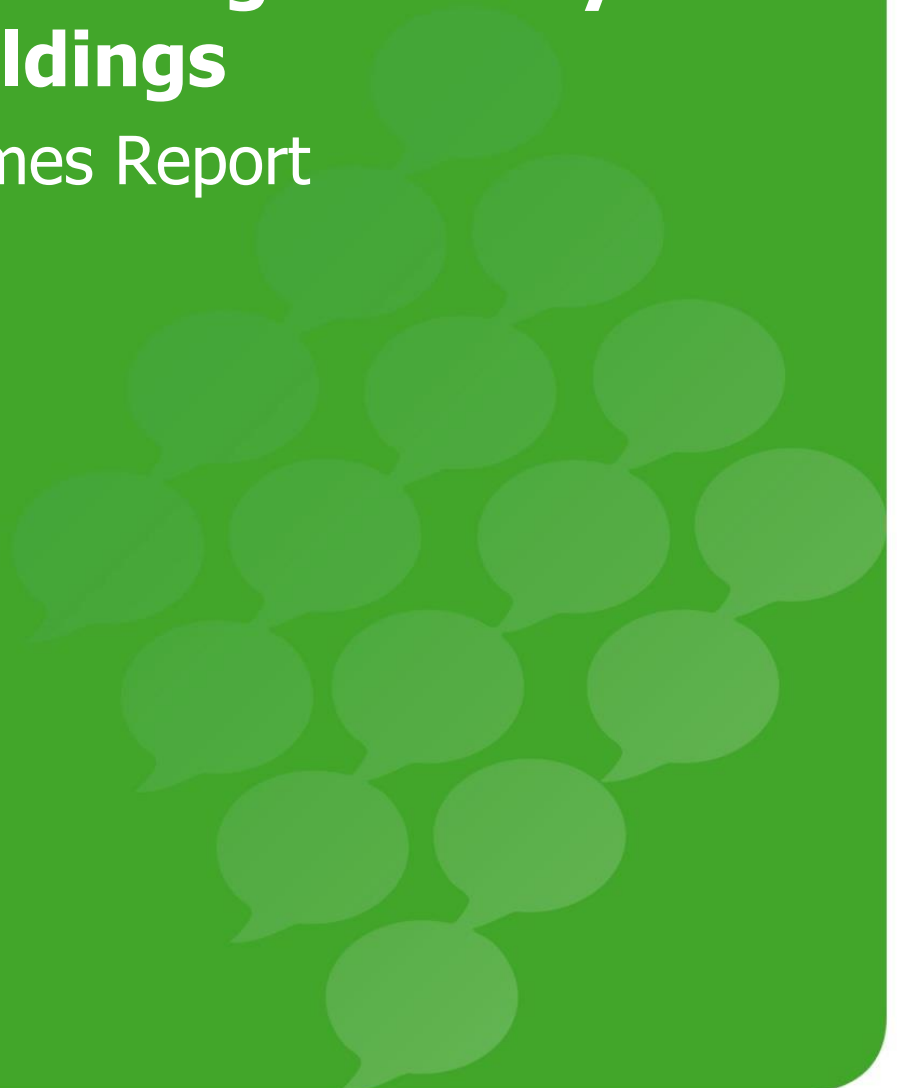


Creating a Planning Pathway to Net Zero Buildings

Forum 1 Outcomes Report



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Executive Summary

In May 2018, the first of a series of stakeholder forums was held to understand the planning issues and opportunities to transition to net zero buildings. The forums are targeting non-residential (office, hotels and mixed-use) and multi-unit residential developments.

Hosted by the City of Sydney, the forums are a collaborative project involving the following forum partner organisations:

- » Australian Sustainable Built Environment Council (ASBEC)
- » City of Parramatta
- » City of Sydney
- » Committee for Sydney
- » Consult Australia
- » Greater Sydney Commission (GSC)
- » Green Building Council of Australia (GBCA)
- » Office of Environment and Heritage
- » Planning Institute of Australia.

Forum 1 focused on understanding the challenges and opportunities of net zero buildings through the NSW planning system with property industry stakeholders and forum partners. Participants included a representation of:

- » Property developers and construction companies;
- » Government tender specifiers for developments;
- » Peak industry bodies (e.g. UDIA and Urban Taskforce) and forum partners.

For the purposes of the forum, the EU, Energy Performance of Buildings Directive net zero buildings definition was used:

Nearly zero-energy buildings have very high energy performance. The low amount of energy that these buildings require comes mostly from renewable sources.

The forum began with a presentation by Luke Falk, Vice-President Hudson Yards Technology, Related Companies. He outlined the planning and operational initiatives required to support development of a net zero building in New York City. Forum attendees then participated in round table discussions about the barriers and opportunities for net zero buildings within the current NSW planning system. Participants were divided into asset classes (office, hotels, mixed-use and multi-unit residential developments) to identify if there were any significant differences in constraints or approaches to developing a net zero building or precinct.

Key overall findings

There were several findings that cut across asset types and forum participants. Listed below are these key findings that require consideration in any planning pathway to transition to net zero buildings.

Regulation, tools and costs were listed as the main constraints in delivering net zero developments, with participants recognising that, without legislative drivers, costs are the main factor in decision making.

Another key issue raised in the discussion was that current regulations are not up to date and therefore limit rather than facilitate energy performance. Improving and updating planning controls and assessment tools such as BASIX, Section J (BCA) and local environmental plans was regularly raised as an opportunity to facilitate net zero buildings and precincts.

In parallel with improved regulation, participants felt that **incentives are necessary to overcome existing financial barriers and internal organisational resistance** to improvements beyond mandated building energy performance. Incentives would help to alleviate the hurdle that developers perceive little upfront market advantage to delivering higher energy performance buildings.

It was recognised that there are different opportunities and levels of willingness between and across organisations in the property sector to deliver on net zero buildings. The key will be to **establish a planning framework that supports and recognises 'leaders', encourages 'followers' and enforces 'compliers'**.

Understanding the distinctions in developer-owner-occupier dynamics between the various asset classes was seen as critical in better targeting both mandatory and voluntary building performance controls.

The majority of participants strongly favoured updating **mandatory regulations to improve the energy performance of buildings and precincts**. Rather than encouraging the property sector to aim for net zero buildings, current regulations were seen to establish a minimum energy efficiency ceiling, reflected in both market and government expectations.

Mandatory reporting of energy efficiency for all buildings was also raised across all asset types, with commercial asset representatives noting the large impact it has made on existing buildings.

It was acknowledged that, while it is essential to engage smaller property developers in developing this framework, this is extremely difficult and will require significant (particularly local) government effort.

Opportunities and barriers

Opportunities and barriers identified by forum participants have been categorised into the following themes:

- » Improving planning/rating tools, ratings, setting targets for high performance and mandatory disclosure
- » Identifying incentives for developments achieving above mandatory standards
- » Improving the NSW planning framework to facilitate high performance outcomes
- » Educating local government staff to facilitate net zero developments
- » Supporting developers to understand net zero early in the design and project planning phases
- » Educating consumers to understand benefits and costs of net zero development
- » Incorporating net zero within procurement specifications for businesses and government to increase demand
- » Monitoring and enforcing building and precinct performance
- » Investigating financial measures to incentivise net zero developments
- » Demonstrating leadership and direction from NSW Government

For a list of key opportunities and barriers raised see summary table on page 19.

Next steps

At forum 2, local and state planners, ESD and planning consultants and government bodies will further explore themes, opportunities and barriers identified by Forum 1 participants. This work will feed into the development of a planning pathway to net zero buildings with targets and timeframes.

1. Introduction

In May 2018, the first of a series of stakeholder forums was held to understand the planning issues and opportunities to transition to net zero buildings. The forums are targeting non-residential (office, hotels and mixed-use) and multi-unit residential developments.

Hosted by the City of Sydney, the forums are a collaborative project involving the following forum partner organisations:

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- » Office of Environment and Heritage
- » Planning Institute of Australia.

State and local government partners have identified ambitious net zero emission targets in keeping with the Paris Agreement of 2015. These include the NSW State Government target of achieving net zero emissions by 2050, as well as the Greater Sydney Region Plan and District Plans sustainability strategies and actions. In the City of Sydney, energy used in buildings represent the largest contribution to greenhouse gas emissions¹. Creating a planning pathway to net zero buildings is an essential step to meeting identified state government targets and working effectively to reduce the Greater Sydney's overall energy budget.

Project partners are holding stakeholder forums to identify the barriers and opportunities within the NSW planning framework to facilitate increased development of high performance buildings and transition to net zero development. The forums are targeting new non-residential (office, hotels and mixed-use) and multi-unit residential developments.

The first forum targeted developers and construction companies. In recruiting participants for the forum there was a strong drive to reach key development decision makers and influencers in the property industry. While there was some delegation from senior management, forum participants included a strong representation of:

- » Non-residential (office, hotels and mixed-use) developers;
- » Multi-unit residential developers (including urban regeneration and greenfield);
- » Key construction companies;
- » Key government tender specifiers for developments; and
- » Property industry bodies (e.g. UDIA and Urban Taskforce) as well as forum partners.

¹ Sourced from <http://www.cityofsydney.nsw.gov.au/vision/towards-2030/sustainability/carbon-reduction/net-zero-apartment-buildings>

Appendix F provides a list of organisations that were represented at the forum.

This forum was designed to provide the space for a collective understanding, stimulate cross-industry collaboration and provide an opportunity to share on-ground knowledge, experiences and learnings. See the Forum 1 Agenda at Appendix C.

For the purposes of the forum, the EU, Energy Performance of Buildings Directive net zero buildings definition was used:

Nearly zero-energy buildings have very high energy performance. The low amount of energy that these buildings require comes mostly from renewable sources.

During the designing of the forum multiple net zero definitions were reviewed. It was important to identify a definition for the forum that works within the constraints of the NSW planning system, responds to developer feedback on achieving net zero buildings and to act as a conversation starter. The definition was intended to steer discussions rather than a final definition.

Luke Falk from Related Companies provided an early presentation on the planning and operational initiatives required to deliver a high environmental performance development in New York City. Forum attendees then participated in round table discussions about the barriers and opportunities for net zero buildings within the current NSW planning system. Participants were divided into asset classes (office, hotels, mixed-use and multi-unit residential developments) to highlight any differences between these in constraints or approaches due to different business models and use of different planning tools.

This report provides an overview of the forum. Additional feedback from participants was collected following the forum via feedback forms, shown in Appendix D. Comments indicated that overall participants were satisfied with the forum. This is discussed further in Section 5. The outcomes of Forum 1 will inform discussions at the next forum with planning, ESD consultants and local government representatives.

Two further forums will be undertaken over the next twelve months:

Forum 2: for ESD and planning consultants and planners across Greater Sydney

Forum 3: for all stakeholders.

Listed below are the key objectives and parameters that guided discussion.

Forum objectives

- » Understand the issues and opportunities in planning to support, with industry, NSW State Government net zero emissions target, as well as the Greater Sydney Region Plan and District Plans' sustainability strategies and actions.
- » Understand current practice in development in respect to delivering on net zero buildings and precincts.

Forum parameters

- » This is the start of the conversation – we welcome any and all ideas
- » Feedback is anonymous, the findings of the forum will be reported but no quote will be linked to a specific organisation or individual
- » While the focus is on Greater Sydney, ultimately this framework may apply to all of NSW
- » We're discussing the issues and opportunities within the NSW planning framework to support the transition to net zero development, rather than focusing on technical /operational energy issues or solutions
- » A planning pathway for net zero buildings responds to international, Australian and NSW emissions targets.

2. Discussion

Table discussions at the forum provided important insights into the planning challenges and opportunities for net zero developments. These discussions and feedback forms are summarised below.

2.1 Experience in undertaking net zero developments

At the start of the forum participants were encouraged to describe their experience or knowledge in delivering a net zero development. This initial discussion was integral to the workshop as it allowed participants to introduce themselves and their experience. Below is a summary of that discussion.

Have you had any experience or knowledge of delivering a net zero (high performance) development (building or precinct)?

A number of participants, across the four asset types, had worked on or had firsthand knowledge of net zero and high environmental performance developments. These ranged from international and Australian companies and governments targeting zero carbon developments to the use of innovative technology and design to achieve high energy performance buildings.

What were the key drivers and motivation for net zero developments?

- » Internal advocacy within development companies
- » Corporate sustainability strategies, targets and benchmarks
- » Evidence based assessment to encourage the net zero approach
- » Community consultation and public support
- » Use of the green building fund
- » Government sector leasing requirements (for the commercial sector).

Participants, from all asset types, in reflecting on their (and others') experiences also identified a number of **challenges** regarding actioning net zero projects, including:

- » Costs associated (e.g. air conditioning and façade)
- » Planning requirements
- » Heritage constraints
- » Moving away from the standard design brief
- » Rating tools are not 'holistic'
- » Lack (or lack of knowledge) of market response to energy efficiency
- » Technical or regulatory barriers when considering innovative products (e.g. there are hurdles in using timber frameworks in large-scale, multi-storey structures to reduce embodied energy due to existing fire requirements).

At each of the forum tables, facilitators then asked participants to provide feedback on a series of questions relating to the challenges and opportunities within the planning framework to improve the uptake of net zero developments. Each of the questions is highlighted in bold below and is followed by a concise summary of the table responses. For each question the most common response across all of the tables has been identified as the 'main message', while other 'key points' have also been highlighted for clarity and consideration.

2.2 Barriers and constraints

What are the current challenges and barriers in land use planning to net zero buildings and precincts in NSW?

Main message:

Regulation, tools and costs were listed as the main constraints in delivering net zero developments, with participants recognising that, without legislative drivers, costs are the main factor in decision making.

Participants did not perceive planning as a major barrier, however felt that it is also not a motivator to delivering on net zero developments. It was suggested that legislation should specify and define net zero buildings. One table raised that there has been a regulatory stagnation in the 'energy' space.

Key point:

Participants felt that **current regulations are not up to date**, fail to reflect available technology and therefore limit rather than facilitate energy performance.

Participants also supported a balanced approach to development assessment that provides a consistent standard and approach (such as prescriptive guidelines and/or controls) as well as providing flexibility for innovation through outcomes-oriented performance benchmarks. Other participants felt that the tick-a-box nature of planning was a barrier, suggesting the process should be less prescriptive and more outcomes focused. An example of this raised by the residential asset representatives was the highly rigid application of the Apartment Design Guide (ADG) which impacts energy outcomes.



'There is a big black box and we don't know what is happening in there' NatHERS

– residential asset table

It was considered important that the planning controls respond to different urban contexts, with rules tailored for building type and location.

There were a number of questions around the use of offsite renewables to achieve net zero emissions. Some participants believing (although this is not accurate) that, from an energy efficiency perspective, 6 star NABERS Energy for office is only achievable with offsite renewables.

Key point:

Participants noted that **tools** used to encourage and measure energy performance **need to be improved and updated to be more holistic**.

It was also commented however that most people in the development industry do not know enough about the range of tools and their application to use them effectively.

Table 1 Summary of opinions expressed regarding the various building rating tools used in NSW

BASIX	<ul style="list-style-type: none"> » Hasn't been updated so doesn't keep pace with current technology or encourage higher performance. It is relatively easy to meet, particularly in respect to high rise buildings. » Is a blunt instrument that does not necessarily achieve its objectives » It doesn't have a monitoring and assessment mechanism to understand post-occupancy use. » Is not consistent with the ADG e.g. shading for a west facing living room.
NABERS	<ul style="list-style-type: none"> » Mixed response with some participants indicating it works well and others concerned that it does not sufficiently address all building types » Water and energy tools do not align (hotel asset representatives)
WELL	<ul style="list-style-type: none"> » New international building rating system » A number of development organisations are using it to drive improved operational energy efficiencies
NatHERS	<ul style="list-style-type: none"> » There is a lack of transparency around assessments and outcomes » 'Deemed to satisfy' works better than the model to drive energy efficiency
Green Star	<ul style="list-style-type: none"> » Industry and community known and respected rating system.
National Construction Code (NCC)	<ul style="list-style-type: none"> » It is a barrier to developing high performance buildings as the energy efficiency requirements are too low.

Key point:

Market and government expectations were raised as a barrier, with participants stating that there are **varied expectations for building performance for asset types** due to their different tenants.

For example, for commercial developments net zero needs to be demand driven by the tenants while for mixed use and residential developments the costs associated with delivering energy efficiency are put on to the landowner. It was suggested that 6 star Green Star markets better with commercial development than residential, reducing the catalyst for delivering high performance residential stock.

One table noted that developments are differentiated on their green credentials and mandatory requirements may inhibit the competitive aspect of these investments.

Key point:

It was stated that achieving net zero is not simply a function of engagement early in the planning process but **greatly influenced by project engineering costs**.

Some participants raised that costs could be reduced by legislative requirements. It was noted that higher targets are perceived as a cost, while the benefits associated with the cost are passed on to the client – not the developer. It was added that the purchaser should be educated about the reasons

for the increased price and the subsequent long-term energy conservation benefits of the development.

Investing in energy efficiency design and technology, from a developer perspective, is driven largely by the perceived or actual willingness of current or prospective owners and tenants to pay for the cost of these initiatives. Participants added that the payback period on some environmental performance initiatives is considered too long for the capital outlay. Costs were seen as an even greater barrier to improving the environmental performance of existing stock through refurbishments or retrofitting. Housing affordability was also raised as a challenge at the mixed use/ residential tables.

Commercial asset representatives raised that the costs associated with energy efficiency are high and not fully known early in project planning. Participants noted that this may require additional time for the design excellence process as the customary 6 week provision is generally insufficient time to adequately cost sustainability initiatives. To assist in meeting mandated building performance objectives, the project planning process could be improved by incorporating improved cost assessment for energy efficiency into the tender process.

Key point:

Constructing high performance buildings **is not seen as a priority for developers** and there is **currently no incentive to achieve above minimum performance**.

Participants noted that much of the challenge is finding internal motivation to deliver on net zero buildings and precincts. Sustainability buy-in was seen as being particularly challenging in regards to developments being financed by overseas investors and developers. Some participants felt that they focused on only reaching minimum regulatory requirements, as overseas investors and developers lacked an appreciation of market responses to improved environmental performance. Other internal challenges included lack of internal sustainability targets and a concern that shareholders value higher returns over environmental sustainability. Even if an internal commitment to net zero or high performance is given, others noted that lack of communication within siloed development teams can hinder successful achievement of this goal.

Key point:

Participants suggested that a **lack of expertise** in private industry and local government regarding development of net zero and high performance buildings is a barrier.

Upskilling across all development tiers was suggested, with one table raising a lack of 'air tightness' expertise in the Australian property industry. There was also concern about harnessing new technologies and future maintenance costs, noting the use of new technologies requires expertise and acceptance within the industry. It was suggested that step changes in building performance standards within the planning system should be part of a long term pathway to enable industry and the supply chain to prepare for increased energy efficiency requirements. A suggestion included providing time to increase knowledge of net zero developments and relevant technologies.

Key point:

It was raised that net zero performance does not always support amenity, that **there can be a conflict between energy efficiency, design excellence and other standards**.

A common example is use of glass facades by architects in high rise developments, which provides a strong aesthetic but has significant implications for energy efficiency. Commercial asset

representatives noted that design standards could potentially directly conflict with sustainability features (such as smaller windows). It is important that design excellence is linked to environmental performance to achieve holistic outcomes. It was also suggested that clients and tenants should be better educated about the environmental performance and operational cost implications of design choices.

Key point:

For local government, **negotiation and enforcement of planning controls** was identified as a key challenge.

In particular, participants noted that sustainable outcomes may be signed off early in the concept design and planning approval process however these commitments are eroded in ensuing detailed design and construction development stages. Participants cited a lack of transparency and accountability in monitoring and enforcing energy efficiency outcomes by development authorities and private certifiers.

Other challenges raised were:

- » Post-occupancy tenancy behaviours can be a significant challenge for owners
- » Quality and monitoring of materials within the supply chain
- » Lack of incentive for developers to invest in energy efficiency that will reduce operational energy costs if the property will be sold post-construction
- » Lack of political leadership and desire to achieve outcomes
- » Reliance on specific technologies: for example, it was noted that there are better alternatives to co-generation and gas
- » Lack of consistency across councils.

2.3 Opportunities and incentives

In the planning system, what are the most important opportunities and incentives to facilitate net zero buildings and precincts?

Main message:

Incentives were considered the primary driver for delivery of net zero buildings or precincts as there is perceived to be little market advantage to delivering higher energy performance buildings.

Participants suggested that local government could **scale contribution requirements** to reflect building standards achieved. It was also suggested that an increase in FSR could be linked to performance commitments. There were concerns however that incentives need to be carefully considered to ensure that they facilitate a significant advancement in delivering on net zero development.

Key point:

Potential key incentives identified include **increases in floor space ratio (FSR) and reductions to local government development contributions.**

It was felt that owners and occupiers of residential developments were least educated about the benefits of energy efficient developments. With little market incentive or pressure, developers require upfront financial benefits to move beyond minimum standards.

Other incentives suggested by participants included:

- » Reduced council rates for energy efficient buildings
- » Expanding low interest loans such as the Environmental Upgrade Agreement scheme to new builds
- » Providing tax incentives for net zero developments.

Key point:

Improving and updating planning controls and assessment tools was regularly raised as an opportunity to facilitate net zero buildings and precincts. This included improvements to BASIX, the building code, ADG and the LEP Standard Instrument.

A number of changes to the existing planning pathway for major developments were suggested to improve the uptake of net zero buildings. This included identifying benchmarks in the Secretary's Environmental Assessment Requirements (SEARs), fast tracking net zero development assessments, incorporating building performance and sustainable material requirements in DCPs and using conditions of consent to increase and ensure energy efficiency. It was noted that conditions of consent for energy efficiency could be strengthened as well as improvements made to the National Construction Code. It was noted that high energy performance standards should be set during the concept plan and rezoning process at a level which is acceptable to the market.

Under a City of Sydney draft DCP amendment, new office developments and retrofits with net lettable areas of 1,000 m² or more will be required to enter into a Commitment Agreement of 5.5 star Base Building NABERS Energy office rating. This initiative was well regarded by participants and suggested it should be standard across all councils in Greater Sydney.

As identified in the barriers and constraints section improving current rating tools such as BASIX and NABERS were seen as key to driving sector-wide improvements in energy performance.

Key point:

The key will be to identify changes to the planning system that support and recognise '**leaders**', encourages '**followers**' and enforces '**laggers**'.

It was recognised that there are different opportunities and levels of willingness between and across organisations in the property sector to deliver on net zero buildings.



Net zero is about going beyond the standard business case"

– commercial asset table

Key point:

Developing a better **evidence base** for transitioning to net zero buildings was identified by some participants as an important support for internal decision making.

It was suggested that as understanding and knowledge of net zero building developments increases, it may be possible to use the evidence of energy savings to drive demand. This would require better monitoring and reporting of building and precinct performance post occupancy.

Participants also stated that as energy efficiency technology became more cost-effective it would improve the value proposition for the development industry. Better understanding and use of passive principles in the development industry was seen as a particular opportunity.

Key point:

Providing direct financial aid for development of net zero buildings or precincts was seen as an **important catalyser of change** and **an opportunity to lower the risk of investment in innovation**.

Participants supported providing grants for net zero buildings and precincts. One table raised the Federal government's former 'Green Building Fund' program which provided funds for up to 50% of the cost of energy efficiency improvements as a good example. Commercial asset representatives noted that the general public are increasingly interested in ethical investments, suggesting a **financing model** that enables people to buy into green buildings.

Key point:

Some participants recognised **community consultation and support** as strong drivers in the process.

Increased marketing and recognition of high performance buildings, such as through the development of a simple star rating for residential development was seen as a strong opportunity. The rating system should operate in a similar fashion to the compulsory electrical appliances energy rating label (i.e. mandatory and to be advertised at sale or provided in the contract).

Other opportunities suggested were:

- » Allow individual councils to increase BASIX requirements (and assess the impact on costs of increased BASIX targets in different areas)
- » Merit based assessment to vary council's planning controls to allow for flexibility in building design to support net zero building
- » Increase investor and stakeholder understanding of climate risk and the importance/value of mitigating this risk through improved energy performance
- » Addressing opportunities for delivery of net zero developments throughout the supply chain
- » Maximising energy load sharing in mixed use especially for integrated precincts
- » Looking at precinct approaches with appropriate governance and service provision arrangements (e.g. Local government to facilitate or manage a micro utility)

Engagement with utility providers was raised by a number of participants as they noted the importance of alternative approaches to energy management including maximising the potential to feed back into the grid to balance energy loads.

Hotel asset representatives raised that benchmarking across the hotel sector could be improved through the development of a hotel-specific rating tool. This would capture the unique developer-owner-operator relationship as well as the longevity of hotel ownership.

Other suggestions to support the delivery of net zero buildings across the property industry included:

- » Clarifying and promoting a definition of 'net zero' including offset requirements
- » Encouraging developers to investigate net zero early in the process and engage with councils in a pre-DA process

- » Providing clear government leadership through policy direction, commitments (targets) and legislation to allow industry to adapt and respond (e.g. net zero by 2030 in greenfield developments)
- » Improving training and certification of private certifiers (and local government)
- » Developing a demonstration project either by or in partnership with State/ local government
- » Providing flexibility through the identification of outcomes and performance orientated guidelines for developments.
- » Incorporate high performance sustainability measures into the DPE economic feasibility tool – this tool is used by DPE with rezonings and planning proposals
- » Investigate the use of a system similar to heritage floor space (credits for transferable development rights) for energy efficient buildings to enable them to get to net zero
- » Precinct planning with planning controls to incentivise and promote efficient buildings
- » Longer term pathway with step changes rather than waiting for each 3 year update with NCC
- » Provide standards and targets upfront in rezoning and planning controls, although there was concern raised that this could impact land values
- » Provide industry upskilling for lower tier developers.

Are there any lessons learnt from previous experience or in other jurisdictions that will help us to achieve high-performance outcomes?

Elements of a wide range of approaches and mechanisms were referenced by participants. These included:

- » stretch goals such as the former UK Zero Carbon Homes Policy which sought to make all new dwellings from 2016 carbon neutral (i.e. homes would generate as much energy on-site through renewable sources, such as wind or solar power as used in heating, hot water, lighting and ventilation)
- » European star rating for residences
- » New York City Energy Conservation Code (NYCECC), applicable to new residential and commercial buildings and alterations
- » Use of a 'pink slip' detailing the environmental performance of the building tied to the sale (under consideration in Victoria).

Key point:

Participants noted that there is **generally little difference in building performance benchmarks across Australian jurisdictions** with most developments adhering to the Building Code of Australia (BCA).

Additionally, it was observed that NABERS Commitment Agreements drive good commissioning.

One table suggested that sustainable buildings are looked at more favourably by decision makers. Waverley and Parramatta local governments were explicitly discussed, with reference to their sustainable policy framework for VPA negotiations.

2.4 Mandatory or voluntary measures

Prior to table participants discussing the following bolded question, the room was asked whether they supported mandatory or voluntary planning controls. By a significant majority the room indicated that they preferred to work within a 'more level playing field' as facilitated by mandatory controls.

Is it important that planning measures to achieve high-performance outcomes are mandatory or voluntary?

Many participants recognised that while cost is the main driver, consideration for design outcomes and environmental performance has value in differentiating projects. It was therefore suggested that both mandatory and voluntary measures to drive building performance should be used.

Key point:

Participants proposed **flexible incentives for voluntary standards, to be introduced on a sliding scale** to recognise the different opportunities across sites.

It was felt that planning regulations should provide sufficient scope and incentives (such as FSR and height increases) to encourage innovation from companies engaged in creative solutions for high performance. An example is the Bankstown LEP which allows additional floor space if BASIX requirements are exceeded.

Key point:

Participants felt that mandatory requirements, such as the NCC, BASIX and BCA, should be stronger particularly when it comes to non-performance.

There was also consideration of how LEPs could better direct developments in terms of building performance, such as through a standard clause that the development must meet the building performance requirements outlined in the relevant DCP.

Participants noted that a major advantage of mandatory targets is that they are considered early in the project design and support better engagement and up take from builders and other trades during construction and planning. Participants indicated that the National Construction Code can help address areas where sustainability clashes against ingrained practices of contractors and subcontractors.



still always get the best outcomes with mandated requirements – there is strong evidence”

– mixed use asset table

Key point:

Mandatory reporting of energy efficiency for all buildings was raised across asset types, with commercial asset representatives noting the large impact it has made on existing buildings.

The level to which mandatory targets or standards should be raised was discussed, with a range of opinions expressed:

- » Require minimum mandated standards, with significant incentives if developers go above standards
- » Require a Commitment Agreement of 5.5 star NABERS Energy for office to help bring less innovative developers on board, while progressive developers should be incentivised to commit to 6 stars.
- » Mandatory stretch goals and controls to drive innovation with public support.

There was also consideration that mandatory and voluntary measures could be differently imposed across asset types. For one table, the rationale for this was that commercial high-performance buildings are largely driven by tenancy demand whereas residential and mixed use developments seem to be less influenced by the market. These asset classes need to have mandatory measures to influence supply of high performance buildings.

2.5 Where can we go?

In recognition that only a small subsection of the property industry were represented at the forum, with few small to mid-tier development organisations in attendance, participants were asked to identify options for supporting development of net zero buildings across the sector.

What will support delivery of net zero building projects across the property sector i.e. from Tier 1 to Tier 3 ²companies?

Throughout the forum, the different capacities of developers to build, design and develop net zero buildings was raised. Many suggested that policy and incentives should be tailored across the tiers, and asset types, recognising that sustainability performance is a differentiator for many. One table suggested that top tier developers could work with a carbon positive road, while mid-tier could be influenced by changes to disclosure requirements and Tier 3 could be brought along by upgrading the building code.

Key point:

Participants raised **getting Tier 3 developers engaged in improving building energy performance is highly challenging** as they generally have smaller margins and less capacity to amortise high upfront capital costs.

It was felt that mandatory measures would be most effective with Tier 3 developers, particularly as they generally have a formulaic approach to development and look for certainty in the regulatory framework. Mandatory measures however should also support flexibility such as through an innovation performance measure in the Apartment Design Guide.

One table suggested that incentives would be more attractive to smaller players. Although others pointed out that some smaller developers preferred to operate without consideration of optional inducements as BAU practices and systems tended to be cheaper.

Other participants suggested best practice guides and case studies for smaller developers detailing information, including upfront capital and operational costs to deliver net zero buildings. It was noted that any standards, particularly mandatory, should be able to be understood across the market.

² There is no recognised definition for tier 1 to tier 3 developers however loosely it spans organisations from multinational/national to domestic/ local developers.

It was noted that while smaller developers may have greater financial barriers in respect to developing net zero developments, within, at least, the hotel sector there is an opportunity for boutique hotels to lead in sustainability.

Key point:

For all tiers, compliance and building quality was viewed as a driver, with compliance a key consideration for decision making particularly by lower tier developers.



The Tier of Builders is a thing but [potential for net zero developments are more strongly related to] the asset class and the nature of the end user

- mixed use asset table

Key point:

Developing educational resources for industry, government and purchasers was commonly suggested by participants to improve decision making, negotiation and increase supply and demand for net zero buildings and precincts.

Better quantification and an evidence base for net zero development costs and benefits was also considered helpful to support decision making across all tiers.

3. Summary of opportunities and barriers

The section is a summary of the opportunities and barriers identified by Forum 1 participants categorised into themes. These themes, opportunities and barriers will be further explored at Forum 2.

Themes	Opportunities	Barriers
Improving planning/rating tools, ratings, setting targets for high performance and mandatory disclosure	<ul style="list-style-type: none"> » NABERS, Green Star, NCC 2022, BASIX are updated to consider longevity and operation of all the asset types » Allow individual councils to increase BASIX requirements (and assess the impact on costs of increased BASIX targets in different areas) » Updating SEPP (Building Sustainability Index: BASIX) 2004 requirements » Tools and ratings are evaluated to be responsive for different asset classes » A single (national) rating tool for development types is needed » Higher minimum mandatory requirements; plus incentives pathways for higher performance » Section 7.11 (formerly Section 94) fees could be related to whether people achieve their targets or not » A scaled approach to setting targets by the age of the asset (e.g. new buildings to be net zero and target buildings >3 years through procurement). » Buildings to be rated regularly to ensure ongoing commitment to energy efficiency » Mandating 5.5 star NABERS Energy for office through a Commitment Agreement in Sydney and Parramatta » Precinct based targets set certainty for all individual buildings as they are built » Ensure energy efficiency targets and requirements are built into land pricing, although there was also concern this could depress land values. 	<ul style="list-style-type: none"> » High rise buildings cannot be net zero onsite. Would need to use offsite renewables. » Regulations such as BASIX are slow to respond and keep up to date with technology. This was also mentioned in submissions to the Greater Sydney Commission. » NABERS has not moved with the times » BASIX is two dimensional – easy to satisfy and not necessarily achieving the objective of improving energy building performance » Tension between ADG and BASIX » BASIX hasn't been updated so doesn't encourage higher levels of performance » BASIX has no feedback loop or mechanism to measure (residential) building performance after design approval » Developers don't get feedback on the performance of their building post-occupancy » Industry can use up to previous 3 years version for (development applications) » The Government has not set a long term energy performance target or plan with a pathway to improvements. The process from buying a site to DA is long and expectations need to be known at the start rather than

	<ul style="list-style-type: none"> » Set mandatory targets and disclosure for residential buildings but allow flexibility and innovation to achieve targets » Develop a star rating for residential, mandatory to be advertised at sale » Extend BASIX or passive house tool to hotels » Mandatory ratings for hotels/ need a certain rating to reaccredit hotel » Supply chain in hotels to be captured in rating tools 	<p>dealing with the uncertainty caused by the three year review process</p> <ul style="list-style-type: none"> » Zero incentive for above minimum performance – need pathway (residential) » Client has to be willing to pay for sustainable building performance improvements
Identifying incentives for developments achieving above mandatory standards	<ul style="list-style-type: none"> » Increased FSR or height allowances (e.g. if 6 star NABERS Energy Commitment Agreement) » Fast tracked approvals » Reduced application fees » Tax and contribution incentive 	<ul style="list-style-type: none"> » FSR may not be appropriate » Lack of a mechanism to ensure that performance achieves identified objectives
Improving the NSW planning framework to facilitate high performance outcomes	<ul style="list-style-type: none"> » Identify opportunities within Standard Instrument LEP and DCPs » Facilitate VPAs with net zero developments » Realign planning controls to assess buildings in line with strategic intent (outcomes lead rather than tick a box, enabling bespoke approaches) » Incorporate high performance sustainably measures into the DPE economic feasibility tool – this tool is used by DPE with rezonings and planning proposals » Investigate the use of a system similar to heritage floor space (credits for transferable development rights) used at City of Sydney for energy efficient buildings to enable them to get to net zero » Precinct planning with planning controls to incentivise and promote efficient buildings » Integrate and update ADG, SEPP65 and BASIX, into DCP format to resolve <ul style="list-style-type: none"> > measurement on windows - incentivises west facing living room > conflicts with sunlight into apartments, sealed buildings and cross ventilation 	<ul style="list-style-type: none"> » ADG is currently highly rigid, needs to be more flexible. If meet ADG verbatim you won't achieve energy outcomes » Sometimes tools result in ticking the box but doesn't translate into performance or facilitate innovation » Highly prescriptive solar access requirements » Conflict between design excellence and other standards – incentive to look great but additional costs from sustainability perspective » Rules don't respond to different urban contexts – need more tailored rules to building type and location » Competitive design process happens in 6 week period. 6 weeks is too short to calculate financial implications of sustainability measures and compromises outcomes for design submission.

	<ul style="list-style-type: none"> » Increase the length of the City of Sydney's Competitive Design Process to allow sufficient time to cost sustainability initiatives (currently 6 weeks) » Merit based assessment to vary council's planning controls to allow for flexibility in building design to support net zero buildings » identifying benchmarks in the Secretary's Environmental Assessment Requirements 	
Educating local government staff to facilitate net zero developments	<ul style="list-style-type: none"> » Provide planning training on: <ul style="list-style-type: none"> > the application of the National Construction Code > how to prepare performance based LEPs and DCPs > net zero building innovations such as passive principles (air tightness) and alternative energy sources > negotiation to deliver improved performance > developer perspective » Improved regulation and monitoring of high performance measures 	
Supporting developers to understand net zero early in the design and project planning phases	<ul style="list-style-type: none"> » Providing resources: <ul style="list-style-type: none"> > Cost-benefit evidence base for higher targets > Case studies > Best practice guidelines for net zero developments » Explanation of rating tools and standards » Information on new technologies » Engaging with energy and utility providers to better understand any opportunities and constraints with their services, legislation and regulation. <ul style="list-style-type: none"> > Also needs to be a consideration for local and NSW government » Providing industry upskilling to lower tier developers 	
Educating consumers to understand benefits and	<ul style="list-style-type: none"> » Create a consumer rating system » Provide resources to support behaviour change » Energy budgets for tenants 	<ul style="list-style-type: none"> » There is an expectation that sustainably costs – how do you communicate effectively to buyers – education piece

costs of net zero development	<ul style="list-style-type: none"> » Require sub-metering for apartments » Require an environmental performance description of the building e.g. NABERS rating and/or BASIX scorecard on 149 certificates (or equivalent) 	
Incorporating net zero within procurement specifications for businesses and government to increase demand	<ul style="list-style-type: none"> » Corporates to procure accommodation with a NABERS rating 	<ul style="list-style-type: none"> » Lack of market incentive to develop high energy performance buildings
Monitoring and enforcing building and precinct performance	<ul style="list-style-type: none"> » Ensure that developments are compliant with design commitments » Fines for poorly performing buildings – 5-10 years after built » Performance bonds linked to a performance target 	<ul style="list-style-type: none"> » Lack of transparency and accountability in monitoring and enforcing energy efficiency outcomes by development authorities and private certifiers.
Investigating financial measures to incentivise net zero developments	<ul style="list-style-type: none"> » Grant funding for new and model developments » Investor green bonds » Voucher subsidies for purchasers » Funding of demonstration and model projects. » Green home loans for purchasing high efficiency homes 	<ul style="list-style-type: none"> » Mandatory and voluntary energy performance targets are perceived as a cost » Don't perceive that investors, tenants or buyers are prepared to pay higher costs for performance benefits.
Demonstrating leadership and direction from NSW Government	<ul style="list-style-type: none"> » Identify long-term (20 years+) stepped changes to the planning framework to deliver net zero buildings, rather than the property sector waiting for each three-year review of the regulation. » Undertake demonstration projects. » Funding or facilitation by State Government of a 'hero' project or design to understand the opportunities and possibilities for future projects. 	<ul style="list-style-type: none"> » Lack of political leadership and desire to achieve outcomes

4. Next steps

Two further forums will be undertaken over the next twelve months:

- » Forum 2: to be directed at ESD and planning consultants as well as Greater Sydney local and state government planners
- » Forum 3: for all stakeholders involved in forums 1 and 2.

At forum 2, local and state planners, ESD and planning consultants and government bodies will further explore themes, opportunities and barriers identified by Forum 1 participants. This work will feed into the development of a planning pathway to net zero buildings with targets and timeframes.

Forum 3 provides an opportunity for all stakeholders to come together to finalise the planning pathway to net zero development.

5. Forum feedback

Feedback forms were received from 33 of the 73 participants that attended. The breakdown of attendees that provided feedback were: 11 developers, 7 construction company representatives and 10 government representatives. Overall, and shown in the figures below, the participants highly valued the forum and felt that it was the right approach to encouraging momentum for net zero developments.

Participants generally wanted to see a clear action pathway moving forward and engagement with the key decision makers as the main outcomes of the forum. Continuing support for mandatory requirements to achieve net zero for all building types was also commonly expressed.

Theme	Key quotes
Outcomes document and a planning pathway	<p><i>A clear summary that feeds into the next stage and ... to a really useful final deliverable that provides the 'planning pathway'.</i></p> <p><i>A pathway to net zero for all buildings (new and existing) to create a level playing field, including funding incentives</i></p> <p><i>A timeline of actions to be taken for the future.</i></p> <p><i>A follow up workshop to develop a clear strategy moving forward.</i></p> <p><i>Strategy for the quick wins</i></p> <p><i>Tangible projects with the right buy-in and with clear timeframes and deliverables.</i></p> <p><i>Would like to see a pathway to zero carbon agreed by government using existing tools like BASIX</i></p> <p><i>Clear and transparent framework for developers</i></p>
Mandatory regulation	<p><i>Mandatory compliance for net zero carbon</i></p> <p><i>Mandatory targets – implement urgently. Zero Carbon in goal and the benchmark.</i></p> <p><i>Change DCP to include 5.5 star NABERS Energy for commercial office buildings</i></p> <p><i>Better policing of current and future building performance codes</i></p>
Education and information	<p><i>Bridging the gap between information being on Council's website and it branching into mainstream media and into the Minister of Planning (advocacy)</i></p> <p><i>Changing communities attitude</i></p> <p><i>Educate that this [5.5 star NABERS Energy for commercial office buildings] is not difficult. Demonstrate effectiveness and prove it should be in LEPs</i></p> <p><i>Increased recognition, education and visible connection for consumers</i></p> <p><i>Clarity on definition of net zero</i></p> <p><i>Widespread marketing campaign to socialise the benefits and drive consumer expectation/demand.</i></p>
Leadership and collaboration	<p><i>An agreement with other councils and State NSW</i></p> <p><i>Engaging with DPE and other regulators.</i></p> <p><i>Collaborative decision makers at the table.</i></p> <p><i>A coalition of organisations that are aligned to a shared vision and commitment to build a demonstration project</i></p>

A number of participants also noted the need to get tier 2 and tier 3 developers to future forums as they represent a high proportion of current development in Greater Sydney.

Figure 1 Table discussions were engaging and relevant

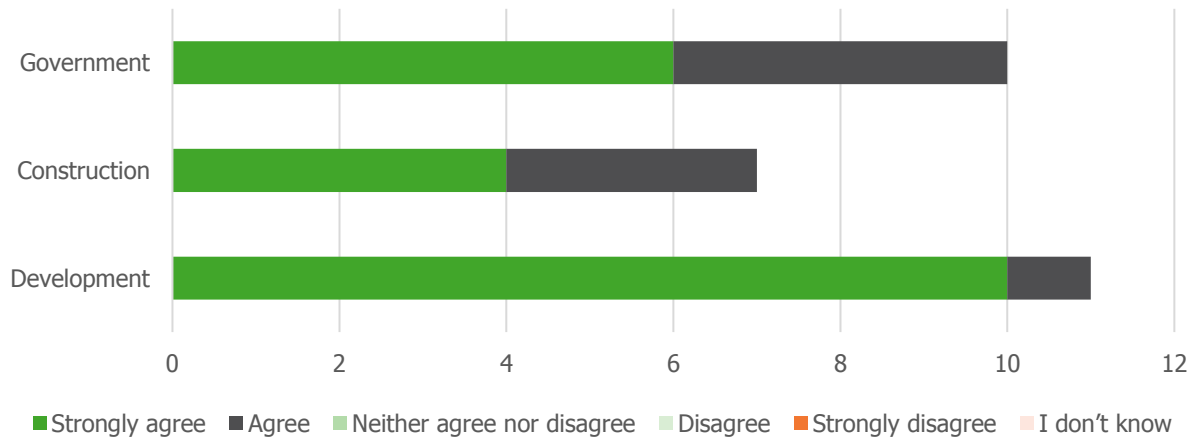


Figure 2 I was able to participate and share my experiences

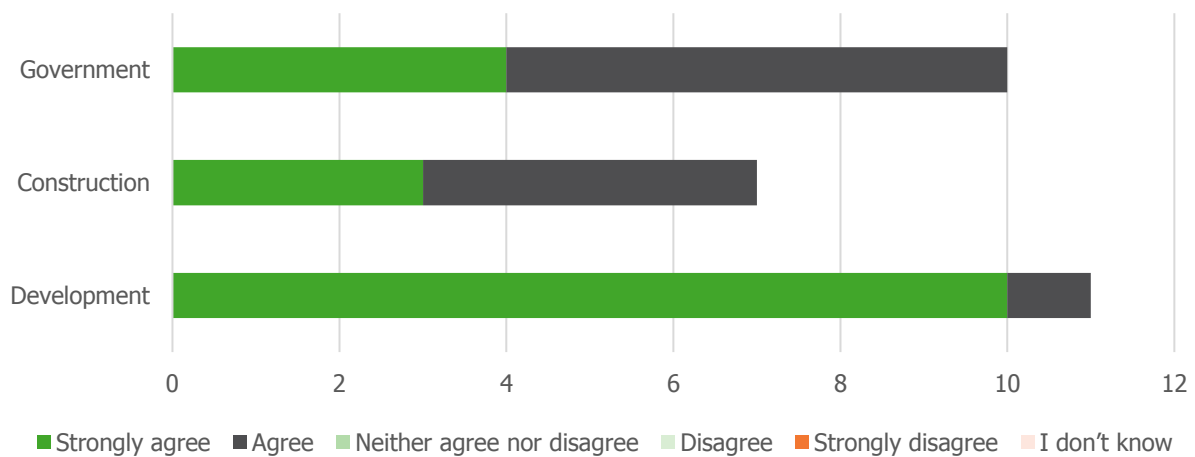


Figure 3 The right people were invited

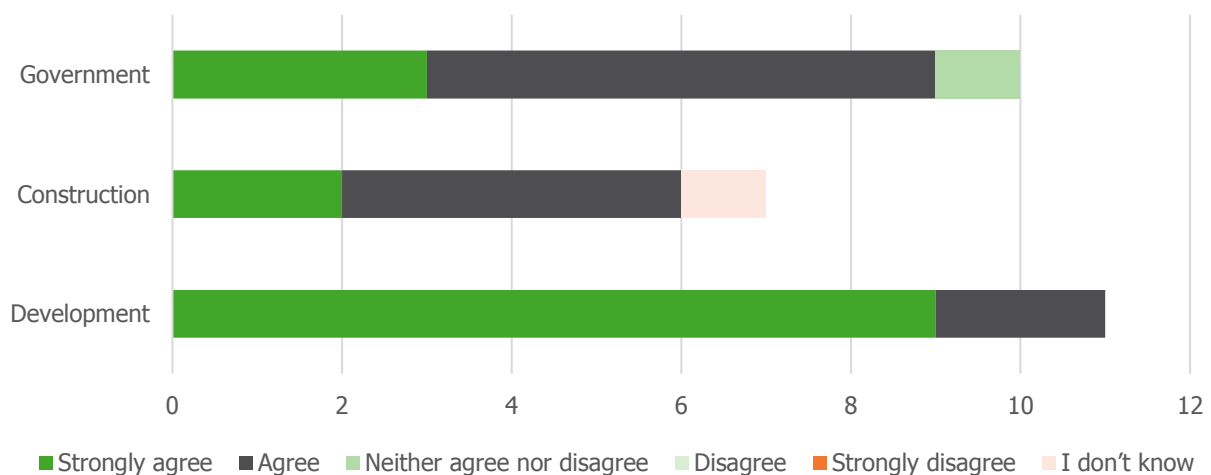
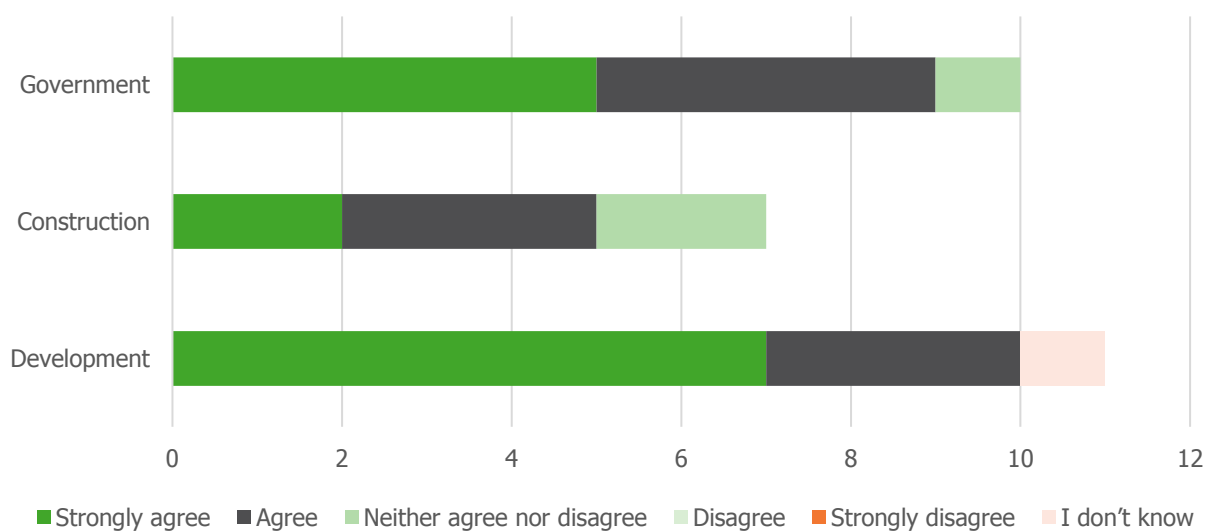


Figure 4 This is the right approach to build momentum for net zero buildings



Appendices

A	Invitation
B	Forum brief
C	Agenda
D	Table questions
E	Feedback form
F	Organisations

A Invitation

The Creating a Planning Pathway to Net Zero Buildings is the first of three forums. Forum 1 was for developers, construction companies and government tender specifiers for development. It provided an opportunity for the stakeholders to share the issues and opportunities they've identified or experienced within the NSW planning framework. It was also an opportunity to enable collaboration with industry colleagues and local and state government on a planning pathway to transition to net zero multi-unit residential, office, hotel and mixed use developments.

At this invitation-only event, they:

- » heard from Luke Falk from Related Companies, who is working on New York's biggest mixed use urban renewal development, Hudson Yards.
- » heard from industry colleagues about current development practice
- » identified planning issues and opportunities to transition to net zero buildings
- » networked with industry colleagues over breakfast.

B Forum brief

Planning Pathway to Net Zero Buildings

Forum 1

31 May 2018 is the first forum of a series of forums to help local and state government and industry better understand current practice, as well as planning issues and opportunities within the NSW planning framework to support the transition to net zero development. The forums target new non-residential (office, hotels and mixed-use) and multi-unit residential developments.

Forum brief

Purpose

The forum partners would like to explore, with the property sector, the planning challenges of how to achieve low-carbon, high efficiency buildings and precincts to contribute to the NSW's target of net zero emissions by 2050 and reduce climate change impacts.

In Greater Sydney, the largest contributor to greenhouse gas emissions is energy use in buildings, hence the forums' focus on buildings and precincts.

The way Greater Sydney's urban structure and built form develops and redevelops over time can support NSW's transition towards net zero emissions.

Net zero

There are many definitions, constraints and expectations for the term 'net zero'. For the purpose of this forum, we will be using a European Union definition to guide discussions.

EU, Energy Performance of Buildings Directive
Nearly zero-energy buildings (NZEBS) have very high energy performance.

The low amount of energy that these buildings require comes mostly from renewable sources.

We understand there are inherent issues with the definition, such as 'very high energy performance' not being defined, and lack of clarity around on-site vs off-site renewables. Please remember the definition is to provide guidance for discussions on the day, and not define net zero for forum partners or your organisation.

NSW planning framework

The NSW planning framework provides the broad context and boundaries for this series of forums.

We would like forum invitees to consider all aspects of the NSW planning framework when thinking of the current perceived and real issues, barriers and challenges encountered for new developments to transition towards net zero. The planning framework consists of the Environmental Planning & Assessment Act 1979; state environmental planning policies (SEPPs) (e.g. BASIX SEPP, Infrastructure SEPP); Region and District Plans; local environmental plans; development control plans; other planning tools (e.g. NABERS, Green Star).

Greater Sydney's most recent and comprehensive planning document, the [Greater Sydney Region Plan – A Metropolis of Three Cities](#), identifies improved building efficiency as one of the most important pathways towards net zero emissions in Greater Sydney. The five District Plans are a guide for implementing the Region Plan. All District Plans contain the Planning Priority Reducing carbon emissions and managing energy, water and waste efficiently. This series of forums will discuss how to support the objectives and strategies identified in the Region and District Plans to achieve a low-carbon, efficient city.

Forum questions

Over page.

Forum questions

Prior to the forum, consider your role or potential role in planning for, designing and/or building net zero developments. Engagement might be in developing a planning proposal, negotiating a development application, or designing a building to meet a condition.

You'll be asked to use a 'land use planning lens' on the day of the forum.

Forum 1 will explore the below questions:

- Q1 What are the current challenges and barriers in land use planning to net zero buildings and precincts in NSW? (e.g. legislation, planning controls prevent use of technology, using current tools, capital cost, skills and expertise)
- Q2 In the planning system, what are the most important opportunities and incentives to facilitate net zero buildings and precincts?
Consider opportunities to strengthen existing tools (e.g. BASIX, NABERS, Green Star etc.) and National Construction Code.
- Q3 Are there any lessons learnt from previous experience or in other jurisdictions that will help us to achieve high-performance outcomes?
- Q4 Should we consider mandatory or voluntary planning controls to achieve high-performance outcomes?
- Q5 What will support the delivery of net zero building projects across the property sector (i.e. from Tier 1 to Tier 3 companies)?
- Q6 Who are the key players within the property sector that will facilitate broad uptake and delivery of high performance building standards?
- Q7 Looking at the opportunities identified in the previous discussion, what are the priority actions within the NSW planning framework to facilitate net zero buildings and precincts? Who should lead each of these actions?
- Q8 What are the quick wins that can help achieve higher performance buildings and precincts?

Other

This is the start of the conversation. We welcome any and all ideas on the day.

Feedback on the day will be anonymous, and the findings of the forum will be reported but no organisation or individual will be identified.



C Agenda

Breakfast and networking (7.30-8.00am)
<p>Welcome Carlos Flores National Program Manager - NABERS <i>Forum partner, Office of Environment and Heritage</i></p>
<p>Introduction Vicky Critchley Facilitator <i>Elton Consulting</i></p>
<p>Overview Helen Papathanasiou Manager, Environmental Outcomes <i>Forum partner, City of Parramatta</i></p>
<p>Targeting high environmental performance development in New York Luke Falk Vice- President - Hudson Yards Technology <i>Related Companies</i></p> <p>Developer perspective on issues and opportunities encountered to meet new high environmental performance planning controls.</p>
Round table discussion 1: net zero developments
Round table discussion 2: Barriers, constraints and opportunities
Morning Tea and Networking (10.10-10.30am)
Round table discussion 3: how do we progress an alternate pathway?
<p>Next steps Andrew Thomas Executive Manager – Strategic Planning & Urban Design <i>Forum partner, City of Sydney</i></p>

D Table questions

Q1 Have you had any experience or knowledge of delivering a net zero (high performance) project (building or precinct)?

Where was the development?

What was your role (if directly involved)?

Q2 What do you believe was the key driver/ motivation for developing the project? e.g. legislation, financial, political, reputational

Q3 What are the current challenges and barriers in land use planning to net zero buildings and precincts in NSW?

Q4 In the planning system, what are the most important opportunities and incentives to facilitate net zero buildings and precincts?

Consider opportunities to strengthen existing tools (e.g. BASIX, NABERS, Green Star, National Construction Code and Building Code Energy Performance Trajectory Project).

Q5 Are there any lessons learnt from previous experience or in other jurisdictions that will help us to achieve high-performance outcomes?

Q6 Should we consider mandatory or voluntary planning controls to achieve high-performance outcomes?

Q7 What will support delivery of net zero building projects across the property sector i.e. from Tier 1 to Tier 3 companies?

Q8 Who are the key players within the property sector that will facilitate broad uptake and delivery of high performance building standards?

Q9 Looking at the opportunities identified in the previous discussion, what are the priority actions within the NSW Planning Framework to facilitate net zero buildings and precincts?

Who should lead each of these actions?

Q10 What are the quick wins that can help achieve higher performance building and precincts?

E Feedback form

Q1 What sector do you work in?

- ☐ Development
- ☐ Construction
- ☐ Government
- ☐ Other _____

Q2 What asset class(es) do you deal with?

- ☐ Commercial
- ☐ Residential
- ☐ Accommodation / hotel
- ☐ Mixed-use

Q3 How much do you agree or disagree with the following statements?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The presentation from Luke Falk, NY developer, was engaging and relevant					
The table discussions were engaging and relevant					
I was able to participate and share my experiences					
The right people were invited					
This is the right approach to build momentum for net zero buildings					
The forum was held at a suitable time of day					
The forum ran for the right length of time					
I liked the venue					

Q4 What would you like to see as the key outcome from the forum: Creating a Planning Pathway to Net Zero Buildings?

Q5 Do you have any other feedback on today's forum?

F Organisations

The following organisations took part in the round table discussions.

Organisation	
AMP Capital	Laing O'Rourke Constructions Pty Ltd
Anka Property Group	Landcom
Ausbao Pty Ltd	Lendlease
Buildcorp	Marriott International
Built	McNally Management
CBUS Property	Mirvac
City Of Paramatta	Planning Institute of Australia
City Of Sydney	Property NSW
Committee for Sydney	Scentre Group
Consult Australia	SHAPE
DEXUS	Stockland
Frasers	University of Technology Sydney
Greater Sydney Commission	Urban Development Institute of Australia
Green Building Council of Australia	Urban Growth NSW
Grocon	Urban Taskforce
Investa	Walker Corporation
John Holland Pty Ltd	



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