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Implementing sustainability in the built environment

An analysis of the role and effectiveness
of the building and planning system in
delivering sustainable cities

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and planning system in delivering sustainable cities.

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Executive Summary

This report presents the outcomes of a pilot study exploring how the building and planning system is delivering a sustainable built environment in Australia.

The study was funded by the Australian Communities Foundation through the Green Cities Innovation fund and undertaken by a team of researchers from RMIT University across the School of Global, Urban and Social Studies and School of Property, Construction and Project Management. The research was conducted from April 2016 to April 2017 and is intended to inform the development of ongoing discussion, policy development, and a program of research which builds upon the research presented in this report.

Part of the challenge in improving sustainability outcomes through building and land-use policy settings is the limited research into attempts at implementation and the tension in implementation between these two policy domains. The aim of this project was to begin to address this gap and examine why the planning and building system is failing to achieve sustainability goals and what can be done to improve current policy and regulatory frameworks, and their implementation. In doing so, the project analysed the role of building and planning policy and regulations in delivering sustainable

buildings and cities.



1 – a review of existing policy and best practice across Australian states with a focus on Victoria;



2 – an analysis of Victorian Civil and Administrative Appeals Tribunal data and key ESD cases since 2003; and



3 – a focus group with key stakeholders involved in the development and implementation of sustainability assessment tools.

We identify four key issues emerging from the research highlighting both the challenges and opportunities in implementing ESD in the built environment in the Victorian context. These are: 1) the gap between the planning and building system; 2) weaknesses in the planning system; 3) governance, inconsistencies, and coordination; and 4) improving the system – networks and advocacy.

1) The gap between the planning and building system

Current minimum building code requirements fall significantly short of what is required for low carbon housing. As there is limited ability to use the building code to require improved environmental performance of housing, sustainability advocates

and planners have been attempting to address this sustainability shortfall through the land use planning system. Our analysis of VCAT over time reveals inconsistencies in decision-making and tensions between the state planning framework and

local government efforts to increase engagement with ESD through planning. The analysis of VCAT cases highlights the most prevalent reason for removing Environmentally Sustainable Development Management Plan (ESDMP) conditions relates to arguments that building, not planning, is the appropriate policy domain to implement ESD. This justification persists over time, despite other cases affirming the role of planning particularly via the use

of ESDMPs; and despite the evidence base from applied urban research that demonstrates the need for both building and planning policy domains to play a role in effectively achieving ESD outcomes. What becomes clear in our analysis is that in order to embed and normalise ESD in the built environment the continual passing of responsibility between building and planning systems must be addressed.

2) Weaknesses in the planning system

Across the states reviewed, while policies regarding sustainability and the built environment were present in all the state and regional-level strategic planning documents, there are a lack a statutory planning instruments and legislation to assess ESD for buildings. Stronger legislative frameworks, clear implementation, and measurements are needed to ensure better ESD outcomes.

In presenting the story of CASBE one of the key issues to highlight is the role they have played in attempting to address the inadequacies of the planning system in Victoria where there has been a persistent lack of leadership and innovation over many years to address ESD. There are clear systemic and political challenges to address

improving the planning system and the voluntary use of sustainability assessment tools can only go so far in this regard. While there is a growing need and capacity across a number of council's to develop stronger ESD policies and processes in decision-making, the lack of state level commitment to strong ESD outcomes in the built environment has been a significant issue. The recent release of Plan Melbourne Refresh has identified this issue suggesting that a state-wide commitment to addressing policy and regulatory change may be imminent. This will require both the development and implementation of effective regulatory frameworks as well as improved governance for ESD across all levels of government.

3) Governance, inconsistencies and coordination

One of the ongoing challenges is that broader environmental, social and economic policies and long term targets are not being integrated into policies relating to building performance. An explicit link to broader policy would strengthen arguments for improving sustainability in the built environment and how that improvement would help achieve broader goals. Furthermore, there are challenges in ensuring that even the current minimum requirements are adhered to, with research finding major discrepancies between building design and actual performance.

The examination of VCAT cases over time reveals re-occurring use of the argument that the

building code is the appropriate way to address ESD; while the emergence of justification for the removal of an ESDMP that target specific development characteristics largely come later in the study period. As expressed by respondents in the focus group, these response characteristics have caused much frustration, with VCAT either 1) continually reviving arguments that assert that the planning system is not the appropriate mechanism to require an ESDMP, despite findings that support in key cases, or 2) accepting the use of ESDMPs, but finding a range of different faults in the practical implementation of a case to justify removal of the ESDMP condition.



Across almost every major theme observed in the VCAT cases for removal or retention of an ESDMP there are inconsistencies. While we expected to see changes of approach or perspective over time,

representing an evolving and maturing debate, this has not been the case. Instead there is evidence of decisions frequently misappropriating or ignoring earlier cases in support of a decision.

4) Improving the system – Networks and Advocacy

This case of CASBE highlight the role and importance of networks in building capacity across councils and mobilising support for new tools, policies and practices. Over time CASBE and other advocates have enabled the development and implementation of a range of ESD assessment tools, local policies and decision making processes. All were developed in response to identified gaps and weaknesses in the existing system. This ‘bottom-up’ and ‘learning by doing’ approach emerged from both the skills and commitment of key actors over time. The roles of policy and instrument design, education, training and advocacy are important in the ongoing work of shifting institutional practices to improve the system for delivering ESD outcomes in the built environment.

There are several examples from around the world that Victoria could draw upon. Both California and the UK governments developed a 10-year plan to improve minimum housing performance regulations to a near zero net energy performance for all new housing, giving the building industry, consumers and more importantly, sustainability technology/material manufacturers’ confidence to innovate, knowing that there would be a market for their products. In Canada, the City of Vancouver’s ambitious emission reduction targets are supported by a series of stepped/incremental policies. The City has plans to reduce emissions from new buildings by 90% as compared to 2007 by 2025, with the aim to achieve zero emissions for all new buildings by 2030.

Future Research

The research opens up further avenues to better understand different approaches to effectively delivering ESD outcomes. Further qualitative research is warranted involving interviews with government and development industry actors in different contexts. An evaluation of the use effectiveness and challenges of developing, implementing and using assessment tools and mechanisms in planning and decision-making is also needed. Qualitative research could also explore the differences between the role and capacities of councils both within and outside the CASBE network. Another could involve in-depth analysis of

assessment tools and their implementation across different councils, including the cost implications of using different tools through a sample of cases. This would further develop the evidence base to demonstrate how or if the implementation of assessment tools is leading to a range of benefits and outcomes. Finally, further research around the strengths and weaknesses of implementing local ESD planning policies recently adopted by a number of councils in Victoria would also be valuable to inform future decision making around the policy and regulatory settings needed to ensure effective implementation of ESD in the built environment.

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1. Introduction

1.1 Introduction

This report presents the outcomes of a pilot study exploring how the building and planning system is delivering a sustainable built environment in Australia. The study was funded by the Australian Communities Foundation through the Green Cities Innovation Fund and undertaken by a team of researchers from RMIT University across the School of Global, Urban and Social Studies and School of Property, Construction and Project Management. The research was conducted from April 2016 to April 2017 and is intended to inform the development of ongoing discussion, policy development and a program of research which builds upon the research presented in this report.

The report firstly presents a description of the project and methods used. A short review of the importance of transitioning to a sustainable built environment is then presented, along with a review

of building and land-use planning approaches in Australia. A summary of key policies from key states across Australia is outlined, followed by analysis of key Victorian Civil and Administrative Tribunal (VCAT) cases relating to implementing sustainability in the built environment since 2003. This is followed by an analysis of some of the challenges in achieving Ecologically Sustainable Development (ESD) outcomes, drawing on reports and reviews of built environment sustainability tools as well as outcomes from a focus group with key stakeholders involved in the development and implementation of these tools. This qualitative research was undertaken to gain a more detailed understanding of the challenges of implementing sustainability through the current Victorian planning system. The report then concludes with a discussion of the implications of the research for policy, practice and future research.

1.2. Project description, aim and scope

Despite the prevalence of sustainability goals and objectives in government strategy documents, there is currently a failure in Victoria and other states around Australia (and internationally) to deliver significant sustainability outcomes through building and land-use planning policy settings. There are gaps in the current system with neither the building codes nor the planning system achieving sustainability goals required for a low carbon future [1] as outlined with respect to cities and buildings

in the United Nations Sustainable Development Goals [2]. This is due in part to weak policies and a failure to effectively implement regulations; and is exacerbated by sustainability objectives falling 'between' the building and planning policy domains [3-5]. Despite the rhetoric of sustainability, development decisions continue to be made that are contrary to principles of ecologically sustainable development (ESD) and continue to increase our vulnerability to climate change and other negative

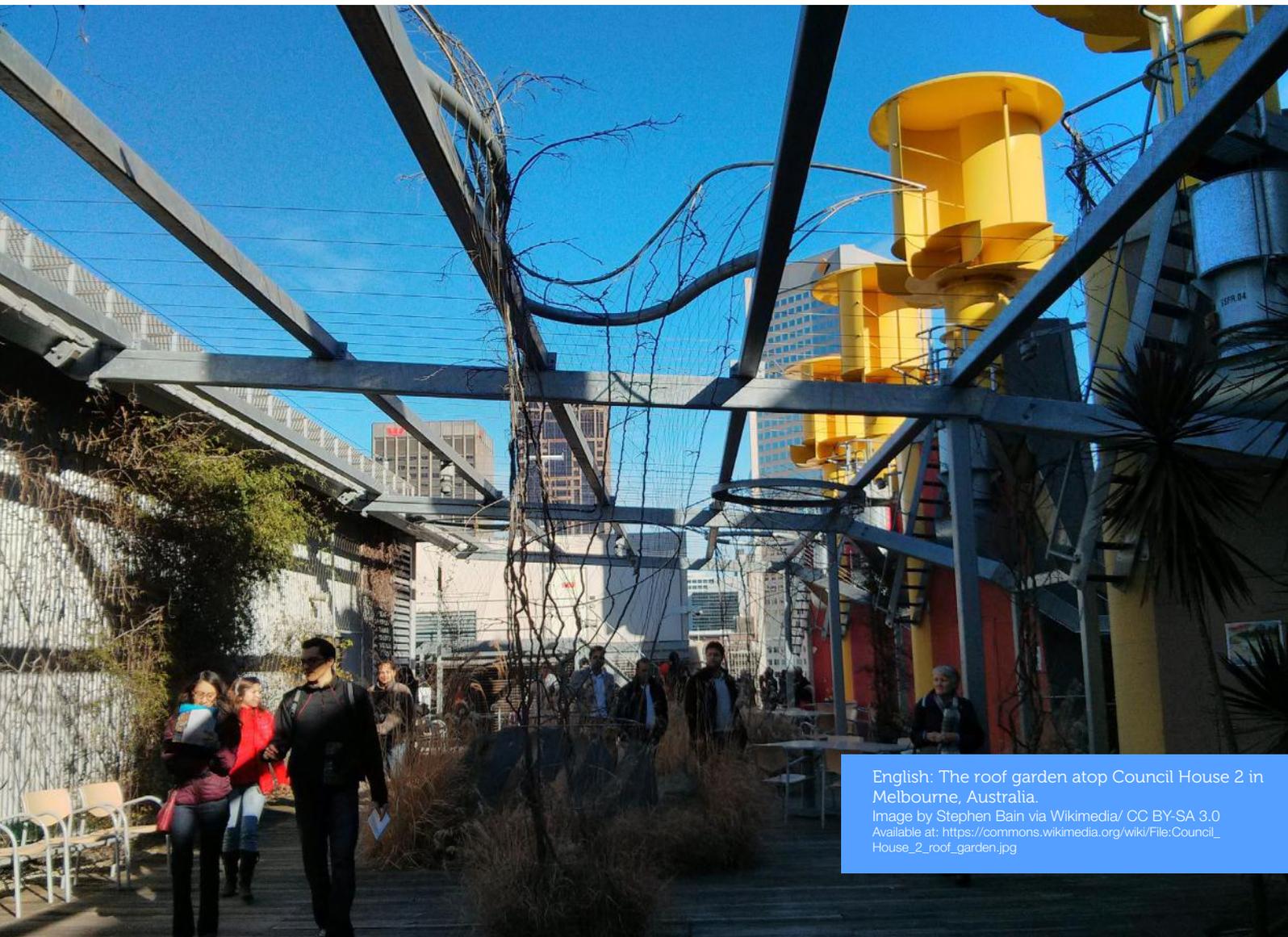
social, environmental and economic outcomes.

Part of the challenge in improving sustainability outcomes through building and land-use policy settings is the limited research into attempts at implementation and the tension in implementation between these two policy domains. The aim of this project was to begin to address this gap and examine why the planning and building system is failing to achieve sustainability goals and what can be done to improve current policy and regulatory frameworks and their implementation. In doing so, the project analysed the role of building and planning policy and regulations in delivering sustainable buildings and cities.

The research focus is on Australian building and land-use planning policies. While commentary is provided for many states in Australia, we have focused our research in this preliminary stage on the state of Victoria. The focus is also on the residential sector as this sector is lagging in the

push towards more sustainable buildings and cities [1]. For example, recent research found that a large percentage of new dwellings are failing to meet even minimum building requirements when checked after completed construction [6]. There has also been ongoing debate in Victoria over the past few years about the need for improved design and performance outcomes [7-9] not only for detached housing, but for the large number of higher density developments being constructed, many of which have been found to not meet basic sustainable and liveable design criteria [10].

This project provides insight into some of the reasons why the existing building and land-use planning policy and regulations are failing to deliver on sustainability objectives in Australia. The project discusses opportunities for improved policy and regulatory settings and proposes avenues for future research.



English: The roof garden atop Council House 2 in Melbourne, Australia.

Image by Stephen Bain via Wikimedia/ CC BY-SA 3.0
Available at: https://commons.wikimedia.org/wiki/File:Council_House_2_roof_garden.jpg

1.3 Methods

The project involved three main tasks:



1 – a review of existing policy and best practice across Australian states with a focus on Victoria;



2 – an analysis of Victorian Civil and Administrative Appeals Tribunal data and key ESD cases since 2003; and



3 – a focus group with key stakeholders involved in the development and implementation of sustainability assessment tools.

Task 1. A review of existing policy and best practice

A systematic desktop review was conducted which analysed existing building and land-use planning policies in key states around Australia with regards to sustainability. The analysis included identifying policy goals, objectives, implementation

mechanisms and outcomes where building and land-use planning have (or have not) delivered improved sustainability outcomes for the residential sector.

The policies included for analysis were as follows:

Table 1: Policies included for analysis

Victoria	NSW	ACT	QLD	SA	WA
Victoria Planning Act (1987)	NSW Environmental Planning Assessment Act (1979)	ACT Planning and Development Act (2007)	SEQ Regional Plan 2009-31 (2009)	South Australia Strategic Plan (2011)	Western Australian Planning and Development Act (2005)
Victoria Planning Scheme (2006)	Building and Sustainability Index (BASIX) (2004)	ACT Planning Strategy (2012)	Next Generation Planning SEQ (2011)	South Australia Planning Act (2016)	Perth Metropolitan Planning Strategy (2010)
Victoria Better Apartment Standards (2016)	A Plan for Growing Sydney (2014)		Queensland Development Code (QDC) Mandatory Part 4.1 Sustainable Buildings (2011)	30-Year Plan for Greater Adelaide (2016)	Western Australia Planning Strategy (2014)
Plan Melbourne Refresh (2017)	State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development (2015)		Queensland Planning Act (2016)		

Task 2. Analysis of VCAT data and key ESD cases

To better understand the effectiveness of action taken via the planning system to improve sustainability in the built environment we conducted a systematic analysis of appeals before the Victorian Civil and Administrative Tribunal (VCAT). VCAT acts as the appeals body in the Victorian planning system, and is the focus point for contestation between key

actors in the development assessment process [11, 12]. The aim was to identify and analyse VCAT cases where sustainability requirements were a significant factor in the decision. To do this, cases were identified where an Environmentally Sustainable Development Management Plan (ESDMP), or similar, was a contested factor in the decision.



A three-stage process to identify and then analyse significant VCAT cases with respect to requiring sustainability outcomes in the built environment was undertaken as follows.

Identify all VCAT cases between 2003 and 2016 that have coverage of sustainability issues within the written reasons for the decision.

Identify those cases where an Environmentally Sustainable Development Management Plan (ESDMP), or similar, was a contested factor in the decision.

Analyse critical cases to determine reasons for the removal or retention of an ESDMP and determine what, if any, trends or themes exist across hearings.

Task 3. Focus group with key stakeholders

This task focused on a case study of attempts to develop effective sustainability policies and assessment criteria in Victoria. Since 1999 a group of local councils in Victoria have been working together to develop the capacity to implement ESD in the built environment through planning processes. This has included the development of assessment tools, processes, policy, support materials, and the formation of a formal alliance. A review of this process is presented drawing primarily on a focus

group, which was held in November 2016 with six key stakeholders who were involved in the development and implementation of the various sustainability and planning tools and policies since 2000. The aim of the focus group was to understand a more nuanced story of ESD development which had not been captured in previous reports into these tools and policies, and to understand the challenges of addressing sustainability within the current planning system.

1.4 Project Context: Transitioning to a sustainable built environment future

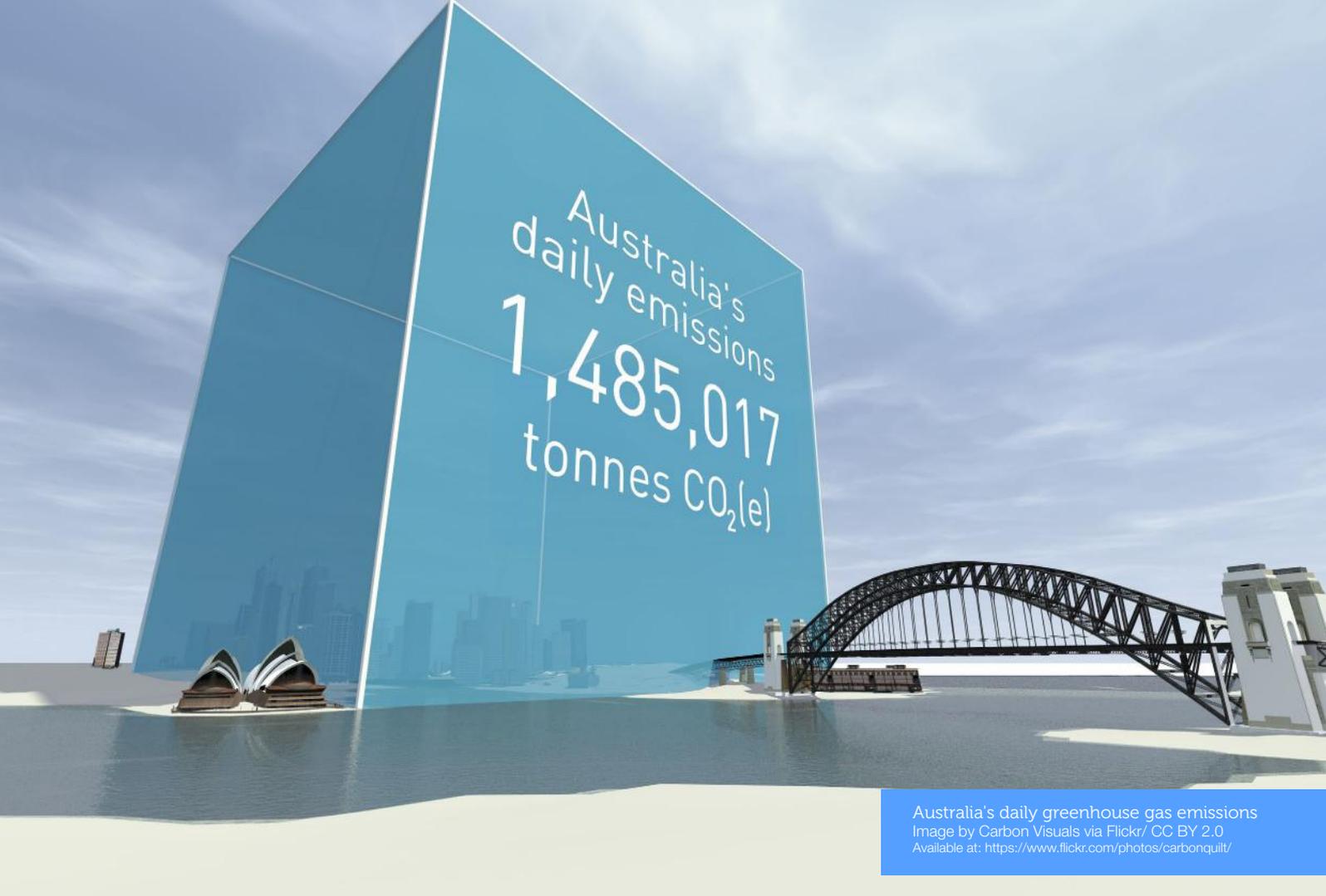
The built environment (which includes the residential sector) is a significant contributor to anthropogenic climate change. Energy consumed in the built environment accounts for around 40% of worldwide energy use and one third of greenhouse gas emissions [13, 14]. In Australia, the residential sector is responsible for 12% of total final energy consumption and 13% of greenhouse gas emissions [15, 16]. These resource consumption and environmental impacts are predicted to continue growing due to population growth and the proliferation of more resources consuming products and services [17]. The current provision of housing is unsustainable in the context of the requirements to mitigate climate change impacts and meet the United Nations Sustainable Development Goals relating to housing and cities [1, 2].

The built environment has highly favourable cost-benefit ratios compared to other sectors for cost-

effective greenhouse gas emission reduction through a reduction of energy consumption, improvements to energy efficiency and a viable utilisation of low carbon energy sources [13, 14, 18, 19]. There has also been increasing research which demonstrates that improved sustainability and liveability in housing can be delivered for little additional (if any at all) cost [20-22].

In recent decades, governments in many developed countries have attempted to improve the performance of housing primarily through the setting of minimum building performance standards [23-25]. Such standards invariably aim to address a market failure preventing improved sustainability in new housing and address an entrenched building regime which is slow to respond and rarely deliver developments which go beyond minimum regulatory requirements [26-30].

While these minimum standards have been



Australia's daily greenhouse gas emissions
Image by Carbon Visuals via Flickr/ CC BY 2.0
Available at: <https://www.flickr.com/photos/carbonquilt/>

recognised for lifting the performance in new housing, there are still many limitations with the current standards they require and they still fall well short of the requirements for a sustainable low-carbon future [1]. Furthermore, recent research from Australia has found that the building industry is failing to deliver these minimum performance requirements [31]. Some jurisdictions have in recent years attempted to implement innovative policy developments relating to housing performance. For example in the UK the former policy, the Code for Sustainable Homes, outlined a 10 year step-change policy to deliver low-carbon housing through building regulations [32]. A recent change of government in the UK has seen the low-carbon housing goal watered-down; so current housing performance policy in the UK can no longer be referred to as international best practice. However, there are other jurisdictions such as California and the EU more broadly who have also announced goals for low carbon or zero net energy buildings to be achieved

by the end of the decade [32] which demonstrates a growing movement towards such housing performance.

Despite the innovation in some jurisdictions, Australia is still lagging when it comes to the sustainability performance of the built environment, especially relating to the residential sector. There has been an alleged failure in Australia to “sustain any significant initiatives in the carbon-reduction process since the introduction of the energy-rating scheme for new homes in 2003” [33, p35]. Such research suggests that the delivery of energy efficient housing in Australia continues to be locked into a regime which is unsustainable, given the size of the task to tackle greenhouse gas emissions. Due to the limited ability to improve sustainability through the building code in Australia, there have been increasing attempts to influence such outcomes through the planning system at the local level. These attempts will be explored further in the following sections.



2. Review of key planning and building policies

This section provides an overview of the building and planning systems governing ESD outcomes in the Australian context including a state by state overview of ESD policies and regulations. It should be noted from the outset that we specifically use the term 'ecologically sustainable development' (ESD) in this report and recognise that it has particular meaning in the Australian context:

ESD is a peculiarly Australian term and arose in the early stages of a government-initiated discussion of sustainable development in Australia in 1990. It seems that the environmental groups, concerned that the sustainable development discussion process would be hijacked by business and industry and interpreted as just economically sustainable development, successfully fought for inclusion of the ecologically, in the "official" terminology. This is the term that has been used since then in Australia including in legislation and policy [34, p.233].

2.1 Building systems

Compared to countries with similar climate zones, Australia has significantly worse performing residential building stock [25]. Until the 21st century, most housing in Australia was not designed to explicitly improve thermal comfort or save energy and water [33]. Over the last decade there have been improvements to the existing compliance requirements within the National Construction Code (NCC). For example, since 2011 all new housing (and some residential refurbishments) are required to meet a 6 Star Nationwide House Energy Rating Scheme (NatHERS) standard [35]. While the Australian Government has recognised the need for a long-term goal to move towards a low-carbon housing regime [36], there has been little advancement in policy development to close the gap between current performance and low-carbon housing requirements. There is a clear need for more stringent minimum energy performance

standards in Australia with Moore et al. [32, p.34] stating "There is no ZEH (Zero Energy Housing) goal in Australia at present, and current policy is largely limited to annual revision of the Building Code of Australia, the document which sets minimum standards and requirements for new dwellings"¹. There is also a lack of policy integration between federal government objectives on greenhouse gas emissions reduction targets and sustainable housing policy. Crawford, Bartak [37] and Yu, Wiedmann [38] argue that to truly reduce a building's life cycle energy demand, more comprehensive regulations that combine embodied and operational energy, as well as design strategies, are needed within current regulatory approaches.

¹ This annual review cycle moved to a three-yearly review in 2016, a move which is likely to impact how quickly minimum standards can be improved in the future.

Because building regulations are legally contestable instruments and limited to what can be verified by recognised methods, it can be difficult to quantify building energy, water or carbon performance [39]. Current regulations are limited in controlling buildings' environmental performance; it is widely recognised that "many major issues in ESD are well outside the scope of the current BCA" (Building Code of Australia) [40, p.19]. Regulatory changes for sustainable and net zero homes are normally subject to the analysis of a Regulation Impact Statement (RIS) and in particular, a net present value (NPV) calculation of the economic costs and benefits. For example, Australian house energy standards are tested using the RIS process by the Australian Government [1]. However, these tests are limited by the available evidence and quality of models and often find themselves subject to contestation by key industry actors who are against any change [41].

An analysis of Lochiel Park Green Village (Adelaide) shows that net zero energy homes are technically and economically feasible now, and the Australian building sector has demonstrated a capacity to design and build homes that operate at or near zero energy performance [42]. Berry and Davidson [42] argue that this research has clear policy implications, and with further innovation and

the creation of additional niche developments, the costs associated with creating net zero homes will go down. This has been found internationally, for example in the UK, the former Code for Sustainable Homes policy found an 8.2% cost decrease for their Code 6 (zero net energy) homes in just four years [43]. Improvements in building energy performance assessment tools will also support the reduction of costs. However, Moore et al [44] argue that it is also important to consider positive social benefits, such as improved health, when measuring the performance of low-carbon housing. Niche developments such, as Lochiel Park, challenge "industry experts and policy makers to set objectives, performance targets and regulatory guidelines outside existing institutional and professional norms. Literature suggests that the creation of niche events can help the transition away from dominant technologies, practices and beliefs, and lead to organisations embracing new tools, construction practices, technologies, standards and policies" [45, p.646]. Specifically, the success of this development has led to new sustainability requirements above industry norms or regulatory standards [45]. Moore and Higgins [46] also found some evidence of demonstration projects influencing urban development.

2.2 Planning systems

In the Australian policy context, the role of cities, local governments, and urban policy is not always made explicit within the context of ESD and low carbon futures. Lack of true transformative or radical change in urban sustainability policy is attributed to the dominance of neo-liberalisation and urban politics [47, 48]. However, "there has continued to be a growth in local government and community scale initiatives particularly focusing on energy efficiency, building retrofits, behaviour change programs and renewable energy projects" [49, pp.2443-2444]. Local level governments and spatial planning are identified as playing crucial roles

in creating more resilient communities to climate change [5, 50].

In 1992, the Council of Australian Governments' (COAG) Intergovernmental Agreement on the Environment (IGAE) committed Australian governments to engage with the concept of ESD land-use policy and development assessment [4]. From this point, ESD principles were incorporated into Australian environmental and planning legislations. However, Williams [4] reported that while there were a plethora of aspirational sustainability documents, the NSW planning system was not well placed to implement ESD. Rather than be the



primary outcome, ESD has been viewed as one consideration amongst many. Williams [4] found that this was due to a number of factors, including: a planning system too focused on development and economic growth, insufficient legislation for ESD, small and under-resourced councils, and lack of inter-department coordination and integration at the state government level. Victoria also lacks the statutory planning instruments to assess ESD for buildings, instead the government relies on building regulations [3].

Gurran, Gilbert [51] studied ways in which local planning regulations and instruments in Australia “contain specific policy goals and enforceable development controls relating to sustainable urban form and design, biodiversity conservation, and climate change” (p. 1878). They surveyed 291 comprehensive plans, and found local-level responses to sustainable development to be anything but universal. Mixed-use zoning was the most common policy used to encourage sustainable urban form. High and medium density residential developments appeared in less than half the plans. And just 20 per cent of the plans had firm urban growth boundaries to prevent sprawl and encourage density. Less than 50 per cent of the plans included requirements for footpaths, and less than 40 per cent included plans for bicycle paths in new developments or subdivisions. Land-use zoning was used by nearly half of the plans to

protect environmentally significant areas. Climate change was indirectly addressed but many of the plans, however directly only 12 per cent of the plans included provisions for climate change adaptation, and only 10 per cent included mitigation policies. Energy efficiency and climate appropriate design was present in almost half of the plans, while water conservation occurred in 31 per cent of the plans, and water management in 42 per cent.

Since the early 2000s, Australian capital cities have implemented a number of different strategies to support more sustainable urbanism. In *Green Urbanism Down Under*, Beatley and Newman [52] highlight some examples, such as the City of Melbourne’s triple bottom line toolkit to conduct sustainability assessments for council reports and the creation of the Sustainable Melbourne Fund to invest in local sustainability projects. Brisbane unveiled a package of green initiatives under the ‘City Smart’ umbrella. The city of Sydney adopted an ambitious Environmental Management Plan in 2007, and in 2008 unveiled the Sustainable Sydney 2030 strategic plan. Adelaide created a Thinker in Residence program to support the development of transformational change. Adelaide is also a strong proponent of solar energy, and received the designation of the country’s first “solar city”. Perth has made efforts to implement more sustainable transportation options including the addition of hydrogen buses.

2.3 State ESD policies and regulations

Land-use planning policy and regulation is critical in delivering ESD in our cities, the following section provides an overview of ESD policies across Australia. For each state (or territory), state-level and metropolitan or regional-scale planning and buildings policies regulations for ESD were investigated. Overall, issues pertaining to sustainability and

the built environment are present in the policy documents reviewed, however with the exception of NSW, there is little legislation and enforcement. ESD is discussed at the vision or strategic level, but clear implementation and measurement is missing from most of the policies.



2.3.1 Victoria

The principles of sustainable development and protecting natural resources are incorporated in the Victoria Planning Act (1987) in the objectives of Section 4; more details are provided in the Planning Scheme (2006). Explicit ESD related objectives and strategies include sustainable development through energy and resource efficiency, and incorporated within 'Standard B10', which states that:

Buildings should be: oriented to make appropriate use of solar energy; site and designed to ensure that the energy efficiency of existing dwellings on adjoining lots is not unreasonably reduced; living area and private open spaces should be located on the north side of the development (if practicable); developments should be designed for solar access to north-facing windows is maximised.

In the Better Apartment Standards (2016), there are a number of key objectives of the design standards that are directly related to ESD. They are:

- Energy efficiency
- Natural ventilation
- Integrated water and stormwater

2.3.2 New South Wales

ESD is one of the main objectives of the NSW Environmental Planning Assessment Act (1979), however no specifics are provided besides the Building and Sustainability Index (BASIX), which is implemented under the Act. BASIX was developed by the State government, with local government and the housing and development industry. BASIX is a sustainability scorecard used to manage the development control process of most residential buildings. The aim of BASIX is to deliver equitable, effective water and greenhouse gas emission reductions across the state by checking elements of a proposed design against sustainability targets and

management

The energy efficient standards are the same as those in the planning scheme, with the addition of NatHERS annual cooling loads. Under natural ventilation, dwelling should achieve 40% effective cross ventilation. With regards to water, buildings should collect rainwater and be connected to non-potable dual pipe water supply where possible.

As part of Victoria's new metropolitan planning strategy, Plan Melbourne Refresh (2017), one of the outcomes is creating a more sustainable and resilient city. The State has a target of net zero greenhouse gas emissions by 2050, and the residential sector and land use planning are believed to play a role in achieving this goal. The plan calls for increased energy efficiency and renewable energy use. The plan does provide examples of where or how houses can be more resource-efficient. However, there are no mandatory requirements or specific targets to support the 2050 goal. Overall, the plan has a stronger emphasis on biodiversity, urban greening, and natural hazards, than on ESD.

benchmarks:

- The targets include up to a 40% reduction in potable water consumption and greenhouse gas emissions, and minimum performance levels for thermal comfort for the dwelling.
- The benchmarks include average NSW annual potable water consumption and greenhouse gas emissions from the residential sector, measured per capita.

The State Environmental Planning Policy No



65—Design Quality of Residential Apartment Development aims to improve sustainable development in NSW by providing sustainable housing in social and environmental terms, and to minimise the consumption of energy from non-renewable resources, to conserve the environment, and to reduce greenhouse gas emissions. Of the nine design quality principles, one is sustainability, it includes:

- Use of natural cross ventilation and sunlight for the amenity and liveability of residents and passive thermal design for ventilation; Heating and cooling reducing reliance on technology and operation costs; Include recycling

and reuse of materials and waste; Use of sustainable materials and deep soil zones for groundwater recharge and vegetation

In A Plan for Growing Sydney, the metropolitan planning strategy, there are a few policies or actions related to ESD, however there are no goals or targets, or implementation strategies included. The strategy acknowledges that good urban design and planning are critical to make the city’s built environment sustainable and energy efficient, while also protecting the environment. Both the Environmental Impact Assessment and the State Environmental Planning Policies were under review at the time of this research.

2.3.3 Australia Capital Territory (ACT)

The object of the ACT Planning and Development Act (2007) is to provide a planning and land system that promotes and contributes to the orderly and sustainable development of the ACT. While, the Act states that decision-making needs to give consideration to sustainable development, it does not provide specific information on how that would be carried out.

Sustainability, and sustainability related visions, actions, outcomes, and measurements are found

throughout the ACT Planning Strategy (2012). The strategy calls for investing in more sustainable transport and buildings, and developing incentives and planning codes that reduce energy and water use in new and old houses. The strategy is very outcomes based, there are a number strategies and actions related to ESD. Target setting and measurement is incorporated, but rather weakly. More specific goals and measurements are needed.

2.3.4 Queensland

The Queensland Planning Act (2016) includes a number of ways to achieve ecological sustainability, however specific ways or examples in which the different methods can be used are not offered within the Act. In the SEQ Regional Plan 2009-31 (2009) issues pertaining to ESD are embedded throughout the plan, but are more prominent and explicit in the Sustainability and Climate Change chapter, and the Compact Settlement chapter. There are many ESD policies, with potential approaches to implement these policies, but the plan lacks clear targets with measurements of success. However, in Toward Q2: Tomorrow’s Queensland, a state level policy for the

future, there is a clear target to cut Queenslanders’ carbon footprint by one-third through reduced car and electricity use by 2020.

The Queensland Development Code (QDC) Mandatory Part 4.1 Sustainable Buildings provides detailed information regarding how the different ESD criteria can be achieved, and how the criteria are measured/validated. The focus is on new houses, townhouses, and multi-unit residential buildings with regard to:

- 6-star energy equivalence for houses and townhouse; 5-star energy equivalent for



multi-unit residential buildings; Optional credit for photovoltaic energy systems; Energy efficient lighting; Water conservation; Energy efficient air conditioners.

The Next Generation Planning SEQ (2011) is a voluntary handbook to help plan for suburbs, towns, and cities in SEQ to create a more affordable and sustainable region. ESD and climate related design

element include:

- Topographical features and natural drainage; Good shelter and shade; Indoor/outdoor living relationships; Lightweight construction; Prominent roof forms and overhangs; Hoods on windows; Design for sun and breezes with good orientation.

2.3.5 South Australia

The primary objective of the South Australia Planning Act (2016) is to enhance the liveability and prosperity of the state in ways that are ecologically sustainable. However, the connection to ESD or climate change is not made explicit. Overall, the ESD elements of the act are mostly aspirations and lack any clear performance targets or specific implementation strategies. However, there are three 'Ministerial Building Standards' related to ESD, they are:

- SA 3.12.0.1 9a) Heating and cooling loads for elevated buildings with a lightweight framed flooring system and transportable buildings
- SA 78 Additional requirements in designated bushfire prone areas
- SA 78AA Onsite retention of stormwater

The South Australia Strategic Plan (2011), the state-wide strategy, has clear renewable energy

targets, and aims to improve the energy efficiency of dwelling by 15% and government building by 30% by 2020 (from 2011 numbers). The Adelaide region plan, 30-Year Plan for Greater Adelaide (2016), has sustainability and climate change as part of the core goals, but it is only explicit in the 'Climate Change and Resilience' principle. The plan has a clear step-by-step approach with policies, actions, and targets in place. For example:

- 85% of all new housing will be built in established urban areas by 2045 (baseline 70%). This is measured using DPTI annual dwelling count, with reference to the number of new dwellings attributed to infill, fringe, or township locations within ABS Greater Adelaide Capacity City statistical area.

These actions and targets are focused more on larger sustainable development goals, and not on buildings.

2.3.6 Western Australia

There are no mentions of ESD in the Western Australian Planning and Development Act (2005) beyond the initial introduction and purpose. In the Western Australia Planning Strategy (2014), the ESD related policies are focused on urban intensification and combating sprawl. The state strategy is to be reviewed every five years, but there are no benchmarks or targets to measure against. For

the most part, the use of sustainability within the strategy is reserved to environmental conservation, and not ESD. There is not a lot of information or detail about ESD within the Perth Metropolitan Planning Strategy (2010), or the planning system more broadly. The strategy lacks implementation strategies, or ways to measure action or change.



3. Planning decision making in Victoria: ESD in VCAT decisions

In this section, we present an analysis of VCAT decisions since 2003 that were particularly relevant to ESD issues. First we explain the role of VCAT and the appeals process in planning decision making in Victoria. We then present in three sections both our approach to and findings from our systematic analysis of cases addressing sustainability issues and particularly those where an Environmentally Sustainable Development Management Plan (ESDMP) was a contested factor. We then present an analysis of critical cases highlighting some of the key trends and themes emerging in VCAT decisions over time.

In many jurisdictions there is a formal process allowing for development approval decisions to be appealed to a court or tribunal. In Victoria this is VCAT, which through its Planning and Environment list provides a merits based review of a council's decision to grant, impose conditions or refuse planning permits. While acting as an independent civil body, relevant VCAT legislation requires that a Supreme Court judge be appointed as President and County Court judges serve as Vice Presidents, with planning appeals regularly heard and determined by additional Members who typically have legal and/or planning specific skills and qualifications. With the exception of questions of law, there are no rights of appeal against a VCAT determination.

The VCAT merits based review model has been operating in Victoria since 1998. While VCAT can be seen to provide independent scrutiny of the often politicised development approval system at a relatively low cost [53], criticisms have remained regarding the resource burden placed on Councils to defend their decisions at a Tribunal [53] and the undemocratic nature of unelected and

unaccountable Members overriding the decisions of elected officials [11, 54, 55].

Appeals to VCAT can be lodged by proponents or third parties (typically objecting residents). Depending on the type of appeal lodged, a VCAT hearing will generally involve the permit applicant, the relevant Council (referred to as the responsible authority) and any third party joined to the proceeding. The hearing is overseen by one or more VCAT members, with each party provided the opportunity to present their argument as to their preferred outcome. Following the hearing, the member(s) will make a determination that instructs whether the Council's decision has been 'affirmed', 'varied' or 'set aside'. In this research we are interested in permit applications that have conditions from the local government addressing matters of ESD. Following the process outlined in section 1.3 Methods, we have developed a comprehensive database of all VCAT cases between 2003 and 2016 that reference ESD initiatives.

3.1 Stage 1: Identify all VCAT cases that have coverage of sustainability issues within the written reasons for the decision

The Australian Legal Information Institute (AustLII) maintains a searchable database of VCAT hearings, consisting of the written reasons for the decision. A comprehensive keyword search of all cases from 2003-2016 was conducted (see Appendix 1 for keywords). In total 1,708 unique cases were identified with one or more of the keywords. Of these, 876 included an ESD management plan (ESDMP) or similar within the permit conditions; and 176 included reference to an ESDMP within the reason for decision.

As would be expected the 176 cases were dominated by the local governments that are part of the CASBE network (see Figure 1) who have taken the lead in Victoria in attempting to implement ESD through the planning system. There is an important

temporal dimension to this data as shown in Figure 1, with the number of cases trending up each year to a peak in 2015. There is also a temporal dimension to the role of certain councils (see Figure 2), with Moreland City Council dominating in the early period (9 cases between 2003-2006). Between 2007 and 2011 Port Phillip (11 cases) becomes the most common, with Moreland (6), Darebin (7), Hobsons Bay (6) and Mornington Peninsula (8) characterising a broader core of councils frequently attending VCAT. In the more recent period (2012-2016) there continues to be a broader core, but there is a change in some of the key players, with Yarra (13), Stonnington (13), Whitehorse (10), Port Phillip (10) and Moreland (9).

Figure 1 : VCAT Cases (2003-2016), reference to ESDMP in reason for decision.

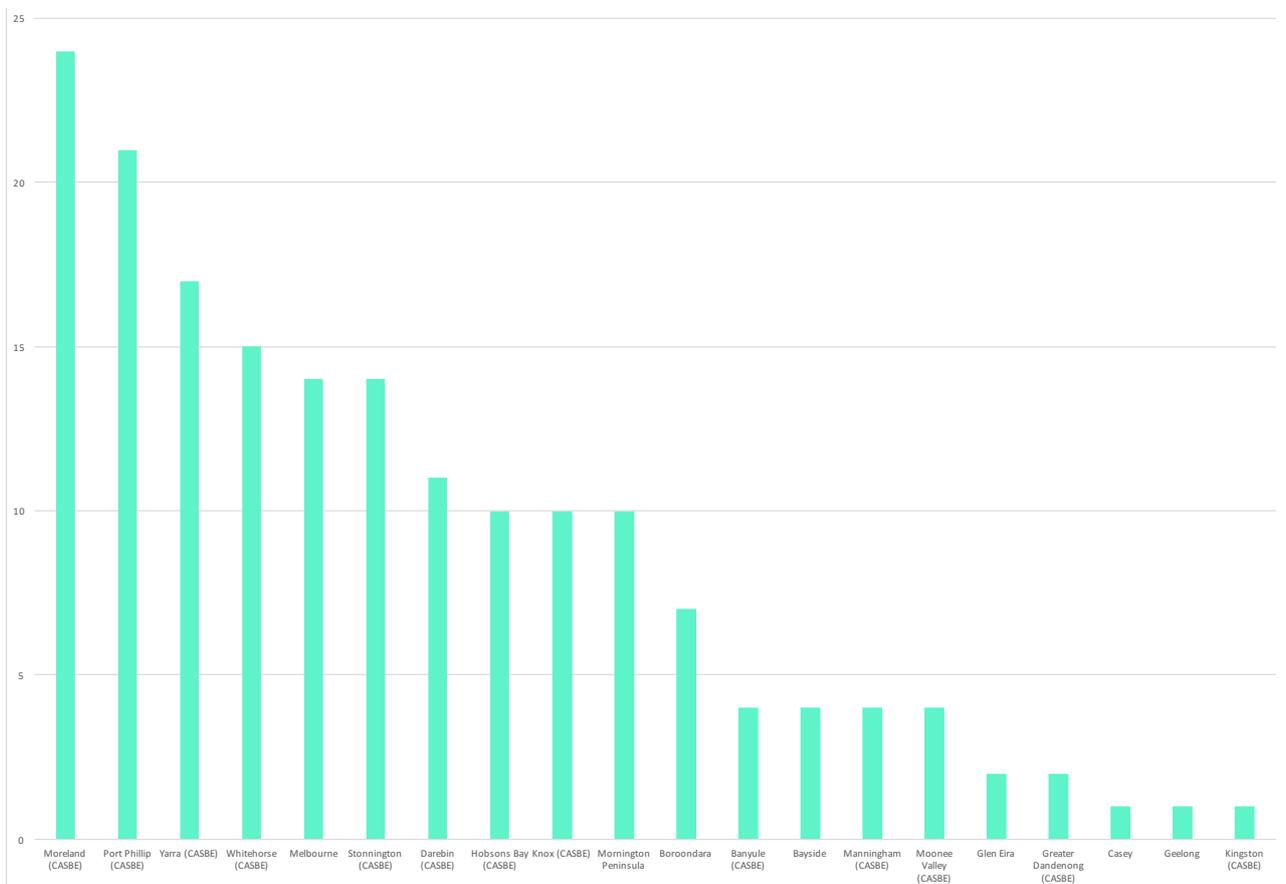
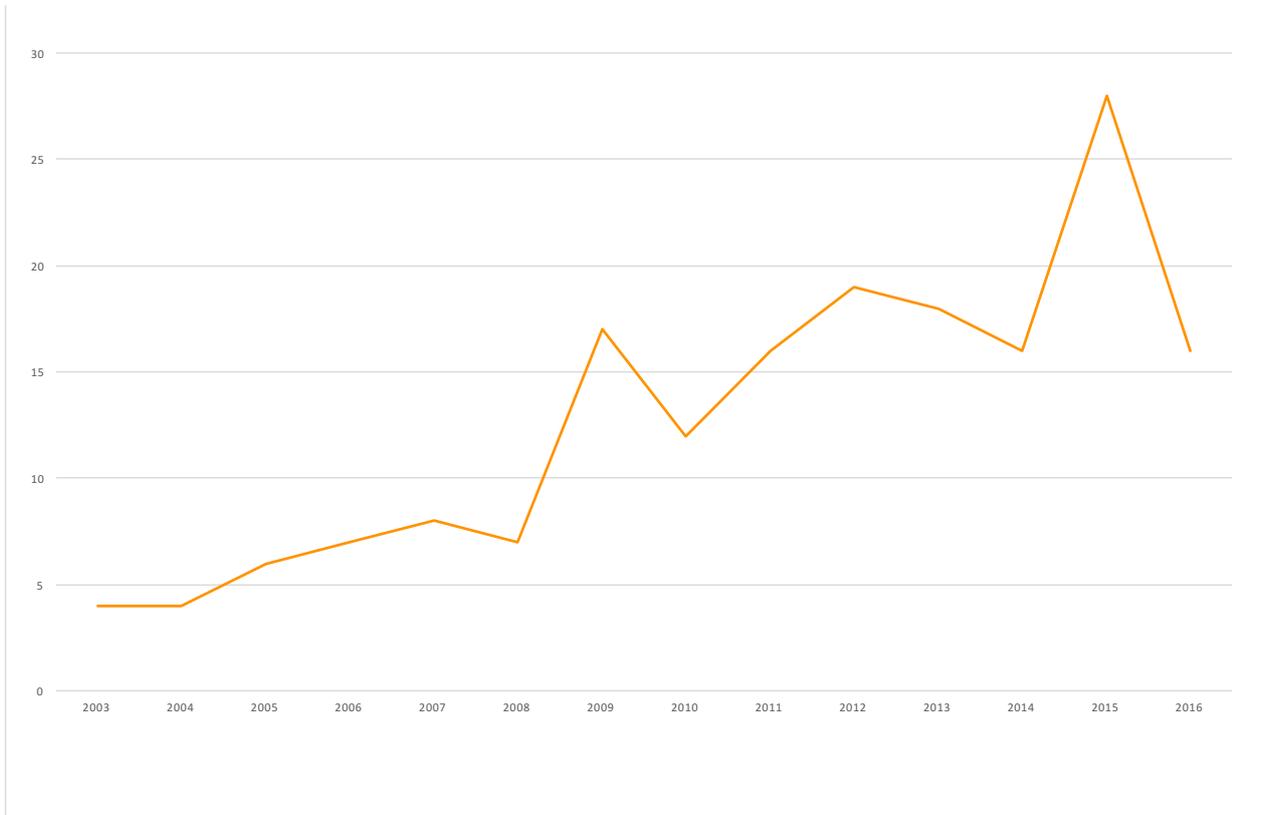




Figure 2: Number of cases by year.



3.2 Stage 2: Identify those cases where an Environmentally Sustainable Development Management Plan (ESDMP), or similar, was a contested factor in the decision

The summary above gives a good indication of those cases with a meaningful engagement with ESD. However, to understand how VCAT, as a key decision-making body, is determining outcomes, we need to focus on cases where the presence of an ESDMP is a contested factor in the decision. That is, the developer seeks the condition relating to an ESDMP to be removed, and VCAT provides reason for retaining or removing the condition.

To identify these cases one we examined the detail of each of the 176 cases, as the context of the mention of ESDMP was critical. We recorded each case where the ESDMP was a contested factor; whether the action was to retain or remove; and recorded the reasons given for retaining or removing. Of the 176 cases, a total of 49 hearings were identified where an ESDMP was contested and resulted in a decision from VCAT. Of these, 32

hearings resulted in the requirement for an ESDMP being deleted, and 17 resulted in the condition being retained.

The 32 cases of removal were investigated to determine the basis for the decision. There was significant repetition of reasoning, and as a result of interrogating the case reports five categories of reason were identified:

- ESD better suited to building code
- Lack of policy support for ESD
- Project not appropriate for ESD
- Vague / too general conditions
- ESD addressed elsewhere in the application

The first two of these reasons deal with the appropriateness of planning, and more specifically development assessment, to address ESD





outcomes. They are based on a principled rejection: either on the principle that building is the appropriate policy domain, inferring planning is not; or on the principle that the policy basis within planning does not exist to support the inclusion of ESD. The first of these directly shifts responsibility away from planning to building. The second identifies the weak basis in planning policy for ESD as the principle reason as to why planning should not be the avenue for which ESD outcomes are sought. The last three categories do not explicitly address the appropriateness of engaging with ESD on principle, but rather provide reasons based on practical dimensions of specific applications as to why an ESDMP should be removed. The detail of all five decision categories is discussed under stage three of the analysis below. However, Table 2 provides a summary of the distribution of these categories across the case list and reveals some interesting factors.

Firstly, the two dominant categories are those based on a principled rejection of an ESDMP, and in particular the role of planning and building policy in delivering ESD outcomes. Interestingly, both these factors occur across the whole time from the earliest cases on the list to the most recent. In particular, the finding that ESD is better suited to implementation via the building code appears in almost every year across the study period. By contrast, the three categories that target specific characteristics of

applications to justify for removal largely appear in the latter half of the period.

The 17 cases of retention were investigated to determine the basis for the decision. There was significant repetition of reasoning, and as a result of interrogating the case reports three categories of reason were identified:

- Sufficient policy support for ESD
- Project is appropriate for ESD
- Appropriate to carry forward building requirements to planning permit
- (No reason / Other)

Table 3 summarises the reasons given for removal cases. As might be expected, these relate to the reasons for deletion. There are two common themes. The first addresses the principle that there must be a sound policy base to support ESDMP conditions, with about half of the 'retain' cases indicating that a sound policy case does exist. The second is target more at the specific characteristics of an application, finding that an ESDMP is appropriate given the nature of the development. While the role of the building code is regularly mentioned in 'remove' cases, the relationship between building and planning only appears once as the principle reason to retain an ESDMP.



Table 2: Frequency of reasons for removal of ESDMP.

Case	ESD Better suited to Building Code	Lack of Policy Support for ESD	Project not appropriate for ESD	Conditions vague / too general	ESD covered elsewhere in application
Carlos Constructions Pty Ltd v Moreland CC [2003] VCAT 1797 (28 November 2003)					
Carlos Constructions Pty Ltd v Moreland CC [2003] VCAT 1865 (28 November 2003)					
Taras Nominees v Yarra CC [2003] VCAT 1952 (19 December 2003)					
Moore Street Developments Pty Ltd v Moreland CC [2004] VCAT 1785 (7 September 2004)					
Devtec v Moreland CC [2005] VCAT 2293 (27 October 2005)					
Chrisiliou v Moreland CC [2005] VCAT 2889 (19 January 2006)					
Manli Enterprises v Whitehorse CC [2006] VCAT 2130 (20 October 2006)					
Urban Property Corporation Pty Ltd v Moreland CC [2007] VCAT 240 (16 February 2007)					
Kelman v Port Phillip CC [2007] VCAT 708 (2 May 2007)					
Alesci v Mornington Peninsula SC [2007] VCAT 2434 (24 December 2007)					
Alesci v Mornington Peninsula SC [2008] VCAT 792 (7 May 2008)					
Ridis Enterprises Pty Ltd v Mornington Peninsula SC [2008] VCAT 2191 (28 October 2008)					
Ninety Four Feet Pty Ltd v Port Phillip CC [2008] VCAT 2484 (1 December 2008)					
Poulos v Darebin CC [2009] VCAT 227 (17 February 2009)					
Maribyrnong CC v Minister for Planning [2009] VCAT 952 (28 May 2009)					
Palero Design Drafting v Darebin CC [2009] VCAT 1386 (22 July 2009)					
Elevli Cameron Architects v Bayside CC [2009] VCAT 1471 (29 July 2009)					
Polizzi v Darebin CC (includes Summary) (Red Dot) [2009] VCAT 1573 (7 August 2009)					
Alesci Investments v Mornington SC [2009] VCAT 1689 (18 August 2009)					
Associated Town Planning Consultants v Knox CC [2009] VCAT 1909 (14 September 2009)					
Fenton v Port Phillip CC [2009] VCAT 1995 (28 September 2009)					
Koljanin v Knox CC [2009] VCAT 2533 (26 November 2009)					
Shaw v Hobsons Bay CC [2009] VCAT 2607 (8 December 2009)					
TPD Doncaster Pty Ltd v Manningham CC [2009] VCAT 2733 (23 December 2009)					
Long Lease Property Group Ltd v Darebin CC [2010] VCAT 356 (9 March 2010)					
Trewin v Hobsons Bay CC [2011] VCAT 307 (2 March 2011)					
Hargest v Port Phillip CC [2011] VCAT 1532 (9 August 2011)					
Mrkonjic v Hobsons Bay CC [2012] VCAT 441 (16 April 2012)					
Achieve Design Group v Hobsons Bay CC [2012] VCAT 823 (18 June 2012)					
Belcon Enterprises Pty Ltd v Stonnington CC [2014] VCAT 628 (27 May 2013)					
Deerbon v Whitehorse CC & Anor [2013] VCAT 1107 (28 June 2013)					
Sunnyoaks Pty Ltd v Mornington Peninsula SC [2014] VCAT 76 (30 January 2014)					



Table 3: Frequency of reasons for retention of ESDMP.

Case	Sufficient policy support for ESD	Project is appropriate for ESD	Appropriate to carry forward building requirements to planning permit	no reason / other
Regis Group Pty Ltd v Whitehorse CC [2005] VCAT 904 (10 May 2005)				
Jolin Nominees PL v Moreland CC (Red Dot) [2006] VCAT 467 (31 March 2006)				
Power House Projects v Manningham CC [2006] VCAT 2103 (12 October 2006)				
Asian Pacific Building Corporation Pty Ltd v Stonnington CC [2007] VCAT 1076 (19 June 2007)				
All Extension Design Service v Port Phillip CC & Ors [2010] VCAT 1978 (10 December 2010)				
Dennaoui v Hobsons Bay CC [2011] VCAT 1050 (27 May 2011)				
Metropolitan Property Group v Moreland CC [2011] VCAT 1285 (6 July 2011)				
35 Albert Road Pty Ltd v Port Phillip CC [2011] VCAT 1379 (19 July 2011)				
Mrkonjik v Hobsons Bay CC [2011] VCAT 2205 (22 November 2011)				
Parkside Developments (Vic) Pty Ltd v Moreland CC & Ors (Correction) [2012] VCAT 1252 (3 September 2012)				
Resource Action Developers Pty Ltd v Knox CC & Ors [2012] VCAT 1712 (12 November 2012)				
Hawkes v Knox CC [2013] VCAT 1571 (9 September 2013)				
Highbury Venture Pty Ltd v Melbourne CC [2013] VCAT 2094 (5 December 2013)				
Bonollo v Banyule CC [2015] VCAT 61 (22 January 2015)				
Skinner v Knox CC [2015] VCAT 314 (19 March 2015)				
Victoria House Nominees Pty Ltd v Stonnington CC [2016] VCAT 2 (4 January 2016)				
Lifestyle Living Pty Ltd v Knox CC (Amended) [2016] VCAT 446 (23 March 2016)				

3.3 Stage 3: Analyse critical cases to determine reasons for decision.

In this next section, the specific reasons given for the removal or retention of an ESDMP condition are interrogated to better understand the trends or themes that exist across hearings. In addition to

the 49 cases identified, one additional hearing was examined in detail, Hasan v Moreland CC, as this case is cited in several of the 49 identified cases.

3.3.1 ESD Better suited to Building Code

There are two substantive elements evident in the VCAT cases interrogated to arguments that position

building as the appropriate domain to deal with ESD over planning. The more overt element argues that



the building control system is the appropriate venue for addressing ESD in construction. A related line of argument focuses on why planning is not the appropriate policy domain to address ESD.

A key foundation of the argument for building over planning is based on that of coverage and thus fairness. Building controls cover all construction in the state, whereas planning controls cover only a subset, those requiring a planning permit. Therefore, as planning does not cover all buildings it is argued that it is unfair to apply ESD conditions. To maintain complete and fair coverage the building code, it is argued, is thus the appropriate mechanism to deploy ESD requirements. This is firmly stated in one of the earlier cases in the study period - *Taras Nominees v Yarra CC* (VCAT 1952, 19 December 2003):

“In reaching my conclusion, I make this observation. If environmentally sustainable design is to be incorporated into buildings, this should be required by the building regulation system and not be principally required by the town planning system. The reason for this is that, if environmentally sustainable design is important, as I believe it is, it ought be incorporated in all buildings, regardless whether those buildings require a planning permit or not. The vast majority of buildings which are erected in Victoria each year do not require a planning permit. Hence the principal approach for ensuring environmentally sustainable development must be by way of the building control system”.

This case, while affirming the role of ESD, exemplifies the common assumption that building policy and regulation could achieve any and all ESD objectives if appropriately established; inferring that there is nothing planning can do with respect to ESD that building could not. In 2005, the case of *Hasan v Moreland CC* (VCAT 1931, 16 September 2005) a more nuanced decision was made. The case results in the removal of ESD measures, but also establishes that ESD may be appropriately applied

via the planning system, depending on context. In response to the proponents claim that planning should not cover ESD:

“Although the President is satisfied that the building regulations are intended to be the principal method of imposing certain types of sustainability measures in dwellings in Victoria, he is not satisfied that these regulations are intended to completely, exhaustively or exclusively express the law in relation to the subject.

While this leaves the role of planning open to ESD measures, the case cautions against it:

“The existence of a power does not provide a justification to use it. Thought must always be given, not just to whether an outcome is desirable, but what is the best method to achieve that outcome”.

In *Hasan v Moreland*, the tribunal saw fit to remove prescriptive conditions for ESD measures from a permit. While finding issue with the application of ESD through the planning system as both a matter of fairness and efficiency, the door was left open to justification of ESD measures in the future.

The *Hasan* decision, however, has been characterised in subsequent cases as objecting to all ESD related conditions on principle, rather than on the specific grounds which led to the conditions being removed in that case. For example in *Devtec v Moreland* (VCAT 2293, 27 October 2005), heard in the month following *Hasan*, the tribunal claimed that the conditions being disputed in *Devtec* - the preparation of an ESDMP - were identical to conditions contested in *Hasan*:

“Conditions 1(r) and 4 require the applicant to prepare an Environmentally Sustainable Development (ESD) Management Plan and to implement such plan in the construction of the building... In [the Hasan] case His

Honour and Member Rae found that the permit condition (the permit condition in the present case is identical) is an inappropriate mechanism by which to achieve the outcomes sought because the achievement of ESD principles in building design is a matter which is comprehensively addressed in the Building Code of Australia (BCA)".

However, the conditions found inappropriate in Hasan make no mention of a management plan, but deal specifically with prescriptive measures which the Tribunal found were better addressed by the Building Code of Australia. In Devtec, the finding cites Hasan in support of removing the requirement for an ESDMP, despite the Hasan case making no mention of an ESDMP. The Devtec case also presents a stronger view on the primacy of the building code, outright dismissing the role of planning stating that ESD is "comprehensively addressed in the Building Code of Australia (BCA)". A similar misinterpretation is evident in Chrisiliou v Moreland (VCAT 2889, 19 January 2006), with the tribunal stating their belief that the ESD conditions were ultra vires (outside of the councils power to require), and that such conditions had been dealt with previously in Hasan. However, in Hasan the Tribunal president explicitly stated that the claim by the applicant that such conditions are ultra vires is incorrect. These examples reflect an inconsistent view across the cases interrogated as to the view on the role of ESD in planning

Such misinterpretations of Hasan are later addressed in Jolin Nominees PL v Moreland (VCAT 467, 31 March 2006), a red dot decision, where the Tribunal clarifies the nature of the Hasan decision with respect to ESD, and that the decision is compatible with requiring the preparation of an ESD Management Plan. Jolin focuses on the inappropriateness of specific prescriptive conditions versus that of an ESDMP:

"There is a difference between conditions that require specific ESD facilities, such as considered in the Hasan case, and conditions

that require provision of ESD reports or plans. Hasan's case does not represent a retreat by the Tribunal in acknowledging the importance of sustainability. Hasan's case said: The use and development of land should be sustainable. But there will be more than one mechanism to achieve this outcome. We do not consider that Hasan's case justifies or envisages rejection of all conditions which require preparation of an ESD management plan so long as such a plan is a means of essentially documenting and delivering identifiable sustainability outcomes and the plan is proportional and relevant to the scale and the nature of the development".

The move to adopting ESDMPs as a preferred mechanism over prescribing individual elements informs council policy and leads to the situation we have today. The benefits of this approach are avoiding duplication of the building control system, which addresses specific elements such as water tanks, and allowing the applicant more flexibility in how they approach sustainability. However, nearly one year after Jolin saw the case made successfully for an ESDMP to be required within the planning system, the tribunal again relied solely on Hasan to delete such a condition in Urban Property Corporation (Oak Park) Pty Ltd v Moreland CC (VCAT 240, 16 February 2007):

"Conditions 1h, 4 & 5 require an assessment of the proposal using the Sustainable Tools for Environmental Performance Strategy. We consider these matters can be appropriately dealt with under relevant building controls and rely on the reasons provided in Hasan v Moreland CC[1] to support deletion of this condition".

Councils develop a response to this argument over time by articulating the role that size of development plays in achieving ESD outcomes; constraining their application of ESD controls to larger developments, above the size at which



planning permission is triggered, in an effort to nullify the argument that there is an arbitrary split between applications which require planning permission and those which don't. Despite this, the argument persists throughout the data set, with the mobilisation of the building code as reason to delete a condition for an ESDMP seen as late as 2014 in *Sunnyoaks Pty Ltd v Mornington Peninsula SC*, concerning a development of ten dwellings.

Alongside arguments that focus on the appropriateness of the building code to require ESD outcomes, are arguments that planning assessment is not the appropriate stage of development for ESD controls. This argument is one of the most persistent reasons for deleting ESDMP conditions (for example see Hasan (2005), Poulos (2009), Trewin (2011), Hargest (2011), Mrkonjic (2012) and Achieve Design Group (2012). It often rests on the proposition that ESD is more appropriately addressed later at the building permit stage, rather than planning. However, demonstrating the inconsistency in VCATs handling of such cases, in *Associated Town Planning* (2009), *Long Lease* (2010) and *Deerbon* (2013) the tribunal suggests that implementing conditions for an ESDMP at the planning permit stage leaves matters too late and that they should have already been addressed by the time conditions are being placed on a permit. For example, *Associated Town Planning Consultants v Knox CC* (2009, VCAT 1909, 14 September 2009):

"While I appreciate the Council's intention, I

3.3.2 Lack of Policy Support for ESD

The arguments regarding policy support focus less so on the appropriateness of planning to address ESD, and more on the strength (or otherwise) of the local and state policy context in relation to ESD conditions applied via development assessment. In several cases the focus of the tribunal finding is on the strength of the relevant local planning scheme to support the proposed condition. In these cases, the tribunal has generally held that

agree with Mr Radisich that there is no need to duplicate requirements. Sustainability issues should be considered at the outset of the design process, and they have been in this case".

So, the argument that the development approval process is inappropriate due to its place in a development timeline is mobilised to claim the planning stage is both too early, and too late, to apply ESDMP conditions. An import case for this issue is *Polizzi v Darebin CC* (2009, VCAT 1573, 7 August 2009). While this red dot case (highlighted by VCAT as a case of significance) resulted in the ESD condition being deleted (primarily based on the scale of the development), the tribunal recognises the need to address sustainability at the planning stage:

"I am also conscious here that there can be limits to the sustainability gains at the subsequent building permit stage if the planning approval constitutes a poor sustainability outcome i.e. the horse may have already half bolted. For example, the sustainability requirements at the building permit stage will always be very compromised if a new dwelling is sited on its lot so as to have very poor solar orientation".

While *Polizzi* is a removal case, in contrast to other cases cited above, it affirms the role of planning in achieving ESD outcomes.

In order to impose an ESDMP condition, there must be explicit policy support to do so in the relevant planning scheme. This reasoning began to appear largely after it was established that there is a place for ESD in the planning system. For example, *Belcon Enterprises Pty Ltd v Stonnington CC* (VCAT 628, 27 May 2013):

"I agree with Mr Connor that the requirement

for a 'Sustainable Design Assessment' should not be included, as this issue is not addressed in the Stonnington Planning Scheme".

Also Long Lease Property Group Ltd v Darebin CC (VCAT 356, 9 March 2010):

"We are not inclined to require an ESD Management Plan until the legislative and planning framework for sustainability plans is clearer".

An extension of this argument is that not only does local policy not support action, but that further, it would be inappropriate for local policy to support ESD measures as this would result in unreasonable inconsistencies across development assessment in Victoria. For example, Carlos Constructions Pty Ltd v Moreland CC (2003, VCAT 1797, 28 November 2003):

"Furthermore, it seems to me that if every council is to develop its own expectations, standards and requirements in the area of sustainability, we would be reverting to a situation equivalent to that in which every Council had its own planning standards. This was a situation that VicCode, the Good Design Code, the Australian Code of Residential Development and the VPPs were designed to overcome. The current 'star' energy rating system for dwellings' energy proficiency (refer Condition 6) is an example of a state based energy conservation standard. It seems to me that this is a more appropriate way to go, with principles and guidelines established by the State".

This has also been an issue raised when Councils have attempted to amend their planning schemes to incorporate ESD policy. Most recently during the Advisory Committee/Panel process for the Environmentally Efficient Design Local Policies of six councils, the Panel stated that a state solution would be preferable but in the absence of that there

is merit in Councils pursuing their own policy.

It is worth noting here that the state controls Council's ability to amend their planning scheme and put in place policy which would address this argument. If viewing VCAT as an extension of state policy intent (Cook et al 2013), we have a situation where the state is both resisting local government efforts at policy reform (see section 3.2 of this report) while also citing a lack of appropriate policy as a reason to removal ESD conditions.

Once Councils implement policy into their planning scheme, this is no longer valid grounds at VCAT as the role of VCAT is to apply the planning scheme. As a result there are several cases that uphold the requirement for ESD outcomes based on local policy settings. These include cases where conditions require specific actions judged to be in accordance with specific requirements of local policy; and conditions that, while not explicitly present in local policy, are found to be in alignment with local policy position.

For example Highbury Venture Pty Ltd v Melbourne CC (VCAT 2094, 5 December 2013) sees a specific condition being upheld on policy alignment grounds:

"We are not persuaded on the information before us that the 5 star approach is an unreasonable impost. It is founded in Scheme policy and there is no reason why it should not be given effect particularly as the condition gives some flexibility as does the policy itself".

While Power House Projects v Manningham CC (VCAT 2103, 12 October 2006) sees a condition being upheld based on a general 'nexus' with local policy:

"We find that the proposed condition has a nexus with that policy, does not impose requirements unreasonable to expect of a developer and the development should reflect sustainability principles in its design. On that basis we are persuaded that the condition is reasonable".

Also Lifestyle Living Pty Ltd v Knox CC (VCAT 446, 23 March 2016 (Amended)):

“With regard to the requirements regarding sustainable design, I disagree with Mr Tweedie’s submission that the condition requiring a Sustainable Design Assessment is uncertain and unjustified. I find the condition seeks to address matters that are generally considered in developments of this scale. I find it is justified by policy at clause 21.04 on Ecological Design. Consequently, I find the condition has a reasonable degree of certainty”

Also present, but less prevalent, are references

3.3.3 Project not appropriate for ESD

Across decisions both for deletion and retention, the scale of the project in question is frequently a significant issue. The view expressed is that larger developments are more readily able to bear the cost of an ESDMP, and thus the tribunal is more willing to impose them. This issue is primarily about weighing up what is a reasonable impost on an applicant, and thus an argument of fairness. These considerations can be seen as embodied in the current tiered requirements applied to applications by many councils. For example in Shaw v Hobsons Bay CC (VCAT 2607, 8 December 2009) removing a condition:

“I appreciate the intent of the condition. It reflects the Council’s commitment to sustainability. Nevertheless, I do not consider that the condition is warranted for a small project like that proposed”.

Or in Resource Action Developers Pty Ltd v Knox CC & Ors (VCAT 1712, 12 November 2012) supporting retention of an ESDMP condition:

“With respect to the sustainable design assessment, given the scale of the proposed development I consider it appropriate that the building incorporate some sustainable

to the wider (non-local) policy as support for ESD, using the position of sustainability in state planning legislation and policy as justification for the implementation of local controls. This has been used as a supporting argument, but not as the main argument to retain a condition. For example in Jolin Nominees PL v Moreland CC (VCAT 467, 31 March 2006) the wider support of sustainability is only one factor presented to justify the proposed condition:

“Environmental sustainability has explicit support at all levels of the Victorian planning system”.

design measures. I have therefore retained the requirement”.

The red dot decision on Polizzi v Darebin CC (VCAT 1573, 7 August 2009) provides an important frame for this issue, finding the ESDMP condition to be unreasonable given the small scale of development, but stating:

“In relation to the more difficult and unresolved issue of how to tackle promoting greater built form sustainability for smaller multiunit proposals such as that in question here, the Tribunal has suggested that the relevant Councils could investigate potentially using a simpler/less onerous type of permit condition for such smaller projects, rather than an apparent “one size fits all” approach with the form of permit condition that was proposed to be used here”.

The Polizzi decision ends up being considerably abused in the later Long Lease decision. Long Lease uses Polizzi as a major part of justification to delete an ESDMP condition. Polizzi is quite explicit in making the scale of the project the primary issue, suggesting that the appropriateness of an ESDMP in larger projects is something of a settled issue. Long

Lease involves an application for 169 residential apartments, eight townhouses, an 84 seat café, convenience store, eight offices, two shops and a self-storage facility, and yet refers to the Polizzi finding in support of deleting the ESDMP condition.

Of interest to this topic is *Sunnyoaks Pty Ltd v Mornington Peninsula SC* (2014, VCAT 76, 30 January 2014). This recent case dealt with a development of 10 dwellings and found:

"I see no reason why a development of this

size should provide for an Environmentally Sustainable Management Plan. A number of requirements that would be incorporated into such a plan will be addressed at the building permit stage".

This is a peculiar decision, given that in multiple cases as far back as *Hasan* (2002), the Tribunal endorsed ten dwellings as a good starting point for where ESDMPs may be appropriate.

3.3.4 ESD addressed elsewhere in the application

The tribunal has been amenable several times to deleting an ESDMP condition if it believes the application has already presented acceptable ESD quality. The justification here is that it is not appropriate to put further cost onto an applicant who has voluntarily already addressed ESD to a satisfactory extent in the view of the tribunal. However, the Tribunal members will rarely have expert ESD knowledge and are thus not necessarily well placed to assess the ESD credentials of an application. For example *Palero Design Drafting v Darebin CC* (VCAT 1386, 22 July 2009):

"Council's draft conditions included a requirement for a Sustainable Design Statement. Mr Connolly resisted this condition, on behalf of his client, pointing out that the proposed development had incorporated environmental features such as rainwater tanks, had good northern orientation and would have to meet a five star energy rating. The Tribunal finds itself in agreement with Mr Connolly in this respect".





4. Changing the system – the CASBE Story

The story of CASBE (Council Alliance for Sustainable Built Environments) began long before it was formally established in 2010. In the late 1990s there was a growing frustration with the inadequacy of the planning and building system amongst local government officers and other design and planning professionals. The following draws on a desktop review of relevant documents and qualitative data from a focus group held on the 16th November 2016, involving 6 participants who had or have all been involved in some way with the emergence and development of the CASBE network. We reference below any comments or quotes from the focus group as (FG Comment) and do not attribute them to particular participants. We present the story of CASBE in four phases: developing a network, developing a tool, from tools to embedding ESD in the planning process and the formation of CASBE.

4.1 Developing a network

In the late 1990s there were a number of Councils and council officers leading the way in developing a more effective response to meeting the ESD challenge in the built environment. In 1999 the City of Port Phillip (CoPP) produced a report for the strategic planning department looking into the opportunities for sustainable design in the planning process. The outcome of this report informed the development of a residential scorecard for the CoPP. At a similar time the City of Manningham was demonstrating leadership in having a very comprehensive list of requirements in their Design Development Overlay (DDO) for the Doncaster Hill Activity Centre which was supported by guidelines for preparing designs. There were two or three key people involved in this work at Manningham who later moved to the City of Moreland which led to a continued focus on developing ESD assessment tools in Moreland. At the time Mike Hill was the Mayor of Moreland who had a strong belief in the rights of local government to govern – not ‘as a sub-set of state government’ but rather they had a

‘right and responsibility’ to act for their communities (FG Comments). The importance of Moreland’s work in the planning space at this time was also due to the leadership and support of key people who occupied key roles including the Mayor, the Manager of Strategic Planning and ESD along with other ESD officer roles. This, to a significant extent, accounts for the strong leadership from all levels in Moreland building the capacity of local government and the role of planning in driving ESD outcomes in the built environment.

In 1999, there was a change of government seeing the Kennett led Liberal National Coalition Government replaced by the Bracks Labor Government. Planning issues, including the rise of ‘Save Our Suburbs’ during the 1990s, played an important role in the demise of the Kennett Government. The Labor Government began work almost immediately on a new metropolitan planning strategy ‘Melbourne 2030’ that had sustainability outcomes as a key objective.

In the early 2000s, two other important

processes were occurring that shaped ESD debates and processes. The first was a step in the right direction and involved the state government developer Vic Urban. Vic Urban were responsible for the development of Docklands and the development of the Docklands ESD Guide. At this time, Vic Urban had a very strong sustainability focus. The ESD Guide which was 'road tested' in Docklands, later informed the development of the Sustainable Design Scorecard (SDS) developed by the City of Port Phillip

and the City of Moreland. The second key factor influencing the direction of ESD outcomes, albeit in the wrong direction, was the lack of action at the national level in driving change through the building code. This largely ensuring that the building code remained impotent in driving ESD outcomes, which was one of the factors driving the development of a network of local government who sought to 'fill the void' created by the planning and building systems.

4.2 Developing a tool: Sustainable Design Scorecard (SDS)

In the early 2000s, both the City of Moreland and Port Phillip were on a Department of Sustainability and Environment (DSE) stakeholder working group as DSE was looking to develop a residential assessment scorecard – called IDEAS. This tool which was never pursued by DSE was subsequently taken up by the City of Moreland who developed it into STEPS - Sustainable Tools for Environmental Performance Strategy (residential). It was through this working group process that Moreland and Port Phillip officers developed a working relationship and established an informal agreement to share resources. While Moreland would own and develop STEPS and Port Phillip would own and develop SDS – Sustainable Design Scorecard (non-residential), each would use both tools and offer them to other councils to use. Moreland developed the STEPS tool to assess the environmental impact of residential dwellings and to promote the early integration and adoption of sustainability into the design process. It was developed as a web-based tool and is now used by many Councils (see Hansen Report 2007 for more detail and an evaluation of both tools).

There were several key tools and documents used to inform the development of the SDS, including the City of Port Phillip scorecard, the Docklands ESD Guide and also the City of Westminster ESD planning guide from the UK. Both the City of Port Phillip and Moreland worked

together in the development of the SDS with the intention to make it available to all Councils for use. The focus on developing a tool rather than focusing on a DDO or guideline was the sense that an ESD assessment tool would be more effective at clearly defining what is and is not included in ESD (ie. what is acceptable and what is not acceptable) and in terms assessing sustainable and un-sustainable practices. The capacity to quantify outcomes around greenhouse and water requirements for example, was considered critical in improving ESD outcomes.

One of the challenges with tools, however, is around the need to update and continuously improve their use and importantly to ensure they are supported by effective decision making processes. One of the criticisms of focusing on tools came from one participant in the focus group who stated that: "you can end up with a check box approach to building design...whereas design can achieve lots of things and sometimes a check box approach isn't the way to do it" (FG Comment). Another commented that:

"Planning isn't about certainty, I think a tool is trying to give some level of certainty to someone who's going, "Well if I pass this tool, then council will be satisfied". We try and provide some sort of a framework to say, 'this is the level of environmental impact that we'll accept.' (FG Comment).



DDOs and planning schemes are also considered critical in providing directions and objectives; however they are not effective necessarily at achieving exact quantifiable outcomes. Another important reason for pursuing a tool was the need to capture all building types with one participant commenting;

“Particularly because we were trying to capture, as you say, all building types, all sizes, Res, non-Res the whole lot, and you can’t really do that through a DDO unless you cover the entire municipality of the DDO which you can’t do. To use that balance of what we wanted to capture everything so probably a tool is the only way. A tool with the policy is the only way you can fit in that middle ground. It’s not perfect, but within our planning system nothing’s perfect” (FG Comment).

There were two key reasons for promoting

4.3 From tools to embedding ESD in planning processes

While there were many years involved in the development of effective ESD tools, there was increasing interest in developing effective and consistent decision making processes leading to the development of the Sustainable Design Assessment in the Planning Process (SDAPP).

During the early period of tool development and implementation, there were a number of key councils driving these processes, but over time different councils varied their commitment to the process. Some councils took strong roles, while others dropped off, so the need to develop leadership and ongoing momentum was identified. By the late 2000s, Moreland was managing their STEPS tool and Port Phillip the SDS tool, both of which had gone through various updates. One of the important reasons identified in why particular councils took a key role was the commitment and involvement of Councillors (including at Moreland, Port Phillip and Darebin who had also come on board). This meant that driving the ESD argument could be supported

the use of the STEPS(residential) and SDS (non-residential) tools to all councils. The first was premised on the idea that by using the tool, Councils could set up “a consistent baseline of expectation across the state which is what was lacking in that vacuum” (FG Comment). The second reason was around the need to be strategic as different Councils were taking different approaches in terms of embedding ESD into planning policies. Rather than advocating to state government, some Councils focused on continuing to test and improve tools and processes rather than putting forward an option to State only for it to be rejected.

Tools were always understood to be a starting point in achieving ESD outcomes, particularly in negotiations with council. In the development of STEPS, a residential tool developed by the City of Moreland, and SDS (non-residential) there was an effort to make that starting point and the expectations for design clear for developers.

by Council policy not just planning, as one comment states:

“That was the argument we were using was, “it’s not in our policy but it’s in our council plan and council is a reflection of our community. Our community cares about this, and you’re building in this community so therefore you need to meet the community’s expectations.” That was the argument that we put forward” (FG Comment).

Around the mid-2000 as ESD Advocacy group formed, hosted by the Municipal Association of Victoria (MAV), where participating councils could meet. It was the coalescing of both the ‘participating councils’ and the ESD Advocacy group that led to the development of SDAPP. In 2007, three councils (Moreland, Port Phillip and Darebin) released an investigation report (funded by the Sustainability ACCORD and prepared by Hansen Partnership

and Sustainable Built Environment SBE) titled “Sustainable Assessment in the Planning Process” (i.e. referred to here as the Hansen Report). This report was significant in providing a detailed analysis of the current state of play, reviewing learning from existing council practices and use of tools and clearly identified the need to develop effective local planning policies.

At this time, key officers in lead Councils were acting as knowledge brokers and advisers to a range of other councils interested in understanding the implications of adopting ESD tools and decision making processes for their particular contexts. Officers from Moreland, Darebin and Port Phillip were being invited to present to different Council’s planning departments, managers, executives and councillors. There was a growing appetite from Councils to develop a ‘how to’ (i.e. process) for their particular needs. The Hansen Report (2007) provided a valuable source of information for Councils however was not specific to different contexts. There were also a number of consultants working with local governments in developing their skills and capacity. As one focus group participant described it, during this period in the late 2000s, there was culture of good faith and knowledge sharing amongst consultants and council officers in developing ideas and improving outcomes.

Despite this period of capacity and upscaling the use of the ESD tool, it was also apparent that it was ESD officers rather than planners who were more involved in the use of the tool across different councils. There was a concerted effort to try and involve more planners in the process. While Moreland and other core councils had strong involvement from planners who were not afraid to push for higher standards and go to VCAT if required, other council planners were reluctant to go to VCAT. For example, in the City of Glen Eira there was strong support from the Sustainability team to push for higher ESD standards, while the planning department were reluctant as it was not a requirement of the planning scheme. This was a common issue across many other councils, and led to a focused effort to develop effective local planning

policies that could be adopted across all Councils.

In 2009, Moreland invited other councils to pursue the development of a local policy to submit to State Government. Yarra Council was new to the process at this stage, but became strong supporters of the policy development phase and demonstrated how a Council, once committed and provided with strong leadership, can implement ESD effectively into their decision making processes. In 2009, a council resolution was passed leading to the appointment of an ESD advisor into the statutory and strategic planning area. The planning manager and ESD advisor worked together to assess how they would implement SDAPP into their planning processes. They reported back to executive and council what the implications were in terms of resources and staffing (etc.), which was signed off at all levels. This ensured they had ‘buy-in’ to proceed with training their statutory and strategic planners and ensure that new decision making processes were correctly implemented. The type of training entailed a year of fortnightly (2 hour) sessions which ensured that all statutory planners were able to assess applications in terms of ESD issues and alleviated the need to refer to ESD experts. This approach has been adopted in several other councils, including Stonnington and Banyule. The process of upskilling planners in ESD is recognised as an important step in embedding ESD into decision making.

Another council who demonstrated leadership was the City of Knox, who, in 2007, included in their Municipal Strategic Statement (MSS) a sustainability section which included a statement that council would assess planning applications based on best practice industry sustainability tools. This was an important step in strengthening the confidence of planners who were fighting for ESD outcomes in VCAT. When this was implemented in 2008/9, those involved expected a strong response from the development community, however there was no negative feedback, instead the ESD expectations were accepted. As one of the focus group participants involved in this process stated:



“Just everyone accepted it.... A lot of the ESD stuff is just logical, and makes intuitive sense to everyone... it just reflects, I think, the attitudes out there in the building community, that this is kind of something that needs to happen. You’re doing it for kids. It’s not too expensive. It’s achievable. We just haven’t really had any pushbacks from Knox”. (FG Comment).

A key issue for embedding effective processes in Council decision making is ensuring planners and the planning department are on board and to an extent that the work of the environment (ESD) and planning departments are well integrated in Council. For example co-locating both departments has emerged as a key factor in building capacity of Council in implementing ESD. The role of planners as advocates for ESD has been clearly identified

“I think the point at which a planner becomes part of the advocacy, is a key time for the council. Because I’m finding that most of the approaches to CASBE at the moment come through the environment team. The first people we’ll see at the meeting from a council, will be the environment person. Moreland is a case in

point. Even though they have a policy. She was from the environment team.... Then the point at which they get the planners involved as the advocates, is when they, I think is the tipping point really for the council.” (FG Comment).

In terms of understanding what is involved in engaging planners and embedding SDAPP in decision making, a number of key factors were identified from experience across a range of different councils including: the politics and culture of Councils and Councillors; the leadership role of managers; and the involvement of planners in the process. It is important to note however, that while a Council may be more ‘left leaning’ this does not necessarily determine the level of leadership on ESD, as internal culture within Councils may also play a key role as in the case of the City of Knox. In Knox which could be categorized as more of a ‘conservative’ council, the pursuit of ESD was considered to be common sense, economically in the short and long term and in terms of producing higher quality outcomes in the built environment which is better for the community. In this case planners also played a leading role in embedding SDAPP.

4.4 The formation of CASBE and embedding ESD through local policy

The development of a common language for planners and ESD officers was important in progressing from developing and using tools to developing and implementing effective decision making processes in planning. The development of local policies and consistent language became a key focus for leading Councils.

In 2009/10 those councils who had played a leading role to date discussed the need to formalize their alliance to progress their work strategically. The Council for Sustainable Built Environments was formed and initially operated through the active council officers of participating councils and the support of the MAV. It was not until 2012 that a coordinator was appointed

through funds from member councils. The act of giving the network a name was considered to be an important step in legitimising their role, formalizing the relationship between Councils and encouraging other councils to join the ‘CASBE’ alliance. This formalization process also led to the network developing a strategic plan to guide their work and formalized their role in the SDAPP role out project in leading the training and education of councils along with a key partner the Moreland Energy Foundation (MEFL). The SDAPP roll-out involved an 18 month project initially involving 16 Councils with 25 involved by its conclusion.

Up until this time the State Government had played a limited role in enabling or supporting the CASBE

councils to develop tools or the SDAPP process. In 2003 the Department of Sustainability and Environment did do some investigation into sustainability in planning with their report 'Sustainability in the Built Environment Discussion Paper' (DSE 2003) and their work on the IDEAs tool which was not pursued. The lack of engagement with the issue from the state level was consistent across changes of government. In late 2011, early 2012 the Department of Planning and Community Development invited CASBE to attend meetings to explore further the planning and building implications of embedding ESD. While those in the building space clearly understood their role, the role of planning and planners was explored and explained in some detail. While there are a range of factors accounting for the lack of action by the state government on ESD one explanation concerns the long standing adversarial relationship between planning and building in Victoria which is not the case in NSW where they are both in the same department. The Building Commission also played a key role in opposing the integration of planning into the domain of the building code. This division between planning and building was characterized by one focus group participant who stated:

"I've heard from a lot of building people, building code people, that planners are just a waste of time. A lot of building surveyors will refuse to look at plans as outside the scope of their responsibility and their role. Although that's against official VBA policy is that building surveyors are responsible for looking at the plans... There's still a huge divide culturally and in a process sense." (FG Comment).

In 2013 the State Government Planning Minister appointed an Advisory Committee to provide advice to the Minister "on the applicability and suitability of including environmental sustainability in planning schemes generally as proposed by the local policies" submitted by six Councils (Banyule, Moreland, Port Phillip, Stonnington, Whitehorse and Yarra). This involved hearing submissions and advising on whether environmental sustainability should be considered at the planning stage rather than the building stage and

hearing submissions on the amendments proposed by the six councils.

The Committee concluded that:

... "sustainability had a long history in planning; and that consideration of the issue has evolved to the point where many Councils are seeking to advance sustainable outcomes. The Committee considers that in principle, a State-wide approach is the best way to facilitate increased focus on sustainability. In the interim the Committee is supporting the six Amendments and has recommended accordingly in this report. The Committee also notes, and comments on the strong linkages between planning and building in the area of sustainability. The Committee has concluded that, whilst there should be improved clarity in roles, the two systems need not be in conflict and both have important roles to play" (Advisory Committee and Panel Report (2014) Environmentally Efficient Design Local Policies, Planning Panels Victoria, p.vii)

The State government approved and gazetted the six Council Amendments in November 2015 (Local Planning Policy Clause 22.05 Environmentally Sustainable Design). While this was an important milestone there continues to be ongoing challenges in implementing ESD in the built environment. The local policies have a sunset clause which means they expire at the end of 2017. CASBE is continuing to play a lead role in coordinating councils and ensuring that the momentum to embed ESD into planning processes continues. One way this is happening is through the use of BESS the Built Environment Sustainability Scorecard which was designed to support the SDAPP framework "providing a consistent and streamlined process for Councils and planning permit applicants" (<http://bess.net.au/>). BESS was developed and owned by a number of Victorian Councils which ensures that it can be updated and adapted as required. While local governments continue to develop their capacity in implementing ESD they do so in conditions of uncertainty due to a lack of effective state planning policy and leadership. This however is not impeding the momentum of CASBE to continue to drive change.



5. Discussion and Implications

In this section we identify four key issues emerging from this research highlighting both the challenges and opportunities in implementing ESD in the built environment in the Victorian context. These are: 1) the gap between the planning and building system; 2) weaknesses in the planning system; 3) governance, inconsistencies and coordination; and 4) improving the system – networks and advocacy.

5.1 The gap between the planning and building system

Minimum building performance regulations have been introduced in recent decades and have been critical for lifting the performance (i.e. energy, water, thermal comfort) of housing in countries like Australia. However, their current minimum requirements fall significantly short of what is required for a transition to a sustainable, low carbon future. As there is limited ability to use the building code to require improved environmental performance of housing, and almost no policy discussion on improving the minimum requirements within the building code, sustainability advocates and planners have been attempting to address this sustainability shortfall through the land use planning system.

In our research, we drew on an analysis of appeal cases before VCAT to identify and examine instances where attempts to implement ESD through planning is contested and debated. Analysis of VCAT over time reveals inconsistencies in decision-making and tensions between the state planning framework and local government efforts to increase engagement with ESD through planning.

The analysis of VCAT cases highlights the most prevalent reason for removing Environmentally

Sustainable Development Management Plan (ESDMP) conditions relates to arguments that building, not planning, is the appropriate policy domain to implement ESD. This justification persists over time, despite other cases affirming the role of planning particularly via the use of ESDMPs (such as the red dot Jolin decision); and despite the evidence base from applied urban research that demonstrates the need for both building and planning policy domains to play a role in effectively achieving ESD outcomes.

A second argument that reinforces the building – planning divide concerns the point at which planning considerations emerge in the development process and raises again the inappropriateness of planning to address ESD. Generally the argument is that the planning process comes too early in the development process. This argument serves to reinforce the role of the building code, which covers detailed building design and comes later in the process. However within the cases examined, a contradiction emerges (i.e. red dot Polizzi decision) with the finding that planning does play a key role precisely because it allows for early engagement with ESD in the development process.

Our analysis reveals a high prevalence of arguments that position building over planning as the appropriate place for engagement with ESD; but also critical (red dot) cases that establish the appropriateness and importance of the planning process to achieve ESD outcomes. We also find significant inconsistencies in VCAT decisions, and reversion to earlier decision justifications after changes in position.

In terms of our analysis of the advocacy work of local government policy officers and planners (known as CASBE), this reaffirms the ongoing tension between building and planning in achieving ESD outcomes. This recognition that neither the building code nor planning regulations were

adequately dealing with ESD led to the design, development and implementation of sustainability assessment tools that could assist planners in their decision making processes. The development of SDS, SDAPP and BESS and more recently the gazetting of local ESD planning policies have been important steps in attempting to address the gap between planning and building and highlight the significant role of local government advocates in attempting to improve the system. What becomes clear in our analysis is that in order to embed and normalise ESD in the built environment the continual passing of responsibility between building and planning systems must be addressed.

5.2 Weaknesses in the planning system

While there is a clear gap between the building and planning system where responsibility for ESD remains unresolved, there are also weaknesses in the current planning system that must be addressed. Across the states reviewed, while policies regarding sustainability and the built environment were present in all the state and regional-level strategic planning documents, there are a lack a statutory planning instruments and legislation to assess ESD for buildings. Stronger legislative frameworks, clear implementation, and measurements are needed to ensure better ESD outcomes. This preliminary review also revealed issues around urban governance and politics more broadly, and the prioritising of economic development goals over other considerations such as ESD. This factor has contributed to the weakening or undermining clear policy and regulation frameworks governing ESD outcomes.

In presenting the story of CASBE one of the key issues to highlight is the role they have played

in attempting to address the inadequacies of the planning system in Victoria where there has been a persistent lack of leadership and innovation over many years to address ESD. There are clear systemic and political challenges to address in improving the planning system and the voluntary use of sustainability assessment tools can only go so far in this regard. While there is a growing need and capacity across a number of council's to develop stronger ESD policies and processes in decision-making, the lack of state level commitment to strong ESD outcomes in the built environment has been a significant issue. The recent release of Plan Melbourne Refresh has identified this issue suggesting that a state-wide commitment to addressing policy and regulatory change may be imminent. This will require both the development and implementation of effective regulatory frameworks as well as improved governance for ESD across all levels of government.

5.3 Governance, inconsistencies and coordination

One of the ongoing challenges is that broader environmental, social and economic policies and

long term targets are not being integrated into policies relating to building performance. For



example, the federal government has a greenhouse gas emission reduction and renewable energy generation target. Several states in Australia have recently set their own targets that go beyond federal government policies. Neither set of targets are explicitly integrated into policies relating to the sustainability and performance of the built environment. An explicit link to broader policy would strengthen arguments for improving sustainability in the built environment and how that improvement would help achieve broader goals. Furthermore, there are challenges in ensuring that even the current minimum requirements are adhered to, with research finding major discrepancies between building design and actual performance.

The examination of VCAT cases over time reveals re-occurring use of the argument that the building code is the appropriate way to address ESD; while the emergence of justification for the removal of an ESDMP that target specific development characteristics largely come later in the study period.

The nature of justification from VCAT to remove an ESDMP condition over time can be characterised as follows:

- In the early years removal justification focuses on the principle that building, not planning is the appropriate place to address ESD;
- In later years there is a contradiction, with some cases accepting that ESD can be dealt with in planning, while others continued to remove based on arguments that building is

the appropriate vehicle; and

- In later years, as greater acceptance of the role of planning emerges, we also see the replacement of ‘principled’ rejection with ‘practical’ rejection. That is, on principle ESD through planning is acceptable, but in a given case, the practical implementation of ESD is inappropriate (based on scale, redundancy, or poor conditions).

As expressed by respondents in the focus group, these response characteristics have caused much frustration, with VCAT either 1) continually reviving arguments that assert that the planning system is not the appropriate mechanism to require an ESDMP, despite findings that support in key cases, or 2) accepting the use of ESDMPs, but finding a range of different faults in the practical implementation of a case to justify removal of the ESDMP condition.

Across almost every major theme observed in the VCAT cases for removal or retention of an ESDMP there are inconsistencies. While we expected to see changes of approach or perspective over time, representing an evolving and maturing debate, this has not been the case. Instead there is evidence of decisions frequently misappropriating or ignoring earlier cases in support of a decision. For example, in some recent cases there are arguments around the inappropriateness of planning, or the inappropriateness of development characteristics, despite earlier cases determining that they were appropriate.

5.4 Improving the system – Networks and Advocacy

As demonstrated through the CASBE story improving the system has been an ongoing challenge over many years. CASBE councils have been able to counter many of the arguments against ESD requirements in development assessments. Through ongoing advocacy and submissions to government, they are now influencing state strategy and action. This case of CASBE highlight the role

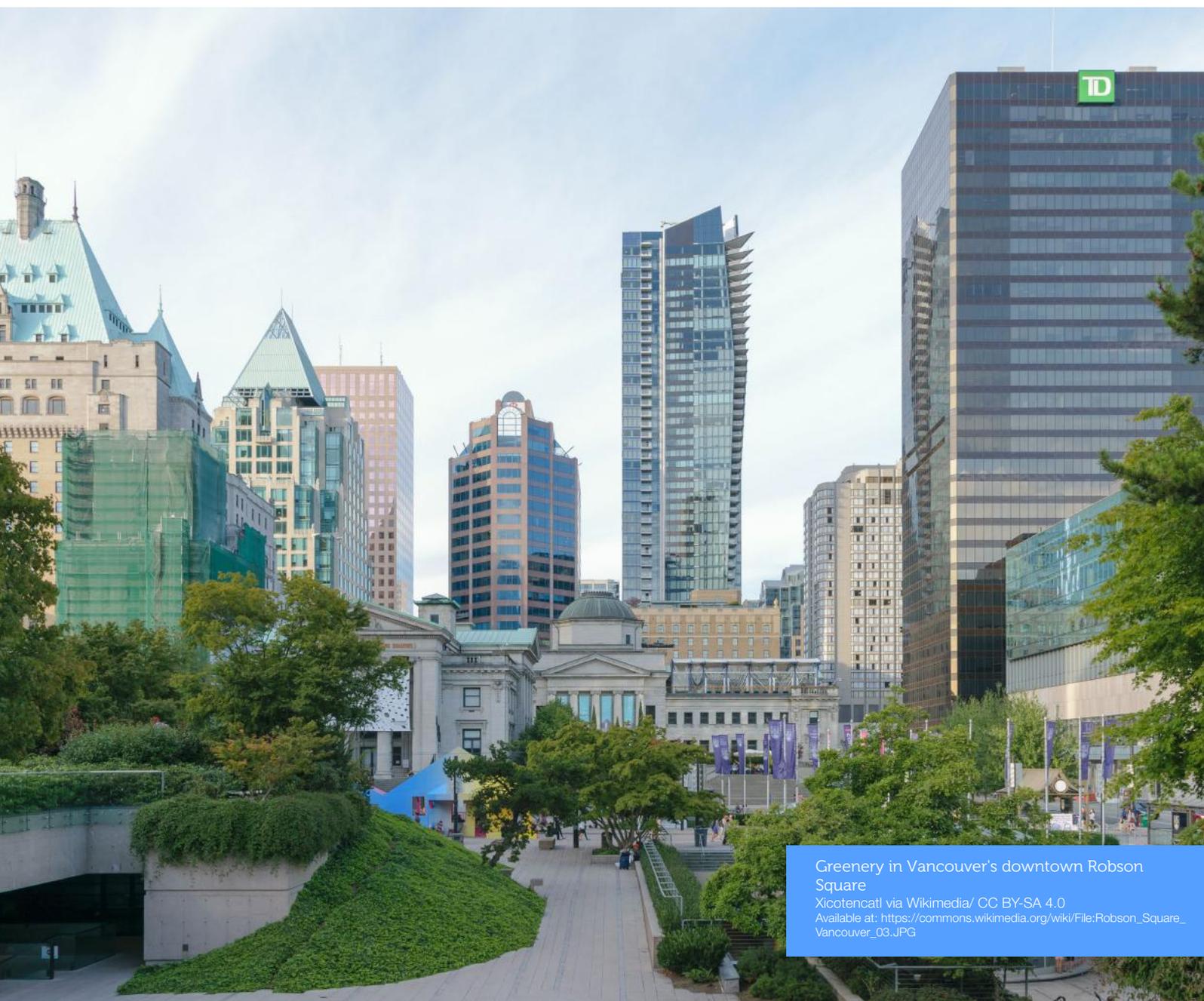
and importance of networks in building capacity across councils and mobilising support for new tools, policies and practices. Over time CASBE and other advocates have enabled the development and implementation of a range of ESD assessment tools, local policies and decision making processes. All were developed in response to identified gaps and weaknesses in the existing system. This ‘bottom-



up' and 'learning by doing' approach emerged from both the skills and commitment of key actors over time. The capacity of the CASBE network was strengthened through its role in advocating across councils and in its role in training and educating ESD and planning officers, councillors and other relevant actors in policy decision making processes. The roles of policy and instrument design, education, training and advocacy are important in the ongoing work of shifting institutional practices to improve the system for delivering ESD outcomes in the built environment.

While CASBE represents one process that has worked to change the current system in Victoria, there are a number of other examples from around Australia and also internationally that Victoria could

draw upon. Both California and the UK governments developed a 10 year plan to improve minimum housing performance regulations to a near zero net energy performance for all new housing. This 10 year plan included a number of clear points across the plan where the performance was to step up. This was to give the building industry, consumers and more importantly, sustainability technology/material manufacturers' confidence to innovate, knowing that there would be a market for their products. In Canada, the City of Vancouver's ambitious emission reduction targets are supported by a series of stepped/incremental policies. The City has plans to reduce emissions from new buildings by 90% as compared to 2007 by 2025, with the aim to achieve zero emissions for all new buildings by 2030.



Greenery in Vancouver's downtown Robson Square

Xicotencatl via Wikimedia/ CC BY-SA 4.0
Available at: https://commons.wikimedia.org/wiki/File:Robson_Square_Vancouver_03.JPG



6. Future research

This research has highlighted a number of deficiencies in the building and planning system in Victoria and elsewhere in Australia constraining the capacity to achieve ESD outcomes in the built

Drawing on a brief review of current systems we have identified some of the strengths and weaknesses across a number of states in Australia. This research opens up further avenues to better understand different approaches to effectively delivering ESD outcomes. More in-depth desktop research would offer a further degree of insight, however to better understand the challenges of implementation and decision-making in practice further qualitative research is warranted involving interviews with government and development industry actors in different contexts. This could include an evaluation of the use and effectiveness of assessment tools and mechanisms in planning and decision-making.

While a more in-depth comparative study could reveal how best to design and implement an effective system for enabling ESD outcomes in the built environment further work is also needed to better understand the challenges and issues facing Victorian policy and decision makers in adopting and implementing new tools, regulations and decision making processes. While the story

of CASBE reveals some of these issues, this preliminary research raises a number of questions about the role of networks such as this in enabling systemic change. One avenue of inquiry could explore through qualitative research the differences between the role and capacities of councils both within and outside the CASBE network. Another could involve in-depth analysis of assessment tools and their implementation across different councils. This research could include a focus on the cost implications of using different tools through a sample of cases. This would further develop the evidence base to demonstrate how or if the implementation of assessment tools is leading to a range of benefits and outcomes (assessed against a developed set of criteria). Finally, further research around the strengths and weaknesses of implementing local ESD planning policies recently adopted by a number of councils in Victoria would also be valuable to inform future decision making around the policy and regulatory settings needed to ensure effective implementation of ESD in the built environment.

References

1. Moore, T., Facilitating a transition to zero emission new housing in Australia: Costs, benefits and direction for policy, in School of Global, Urban and Social Studies. 2012, RMIT University: Melbourne.
2. United Nations. Sustainable development goals. 2015 [cited 2017 04/04/2017]; Available from: <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>.
3. Collia, C. and A. March, Urban Planning Regulations for Ecologically Sustainable Development (ESD) in Victoria: Beyond Building Controls. *Urban Policy and Research*, 2012. 30(2): p. 105-126.
4. Williams, A., Experience talks: the views of planners regarding the ability of the New South Wales planning system to implement ecologically sustainable development (ESD). *Australian Planner*, 2013. 50(4): p. 293-303.
5. Hamin, E. and N. Gurran, Climbing the Adaption Planning Ladder: Barriers and Enables in Municipal Planning. , in *Handbook of Climate Change Adaptation*, L. Filho and W. Berlin, Editors. 2015, Springer-Verlag. .
6. Pitt & Sherry and Swinburn University, National Energy Efficient Building Project Final Report. 2014, Prepared on behalf of the Department of State Development Government of South Australia: Adelaided.
7. Moore, T., et al., Valuing form and function: Perspectives from practitioners about the costs and benefits of good apartment design, in 7th international urban design conference. 2014: Adelaide.
8. State Government of Victoria. Better Apartments. 2016 [cited 2017 04/04/2017]; Available from: <https://www.planning.vic.gov.au/policy-and-strategy/planning-reform/better-apartments>.
9. The Fifth Estate, AIA enters debate on minimum apartment size, in *The Fifth Estate*. 2014, The Fifth Estate.
10. City of Melbourne, Understanding the Quality of Housing Design. 2013, City of Melbourne: Melbourne.
11. McRae, B. and J. Hurley, Spinning the Wheel: examining decision making process and outcomes in development assessment., in *State of Australian Cities National Conference 2013* S.o.A.C.R. Network., Editor. 2013.
12. Taylor, E., N. Cook, and J. Hurley, Do objections count? Estimating the influence of residents on housing development assessment in Melbourne. *Urban Policy and Research*, 2016. 34(3): p. 269-283.
13. Kolokotsa, D., et al., A roadmap towards



- intelligent net zero- and positive-energy buildings. *Solar Energy*, 2011. 85(12): p. 3067-3084.
14. van Lente, H., et al., Systemic intermediaries and transition processes., in *Shaping urban infrastructures. Intermediaries and the governance of socio-technical networks.*, S. Guy, et al., Editors. 2011, Earthscan: London.
 15. Schultz, A. and R. Petchey, *Energy update 2011*. 2011, Australian Bureau of Agriculture and Resource Economics and Sciences: Canberra.
 16. Wang, X., D. Chen, and Z. Ren, Assessment of climate change impact on residential building heating and cooling energy requirement in Australia. *Building and Environment*, 2010. 45(7): p. 1663-1682.
 17. DEWHA, *Energy use in the Australian residential sector 1986-2020*. 2008, Department of the Environment, Water, Heritage and the Arts: Canberra.
 18. IPCC, *Fourth Assessment Report. Climate Change 2007: Working Group III: Mitigation of Climate Change*. 2007, Intergovernmental Panel on Climate Change: Valencia, Spain.
 19. Higgins, A., G. Foliente, and C. McNamara, Modelling intervention options to reduce GHG emissions in housing stock - A diffusion approach. *Technological Forecasting and Social Change*, 2011. 78(4): p. 621-634.
 20. Moore, T., Modelling the through-life costs and benefits of detached zero (net) energy housing in Melbourne, Australia. *Energy and Buildings*, 2013(0).
 21. Berry, S., et al., Do the numbers stack up? Lessons from a zero carbon housing estate. *Renewable Energy*, 2014. 67: p. 80-89.
 22. Sustainability House, *Identifying Cost Savings through Building Redesign for Achieving Residential Building Energy Efficiency Standards*. 2012, Prepared for the Department of Climate Change & Energy Efficiency: Canberra.
 23. IEA, *Energy Efficiency Governance - Handbook*. 2010, International Energy Agency: Paris.
 24. Ekins, P. and E. Lees, The impact of EU policies on energy use in and the evolution of the UK built environment. *Energy Policy*, 2008. 36(12): p. 4580-4583.
 25. Horne, R. and C. Hayles, Towards global benchmarking for sustainable homes: an international comparison of the energy performance of housing. *Journal of Housing and the Built Environment*, 2008. 23(2): p. 119-130.
 26. Choguill, C., *The search for policies to support sustainable housing*. Habitat International, 2007. 31(1): p. 143-149.
 27. Clinch, J. and J. Healy, Domestic energy efficiency in Ireland: correcting market failure. *Energy Policy*, 2000. 28(1): p. 1-8.
 28. Lee, W. and F. Yik, Regulatory and voluntary approaches for enhancing building energy efficiency. *Progress in Energy and Combustion Science*, 2004. 30(5): p. 477-499.
 29. Bergman, N., et al. Assessing transitions to sustainable housing and communities in the UK. 2007.
 30. Crabtree, L. and D. Hes, Sustainability uptake on housing in metropolitan Australia: An institutional problem, not a technological one. *Housing Studies*, 2009. 24(2): p. 203-224.
 31. Ambrose, M.D., et al., *The Evaluation of the 5-Star Energy Efficiency Standard for Residential Buildings Final Report*. 2013, CSIRO: Canberra.
 32. Moore, T., R. Horne, and J. Morrissey, Zero emission housing: Policy development in Australia and comparisons with the EU, UK, USA and California. *Environmental Innovation and Societal Transitions*, 2014. 11: p. 25--45.
 33. Newton, P. and S. Tucker, Pathways to decarbonizing the housing sector: a scenario analysis. *Building Research & Information*, 2011. 39(1): p. 34-50.
 34. Harding, R., Ecologically sustainable development: origins, implementation and challenges. *Desalination* 2006. 187(1-3): p. 229-239.
 35. Building Commission. *Building legislation*. 2011 [03/06/2011]; Available from: <http://www.buildingcommission.com.au/www/html/370-building-legislation.asp>.



36. Australian Government, Report of the Prime Minister's task group on energy efficiency. 2010, Department of Climate Change and Energy Efficiency.: Canberra.
37. Crawford, R.H., et al., Evaluating the life cycle energy benefits of energy efficiency regulations for buildings. *Renewable and Sustainable Energy Reviews*, 2016. 63: p. 435-451.
38. Yu, M., et al., The Carbon Footprint of Australia's Construction Sector. *Procedia Engineering*, 2017. 0(0): p. 000-000.
39. Berry, S., K. Davidson, and W. Saman, Defining zero carbon and zero energy homes from a performance-based regulatory perspective. *Energy Efficiency*, 2014. 7(2): p. 303-322.
40. Ashe, B., Sustainability and the Building Code of Australia—Research Project Report. . 2003, Australian Building Code of Australia. : Canberra.
41. MBAV, Submission to the Liveability Inquiry. Victorian Competition and Efficiency Commission. February 2008. 2008, Master Builders Association of Victoria: Melbourne.
42. Berry, S. and K. Davidson, Zero energy homes – Are they economically viable? *Energy Policy*, 2015. 85: p. 12-21.
43. DCLG, Cost of building to the Code for Sustainable Homes. Updated cost review. 2011, Department for Communities and Local Government: London.
44. Moore, T., Y. Strengers, and C. Maller, Utilising Mixed Methods Research to Inform Low-carbon Social Housing Performance Policy. *Urban Policy and Research*, 2016. 34(3): p. 240-255.
45. Berry, S., K. Davidson, and W. Saman, The impact of niche green developments in transforming the building sector: The case study of Lochiel Park. *Energy Policy*, 2013. 62: p. 646-655.
46. Moore, T. and D. Higgins, Influencing urban development through government demonstration projects. *Cities*, 2016. 56: p. 9-15.
47. Davidson, K. and M. Arman, Planning for sustainability: an assessment of recent metropolitan planning strategies and urban policy in Australia. *Australian Planner*, 2014. 51(4): p. 296-306.
48. Houston, D., et al., Climate Cosmopolitics and the Possibilities for Urban Planning. . *Nature and Culture*, 2016. 11(3): p. 259-277.
49. Moloney, S. and R. Horne, Low Carbon Urban Transitioning: From Local Experimentation to Urban Transformation? *Sustainability*, 2015. 7(3).
50. Hurlimann, A. and A. March, The role of spatial planning in adapting to climate change. *Wiley Interdisciplinary Reviews: Climate Change*, 2012. 3(5): p. 477-488.
51. Gurran, N., C. Gilbert, and P. Phibbs, Sustainable development control? Zoning and land use regulations for urban form, biodiversity conservation and green design in Australia. *Journal of Environmental Planning and Management*, 2015. 58(11): p. 1877-1902.
52. Beatley, T. and P. Newman, *Green Urbanism Down Under: Learning from Sustainable Communities in Australia*. 2012, Washington, DC: Island Press. .
53. Willey, S., The merits of merit-based planning appeals: observations from Australia. *International Planning Studies*, 2004. 9(4): p. 261-281.
54. Mees, P., Democracy demands we scrap VCAT. *Victorian Planning News*, 2001. March: p. 14.
55. Willey, S., *Planning Appeal Processes: Reflections on a Comparative Study*. *Environment and Planning A*, 2007. 39(7): p. 1676-1698.
56. DSE (2003) *Sustainability in the Built Environment - Discussion Paper*, Department of Sustainability and Environment, Victorian Government.
57. Hansen Partnership and Sustainable Built Environments (SBE) (2007) *Sustainability Assessment in the Planning Process*, Investigation Report prepared for the City of Port Phillip, Darebin and Moreland funded by the Victorian Local Sustainability Accord, Melbourne.



Appendix 1 – full list of keywords applied to VCAT case list

BESS	Ecologically Sustainable Development Management Plan	Environmentally Sustainable Design Statement
Built Environment Sustainability Scorecard	Ecologically Sustainable Development Plan	Environmentally sustainable development
Design Management Plan	Ecologically Sustainable Development Planning Statement	Environmentally Sustainable Development Assessment
Design Management Plan	Ecologically Sustainable Development Report	Environmentally Sustainable Development Assessment
Development Management Plan	Ecologically Sustainable Development Report	Environmentally Sustainable Development Management Plan
Development Management Plan	Ecologically Sustainable Development Statement	Environmentally Sustainable Development Plan
Ecological Sustainability Design Assessment	Environmental Sustainability Design Assessment	Environmentally Sustainable Development Planning Statement
Ecological Sustainability Design Management Plan	Environmental Sustainability Design Management Plan	Environmentally Sustainable Development Report
Ecological Sustainability Design Plan	Environmental Sustainability Design Plan	Environmentally Sustainable Development Report
Ecological Sustainability Design Planning Statement	Environmental Sustainability Design Planning Statement	Environmentally Sustainable Development Statement
Ecological Sustainability Design Report	Environmental Sustainability Design Report	ESD
Ecological Sustainability Design Statement	Environmental Sustainability Design Statement	ESD Assessment
Ecological Sustainability Development Assessment	Environmental Sustainability Development Assessment	ESD Assessment
Ecological Sustainability Development Management Plan	Environmental Sustainability Development Management Plan	ESD Management Plan
Ecological Sustainability Development Plan	Environmental Sustainability Development Plan	ESD Management Plan
Ecological Sustainability Development Planning Statement	Environmental Sustainability Development Planning Statement	ESD Plan
Ecological Sustainability Development Report	Environmental Sustainability Development Report	ESD Plan
Ecological Sustainability Development Statement	Environmental Sustainability Development Statement	ESD Planning Statement
Ecological Sustainable Design	Environmental Sustainable Design	ESD Planning Statement
Ecological Sustainable Design Assessment	Environmental Sustainable Design Assessment	ESD Report
Ecological Sustainable Design Management Plan	Environmental Sustainable Design Assessment	ESD Report
Ecological Sustainable Design Plan	Environmental Sustainable Design Management Plan	ESD Statement
Ecological Sustainable Design Planning Statement	Environmental Sustainable Design Plan	ESD Statement
Ecological Sustainable Design Report	Environmental Sustainable Design Planning Statement	First Rate
Ecological Sustainable Design Report	Environmental Sustainable Design Report	FirstRate
Ecological Sustainable Design Statement	Environmental Sustainable Design Report	Green Star
Ecological Sustainable Development	Environmental Sustainable Design Statement	Green Travel Management Plan



Ecological Sustainable Development Assessment	Environmental Sustainable Development	Green Travel Plan
Ecological Sustainable Development Management Plan	Environmental Sustainable Development Assessment	GreenStar
Ecological Sustainable Development Plan	Environmental Sustainable Development Management Plan	Photovoltaic
Ecological Sustainable Development Planning Statement	Environmental Sustainable Development Plan	PV
Ecological Sustainable Development Report	Environmental Sustainable Development Planning Statement	Reduction to zero
Ecological Sustainable Development Statement	Environmental Sustainable Development Report	SDA
Ecologically Sustainability Design Assessment	Environmental Sustainable Development Report	SDAPP
Ecologically Sustainability Design Management Plan	Environmental Sustainable Development Statement	SDS
Ecologically Sustainability Design Plan	Environmentally Sustainability Design Assessment	SMP
Ecologically Sustainability Design Planning Statement	Environmentally Sustainability Design Management Plan	Solar hot water
Ecologically Sustainability Design Report	Environmentally Sustainability Design Plan	STEPS report
Ecologically Sustainability Design Statement	Environmentally Sustainability Design Planning Statement	Sustainability assessment tools
Ecologically Sustainability Development Assessment	Environmentally Sustainability Design Report	Sustainability Design Assessment
Ecologically Sustainability Development Management Plan	Environmentally Sustainability Design Statement	Sustainability Management Plan
Ecologically Sustainability Development Plan	Environmentally Sustainability Development Assessment	Sustainable Design Assessment
Ecologically Sustainability Development Planning Statement	Environmentally Sustainability Development Management Plan	Sustainable Design Assessment in the Planning Process
Ecologically Sustainability Development Report	Environmentally Sustainability Development Plan	Sustainable Design Plan
Ecologically Sustainability Development Statement	Environmentally Sustainability Development Planning Statement	Sustainable Design Plan
Ecologically Sustainable Design	Environmentally Sustainability Development Report	Sustainable Design Scorecard
Ecologically Sustainable Design Assessment	Environmentally Sustainability Development Statement	Sustainable Design Statement
Ecologically Sustainable Design Management Plan	Environmentally sustainable design	Sustainable Development Plan
Ecologically Sustainable Design Plan	Environmentally Sustainable Design Assessment	Sustainable Development Plan
Ecologically Sustainable Design Planning Statement	Environmentally Sustainable Design Assessment	Sustainable Development Statement
Ecologically Sustainable Design Report	Environmentally Sustainable Design Management Plan	Sustainable Development Statement
Ecologically Sustainable Design Report	Environmentally Sustainable Design Plan	Sustainable Management Plan
Ecologically Sustainable Design Statement	Environmentally Sustainable Design Planning Statement	Sustainable Tools for Environmental Performance Strategy
Ecologically Sustainable Development	Environmentally Sustainable Design Report	Zero car
Ecologically Sustainable Development Assessment	Environmentally Sustainable Design Report	Zero parking



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