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# The Policy Framework: Actions towards Circular Economy housing in Australia

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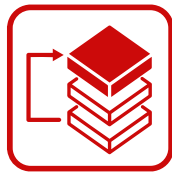
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# Sustainable housing

## Steps towards sustainable housing at a neighbourhood scale

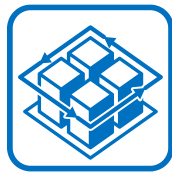
### Strategic outcomes:

- Development of a common understanding of what circular economy (CE) housing at a neighbourhood scale, how it can be delivered and what support or opportunities there are in looking beyond individual houses
- Clear policy and assessment tools to enable a consistent delivery of CE housing at a neighbourhood scale
- More educated built environment (BE) sector and engaged policy makers and stakeholders



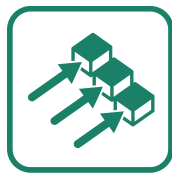
Reappraising  
value

- Common understanding of CE and implementation at urban scale
- Awareness of CE values and principles among planners, State and local politicians, as well as the housing industry
- A range of policy instruments and governance models to support a CE approach
- Research and development focus for CE at the urban level
- Collaborative urban production, consumption in neighbourhoods
- Prioritising the use of recycled materials and products



Shaping markets

- Policy frameworks and regulation for sustainable homes and neighbourhoods incorporated in masterplans and precinct plans
- Strategic use of green and blue infrastructures
- Land use instruments to facilitate mixed-uses and integrated transport
- Statutory development assessment processes for comprehensive CE criteria, including community sustainability and impacts
- Increased and reinforced regulations on key areas for CE such as minimum standards for energy efficiency and reduction of car parking spaces per dwelling
- Integrate planning with other policy instruments (subsidies, guidelines demonstrations)
- Consolidate CE in existing tools to ensure comprehensive appraisals of neighborhoods scale CE and to avoid duplicating instruments



Tilting investment  
flows

- Using direct public investment to fund improved standards and demonstrate them
- Use subsidies and financial incentives for communities to implement neighborhood scale solutions (micro-grids, sharing economy approaches, etc.)
- Use urban design competitions and government tendering processes to prompt developers to propose better solutions (European continental countries may serve as examples)
- Develop databases and warehouses for reusable products and materials to facilitate ease of procurement of previously ones used over new structures



Building capacity

- Review policy frameworks and assessment tools to ensure that sustainability considerations are central in political decision-making processes on plans and development applications
- Tailor tertiary education and continuous professional development of built environment professionals to focus on circular economy policies and practices at urban scale
- Implement education and training for policymakers, administrators, and private sector actors

## Actors and resources towards sustainable housing at a neighbourhood scale



Reappraising  
value

### Who is responsible and how are they mobilised?

- Commonwealth, State and Local governments, peak bodies of developers, builders and planners, exemplar developments and waste stream stakeholders

Requires funding for information, education and training, all-society strategies and partnerships, new governance arrangements engaging community ownership and co-creation, with clear objectives, targets and outcomes, also during post-occupancy

### What can they do?

1. Develop a common understanding of the concept of CE housing at a neighbourhood scale and how it can be realised, through education and broader policy and political debate
2. Ensure frameworks and tools guide sustainable housing at a neighbourhood scale in planning, development, building and post-occupancy phases and use a comprehensive definition of sustainable neighbourhood, which prevents selective attention to some dimensions as is currently the case and trade-offs with short-term economic development gains (often at the expense of social and environmental objectives)
3. Processes should enable holistic understandings of sustainability, aimed at closing resource loops, avoiding the use of non-renewable resources and achieving inter-generational equality
4. Increase consumer and industry awareness of 'living sustainably' – building positive energy buildings and districts will not work unless residents change their consumption patterns
5. Encourage appreciation for reused and recycled buildings, products and materials in the built environment, and change legislation to make the use of previously used as easy and more cost-efficient as new ones
6. Set up a database and warehouse to store previously used materials and products so they can be easily procured for future use



Shaping markets

### Who is responsible and how are they mobilised?

- Commonwealth State and Territory governments, local governments, developers, urban designers, consultants
- State government planners and local council planning departments
- Requires legislation to mandate higher standards for both individual buildings and sustainable neighbourhoods with emphasis on performance based rather than prescriptive policies
- Other policy tools e.g., guidelines to provide clear and measurable objectives and targets, and monitoring systems to allow the assessment of sustainability outcomes during all phases from planning through to post-occupancy

### What can they do?

1. Increase standards for building performance to achieve near-energy efficiency buildings (in line with international best-practice) and expand legislation to the district-scale, building on European Union (EU) experiences
2. Coordinate policy frameworks for building, planning and design across tiers of government and across State and Territory jurisdictions to prevent missed opportunities from lack of integration of planning, design and building phases
3. Strengthen process and instruments for master planning to better enable the realisation of sustainable neighbourhoods
4. Review and streamline sustainability assessment rating tools to prevent greenwashing and confusion, and make comprehensive community-scale sustainability assessment tools mandatory
5. Improve processes and identify development models for greyfield and urban infill developments to enable better outcomes and prioritise design, liveability and sustainability over individual lot development and yield
6. Review statutory development assessment processes to allow for comprehensive consideration of CE criteria, including in relation to neighborhood impacts or contributions to community sustainability
7. Reinforce stricter regulation on key areas for CE, e.g., increase in minimum standards for energy efficiency of buildings (example EU Energy Performance of Buildings Directive (EPBD) that requires 'nearly zero-energy buildings' to be achieved in new construction and renovations), reduction of car parking spaces per dwelling



Tilting investment flows

**Who is responsible and how are they mobilised?**

- Commonwealth State Territory governments and local governments, developers and ethical investors, urban designers, consultants, State government planners and local council planning departments

**What can they do?**

1. Provide stronger legislation and mandatory standards to prevent the current race to the bottom, and ensure the legislation applies to buildings as well as the district scale; investment flows will adjust to regulatory requirements with costs for higher-performing products and materials reducing once their use has become widespread
2. Performance based rather than prescriptive policies and policy frameworks to support the process of precinct scale planning design and realisation of sustainable neighbourhoods
3. Enable the provision of public transport, sustainable mobility, green and blue infrastructures and landscaping, and the provision of community infrastructures before completing housing construction
4. Implement neighbourhood scale solutions such as microgrids sharing economy approaches
5. Use urban design competitions and government tendering processes to prompt developers to propose better solutions
6. Develop databases and warehouses for reusable products and materials to facilitate ease of procurement of previously used ones over new structures
7. Set clear and measurable objectives targets and monitoring systems to allow the assessment of sustainability outcomes during all phases from planning through post-occupancy so that outcomes can be objectively assessed and so that industry can showcase their approaches against competitors and have incentives to achieve higher outcomes



Building capacity

**Who is responsible and how are they mobilised?**

- Commonwealth, State and local governments, civic society, research and education institutes, building and planning peak bodies, exemplar developments, builders, developers, waste stream stakeholders

Requires legislation and other policy frameworks guidelines as well as new governance models to support establishing lasting partnerships between governments private sector and the community

Cooperation with universities and education providers, government and possibly private sector funding for research

Shape objectives and targets to drive CE transition

**What can they do?**

1. Review policy frameworks and assessment tools to ensure that political decision-making processes on plans and development applications prioritise sustainability considerations
2. Review education and training of all involved in shaping the Australian built environment (including civil servants, politicians, and private sector actors) to ensure they understand and can apply the principles of a circular economy in the realisation of sustainable neighbourhoods
3. Support an Australia-wide comprehensive programme of research on circular neighbourhoods to support the transition and guide policy innovation and policy change and that can enable close connections and knowledge exchange between universities, research institutes and BE professionals
4. Promote collaborative forms of urban production, consumption and reuse – from distributed energy systems to community gardens to repairing and reuse of buildings, sharing economy approaches in neighbourhoods (e.g., transport, laundry machines), prioritising the use of recycled materials and products over new ones, installing deposit refund schemes for urban goods (e.g., tools and gardening equipment)
5. A set of clear and measurable objectives, targets and monitoring systems to allow the assessment of sustainability outcomes during all phases from planning through to post-occupancy so that outcomes can be objectively assessed and so that industry can showcase their approach against competitors and have incentives to achieve higher outcomes

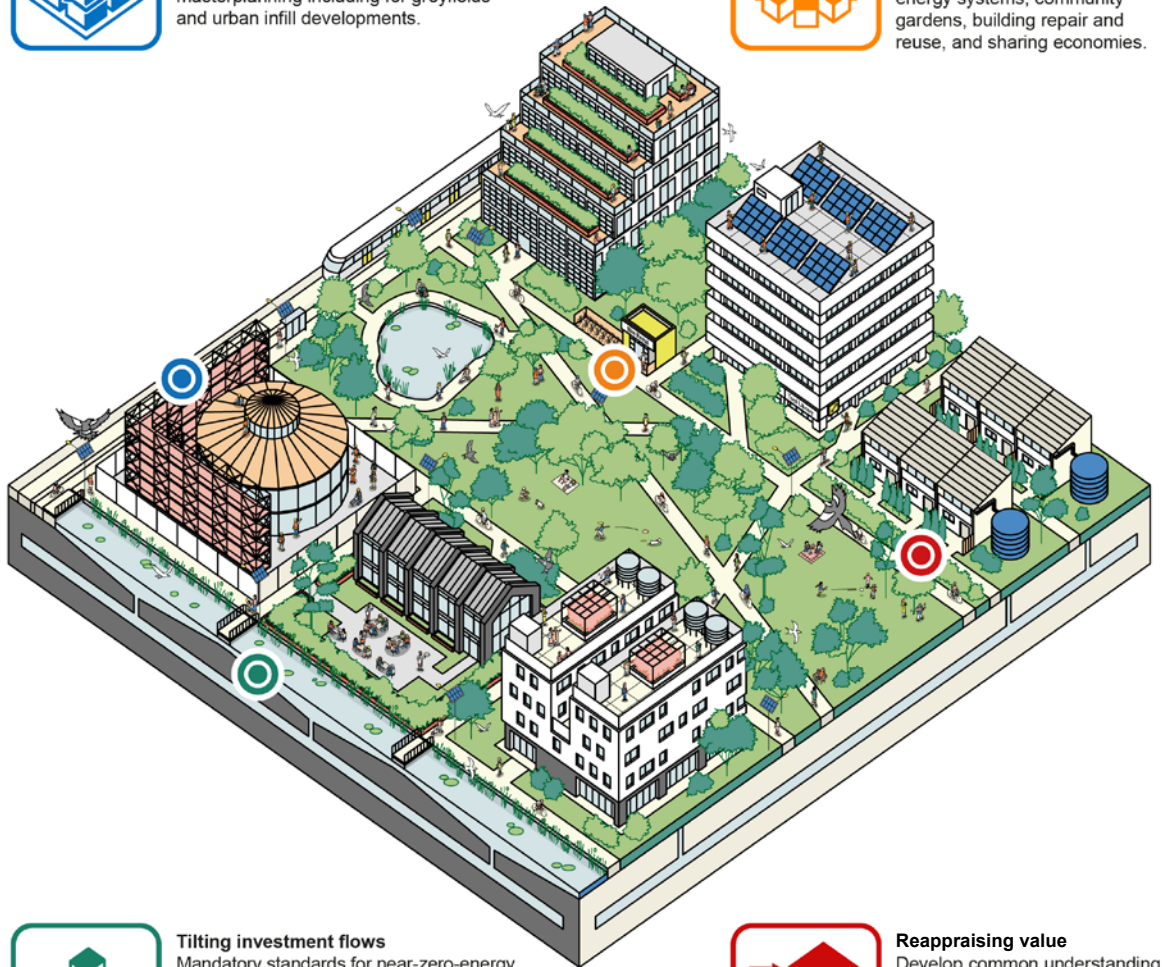
## Actions in the neighbourhood housing field



**Shaping markets**  
Improve models and instruments across tiers of government for true masterplanning including for greyfields and urban infill developments.



**Building capacity**  
Promote collaborative forms of production, consumption and reuse, including distributed energy systems, community gardens, building repair and reuse, and sharing economies.



**Tilting investment flows**  
Mandatory standards for near-zero-energy buildings and neighbourhoods will prompt adjustment of investments flows and create markets for energy-efficient and reused products and materials.



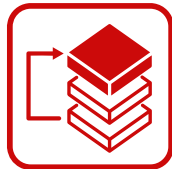
**Reappraising value**  
Develop common understanding of circular economy housing at neighbourhood scale through education, policy and political debate.

# Apartment housing

## Steps towards sustainable apartment housing

### Strategic outcomes:

- Property valuation reflects building performance
- Premium purchasers driving change
- Development teams embed sustainability in project feasibility
- The quality and design of delivered apartment buildings reflects what was designed and approved
- Purchasers and renters have access to adequate information about building performance
- Level playing field for financiers, removing a barrier to bankers requiring development proposals to meet sustainability targets
- The potential benefits of physical interdependence and shared services are realised
- Sustainability initiatives account for joint ownership and joint decision-making



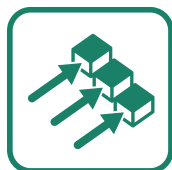
Reappraising  
value

- Clear, whole of government commitment to CE and sustainability targets
- Commonwealth government support for the development of a process for incorporating sustainability into valuation practice
- All levels of government to review existing and future government grants for sustainability upgrades to ensure common property is considered to avoid exclusion of strata properties
- Commonwealth government to review and amend housing taxation systems to identify and amend inequalities between housing typologies



Shaping markets

- Commonwealth government commitment to increase minimum standards for energy efficiency in the National Construction Code (NCC)
- State and local governments to strengthen regulations for pre-and post-occupancy compliance auditing to ensure approved performance standards are met at the planning and building permit stages
- Commonwealth government commitment to expand the regulatory scope of the NCC beyond energy consumption in use
- Commonwealth and state government to implement programs to standardise tools, measures and regulations for building performance
- Commonwealth government to mandate the collection of environmental performance standards for all apartment buildings and their publication on advertising and transaction portals for rent and purchase



Tilting investment  
flows

- Commonwealth government to explore imposing EU style reporting obligations on financiers and establishing a process to leverage private financing in support of a transition to CE in the housing system
- All levels of government to introduce additional government grants to incentivise housing retrofit projects
- Commonwealth government to provide government guarantees for deliberative development construction loans



Building capacity

- Commonwealth government support for the development and operation of online portal to enable knowledge exchange on Environmental Sustainable Development (ESD) in construction
- State governments to explore legislative and regulatory amendments to encourage and support sustainable retrofit in strata schemes
- Commonwealth government commitment to fund development and operation of an information repository of sustainable retrofitting of apartments
- State governments ensure that the planning assessment system is adequately resourced to assess building performance for sustainable developments
- State governments update apartment design guidelines to ensure that the potential for future retrofit is considered before new projects are approved
- All levels of government to require publicly funded apartment projects to involve residents in design, including where publicly owned land is made available for development



## Actors and resources towards sustainable apartment housing



**Reappraising value**

**Who is responsible and how are they mobilised?**

- Commonwealth government (Lead)
- Mortgage lenders, developers, financiers, valuers, Australian Property Institute, Valuer Generals, real estate industry (e.g., CoreLogic), insurers (providing professional indemnity insurance), Australian Sustainable Built Environment Council (ASBEC)

Requires funding for Australian Property Institute and ASBEC to develop new valuation template

**What can they do?**

Development of a process for incorporating sustainability into valuation practice, alongside mandatory disclosure of environmental performance standards for all apartment buildings



**Shaping markets**

**Who is responsible and how are they mobilised?**

- Commonwealth government, state and local government (Lead)
- Australian Building Codes Board (ABCB), State departments of environment and planning, Planning Institute of Australia, Property Council, Australian Institute of Architects, Green Buildings Council, certifiers

Requires budget appropriation to fund regulatory review

**What can they do?**

In concert with increasing minimum standards and the scope of the NCC, strengthen regulations for pre- and post-occupancy, disclosure and compliance auditing to ensure approved performance standards are met at the planning and building permit stages



**Tilting investment flows**

**Who is responsible and how are they mobilised?**

- Commonwealth government (Lead)
- Council of Financial Regulators, Australian Banking Association

Requires budget appropriation to fund regulatory review

**What can they do?**

Impose EU style targets and reporting obligations on financiers and establish a process to leverage private financing in support of a transition to CE in the housing system



**Building capacity**

**Who is responsible and how are they mobilised?**

- Commonwealth government to provide funding to enable longevity, not-for-profit providers of online platforms (tender process) (Lead)
- Key peak bodies in construction and property management

Requires sufficient funding from Commonwealth government to ensure financial sustainability

**What can they do?**

Develop two national information repositories to enable knowledge exchange on ESD in construction and support sustainable retrofits of apartments

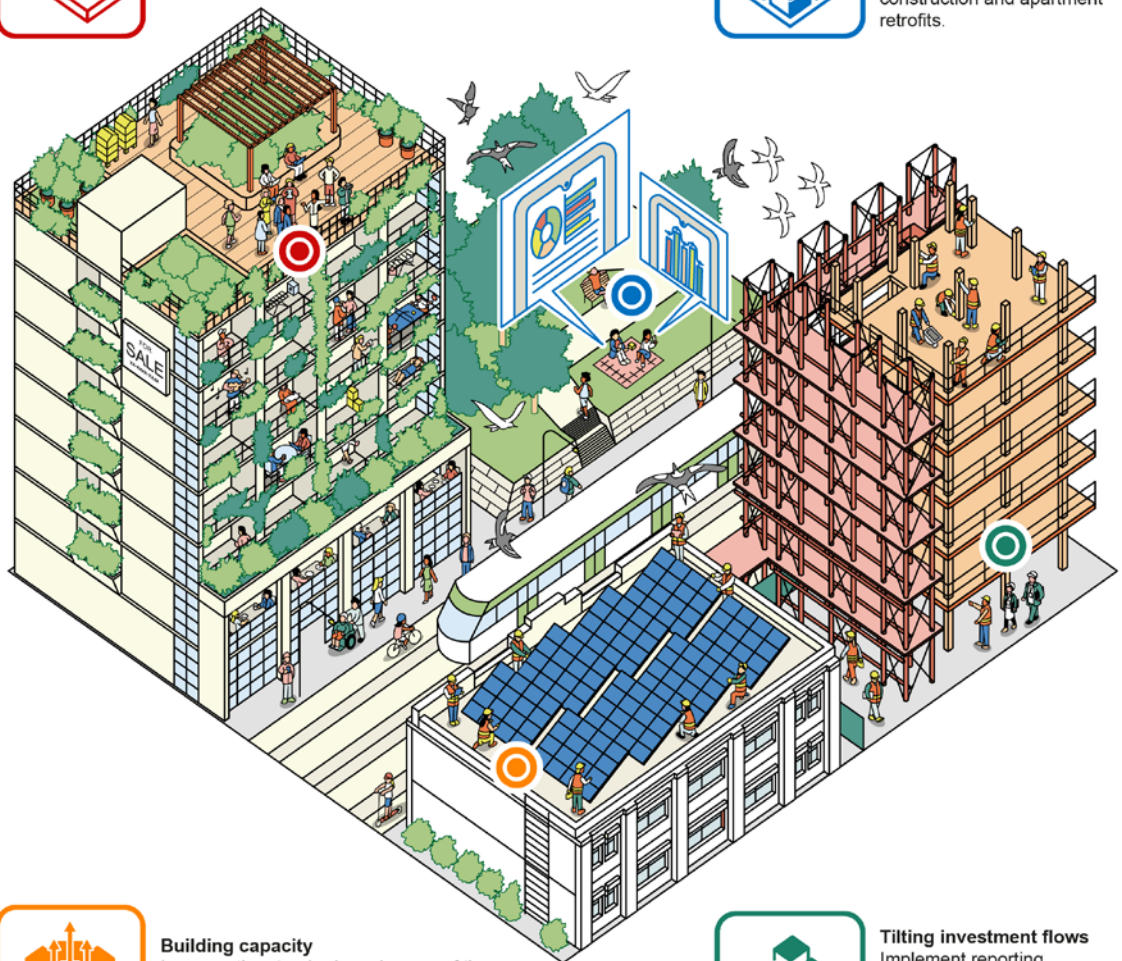
## Actions in the apartment housing field



**Reappraising value**  
Incorporate sustainability into valuation practice and mandate disclosure of environmental performance.



**Shaping markets**  
Develop national information repositories for Environmental Sustainable Design (ESD) in construction and apartment retrofits.



**Building capacity**  
Increase the standards and scope of the National Construction Code (NCC) and ensure those standards are met.



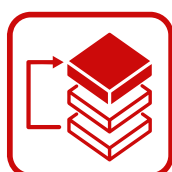
**Tilting investment flows**  
Implement reporting obligations to leverage private finance for circular economy housing.

# Social housing

## Steps towards sustainable social housing retrofit

### Strategic outcomes:

- Higher quality and liveable social and public housing
- Happier, healthier tenants
- Higher uptake of programmes and higher levels of satisfaction
- Better social housing policy



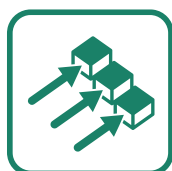
Reappraising value

- Recommend supporting the 'secondary' role of CE for its positive CE implications on tenant care and stock maintenance
- Promote Social Housing Providers (SHPs) and sitting tenants as beneficiaries of any interventions



Shaping markets

- Subsidise minimum quality and performance requirements for social and rental housing
- Create a better second-hand market for reuse and recycling of materials and technologies
- Where social housing infrastructure does not yet meet minimum standard, 'non-housing' energy assistance is appropriate (e.g., more efficient or moveable heating, winter fuel subsidies)



Tilting investment flows

- Move from rebates or support for one off retrofit to more holistic retrofits
- Focus of improvement should not necessarily be retrofits, and (in social housing at least) it should be on the people, not the dwelling
- Retrofits as one part of a package of assistance
- Occasional direct financial assistance to the tenants
- In many cases, the poor underlying quality of the SHP stock would make extensive retrofit unviable: in these cases, direct-to-tenant 'non-housing' assistance is more appropriate



Building capacity

- A dual focus on building capacity of SHPs and tenant households

## Actors and resources towards sustainable social housing retrofit



Reappraising value

### Who is responsible and how are they mobilised?

- Social housing providers, State housing authorities (Lead)

Requires retrofit guidance that considers liveability

### What can they do?

Ensure that CE or sustainability focussed retrofit interventions enhance basic liveability for residents



Shaping markets

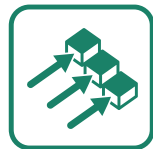
### Who is responsible and how are they mobilised?

- State governments, on ground service providers (Lead)
- Residents, retrofitters

Requires funding to support engagement and programmes

### What can they do?

Engage with tenants' and households' preferences in the design of retrofit intervention programmes



Tilting investment flows

### Who is responsible and how are they mobilised?

- State Governments (Lead)
- Housing providers

Requires policy or procedural mandate

### What can they do?

Make explicit and align the objectives of intervention programmes



Building capacity

### Who is responsible and how are they mobilised?

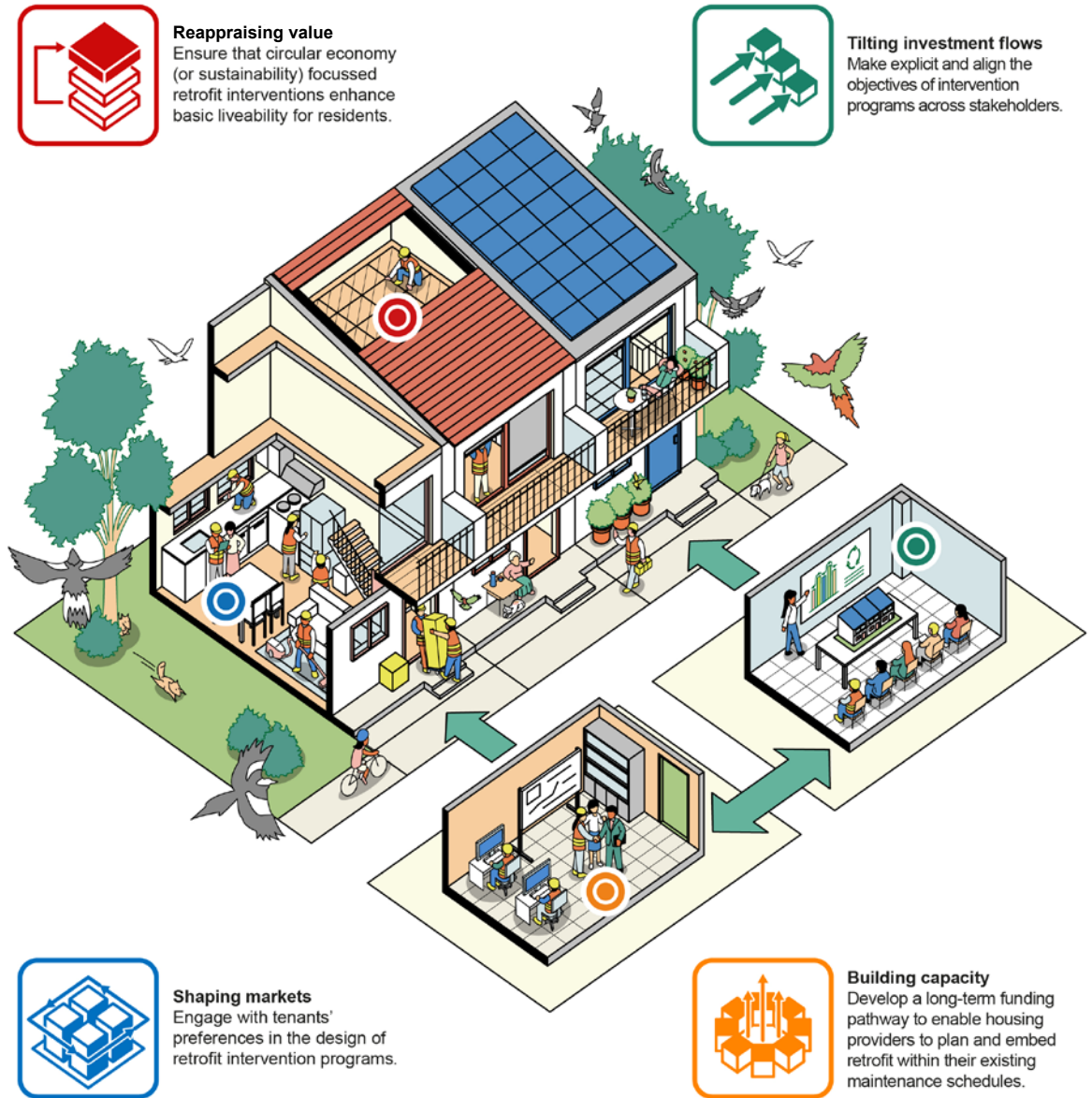
- Commonwealth Government, State Government, housing providers (Lead)

Requires strategic prioritisation and corresponding investment that embeds considerations of liveability into retrofit practices

### What can they do?

Develop a long-term funding pathway to enable housing providers to plan and embed retrofit within their existing maintenance schedules

## Actions in the social housing retrofit field

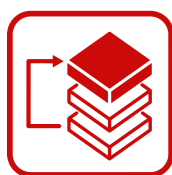


# Building materials

## Steps towards circular economy for building materials

### Strategic outcomes:

- Conserves embodied carbon in the existing materials of the residential housing stock and supports the progressive lowering of the carbon intensity of new residential housing and housing retrofits
- Framework for decarbonisation of high emission production of building materials, especially concrete and steel, developed with financial system regulators, investors and asset owners
- Inter-governmental agreement for decarbonising high emission production of building materials, especially concrete and steel, through innovative government procurement programme design



Reappraising value

Establish a fully developed model of the stocks and flows of materials in the Australian housing system so that:

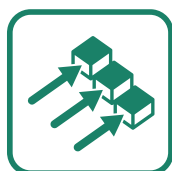
- the value of the embodied carbon in the existing housing stock is recognised and conserved in a carbon constrained world
- the level of additional embodied carbon being added to the housing stock through new build and retrofit is monitored
- the flow of embodied carbon in materials out of the housing stock is consistently monitored for conservation and reuse



Shaping markets

Establish a nationally auspiced project supporting making embodied carbon in the stocks and flows of building materials visible and trackable, through the digital representation of emissions through

- required use of Mandated Environmental Product Declarations (EPDs) for all manufactured building materials
- revision of all built environment codes and legislation that progressively require and support carbon accounting in the project design and specification, procurement, construction and verification phases of all residential housing projects
- designing and establishing a system supporting building material reuse by recognising the embodied carbon in construction and demolition waste (CDW)



Tilting investment flows

Support the continued examination of the ways in which policy makers can shape investment flows contributing to building materials production decarbonisation by

- presenting a case to finance system regulators that they establish a project on 'governing for the reduction of embodied carbon' in the built environment by expanding their concept of risk and respond to growing demand for sustainable investment opportunities
- establish a project that examines the opportunities for tilting investment flows into low carbon housing through public procurement of public and community housing



Building capacity

Support the continued examination of the ways in which policy makers can shape investment flows contributing to building materials production decarbonisation by

- presenting a case to finance system regulators that they establish a project on 'governing for the reduction of embodied carbon' in the built environment by expanding their concept of risk and respond to growing demand for sustainable investment opportunities
- establish a project that examines the opportunities for tilting investment flows into low carbon housing through public procurement of public and community housing.

## Actors and resources towards circular economy for building materials



Reappraising value

Who is responsible and how are they mobilised?

- Sustainable Buildings Research Centre, University of Wollongong and CSIRO (Lead)
- Australian Building Control Board
- Department of Industry, Science and Resources
- Australian Institute of Building Surveyors

Requires foreshadow national legislation that will expand the scope of the NCC to require accounting for the level of embodied carbon incorporated in the building materials used in residential housing construction and retrofit; and reuse of second-hand materials

What can they do?

Develop a model of the stocks and flows of building materials in the Australian housing system that

1. supports the analysis of embodied carbon in the existing housing stock and in the flow of materials into and out of this stock
2. reviews the adequacy data available to map the flow of building materials and consider measures for the further development of materials data systems



Shaping markets

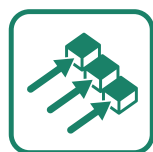
Who is responsible and how are they mobilised?

- Australian Building Control Board and EPD Australasia (Lead)
- Department of Industry, Science and Resources
- Australian Institute of Building Surveyors
- Department of Mechanical Engineering, The University of Melbourne
- The Future Building Initiative (FBI) Lab, Faculty of Art Design & Architecture, Monash University

Requires foreshadows national legislation that will expand the scope of the NCC to require the digital recording and tracing of building products incorporated into buildings, including housing

What can they do?

Make embodied carbon in the stocks and flows of building materials visible and trackable, through the digital representation of emissions



Tilting investment flows

**Who is responsible and how are they mobilised?**

- Australian Council of Financial Regulators, Reserve Bank of Australia, PRA Group, Australian Securities and Investments Commission, Australian Treasury (Lead)
- Department of Industry, Science and Resources
- Australian Bankers Association
- Industry Super Australia
- Infrastructure Australia
- National Housing Finance and Investment Corporation

Requires further development of the Safeguard Mechanism that will deliver emissions reductions consistent with Australia's Nationally Determined Contribution under the Paris Agreement

Establishment of an incentive payment system to the States and Territories in return for implementing agreed reforms leading to a low carbon procurement regime

**What can they do?**

Support the continued examination of the ways in which policy makers can shape investment flows contributing to the decarbonisation of building materials production



Building capacity

**Who is responsible and how are they mobilised?**

- Department of Education, Department of Industry, Science and Resources, Universities Australia, ABCB (Lead)
- Built environment professional programmes and associations
- State and Territory government
- Technical and Further Education (TAFE) agencies
- Trade licensing authorities

Requires a federal government funding requirement that State governments amend university acts of Parliament requiring each university to recognise the climate emergency and reflect this in their research and education programmes

State and territory governments to recognise the climate emergency in their TAFE legislation and collaborate in revising curriculum and supporting TAFE teaching staff to implement revised curriculum

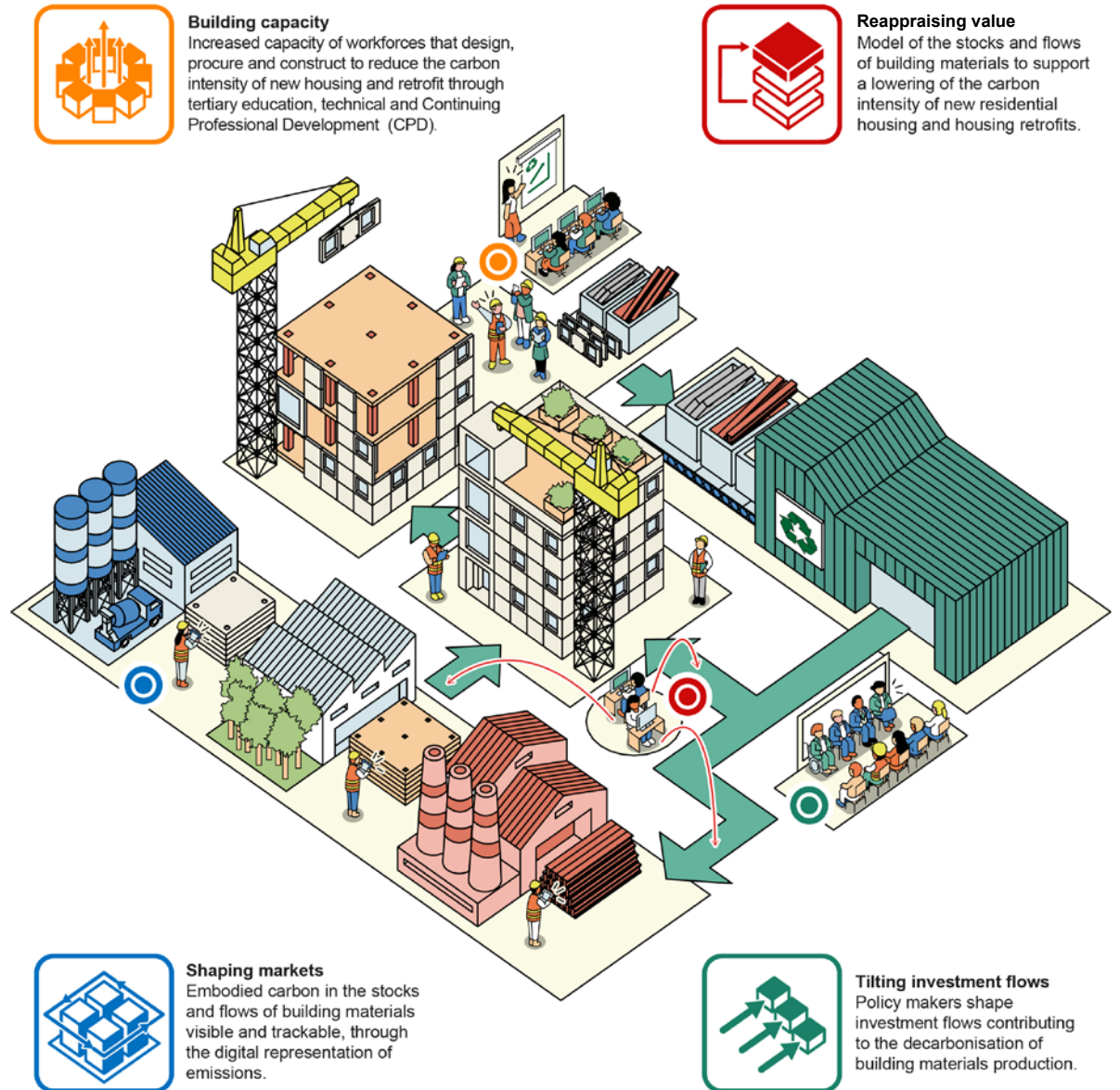
Foreshadow requirement that professionals undertaking contract work for governments must have satisfactorily completed required decarbonisation CPD programmes

**What can they do?**

Support increased capacity of workforces that design, procure and construct detached dwellings and mid-rise residential housing to reduce the carbon intensity of new housing and retrofit through initiatives in tertiary education, technical and further education and compulsory professional development (CPD)



## Actions in the building materials field





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