

Clean Energy Future for Planners - Initial research into opportunities & issues for the planning sector

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This document has been prepared by the Moreland Energy Foundation Ltd and BioRegional Australia for the Planning Institute of Australia's 'Clean Energy Future Advocacy through Planners' project

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1 Executive Summary

1.1 About the project

The Planning Institute of Australia (PIA), in partnership with the Department of Climate Change and Energy Efficiency (DCCEE) is undertaking this project to support the professionals involved in the planning system to interpret and facilitate the implementation of the Federal Government's Clean Energy Future Plan (the Plan). The project's objective is to build awareness and capacity within the planning and built environment professions to assist them understand and facilitate the delivery of the CEF Plan.

The project is being delivered by PIA, with the support of BioRegional Australia (BA) and the Moreland Energy Foundation (MEFL). The project comprises four main components:

- Background Research and Scoping on a Clean Energy Future for Planners (this report)
- Survey of planning professionals to identify existing capabilities and capacity to facilitate the delivery of a CEF (this report)
- Communications Strategy
- Professional Training Module(s)
- Final Project Report

1.2 About this report

This report summarises the Clean Energy Future for Planners project's initial research into the opportunities and issues for planners associated with the Clean Energy Future Plan and climate change more broadly. The initial research also underpinned the development of a survey of Australian planners to understand their attitudes to climate change, their level of knowledge and information requirements, amongst a range of other objectives in the context of the Plan. An overview of the survey results is also included in this report.

The introduction of a carbon price and the associated program elements contained in the Plan are intended to contribute to a transformation of the Australian economy away from greenhouse intensive energy production and consumption patterns. The skills, tools, experience and resources of the planning discipline provide the basis for planners to take a strong leadership role in the efficient and effective delivery of the Clean Energy Future Plan, and in our response to climate change more broadly. This report provides conclusions with regard to a range of proposed communications and capacity building resources that will be developed as part of this project to support planners. It also provides recommendations with regard to the ongoing need for an ongoing program of support and capacity building so that planning and built environment professionals can continue to play their critical role in our transition to a clean energy future.

2 Introduction

2.1 Planners delivering a clean energy future

Climate change presents unprecedented challenges to governments and communities across the world. The planning profession will be pivotal in identifying, creating and delivering the opportunities that will transform our communities as we address the challenges of climate change, and at the same time build social, environmental and economic sustainability into the future.

A survey of Australian planners undertaken for this project (February 2012, see summary Appendix A) confirmed that there is clear agreement amongst the planning profession that human activity and related carbon emissions are causing the Earth's climate to change and that Australia needs a dedicated policy to address climate change and its impacts. The survey also revealed that planners see a clear role for their profession in responding to climate change and are keen to build their capacity to be leaders in response to climate change in Australia.

The Clean Energy Futures (CEF) Plan outlines the Federal Government's approach to reducing Australia's greenhouse gas emissions and increasing the market share of renewable and low pollution energy sources. The skills, tools, experience and resources of the planning discipline make planners natural partners in the delivery of the Plan and its component parts. The delivery of the Plan and our response to climate change more broadly, will be progressed through the application of the various mechanisms developed and/or employed by planners. This research has identified a great breadth of mechanisms that planners already deploy, directly and indirectly, in support of clean energy implementation; mechanisms that reflect a range of approaches, from the provision of incentives, information and guidance, through to policy, strategy and regulatory measures.

2.2 What is the CEF Plan?

The Government's Clean Energy Future Plan aims to achieve a transition to a clean energy future through dramatically cutting pollution, supporting innovation and investment in renewable energy and energy efficiency and reducing our reliance on high-polluting coal. The Plan also aims to facilitate the storage of millions of tonnes of carbon in the land through improved land and waste management.

The Plan brings together the key measures that will be used to achieve a clean energy future (including programs that are already in operation) and presents them under four broad categories. In this report we refer to these categories as follows:

1. Carbon price mechanism (CPM)
2. Renewable and low carbon energy (RLCE)
3. Energy efficiency (EE)

4. Land sector measures

As detailed in the following pages, the activities and components presented in the CEF Plan hold many implications and opportunities for planners and planning generally.

While planning and planners have a broad role in driving our transition to a clean energy future, the scope and focus of this report and the project more broadly is on the contents of the Plan and the implications for planning practice. The project aims to build awareness and capacity within the planning and built environment professions to assist in understanding and facilitating the delivery of a clean energy future in Australia, specifically through the interpretation, facilitation and implementation of the Federal Government's Clean Energy Future Plan.

2.3 Defining clean energy

The CEF Plan uses the term 'clean energy', defined by the Government's Australian Renewable Energy Agency (AREA) as follows:

Clean energy – also known as green energy – is energy, which can be obtained from renewable or natural resources and does not create environmental debt. Clean energy can also be energy which creates less pollution, no pollution at all, or that uses resources that can be easily renewed.¹

This definition allows for inclusion of fossil fuel-based technologies such as carbon capture and storage (CCS), which involves capturing greenhouse gases emitted through burning fossil fuels and some other processes and storing them underground. While technologies like CCS have the potential to reduce the *amount* of greenhouse pollution emitted, they do not make fossil fuel based electricity 'clean' – i.e. coal fired power stations will still contribute to climate change, even when CCS technologies are available.

In this report we use the term 'low carbon energy' to describe technologies such as CCS. We use the term 'renewable energy' to refer to non-finite energy sources such as wind, solar and geothermal heat. While the project survey (see Appendix A) revealed that there is broad acceptance of the AREA definition of clean energy, it also revealed that the concept is complex and accommodates several different types of energy generation as well as different approaches to energy efficiency and demand management.

2.4 Planning and planners' roles

While there are differences in the administrative structure of planning authorities between state and territory jurisdictions in Australia, every jurisdiction has a system for zoning and strategic planning whereby local governments undertake much of the work through delegated authority and the state government authority has final "sign off". Similarly, while there is some variation as to how planning functions are assembled in an administrative sense, the development assessment

¹ 'What is Clean Energy', website of the Australian Government's Australian Renewable Energy Agency.
http://www.ret.gov.au/energy/clean/what_is/Pages/WhatisCleanEnergy.aspx

process is functionally similar across Australian jurisdictions. The relative consistency of function across jurisdictions provides the opportunity to develop, support and deliver a national approach to identifying and delivering clean energy opportunities through planning processes.

Our survey revealed that while most planners have already heard of the Plan (over 60%) and the majority believed it would have an impact on their role (over 80%), a similar amount of respondents were unaware of the assistance and funding available through the Plan. The challenge of this project and for planners more broadly, is to understand the role that planners will have in transitioning Australia to a clean energy future and the resources that are being made available to achieve that.

Planners can be divided into two broad groups: strategic planners, whose role includes developing new plans and policy to guide land use and development; and statutory planners, who are concerned with ensuring compliance with these plans and policies. The nature of the work done by both types of planners varies depending on whether they are in the private or public sector and, to some extent, the particular jurisdiction they operate in.

Figure 1, overleaf, gives an overview of how these roles are divided among the different types of planners.

Figure 1: Overview of planner roles by sector and type



Note: Planners may also specialise in various areas of expertise under these 4 key areas – such as social, environmental, economic, transport, law and urban design.

3 Implications, Opportunities, Risks & Actions

3.1 Carbon price

While planners will not play a direct role in the operation or administration of a carbon price mechanism (CPM), the nature of the CPM as a tool to drive fundamental change across the economy implies that the work of planners will be affected by its introduction.

The CPM will be introduced in two phases. Phase 1 (commencing 1 July 2012 to 30 June 2015) will introduce a fixed price/tonne of the greenhouse gas emissions produced by Australia's (up to 500) highest emitters. The fixed price will commence at \$23/tonne. In Phase 2 (from July 1 2015) a cap and trade carbon-trading scheme will commence, whereby trading and market forces will determine the price/tonne of greenhouse gas emissions. The Australian Carbon cap and trade scheme will be linked to the existing European Union Emissions Trading Scheme as of 1 July 2015.

The pricing of carbon will have implications for various industries of relevance to planners, both directly and indirectly. For example, the regulatory body IPART (NSW) estimates that when considering the price impact on costs to local government's supply chain, local government's costs are expected to increase by 0.6% in 2012/2013. Similarly, the property sector will be affected by rising costs for energy-intensive building materials such as steel, glass and aluminium, as well as increased costs for labour and for energy used directly in the construction process². This will impact on the type and location of properties being built, which clearly has implications for planners and their work.

Of course the purpose of introducing a price on carbon is to stimulate change in our economy towards activity, which is less carbon intensive. The transition of our economy to activities and outcomes that are less carbon intensive means that planners will increasingly be dealing with policy, strategy, projects and developments that involve renewable energy, energy efficiency and a changed product and service mix in the economy more broadly. Planners will therefore have a wide range of opportunities to proactively assist industries in innovating to adapt to a low-carbon economy.

² 'The Carbon Price Mechanism and the Property Sector', 2011. Allen Consulting Group Pty Ltd. <http://www.allenconsult.com.au/resources/acgcarbonprice2011.pdf>

3.2 Renewable energy and low carbon technologies

The CEF Plan contains a range of measures to increase the market share of renewable and low carbon energy (RLCE) sources by investing in research and development (R&D), commercialisation, deployment and manufacturing. A key implication for strategic planners is that the strategic and policy environment may need to be adapted to ensure it deals effectively with large scale RLCE projects, and to cater for the housing, transport and the other needs that new projects may incur. For statutory planners, it can be expected that a wider range of large-scale RLCE projects will increasingly trigger the approvals process as they come online. Planning policy will need to keep pace with these developments.

Table 1, below, summarises the relevant components of the CEF Plan and identifies some implications for planners.

Table 1: Renewable & low carbon energy measures & their implications for planners

Activity	Component/Aim	Implications for planners
Clean Energy Finance Corporation	Investing in commercialisation, deployment & manufacturing of RLCE technology	Increase in applications for new generation & manufacturing facilities
Aust Renewable Energy Agency	Statutory body to streamline administration of existing funds	Large projects may result in new areas of growth & employment precincts
Clean Tech Innovation Program	Grants to support R&D, proof-of-concept & early-stage commercialisation in RLCE technology & EE	
Clean Tech Investment Program	This program will provide grants for investments in energy efficient capital equipment and low pollution technologies, processes and products.	
Clean Tech Food and Foundry Program	This program will provide grants for investments in energy efficient capital equipment and low pollution technologies, processes and products.	
Renewable Energy Target	Legislates 20% of electricity from renewable sources by 2020	

Table 2 (next page) lists some of the key opportunities and issues arising from these implications.

Table 2: Renewable & Low Carbon Energy Opportunities & Issues

Implications	Opportunities		Issues	
	<i>Strategic planners can:</i>	<i>Statutory planners can:</i>	<i>Strategic planners:</i>	<i>Statutory planners:</i>
<i>Increase in applications for new generation & manufacturing facilities</i>	<p>Advocate on behalf of RLCE projects</p> <p>Prepare planning scheme amendments, state & local policy to facilitate RLCE</p> <p>Incorporate RLCE into structure plans & strategic frameworks</p> <p>Mapping of RLCE projects and opportunities across municipalities</p>	<p>Advocate on behalf of RLCE projects through appeals processes</p> <p>Assess plans & determine appropriate permit conditions, referrals (public)</p> <p>Recognise site opportunities & advise on policies, prepare proposals (private)</p>	<p>May need stronger understanding of types & feasibility of RLCE options & relevant regulatory &/or policy frameworks</p> <p>Requires support for RLCE within planning community and may the expansion of consultant networks to bring in relevant expertise when required.</p>	<p>May need stronger understanding of types & feasibility of RLCE options & relevant regulatory &/or policy framework</p> <p>Much of the potential RLCE development will be in regional areas so any capacity issues in these areas will need to be addressed</p> <p>Requires support for RLCE within planning community</p> <p>May be constrained by restrictive &/or subjective policies</p>
<i>New areas of growth & employment precincts</i>	<p>Develop structure & activity centre plans to accommodate growth of RLCE</p> <p>Prepare planning scheme amendments to ensure zoning does not restrict opportunity for RLCE</p>		<p>Policy & land use changes may face internal &/or community opposition.</p> <p>Current zone suite may not easily support RLCE</p> <p>Need to balance competing interests</p>	

3.3 Energy efficiency

The CEF Plan outlines a number of measures aimed at improving energy efficiency in the household, business, community and government sectors. While some of these are focused on improving efficiency standards for appliances and vehicles, and as such have limited relevance for planners, others target improvements to the built environment, which is likely to impact significantly on the work of planners – particularly public-sector statutory planners. Any building improvements that trigger the approvals process provide a good opportunity for planners to encourage and support sustainable design and energy efficiency improvement measures, and to promote the incentives, grants and services available under the CEF Plan. Private sector planners will also have a role in identifying the opportunities for their clients to access resources and implement innovative sustainable energy measures in their projects.

In order to capitalise on these opportunities it will be important to ensure that planners have the necessary skills and knowledge about sustainable design and are aware of the various assistance schemes. Table 3 summarises key implications for planners arising from the CEF Plan's energy efficiency measures, and identifies some of the associated opportunities and issues.

Table 3: Energy efficiency measures & implications for planners

Activity	Component/Aim	Implications for planners
National Energy Saver Initiative	National white certificate scheme for EE measures	Increased number of energy efficiency enquiries through planning desk, & approvals process increasingly triggered by EE upgrades & installations
Low Carbon Communities	Grants to improve efficiency in community & local government buildings	
Households	Advice line & website; Smarter appliances (incl. incandescent phase-out)	
Green Buildings tax breaks	For ESD improvements to existing commercial buildings	
Energy Efficiency Information Grant	Provides information to small business and community organisations on how they can reduce energy use.	
EE in Government Operations program	EE targets & innovation for government buildings	New small scale generation systems & EE / RLCE energy technologies may increasingly trigger approvals process
Remote Indigenous Energy Program	Resources for renewable generation systems in remote indigenous communities	
Renewable Energy Bonus	Resources for householders to replace electric hot water systems with solar or heat pump	
Clean Tech Program	Grants for manufacturers (capital equipment, low pollution technology)	Strategic input required for greenfield & expansion projects
Energy Efficiency Opportunities	Expansion of program to including transmission & distribution networks, major greenfield & expansion projects	

Some of the key opportunities and issues arising from these implications are shown in Table 4 (next page).

Table 4: Energy Efficiency Opportunities & Issues

Implications	Opportunities		Issues	
	<i>Strategic planners can:</i>	<i>Statutory planners can:</i>	<i>Strategic planners:</i>	<i>Statutory planners:</i>
<i>Increased volume of energy efficiency enquiries through planning desk, & approvals process increasingly triggered by EE upgrades & installations</i>	<p>Facilitate sustainability improvements through state & local policy, incl. amending local policy</p> <p>Facilitate improved energy efficiency through strategic planning for urban centres and greenfield areas</p>	<p>Influence design during pre-application & application processes</p> <p>Inform applicants about incentives, services & grants</p> <p>Link applicants/clients with outside expertise</p>	<p>May need stronger technical knowledge about sustainable design and how policy changes and strategic planning can facilitate this</p>	<p>May need stronger technical knowledge of sustainable design</p> <p>May need to update knowledge of relevant regulations (e.g. distinguishing between planning & building code issues)</p> <p>Need to be aware of available incentives, services & grants</p>
<i>New small scale generation systems & EE/RLCE technologies may increasingly trigger approvals process</i>	<p>Facilitate sustainable design improvements through local policy</p> <p>Ensure that strategic planning for urban centres and greenfield areas facilitates uptake of small scale generation systems & EE/RLCE technologies</p>	<p>Advise applicants/clients about issues that may affect approval (e.g. amenity) & link with outside expertise</p> <p>Advocate on behalf of RLCE projects at Planning Tribunal</p> <p>Assess plans & determine appropriate permit conditions, referrals (public)</p> <p>Advise re site opportunities & policies, prepare proposals (private)</p>	<p>May need stronger technical knowledge about small scale EE & RLCE systems and the appropriate contexts for deployment</p>	<p>May need stronger technical knowledge about small scale EE & RLCE systems</p> <p>May need to refresh knowledge of appropriate regulations & policy</p> <p>Supportive culture required due to subjective nature of some policy</p>
<i>Greenfield & expansion projects likely to require strategic planning input</i>	<p>Influence ESD outcomes on a large scale, incl. transport planning & energy supply</p> <p>Facilitate better connections between urban and energy planning</p> <p>Advocate on behalf of worthy projects</p>	<p>Identify site opportunities which link with major greenfield & expansion projects</p> <p>Link applicants/clients with outside expertise</p>	<p>May need stronger technical knowledge about sustainable design and energy planning processes and regulation</p>	<p>Ensure that assessment of development proposals does not constrain innovation</p>

3.4 Land sector measures

This element of the CEF Plan provides support and incentives for reducing greenhouse pollution from agricultural and other land-based activities, and improving the capacity for carbon to be stored in natural systems (such as vegetation). While many of the activities undertaken will be unlikely to trigger planning involvement – for example, farmers trialling new tillage and fertiliser practices – others will have broader land use implications. The Biodiversity Fund, for example, will fund measures to protect areas of high conservation value, and the Regional Natural Resource Management (NRM) Planning for Climate Change program will see the development of plans to guide the location of carbon farming projects. As these initiatives are rolled out there will be a need for collaboration between planners and NRM organisations, and a role for strategic planners in developing supportive policy. Statutory planners may be involved in assessing project proposals, and advising on relevant policy and regulatory requirements.

Table 5 summarises the land sector measures and identifies implications for planners.

Table 5: Land sector measures & implications for planners

Activity	Components	Implications for planners
Carbon Farming Initiative	Carbon Farming Futures (R&D for carbon storage and pollution reduction) & Indigenous Carbon Farming Fund	Projects may trigger approvals process, or require land use strategies/policies to be modified
Biodiversity Fund	Support restoration & management of biodiversity carbon stores	Collaboration required between natural resource management organisations & planners
Regional NRM Planning for Climate Change	NRM orgs to develop plans to guide location of carbon farming projects	

Some opportunities and issues arising from these implications are shown in Table 6, next page.

Table 6: Land Sector Opportunities & Issues

Implications	Opportunities		Issues	
	<i>Strategic planners can:</i>	<i>Statutory planners can:</i>	<i>Strategic planners:</i>	<i>Statutory planners:</i>
<i>Projects may trigger approvals process, or require modification of land use strategies/policies</i>	<p>Develop unique zoning, conservation covenants etc for areas of high conservation value / carbon storage potential</p> <p>Develop supportive planning scheme amendments & policy – e.g. carbon storage potential of peri-urban areas provides impetus for urban consolidation</p>	<p>Advise about issues that may affect approval</p> <p>Advocate through appeals processes</p> <p>Assess plans & determine appropriate permit conditions, referrals (public)</p> <p>Recognise site opportunities & advise on policies, prepare proposals (private)</p>	<p>May need stronger knowledge about biodiversity, carbon storage & NRM</p> <p>Current trends toward suburban development & subdivision undermines potential for carbon storage</p> <p>Need to balance competing interests e.g. development vs conservation</p>	<p>May need stronger knowledge about biodiversity, carbon storage & NRM</p> <p>Current policy & strategic framework may be restrictive / subjective</p> <p>Planners will need to know what to refer, when & to whom</p>
<i>Increased collaboration between NRM orgs & planners</i>	<p>Develop skills & knowledge through collaborative work</p> <p>Support implementation of plans to guide carbon farming locations by integration into planning schemes and other planning documents</p>	<p>Develop skills & knowledge through collaborative work</p>	<p>Knowledge gaps & difficulties in working across sectors</p>	<p>Knowledge gaps & difficulties in working across sectors</p>

An Online Hub will be developed as a central, dynamic, information source with resources that specifically address the issues and opportunities identified for planners in this section of the report. The website will also include information regarding specific technical resources – service providers, organisations and consultants, to give planners access to expertise in support of renewable energy, low greenhouse, energy efficiency and land sector projects. It is also proposed that social media will be employed as part of the Online Hub, to regularly disseminate new innovations amongst the planning community and support continued networking and information sharing.

The training program that is being prepared as part of this project will focus on general up-skilling in relation to the issues and opportunities identified in Tables 2, 4 & 6. Further actions are detailed in section 4 of this report.

3.5 Local & international case studies

There are many inspiring examples of sustainable energy outcomes achieved through projects driven by and employed by planning and planners in Australia and internationally. Case studies provide the opportunity to understand and learn from the projects that have proven the types of opportunities associated with the Plan, while also addressing some of the actual and perceived barriers. Case studies are instructional with regard to how the planning opportunities related to clean energy can be realised and the issues minimised. Importantly, assembling case studies demonstrates the breadth of mechanisms available to and employed by planners to achieve enhanced sustainability in our natural and built environments. The following table aligns specific case studies with the type of mechanism they employ (regulatory, information-based, incentive-based, etc.) and the type of sustainable energy outcome they seek to achieve (energy efficiency, renewable and low carbon energy or land sector related) as well as the scale they emerge from or apply to (from single building to national). The case studies demonstrate the diversity of opportunity available to planning and built environment professionals in supporting the implementation of the Plan.

Table 7: Case study overview by mechanism, outcome and scale

	Energy efficiency	Renewable and low carbon energy	Land sector	Scale (colour code)	
Regulation	Local Planning Policy (Melbourne)	BASIX (NSW)	Merton Rule (UK)	Wind policy (SA)	Specific building measure/s
Government policy/strategy	Portland Streetcar (USA)	Vauban (Sweden)	Milton Keynes (UK)	Sydney co-generation plan	Whole of building/infrastructure
Incentives	Subi-Centro (WA)	STEPS (Victoria)	Carbon farming initiative	One Brighton (UK)	Housing development
Education & information	Energy Upgrade Agreements	One Brighton (UK)	Currumbin (Qld)	CEF biodiversity grants	Local government
Design guidance	Planning for Sustainability Guide (2010)	Towards zero emissions strategy NAGA (Vic)	Hepburn Wind-farm (Victoria)	Green Fleet	Mixed use precinct
	Docklands (Victoria)	Lochiel Park (SA)	Bush Heritage	Trust for Nature	Regional
		Wind Atlas (Victoria)			State-wide
					National

Table 8: Selected case study overview and further information

Project	Overview	Further information
BASIX (NSW)	<p>The NSW Department of Planning developed BASIX, the Building Sustainability Index, to assess the environmental impact of residential buildings. This state-funded web-based tool currently assesses energy, water and thermal comfort. The tool requires buildings to achieve a reduction of up to 40% in water and greenhouse gas emissions (varies across the state) in comparison to a state wide benchmark.</p> <p>It is a good example of a policy initiative that has delivered widespread improvements to energy efficiency through a regulatory approach. The approach is unusual in that it uses the NSW Environmental Planning and Assessment Act as the delivery mechanism for sustainable buildings (and has been criticised for duplicating some building code requirements).</p>	<p>www.basix.nsw.gov.au/</p>
STEPS (VIC)	<p>The STEPS tool was developed by Moreland City Council to assess the environmental impact of residential dwellings and to promote early integration of sustainable design initiatives. The web-based tool (refer figure 3) is available for the public to use and assesses the areas of energy, peak demand, water, stormwater and materials on a scale of percentage improvement above the average residential development.</p> <p>The tool came about through recognition of a clear need to improve outcomes in environmentally sustainable design (ESD) through the planning processes, and relies largely on voluntary uptake through simplicity and accessibility. It represents a good example of taking a non-statutory approach to improvement of energy efficiency (and other elements) and relies on planners as the first point of contact with developers of buildings to be the advocates.</p>	<p>http://www.sustainablesteps.com.au/</p>
PLANNING FOR SUSTAINABLE BUILDINGS GUIDE (VIC)	<p>The Planning for Sustainable Buildings guide was developed to encourage and to explain to local government in Victoria, why and how to introduce practices to improve the sustainability of buildings constructed within their municipalities.</p> <p>The guide also explains to building designers and planning permit applicants what considerations regarding sustainable building design will be taken into account at the planning permit application stage, and how Councils will consider this information when a planning permit application is lodged. It also provides useful information to other planning agencies when considering issues regarding sustainable building design at the planning permit application stage.</p> <p>This represents a good education and change management example – primarily a how-to-guide for councils and like STEPS empowers planners to be advocates for sustainable energy outcomes.</p>	<p>http://www.sustainability.mav.asn.au</p>
LOCHIEL PARK (SA)	<p>Lochiel Park is an innovative housing development 8 kilometres from the Adelaide CBD in Campbelltown on the River Torrens. Formerly an education institution it has been developed as a model green village incorporating a number of best practice sustainable design initiatives. The project has been delivered by the Land Management Corporation (LMC) on behalf of the South Australian Government.</p> <p>From a planning perspective the environmental performance of housing (which included demand management, energy efficiency and renewable energy initiatives) was implemented through Urban Design Guidelines to which housing product must conform. This mechanism helps deliver energy improvements at a precinct scale and is one of the key tools available to planners to enable above minimum compliance in new developments.</p>	<p>http://www.lochielpark.com.au/lochielpark/home.htm</p>
CITY OF MELBOURNE - LOCAL PLANNING POLICY (VIC)	<p>The City of Melbourne has drafted a policy for inclusion in the Melbourne Planning Scheme that will ensure all new buildings in the municipality make best practice commitments in energy, water and waste efficiency. This policy expands the scope of an existing policy which sets benchmarks for office buildings to include non-commercial developments and provides performance measures based on a number of existing ratings tools.</p> <p>This represents an example of council strategic planning teams setting benchmarks for energy efficiency beyond current minimum building compliance measures and represents a good example of planners driving change through local policy where gaps exist in the national frameworks and state planning policy to deliver energy efficient buildings.</p>	<p>http://www.melbourne.vic.gov.au/BuildingandPlanning</p>

HEPBURN WIND (VIC)	The Hepburn Wind Farm is located at Leonards Hill, 10km south of Daylesford, Victoria, and is Australia's first community-owned wind farm. It consists of two 2 megawatt wind turbines producing enough electricity for 2,300 homes, almost the number of households in the nearby towns of Daylesford and Hepburn Springs. The project was initiated in 2005 by the Hepburn Renewable Energy Association (now Sustainable Hepburn Association – Renewing the Earth or SHARE) and Future Energy Pty Ltd. SHARE had a desire to establish a community owned wind farm that would help match the electricity needs of the Hepburn Shire.	http://hepburnwind.com.au/
SUBI-CENTRO (WA)	Subi Centro, recognised as one of Australia’s best urban renewal projects, is transforming former industrial land in inner suburban Perth into a vibrant and sustainable mix of townhouses, apartments, parkland, commercial and retail space. The 80 hectare site comprises 1500 dwellings, with 10-15% dedicated to social or affordable housing. Subi Centro is a transit oriented development, with an emphasis on a balanced transport network that provides connectivity, amenity and integration. To achieve this, the development provides well-lit walking and cycling links, streets designed to encourage low speed traffic and open civic spaces. Design guidelines for residential developments encourage energy and resource efficiency.	http://www.mra.wa.gov.au/Projects/Subiaco/About-the-Project/
THE MERTON RULE (UK)	The 'Merton Rule' is an innovative planning policy, developed by Merton Council, which requires the use of renewable energy onsite to reduce annual carbon dioxide (CO2) emissions in the built environment. Merton developed the rule and adopted it in 2003, and its success has resulted in the Mayor of London and many other councils implementing similar policies; it has also become part of national planning guidance.	http://www.merton.gov.uk/environment/planning/planningpolicy/mertonrule.htm
MILTON KEYNES (UK)	This development sought to replace grid energy with highly efficient gas fired cogeneration, providing electricity and heat via new network. The development framework (similar to structure plan) highlighted the network as a key opportunity. Any new development required to demonstrate consideration of joining the network and if the value proposition for end users is shown to be sound, required to connect. Currently 6 MW combined heat and power plant and network to 1,200 homes and businesses.	http://www.miltonkeynespartnership.info/MKP_Projects/project_detail.php?Key=10
THE PORTLAND STREETCAR (USA)	The Streetcar was introduced to enhance Portland’s vitality while helping the city accommodate new residential and business growth (Portland Streetcar Inc, 2008). It also contributed to the State of Oregon's state wide strategy aimed to reduce total vehicle miles travelled. The financial benefits of the streetcar have been demonstrated in property values, occupancy and rental rates for properties within two blocks of the streetcar. The major benefits for occupants of these premises is greater volumes of passing consumers and less "dead" net lettable area devoted to car parking. The product is public transport and the major innovation for the Portland project was the selling of the long-term value of public transport to land owners who would be levied to provide a proportion of the capital cost for the project.	http://www.portlandstreetcar.org/
ONE BRIGHTON	One Brighton is a 170 apartment development in central Brighton, UK which has been designed and built in strict compliance with the 10 One Planet Living principles. The mixed-use development was constructed on former industrial land and achieves best-practice ESD outcomes within a traditional cost envelope. One of the aims of One Brighton was to demonstrate that sustainable urban development can be achieved in an affordable manner, and can compete in the mainstream housing and commercial building market. The dispensation of standard car parking rates by local government planners was critical to the successful delivery of this project. That form of discretion has the potential to increase the number of sustainable projects delivered considerably.	http://www.oneplanetliving.org

A broad range of case-study material has been assembled that will be further analysed and used as content for the Communications and Training components of the project.

3.6 Other issues & challenges

The scope of this project is to consider the measures that are underway or proposed in the CEF Plan, however it should be recognised that there are several areas where there exists a clear nexus between clean energy and planning and that, while important, these are beyond the scope of the Plan (and subsequently this project). Some of the key issues outside of the scope include:

- *Transport sector*: the only transport measures contained in the CEF Plan focus on individual vehicle emissions within the transport sector (not households) through the fuels tax system – for example, an emissions standard for vehicles and a Green Vehicle Guide. However, there are significant opportunities to decrease the emissions intensity of the transport sector using planning-based measures such as urban consolidation and transit orientated development, and ensuring that new developments are well served by public transport and facilitate active transport (such as walking and cycling).
- *Waste*: while the Plan notes that waste decomposition is a significant contributor to emissions, little attention is given to this sector within the scope of the Plan's activities. Emissions from waste sources are included in the carbon price, and there is some scope for the Carbon Farming Initiative to include activities that reduce emissions from legacy landfill; however, the Plan contains no other direct measures for reducing the amount of waste generated, improving disposal methods or otherwise dealing with emissions.
- *Gas*: natural gas is widely considered to have an important role in Australia's transition to a sustainable energy mix. While gas is a fossil fuel and creates greenhouse pollution, it is less emissions-intensive than coal and has been touted as a replacement energy source while renewable technologies come online. The CEF Plan covers gas only through the carbon price mechanism, under which natural gas retailers will be liable for pollution from the use of the fuels they supply.
- *Climate Change Adaptation*: Although climate change mitigation is the focus of the CEF Plan, it should be noted that the impacts of climate change and how Australia will need to adapt to these impacts is a major issue for the planning profession. For instance, the planning profession is currently making decisions concerning overlays and setbacks along the Australian coastline when there is uncertainty about sea level rise and increased storm threats.

4 Engagement and Consultation

Throughout the length of the Clean Energy Future for Planners project, the project team has sort to engage planning and built environment professional. This input has been critical to the success of the project. Feedback and guidance gathered from various stakeholders throughout industry involved in the planning system, was used to inform the structure and content of this Final Report. There were several levels of engagement used by the project team to ensure that a broad cross-section of planning and built environment professionals was represented. The focus was on engaging key stakeholders through both active and passive means – for the project – A Clean Energy Future for Planners - this included:

1. Establishment of an **Online Community Form** – called A Clean Energy Future for Planners via LinkedIn
2. Establishment of an **Expert Advisory Panel** to provide guidance and advice on the project: A Clean Energy Future for Planners
3. An extensive **survey of planning and built environment professionals** on the Clean Energy Future Plan, Climate Change and its impact on professionals
4. **Presentation and Q&A Session** at the Planning Institute of Australia’s Annual National Congress in Adelaide on the project: A Clean Energy Future for Planners
5. **Trial workshop and training session** held in Geelong on Module 1 of the proposed Clean Energy Future for Planners Training Package

4.1 Online community forum

As part of the broader engagement strategy it was determined that to effectively engage with planning and built environment professionals beyond a select group and throughout Australia PIA and the project team would need to embrace the use of online technology. In February 2012 a call for Expressions of Interest for an Online Community Forum in regards to the project was put out to key stakeholders, primarily PIA members and other planning professionals.

4.1.1 Community forum – role and activity

The online forum has been hosted via an interactive webpage on LinkedIn. Participants were prompted with a series of questions that related to the progress of the project. Questions around key issues such as potential impacts that the Clean Energy Future Plan, and more specifically the Carbon Price, might have on the role of planners were posted on the discussion page.

Community Forum Webpage – A Clean Energy Future for Planners - <http://www.linkedin.com/groups/Clean-Energy-Future-forum-4342808>

Note: The forum is a live product that has been produced as a result of this project. It has a significant potential to assist PIA and the Department of Climate Change and Energy Efficiency continue to engage with planning and built environment professionals past the current funding period.

4.2 Expert advisory panel

A key component of the engagement strategy for the project was to establish an Expert Advisory Panel. The panel met on a regular basis of the life of the project between it being established in February 2012 through to the conclusion of the project in September 2012. The expert advisory panel was made up of suitably qualified and experience planning and built environment professionals throughout Australia.

A list of the Expert Advisory Panel Members can be found at the start of this report within the 'Acknowledgements'.

4.2.1 Expert panel objectives and outcomes

The terms of reference for the Expert Advisory Panel outlined role and responsibilities that members of the panel had. In general the role of the panel was to provide strategic advice on the direction of the project, review key documentation generated by the project team, finally identify and discuss key industry related issues that should be follow up on after the project had been concluded.

4.3 Survey of planners

In early February 2012 the Planning Institute of Australia conducted an online survey of planning and built environment professionals as part of the Clean Energy Future for Planners Project. The primary objective was to determine how best to prepare the profession to effectively deal with the challenges associated with a clean energy future.

4.3.1 Survey Objectives

Underpinning the primary objective for the project were specific objectives that were used to draft the survey and its questions – they included to:

- Determine the attitude of planners towards climate change and a clean energy future
- Determine the level of knowledge and skills that planners currently had to deal with the delivery of a clean energy future
- Determine what key opportunities, issues and challenges planners faced when facilitating the delivery of a clean energy future
- Determine what information, resources and tools planners required to assist them in effectively dealing with the delivery of a clean energy future
- Determine what additional support, such as a training program or referral service, that planners would benefit from when dealing with a clean energy future

The survey had a relatively large number of responses (total 693) from its target end-user group of over 5,000 professionals (via PIA's contact list and partner database). More details with regard to respondent demographics are provided in Appendix A.

Detailed secondary and tertiary analysis of the survey data has been undertaken. An overview of the primary and secondary survey analysis is provided here and in Appendix A, while the tertiary analysis and raw data will be made available via web resources developed through this project.

4.3.2 Key Findings from Survey Results

The key findings from the survey of planning and built environment professionals on the delivery of a clean energy future through planning are highlighted below – they include:

- 88.3% of respondents agreed that human activity and related carbon emissions are causing the Earth's climate to change
- 91.8% of respondents agreed that Australia needed a dedicated policy to address climate change
- 86.9% of respondents agreed that the costs associated with acting to address climate change now are worth it.
- 61.2% of respondents has heard of the Australian Government's Clean Energy Future Plan
- Of the 61.2% of respondents who had heard of the CEF Plan 81.3% believed that it would have an impact on their role as a planning professional
- 79.2% of respondents were unaware of assistance and funding available through the CEF Plan
- 62.6% of respondents agreed with the Australian Government's definition of 'clean energy'

Renewable and Low Carbon Energy (RLCE) Opportunities

- 85.5% of respondents agreed that 'Renewable and Low Carbon Energy' was a viable alternative to fossil fuel based energy sources
- Although respondents recognized the importance of RLCE, very few were involved in addressing these issues within their role as a planner.
 - i. Only 16.7% were involved in advocating for RLCE opportunities
 - ii. Only 4.6% were involved in preparing planning scheme amendments for RLCE opportunities
 - iii. Only 13.4% were involved in incorporating RLCE opportunities into structure plans and strategic frameworks
- Respondents outlined the following as significant issues and challenges when addressing RLCE opportunities as part of their role.
 - i. 64.1% identified the lack of technical knowledge to deal with RLCE opportunities
 - ii. 66.4% identified gaining internal and external political support for RLCE opportunities as an issue
 - iii. 78.5% identified the existing legislative framework as an issue for delivering RLCEs

Energy Efficiency Opportunities

- 97.7% of respondents agreed that improving energy efficiency measures for the built environment was important and something that Australia should target.
- Again while nearly every respondent recognized the importance of addressing energy efficiency within the built environment, less than half were directly involved through their role as a planner.
 - i. Only 33.5% were involved in facilitating energy efficiency outcomes through planning policy
 - ii. Less than 40% were involved in facilitating energy efficiency outcomes through precinct and activity centre planning
 - iii. Only 27.0% were able to provide guidance for developers on energy experts as part of a referrals process
 - iv. Only 32.7% were involved in assessing plans and placing permit conditions for energy efficiency issues
- Respondents outlined the following as significant issues and challenges when addressing energy efficiency issues as part of their role.
 - i. 43.1% identified the lack of technical knowledge around addressing energy efficiency
 - ii. 68.8% identified the existing planning and development process as an issue when addressing energy efficiency
 - iii. 66.7% identified gaining internal and external political support for energy efficiency as an issue

Land Sector Opportunities

- 90.3% of respondents agreed that the land sector could contribute to reducing greenhouse gas emissions.
- It was evident that while the large majority agreed with the role that land sector measures could play in reducing emissions, very few had an opportunity to influence these issues through their role in planning.

- i. Only 29.8% were involved in developing supportive planning scheme amendments and policies for land sector initiatives
- ii. Only 23.1% were involved in developing land-use zones that assisted in protecting areas of high conservation value and/or provided opportunities for carbon farming.
- Respondents outlined the following as significant issues and challenges when addressing land sector opportunities as part of their role.
 - i. 47.8% identified the lack of technical knowledge around biodiversity issues, carbon storage requirements and natural resource management issues
 - ii. 67.4% identified competing interests between the need for further development and preservation of conservation areas (and agricultural land)

Perceived gaps within the Clean Energy Future Plan

Respondents also identified that the following issues should be addressed in greater detail within the Clean Energy Future Plan:

- 79.2% identified the need to clearly incorporate transport issues within the CEF Plan
- 63.9% identified the need to address waste issues within the CEF Plan
- 60.6% identified the need to link the CEF Plan to climate change adaptation
- 52.3% identified the need to address embodied energy issues

Dissemination of Report Findings – Communication, Engagement and Training Opportunities

- 87.0% of respondents were interested in further information around the CEF Plan
- 87.6% of respondent were interested in training around the CEF Plan
- Print and online material was identified as one of the most important and useful resources for planners when addressing CEF issues within the planning system – identified as a priority by around 40% of respondents.
- Another very useful and important means of dissemination for planners on CEF issues – Include the creation of short half day training sessions targeted at specific issues for planners.
 - Over 30% of respondents identified this type of training as being important for:
 - i. Urban growth and greenfield issues related to the CEF Plan
 - ii. Developing strategic planning documents related to the CEF Plan
 - iii. Best practice case studies and examples of CEF initiatives

In regards to training respondents identified some of the follow factors as being important:

- 58.8% thought a recognised qualification was important
- 72.8% thought access to online support was important
- 91.9% thought that content of training was important
- 88.4% thought that structure and process was important

In terms of where respondents obtained new and information about planning 81.0% of respondents used Australian Planner – while secondary figures matched demographic State breakdown for respondents very closely with use of State based planning publications – such as NSW Planner.

4.4 PIA national congress

Planning Institute of Australia's 2012 National Congress, *Planning for a Sunburnt Country*, was held in Adelaide at the Convention Centre over three (3) days between the 29th April and the 1st May. The national congress is one of the largest and most prestigious events on the calendar for planning professionals, with close to 1000 planners attending over the duration of the event.

4.4.1 Presentation and feedback

As part of the broader engagement and communication strategy, the project team presented an outline on the Clean Energy Future Plan and its likely impacts for planners, the initial results and findings from the survey of planning and built environment professionals, and then the key components of the project and its intended schedule. Following the presentation an expert panel, made up of project team and expert advisory panel members engaged with attendees during a facilitated Q&A session.

4.5 Pilot training workshop

An important part of the project was the development of key resources, such as short one (1) hour training modules on Clean Energy issues, for planning professionals. Utilizing the initial research findings, survey results and feedback gathered from various stakeholder the project team created a range of individual modules that could either be access via the web through webinars or as part of a more detailed face-to-face training session. On the 27th July 2012 the project team facilitated a pilot training workshop in Geelong at Deakin University's Woolstore Campus.

4.5.1 Training module and facilitated discussion

The pilot training workshop provide participants an overview of the Clean Energy Future Plan and the implications for planning professional – this included:

- How sustainable energy presents an opportunity;
- What programs and resources are available through the Clean Energy Future Package;
- An overview of best practice case studies on the implementation of renewable energy and energy efficient projects.

The project team then facilitated a session on the material presented and activities the participants had undertaken.

Key feedback and comments include:

- The training participants saw the project deliverables and training session as being a valuable resource.
- The participants were also interested in future information on clean energy training opportunities.
- The participants identified a need for a set of resources, such as publications and online material around the delivery of a clean energy future.
- The participants also identified that resources and support should be facilitated by PIA and DCCEE through a range of seminars and events that focus on the role of planners in delivering clean energy.
- PIA and DCCEE should ensure that there was broader engagement especially with developers – the training and information modules should be tailored for:
 - i. A planner and officer level;
 - ii. A senior management level;

iii. Elected representatives.

- The project should conduct further work to identify, in greater detail, the appropriate tools and resources that planning professional need to assist in the delivery of a clean energy future.
- The participants wanted to gain a greater understanding on when key clean energy issues could be required or not.
- The participants also wanted to gain a greater understanding on when they needed to engage and advocate for it at a state level.

Key recommended future deliverables:

- Combination of both active and passive elements to an future engagement program for planners
- Fact sheets and case studies to demonstrate that these clean energy solutions are possible and what role planners play.
- Reference existing resources and organisations that can assist. Don't reinvent what's already out there – make it relevant for planning professionals.
- A 'live' version of the final report in the form of an interactive website.
- Potential CPP Course (or link with existing course) – use a modular approach that is flexible for planning professionals.
- Provide clear guidance on 'who' is the responsible authority for various different issues and technologies. E.g. The approval requirements for the installation of a cogeneration system.
- Ensure that it is in a language that planning professionals can understand.

5 Findings & Recommendations

5.1 Summary of findings

The introduction of a carbon price and the associated program elements contained in the Clean Energy Future package are intended to contribute to a transformation of the Australian economy away from greenhouse intensive energy production and consumption patterns. The skills, tools, experience and resources of the planning discipline provide the basis for planners to take a strong leadership role in the efficient and effective delivery of the Clean Energy Future Plan, and in our response to climate change more broadly. The survey undertaken as part of this project shows that planners clearly understand and support the need for immediate action on climate change and they also understand that it will have a significant impact on their role.

The successful implementation of the Plan will see a much increased focus on the building of renewable and low carbon energy generation sources, as well as a greater emphasis on energy efficiency in the built environment, along with new approaches to land sector management. The survey responses clearly indicated that while planners overwhelmingly recognise the importance of this increase in focus, only a minority have been actively involved in relevant facilitation and support activities to date.

More directly, there is likely to be an increased number of enquiries through the planning desk related to small-scale renewable and low carbon energy generation systems and energy efficiency upgrades. These sorts of projects will increasingly trigger approvals processes. Many potential projects and technologies, particularly those of some scale and impact, could require land use strategies and policies to be modified.

The case studies included in this report demonstrate that planners already deploy a range of mechanisms, both directly and indirectly, in support of projects that achieve strong sustainable energy outcomes. There is an opportunity to learn from existing examples (local and international) of clean energy projects to provide insight, guidance and instruction to planners in working with an increased focus on renewable, low carbon, energy efficiency and land sector projects resulting from implementation of the Clean Energy Future Plan.

While there is clearly an opportunity for leadership from the planning sector with regard to implementation of the Clean Energy Future Plan, there also exists some implications that will need to be addressed. These implications relate to technical skills, regulatory, policy and planning processes, and stakeholder considerations.

Planners will need to develop a stronger understanding of the types and feasibility of sustainable energy solutions and options, and develop an associated understanding of the regulatory and policy frameworks that relate to clean energy. At a local scale, there will be implications for the planning system, for example, the current zone suite may not easily support renewable and low carbon energy projects.

In addition, planners may also need to “up-skill” and expand their networks and collaboration in areas such as sustainable building design, sustainable energy, water and waste infrastructure deployment, and in emerging areas such as carbon storage as it relates to biodiversity and natural resource management generally.

In addition to this, planners will need to become familiar with the incentives available through the Plan and more broadly, including incentives, grants and the support available through the emerging sustainability/carbon services sector.

The successful implementation of projects associated with the Plan may require some policy change and will require a culture of policy innovation within planning authorities. Planners may find that any policy and land use changes that may be required to support prospective projects could face internal or community opposition and the need to balance competing interests may be strong. Collaboration with regard to sustainable energy projects will be required between a range of stakeholders including built environment professionals, natural resource management organisations, clean energy product and service providers and planners, amongst a range of others.

From a planning perspective the CEF Plan excludes some significant considerations with regard to addressing climate change. For example, areas such as transport, waste management, and climate change adaptation, amongst others. This report recommends that a comprehensive response from a planning perspective must address these critical areas alongside the areas covered in the Plan.

5.2 Recommendations

5.2.1 Training and communications strategy programs:

The majority of the recommendations relate to the content and focus of the project's Communications and Training materials, which will be delivered to planners and built environmental professionals.

- That the Training and Communications materials include information regarding the relative greenhouse gas emission implications of different energy sources and demand side options.
- That the Training and Communications materials be developed to address and demonstrate opportunities across the planning functions
- That the key findings of the project survey results be included in the Communications materials and that they inform the focus and content of the Training materials
- That the content of the Communications material be completed in line with that outlined in section 5.1
- That the content of the Training material be completed in line with that outlined in section 5.2

5.2.2 Additional resources and further work:

- That areas/activities that are not included in the scope of the Plan but that have relevance for planners in the context of addressing climate change, be integrated into the Training and Communications components of the project to the extent possible.
- That these out-of-scope elements be more fully dealt with in any future or expanded phase of the project, subject to resourcing.
- That there is a CPP course developed on the basis of an expansion of the material developed in this project.
- That an additional training module is developed to support local governments develop and implement a municipal Clean Energy Plan.
- That the Government support a sustained education and awareness campaign targeted at the planning sector.

5.3 Dissemination of Report Findings

5.3.1 Communications strategy and materials

Key Components of Communication Strategy

The communication strategy for the Report Findings from the A Clean Energy Future for Planners Project is based on the creation and delivery of both key passive and active elements.

5.3.1.1 Passive Elements – Final Report and Website

Final Report – A Clean Energy Future for Planners

The report will initially be the centrepiece for the project. The website (online hub) and stakeholder engagement program will be built around the contents, findings and recommendations of the report.

Central Online Hub – Website

Creation of a ‘live’ website structured around the contents of the Final Report on A Clean Energy Future for Planners – links to a range of tools, resources and information for planners, providing details on information sessions and training opportunities (including both online modules and face-to-face sessions).

Contents of the website to include:

- Downloadable copy of the Final Report on A Clean Energy Future for Planners
- Structure of actual website to reflect the structure of the Final Report
- Links to PIA’s main website
- Links to the CEF Plan’s main website (and DCCEE)
- Links to PIA’s events and seminars
- Links to PIA’s new online training modules
- Links to a potential CPP training course hosted by PIA

5.3.1.2 Active Elements – Stakeholder Engagement

Traditional Media Channels

- Utilisation of PIA’s primary communication channels – such as E-Bulletins and State Newsletters – to promote the contents of the new website.

Social Media Channels

- Utilisation of viral social media channels - such as Twitter, Facebook and LinkedIn – to promote the contents of the new website (and Final Report)

Events and Seminars

- Potential to run a 'Road Show' throughout Australia – visiting each State – to promote the Final Report and the outcomes from the project.

Potential CPD Engagement Sessions – 1 or 2 hours

- Potential formal launch of the Final Report, the Communications Package and Training Program by the Climate Change Minister.

Training Programme

See Section 5.2

5.3.1.3 Proposed Structure and Content of Website

Overview of Website Objectives

The Planning Institute of Australia and the Department of Climate Change and Energy Efficiency want planners to be able to use this website to provide guidance and information on the impacts that the Clean Energy Future Plan will have on their roles.

- Downloadable version of the Final Report on A Clean Energy Future for Planners
- Search engine requirements and capability
- The website should be accessible to search engine 'spiders' and have excellent on-page search engine optimisation

Key pages within the website (generally consistent with the Final Report)

1. Home Page
2. A Clean Energy Future for Planners
3. The role of planners
4. The clean energy future plan – including key elements of the plan
5. Implications, opportunities and issues for planners

6. Best practice examples and case studies
7. Report findings and recommendations
8. Survey Results
 - Overview – General Results
 - State-by-State
 - Level of Experience
 - Metro vs. Regional/Rural
 - Public vs. Private
- Training and Events
 - Online webinars and training modules
 - Face-to-Face workshops / courses (i.e. CPP on Planning for a Clean Energy Future)
 - Events and Seminars
- Frequently Asked Questions
- External Links
- Contact Details

5.3.2 Training strategy and materials

A suite of training materials to support planners in the delivery of clean energy projects will be developed for and delivered to built-environment professionals in both face-to-face and on-line modes. The initial suite of materials will comprise four modules:

Module 1: Background

Objective: To provide an objective context and understanding of climate change causes and impacts and the role of clean energy in this context

- Climate change causes and impacts, climate change science
- Climate change policy: Federal, State, Local policy environments
- Clean energy:
 - definition
 - nature and extent
 - examples/case studies

Module 2: The role of the built environment in climate change

Objective: To explore the direct and indirect linkages between climate change mitigation and adaptation and the built environment

- How are the drivers of climate change related to the built environment?
 - buildings
 - urban design
 - transport
 - adaptation and mitigation
- What are the strategies and solutions that emerge from the built environment/development context? (high level)
- Role of sustainable energy in these strategies and solutions (high level)

Module 3: The *Clean Energy Futures* package

Objective: To provide a detailed understanding of the policies, regulations and programs associated with the package

- Carbon Price Mechanism
- Renewable and Low Carbon Energy
- Energy Efficiency
- Land Sector Measures

Module 4: Planners driving a clean energy future

Objective: To provide a solutions-oriented package of information, resources and tools that will support planners to drive clean energy outcomes through their practice

- Which planner does what?
 - Public/private, statutory/strategic
 - Institutional and jurisdictional differences
 - Best practice and case studies

6 Appendix A: Survey Results Summary

Survey Respondents - Demographics

To gain an understanding from the survey results and provide further analysis the project team conducted detailed secondary and tertiary analysis based on the following key. The primary and secondary survey analysis results are available in this Appendix – with tertiary analysis and raw data to be available via PIA new website ‘A Clean Energy Future for Planners’.

1. State breakdown from respondents:

NSW – 26.1%	QLD – 22.6%	Vic – 20.7%	WA – 10.3%
SA – 10.3%	TAS – 3.3%	ACT – 3.2%	NT – 1.3%

2. Level of experience:

< 5 Years – 30.2%	6 to 10 Years – 15.9%	11 to 20 Years – 21.4%
21 to 30 Years – 17.5%	> 31 Years – 14.9%	

3. Sector within planning:

Local Government – 29.6%	State Government – 17.2%	Federal Government – 1.0%
Private Consulting – 39.4%	NGO – 3.8%	Academic / Student – 8.9%

4.

5. Type of planning:

Strategic – 26.1%	Statutory – 25.2%	Both – 41.7%
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6. Location of planning work:

Metropolitan – 38.0%	Regional / Rural – 25.7%	Both – 36.4%
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7. Geographic scale of planning work:

Local – 72.6%	State – 32.6%	National – 7.4%	International – 7.4%
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8. Minimum level of qualifications:

Year 12 – 2.2%	Certificate – 0.4%	Diploma – 5.2%
Bachelor – 55.2%	Master – 32.8%	PhD – 4.2%