

# Appendix A: Case Studies

## Victorian case study inventory: Collected examples of scenario-based projects for climate adaptation undertaken in Victoria, Australia

Title <i>Lead Organisation (Geographic Location)</i>	Short description	Reference	No.
State Government departments and agencies			
Future Coasts <i>Department of Sustainability and Environment (Victorian coastal regions)</i>	DSE's Future Coasts Program is undertaking a state-wide assessment of physical impacts of sea level rise and storms on Victoria's coastline as basis for development of guidelines, tools and recommendations for coastal planning and policy in Victoria. The state-wide coastal climate change assessment has involved the use of sea level rise scenarios implicit in the IPCC's A1F1 emissions scenario as a basis for CSIRO modelling of projected sea levels and associated flood risk for Victoria's coast. Once finalised it will be accessible online.	<a href="http://www.climatechange.vic.gov.au/futurecoasts">www.climatechange.vic.gov.au/futurecoasts</a> "Coastal Climate Change Assessments" August 2010: <a href="http://www.climatechange.vic.gov.au/data/assets/pdf_file/0011/77924/Coastal-Climate-Change-Assessments_3-Pass-Approach-Overview-2010-10.pdf">http://www.climatechange.vic.gov.au/data/assets/pdf_file/0011/77924/Coastal-Climate-Change-Assessments_3-Pass-Approach-Overview-2010-10.pdf</a>	VIC1.
EPA internal climate change risk assessment <i>Victorian Environment Protection Authority (Victoria)</i>	Climate change scenarios used as part of an internal risk assessment process involving staff across all operations to better understand the implications of climate change for the core activities of the EPA.	n/a	VIC2.

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<p>Coastal Climate Change Advisory Committee <i>Planning Panels Victoria (Victorian coastal regions)</i></p>	<p>IPCC scenarios and CSIRO OzClim tool used as basis for modelling of sea level rise implications as part of project to examine the capacity of the Victorian land use planning system (particularly planning schemes prepared under the Victoria Planning Provisions) to respond to the impacts of coastal climate change. The objective was to test planning tools (either new or adapted) to see if they would provide a realistic regime for continuing use and/or adaptation of land use and development in coastal areas.</p>	<p>Coastal Climate Change Advisory Committee Issues and Options Paper, February 2010: <a href="http://www.dpcd.vic.gov.au/data/assets/pdf_file/0003/34374/CC_CAC_Issues_Paper_Main_Report.pdf">http://www.dpcd.vic.gov.au/data/assets/pdf_file/0003/34374/CC_CAC_Issues_Paper_Main_Report.pdf</a></p>	<p><b>VIC3.</b></p>
<p>Development of water supply-demand strategies <i>Department of Sustainability and Environment (Victoria)</i></p>	<p>Scenario selection and analysis undertaken to inform the development of long-term strategies to ensure secure water supplies in Victoria to 2055. Scenarios included low, medium and high climate change scenarios as well as a 'what if the last 10-13 years continue' scenario. Scenarios were used to inform development of strategies by water corporations aimed at balancing supply and demand to 2055, subject to 5-yearly review. Planning process was then integrated at regional level through development of Regional Sustainable Water Supply strategies across Victoria based on similar scenarios.</p>	<p>"Sustainable Water Strategies", <i>Our Water, Our Future</i>, Victorian Government: <a href="http://www.ourwater.vic.gov.au/programs/sws">http://www.ourwater.vic.gov.au/programs/sws</a></p>	<p><b>VIC4.</b></p>
<p>Resilient Agribusiness for the future of Sunraysia <i>Department of Primary Industries (Sunraysia region, Victoria and NSW)</i></p>	<p>Scenario building process led by DPI Victoria involving representatives from horticultural industries and agri-business in the Sunraysia region of Victoria and NSW. The aim of the project was to assist community members and businesses to make better decisions in relation to future challenges such as drought and climate change by developing scenario based risk management strategies. Through the process industry participants were required to think outside their own industry and comfort zone. Four scenarios were created for integration into the strategic planning processes of participating stakeholder organisations and networks. The project also helped DPI develop stronger connections with the organisations involved.</p>	<p><a href="http://www.resilientagribusiness.com.au/">http://www.resilientagribusiness.com.au/</a></p>	<p><b>VIC5.</b></p>
<p>Melbourne Water Sewerage Strategy <i>Melbourne Water (Greater Melbourne)</i></p>	<p>Scenarios developed to explore strategic development of the Melbourne Water Sewerage Strategy. Exploratory process to assess future risks that needed to be managed.</p>	<p>Presentation: "The 2009 Metropolitan Sewerage Strategy", VicWater, 2009: <a href="http://www.vicwater.org.au/uploads/Downloads/Conference/2009/Owen%20Phillis.pdf">http://www.vicwater.org.au/uploads/Downloads/Conference/2009/Owen%20Phillis.pdf</a></p>	<p><b>VIC6.</b></p>
<p>Melbourne Water Climate Change Study</p>	<p>Melbourne Water commissioned CSIRO to undertake a study on the implications of climate change for Melbourne's water resources. Climate change scenarios for</p>	<p>CSIRO: Melbourne Water Climate Change Study</p>	<p><b>VIC7.</b></p>

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<p><i>Melbourne Water (Greater Melbourne)</i></p>	<p>Melbourne area for 2020 and 2050 developed based on IPCC scenarios. Potential climate change implications coupled with potential water demand scenarios for Melbourne’s water sewerage and drainage systems in order to identify major risks.</p>	<p><a href="http://www.csiro.au/resources/ps16p.html">http://www.csiro.au/resources/ps16p.html</a> Full Report: <a href="http://www.melbournewater.com.au/content/library/news/whats_new/climate_change_study.pdf">http://www.melbournewater.com.au/content/library/news/whats_new/climate_change_study.pdf</a></p>	
<p>Future Directions for Public Land <i>Department of Sustainability and Environment (Victoria)</i></p>	<p>Scenario building process undertaken with DSE staff and land managers to develop new ideas to improve business processes, prepare for change and build capacity for strategic thinking. Emphasis on new ideas with the scenario exercise intended to promote creativity and innovation as well as help set priorities for further investigation.</p>	<p>n/a</p>	<p><b>VIC8.</b></p>
<p>DSE Climate Change Forum Gippsland <i>Department of Sustainability and Environment (Gippsland)</i></p>	<p>Scenario planning workshop held with DSE Gippsland staff to stimulate thinking about the importance and relevance of climate change to DSE’s business. A Q&amp;A session with a panel of climate change experts was followed by a scenario planning session focussing on two towns, enabling focussed conversations about climate change amongst participants. The project improved understanding of the challenges faced by local communities and the sorts of decisions that will need to be made to adapt to climate changes.</p>	<p>n/a</p>	<p><b>VIC9.</b></p>
<p>Irrigation Futures <i>Department of Primary Industries (Goulburn Broken Catchment, Northern Victoria)</i></p>	<p>Long term, comprehensive scenario planning project with aim of preparing for changing water availability and exploring irrigation issues and opportunities in the Goulburn Broken Catchment until 2035. A wide range of people affected by and involved in bulk water use in the region took part. Four scenario stories were developed and have been used as inputs into planning by state government (e.g. for the Food Bowl Modernisation Project) and local authorities (CMA, local governments), and into curriculum by education providers. The project had a strong emphasis on development of methodological tools and resources so that the project could be understood and replicated.</p>	<p>Wide range of reports covering process and outcomes available at: <a href="http://www.land.vic.gov.au/DPI/Vro/gbbreg.nsf/pages/gb_lwm_fw_m_irrig_futures">http://www.land.vic.gov.au/DPI/Vro/gbbreg.nsf/pages/gb_lwm_fw_m_irrig_futures</a></p>	<p><b>VIC10.</b></p>
<p>Victorian Climate Change Adaptation Program (VCCAP) South West Region scenario project <i>Department of Primary Industries (South-West)</i></p>	<p>Development of three scenarios exploring responses to climate change in the South West region of Victoria. The scenarios were intended for use by policymakers to influence future State Government action and investment in the region. Primary producers and associated industries, local, regional and state government authorities and community groups were all involved. An independent evaluation of the project showed that project goals had been achieved. These</p>	<p>A range of resources are available at: <a href="http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/climate_vccap">http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/climate_vccap</a></p>	<p><b>VIC11.</b></p>

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<p><i>region, Victoria)</i></p>	<p>goals included to influence policy and to develop the capacity for dialogue amongst diverse groups around difficult and potentially life changing issues.</p> <p><i>“The underlying component was new knowledge and skills which influence an attitude of inclusiveness and interdependence and developing community aspirations based on the highest common denominator through consensus. This [is] leading to a regional community that has the capacity and capability to take charge of their future by right not by might.” - Survey respondent</i></p>		
<p>Boom or Bust: Possible Futures for Victorian Brown Coal in a Carbon Constrained World <i>Earth Resources Development Council, Victorian Government (Victoria)</i></p>	<p>Scenario development process bringing together over eighty people including representatives from Victoria’s energy sector, industry peak bodies, environment groups, unions, technology developers, financiers and government, to stimulate thinking around possible futures for Victoria’s brown coal industry given climate change and other energy market issues. Four scenarios were developed through a three-phase process over seven months including ‘framing’, ‘scenario building’ and ‘confirmation’ workshops. The scenarios are presented in a report with the intention that they form a starting point for further debate and consideration.</p>	<p><a href="http://new.dpi.vic.gov.au/earth-resources/industries/coal/futures-for-victorian-brown-coal">http://new.dpi.vic.gov.au/earth-resources/industries/coal/futures-for-victorian-brown-coal</a> “Boom or Bust? Possible Futures for Victorian brown coal in a carbon constrained world” Earth Resources Development Council, 2010: <a href="http://new.dpi.vic.gov.au/_data/assets/pdf_file/0005/49982/2680-KES-DPI-ERDC-Brown-Coal-Future_Print-Ready-FINALv2.pdf">http://new.dpi.vic.gov.au/_data/assets/pdf_file/0005/49982/2680-KES-DPI-ERDC-Brown-Coal-Future_Print-Ready-FINALv2.pdf</a></p>	<p><b>VIC12.</b></p>
<p>Scoping climate change impacts on population health and vulnerabilities <i>Department of Health (Bendigo and Mildura)</i></p>	<p>A small component of a broader project involving state-wide development and testing of a methodology for organisations or regions to conduct focussed assessments of the impacts of climate change on health and vulnerable populations in their area. In the trial phase of the project the beginnings of a scenario building exercise was run with stakeholders in regions of Bendigo and Mildura to stimulate discussion of impacts and possible adaptation actions, particularly focussed in heatwaves. Stakeholder input was critical as local expertise and knowledge was needed in order to project an image of the community in the future that could be used to think through impacts and adaptation.</p> <p><i>“...it was actually through the process of stakeholders thinking about the future community and its variances to build a scenario that they thought through impacts and adaptive requirements”. - Survey respondent</i></p>	<p>“Scoping climate change impacts on population health and vulnerabilities” Project update, April 2009: <a href="http://www.health.vic.gov.au/environment/downloads/scoping_cc_impacts.pdf">http://www.health.vic.gov.au/environment/downloads/scoping_cc_impacts.pdf</a></p>	<p><b>VIC13.</b></p>
<p>Options for Adapting to</p>	<p>Future scenario building exercise undertaken as one component of a two day</p>	<p>n/a</p>	<p><b>VIC14.</b></p>

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<p>Climate Change on the Gippsland Coast – Future Scenario Exercise for 2032 and Beyond <i>Gippsland Coastal Board</i></p>	<p>forum on ‘Options for Adapting to Climate Change on the Gippsland Coast’ in September 2008, involving approximately 90 stakeholders. Session involved introduction of a hypothetical scenario for 2032 providing a ‘worst case’ assessment for low-lying Gippsland coastal towns and group exploration of likely impacts as well as implications for general policy direction in regard to settlement. Groups reached similar conclusions and presented ideas that reflected creativity and capacity to envision adaptation actions with positive impacts for the region.</p>		
<p>Scenario Planning in the Grampians region <i>Department of Sustainability and Environment (Grampians)</i></p>	<p>Scenario planning exercise involving local councils and state government agencies in the Grampians region. The project aimed to raise awareness of climate change impacts, to link regional projects and develop ongoing networks for continued consideration of climate change adaptation responses.</p>	n/a	VIC15.
<p>Scenario planning in the Loddon Mallee region <i>Department of Sustainability and Environment (Bendigo)</i></p>	<p>Scenario building exercise conducted with a range of stakeholders including community, government, CFA, learning and financial institutions in the Loddon Mallee region. Participants chose critical factors and developed a set of potential scenarios. The process improved understanding and the ability to strategically review and analyse possible scenarios, then develop signposts and strategic responses.</p> <p><i>“[The] best outcome [was] agreement to work more collaboratively across organisations to develop strategic climate change responses!”</i> - Survey respondent</p>	n/a	VIC16.
<p>Energy Futures <i>Department of Sustainability and Environment (Mildura)</i></p>	<p>Development of scenarios designed to help build shared and improved understanding of energy futures and signposts among range of government, business and community stakeholders and develop strategic responses.</p>	n/a	VIC17.
<p>Lower Murray Landscape Futures <i>Land Technologies Alliance (Lower Murray region, Victoria and South Australia)</i></p>	<p>Project examining future scenarios of climate change, commodity prices and water availability in the Lower Murray region (Victoria and SA) and exploring different policy options under different future scenarios. Different outcomes under various scenarios presented through visualisation and mapping tools including Google Earth’s digital globe interface, providing a simple way for natural resource management stakeholders, planners and policy makers to view and explore alternative landscape futures.</p>	<p>Lower Murray Landscape Futures <a href="http://www.landscapefutures.com.au/">http://www.landscapefutures.com.au/</a> Series of publications about the project: <a href="http://www.landscapefutures.com.au/publications.html">http://www.landscapefutures.com.au/publications.html</a></p>	VIC18.

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<p>Future Air Scenarios <i>EPA Victoria</i></p>	<p>Development of scenarios to determine future air quality under climate change to inform strategic planning and decision making at the Victorian EPA. In collaboration with the CSIRO and with input from a range of State Government departments, the EPA is using a scenario-based methodology to explore possible future scenarios for air quality.</p> <p>A Most Likely Future Scenario has been developed incorporating growth scenarios. Two Alternative Future Scenarios will also be developed. The results will assist EPA in setting priorities and will also be used to inform state and national programs and policies.</p>	<p>n/a</p>	<p><b>VIC19.</b></p>
<p><b>NGOs, alliances or community sector</b></p>			
<p>Adapting to a low water future <i>North Eastern Greenhouse Alliance (North East catchment, Victoria)</i></p>	<p>Project to develop scenarios involving local governments, Catchment Management Authority and water authorities in the North East Catchment region of Victoria in order to identify climate change risks, specifically related to water.</p>	<p>n/a</p>	<p><b>VIC20.</b></p>
<p>Adaptation for community service organisations <i>Australian Council of Social Service (Victoria)</i></p>	<p>A workshop for representatives of community service organisations to trial a scenario approach. Participants learnt about and experienced a method for scenario based risk assessment to assist with climate change adaptation in their organisation.</p>	<p>n/a</p>	<p><b>VIC21.</b></p>
<p>Towards a Post-Carbon Gippsland <i>Gippsland Climate Change Network (Gippsland)</i></p>	<p>Scenario planning process to inform the visioning and strategic planning of the Gippsland Climate Change Network. Two facilitated workshops were held involving government, business and community-based members of GCCN. Based on the outcomes of the workshops, a report was published that identified three potential scenarios, identified the desired scenario, and began to identify required steps to achieve that vision. Scenarios created also intended to be utilised as a community engagement tool.</p>	<p>n/a</p>	<p><b>VIC22.</b></p>
<p>Future Wimmera Mallee: Wimmera Mallee Sustainability Alliance Strategic Foresight Program <i>Wimmera Mallee</i></p>	<p>Scenario development process undertaken by members of the Wimmera Mallee Sustainability Alliance, local, state and regional authorities to consider the future of the Wimmera Mallee region in 20 to 50 years time based on different levels of resource utilisation. The three scenarios, one of which presents a vision for a 'post-carbon' society, were intended to inform regional strategic planning, stimulate</p>	<p>"Wimmera Mallee Sustainability Green Paper" October 2010: <a href="http://www.wmsa.org.au/downloads/Wimmera_Mallee_Sustainability_Green_Paper_Oct2010.pdf">http://www.wmsa.org.au/downloads/Wimmera_Mallee_Sustainability_Green_Paper_Oct2010.pdf</a></p>	<p><b>VIC23.</b></p>

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<p><i>Sustainability Alliance (Wimmera and Southern Mallee region)</i></p>	<p>discussion and help lead thinking in the region about sustainability issues and potential actions. The scenarios form part of WMSA's Sustainability strategy as narrative illustrations of the future to help inform options and future decisions.</p>		
<p>Ballarat Regional Sustainability Alliance Strategic Foresight Program <i>Ballarat Regional Sustainability Alliance (Ballarat, Grampians and Central Highlands regions)</i></p>	<p>'Strategic foresight' planning session held in early 2010 involving a wide range of community, industry and government groups to create future scenarios for Ballarat and help participating groups understand potential future impacts of climate change and response strategies. Three different scenarios were created and a preferred future, described as 'post carbon' was chosen. The project helped to begin conversations, a shared vision and momentum among participants around a desired future scenario for the region.</p>	<p>Regional Sustainability Alliance Ballarat Direction Statement 2010 – 2012: <a href="http://rsaballarat.net.au/index.php/component/docman/doc_download/1-rsa-direction-statement">http://rsaballarat.net.au/index.php/component/docman/doc_download/1-rsa-direction-statement</a></p>	<p><b>VIC24.</b></p>
<p>Research sector</p>			
<p>Visualisation tools for Lakes Entrance, Loch Sport and Anderson Inlet <i>Monash University and Gippsland Coastal Board (Gippsland)</i></p>	<p>Scenarios of sea level rise used to inform a project undertaken by researchers at Monash University and the Gippsland Coastal Board to produce tools that enable the user to visualise the impact of different amounts of sea level rise on three coastal communities in Gippsland.</p>	<p>Loch Sport Flood Visualisation tool: <a href="http://gracegis.com.au/lochsport/">http://gracegis.com.au/lochsport/</a>  Lakes Entrance Flood Visualisation tool: <a href="http://sahultime.monash.edu.au/LakesEntrance/">http://sahultime.monash.edu.au/LakesEntrance/</a></p>	<p><b>VIC25.</b></p>
<p>Scenarios for climate change adaptation in the Hamilton region of Victoria <i>RMIT Global Cities Research Institute and Hamilton critical reference group (Hamilton region)</i></p>	<p>Two scenario planning workshops were held in 2008 with a diverse range of representatives from the community and local authorities in the Hamilton region. The intention was to tease out possibilities for what the future of the region might look like under climate change and to consider ways to better engage the regional community in planning for the future. After the workshops a report was sent to all participants and local writers worked with workshop participants to create four plausible yet challenging 'future stories' that were later published and distributed in the community.</p>	<p>Monograph: "Unexpected sources of hope: Climate change, community and the future" <a href="http://prodmams.rmit.edu.au/cyb31c4gyjn2.pdf">http://prodmams.rmit.edu.au/cyb31c4gyjn2.pdf</a>  "Community, Scenarios and Narratives of Action: Reflections on a case study in the Hamilton region of Victoria" <a href="http://www.emergingself.com.au/">http://www.emergingself.com.au/</a></p>	<p><b>VIC26.</b></p>

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		<a href="#">Download%20docs/Mulligan%20e t%20al%20final%20chapter%20Ju ne%2008.doc_PI.pdf</a>  See also Gidley et al. (2009)	
<p>Port of Hastings expansion and climate change impacts <i>RMIT Global Cities Research Institute and Western Port Greenhouse Alliance (Port of Hastings, Melbourne)</i></p>	<p>Scenario building workshop to explore a broad range of perceptions of how the future of the Western Port region might unfold over the next decade and beyond, with particular regard to the impacts and implications of climate change events and the proposed expansion of the Port of Hastings as Melbourne’s second port. The workshop involved policy makers and government officials, community members, NGOs and people working at the Port.</p>	n/a	<b>VIC27.</b>
<p>VEIL/VicHealth Food Supply Scenarios project <i>Victorian Eco-Innovation Lab</i></p>	<p>Research project investigating the impact of challenges to food production and distribution, under climate change and resource constraints, on access to healthy diets in Victoria. A set of exploratory or ‘what if’ scenarios developed by the research team, informed by a workshop of key stakeholders. Scenarios were designed to illuminate different relationships and system interactions, as well as potential shocks, affecting secure and sustainable food availability in Victoria.</p>	<p>Resources from the project: <a href="http://www.ecoinnovationlab.com/research/food-supply-scenarios">http://www.ecoinnovationlab.com/research/food-supply-scenarios</a></p>	<b>VIC28.</b>
<p>EcoCity (EBD) Visions <i>Victorian Eco-Innovation Lab</i></p>	<p>Series of visions for a sustainable precinct in the centre of Melbourne in 2032 developed as part of a VEIL project involving staff and students designers from RMIT, Swinburne, Monash and Melbourne universities. Steps in the project included a series of workshops in 2008 with designers to develop revolutionary, zero-carbon visions for the development of the E-Gate site in Melbourne. Approximately 200 students used the visions to develop design ideas some of which were presented at a public exhibition in February 2009.</p>	<p>EcoCity (EBD): <a href="http://www.ecoinnovationlab.com/ebd">http://www.ecoinnovationlab.com/ebd</a>             EcoCity (EBD) Design Hub: <a href="http://www.ecoinnovationlab.com/design-workshops/186-ebd-design-hub">http://www.ecoinnovationlab.com/design-workshops/186-ebd-design-hub</a></p>	<b>VIC29.</b>
<p>Broadmeadows 2032 <i>Victorian Eco-Innovation Lab</i></p>	<p>Project to explore visions of transformation to a sustainable future in 2032 in the rapidly developing suburb of Broadmeadows, located in the City of Hume, north of Melbourne. A visioning workshop involving Hume City Council staff, VEIL Hub designers and Italian designer, Ezio Manzini, explored opportunities, helping to identify key potential ‘eco-acupuncture’ points – places at which visionary interventions could help trigger positive change – in the Broadmeadows community. Designs presenting a wide range of sustainable opportunities for the local area were showcased at an exhibition in Broadmeadows in July 2010, visited</p>	<p>Broadmeadows 2032: <a href="http://www.ecoinnovationlab.com/revisioning-broadmeadows">http://www.ecoinnovationlab.com/revisioning-broadmeadows</a></p>	<b>VIC30.</b>



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	by hundreds of community members.		
<b>Local government sector</b>			
Rural local government in a climate of change <i>North Eastern Greenhouse Alliance, Alpine and Towong shire councils (Alpine and Towong shires)</i>	Climate change scenarios used as inputs into strategic adaptation planning process undertaken by Alpine and Towong shire councils through funding from the Australian Government's Local Adaptation Pathways Program (LAPP).	n/a	<b>VIC31.</b>
Integrated planning for a sustainable Shepparton community <i>RM Consulting Group (City of Greater Shepparton)</i>	Scenarios used as one input to the development of an integrated plan for the Shepparton region to manage climate change and reduced water availability. Scenarios were used to give participants, including representatives from state and local government, water authorities, VicRoads and Regional Development Australia, broad views about the future and a sense of what might happen. Scenarios were chosen to be consistent with those used by state agencies.	Integrated Planning for a Sustainable Shepparton Community – Draft Strategy, November 2010: <a href="http://www.google.com.au/url?sa=t&amp;source=web&amp;cd=4&amp;ved=0CCwQFjAD&amp;url=http%3A%2F%2Fwww.greatershepparton.com.au%2Fdownload.asp%3FRelatedLinkID%3D5824&amp;ei=VptHTZm2I4HOvQPfvzdBQ&amp;usg=AFQjCNE2YTszGDIdEjhHtTKhXEpKbEy-g&amp;sig2=tjaffrdPryUA8nujVTZfJA">http://www.google.com.au/url?sa=t&amp;source=web&amp;cd=4&amp;ved=0CCwQFjAD&amp;url=http%3A%2F%2Fwww.greatershepparton.com.au%2Fdownload.asp%3FRelatedLinkID%3D5824&amp;ei=VptHTZm2I4HOvQPfvzdBQ&amp;usg=AFQjCNE2YTszGDIdEjhHtTKhXEpKbEy-g&amp;sig2=tjaffrdPryUA8nujVTZfJA</a>	<b>VIC32.</b>
Climate change adaptation strategy and action plan <i>City of Melbourne (Melbourne)</i>	Scenarios used as input to internal development of City of Melbourne's climate change adaptation strategy and action plan. Four potential extreme event scenarios were identified, which together embody the range of climate change risks for Melbourne, and were used as a basis for considering adaptation options and responses in the plan.	City of Melbourne Climate Change Adaptation Strategy, June 2009: <a href="http://www.melbourne.vic.gov.au/AboutCouncil/PlansandPublications/strategies/Documents/climate_change_adaptation_strategy.PDF">http://www.melbourne.vic.gov.au/AboutCouncil/PlansandPublications/strategies/Documents/climate_change_adaptation_strategy.PDF</a>	<b>VIC33.</b>

**Australian case study examples**

Title	Short description	Reference	No.
<p>Energy Futures Forum <i>CSIRO (Australia)</i></p>	<p>CSIRO convened the Energy Futures Forum from 2004 to 2006 bringing together a wide range of industry and community groups to explore future possibilities for stationary energy and transport in Australia. Nine plausible qualitative scenarios were developed using a scenario planning process designed to explore the shape and nature of energy in 2050. The scenarios drew on both factual information and Forum participants' judgements about how the future may unfold. During discussion of key drivers of change, climate change emerged as the uppermost driving force. The scenarios describing different energy futures were presented to participants in Citizen Panels who were asked to provide feedback on their plausibility and comprehensiveness. Economic modelling was also undertaken for each scenario to assist the EFF understand the implications of the different scenarios.</p>	<p><a href="http://www.csiro.au/science/Energy-Futures-Forum.html">http://www.csiro.au/science/Energy-Futures-Forum.html</a></p> <p><i>The Heat is On: The Future of Energy in Australia (2006):</i> <a href="http://earthhour.ice4.interactiveinvestor.com.au/CSIRO0702/The%20Heat%20is%20On%20Report/EN/body.aspx?z=4&amp;p=65&amp;v=1&amp;uid">http://earthhour.ice4.interactiveinvestor.com.au/CSIRO0702/The%20Heat%20is%20On%20Report/EN/body.aspx?z=4&amp;p=65&amp;v=1&amp;uid</a></p>	<p>AUS1.</p>
<p>Envisioning possible futures for the Great Barrier Reef <i>CSIRO (Great Barrier Reef region, Queensland)</i></p>	<p>CSIRO scenario planning project to develop plausible alternative futures for the Great Barrier Reef Catchment for 2050. The project aimed to better understand major drivers of change, uncertainties and consequences for ecosystems and societies as well as help enable stakeholders to make decisions in this context. The research involved building partnerships with many GBR stakeholder groups. Climate change was one of three key uncertainties identified through a literature review and more than 40 interviews with project collaborators, which led to the development of four scenarios. Other key project phases included refining scenarios, communicating them to a range of different audiences and applying them to specific policy planning questions.</p>	<p><i>Envisioning possible futures for the Great Barrier Reef Catchment</i> <a href="http://www.csiro.au/science/GBRFutures--ci_pageNo-1.html">http://www.csiro.au/science/GBRFutures--ci_pageNo-1.html</a></p>	<p>AUS2.</p>
<p>Future makers or future takers? <i>CSIRO and Great Barrier Reef Marine Park Authority (Great Barrier Reef region,</i></p>	<p>Using existing data, models and scientific knowledge of the region, CSIRO researchers undertook a scenario analysis to understand the impacts of 2 key uncertainties on climate change impacts on the Great Barrier Reef region. The uncertainties related to global and national development pathways, specifically whether there was a focus on economic growth or</p>	<p><i>Future Makers or Future Takers? A scenario analysis of climate change and the Great Barrier Reef:</i> <a href="http://www.nccarf.edu.au/conference2010/wp-content/uploads/Butler-GBR-">http://www.nccarf.edu.au/conference2010/wp-content/uploads/Butler-GBR-</a></p>	<p>AUS3.</p>

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<p><i>Queensland)</i></p>	<p>broader concepts of human wellbeing and sustainability at each level. The analysis highlights the importance of cross-scale processes for management of the GBR region and points out that the future of the region depends largely on choices (by individuals as well as national or regional decision makers) to be active future ‘makers’ or passive future ‘takers’ in responding to global drivers of change.</p>	<p><a href="#">Scenarios-Session-131-Scenarios-for-the-future.pdf</a></p>	
<p>Climate Futures Tourism Industry Tool <i>CSIRO (Queensland)</i></p>	<p>A project to help make climate change information accessible and simplify the adaptation planning process for tourism businesses in Queensland. CSIRO national climate projections (derived from IPCC global emissions scenario A1F1) translated into three storylines: ‘2030 warmer and drier’; ‘2030 warmer and wetter’; and ‘2050 hotter and much wetter’.</p>	<p>Climate Futures storylines tool for tourism operators in Queensland: <a href="http://www.tq.com.au/tqcorp_06/fms/tq_corporate/industrydevelopment/Climate%20Futures%20Industry%20Tool.PDF">http://www.tq.com.au/tqcorp_06/fms/tq_corporate/industrydevelopment/Climate%20Futures%20Industry%20Tool.PDF</a></p>	<p><b>AUS4.</b></p>

**International case study examples**

Title	Short description	Reference	No.
<p>Local Climate Change Visioning for Delta, British Columbia <i>Collaborative for Advanced Landscape Planning, University of British Columbia (Canada)</i></p>	<p>A local climate change visioning process undertaken for the Corporation of Delta, a municipality in Canada facing sea level rise impacts. The two main components of the project were: 1. The construction of frameworks and methods for downscaling climate change impact information and visualising alternative climate futures at the local scale and 2. Testing the influence of these visualisations on the awareness, emotional responses and motivation for behaviour change of the participants.</p>	<p><i>Technical Report on Local Climate Change Visioning for Delta: Findings and Recommendations</i> <a href="http://www.calp.forestry.ubc.ca/wp-content/uploads/2010/02/Delta-Technical-Report_V1-0.pdf">http://www.calp.forestry.ubc.ca/wp-content/uploads/2010/02/Delta-Technical-Report_V1-0.pdf</a></p>	<p>INT1.</p>
<p>Kimberley Climate Adaptation Project <i>Collaborative for Advanced Landscape Planning, University of British Columbia (Canada)</i></p>	<p>Climate change visioning process for the City of Kimberley in British Columbia, Canada, using GIS mapping and 3D visualisation. Collaborative process to engage community and communicate complex information. Two scenarios developed: 'Kimberley Adapts' and 'Low Carbon Kimberley' providing a framework for exploration of current land use plans, local vulnerabilities, projected climate change impacts and response options.</p>	<p><a href="http://cfubc.ehosting.ca/wp-content/uploads/2010/02/REF-CALP-Kimberley-Report2.pdf">http://cfubc.ehosting.ca/wp-content/uploads/2010/02/REF-CALP-Kimberley-Report2.pdf</a></p>	<p>INT2.</p>
<p>CLIMAR <i>Management Unit of the North Sea Mathematical Models (MUMM) (Belgian coastal zone)</i></p>	<p>Evaluation of climate change impacts and adaptation responses for marine activities (CLIMAR) is a research project which aims to identify adaptation scenarios and measures for several case studies in the North Sea region. The project also aims to produce an evaluation framework to help assess the effectiveness of different adaptation measures and consider their practical implementation and integration into current policy structures.</p>	<p><a href="http://services.arcadisbelgium.be/climar/">http://services.arcadisbelgium.be/climar/</a> <a href="http://www.ilvo.vlaanderen.be/EN/Research/Fisheries/Technisch/CLIMAR/tabid/5007/language/en-US/Default.aspx">http://www.ilvo.vlaanderen.be/EN/Research/Fisheries/Technisch/CLIMAR/tabid/5007/language/en-US/Default.aspx</a></p>	<p>INT3.</p>
<p>Envisioning 2050: Climate change, aquaculture and fisheries in West Africa <i>World Fish Centre and the Leibniz Centre for Marine Tropical Ecology</i></p>	<p>Series of scenario building workshops using participatory methods to discuss critical issues and uncertainties faced by fisheries and aquaculture sectors in Senegal, Ghana and Mauritania. Sectoral scenarios for 2050 were built and the implications of climate change were discussed. The project also included the development and exhibition of arts projects by young people under the theme of "Visions of the Future: What is African Youth telling us about our Ocean?"</p>	<p>Workshop report: <a href="http://aquaticcommons.org/5004/1/WF_2783.pdf">http://aquaticcommons.org/5004/1/WF_2783.pdf</a></p>	<p>INT4.</p>

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<p>Climate Change Adaptation in New Zealand: Future scenarios and some sectoral perspectives <i>New Zealand Climate Change Centre</i></p>	<p>Set of papers providing sectoral perspectives on climate change adaptation in New Zealand under two different scenarios: a “high-carbon world”, where global average temperatures reach almost 4 degrees C above pre-industrial by 2100 and a “rapidly decarbonising world” with global average temperatures limited to 2 degrees C above pre-industrial by 2100.</p>	<p><a href="http://www.nzclimatechangecentre.org/sites/nzclimatechangecentre.org/files/images/research/Climate%20change%20adaptation%20in%20New%20Zealand%20%28NZCCC%29%20%28A4%20low%29.pdf">http://www.nzclimatechangecentre.org/sites/nzclimatechangecentre.org/files/images/research/Climate%20change%20adaptation%20in%20New%20Zealand%20%28NZCCC%29%20%28A4%20low%29.pdf</a></p>	<p>INT5.</p>
<p>Developing local and regional scenarios for climate change mitigation and adaptation. Part 1: A framing of the East of England Part 2: Scenario creation <i>Tyndall Centre for Climate Change Research, United Kingdom</i></p>	<p>Three scenarios developed to examine how the East of England region might look in 2050 having achieved 60% emission reductions. Each scenario description indicates a different pathway for reaching the 2050 emissions reduction target. Researchers worked with Norfolk County Council, and the East of England Sustainable Development Round Table through joint workshops which contributed particular knowledge of the Eastern Region and helped enhance the scenarios' legitimacy with the users. The scenarios are intended for a wide range of audiences, but primarily regional and local government officers. The storylines represent sectors important to regional policymakers, addressing economy, societal values, the role of energy efficiency, the scale and strength of regional governance, the type and scale of the energy supply system and the balance and location of economic activity.</p>	<p>Part 1: A framing of the East of England <a href="http://www.tyndall.ac.uk/sites/default/files/wp54.pdf">http://www.tyndall.ac.uk/sites/default/files/wp54.pdf</a></p> <p>Part 2: Scenario Creation <a href="http://www.tyndall.ac.uk/sites/default/files/wp67.pdf">http://www.tyndall.ac.uk/sites/default/files/wp67.pdf</a></p>	<p>INT6.</p>
<p>Thames Estuary 2100 <i>UK Environment Agency</i></p>	<p>A project established to manage tidal risk through London and the Thames estuary. The process is designed in recognition of the need for ongoing, adaptable and long-term flood risk management planning.</p>	<p><a href="http://www.environment-agency.gov.uk/homeandleisure/floods/104695.aspx">http://www.environment-agency.gov.uk/homeandleisure/floods/104695.aspx</a></p> <p>“How do you adapt in an uncertain world? Lessons from the Thames Estuary 2100 project” <a href="http://www.worldresourcesreport.org/files/wrr/papers/wrr_reeder_and_ranger_uncertainty.pdf">http://www.worldresourcesreport.org/files/wrr/papers/wrr_reeder_and_ranger_uncertainty.pdf</a></p>	<p>INT7.</p>
<p>Netherlands ‘extreme’ climate scenarios <i>Knowledge for Climate programme (KNMI), The Netherlands</i></p>	<p>In 2007 the Netherlands’ KNMI developed several 'extreme' scenarios for their Climate Changes Spatial Planning project 'Attention for safety (AVV)'. These scenarios are plausible but have low probability and are intended to assess safety issues related to flooding in the Netherlands. The scenarios include extreme sea level rise, shutdown of the warm Gulf Stream, 'super' storms, extreme summer rainfall, and extreme discharge of the rivers Rhine and Muese.</p>	<p><a href="http://www.knmi.nl/climatescenarios/">http://www.knmi.nl/climatescenarios/</a> <a href="http://www.knmi.nl/climatescenarios/knmi06/index.php">http://www.knmi.nl/climatescenarios/knmi06/index.php</a> <a href="http://www.knmi.nl/climatescenarios/additional/index.php">http://www.knmi.nl/climatescenarios/additional/index.php</a></p>	<p>INT8.</p>

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		<a href="http://www.knmi.nl/climatescenarios/documents/KNMI_2009_EN.pdf">http://www.knmi.nl/climatescenarios/documents/KNMI_2009_EN.pdf</a>	
The future climate for development <i>UK Department of International Development / Forum for the Future</i>	UK Department of International Development / Forum for the Future created scenarios about trends in development and climate change to build capacity for strategic planning (factoring in climate change) for development agencies and NGOs: How the world will look in 203	<a href="http://www.dfid.gov.uk/Media-Room/News-Stories/2010/How-will-the-world-look-in-2030/">http://www.dfid.gov.uk/Media-Room/News-Stories/2010/How-will-the-world-look-in-2030/</a>  <a href="http://www.forumforthefuture.org/projects/the-future-climate-for-development">http://www.forumforthefuture.org/projects/the-future-climate-for-development</a>	INT9.
Shell Energy Scenarios to 2050 <i>Shell</i>	<i>Shell Energy Scenarios to 2050</i> depicts two alternative futures termed 'Scramble' and 'Blueprints'.	<a href="http://www.shell.com/home/content/aboutshell/our_strategy/shell_global_scenarios/shell_energy_scenarios_2050/">http://www.shell.com/home/content/aboutshell/our_strategy/shell_global_scenarios/shell_energy_scenarios_2050/</a>	INT10.
Mont Fleur scenario project <i>South Africa</i>	Scenario planning process undertaken in South Africa in 1991-92 widely renowned for its contribution to informing public dialogue and promoting shared understanding of possible future directions at a time of great national turmoil associated with the transition out of apartheid. The 'Mont Fleur' project brought together twenty-two prominent South Africans, including politicians, activists, academics and politicians, reflecting a diverse spectrum of ideological perspectives.	<a href="http://www.generonconsulting.com/publications/papers/pdfs/Mont%20Fleur.pdf">http://www.generonconsulting.com/publications/papers/pdfs/Mont%20Fleur.pdf</a>	INT11.
Millennium Ecosystem Assessment <i>United Nations</i>	Work undertaken between 2001 and 2005 involving more than 1,360 experts worldwide to assess the consequences of ecosystem change for human well-being.	<a href="http://www.maweb.org/en/index.aspx">http://www.maweb.org/en/index.aspx</a> <a href="http://www.maweb.org/documents/document.330.aspx.pdf">http://www.maweb.org/documents/document.330.aspx.pdf</a>	INT12.
Future Scenarios <i>Holmgren Design Services</i>	Development of scenarios mapping the cultural implications of climate change and peak oil by futurist and co-originator of permaculture, David Holmgren	<a href="http://www.futurescenarios.org/">http://www.futurescenarios.org/</a>	INT13.
The Great Transition Initiative <i>Tellus Institute and the Stockholm Environment</i>	Involving a network of scholars and activists internationally, the initiative builds on analysis of alternative scenarios to examine the requirements for a sustainable and desirable future.	<a href="http://www.gtinitiative.org/">http://www.gtinitiative.org/</a>  <a href="http://www.gsg.org/index.html">http://www.gsg.org/index.html</a>	INT14.

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<i>Institute</i>		<a href="http://www.gtinitiative.org/resources/paperseries.html">http://www.gtinitiative.org/resources/paperseries.html</a>	
Global-Change Scenarios – Their Development and Use <i>US Climate Change Science Program</i>	Report which includes case study information about several major applications of climate change scenarios in the US including: <ul style="list-style-type: none"> <li>- New York Metropolitan Region – Scenarios for Climate Change Adaptation</li> <li>- Scenarios of sea-level rise along the Gulf Coast (USA)</li> <li>- Scenarios in the California Water Plan</li> <li>- Climate change scenarios for the insurance industry</li> <li>- Scenarios of Climate Impacts in the Columbia River Basin</li> <li>- The Global Business Network Abrupt Climate Change Exercise</li> </ul>	<a href="http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1010&amp;context=usdoepub&amp;sei-redirect=1#search=%22parson+2007+climate+change+scenarios+US+climate+science%22">http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1010&amp;context=usdoepub&amp;sei-redirect=1#search=%22parson+2007+climate+change+scenarios+US+climate+science%22</a>	INT15.
National Climate Research, The Netherlands <i>Climate changes spatial planning and Knowledge for Climate programmes, The Netherlands</i>	Series of projects using climate change scenarios in the Netherlands.	<a href="http://www.climate-research-netherlands.nl/research-themes/climate-projections-and-scenarios">http://www.climate-research-netherlands.nl/research-themes/climate-projections-and-scenarios</a>  <a href="http://promise.klimaatvoorruijnt.nl/pro1/projects/projecten.aspx?superproject_id=0&amp;personid=0&amp;relatieid=0&amp;supercompanyid=0&amp;cost_centreid=0&amp;clusterid=0&amp;subclusterid=0&amp;groupid=29&amp;status_project=4&amp;sorting=1">http://promise.klimaatvoorruijnt.nl/pro1/projects/projecten.aspx?superproject_id=0&amp;personid=0&amp;relatieid=0&amp;supercompanyid=0&amp;cost_centreid=0&amp;clusterid=0&amp;subclusterid=0&amp;groupid=29&amp;status_project=4&amp;sorting=1</a>	INT16.
From the academic literature			
Citizen perceptions – UK and Italy	Study into perceptions of the future among citizens in Norwich (UK) and Rome (Italy) – specifically testing the impact of climate and socio-economic scenarios	(Lorenzoni and Hulme, 2009)	INT17.
Scenarios for Knowledge Integration: Exploring Eco-tourism Futures in Milne Bay, Papua New Guinea	An example of how scientific and stakeholder knowledge at different scales can be brought together through scenarios. Considered changes in perceptions before and after the scenario development process e.g. increased awareness of processes occurring at broad spatial and temporal scales and the need for longer-term planning.	(Bohensky et al., 2011) <a href="http://csiro.academia.edu/ErinBohensky/Papers/402150/Scenarios_for_knowledge_integration_exploring_ecotourism_futures_in_Milne_Bay_Papua_New_Guinea">http://csiro.academia.edu/ErinBohensky/Papers/402150/Scenarios_for_knowledge_integration_exploring_ecotourism_futures_in_Milne_Bay_Papua_New_Guinea</a>	INT18.

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		<a href="#">ua New Guinea</a>	
Learning with local help: Expanding the dialogue on climate change and water management in the Okanagan region, British Columbia, Canada	Example of a process combining development of scenarios relating to water management with multi-stakeholder dialogue on implications and adaptation options in the Okanagan Region, Canada.	(Cohen et al., 2006)	<b>INT19.</b>
MedAction, Europe	Information and decision support systems for land degradation in Europe involving multi-scale stakeholder participation.	See (Kok et al., 2007)	<b>INT20.</b>
Makanya Catchment, Tanzania	Participatory scenario planning process to consider strategies most appropriate under different alternative futures.	See (Enfors et al., 2008)	<b>INT21.</b>
Water management Essex, United Kingdom	Example of 'robust adaptation decision making' in water management.	See (Wilby and Dessai, 2010)	<b>INT22.</b>
Various	ALARM scenarios Global Scenario Group Global Environmental Outlook World Business Council on Sustainable Development World Water Vision Millennium Ecosystem Assessment Africa Environmental Outlook Latin America and the Caribbean Environmental Outlook Southern Africa MASRES-based scenarios for Europe: ATEAM, EURalis, ACCELERATES, PRELUDE, ALARM, FARO-EU, ESPON	See (Rounsevell and Metzger, 2010)	<b>INT23.</b>
Various	PRELUDE socioeconomic scenarios: Explores what European landscapes will look like 30 years from now and beyond: <a href="http://www.eea.europa.eu/multimedia/interactive/prelude-scenarios/prelude">www.eea.europa.eu/multimedia/interactive/prelude-scenarios/prelude</a> GEO 4 Global Environment Outlook: Four scenarios to 2050 exploring different	See (Bryson et al., 2010)	<b>INT24.</b>



	<p>policy approaches and societal choices at both global and regional levels: <a href="http://www.unep.org/geo/geo4/media/">www.unep.org/geo/geo4/media/</a> GECAFS Global Environmental Change and Food Systems: <a href="http://www.gecafs.org/">www.gecafs.org/</a> SCAR Foresight process identifying scenarios for European agriculture in a 20-year perspective: <a href="http://ec.europa.eu/research/agriculture/scar/index_en.cfm?p=3_foresight">http://ec.europa.eu/research/agriculture/scar/index_en.cfm?p=3_foresight</a> SCENAR 2020 Scenario study on agriculture and the rural world: <a href="http://ec.europa.eu/agriculture/publi/reports/scenar2020/index_en.htm">http://ec.europa.eu/agriculture/publi/reports/scenar2020/index_en.htm</a> AG 2020 Foresight analysis for world agricultural markets (2020): <a href="http://www.risoe.dk/Research/sustainable_energy/energy_systems/projects/AG2020.aspx?sc_lang=en">www.risoe.dk/Research/sustainable_energy/energy_systems/projects/AG2020.aspx?sc_lang=en</a> FARO Foresight Analysis of Rural Areas of Europe: <a href="http://www.faro-eu.org/home/tabid/195/Default.aspx">www.faro-eu.org/home/tabid/195/Default.aspx</a> Foresight Future Flooding Scenario analysis to inform strategic choices to address future flood risk in the UK: <a href="http://www.foresight.gov.uk/OurWork/CompletedProjects/Flood/index.asp">www.foresight.gov.uk/OurWork/CompletedProjects/Flood/index.asp</a> REAP Resources and Energy Analysis Programme (REAP) – tool to access data for a whole Local Authority or Region, to develop policy scenarios and model changes in the footprint of residents: <a href="http://www.resource-accounting.org.uk/">www.resource-accounting.org.uk/</a> GRIP Greenhouse Gas Regional Inventory Protocol: <a href="http://www.grip.org.uk/htmlversion.htm">www.grip.org.uk/htmlversion.htm</a></p>		
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