

ATTACHMENT A

**SUMMARY OF SUBMISSIONS RECEIVED
DURING PUBLIC EXHIBITION PERIOD**

Renewable Energy Master Plan - Summary of Submissions during Public Exhibition Period

From		Issue	City Response/Action	Recommended change to the draft
1. Ausgrid	i.	Ausgrid recognises potential benefits from wider use of renewable energy generation and is committed to facilitating the increasing implementation of distributed generation in network supply area.	Comments noted.	No change.
	ii.	Ausgrid analysis found that 32% of the rated capacity of solar PV installations were effective during the time of overall peak demand 4:30-5pm in summer 2010/11.	Comments noted.	New text added within section SOLAR PHOTOVOLATIC PANELS p38.
	iii.	Preliminary results of Smart Grid Smart City program indicate that robust urban networks such as the City of Sydney area are able to accept high levels of solar PV without causing significant technical problems.	Comments noted.	New text added within section SOLAR PHOTOVOLATIC PANELS p38.
	iv.	<p>Note the Plan proposes the use of trigeneration supplied with renewable gas. There are significant technical challenges for connection of large trigeneration plants into the triplex network in the CBD due to fault levels, protection and control systems.</p> <p>However Ausgrid has been active in seeking solutions and developed a new approach to the connection of generators into triplex systems that shows some promise in reducing the barriers to higher uptake of trigeneration as well as reducing costs for generator proponents and is currently at the planning stage for a practical trial of this connection technique at a site in Kent street</p>	<p>City to remain in communication with Ausgrid.</p> <p>City supportive of this environmental leadership.</p>	No change.

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	and has offered to discuss progress on this trial with the City in more detail.		
v.	From July 2014 connection charges will be governed by the National Electricity Rules (NER) and the Australian Energy Regulator (AER) Connection Charge Guidelines. Ausgrid is obliged to comply with these guidelines.	Comments noted.	No change.
vi.	During recent consultation by the Australian Energy Market Commissions (AEMC) the AER confirmed its view that embedded generators seeking to remove a network constraint will generally be required to fund the work. Ausgrid support these charging principles as the alternative would be that retail customers fund augmentation works for the benefit of embedded generators.	Comments noted.	No change.
vii.	Ausgrid has standardised processes for micro-generators (up to 10kW) such as solar PV.	Comments noted. City supportive of this environmental leadership.	No change.
viii.	Ausgrid supports the work being undertaken by AEMC on changes to the National Electricity Rules (NER) to provide standard process for non-registered embedded generators.	Comments noted.	No change.
ix.	For large generators particularly in urban dense areas, information	Comments noted.	No change.

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	<p>and technical requirements and costs can vary significantly based on the size of generator, location of connection into the network, whether there is export and/or other network assets need to be altered or upgraded. Development of proposals for large connections can be complex and lengthy and Ausgrid recommend connection enquiries be initiated as soon as practicable with suitably detailed information.</p>		
x.	<p>Ausgrid agrees with the City of Sydney that there are potential cost benefits for electricity networks where embedded generators can reliably provide network support during peak periods, and where it results in a reduction in the need for investment in network capacity.</p>	<p>Comments noted. City supportive of this environmental leadership.</p>	<p>No change.</p>
xi.	<p>Ausgrid investigates demand management options and they are implemented where it is cost effective to defer or avoid alternative supply side investment. These demand side options can include network support payments to owners of embedded generators.</p>	<p>Comments noted. City supportive of this environmental leadership.</p>	<p>No change.</p>
xii.	<p>There are already cases where Ausgrid have provided demand management incentive payments to cogeneration owners in the City of Sydney area in return for network support during summer peak demand periods. Lessons have been learned about the reliability of cogeneration plant during high ambient temperatures</p>	<p>Comments noted. City supportive of this environmental leadership.</p>	<p>No change.</p>

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	often experienced at peak times and how it could potentially be improved.		
xiii.	Ausgrid do not envisage significant demand driven investment in the short to medium term in Sydney CBD that is likely to be offset by the Renewable Energy Master Plan, however there is potential for benefits in the longer term. Network constraints are published on the Ausgrid website, link provided.	Comments noted.	No change.
xiv.	<p>In principle Ausgrid supports the concept of cost reflective network charges where practical, cost effective and provides the right financial signals to customers. However, there are a number of issues to be addressed before this could be applied and to avoid cross subsidies between classes of customers. Some considerations include:</p> <ul style="list-style-type: none"> • Electricity network topology does not necessarily relate to geographical proximity. • Embedded generators which require full network backup are unlikely to reduce network assets and hence costs. • Coincidence between generator output and network demand at point of connection adds complexity to evaluation of economic benefit. 	Comments noted.	No change.

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<p>2. BASIX (NSW Department of Planning & Infrastructure)</p>	i.	<p>The City of Sydney recommends the BASIX target for all new multi-unit residential developments in the LGA be increased from 20 to 30. The current BASIX target of 20 is only applicable to multi-unit developments of 6 or more storeys, with other residential developments already requiring 30.</p> <p>The Department of Planning and Infrastructure (the Department) acknowledge the potential benefits of renewable systems in the Master Plan to the operational GHG emissions from dwellings but further financial and economic analysis is required to determine if and by how much BASIX energy targets can be increased.</p>	<p>City refers to previous BASIX team submission to the Trigeneration Master Plan which indicated that a score of 63 would be achievable with energy efficiency and precinct trigeneration as proposed by the Trigeneration Master Plan. With the addition of zero carbon energy as proposed by the Renewable Energy Master Plan, a target of 60 is considered readily achievable.</p>	<p>BASIX target increased from 30 to 60 under Enabling Action 1, p76.</p>
	ii.	<p>Adoption of renewable energy in building retrofits may also affect the BASIX Alterations and Additions component if the costs involved are over \$50,000. Further discussions with the City of Sydney are required in this regard.</p>	<p>City to remain in communication with BASIX team.</p>	<p>No change.</p>
	iii.	<p>The City of Sydney needs to consider implications of the localised renewable electricity and gas systems outlined in the Master Plan</p>	<p>Comments noted.</p>	<p>No change.</p>

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	for the National Electricity Market (NEM) and the National Gas Rules (NGR).		
iv.	Consultation with Councils whose LGA is within the proximity zone is required to determine if proposed systems are feasible and economical.	The City of Sydney Renewable Energy Master Plan is complimentary to the Renewable Energy Plan being developed by the SSROC group of neighbouring Councils.	No change.
v.	Currently BASIX uses the GHG emissions factors of grid electricity and gas for NSW published in the National Greenhouse Accounts (NGA) Factors. It is not clear at this stage how the emission factors of electricity and gas supplied to the City of Sydney LGA are going to be consistently monitored, updated and made available to the public. The current BASIX framework does not consider regional variations of GHG emission intensity of electricity and gas within NSW.	Comments noted.	No change.
vi.	GHG emissions from co/trigeneration systems are not accounted in the NGA factors for grid electricity. GHG emissions from co/trigeneration are calculated using NGA factors for gas consumed by the facilities.	Comments noted.	No change.

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vii.	<p>The Department is aware of the City's concerns on the latest NABERS ruling about the recognition of thermal energy imports from trigeneration systems. Although BASIX aims to align with an industry-based standardisation on the allocation of emissions between electrical and thermal energy from decentralised networks, further discussions can be held with City of Sydney on how the benefits of thermal energy from precinct-scale trigeneration can be recognised using the current BASIX algorithm.</p>	<p>City to remain in communication with BASIX team.</p>	<p>No change.</p>
viii.	<p>The Master Plan recommendation to amend the City's Development Control Plan to require reduction in GHG emissions in new buildings to be met by on-site or precinct scale renewable energy does not apply to BASIX-affected residential developments according to State Environmental Planning Policy (Building Sustainability Index, BASIX).</p>	<p>Comments noted.</p>	<p>No change.</p>
ix.	<p>While the total energy score of a residential development must achieve the mandatory (BASIX) target, contributions from improvements in energy efficiency and renewable energy sources can be disclosed separately on the BASIX report and certificate. This disclosure will encourage users to consider energy efficiency where renewable energy sources and precinct-scale trigeneration facilities are planned or in operation, and serves as contingency should these schemes not be available. Such a system is currently</p>	<p>Comments noted.</p>	<p>No change.</p>

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	disclosed within the BASIX Water score in areas where precinct-scale reticulated water systems are proposed or in operation.		
3. Bioenergy Australia	i. Submission does not necessarily reflect the view of Bioenergy Australia individual member organisations.	Comments noted.	No change.
	ii. The City of Sydney is congratulated on developing this important plan to utilise only renewable gas for future trigeneration and to use 100% renewable energy for electricity, heating and cooling.	Comments noted.	No change.
	iii. Note that the Master Plan does not include purpose grown energy crops or biomass and it is suggested that biomass feedstocks should extend to a fuller range of sustainably produced feedstocks for energy production. Specific reference is made to work by the Future Farm Industries Co-operative Research Centre and Federal Government Rural Industries Research and Development Corporation which shows using oil mallee trees as a purpose grown energy crop delivers multiple benefits including bioenergy.	Comments noted.	New text added within section RENEWABLE GASES FROM WASTE pp 7, 14 & 49.
	iv. The use of biomass as a feedstock for renewable gas and other energy products is likely to also stimulate the rural sector outside the Sydney metropolitan area and provide additional income for the rural sector. Studies have consistently shown the impressive economic multiplier effect in direct, indirect and induced jobs from	Comments noted.	No change as issue noted within Master Plan under RENEWABLE GASES FROM WASTE p8.

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	biomass procurement.		
v.	Solar energy driven gasification was not addressed within the Master Plan. There may be some advantage in providing energy input for gasification from the sun rather than using part of the biomass resource. This may warrant further analysis.	Comments noted and may be considered during implementation; however the Master Plan was based on existing technologies that are commercially available.	No change.
vi.	Use of some biomass for renewable gas production may warrant attention as an adjunct to bushland fire hazard reduction instead of current burn-offs with consequent air pollution and adverse health impacts.	Comments noted.	New text added within section RENEWABLE GASES FROM WASTE pp 7 & 52.
vii.	Six (6) minor grammatical and technical terminology suggestions are noted to the Arup Technical Appendix, and one (1) minor misspelled word in the TwE appendix.	Comments noted.	No change.
viii.	Overall the Renewable Energy Master Plan is a very significant contribution to fostering renewable energy in the City of Sydney. The challenge now will be implementing elements of the Plan. Bioenergy Australia would welcome working closely with the City of it progresses the Plan, especially as relates to renewable gas	City to remain in communication with Bioenergy Australia.	No change.

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	production and utilisation.		
4. Green Building Council of Australia	<p>i. The Green Building Council of Australia (GBCA) commends the City of Sydney on the work, consultation undertaken, and commitment to reduce greenhouse gas emissions within the City of Sydney LGA through renewable energy. GBCA supports the intention of the Master Plan and notes the City of Sydney must be supported by industry and state and federal government to fulfil the Plan.</p> <p>ii. There must be regulatory reform and a range of barriers addressed to deliver the targets laid out in the Plan.</p> <p>iii. Encourage the City to consider offering a range of incentives to encourage the uptake of renewable energy systems.</p> <p>iv. <u>Enabling Action 2</u> – Reflect low-carbon ‘Infrastructure Zones’ in the City’s Development Control Plan. GBCA supports the objective of connecting a city and its built environment to renewable energy systems and in principle the City of Sydney setting voluntary renewable energy targets for new developments and offering financial and non-financial incentives and/or capacity building.</p>	<p>Comments noted.</p> <p>Comments noted.</p> <p>Comments noted.</p> <p>Comments noted.</p>	<p>No change.</p> <p>No change as issue noted within Master Plan under Chapter 5, ENABLING ACTIONS.</p> <p>No change.</p> <p>No change.</p>

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	<p>City of Port Phillip Sustainable Design Assessment in the Planning Process is provided by way of example as a successful voluntary planning tool with high level of uptake. This type of voluntary framework could assist the City to achieve renewable energy, energy efficiency and green wall targets while improving industry awareness and capacity at the planning stage.</p>		
v.	<p><u>Enabling Action 4</u> – Low carbon zone recognition scheme</p> <p>GBCA supports proposal to recognise buildings connected to a precinct-base renewable energy system and would encourage recognition also for on-site renewable energy technologies. City could consider an annual awards program. Information could be linked with other City of Sydney programs such as the Better Buildings Partnership and Smart Green Apartments in a central place. GBCA would promote such resources through its networks.</p>	<p>Comments noted.</p>	<p>No change.</p>
vi.	<p><u>Enabling Action 7</u> – Introduce demand management rebates and cost reflective network charges.</p> <p>GBCA supports incentives to reduce demand for energy and the proposal to offer demand management rebates or offsets where demand on electricity or gas grid network is avoided. Consideration should be given to including Green Star rated developments in the scope of any rebates or offsets offered by the</p>	<p>Comments noted.</p>	<p>No change.</p>

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	<p>City. The City might also facilitate connections between local energy generators and existing aggregators.</p>		
vii.	<p><u>Enabling Action 8</u> – Make local, state and federal funds available for renewable energy systems.</p> <p>GBCA agrees the rate of renewable energy uptake by building owners will depend on incentives offered, and support this proposal with local government to take the lead in providing financial and non-financial incentives. The public sector should lead by example and invest in renewable energy for its buildings and operations.</p>	Comments noted.	No change.
viii.	<p><u>Enabling Action 9</u> – Introduce Environmental Upgrade Agreements for new development.</p> <p>GBCA supports the proposal for EUAs to be extended to new developments. Alternative Finance Mechanisms overcome some of the barriers for building owners and developers to install renewable energy. GBCA recommends City also looks at other less complex financial incentives like grants or rebates for sustainable design of new builds and environmental upgrades to existing buildings as there is confusion and hesitation regarding EUAs.</p>	Comments noted.	No change.
ix.	<p><u>Enabling Action 11</u> – Undertake feasibility studies and</p>	Comments noted.	No change.

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	<p>demonstration projects in support of renewable energy technologies.</p> <p>GBCA supports this proposal and believe governments have a strong role to lead by example and provide information about opportunities. The City could consider showcasing successful initiatives such as the Legion House project by Grocon which installed a biomass renewable energy system due to limited wind or solar resource at the site.</p>		
x.	<p><u>Enabling Action 12</u> – Remove the regulatory barriers to decentralised energy.</p> <p>GBCA supports the identification and removal of barriers which inhibit the installation of technologies that reduce greenhouse gas emissions.</p> <p>GBCA members encounter barriers when implementing renewable energy technologies in Sydney which include lack of clear connection timelines, information requirements, significant connection and network augmentation costs.</p> <p>Many barriers are beyond the City’s control but it may assist by providing a clear approval process map for renewable energy systems and may consider offering a single point of contact to</p>	<p>Comments noted.</p>	<p>No change.</p>

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	provide assistance through the approval and connection process.		
	xi. Examples are provided for building scale incentives to encourage the uptake of embedded renewable energy systems including Brisbane Sustainable Development Incentives Program, City of Port Phillip, and US LEED programs.	Comments noted.	No change.
5. KATRU ECO-INVENTIONS	i. KATRU is highly supportive of the Renewable Energy Master Plan. The City of Sydney is delivering on leadership, long-term vision and meaningful concrete actions which the renewable energy industry is seeking. The Master Plan sets a global benchmark and holistic model for others to follow.	Comments noted.	No change.
	ii. The Master Plan has been designed to best extent possible incorporating currently available technologies; however the suite of technologies may change over the short, medium and longer term, especially given the dynamic nature of the renewable energy sector. A clear example is the recent falls in PV pricing. Awareness of this limitation is an important condition for any conclusions reached from the Master Plan.	Comments noted.	No change as issue noted within Master Plan under RENEWABLE ELECTRICITY p6, and TRACKING TOWARD OUR 2030 TARGETS p60.
	iii. The urban wind market is relatively nascent state with the majority of manufacturers being small operations using modified versions of mature technologies originally designed for rural areas. KATRU is of	Comments noted and may be considered during implementation; however	No change.

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	<p>the opinion that the Master Plan may inadequately assess the future potential of urban wind and new technologies and that deployment of urban wind should not be ruled out as a real option for the City of Sydney.</p>	<p>the Master Plan was based on existing technologies that are commercially available.</p>	
iv.	<p>Within the Master Plan and associated Technical Appendix:</p> <ul style="list-style-type: none"> • Building scale micro wind generation was only considered on buildings greater than 100m. Inclusion of buildings greater than 50m would greatly increase deployment potential for urban wind technologies. • The wind resource was derived from interpolated meteorology which is not representative of true localised wind resources, especially between and on top of buildings. • Outputs were based on power curves specific to individual wind turbine models whereas next generation technologies capable of extracting power from turbulent winds will have different power curves enabling sufficient annual output on medium rise buildings and greatly enhance deployment potential for micro-wind in the LGA. • KATRU is concerned that while the hierarchy system and the conclusions reached allow for some level of detailed assessment of renewable energy generation potential 	<p>Comments noted and may be considered during implementation; however the Master Plan was based on existing technologies that are commercially available.</p>	<p>No change.</p>

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	within the LGA, such conclusions could restrict the deployment of other technologies (existing and future) that can serve an important role. Further detailed site investigations are required to decide between technologies during the policy implementation stages.		
	v. Confidential modelling of the proprietary KATRU IMPLUX technology for Sydney is provided which indicates it can compete with solar PV on buildings within the 50-100m height range.	Comments noted.	No change.
	vi. The City of Sydney should further investigate deployment of precinct scale wind turbines within the LGA and not rule out this option from within the Master Plan. There is an opportunity for the City of Sydney to set an international precedent in urban wind farms.	Comments noted and may be considered during implementation.	No change.
	vii. The City of Sydney should explore urban wind power generation sites within close proximity to its LGA, especially sites with good wind resources located within the distribution networks.	Comments noted and may be considered during implementation.	No change.
6. New Energy	i. New Energy acknowledges the far reaching scope and vision of the Plan and is very supportive of the overarching goal of reducing greenhouse gases by utilising renewable energy resources and will be actively supporting the goals from its position in the Energy and	Comments noted.	No change.

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	Waste sector.		
	ii. New Energy utilises a commercially proven, Australian developed, low temperature gasification technology treating mixed waste streams. It would seem appropriate that the summary of gasification technologies in Appendix 3 would include an explanation of this technology.	Comments noted. Technology to be considered within the City's forthcoming Advanced Waste Technology Master Plan.	No change.
	iii. In New Energy's and its technology partner (Entech) experience, the commercial readiness of "cleaning" syngas from waste for either direct firing in gas engines or producing a substitute natural gas has not yet been established. It is part of New Energy's R&D to develop this capability and New Energy would be happy to collaborate with the City of Sydney to accelerate those plans. It is recommended money and resources are allocated to support companies trying to achieve this outcome.	Comments noted.	No change.
7. Property Council of Australia	i. The Property Council (PCA) commends the leadership and vision that the City of Sydney has shown in developing the Renewable Energy Master Plan, depth of research, and variety of technologies considered. The City has demonstrated great ambition to meet its 2030 renewable energy target and should be congratulated for	Comments noted.	No change.

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	<p>filling the leadership void in the renewable energy space.</p> <p>ii. PCA acknowledge this is a work in progress and requires more work to ensure these actions can be implemented effectively.</p> <p>Reaching the 30% target is reliant on several factors outside of the City's control and will involve diverse stakeholders including local Councils, State and Federal Governments, residents and building owners.</p> <p>PCA strongly encourage the City to develop a detailed strategy for engagement with stakeholders and develop a contingency plan how the 2030 target will be reached if the City cannot secure State and Federal Government support, such as funding, policy support and removal of regulatory barriers.</p> <p>PCA look forward to working with the City to further refine the Master Plan's enabling actions and to develop a robust implementation strategy.</p> <p>PCA look forward to the final and most important Energy Efficiency Master Plan and recommend the City develop an overarching strategy document to outline how energy efficiency, renewable energy and trigeneration will work together to achieve Sustainable Sydney 2030 targets.</p>	<p>Comments noted and may be considered during implementation.</p>	<p>No change.</p>

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iii.	<p>PCA look forward to working closely with the City to ensure robust implementation of the Master Plan and would welcome the opportunity to work with the City to remove additional regulatory barriers to the uptake of decentralised energy including complex licensing processes and inefficient pricing barriers.</p>	<p>City to remain in communication with Property Council of Australia.</p>	<p>No change.</p>
iv.	<p><u>Enabling Action 1</u> – Reform BASIX to incorporate renewable energy in the City of Sydney.</p> <p>As previously raised in the PCA submission to the City’s Trigeration Master Plan this may have unintended consequences, for example migration of high density development away from the City of Sydney to areas that offer less amenity and with poorer access to public transport.</p>	<p>Enabling Action may likewise attract investment by leading performance buildings to the City of Sydney.</p>	<p>No change.</p>
v.	<p><u>Enabling Action 2</u> – Modify the City’s DCP to reflect low carbon infrastructure zones.</p> <p>PCA support the use of the City’s DCP to achieve emissions reductions, however are concerned that the initial 10% target is too ambitious and that the 20% target after 5 years is not achievable. In members experience, reduction of this size using on-site or precinct scale renewable energy have been commercially and practically difficult to achieve.</p>	<p>City to remain in communication with Property Council of Australia.</p>	<p>No change.</p>

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	<p>PCA encourage the City to work with the property industry to test the viability of proposed emissions reductions targets against real scenarios and to consider the feasibility of proposed emissions reduction targets in the context of the forthcoming Energy Efficiency Master Plan where energy efficiency measures are adopted in a building.</p>		
vi.	<p><u>Enabling Action 3</u> – Recognise precinct scale renewable energy in Mandatory Disclosure and NABERS</p> <p>The City proposes that surplus zero carbon electricity, heating and cooling from precinct decentralised renewable energy should be recognised in NABERS ratings. The overturning of the July 2010 NABERS ruling in October 2012 resolved this issue and should not be raised again in the context of precinct renewable energy.</p> <p>As previously raised in PCA submission to the City’s Trigeneration Master Plan, recognition of precinct scale renewable energy in NABERS is a false economy as the scheme is designed to differentiate once building from another. If owners are encouraged to connect to a precinct renewable energy system to improve their NABERS rating, there is no real commercial value if everyone else does the same.</p>	<p>City confirms its position that physical connections to precinct renewable and/or low carbon energy sources such as thermal connections or private or public wires (within the same distribution network as distinct to accredited GreenPower), should be fully reflected within NABERS energy efficiency star ratings and Building Energy Efficiency Certificates.</p>	<p>No change.</p>

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vii.	<p><u>Enabling Action 4</u> – Low Carbon recognition scheme.</p> <p>City proposes a recognition scheme for buildings connected into precinct renewable energy. It must make commercial sense for building owners to participate as a good investment over the medium term. The schemes should not be mandatory and building owners should be allowed to ‘opt out’ and the prerogative of an incoming purchaser to remove any reference to connection to the scheme and/or disconnect.</p>	<p>The Low Carbon recognition scheme as proposed would be voluntary in nature.</p>	<p>No change.</p>
viii.	<p><u>Enabling Action 5</u> – Incentivise renewable energy.</p> <p>PCA support the overarching objecting of incentivising renewable energy; however the Master Plan does not provide details on what a premium rate would look like or how an incentive scheme would operate.</p> <p>An incentive scheme must:</p> <ul style="list-style-type: none"> • Incentivise building owners to install renewable energy • Provide cost certainty • Allow building owners to on-sell electricity • Use careful modelling to set an appropriate rate for on-sale 	<p>Comments noted and may be considered during implementation.</p>	<p>No change.</p>

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	<ul style="list-style-type: none"> Be well designed and stable. 		
ix.	<p><u>Enabling Actions 6 & 7.</u></p> <p>PCA support the City's proposals to incentivise renewable energy through:</p> <ul style="list-style-type: none"> Standardising connection fees for renewable electricity and gas networks – provided this is performance based and does not favour non-renewable over renewable technologies. Introducing demand management rebates and cost reflective network charges – which should be expanded to include energy efficiency and reflected in the City's forthcoming Energy Efficiency Master Plan. 	Comments noted.	No change.
x.	<p><u>Enabling Action 8 – Make Local, State and Federal Funds available for renewable energy systems.</u></p> <p>PCA support proposal that funds should be made available to reduce the cost of installing building scale and precinct scale renewable energy. A dedicated fund, similar to the former Green Building Fund, should be established to reduce the cost to building owners and help bridge the payback gap.</p>	Comments noted and may be considered during implementation.	No change.

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xi.	<p><u>Enabling Action 9</u> – Introduce EUAs for new developments.</p> <p>PCA is a strong supporter of EUAs however EUAs may not be the correct tool to incentivise renewable energy in <i>all</i> new developments as access to capital is not always the barrier to connecting to renewable energy systems. Where renewable energy systems are not commercial, EAUs will not provide a solution.</p> <p>Furthermore financiers and tenants may be reluctant to take on the development risk for an EUA associated with a new development.</p> <p>PCA encourage the City to consider alternative incentives such as funding to support the commercialisation of renewable energy technologies and financial support for feasibility studies.</p>	<p>Comments noted and may be considered during implementation.</p>	<p>No change.</p>
xii.	<p><u>Enabling Action 11</u> – Undertake demonstration projects in support of renewable energy technologies.</p> <p>PCA support the intention but consider using these funds elsewhere could be more effective to facilitate market transformation and uptake. PCA recommend the City use its \$10M renewable energy fund to invest in reducing common legal, technical and economic barriers by:</p>	<p>The \$10M renewable energy fund refers to the June 2010 Resolution of Council for the City to invest in renewable energy on its own properties. The first stage is the rollout now underway for 1.2MWe</p>	<p>No change.</p>

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	<ul style="list-style-type: none"> • Providing broad based incentives for residents and commercial building owners to install building scale renewables • Investing in the commercialisation of renewable energy technologies. • Working with property industry and NSW Government to improve commercial feasibility of EUAs for building owners. 	<p>of solar PV to be installed across multiple sites. This investment will reduce Council's energy bills and provide a return on investment for ratepayers.</p> <p>In addition to the renewable energy fund, the City is committed and working toward reducing common legal, technical and economic barriers as outlined.</p>	
xiii.	<p><u>Enabling Action 12</u> – Remove the regulatory barriers to decentralised energy.</p> <p>PCA supports City's recommendation that Federal Government remove regulatory barriers to uptake of decentralised energy.</p> <p>The City has supported the ClimateWorks, Seed Advisory and PCA rule change proposal to the Australian Energy Market Commission for connecting embedded generators to the national electricity grid which will remove a significant barrier by replacing case-by-</p>	<p>City to remain in communication with Property Council of Australia.</p>	No change.

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	case negotiations with standardised processes.		
8. Royal Botanic Gardens and Domain Trust	<p>i. The Royal Botanic Gardens & Domain Trust (RBGDT) congratulates the City of initiating a strategy focusing on reducing net carbon emissions by 70% by 2030. The Master Plan represents an exciting vision for the City of Sydney affirming the City's commitment to a sustainable future.</p> <p>ii. The RBGDT Sustainability Committee is generally very positive about the principles and range of viable renewable energy alternatives identified within the Master Plan.</p> <p>iii. The RBGDT Sustainability Committee considers trigeneration could be viable across the city however it has concerns about the proposal to use natural gas until renewable gas from biomass becomes available. The committee view natural gas as an unsustainable resource particularly with the increasing use of coal seam gas in NSW.</p>	<p>Comments noted.</p> <p>Comments noted.</p> <p>The City of Sydney has resolved that by 2030 renewable gases from waste and other renewable energy sources will replace natural gas in the trigeneration systems. The material drivers for coal seam gas in NSW are centralised gas fired power stations, domestic supply and export potential and</p>	<p>No change.</p> <p>No change.</p> <p>No change.</p>

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		not the City's proposed trigeneration network which would drive development for a renewable gas market.	
iv.	The RBGDT Sustainability Committee notes competition for biomass identified within 250km radius of Sydney may make renewable feedstock expensive in relation to natural gas for longer than anticipated in the Master Plan.	Chapter 4, PERFORMANCE MEASURES shows the estimated price of delivered renewable gas derived from waste and biomass resources is competitive with natural gas in the short term. Competing demands for biomass resources would be considered during implementation.	No change.
v.	The RBGDT Sustainability Committee expresses concern that transporting natural gas using road transport will increase truck movements on already congested roads.	Modelling for the Master Plan considered transporting natural gas using road transport only to the nearest gas pipeline	New text added within section RENEWABLE GAS FROM WASTE AND BIOMASS pp 18 & 46. Existing text

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		and not directly to the City of Sydney.	within section ANIMAL MANURES, HORTICULTURAL WASTE AND SEWAGE SLUDGE pp 52.
vi.	The RBGDT Sustainability Committee is concerned there is potential for negative impact on soil carbon if agricultural and horticultural wastes are used to produce biogas, in particular the removal of plant residues from crops may negatively impact on soil productivity and stability.	Products from anaerobic digestion and gasification or organic wastes have high fertiliser and soil conditioner properties. Additionally biochar from gasification applied to soil sequesters carbon.	New text added within section ANAEROBIC DIGESTION / GASIFICATION FERTILISER AND CARBON SEQUESTRATION p49.
vii.	The RBGDT Sustainability Committee acknowledges the Technical report undertaken by Arup does caution that many of the sites identified for solar thermal arrays or wind turbines are only theoretically suitable however the Committee would like to affirm that it does not believe parks and gardens should be identified for potential locations to install large scale solar arrays or wind turbines.	Comments noted.	No change as issue noted within Master Plan under section PRECINCT SCALE WIND TURBINES p41.

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<p>9. Sydney Opera House</p>	i.	<p>Sydney Opera House supports the City of Sydney's Renewable Energy Master Plan in principle. The Opera House is committed to its environmental sustainability targets and will continue to work in co-operation with City of Sydney within limitations of the Bennelong Point site.</p>	<p>Comments noted. City to remain in communication with Sydney Opera House. City supportive of this environmental leadership.</p>	<p>No change.</p>
	ii.	<p>In addition to energy efficiency, within its first Environmental Sustainability Plan, the Opera House has committed to heritage-sensitive trials to generate renewable energy on site.</p>	<p>Comments noted. City supportive of this environmental leadership.</p>	<p>No change.</p>
	iii.	<p>Photovoltaic, wind and solar thermal generation are not possible on the site due to heritage restrictions. The Opera House is however undertaking a wave-power feasibility study in areas not visible to the public.</p>	<p>Comments noted. City supportive of this environmental leadership.</p>	<p>No change.</p>
	iv.	<p>In 2011 investigations determined that tri-generation was not feasible for the building due to site constraints and no use for waste heat. However the Opera House is open for continued discussions making reference to a meeting held 21 August 2013 with Bennelong Apartments cogeneration consultant and City of Sydney. Discussion was positive however development of a co-generation energy centre for Opera House and Bennelong</p>	<p>Comments noted. City supportive of this environmental leadership.</p>	<p>No change.</p>

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	<p>Apartments would require funding and partnership from the Federal and/or State Governments.</p>		
	<p>v. The Opera House is open to discussions related to receiving green power or low carbon energy, however reticulation beyond the current network is problematic due to physical constraints on the site and approach.</p>	<p>Comments noted. City to remain in communication with Sydney Opera House.</p>	<p>No change.</p>
10. TAFE NSW –	<p>vi. TAFE NSW Sydney Institute supports the Renewable Energy Master Plan and congratulates the Council on this strategy to improve energy efficiency and reduce greenhouse gas emissions. The Institute commends the Council’s plan to seek to provide 100% of Sydney City’s energy by renewable sources by 2030.</p>	<p>Comments noted.</p>	<p>No change.</p>
	<p>vii. TAFE NSW Sydney Institute has a significant number of achievements to reduce its greenhouse gas emissions including the installation of 90kW of solar power and 7kW wind generators.</p>	<p>Comments noted. City supportive of this environmental leadership.</p>	<p>No change.</p>
	<p>viii. TAFE NSW Sydney Institute is a member of the City’s Better Building Partners program and member of the UNSW CRC for Low Carbon Living. Strategic Directions include targets to reduce utilities usage by 5% per annum.</p>	<p>Comments noted. City supportive of this environmental leadership.</p>	<p>No change.</p>

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	ix.	<p>Comments noted.</p> <p>City supportive of this environmental leadership.</p> <p>City to remain in communication with Sydney Institute.</p>	<p>New section added</p> <p>RENEWABLE ENERGY JOBS, EDUCATION AND TRAINING p27</p>
11. Transgrid	i.	<p>Comments noted.</p> <p>City to remain in communication with Transgrid.</p>	<p>No change.</p>
	ii.	<p>Comments noted.</p> <p>City supportive of this environmental leadership.</p>	<p>No change.</p>

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	<p>Cooperation with NSW distributors has led to joint projects that reduce peak demand, promote energy efficiency, or educate customers.</p>		
	<p>iii. Transgrid is investigating how to best meet electricity demand from the city in ways that will relieve and/or defer the need to build infrastructure to upgrade capacity.</p> <p>Transgrid promotes demand management and non-network options to defer capital expenditure if prudent and cost effective. The advantages that non-network options offer are recognised by Transgrid and consideration of non-network options on an equal footing with network options is an integral part in Transgrid planning network augmentations - for example acquisition of 40MW network support during summer 2013/14.</p> <p>Transgrid is considering further demand management initiatives in the Sydney metropolitan area over coming years.</p> <p>Transgrid plays an important role by:</p> <ul style="list-style-type: none"> • Informing market constraints via Transmission Annual Planning Report and consultations. • Sponsor university demand management and alternative energy research. 	<p>Comments noted.</p> <p>City supportive of this environmental leadership.</p>	<p>No change.</p>

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	<ul style="list-style-type: none"> Investing in own projects such as demand management at Transgrid Central Regional Centre Wallgrove. 		
12. University of Technology Sydney	i. UTS commend the City on its commitment to action to address Climate Change and the vision contained in the Master Plan document. UTS is also committed to Climate Change action and targets 30% reduction by 2021 based on 2007 levels.	Comments noted. City supportive of this environmental leadership.	No change.
	ii. UTS is undertaking significant expansion works which will increase energy use and GHG emissions, however this is being addressed through large scale energy efficiency works for all buildings and installation of solar hot water, solar PV and micro wind.	Comments noted. City supportive of this environmental leadership.	No change.
	iii. UTS is a member of the City's Better Buildings Partnership and is open to discussions and willing to participate in further initiatives that will see GHG emissions reductions.	Comments noted. City supportive of this environmental leadership.	No change.
	iv. The Master Plan has been reviewed by UTS facilities and operations, campus development, and sustainability teams.	Comments noted.	No change.
	v. UTS is included within the Master Plan as a site for solar PV and micro wind generation. Recent reductions in the cost of solar PV mean UTS expects some solar PV could reduce energy costs. Micro wind has generally been found not to be cost competitive with grid	Comments noted. Findings mostly align with Master Plan.	No change.

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	<p>energy, particularly renewable grid electricity.</p> <p>Much of UTS roof space may not be suitable for renewable energy due to shading and the Master Plan may overestimate the potential for installation on UTS and other buildings roofs in the City.</p>	<p>Suitable roof areas for the Master Plan were based on 3d modelling at a point in time, which will change with development over time however is not considered to materially impact the potential capacities for roof top renewable energy technologies as identified in the Plan.</p>	
vi.	<p>UTS students are passionate about action to reduce climate change and yet some UTS students oppose the use of Trigenation which uses natural gas despite significantly reducing greenhouse gas emissions.</p> <p>UTS commend the work done relating to Renewable Energy Gases, especially if cost competitive with grid delivered gas. Use of renewable gas via the existing grid could see Trigenation double its GHG emissions reductions for UTS. As identified by the Plan, renewable gas may be the most feasible way of achieving high GHG emission and fossil fuel use reductions. This could address</p>	<p>The City of Sydney has resolved that by 2030 renewable gases from waste and other renewable energy sources will replace natural gas in the trigenation systems. The material drivers for coal seam gas in NSW are centralised gas fired power stations, domestic supply</p>	No change.

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	students opposition to natural gas use for Trigeneneration and also reduce the need for Coal Seam Gas mining in NSW.	and export potential and not the City's proposed trigeneneration network which would drive development for a renewable gas market.	
	vii. Explanations of renewable technologies in the Master Plan are well explained and very informative.	Comments noted.	No change.
13. Dr Chris Tuckfield (individual)	i. Rapidly falling price of unsubsidised rooftop PV and the imminent release of inexpensive battery storage (e.g. Sunny boy SMA system and Zen Energy) means that the maths have changed completely and that this should be the heart of the strategy. PV module prices are falling 25% per annum. The current master plan is actually out of date already as it doesn't consider these changes.	Comments noted and may be considered during implementation; however the Master Plan was based on existing technologies that are commercially available.	No change.
	ii. Gas based systems are temporary and will be subject to rapid pricing increases.	The City of Sydney has resolved that by 2030 renewable gases from waste and other renewable energy sources will replace natural gas in the	

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		<p>trigeneration systems. The material drivers for coal seam gas in NSW are centralised gas fired power stations, domestic supply and export potential and not the City's proposed trigeneration network which would drive development for a renewable gas market.</p> <p>Chapter 4, PERFORMANCE MEASURES shows the estimated price of delivered renewable gas derived from waste and biomass resources is competitive with natural gas in the short term.</p>	
iii.	Any good renewable master plan now needs to plan for electric car battery based storage and grid connect to ease energy intermittency.	Comments noted and may be considered during implementation; however	No change as issue noted within Master Plan under section

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	<p>Vector energy in Auckland is now offering integrated PV + storage leasing on a current breakeven once cost of avoided infrastructure is included. The financial infrastructure such as group leasing etc. for City of Sydney including residents and council and businesses will enable an early transition to profitable renewable energy supply easily meeting current 2030 targets.</p>	<p>the Master Plan was based on existing technologies that are commercially available.</p>	<p>BACK-UP POWER & INTERMITTENCY p22.</p>
<p>14. Kevin Armstrong (individual)</p>	<p>i. Its rather exciting that a city as large as Sydney has developed a new plan to show how the city could switch to 100 per cent renewable energy and end its reliance on polluting coal-fired power with all of the city's electricity, heating and cooling from renewable sources - solar, wind and energy from waste - by 2030. Congratulations to Clover Moore and Allan Jones for providing leadership in developing a renewable energy master plan - a blueprint for providing 30 per cent of the city's electricity demand from carbon-free renewable electricity, mainly from harnessing solar and wind power, and 70 per cent from renewable gases derived from waste.</p>	<p>Comments noted.</p>	<p>No change.</p>
<p>15. Carolyn (individual)</p>	<p>i. I am all for renewables especially solar. Cleaner air and healthier people. If the council can implement more of this all the better. Hopefully one day some of us in the domestic market can afford panels ourselves as it is currently out of the reach of people that</p>	<p>Comments noted.</p>	<p>New section added COMMUNITY RENEWABLE ENERGY pp 27-30.</p>

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		live on a pension.		
16. Community Panel Meetings	i.	That the targets were not ambitious enough. Some participants felt that more ambitious targets (e.g. 100 per cent energy from renewables), although less likely to be achieved, would force decision-makers to think about a more revolutionary paradigm shift for energy generation.	<p>Comments noted.</p> <p>The Master Plan shows that 100% of the city's heating, cooling and electricity could come from renewable electricity and renewable gas.</p> <p>The City has been actively engaging with key stakeholders to promote the findings on this plan and work on enabling actions.</p>	No change.
	ii.	That the plan may be abandoned should there be a change in local government leadership. The effects of State Government policies such as a potential amalgamation of councils were also raised.	<p>Comments noted.</p> <p>There are many drivers beyond this plan which is seeing the rapid growth in renewable energy deployment in Australia</p>	No change.

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		<p>and around the world such as price parity with conventional polluting energy supplies which has for example been a driver for there now being more than 1 million households in Australia with solar PV. Policy makers and governments at all levels need to acknowledge and enable the smooth and efficient transition to low carbon energy.</p>	
iii.	<p>That the level of community involvement during implementation is unclear. It was also mentioned that the plan should include community education initiatives to maintain buy-in.</p>	<p>Comments noted.</p>	<p>New section added COMMUNITY RENEWABLE ENERGY pp 27-30.</p>
iv.	<p>That the cost of implementation, and who will bear it, is unclear. Will the cost be borne by an increase in rates, by federal or state grants? If City residents need to contribute, will it be affordable to everyone who wishes to partake?</p>	<p>Comments noted. Investment in renewable energy generation with negligible operating costs in</p>	<p>New section added COMMUNITY RENEWABLE ENERGY pp 27-30.</p>

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	<p>That the cost of implementation, and who will bear it, is unclear. Will the cost be borne by an increase in rates, by federal or state grants? What sort of impact will the plan have on the average resident?</p>	<p>comparison to fossil fuel generation, combined with local energy generation, is expected to suppress the rate of future energy and network price increases.</p> <p>Chapter 4 PERFORMANCE MEASURES shows levelised cost and marginal social cost of abatement for some renewable energy and renewable gas resources are modelled to be lower than fossil sources in the short term meaning an overall cost saving to society.</p> <p>Specific investment mechanisms are not covered by the Master Plan and would be considered during implementation.</p>	

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		<p>Community Renewable Energy models overseas provide renewable energy to customers at rates guaranteed lower than existing energy supply and it is expected that similar models would soon be profuse in Australia.</p> <p>Chapter 5, ENABLING THE MASTER PLAN calls for government funding and other incentives for making renewable energy viable in addition to removing regulatory barriers.</p>	
v.	Where would the waste to energy facility be located? Concerns over NIMBY attitudes.	Specific locations have not been identified and would be subject to detailed community consultation during pre-feasibility and design.	No change.

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vi.	The majority of the public is still unaware of the potential for renewables. This may make it hard to gain widespread acceptance.	The City of Sydney is actively meeting with stakeholders, making submissions, and has held public events and other communications to raise awareness for renewable and low carbon energy to replace polluting fossil energy.	No change.
vii.	The influence of entrenched fossil fuel interests, and the potential for misinformation.	Comments noted. The City of Sydney is committed to raising awareness on the social, economic and environmental benefits of renewable energy.	No change.
viii.	Other residual concerns over the process of converting waste to energy, such as the presence of fumes and the use of water.	Comments noted. Such issues to be addressed within the City's forthcoming Advanced	No change.

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		Waste Technology Master Plan.	