

- There is merit in viewing AUSCEW’s efforts as part of a joint, trans-Pacific effort at bringing c-e-w nexus issues to the fore politically and encouraging policy-makers to engage with c-e-w challenges holistically, in full view of the interdependencies and tradeoffs which exist. AUSCEW can be viewed as an ‘independent’ voice in the US debate to the extent that it is seen as an informed outsider. AUSCEW will draw on US institutions and researchers to play a similar role in encouraging the debate within Australia.
AUSCEW

The Australia - United States Climate Energy and Water Nexus (AUSCEW) is a three-year collaboration between the United States Studies Centre (USSC) and the Australian National University (ANU). The AUSCEW project aims to identify the links between climate, energy and water policies to identify how to avoid perverse impacts and favour mutually beneficial solutions.

For more information or to provide feedback and comments on this brief:

Australia and United States Climate, Energy and Water Nexus Project
Jamie Pittock: Jamie.pittock@anu.edu.au
Samuel McGlennon: Samuel.mcglennon@anu.edu.au
Web: http://www.water.anu.edu.au/project/auscew/