Towards Sustainable Planning in the Housing Sector

A summary of the Local Sustainable Housing Study
This Report summarises the results of the Local Sustainable Housing Study (the Study) delivered by Ramboll Environ and Engage2 for the New South Wales Office of Environment and Heritage (OEH). This is a qualitative engagement Report summarising multiple viewpoints of the stakeholders engaged in the Study and does not necessarily represent the views of OEH.

This publication would not be possible without the efforts of Ramboll Environ, Engage2, the Local Sustainable Housing Study (LSHS) Steering Committee and all those who were part of this study. We appreciate the contributions and time spent providing input into the survey interviews and workshops.

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Summary

This Report summarises the results of the *Local Sustainable Housing Study* (the Study) delivered by Ramboll Environ and Engage2 for the New South Wales Office of Environment and Heritage (OEH). It is a qualitative engagement report that summaries the multiple viewpoints of stakeholders engaged in the Study and, as such, should not necessarily be considered to represent the views of the organisation.

The research project on which the Study is based was delivered from July to December 2017. The Study engaged a diverse range of stakeholders – primarily local government staff and residential property developers who were deemed to have the most impact and influence in the industry.

The aim of the Study was to investigate the current role of NSW local councils and developers in driving increased adoption of ecologically sustainable development (ESD) practices in the residential sector, above and beyond the minimum standards set by BASIX and other regulations.

The Study was designed to collate the viewpoints of as many people at the ‘coal face’ of sustainable planning as possible. It sought to extricate their real-life experiences and uncover respondents’ on-the-ground challenges and motivators, as well as their needs and aspirations.

This Report documents and analyses current (2017) sustainability practices in the residential sector and provides a summary of the Study findings. It draws on the outputs from the Study to identify barriers, enablers, drivers and opportunities to inform a baseline.

The recommendations and insights gained from this evidence base are now being reviewed to inform the next phase of program delivery by OEH and other industry partners.
Promoting sustainable housing in NSW

Background

New South Wales is experiencing a housing construction boom, with more than 180,000 new homes predicted to be built by 2021 in Sydney alone (Greater Sydney Commission 2017). Critical to the delivery of these homes is that they be planned, designed and built to be ‘sustainable’ – that is, they are liveable, comfortable, efficient, affordable to run, healthy and resilient to a changing climate.

To better understand how to achieve sustainable outcomes in housing, a qualitative research project entitled the Local Sustainable Housing Study (the Study) was commissioned by the Office of Environment and Heritage (OEH) in mid-2017 to inform the work of the Collaborative Sustainable Housing Initiative (CSHI). The CSHI works with the housing industry to drive the demand and supply of comfortable, affordable and healthy homes in New South Wales (‘sustainable housing’).

The Study was designed to establish a baseline understanding of the existing planning system to inform the next phase of the Planning and Incentives stream of the CSHI. The Planning and Incentives stream focuses on stimulating the supply of sustainable housing by examining the pre-construction phase of development – from master-planning, land acquisition and development through to the design, pre-approval and approval stages of a residential development.

The Study was delivered by Ramboll Environ and Engage2 for OEH between June and December 2017 and engaged with over 150 diverse stakeholders. Most of these stakeholders were local government staff and residential property developers who were deemed to have significant impact and influence in the residential sector. Avenues for engagement included surveys (85 respondents), interviews (22) and workshops held in Sydney, Parramatta, Newcastle and Wollongong (74 attendees in total), with some participants engaging across all three activities.

Principle objectives of the Study

- Establish a better baseline understanding of the key enablers and barriers to innovation in sustainability practice at the local development level across New South Wales.
- Provide an opportunity for knowledge exchange between key stakeholders.

The project asked the following research questions:

- Is there a correlation between sustainable residential developments and councils with high-quality sustainability aspirations, policy and procedures? If a correlation exists, what is the extent of the correlation?
- How are councils and developers currently engaging in sustainability practice?
- What systemic enablers, barriers and incentives are at play?
- How can an appetite for innovative sustainability practice be encouraged and what recommended actions can be proposed?
Towards sustainable planning in the housing sector

The Study was guided by a Steering Committee, established by OEH. The Committee was involved at critical stages of the engagement process and helped considerably to raise awareness about the Study. The Committee included representatives from the following organisations:

- Department of Planning and Environment
- Frasers Property
- Green Building Council of Australia
- Ku-ring-gai Council
- Local Government NSW
- Planning Institute of Australia
- Southern Sydney Regional Organisation of Councils
- University of Technology Sydney
- Urban Development Institute of Australia
- Western Sydney Regional Organisation of Councils.

**Why was the Local Sustainable Housing Study conducted?**

The Study set out to:

- Investigate the current role of NSW local councils and developers in driving increased voluntary adoption of ecologically sustainable development practices in the residential sector, above and beyond the minimum standards set by the Building Sustainability Index (BASIX) and other regulations.
- Establish a better understanding of the key enablers and barriers to innovation in sustainability practice at the local development level across New South Wales. It also set out to further knowledge of the existing planning system to inform the next phase of the Planning and Incentives stream of the CSHI.
- Provide an opportunity for knowledge exchange between key stakeholders.
- Document and analyse sustainability practices in the residential sector.

The lead consultant on this project, Ramboll Environ, provided a final report (unpublished) to OEH that documented the project findings. The CSHI Project Team has summarised the results in this Report, outlining for stakeholders the key feedback about barriers, enablers and opportunities as identified by Ramboll.

**Literature Review**

A Literature Review was undertaken in July 2017 as part of the Study to establish the existing knowledge base relating to sustainable housing in New South Wales.

The Literature Review examined over 80 articles across multiple jurisdictions (NSW, interstate, national and international). A comprehensive review of those articles revealed what is currently known about the uptake of sustainability measures in housing developments throughout New South Wales, the barriers surrounding further uptake, the enablers that have assisted in their uptake to date and the recommendations made previously throughout the industry. The Literature Review was then used to shape the interview and online survey questions used as part of the Study.

Where still relevant, the findings of the Literature Review have been integrated into this Report.
What did the Literature Review reveal?
The Literature Review found that there is a growing uptake of sustainability measures in residential development in New South Wales. However, it also revealed the housing sector to be one in which performance regulation and market demand for sustainability outcomes are relatively weak.

The literature showed that greater consumer demand is critical for the mass uptake of sustainable practices in the residential sector and that sustainable outcomes will not be achieved through regulation alone. Change will only come about as consumers demand sustainable products, when industry embraces the challenge and when policy and planning conditions support its uptake.

Sustainability measures gaining ground
The Literature Review found that sustainability measures are on the increase in the housing sector, but that the sector is one in which performance regulation and market demand for sustainability outcomes are relatively weak.

In relation to high-rise residential buildings in Australia, the literature showed that commercial uptake of sustainability is predicted to be slow due to significant gaps and weaknesses in the Australian energy efficiency and climate policy framework. The demand for (and therefore the supply of) high-performing sustainable housing is limited and solutions are trapped in niche, high-cost markets. As a result, many sustainability solutions are costlier than they should be (Ark Resources 2016).

A review of planning activities and their impact on delivering sustainable housing found that sustainable development elements were only just being incorporated into intensive developments, mainly through district plans and master-planning. There is, however, limited data and research that specifically considers the residential sector.

There were no studies identified that investigated or analysed BASIX certificates across New South Wales, nor any literature that considered the entire NSW housing stock regarding its sustainability outcomes.

The literature reviewed also did not show where and why best sustainable housing practice is taking place. Collecting this data is difficult and no single body or agency exists currently that holds all the data.

Reforms since publication of the Study
It’s important to note that both BASIX and the Environmental Planning and Assessment Act 1979 (EP&A Act) have undergone changes since the Study was carried out.

In the case of the EP&A Act, amendments were made in November 2017 and came into effect in March 2018 to ensure a simpler and faster planning system.

In relation to BASIX, in July 2017 the NSW Government implemented amendments to increase BASIX energy targets to the level recommended in the Department’s 2014 BASIX Target Review, including:

- 5.5 to 6-star equivalent thermal comfort performance for all building types
- typically, a 10% increase in energy targets for houses and low-rise units
- typically, a 5% increase in energy targets for mid and high-rise units.
The results of the changes to BASIX could not be observed in the Study. However, the increased targets will raise the bar for those developments that seek to meet only minimum requirements.

Additionally, the new National Australian Built Environment Rating System (NABERS) for Apartment Buildings assessment tool will improve data collection on how apartment buildings are performing in order to create models for future designs. This was released in June 2018.

Method

The method employed by Ramboll Environ and Engage2 to produce the Study included the following steps:

- a background literature review of over 80 articles and associated research and validation
- research questions tested through consultation and engagement with Local Government Areas (LGAs) and developers
- engagement activities that included interviews, profiling and mapping of stakeholders, online surveys and multi-stakeholder workshops
- the collation of results into the Final Engagement Report (Ramboll Environ 2018, unpublished) that included key results and recommendations for project development.

The CSHI Project Team collected data using social research methods from a range of stakeholders across sectors to form a general understanding of the answers to the questions put to them – and generate a baseline for future research. The use of social research methods was identified as being a key component in allowing the Project Team to achieve the primary objectives of the Study.

The engagement activities used by Ramboll Environ and Engage2 included:

Stage 1: Interviews

Interviews were conducted within stakeholder profiles to map decision-making processes, identify barriers within these processes and investigate optimum points of intervention within the decision-making process. The interviews allowed the Project Team to identify stakeholders and raise awareness of the project with them.

Interviews were undertaken of the following types:

- councils with ‘good’ sustainability practices
- councils with ‘room for improvement’ in sustainability practices
- developers with ‘good’ sustainability practices
- developers with ‘room for improvement’ in sustainability practices
- residential architects.

Interviews were conducted with both Sydney and regional councils (incorporating small and large-scale councils) and developers (including Tier 1, 2 and 3 developers).

The interviews were either undertaken over the phone or in person and each was for an hour’s duration. With permission, the interviews were recorded and transcripts were made. In the case of large organisations, interviews were predominantly held with representatives in sustainability, planning or program roles. In the case of smaller organisations, the Director was frequently the person interviewed.
These interviews assisted in the diagnosis of barriers and enablers between government and developers, identified where the barriers and enablers occur within the decision-making process and identified the actors involved in decision-making.

The discussions that took place throughout the interviews helped inform workshop processes.

**Stage 2: Surveys**

Surveys were designed to gather quantitative and qualitative data with questions matched to the five research questions. Three online surveys were created: one each for councils, developers and other interested stakeholders.

The qualitative and quantitative data gathered from the one-on-one interviews and online surveys were then used to develop profiles and identify highly engaged stakeholders. These stakeholders were further interviewed using deep-dive interview techniques.

**Stage 3: Deep-dive interviews and profiles**

Deep-dive interviews were conducted with highly engaged stakeholders who understand the current state of sustainable development in New South Wales. These were used as opportunities to validate initial interview and survey results, and to identify key points of intervention along the housing development process.

Questions were tailored to dig deeper into any insights provided by the stakeholders to further elicit any information, process gaps or industry complexities offered by them.

**Stage 4: Workshops**

Half-day workshops were held in Sydney, Parramatta, Newcastle and Wollongong in November and December 2017.

The workshops involved more than 70 participants, including 21 developers and 19 representatives from councils, plus representatives from academia and industry associations. This selection was judged to present a large and representative sample of the industry.

The workshops were designed to test the information collected through interviews and surveys, encourage sustainability practice and investigate the appetite of stakeholders for collaborating with OEH and one another for greater impact.

The Project Team used a community visioning approach (the Oregon method) throughout the workshop to help prepare stakeholders for collective impact methods to plan a way to address barriers in multi-stakeholder relationships.

Workshops were designed using community visioning and collaborate-for-impact principles to lay a foundation for future engagement and collaboration.

**Note on the engagement activities**

The engagement activities initially attempted to reach councils and developers in areas across New South Wales. After conducting interviews with some regional councils, the approach was narrowed down to focus on inner Sydney and coastal areas only where high-density, greyfield and greenfield developments are most prevalent.

To better understand enablers, barriers and incentives, researchers sought to engage councils and developers involved in the widest range of development types. The Project
Team also sought out those who were thought to be delivering sustainability outcomes to varying degrees.

The Project Team expected those already delivering initiatives to be the most interested in participating in the engagement, so focused its pre-research engagement, awareness-raising and recruitment efforts with primary stakeholders to leverage their knowledge, channels and networks.

The project sought to engage with stakeholders who were at various stages of sustainability performance, from those delivering BASIX compliance through to those consistently exceeding BASIX targets. Stakeholders who thought they were delivering sustainability were keen to participate, while those less interested in sustainability were not as willing to participate.

**Study outputs**

Outputs from the Study included the following:

**Process Maps.** These were developed collaboratively and outlined the key stages involved in a typical housing project’s development. They were used to discuss the stages of development to:

- assess participants’ understanding and experience of the development process in New South Wales
- collect input about when decisions were made about sustainability and how they might be influenced.

Several separate maps created through the four workshops were combined into one synthesised process map (see [Appendix A: Synthesised Process Map](#)).

**Personas.** A Persona exercise was delivered during the workshops stage that was designed to encourage a deeper understanding of other stakeholders’ perspectives by highlighting enablers and barriers for various stakeholder types. In crafting the Personas, participants were asked to consider their:

- Pains: the biggest frustrations in their current role and the current situation in relation to sustainable housing (inclusive of personal factors).
- Gains: the benefits and positive outcomes achieved by driving sustainable outcomes (inclusive of personal factors).
- Needs: what their role in their organisation needs to be to help drive the development of sustainable housing.
- Enablers: what is helping the development of sustainable housing.
- Barriers: the obstacles that are hindering the development of sustainable housing.

Sixteen (16) Personas were developed during the workshops (see [Appendix B: Personas](#)).
Key Findings

Outcomes

While all the participants in the Study expressed an appetite for, and an interest in, innovative sustainability practice, both council representatives and developers agreed it’s a highly complex process.

Participants identified sustainability practices as being important in the early and design stages of the housing development process. But while there are a rich variety and diversity of sustainability methods and tools in use to facilitate this, there also exists an incomplete understanding of what specific measures can be taken. Participants also expressed having limited knowledge of how to intervene effectively in the housing development process.

Key findings of the Study

1. Need for knowledge share

There was a stated desire by all stakeholders for increased opportunities to share knowledge, collaborate and coordinate efforts, both among council staff and between councils and developers and/or other external stakeholders. Strengthening this sort of communication was seen as a key Enabler to furthering the success of sustainable housing initiatives.

2. Complex barriers and enablers across actors

Different councils and developers are experiencing different barriers and enablers to sustainability. Across all the engagement activities, the most commonly cited barriers fell into the categories of regulation/standards and data/knowledge.

3. Fragmented, lengthy and confusing development process

With multiple actors involved in this complex process, stakeholders only focus on their/one aspect of the development process and are unaware of other aspects or how they are influenced. Many stakeholders who participated in the Study currently blame each other for the lack of sustainable development in their community.

4. Resources are needed in smaller councils

Several councils are already acting within the existing planning system to deliver sustainable new homes beyond the regulatory and planning standards set by BASIX, the National Construction Code and planning legislation and policy. The engagement suggested the ability to implement leading sustainability initiatives is correlated with the size of the council (larger), the resources available and their political commitment.

5. Larger developers and councils leading the charge

Many Tier 1 developers are already excelling in the development of sustainable housing, largely driven by marketability and long-term cost savings. However, levels of leadership are inconsistent across the State.
6. Knowledge gaps exist
The consultants identified a widespread lack of understanding of BASIX. They stressed a need to incentivise BASIX and address this knowledge gap. There is also confusion about the legislative requirements of BASIX and the Nationwide House Energy Rating Scheme (NatHERS).

Additionally, it appears that building designers are unsure how to design using sustainable principles, including passive design or the use of landscaping to impact upon the climatic features of a development. Likewise, increased awareness and education could result in consumers knowing what is possible through good, holistic design and the additional cost (if any) of passive solar design or other features.

7. Language and terms for 'sustainable practice' interpreted differently
Language and definitions of sustainability are inconsistently applied and used by stakeholders when interpreting BASIX and other metrics. This vagueness and ambiguity make it difficult to measure sustainability compliance and impact.

Language and definition of sustainability
Participants in the Study reported a lack of shared understanding of definitions associated with sustainability, with ramifications for measuring sustainability compliance and impact.

A lack of understanding of BASIX was reported, as was a need to address this knowledge gap given the importance of BASIX within the residential development process.

A challenge encountered during the Study was that ‘sustainability’ means many things to many people. Some stakeholders engaged in the project equated sustainability with BASIX, while others saw it as a much more holistic descriptor.

Also evident was a general need to build consensus around what tools and practices are ‘best-practice’ at a building versus a precinct scale. Different regulations apply depending on the scale of the development and that there is confusion in the industry about what applies where (and how precinct-specific planning applies to building planning). Residential building is left to BASIX in the regulatory framework and there is currently no legislated consideration of precinct impacts. For many, the perception of ‘sustainability’ appears to still be limited to the building envelope.

Green Building Council of Australia (GBCA) definition
The Green Building Council of Australia (GBCA) facilitates the Green Star Design & As Built rating system. The GBCA is an industry association whose ‘Green Star’ system is a voluntary national rating system that ‘rates the sustainability of buildings and communities’.

The GBCA assesses sustainability outcomes from the design and construction of new buildings or major refurbishments across nine holistic impact categories. These are: management, indoor environment, water, energy, transport, emissions, land and ecology, materials and innovation.

As there is no universally agreed definition of a sustainable home, Ramboll suggested that that the categories used by the GBCA be used for the purposes of the study. As a large number of the stakeholders engaged in the study were developers and the GBCA definition broadly incorporates all aspects of sustainability in land development, it was determined that the GBCA definition was most appropriate for use.

The GBCA definition nevertheless has some limitations as it was designed for a commercial scale. As a direct result of this Study, the GBCA is currently exploring options for defining different residential typologies through its ‘FutureHome’ program.
Towards sustainable planning in the housing sector

**Sustainability as defined by the GBCA**

A Green Star-sustainable building is one that encourages the adoption of best-practice sustainable outcomes in design, construction and operation. A sustainable building can:

- enhance the comfort and wellbeing of its occupants
- reduce the consumption of potable water
- reduce overall greenhouse gas emissions from operations through energy demand reduction
- use efficiency and generation from alternative sources
- reduce greenhouse gas emissions by reducing dependency on private cars and encouraging alternative forms of transport
- reduce pollution and its effects on the atmosphere, watercourses and native animals
- reduce the negative impact on a site’s ecological value
- reduce the consumption of resources by encouraging the selection of low-impact materials
- recognise innovative practices, processes and strategies that promote sustainability in the built environment.

**Housing Industry Association ‘GreenSmart’ definition**

The Housing Industry Association (HIA) runs a program called ‘GreenSmart’ that provides environmental accreditation to projects and builders. Builders can demonstrate to industry and the growing green market that they offer environmentally responsible home building and/or land development services. Approved projects can be showcased in builders’ marketing materials and submitted for awards.

GreenSmart accreditation categories include:

**GreenSmart House:** For new homes that demonstrate they have been designed and constructed in accordance with a range of realistic and achievable principles that will deliver a comfortable and healthy home for its occupants and will help conserve the earth’s resources.

**GreenSmart Residential Community:** This may be a new Greenfield subdivision or an urban infill (brownfield) subdivision project. The Residential Community must demonstrate a commitment to creating minimal environmental impact or achieve net environmental improvement for the environment.

**GreenSmart Residential Development:** A residential building project, such as an apartment building or multi-unit housing project, in either a greenfield or infill location. The Residential Development must demonstrate that it has been designed and constructed with a commitment to delivering a comfortable, healthy and resource-efficient home for its occupants while creating minimal environmental impact and/or achieving net environmental improvement for the environment.

**GreenSmart Village:** For a group of homes (display village) that incorporate responsible environmental practice in a range of areas including: improving resource efficiency, improving environmental performance on housing construction sites and reducing waste.
Sustainability as defined by the Housing Industry Association

The Housing Industry Association assigns 'GreenSmart' status to housing if it demonstrates proficiency in the following areas:

- energy efficiency
- water efficiency
- resource efficiency
- application of site management techniques during construction
- material selection
- protection of indoor air quality
- use of innovative construction techniques
- suitability of response to site constraints.

Data access, standardisation and interpretation

Among the findings from the Study in relation to the use of data were the following:

- councils do not know how to access BASIX data and don’t know how to use it
- councils are generally not able to identify if they exceed minimum BASIX targets and why
- only a small number of councils can state what percentage of homes in their LGA are sustainable
- there is no monitoring or reporting on sustainable practices outside of BASIX
- councils use a wide variety of sustainable tools and approaches
- there is inconsistent interpretation and reporting on sustainable housing among councils.

The Study found that there is a lack of standardisation and consistency in data collection and information across the board. This resulted in a wide variance in responses as most respondents did not have access to the data, did not collect the data required for the response, or were unaware of available industry information to be able to respond to the survey and/or interview questions. The Study has provided evidence of the scale and extent of this issue, which can now form a baseline for the future.

Some of the developers and architects interviewed said they measured sustainability using BASIX and other modelling tools, but this data was not provided consistently, nor was it directly related to the LGA they were working in.

When councils were asked in the survey what percentage of housing development they considered to be ‘sustainable’, only one council stated that it collected data; however, six councils gave values on what percentage of developments they believed were sustainable.

These are all very small numbers and point to a critical gap in data, measurement and reporting. They also point to potentially a very small number of dwellings being built in New South Wales that are sustainable. This view is supported by the findings of the Literature Review, which pointed to a small amount of sustainable housing being built in New South Wales. In particular, Ark Resources’ (2016) work on the potential for Net Zero buildings in Sydney found high-performance solutions being trapped in niche, high-cost markets.

The Study shows that there is a clear opportunity to ensure a more consistent approach to the design and delivery of quality sustainable housing across New South Wales by forming a standardised environmental reporting framework to be applied across the sector. Such a reporting framework should include disclosure of energy consumption, carbon emissions, water usage and waste as minimum. This type of framework is also supported by the literature – e.g. Catalyst Australia (2013).
Knowledge sharing, education and capacity building

A large number of participants in the Study specified the need to collaborate and share knowledge among council staff, developers and/or other external stakeholders to strengthen sustainable housing initiatives.

There appears an opportunity here to ensure a more consistent approach to the design and delivery of quality sustainable housing across New South Wales. This can be achieved by establishing a knowledge exchange strategy that fosters strong networks and shares best-practice case studies and guidance in relation to policies and procedures (e.g. Development Control Plan, DCP, requirements).

There are opportunities to leverage the current work of councils in leadership roles that have dedicated sustainability teams and good coordination with planning staff.

However, there is a lack of understanding by non-planning officers about how they might influence the planning system and a need to educate development approval (DA) officers within council about sustainability and BASIX and improve communications between the DA officers and environment teams.

The need for education and training was reinforced by the literature. Instinct and Reason (2014) found that building the capacity of a whole range of building industry professionals and trades was essential. Ark Resources (2016) stressed the need for awareness-raising, training and professional development strategies, and pilot and demonstration projects, to enable professionals to learn from one other.

Barriers and enablers

Barriers and enablers can be understood as system-wide policies, practices or procedures affecting or relating to a whole group or system (such as a body, economy or market or, in this case, the housing development system in its entirety), instead of its individual members/actors, separate processes or parts of the systems.

The Study investigated the barriers and enablers at a systems level for the sustainable housing industry in New South Wales, with a focus on development process, and found that varied councils and developers experience different barriers and enablers to sustainability.

The following tables (Tables 1 and 2) consolidate the barriers and enablers that emerged from the Study. While this Report does not address how to find solutions for each of the barriers identified, the CSHI Project Team intends that it act as a catalyst to progress market-led initiatives and projects.

Table 1  Top-ranked barriers and enablers identified by councils

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Enablers</th>
</tr>
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<tbody>
<tr>
<td>Cost</td>
<td>Federal and state government policies and regulations</td>
</tr>
<tr>
<td>Government leadership</td>
<td>Perceived value and comfort of sustainable housing</td>
</tr>
<tr>
<td>Legislative and regulatory framework</td>
<td>Incentivised BASIX exceedance</td>
</tr>
<tr>
<td>BASIX limiting any ability to include additional sustainability provisions in DCPs</td>
<td>Payback and financial savings</td>
</tr>
<tr>
<td>Available time and resources</td>
<td>Government leadership and mandate, capacity, resources and coordination</td>
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</tbody>
</table>
Table 2  Top-ranked barriers and enablers identified by developers

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Enablers</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW Land Use planning framework</td>
<td>Strong property market</td>
</tr>
<tr>
<td>Capacity, resources and coordination</td>
<td>Existing industry groups and peak bodies, competition</td>
</tr>
<tr>
<td>Legislative and regulatory framework</td>
<td>Grants, VPAs, funding etc. to de-risk and normalise sustainable technologies</td>
</tr>
<tr>
<td>Government leadership and mandate, capacity, resources and coordination</td>
<td>Government policies, regulation, funding and initiatives</td>
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<tr>
<td>Reliable and accessible sustainable products information, knowledge and</td>
<td>Customers in areas where sustainable and social values are inherent</td>
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<tr>
<td>data</td>
<td>Rising electricity costs</td>
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<td></td>
<td>Residents and businesses seeing a return</td>
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<td></td>
<td>Sustainability can be positioned as a point of difference to other housing being offered</td>
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<tr>
<td></td>
<td>to the market</td>
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<tr>
<td></td>
<td>Targets, Reporting and Planning tools – masterplans, etc.</td>
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<tr>
<td></td>
<td>Recognition – case studies, awards and competitions</td>
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<td></td>
<td>Clear political direction for investment in sustainable technology</td>
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<td></td>
<td>Local council incentives for green features, ratings and sustainable commitments with</td>
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<tr>
<td></td>
<td>proactive local housing strategies</td>
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<td></td>
<td>Reduced red tape and wasting money in other areas</td>
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<td></td>
<td>Social and Affordable Housing Funding Procedures</td>
</tr>
<tr>
<td></td>
<td>Trends in technology and efficiency</td>
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<td></td>
<td>Sustainable Development Goals (UN)</td>
</tr>
</tbody>
</table>

Of the barriers listed here, both the ‘Government leadership’ and ‘Legislative and regulatory framework’ categories were the top-ranked barriers cited by both councils and developers.

It is understandable that many responses included a focus on regulation (such as BASIX) and state-led statutory planning mechanisms as this was the natural line of thinking when tackling the topics of baselines and benchmarking systems. However, the principal objectives of the Study were to explore barriers and enablers in the housing system to uncover planning strategies for local market-led initiatives.

**Biggest barriers cited by councils**

Cost, government leadership, and existing legislative and regulatory frameworks
The Office of Environment and Heritage recognises that regulatory reform is an important driver to improve sustainable housing practices. However, regulation and policy reform can take time and consideration of it was not within the scope of this Study.

Of the enablers listed, developers repeatedly said that competition within the industry is a driver for sustainability. All the Tier 1 developers in Australia have leading and sophisticated sustainability and Corporate Social Responsibility (CSR) commitments and programs.

When asked how they were encouraging sustainability in land use planning, respondents chose BASIX and PRECINX, followed by Sustainability and Liveability plans and strategies, sustainability strategy, master plans and certification schemes (e.g. NABERS and the National Construction Code). These tools are used for sustainability in land use planning. Larger councils were found to be more equipped to have conversations about sustainability and used a broader suite of tools.

Survey participants were also asked which residential sustainability features they track as part of their approval process. The responses here are in order of the most cited:

- Protection of threatened and vulnerable species and planting of native vegetation
- Water management: water-sensitive urban design, rainwater and stormwater collection and management, sustainable wastewater management
- Greening indoors and outdoors, e.g. green walls, rooftop greening, shading, etc.
- Insulation products for roofs, ceilings, floors, etc., plus high-performance glazing, reflective roofing and ventilation, thermal comfort and mass
- Energy- and water-efficient appliances and lighting
- Pollution minimised (air, water, light, noise, etc.), including indoor environment pollution management
- Resilience to climate change (flooding, extreme heat, bushfires, sea level rise, storms, etc.)
- Accessibility to public and active transport.

Council participants highlighted the importance of having dedicated sustainability staff. Some cited new sustainability teams being established along with increasing staff capacity through specific training on BASIX. There were several initiatives identified among the more proactive councils. Almost all councils that participated cited leadership as a driver of sustainability. However, limited resources and time are major barriers for smaller councils in getting initiatives off the ground.

When asked about the single most important thing their council could do to improve the sustainability of local housing (that is not already being done), they stated the following:

- mandate greater controls than currently possible under BASIX
- heavily incentivise the provision of sustainable residential development through financial incentives and Floor Space Ratio (FSR) incentives
- reduce car parking provisions
- education of home buyers/owner/occupants
- improve DCPs – they are far too flexible and allow for political watering-down.
**Tier 1 developer with good sustainability practices**

‘Healthy competition among developers/peers is an enabler. Consistently increasing interest from shareholders and representatives opens doors for internal stakeholders. For example, landowners often select us as they want to leave a legacy and we are viewed as that (having a legacy). We win bids based on cost and ability to deliver.’

---

**BASIX and minimum standards**

**BASIX and its role**

BASIX is the primary mechanism by which energy and water efficiency outcomes are compulsorily embedded into development approvals. Prior to 2004, each local council set its own requirements for the water usage, thermal performance and greenhouse gas emissions of new residential developments, which resulted in inconsistent requirements across New South Wales.

In response to this, in 2004 the NSW Government introduced BASIX under the EP&A Act as part of the NSW planning system.

BASIX sets requirements for water and energy reductions (relative to a baseline), as well as minimum performance levels for indoor thermal comfort, and applies them to all residential dwelling types in New South Wales. It is the primary mechanism by which these requirements are mandated for residential dwellings in New South Wales and provides consistency across the State.

BASIX comprises several components, including:

- BASIX Assessment Tool and Targets
- BASIX Certificates.

The BASIX Assessment Tool is an online tool that calculates targets based on the anticipated water consumption and greenhouse gas emissions levels of proposed residential developments/renovations. The expected thermal performance of the proposal is also calculated.

BASIX sets minimum performance levels, or ‘caps’, for the thermal performance and comfort of the dwelling, expressed as the annual amount of energy required to heat and cool the dwelling. The output of the BASIX Assessment Tool is a BASIX Certificate. If measures exceed the BASIX requirements, this is shown on the BASIX Certificate.

BASIX overrides the competing provisions in Local Environmental Plans (LEP) and DCPs that aim to reduce portable water consumption, greenhouse gas emissions and thermal performance of BASIX-affected developments, according to the State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004.

A BASIX Certificate is required if a Development Application is lodged in New South Wales for a new home or for residences undertaking alterations and additions worth more than $50,000.

Approving authorities (councils or private accredited building certifiers) will ask for the discrepancies between the BASIX certificates and what is being constructed/installed to be rectified before they issue an occupation certificate. Councils will also check if the BASIX requirements are consistent with the details listed in the construction plans and will often ask for any inconsistencies to be resolved before the issue of construction certificates. Compliance with the requirements of BASIX is mandatory and failure to carry out BASIX commitments is a breach of development consent.
The table below (Table 3) shows a list of dwelling and building types that require a BASIX Certificate.

<table>
<thead>
<tr>
<th>Single dwelling</th>
<th>Multi-dwelling</th>
<th>Alteration and addition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single house on one lot</td>
<td>Townhouse</td>
<td>Addition to existing house</td>
</tr>
<tr>
<td>Bungalow</td>
<td>Row house</td>
<td>Swimming pool</td>
</tr>
<tr>
<td>One part of semi-detached home</td>
<td>Terrace</td>
<td>Basement or an attic</td>
</tr>
<tr>
<td>Cottage</td>
<td>Residential flat building</td>
<td>Sunroom</td>
</tr>
<tr>
<td>Secondary dwelling (Granny flat) (change of use or next to existing principal dwelling)</td>
<td>Dual occupancy</td>
<td>Spa room</td>
</tr>
<tr>
<td>Two houses on one lot</td>
<td>Sauna</td>
<td></td>
</tr>
<tr>
<td>Shop top house</td>
<td>Secondary dwelling (Granny flat) (conversion of existing habitable space)</td>
<td></td>
</tr>
<tr>
<td>A new principal dwelling and a new Secondary dwelling (Granny flat)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Exceeding BASIX requirements**

Given the importance of BASIX within the residential development process, the instrument was regularly discussed throughout all the engagement activities.

Participants in the Study wanted to understand how BASIX could be better utilised and strengthened. Additionally, participants reported wanting guidance and encouragement on how to incentivise overreaching the minimum requirements. Some councils are already successfully applying incentives to BASIX.

Stakeholders listed the following reasons for exceeding the minimum requirements of BASIX:

- requirement for commercial/industrial developments to either achieve a Green Star rating or similar
- inclusion of energy efficiency considerations in the residential DCP
- The DCP requires large developments to submit an Energy Assessment (EA) Report.

Stakeholders also referenced certain incentives that are in place to encourage exceeding minimum BASIX requirements. One of the councils interviewed indicated they are working on a draft in the Local Environmental Plan (LEP) proposal to provide a ‘high-performing building bonus’ that will allow a bonus FSR for sites that meet higher energy and water targets (above BASIX requirements).
Staff member from a small council when asked to discuss barriers during their interview

‘It's going alright, but you feel that there is more that can be done. More than just BASIX certification. We would like to get people thinking as well, on basic stuff – [i.e.] orientation and windows facing the sun. It's good that BASIX improvements have upped the ante a bit, but some of the plans make you think it's not too hard to get a BASIX certification.’

An architect’s response when asked about the impact of regulations on their sustainability practices

‘Regulations are quite restrictive. “Just try and pass,” and it’s hard to win that argument with developers. It’s a race to the bottom … Everyone knows the system, and they try and get things around it.’

Several reasons were given for not surpassing the minimum BASIX requirements, with council staff reporting the following:

- The formidable cost of property and home ownership results in minimising upfront costs, with a lesser focus on long-term cost-benefit analyses (CBAs). This has sometimes resulted in BASIX being seen as a burden rather than a guide to assist homeowners achieve long-term cost savings.
- There’s no market recognition of over-performance within (or outside of) BASIX measurements.
- Following BASIX certification there is no further discussion around sustainability in any development or building process.
- There is no requirement to go beyond BASIX and little justification for a developer/builder to do this unless there is an incentive (e.g. it can demonstrably increase the marketability/value of a home).
- Control is really with developers. It is hard to make developers exceed BASIX without it being required.
- BASIX is strong in creating a level playing field, but it needs to be maintained, standards enforced, the indices expanded, and consideration given for application at different scales (lot to precinct).
- BASIX measurements are not holistic and do not capture other areas that are surpassed.

Regulation alone will not drive innovation

Industry consultation through the CSHI and other initiatives such as the National Energy Efficient Building Project (NEEBP) has highlighted that regulation alone will not increase the rate of adoption of sustainable practice by developers. Minimum standards (e.g. BASIX, National Construction Code) are perceived to set both a floor and a ceiling for innovation for mainstream developers.
Towards sustainable planning in the housing sector

Pains and gains
Each of the groups interviewed nominated elements of the sustainable housing development process in New South Wales that made their jobs tougher or easier. These factors are labelled ‘pains’ and ‘gains’ and are broken down by their workshop groups below to better understand what factors obstruct and motivate the major players in the development process.

Note that these are the subjective views of the stakeholders engaged in the study and don’t necessarily represent the views of these stakeholder types.

Pains and gains cited by councils
Council staff differed in their opinions about what they thought of as pains or gains, which may be attributed to the diversity of their roles. For example, strategic planners and development assessors, who faced different challenges and priorities, didn’t always agree.

Pains: Council staff expressed frustration that priorities could shift quickly and that different aspects of ‘sustainability’ weren’t always consistently interpreted or communicated. Councils didn’t think that developers were freely adopting sustainability principles within their work and felt that sustainable development wasn’t really seen as ‘mainstream’, but rather as a fringe or extra. There was also a fear of not being fully informed or being called out by developers or others within the development process for a lack of knowledge.

Gains: Energy demand reduction in the form of efficiency within local council areas was a major motivator for sustainable development. Many councils have adopted carbon reduction targets – and better sustainable housing stock was seen as a cornerstone in achieving these targets. There was also a sense that additional sustainable development helped bolster the value of the local council area and had benefits for everyone. Some council staff emphasised the need for consistent enforcement and aligned values throughout the housing development process, which should lead to a stronger culture.

Pains and gains cited by developers
A range of developers provided input on the residential development process as it pertained to sustainability, including land developers, small-to-large-scale housing developers, builders and companies that handle a range of developments across the entire sector. As expected, responses were varied, with some developers (Tier 1) focused on sustainability and others barely acknowledging it as a priority within their business model.

Pains: Developers often found it difficult to communicate the value of sustainability to their customers, who were often seen as motivated primarily by bottom-line prices. Additionally, some developers found it difficult that there was a wide variety of expectations placed upon them. Some were expected to over-perform within the sustainability context, while others didn’t see it as an outcome they were measured against. Most mentioned high housing costs as a factor in limiting flexibility and felt that sustainability measures could adversely affect their ability to sell homes.

Gains: There was a sense that new policies that are clear, uniform and easy to interpret could be beneficial in implementing sustainability measures. They would also help add certainty to the process. Market recognition of the value of sustainability measures, the ability to point to longer-term value and an enhanced reputation were also seen as benefits. Some developers called for better best-practice design guidelines, as well as awards and recognition as an incentive to help push sustainable housing development.
Pathways to sustainability

Priority projects emerging from the Study

Consultants Ramboll Environ and Engage2 recommended leveraging best-practice off the successful relationships and channels established through the Study. These 'collaborate for impact' channels include industry leadership from peak bodies such as the Planning Institute of Australia (PIA), Local Government NSW (LGNSW) and the Urban Development Institute of Australia (UDIA), to facilitate collaboration and education opportunities for key stakeholders to enable them to champion sustainability in housing.

Current regulatory and legislative processes are enabling some councils to encourage sustainability in housing development and there is a strong appetite for change among all stakeholders. The success of the engagement activities provides a solid foundation for continued collaboration and presents an opportunity for the CSHI to leverage the relationships and communication channels established.

Following review of the Report by Ramboll Environ and Engage2, the Steering Committee identified the following priority projects to be further developed as collaborative projects:

- **Definition of a sustainable home** – Prepare, through consensus and collaborative activities, a shared definition(s) that reflects consumer perceptions of what a ‘sustainable home’ means.
- **Knowledge exchange** – Formalised collaboration and networking opportunities. Building a community of practice in sustainable housing.
- **Education and training for planners** – In order to support them in facilitating sustainability outcomes in housing.
- **Leadership and coordination** – Continue to foster collaboration through the local government network to enable sustainability through the planning system, via engagement with developers and volume builders, and the Housing Industry Roadmap.
- **Case studies** – Lived examples of how to build BASIX-compliant homes of different typologies and how to go beyond BASIX.
- **Feasibility study** – For sustainability outcomes in new-growth areas of Sydney (greenfield sites).

Since the final Steering Committee meeting in April 2018, PIA has partnered with OEH to pilot a residential sustainability course for NSW planners. The GBCA is also leading a project called ‘FutureHome’ to develop consumer and construction industry perceptions of what a ‘sustainable home’ means.

While it is not in the scope of this Report to suggest a wide range of solutions, it is hoped that consolidation of the findings of the Study here will catalyse improved collaboration among key industry partners and lead to a broader range of market-led initiatives and projects. Further collaboration is planned with the LGNSW, UDIA, PIA and the GBCA.
Appendix A synthesised Process map
(collated from the three stakeholder workshops)

This document provides an overview of the findings from the process mapping exercise that was undertaken through the three Engagement Workshops. This has been adapted from Ramboll Environ 2018 (Unpublished).

Process Mapping refers to activities that define what a process entails – in this case, the housing development process. What are the steps, who does what, who is responsible, to what standard(s) does the process comply and how can the success of a process be determined?

Process maps were used in the workshops to:

• assess participants' understanding and experience of the development process in NSW
• collect input about when decisions were made about sustainability and how they might be influenced.

Several separate maps created through the four workshops were combined into a single synthesised process document. For accessibility reasons, this has been adapted into a word document for ease of reading.

Seven stages of the development process were identified. A range of suggested activities were identified by participants at each phase to better enable better sustainability outcomes. These have been outlined below. Note that this is not a comprehensive list and may not be accurate – it is a summary of the views of workshop participants only.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground zero /Strategic planning</td>
<td>Land identification</td>
<td>Preliminary design</td>
<td>Detailed design</td>
<td>DA approval</td>
<td>Construction and Certification</td>
<td>Sale</td>
</tr>
</tbody>
</table>

Figure 1  Stages of the Housing Development Process, identified by workshop participants
Table 4  Synthesised workshop participants’ input into the process mapping exercise

<table>
<thead>
<tr>
<th>1. Ground zero/strategic planning</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What happens during this phase?</strong></td>
<td><strong>Suggested sustainability enablers for this phase</strong></td>
</tr>
<tr>
<td>Long-term master-planning of a precinct or region.</td>
<td>Councils:</td>
</tr>
<tr>
<td>Developers:</td>
<td>- Include clauses on sustainability in LEPs and DCPs</td>
</tr>
<tr>
<td>• Site Analysis, Marketing Analysis, Business Case</td>
<td>- encourage sustainable design: resilience, WSUD</td>
</tr>
<tr>
<td>• Community and education, outreach and consultation (including with existing owners)</td>
<td>- do some sustainability benchmarking and targets - water, urban canopy, biodiversity – and encourage these</td>
</tr>
<tr>
<td>• Considerations of transport and infrastructure requirements</td>
<td>- consult developers in strategic planning activities</td>
</tr>
<tr>
<td>• Early conversations with council.</td>
<td>- share lessons learned with other councils</td>
</tr>
<tr>
<td>Councils:</td>
<td>- build relationships with developers - consult them – ‘what do they need’, support marketing to community/consumer</td>
</tr>
<tr>
<td>• Strategic and master-planning: transport, design</td>
<td>- encourage developer participation in awards and competitions.</td>
</tr>
<tr>
<td>• Local Environmental Plans</td>
<td>Developers:</td>
</tr>
<tr>
<td>• Development Controls.</td>
<td>• build ongoing relationships with council – seek early feedback on plans</td>
</tr>
<tr>
<td></td>
<td>• share lessons learned with other developers/construction industry.</td>
</tr>
</tbody>
</table>

Both Councils and developers: |
- develop a strong sustainability policy |
- develop a sustainable transport policy |
- engage and educate local home buyers in what features to look for in a 'sustainable' home |
- exhibit/promote case studies of 'good' design practice. |

<table>
<thead>
<tr>
<th>2. Land identification</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What happens during this phase?</strong></td>
<td><strong>Suggested sustainability enablers for this phase</strong></td>
</tr>
<tr>
<td>Early analysis and consideration of a specific site or precinct</td>
<td>- Incentives for developers – market driven and price point</td>
</tr>
<tr>
<td>• Ownership/Legal: acquisition, amalgamation</td>
<td>- Local Environment Guidelines</td>
</tr>
<tr>
<td>• Site analysis and environmental impact assessment (soil, contamination, flooding, biodiversity)</td>
<td>- Include a sustainability officer at the table during the inception meeting between developer and council</td>
</tr>
<tr>
<td>• Review of regulatory requirements (Federal, state, local)</td>
<td>- Improve community consultation and improve engagement. Invite co-design where feasible</td>
</tr>
<tr>
<td>• Considerations of statutory planning requirements: LEPs, DCPs</td>
<td>- DCPs and controls should have a clear and justified business case for inclusion of sustainability requirements</td>
</tr>
<tr>
<td>• #’s, yields, feasibilities</td>
<td>- Infrastructure Planning – consideration of financial contribution</td>
</tr>
<tr>
<td>• Review best-practice guidelines - federal, state, local e.g. design guidelines</td>
<td>- Meet with relevant council staff e.g. Development Assessment team, engineers, strategic planning, to co-design and scope requirements</td>
</tr>
<tr>
<td>• Community consultation</td>
<td>- Ministerial direction and intervention</td>
</tr>
</tbody>
</table>
# Towards sustainable planning in the housing sector

## 3. Preliminary design

<table>
<thead>
<tr>
<th>What happens during this phase?</th>
<th>Suggested sustainability enablers for this phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Infrastructure/Utilities planning</td>
<td>• State government guidelines for sustainability</td>
</tr>
<tr>
<td>• DCP/LEP alignment</td>
<td>• Checklist/guidelines for fundamental design principles (especially for high-density)</td>
</tr>
<tr>
<td>• Specifications (BASIX)</td>
<td>• Homes for life (design, durable, resilience)</td>
</tr>
<tr>
<td>• Buyer considerations – costs, design and feasibility</td>
<td>• VPAs – instructive planning</td>
</tr>
<tr>
<td>• Costing for construction/project manager</td>
<td>• Design guidelines</td>
</tr>
<tr>
<td>• Developer sustainability policy</td>
<td>• Council commitments</td>
</tr>
<tr>
<td>• Negotiate design outcomes – voluntary planning agreements (VPAs)</td>
<td>• Apartment design guide – SEPP 65</td>
</tr>
<tr>
<td>• Affordability considerations</td>
<td>• Education of all stakeholders about how to influence this phase</td>
</tr>
<tr>
<td></td>
<td>• Improved consultation</td>
</tr>
</tbody>
</table>

## 4. Detailed design

<table>
<thead>
<tr>
<th>What happens during this phase?</th>
<th>Suggested sustainability enablers for this phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Same as preliminary design but in more detail</td>
<td>• Market education</td>
</tr>
<tr>
<td>• Pre-lodgement meetings</td>
<td>• Educate council and industry groups on the processes that are used here</td>
</tr>
<tr>
<td>• Specifications are tested with community</td>
<td>• Design guidelines that provide good information on inclusion of sustainable design features</td>
</tr>
<tr>
<td>• Design Review Panel</td>
<td>• Design competitions</td>
</tr>
<tr>
<td></td>
<td>• Education of developers and councils in rural areas</td>
</tr>
<tr>
<td></td>
<td>• Increased deliberate collaboration and internal networking within relevant teams (strategic planners, DA officers, sustainability officers)</td>
</tr>
<tr>
<td></td>
<td>• Capture and share best-practice case studies</td>
</tr>
<tr>
<td></td>
<td>• Help landowner understand long-term savings – address split incentives</td>
</tr>
</tbody>
</table>

## 5. DA Approval

<table>
<thead>
<tr>
<th>What happens during this phase?</th>
<th>Suggested sustainability enablers for this phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Lodgement of DA</td>
<td>• Portal network for sustainability officers, strategic planners, DAs</td>
</tr>
<tr>
<td>• Negotiation between DA assessor and developer</td>
<td>• Accreditation and certifications to find sustainable builders</td>
</tr>
<tr>
<td>• Land and Environment Court</td>
<td>• Optimisation of subdivision layout to improve orientation (influencing passive design)</td>
</tr>
<tr>
<td>• Independent Hearing and Assessment Panels (IHAPs)</td>
<td></td>
</tr>
<tr>
<td>• Modifications to DA</td>
<td></td>
</tr>
</tbody>
</table>

## 6. Construction & Certification

<table>
<thead>
<tr>
<th>What happens during this phase?</th>
<th>Suggested sustainability enablers for this phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Infrastructure is constructed</td>
<td>• Advice for developers – sustainable infrastructure considerations, optimal what materials to use</td>
</tr>
<tr>
<td>• Regular building code compliance checks – certifiers</td>
<td>• Advice for builders – what materials to use</td>
</tr>
<tr>
<td>• Influenced by supply chains: technological/material availability</td>
<td>• Accreditation and Certification of builders</td>
</tr>
<tr>
<td>• Waste management and erosion control</td>
<td>• Developer incentives – EUAs, ESS, grants</td>
</tr>
<tr>
<td>• Planting of trees</td>
<td>• Reduce availability of old technologies</td>
</tr>
<tr>
<td>• Construction of buildings</td>
<td>• Mandate energy assessments at this point/compliance checks with BASIX</td>
</tr>
<tr>
<td>• Assessment and occupation certificate</td>
<td></td>
</tr>
</tbody>
</table>
## 7. Sale

<table>
<thead>
<tr>
<th>What happens during this phase?</th>
<th>Suggested sustainability enablers for this phase</th>
</tr>
</thead>
</table>
| • Builder/real estate agents market the properties to potential buyers | • Promotion of sustainability initiatives  
• Sustainability checklist for buyers available through real estate companies e.g. domain  
• Training of new homes sales agents in sustainability, liveability  
• Opportunity for some builders to drive community demand by associating sustainability with brand  
• Implement voluntary then mandatory disclosure of energy/sustainability / liveability performance at sale |


## Appendix B Personas

This document provides an overview of the findings of the ‘Personas’ exercise delivered through the three Local Sustainable Housing Study Engagement Workshops in late 2017. This information has been adapted from Ramboll Environ 2018 (Unpublished).

### Tier 1

#### Developer-BUILDER

<table>
<thead>
<tr>
<th>General thoughts</th>
<th>‘It’s our responsibility to deliver housing that is affordable, comfortable and sustainable’</th>
</tr>
</thead>
</table>

#### General thoughts

- General awareness among customers about sustainability must be improved.
- Liveability is not recognised enough.

<table>
<thead>
<tr>
<th>Enablers</th>
<th>Barriers</th>
<th>Pains</th>
<th>Gains</th>
<th>Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Customer in areas where sustainable and social values are inherent</td>
<td>&gt; Affordability of housing and land in NSW</td>
<td>&gt; Communicating/marketing the value to customers</td>
<td>&gt; Marketing value and green reputation</td>
<td>&gt; Consistent and forward-thinking planning and policy</td>
</tr>
<tr>
<td>&gt; Investors (ASX) are starting to value sustainability</td>
<td>&gt; Perceived risks with new/different technologies</td>
<td>&gt; BASIX - limited scope, but expectation from council to exceed it</td>
<td>&gt; Satisfaction of a company vision</td>
<td>&gt; Educating the market on sustainability</td>
</tr>
<tr>
<td>&gt; Grants, VPAs, funding etc. to de-risk and normalise sustainable technologies</td>
<td>&gt; Lack of incentives</td>
<td>&gt; Expectation of some developers to over-perform while others are not</td>
<td>&gt; Increased property value</td>
<td>&gt; Incentives</td>
</tr>
<tr>
<td>&gt; Corporate strategy-company ethics and vision</td>
<td>&gt; Lack of education in the market</td>
<td>&gt; Reduced energy costs</td>
<td>&gt; Reduced energy costs long-term</td>
<td></td>
</tr>
<tr>
<td>&gt; Rising electricity costs</td>
<td>&gt; Lack of consistent legislation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; Residents and businesses seeing a return</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Towards sustainable planning in the housing sector
Towards sustainable planning in the housing sector

| Tier 2 Developer/Builder | ‘There is a myriad of processes and regulation...sustainability can be viewed as another ‘layer’ of compliance’

**General thoughts**
- Sustainability for housing development is not every developer’s #1 priority and can be viewed as another layer of ‘compliance’.

<table>
<thead>
<tr>
<th>Enablers</th>
<th>Barriers</th>
<th>Pains</th>
<th>Gains</th>
<th>Needs</th>
</tr>
</thead>
</table>
| > Clear political direction for investment in sustainable technology  
> Sustainability can be positioned as a point of difference to other housing being offered to the market  
> Being recognised by industry bodies as leading-edge sustainability is a source of pride and good for brand recognition  
> The evidence on a new model for housing stock is available: better ESD outcomes, lower operating costs, smaller/efficient design, higher quality  
> Local council incentives for green features and ratings | > A significant amount of the cost of dwellings is made up of the taxes which reduce margins and leaves little room for voluntarily exceeding standards  
> Extra cost of sustainability features  
> Supply chain changes can be viewed as being too difficult  
> Process already lengthy and expensive; sustainability adds a great deal extra  
> Sustainability still considered as ‘fringe’ – It doesn’t resonate with 85% of home purchases | > Delays in Development Approvals  
> General anti-development sentiment  
> Additional taxes and changes already add considerable costs affecting base land value which gets passed onto the end consumer  
> Sustainability teams are separate from the mainstream | > Awards, recognition and exposure  
> Best-practice design guidelines  
> Perceptions of home sizes are changing | > Cost comparison studies between ‘sustainable’ and non-sustainable dwellings  
> The agenda should change from ‘sustainability’ to ‘high-quality houses for life’ or similar  
> More government partnerships driving sustainability |
### Towards sustainable planning in the housing sector

#### Tier 3 Developer/Builder

<table>
<thead>
<tr>
<th>General thoughts</th>
<th>‘Government requirements and the associated costs reduce ability to spend on sustainability’</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enablers</strong></td>
<td><strong>Barriers</strong></td>
</tr>
<tr>
<td>&gt; Government funding and initiatives</td>
<td>&gt; Over-legislation and prescriptive legislation</td>
</tr>
<tr>
<td>&gt; Market demands and perceived benefits and purchases</td>
<td>&gt; Lack of funding</td>
</tr>
<tr>
<td>&gt; Reduced red tape and wasting money in other areas</td>
<td></td>
</tr>
</tbody>
</table>

#### Public Developer (Government agencies building homes)

<table>
<thead>
<tr>
<th>General thoughts</th>
<th>‘We need to make sustainability ‘normal’ and pursue it in every project’</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enablers</strong></td>
<td><strong>Barriers</strong></td>
</tr>
<tr>
<td>&gt; Targets and reporting</td>
<td>&gt; Getting agreed balance on upfront costs being valued in business cases as sustainable benefits</td>
</tr>
<tr>
<td>&gt; Quick wins that can meet multiple objectives e.g. street trees that give walkability, amenity, urban heat island</td>
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</table>

- We are driven by market forces rather than tick-a-box requirements.
Towards sustainable planning in the housing sector

<table>
<thead>
<tr>
<th>Social and Affordable Housing Developer</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Sustainable cities need to include affordability and social impacts’</td>
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</tbody>
</table>

**General thoughts**
- Provision of energy efficient, smart, well-designed homes are critical to the social and affordable housing sector.

<table>
<thead>
<tr>
<th>Enablers</th>
<th>Barriers</th>
<th>Pains</th>
<th>Gains</th>
<th>Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Government grants and incentives</td>
<td>&gt; Developer buy-in in affordable housing</td>
<td>&gt; Housing affordability pushing more into rental market and flow-on impact to social housing</td>
<td>&gt; Government policy is leading to new affordable housing developments</td>
<td>&gt; Inclusive and sustainable communities to improve the lives of our tenants</td>
</tr>
<tr>
<td>&gt; SAHF Procedures</td>
<td>&gt; SEPP applications to regional councils</td>
<td>&gt; Need a holistic approach</td>
<td>&gt; OEH Home energy action program</td>
<td>&gt; Flexibility around SEPP and zoning</td>
</tr>
<tr>
<td>&gt; LEP and DCP for social and affordable housing</td>
<td></td>
<td></td>
<td>&gt; Diversity of stock acquired</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Council – Strategic Planner</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Strategic plans provide an optimistic picture of what vision is to be achieved, but... the application of the plans are affected by several stakeholders’</td>
</tr>
</tbody>
</table>

**General thoughts**
- Councils can have a strong push for sustainability initiatives but often a lack of understanding of what sustainability is.

<table>
<thead>
<tr>
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<th>Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; LEP, DCP, Design Excellence competitions, VPAs</td>
<td>&gt; Lack of understanding from non-planning officers about when they can influence the planning system</td>
<td>&gt; Change of ‘vogue’ topics – officers may write report/policy and the council not interested anymore</td>
<td>&gt; Energy efficiency, reduced impacts on the environment motivate me.</td>
<td>&gt; Strategic plans drive everything, standardised templates</td>
</tr>
<tr>
<td>&gt; Community push for sustainability</td>
<td>&gt; State policies-lack of ESD education with DA planners</td>
<td>&gt; Mainstreaming ‘sustainability’ and expectations through effective communication</td>
<td>&gt; Can incorporate sustainability in 2050 strategy</td>
<td>&gt; Strengthen LEP and strengthen DCPs</td>
</tr>
<tr>
<td>&gt; Councillor resolution</td>
<td>&gt; IHAP education for metro Sydney Councils.</td>
<td>&gt; Challenging to encourage developers to incorporate sustainable designs</td>
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<tr>
<td>&gt; SEPP 65 requirements</td>
<td>&gt; Poor understanding of BASIX</td>
<td></td>
<td></td>
<td>&gt; Need for sustainability education tools-including for communication</td>
</tr>
<tr>
<td>&gt; Focus on medium density housing</td>
<td>&gt; DCPs are too late in the design/approval process and don’t have the regulatory teeth to enforce sustainable design.</td>
<td></td>
<td></td>
<td>&gt; State government needs to have a stronger push for sustainable housing that filters to Council planning controls</td>
</tr>
<tr>
<td>&gt; 2050 strategy</td>
<td>&gt; Awareness of cost-effective design options</td>
<td></td>
<td></td>
<td>&gt; Incentives for developers</td>
</tr>
</tbody>
</table>
Towards sustainable planning in the housing sector

<table>
<thead>
<tr>
<th>Council – DA Officer</th>
<th>‘If the policies/legislation do not include sustainability, it won’t be looked at’</th>
</tr>
</thead>
</table>
| General thoughts     | • We have little ability to influence broader policy  
                       • Not enough time to consult with strategic planners to ensure policies promote sustainability. |

<table>
<thead>
<tr>
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</thead>
</table>
| > Legislation  
> DCPs  
> Internal drive lead by adopted strategic vision  
> Incentives and disincentives  
> DA Planners can directly encourage developers through direct discussion and negotiation | > BASIX legislation doesn't include all aspects of sustainable development  
> Contradiction in legislation, e.g. BCA, BASIX  
> Poor coordination within councils-sustainability teams, DA planners, strategic planners  
> Poor communication between environment and planning teams  
> DA Planners working under extreme pressure  
> Local Environment Court decisions setting legal precedents  
> Lack of knowledge | > Bargaining to include sustainability is an immense strain on resources  
> Fear of exposing lack of knowledge of sustainability  
> Reform fatigue  
> Pressure on DA Planner to cover all assessment issues, not just focus on sustainability | > Greater sustainable housing stock  
> Greater job satisfaction  
> If there is a sustainable housing policy that is consistently enforced by DA Planners, this builds a ‘culture’ that becomes stronger over time | > Training and toolkits for DA staff to enable better assessments  
> Coordination between teams  
> Better legislation and policy (mandated)  
> Cost-benefit analysis and Knowledge sharing  
> Resourcing reforms |
Towards sustainable planning in the housing sector

<table>
<thead>
<tr>
<th>Council – Sustainability Officer</th>
<th>‘Appetite and enthusiasm is strong… yet building is still driven by minimum standards and maximum limits’</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General thoughts</strong></td>
<td>• Timing is critical – intervention points need to be early or opportunity is lost</td>
</tr>
<tr>
<td></td>
<td>• Getting best outcomes is a dance between developer and council.</td>
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</tbody>
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<table>
<thead>
<tr>
<th><strong>Enablers</strong></th>
<th><strong>Barriers</strong></th>
<th><strong>Pains</strong></th>
<th><strong>Gains</strong></th>
<th><strong>Needs</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Access to spending advice</td>
<td>&gt; Lack of council resources</td>
<td>&gt; There is a divide between strategic planners and assessors within council, who have very different drivers. Difficult to negotiate outcomes</td>
<td>&gt; DA assessors who can successfully influence outcomes beyond minimum standards through their skills and long-term knowledge.</td>
<td>&gt; Leadership at Federal Government level</td>
</tr>
<tr>
<td>&gt; Case Studies</td>
<td>&gt; Time constraints</td>
<td></td>
<td></td>
<td>&gt; Non-compulsory NSW Govt policy that supports council objectives</td>
</tr>
<tr>
<td>&gt; Events: Sustainable housing days</td>
<td>&gt; Lack of incentives</td>
<td></td>
<td></td>
<td>&gt; Fact sheets and education for public</td>
</tr>
<tr>
<td>&gt; Leading developers as a case study</td>
<td>&gt; Developers see DCPs as a minimum, not a maximum control</td>
<td></td>
<td></td>
<td>&gt; Need Sustainability Planning Advisors roles within each council, to bridge the gap between environment and planning</td>
</tr>
<tr>
<td>&gt; Vision and direction of council as outlined in council plans, vision and councillors</td>
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<table>
<thead>
<tr>
<th>Architect/Designer</th>
<th>‘My clients basically determine what work I do, and I have little control to influence the project’</th>
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</thead>
<tbody>
<tr>
<td><strong>General thoughts</strong></td>
<td>• Need to inspire people to want to embark on sustainability.</td>
</tr>
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<thead>
<tr>
<th><strong>Enablers</strong></th>
<th><strong>Barriers</strong></th>
<th><strong>Pains</strong></th>
<th><strong>Gains</strong></th>
<th><strong>Needs</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Organisations who can help with data, info and ideas, e.g. ATA</td>
<td>&gt; Difficulty of sourcing</td>
<td>&gt; Council rules that get in the way</td>
<td>&gt; Happy clients who love living in their sustainable homes.</td>
<td>&gt; Coordinated supply chains for smaller projects and country locations</td>
</tr>
<tr>
<td>&gt; Positive articles in the popular press about the benefits of sustainability</td>
<td>&gt; Cost of buying better materials and solutions</td>
<td>&gt; Builders and subcontractors who resist/flight sustainability ideas and specifications</td>
<td>&gt; Creating an abundant living future that we will all enjoy</td>
<td>&gt; Assistance in approving better projects</td>
</tr>
<tr>
<td>&gt; Great clients who are asking for sustainable homes</td>
<td>&gt; Builders who resist ideas and/or add extra costs for ‘risk’</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>&gt; Builders who know what they’re doing</td>
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</table>
Towards sustainable planning in the housing sector

### Academic/Researcher

*We need a radically different approach... the conceptual understanding of sustainability is an issue*

| General thoughts | • Balancing the costs of outlay and savings (short and long-term)  
|                  | • Conceptual understanding of sustainability is an issue |

<table>
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<tr>
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<th>Needs</th>
</tr>
</thead>
</table>
| > Access to information/data  
| > Industry/public/government appetite-funding and other commitments  
| > Information of relevant products and expertise  
| > Financing mechanism (self and external)  
| > Inspiring examples  
| > When costs of technology come down  
| > Enabling policies and incentives  
| > Comfort and reduced bills | > Access to information/data  
| > Strata and regulation  
| > Time and resourcing  
| > Lack of knowledge overwhelms all stakeholders at various stages  
| > Short term outlook in politics  
| > Inertia  
| > Other things to take priority  
| > Fear of innovation – easy to stick with what we know | > Time and resourcing, lack of programs, despite effort  
| > The rhetoric that we are going backwards collectively  
| > Lack of interest at a Federal Government level  
| > Embodied energy in homes  
| > Long-term engagement required | > Knowledge sharing  
| > The good feeling when progress is made | > Access to information/data  
| > Access to affordable upgrades  
| > ‘A radically different approach’  
| > research funding to work on things that matter  
| > ‘Address CARBON; everything else can be addressed and fixed; climate change is permanent’ |

### Industry Group/Peak body

*We are a key player in being able to affect change throughout the process*

| General thoughts | • We represent our members through all levels of the system. |

<table>
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</tr>
</thead>
</table>
| > Legislation such as a BASIX, NCC, etc. to raise the minimum bar  
| > Developers that have inbuilt sustainability policy in their business models  
| > Councils that want to deliver and raise the bar | > Legislation barriers  
| > Councillor and political barriers where cost-benefit needs to be proven  
| > Lack of knowledge of how or what to deliver | > Cost and lack of resources | > Value for investors and members | > Strategic direction – to be part of a bigger picture, to be invited to influence |
Towards sustainable planning in the housing sector

**NSW Planning: Policy**
‘We provide policy framework, based on scientific evidence’

<table>
<thead>
<tr>
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<th>Needs</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>&gt; Federal policy drivers-political will</td>
<td>&gt; Change in government and lack of leadership</td>
<td>&gt; Angry architects and developers complaining to NSW Planning that the policy is too hard or costly to comply</td>
<td>&gt; More high-level directions from decision makers and politicians</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; Technological progress in the sector</td>
<td>&gt; Internal restructures</td>
<td>&gt; Challenging pushing for change without evidence or logic</td>
<td>&gt; Political and executive priority</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; Funding</td>
<td>&gt; Competing policies and various priorities</td>
<td>&gt; Bureaucratic systems</td>
<td>&gt; Strategic direction is crucial</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; Collaboration</td>
<td>&gt; Legislative and regulatory frameworks</td>
<td></td>
<td>&gt; Definitions of sustainability and what it means needs to be</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; Demand from community and submissions from influential stakeholders</td>
<td>&gt; Not always easy getting evidence: takes time and money</td>
<td></td>
<td>communicated to all actors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; Progressive developers and architects</td>
<td>&gt; Complex system with many actors and interests</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>&gt; Government can be risk averse</td>
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- Continuous renewal of policy framework.
- Set strategic direction – not too much detail – show evidence of change due to political landscape.
Towards sustainable planning in the housing sector

**NSW Planning: Programs**

*We need to be supporting growth of vibrant, liveable communities, providing for housing, jobs and affordability*

**General thoughts**

- Focus on demonstrating sustainable housing can benefit vulnerable energy customers.

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<tbody>
<tr>
<td>&gt; Legislation and oversight role of the sector</td>
<td>&gt; Lack of direct interactions with developers and home builders</td>
<td>&gt; Narrow range of experience in 'sustainability' components among staff</td>
<td>&gt; Direct approval role for large-scale developments and infrastructure projects</td>
<td>&gt; Consistent government policy direction regardless of which party in power</td>
</tr>
<tr>
<td>&gt; Well-designed government plans, policies, and regulation that have strong community and industry support</td>
<td>&gt; Current focus of government on 'big win' projects - e.g. large infrastructure projects rather than small, cumulative wins</td>
<td>&gt; What is 'sustainability' – too vague, lack of adopted definitions to work towards</td>
<td></td>
<td>&gt; Case studies/research, increased resourcing</td>
</tr>
<tr>
<td>&gt; Economic incentives for sustainable homes</td>
<td>&gt; Lack of or poorly designed government plans, policies and regulation</td>
<td>&gt; Lack of political will</td>
<td></td>
<td>&gt; Community and industry demand</td>
</tr>
<tr>
<td>&gt; Education, case studies and public information</td>
<td>&gt; Economic and financial barriers</td>
<td></td>
<td></td>
<td>&gt; Consideration of vulnerable energy consumers in sustainable developments</td>
</tr>
<tr>
<td>&gt; Sustainable energy in housing could reduce energy costs</td>
<td>&gt; Lack of community and industry awareness</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>&gt; Current energy assistance programs assisting consumers</td>
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Towards sustainable planning in the housing sector

**OEH Planning: Policy/Programs**

“We run projects and programs that support the uptake of sustainable development, practices and processes for business, government and housing”

### General thoughts

- We want to make sustainable housing mainstream – how do we do that?
- If we can get some good projects on board and demonstrate business cases, we might be able to shift from niche innovators to the majority.
- Narrative around affordability is short-term

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</table>
| > Enthusiastic people in the industry  
> Resources and budget  
> Leadership within OEH  
> Collaboration – to work with industry and other agencies  
> Engaged partners  
> Ability to work outside regulatory process  
> Leadership at middle | > Political will  
> The problem is so difficult to focus-distributed, many decision makers and influencers  
> Difficulty to measure impact  
> Housing affordability market  
> Dis-engaged stakeholders  
> Perceptions of sustainability differ | > It is hard work – is the suite of policies and programs going to work?  
> Is this going to end up on the front page of a newspaper  
> Seeing prevalence of poorly designed and orientated homes coupled with ongoing ‘energy pains’ media coverage  
> Organisational restrictions, restructures, confusion on goals | > Some influence in designing programs and policy  
> Seeing progress  
> Council staff seeking OEH input on green cover strategy | > Vocal people in industry to support change  
> Clear project outcomes  
> Better understanding of where our efforts should be focused  
> Improving coordination at a regional level between OEH, Planning and Councils |
Glossary

Affordable housing
Housing for very low and low-income households where rent or mortgage payments are less than 30% of gross household income or the household is eligible to occupy rental accommodation under the National Rental Affordability Scheme.

BASIX
The Building Sustainability Index (BASIX), introduced in New South Wales in 2004, is the primary regulatory mechanism by which energy and water efficiency outcomes are embedded into development approvals in New South Wales. It’s used to model and regulate the energy use and greenhouse gas emissions of all new residential buildings in New South Wales by calculating a score representative of the energy and water savings achieved compared to a pre-BASIX development.

Best-practice
A combination of techniques, methodologies and systems that, through experience and research, have reliably led to optimum ESD outcomes. Best-practice in the built environment encompasses the full life cycle of a project, from clearing of existing site conditions, design, construction and ongoing occupation through to final demolition or recycling.

Collaborative Sustainable Housing Initiative (CSHI)
The Collaborative Sustainable Housing Initiative is coordinated by the NSW Office of Environment and Heritage (OEH) and builds cross-sectoral partnerships in the housing industry to deliver mutually beneficial sustainability outcomes.

Consumer
Refers to the many stakeholder types on the demand side of housing, such as homeowners looking to buy a new home, homeowners looking to renovate, homeowners looking to sell (vendors) and investors in new and existing homes.

Development
Property development is a multi-faceted business process, encompassing activities that range from the renovation and re-lease of existing buildings to the purchase of raw land and the sale of developed land or parcels to others. Developers buy land, finance real estate deals, build or have builders build projects, and manage the process of development from beginning to end.

Development Control Plans (DCP)
A Development Control Plan provides detailed planning and design guidelines to support the planning controls in the Local Environmental Plan (LEP). They are for development where the council and other applicable agencies are the development consent authority.

Ecologically Sustainable Development (ESD)
Towards sustainable planning in the housing sector

Australia’s *National Strategy for Ecologically Sustainable Development* (1992) defines ESD as: ‘using, conserving and enhancing the community’s resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased’.

A uniquely Australian term, ESD contains five principles, including intergenerational equity, the integration of economic, social and environmental factors, and the precautionary principle. Since its adoption in 1992 by all Australian governments, ESD has been incorporated into a large number of Commonwealth, State and Territory statutes and policies.

**Floor Space Ratio (FSR)**

The Floor Space Ratio (FSR) is a development standard that is referenced in clauses of Local Environmental Plans (LEPs) and controls the bulk and scale of buildings. Floor Space Ratio can be increased in a development in negotiation in return for sustainability benefits.

**GHG**

Greenhouse Gas Emissions

**Greater Sydney**

Greater Sydney is defined as the 33 local government areas of Bayside, Blacktown, Blue Mountains, Burwood, Camden, Campbelltown, Canada Bay, Canterbury-Bankstown, Cumberland, Fairfield, Georges River, Hawkesbury, Hornsby, Hunters Hill, Inner West, Ku-ring-gai, Lane Cove, Liverpool, Mosman, Northern Beaches, North Sydney, Parramatta, Penrith, Randwick, Ryde, Strathfield, Sutherland, The City of Sydney, The Hills, Waverley, Willoughby, Wollondilly and Woollahra.

**Greyfield**

Greyfield land is economically obsolescent or underused real estate assets or land. The term was coined in the early 2000s to describe the ‘sea’ of empty asphalt often found at these sites.

**High-performance home**

A home that exceeds the minimum standards and performs well in one or more areas of sustainability.

**Industry**

Collective name for the private sector actors operating on the supply side of the housing market, such as developers, architects, city planners, engineers, surveyors, inspectors, contractors, lawyers and leasing agents.

**LGA**

Local Government Area

**Liveability**

Liveability is the sum of factors that add up to a community’s quality of life, including the built and natural environments, economic prosperity, social stability and equity, educational opportunity, and cultural, entertainment and recreation possibilities. These factors deliver health, efficiency, comfort and community. In a liveable community, all people feel engaged,
can participate in local activities and do not face barriers to carrying out their regular daily lives.

**Local Environmental Plan (LEP)**

A Local Environmental Plan is a statutory spatial plan prepared by councils and signed off by the NSW Government. Local Environmental Plans define planning controls that determine the type and amount of development that can occur on a parcel of land.

**National Construction Code (NCC)**

The National Construction Code is an initiative of the Council of Australian Governments, developed to incorporate all on-site construction requirements into a single code. The NCC is produced and maintained by the Australian Building Codes Board (ABCB) on behalf of the Australian Government and each state and territory government. The NCC provides a set of technical provisions for the design and construction of buildings and other structures and plumbing and drainage systems throughout Australia. It allows for variations in climate and geological or geographic conditions.

**National Energy Efficient Building Project (NEEBP)**

The National Energy Efficient Building Project commenced in 2012 with the aim of supporting consumers, government and industry to achieve better energy efficiency in new buildings, renovations and additions. The NEEBP is led by the Government of South Australia’s Department of State Development and is co-funded by all Australian states and territories through the Council of Australian Governments (COAG) Energy Council. In 2015, the COAG Energy Council agreed to a National Energy Productivity Plan, which recognises that improving national energy productivity will be important in delivering greater value from the energy that Australians use. This will also help consumers manage their energy costs and reduce Australia’s greenhouse gas emissions. As part of this plan, the Council will continue supporting the NEEBP.

**Nationwide House Energy Rating Scheme (NatHERS)**

The Nationwide House Energy Rating Scheme is a star rating system that rates the energy efficiency of a home based on its design.

**Net Zero (or zero-net) Building**

A Net Zero Building produces as much energy as it uses each year; i.e. through on-site renewable energy.

**Planning Controls**

Planning controls are the combination of land use zones and development standards that control the use and built form of development. Development standards may limit height, density, set back from the road or property boundary and lot size for development or subdivision.

**PRECINX®**

PRECINX® is a strategic urban planning and design tool in use in New South Wales that predicts the potential long-term environmental, social and financial impacts of large, multiple-dwelling and mixed-use developments while they are still at an early design stage. It’s licensed to users by Kinesis and is a support tool to BASIX. It allows designers to avoid
misdirected effort and unnecessary cost and gives an accurate picture of a project’s sustainability performance very quickly, with limited upfront inputs. Drawing on comprehensive local data sources including climate and utility data, PRECINX® links urban design with environmental metrics to calculate the performance of a development across transport, land use, embodied energy, operational energy, water and stormwater, housing affordability, capital and recurrent costs and household operating costs.

**Process Map**

Process Mapping refers to activities involved in defining what a process entails – in this case, the housing development process. What are the steps, who does what, who is responsible, to what standard(s) does the process comply and how can the success of a process be determined?

**Residential Development**

A Residential Development is a real estate development for residential purposes. Activities that can take place as part of the residential development process include the renovation and re-lease of existing buildings, the purchase of new land and the sale of subdivided land to others.

**Stakeholders**

Stakeholders include developers, local government, architects, builders, the state government, federal government, tradespersons, occupants, valuers, estate agents and industry associations. All are actors operating in the NSW housing market.

**Sustainable Development**

The NSW Planning Reforms adopt a new definition of sustainable development as follows: ‘Sustainable development is achieved by the integration of economic, environmental and social considerations, having regard to present and future needs, in decision-making about planning and development.’ – NSW Planning Bill 2016

**Sustainable Homes**

The Office of Environment and Heritage defines sustainability in terms of the impact a home has on the environment and positive actions taken to minimise those impacts, such as saving energy, renewable energy, sustainable transport, water efficiency and recycling and waste reduction.

Sustainable housing is built to be comfortable, affordable to run and healthy. Sustainable homes are thermally efficient, have efficient appliances, use safe products and adopt water-sensitive landscaping that encourages biodiversity.

**Tier 1 Developers**

Tier 1 Developers are the largest, wealthiest and most experienced contractors operating in the industry. These contractors have the expertise, resources and finances to take on major commercial projects such as shopping centres, hospitals, universities and office towers. Tier 1 contracts are usually in the price range of hundreds of millions of dollars or even billions of dollars.
Tier 2 Developers
Tier 2 Developers, or mid-tier contractors, are still significant players in the construction industry. As a rule, these contractors take on commercial and smaller-scale residential projects than their Tier 1 counterparts. Some specialise in a specific type of construction, such as for shopping centres, industrial buildings and residential apartment complexes.

Tier 3 Developers
Tier 3 Developers are the most common and tend to take on smaller projects such as residential buildings and the refurbishing and rebuilding of small-scale commercial buildings such as small office blocks. They play an essential role in the industry and can move up the tier ladder as they expand their portfolios.
Towards sustainable planning in the housing sector

References


Catalyst Australia 2013, Building Sustainability: A Review of Company Performance in the Commercial Real Estate and Property Sector, Catalyst Australia Incorporated, Sydney NSW.

