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Minister for the Environment and Water
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Sydney NSW 2016

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Dear Professor Thwaites AM

Circular Economy Ministerial Advisory Group – interim Report

Thank you for the opportunity to provide our comments on the Circular Economy Ministerial Advisory Group's interim report (**interim report**).

UDIA National actively supports Government's efforts to find practical and effective pathways to balance our climate change ambitions and the needs of the Australian community.

In the interests of time and space, we have directly answered many of the question you have posed and provide specific responses to key relevant areas.

About UDIA National

Urban Development Institute of Australia (UDIA) National is the development industry's most broadly representative peak body with more than 2,000 member organisations - spanning top tier global enterprises, consultants, small and medium-scale developers and local governments.

We represent the Development industry across all spheres from apartments to greenfield projects, Institutional investment and development through to small to medium scale builders and constructors.

UDIA's State members nationally, deliver new homes across the continuum for all Australians, including the majority of affordable housing. Many new homes in greenfield areas, and units in established areas, are sold to the market at or below the prevailing median house price, allowing new entrants into areas which they otherwise cannot afford to purchase.

UDIA National's advocacy is defined by our National Council – informed by our diverse membership base in each state and extensive network of state councils, committees and businesses on the frontline of housing. Our voice is backed by real world experience and quality evidence-based research designed to support good policy making and dialogue with governments, opposition and the bureaucracy.

Critically, our membership is the practical, real world, nexus between solving the housing crisis and efficient pathways for meeting our climate change objectives.

Overview of Industry and our approach

The Development and Construction industry is keen to find a simple, straightforward approach to meeting climate change ambitions that also safeguards the Australian Government's ability to meet promises to the Australian public on housing, infrastructure, cost of living and economic prosperity.

Put simply, irrespective of the strategy taken, our industry will be critical to the practical implementation of Australia's climate change ambitions in the built environment.

We want to work with the Circular Economy Ministerial Advisory Group directly and closely to workshop pathways to more effectively accelerate decarbonisation and circular economy goals.

Proper implementation of circular economy means materials never become waste and nature is regenerated. Products and materials are kept in circulation through processes like maintenance, reuse, refurbishment, remanufacture, recycling, and composting. The circular economy tackles climate change and other global challenges, like biodiversity loss, waste, and pollution, by decoupling economic activity from the consumption of finite resources. This means:

- Eliminate waste and pollution;
- Build in efficiency in a timely way through design, strategy and balancing regulation with incentives;
- Circulate products and materials (at their highest value);
- Regenerate nature,

All underpinned by a transition to renewable energy and materials.

Integrating circular economy principles in development practices is an important first step to achieving net zero.

Industry is keen to establish simple, practical and cost-effective pathways to achieve these aims.

We see that there are numerous simple ways that Government can effect material change now by simply removing barriers and restrictions that are holding back industry advancement – especially in the Greenfield space.

Implementation strategies, data barriers and incentives are critically important. We see the issues as follows:

- The Government has agreed with industry to consider the built environment (which includes greenfield developments) as a distinct pathway for climate mitigation and adaptation.
- Australia has also committed to Climate Change, net zero emissions by 2050.
- Industry is keen to establish simple, practical and cost-effective pathways to these aims.
- Circular economy principles need to be embedded into the strategy to achieve net zero.
- We need to be able to build with energy efficient materials, reduce the sector's carbon footprint and improve overall energy efficiency of new builds.
- Importantly, small to medium sized enterprises make 85% of all house construction and are a significant proportion of the greenfield market.

- Unfortunately, current carbon calculation tools are not suitable for use on greenfield development sites where there are hundreds of lots with different builders and purchasers.
- Currently, existing calculation tools, which are often referred to when discussing circular economy and net zero solutions, work well from a built form or 'vertical build' perspective, but have not been designed with greenfield developments in mind.
- Adoption of circular economy principles in the built environment have been held back by:
 - a lack of understanding that the developer/builder is very often unable to impact a "green" decision.
 - "Green decision-makers" including and especially consumers do not see the upstream value accruing to them or are caught between financial and practical limitations.
 - Regulations, planning and Government reluctance/uncertainty regarding maintaining "green" assets is severely limiting design choice in the built environment.
 - Lack of incentives to adopt "green" innovations means they cannot be incorporated in early design of buildings without pushing prices into unaffordable ranges for consumers.
 - Extreme cost of retro-fit to make existing stock efficient.
 - 85% of the housing market is developed by SME's that can adopt proven processes and innovations but have no capacity to experiment (as "cashflow corporations" without substantial balance sheets).
- Given the lag time between innovation, design, planning and final construction, we need to develop that practical pathway now to be able to embed a circular economy and achieve net zero targets.

Industry has several issues that need immediate improvement to achieve circular economy aims and this will significantly accelerate our progress on climate change:

- If circular economy policy decisions and implementation strategies will rely on a carbon calculation tool, we will need a greenfield/small build/subdivision specific tool that is acceptable to industry.
- Often there is no suitable carbon/energy efficient construction materials in a category, much less ones accepted by (local or state) government planners or engineers.
- Net Zero for buildings will require carbon credits to offset the (newly efficient) embedded carbon builds. It is extremely difficult for individual houses or greenfield developments to achieve energy saving innovations on their own.
- Current planning and building regulations for both developments and dwellings prohibit many green credentialled materials or energy sharing technology from being used.
- Existing building operations account for half of Australia's electricity use and almost a quarter of Australia's greenhouse gas. We need to focus on energy efficiency.

- Existing detached dwellings will need to be renovated or rebuilt in 20 -30 years – home owners and industry need incentives to rebuild/ renovate to overcome the expense or there will be limited impact on energy consumption.

Why is Circular Economy important?

Smooth implementation of a circular economy in the built environment is important to ensure we focus effort on the decision-makers (rather than perceived decision-makers), and take into account the practical limitations of finance, regulation and planning.

A misstep on any of these points means not only wasting resources and time, but also jeopardising future implementation.

In particular the low hanging fruit is preventing waste and inefficiency in the first place – an ounce of prevention saves a pound of cure. Designing infrastructure well in the first place is the most efficient way of reducing future carbon impacts. This is both in retaining the carbon form in the building fabric, through to the operational energy required as part of the building's ongoing use.

Design is often overlooked in favour of reuse and recycling of building materials at end of life and often at a lower value than that originally intended. International experience has proven if the incentives and regulation are well thought through and supportive of best practice circular design principles, buildings can be designed for multiple uses over a substantially long period of time. This is particularly prevalent in Greenfield areas, whereby reuse and disassembly of materials is virtually non-existent at present.

Equally, as a part of this, it is important to understand that the cost of implementation not only determines the pathway, but also has a carbon footprint in and of itself.

For example, using ABS figures for Australia's 2022 carbon emissions and GDP (463.9 million tonnes and \$690,960 million), every dollar earned in Australia contributes .7kg of carbon dioxide or around 1 tonne of carbon dioxide for every \$1,400 (1,000kg/.7kg = \$1,400) rounded to the nearest hundred. Every green choice has a carbon impact from cost/price let alone manufacture and use. This means there is a point at which a green alternative may more greatly impact emissions than an existing alternative (cost to purchase vs cost to use).

This is a useful measure since, unless you look to deplete savings, any dollars used must be replaced, and in effect money spent is future demand for more carbon emissions as you generate the funds.

Importantly, this is the carbon impact based on our activity now. In future, the expectation is this impact will reduce over time, but the extent to which we can reduce carbon emissions is a factor of how efficiently we can transition our high carbon activities which contribute to our Gross Domestic Product.

The end result of this approach, when applied to the comparison of traditional and green innovation alternatives show some surprising results. In particular a significantly more expensive green option may not be a better choice than maintaining an existing inefficient technology (we can provide calculations as required). Green technology is a key pillar to net zero, but we have to be discerning about how we adopt new tech and optimise use of existing tech – the best way to do this is through circular economy adoption – what we design now really matters.

This cost of funds exercise shows very clearly is five things:

1. The raw cost of green technology does matter and at current energy profiles, many green innovations may not be an immediate practical advantage over existing technology which may be accepted, cheaper to purchase and repair.
2. Unless/until we move to an almost completely renewable grid (which is difficult to cost effectively do in the short term given the base load requirements needed), the real carbon cost of funds for a given efficient technology may not offset.
3. Bringing down the cost of green technology alone does not solve the problem for net zero emissions. We need innovations to be both energy efficient and inexpensive (in an efficient energy grid) to really see gains.
4. We need to be more practical and discerning about green technology when comparing existing technology.
5. Saving money on any purchases can yield effective reduction of future demand for carbon. \$2,800 is equivalent of two tonnes of carbon or pulling a petrol car off the road for a year. Simple and effective for Governments which are constantly dealing with budget constraints.

These conclusions properly give circular economy principles an important context within the broader decarbonisation debate.

This exercise shows the positive and functional virtue of recycling, maintaining and repairing what we currently have. The strategy for replacement and innovation should be used when/if it is clear maintaining and repairing existing assets will yield a poorer result.

The Circular Economy – Some broader comments

UDIA in-principle support CEMAG's Interim Report to accelerate the path to net zero, but yet to see its practical implications, incentives and adoption pathways from this ambition.

Embedding circular economy principles and practices represents a substantial means of reducing carbon emissions through the application of embedded carbon in the building industry. It is estimated globally¹ and nationally that the contribution of the building sector to reduce carbon emissions is significantly higher as a percentage of carbon contribution from the built environment sector, which is poorly understood by industry practitioners.

Industry, particularly the built environment has a powerful role to play through embedding circularity and circular practices if the correct incentives, benefits, regulation and access to circular solutions are designed well, with industry and clearly communicated more widely over a reasonable timeline to allow the industry to adapt. UDIA understand the built environment has emerged as a sector of importance to Circular Economy Ministerial Advisory Group (CEMAG).

¹ <https://www.unep.org/resources/report/building-materials-and-climate-constructing-new-future#:~:text=The%20buildings%20and%20construction%20sector,staggering%2037%25%20of%20global%20emissions.>

The Federal Government has outlined its vision for the community to transition to a circular economy by 2030. While there is considerable effort towards building a narrative of why a circular economy is important and preferable to a linear economy, the rules, regulations and guidance are still lacking to achieve the scale of change required to become a circular economy by 2030. For this to be achieved, it requires all sectors of government and civic society need incentives and clear direction to move from ambition to action, if the Federal Government's scale of change is to be realistically achieved.

Although there are some encouraging circular case studies throughout Australia, there is unlikely to be any significant progress in circular economy implementation, at scale, until these critical areas are addressed in a meaningful way.

Many of the circular economy practices required to influence change are evolutionary not revolutionary but are yet to be realised at scale, even if the knowledge and expertise exist to drive this change forward. Most circular economy practices are going unrealised due to the lack of incentives and clear direction as described above.

The UDIA has recently drafted a background paper on the Circular Economy and Net Zero which details the potential for UDIA members to adopt these practices and points towards the required regulatory and funding mechanisms required to encourage circular economy practices amongst its members.

While the UDIA generally supports the Circular Economy Ministerial Advisory Group's ambition for more sustainable outcomes, it is noted that these ambitions are not universally understood or adopted by other Federal agencies such as the Climate Change Authority (CCA) who recently released an issues paper on Net Zero and the Circular Economy, with little acknowledgement of the actions, advice, principles or ambition of CEMAG. UDIA have since pointed this out in a recent response to CCA who were keen to know more and receptive to our observations.

UDIA is interested to understand how the Development industry can take a positive role in the emergence of the circular economy for its members. We see dialogue and understanding as a way to work with CEMAG, before initiatives become regulated such that we can support our members to take advantage of opportunities already unlocked internationally.

UDIA appreciate that if done well, with the right planning and incentives, these circular opportunities will be devised collaboratively and available for Australian Development Industry to drive forward.

UDIA Recommendations and Rationales.

There are numerous ways in which we need to accelerate decarbonisation and many of them are not expensive and elaborate solutions, but simply getting out of the way of industry to find a pathway forward (once the objective is set).

Critically, much of the current regulation as well as actions of Governments in all spheres, contribute to limit, hold back or even prohibit green innovation. This is often nothing to do with a lack of motivation or conflicting principles, but more to do with the collision of two practical realities – cost and complexity.

For example, LGA's are concerned about inheriting innovations (e.g. materials innovation, reuse of recycled materials and materials with recycled content, low carbon concrete), in civil and landscape construction even-though (many of) the products and materials have approved product specifications (e.g IPWEA standards) and EPA's.

This is often due to LGA's being unfamiliar with new products and innovations, lack of experience through prior product applications and/or lack of knowledge through project case studies, and hence the risk (real or perceived) of liability should the product not perform or even fail, or possible environmental impacts (e.g., leaching, dust, odour).

This is especially the case with more capital-intensive construction such as roads and pavements, parking areas, retaining walls. Use of such materials by private sector developers have in the past required a significant bond (or similar insurances) to cover an extended period beyond standard defects.

It can also be a question of budgets (or lack thereof) and concerns with maintenance and performance of new concepts. A lack of certainty can kill a concept dead just as easily as resistance to change.

Resolving these issues can be achieved through a more coordinated approach led by state Govts. and coordinated through the National Cabinet to achieve consistent verifiable standards and regulations in the use of materials innovation, reuse of recycled materials and materials with recycled content.

For example, programs such as the VicRoads ([ecologiQ - Victoria's Big Build](#)) and the Waste Authority WA / Main Roads WA 'Roads to Reuse' program ([Roads to Reuse | Waste Authority WA](#)) are useful in developing pathways for reuse of recycled materials, however there is no clear mechanism or pathway for the standards to be applied at a local Government level. Often the issue is that the standards applied to high and heavy use applications (such as highway and freeway road, bridge and interchange construction) are sometime not directly applicable to local government and residential subdivision development requirements – e.g., for local low traffic needs).

However both these programs can be referenced to provide a useful structure whereby a nationally coordinated program is rolled-out that include developing partnerships with the private sector – materials manufactures, developers, and state local Governments partner in the application of materials innovation, with a clear mechanism to address product verification, and to underwrite concerns of liability and financial costs.

Below are more immediate solves for some of the more direct problems that exist in this space.

Recommendation 1

The Federal National Circular Economy Ministerial Advisory Group (MAG) must consider greenfield developers and builders as part of its final recommendations, to design strategies and tools that can be used in growth areas, and not be limited to Inner urban development environments.

- As noted before, small to medium sized enterprises make 85% of all house construction in Australia and encompasses a significant amount of the greenfield market
- Current tools and strategies for calculating carbon for housing are designed for inner urban, multi storey developments which are typically controlled by one developer who manages the

entire life cycle of the development – design, procurement of materials, build, fit out, site management and maintenance to work out efficient carbon development.

- Greenfield or small developers may control an individual site up to hundreds of land lots, but typically will not have control over the design, build or materials which are decisions with the builder or purchaser – keeping calculation with the Developer means many sites cannot confirm their carbon footprint.
- It is important for all developers to have the capability to efficiently measure carbon footprint to the extent they can, and at various stages in the project process, so that data can inform decision making and optimisation of designs, etc. It can also be important as part of operationalising organisation Net Zero targets. Some are already developing these capabilities.
- If you are going to recommend tools for measuring carbon, you will need to develop a tool which is suitable in a greenfield context and the UDIA is keen to assist.
- NB: UDIA WA project is underway to enable this for land development, which will include basic built form templates as well for life cycle assessment.

Recommendation 2

The Federal, State, Territory and Local Government in close collaboration with industry, need to fast track building and planning rules that provide options to promote rather than prohibit (but not require), the use of carbon efficient/green credentialled materials, build products and development innovations so that housing builds and precincts can hit net zero.

This approach would include Federal Government coordinating agreement with states and Territories to:

1. Resolve and Remove Federal, State and Council restrictions/prohibitions on green construction materials for developments including ensuring the use of up to date engineering standards and balancing green credentials vs maintenance of materials. Often for example, Councils, prioritise asset management over sustainable or recyclable advantages.
2. State government policy reform to allow net zero innovations at a suburb scale to be implemented such as:
 - a. Energy and battery technology to scale up green efficiencies – Energy sharing technology between houses (such as micro grids, embedded networks and community battery storage).
 - b. Water innovations such as storm water to potable water concepts; advanced desalination, water reuse and recycling systems; grey water and black water treatment and reuse concepts.
 - c. Construction innovations such as permeable surfaces in streets to capture rainwater and utilise in place for irrigation of street trees.
3. Land subdivisions/DA's should allow and incentivise houses to share innovations that promote carbon neutral or carbon credits without the need for body corporates:

- a. Energy sharing technology including batteries as well as electric output.
 - b. Green tree zones for sharing any carbon credits across a development.
 - c. Neighbourhood 'Circular Economy Hubs' which encourage the sharing, re-use, recycling and avoidance of products going to landfill. These Hubs also encourage community and social development and reduce transport dependency through co-ownership and sharing unneeded materials.
4. Model planning schemes to incentivise, passive solar, natural ventilation, shading etc in sub-divisional design and area plans.
- Net Zero for buildings will require carbon credits to offset the (newly efficient) embedded carbon builds. It is extremely difficult for individual houses or greenfield developments to achieve energy saving innovations on their own due to expense, complexity and scale needed for some systems/innovations.
 - Current planning and building regulations for both developments and dwellings prohibit many green credentialled materials from being used in developments.
 - Education on sustainable material usage, its benefits and incorporation is necessary at all levels of Government. Local Government in particular often have rules and guidelines that prioritise asset management over sustainable or recyclable advantages, leading to prohibition of otherwise useful materials from developments.
 - Many regions prohibit rather than incentivise energy sharing technology and carbon credits.

Recommendation 3

The Federal, State and Territory Governments must establish incentives to encourage developers, builders and purchasers of dwellings to invest in a broad spread of high performance green technology that may only benefit downstream users or long term. This could include low interest loans or grants for green/sustainable infrastructure.

- This would include products such as every solar panel upgrade, energy reduction initiative, thermal insulation. They all benefit the User not the Developer unless the Developer can charge a premium to offset these required services.
- Technologies and materials that are recycled, recyclable or high efficiency often are not chosen because of cost and the benefits do not appear in the short term or are an advantage to other (non-paying) users – eg: recyclable products do not advantage average home owners looking for a forever home or that are unlikely to renovate – energy efficient insulation and technology that is carbon neutral may not be economically feasible for housing affordability and ignored in favour of more cost efficient materials.
- Forcing sustainable credentialled products on developers and purchasers where end users are not prepared to pay for the innovation (eg: involving high early expense with long payback

periods), make product more expensive with no added advantage – this acts directly against increasing dwelling supply and housing affordability.

- We need to incentivise Developers to go further so tenants benefit from sustainability/circular economy initiatives, to enable Australia to meet its net zero targets and stop prioritising virgin materials over recycles/reused materials.
- Further, incentivising the adoption of industry-led green credentials such as EnviroDevelopment and Green Star Communities, will push green outcomes towards a pragmatic place for the end-user (with specific reference to benefit for the end-user).

Recommendation 4

The Federal, State and Territory Governments in close collaboration with industry, must prioritise and incentivise options for reduction of energy consumption to make new and existing buildings operationally efficient, deliver sustainable and carbon efficiencies that are multiples higher than reducing embedded carbon. This should provide greater scope for efficiency without regulating any specific product type or innovation to be incorporated.

This would include:

1. Working with developers and builders to identify the greatest efficiency for a given spend in a reasonable timeframe – especially new vs renovation vs rebuild. This includes impacts of embodied carbon and carbon abatements possible through adaptive re-use and any financial incentives to do so (carbon credits etc)
2. Incentives focusing on providing more options for efficient new and retrofit projects as well as considering incentives to encourage full replacement of existing builds with highly efficient new builds to significantly reduce energy consumption.
3. Incentivising passive design – good design principles rather than added tech, will have the greatest impact on a reduction in energy in Australia. Passive design considerations vary from climate to climate so there is no one-size-fits-all scenario.
4. Insulation, double glazing, sustainable materials.
5. Replacing gas with electricity.
6. EV charging.
7. Heat pumps.
8. Geothermal technology.
9. PV Solar Installations.
10. Solar hot water.
11. All electrical devices to be Demand Enabled Response Capable (DRED).

12. Green walls and other green infrastructure.
 13. Passive solar orientation.
- Current data indicates that a house over a 40 year lifecycle on average embodies between 16 – 26 tonnes of Co2 (upon build), and releases 10.97 tonnes of Co2 per year. This means lifetime emissions are a far greater impact by a factor of x30.
 - Reducing embedded carbon in new builds will do nothing to reduce the existing inefficient buildings.
 - Retrofitting efficient technologies into existing dwellings is the most practical way to improve existing buildings, but it is expensive and has limited efficiency improvements over knockdown rebuilds. Knock down rebuild however (on current calculations), create the largest carbon footprint through removal of the existing non-recyclable materials/build and replacing a full build.
 - Existing greenfield dwelling will need to be renovated or rebuilt in 20 –30 years. Without incentives to rebuild/renovate in order to overcome the expense, there will be limited impact on energy consumption.

Recommendation 5

The Federal Government should:

- 1) **not adopt any targets or restrictions on industry businesses that fail to demonstrate net zero contribution until there are sufficient alternative products in the market to avoid further jeopardising housing affordability.**
- 2) **incentivise the acceleration of green credentialled products for development.**
 - One of biggest problem with net zero in the property industry is that current products in the Greenfield market are designed to give the best build for an affordable price but were never designed for carbon neutral.
 - Government should not adopt targets and restrictions that will impact upfront cost of housing delivery. This ultimately, adversely affects housing supply, project viability and affordability.
 - The affordability for operations and maintenance of housing by a purchaser, has broader benefits to the community but until technology becomes less expensive, innovation will be held back without Government incentives.
 - Any move to net zero must take into account policy objectives such as supply of housing, affordable/social housing targets and the construction cost increases on development. Adding net zero requirements at this stage without adequate time for builders and developers to pivot and without an influx of accessible and affordable net zero products on the market in Australia, will only exacerbate the affordability crisis already being experienced by the Australian market.

- Unless there are alternative materials in the market that can allow a builder/developer to achieve net zero, it is unfair and counterproductive to penalise the market.
- Government will need to incentivise creation of “green materials” as penalties or restrictions will have the adverse impact of forcing up prices for houses and restricting stock in a crisis or pushing developers out of business.
- Equally, Government needs to adopt a staged approach to introducing technology to the industry especially where innovation is costly to ensure it does not impact viability of project and businesses. This would involve providing targets to larger more financially strong organisations and allow for adoption in a number of years by smaller organisations once the teething issues are worked out.

We are keen to work with you on these ideas and strategies. Please let us know when you would be available to workshop on the interim report.

In the meantime, please do not hesitate to contact the UDIA National Head of Policy and Government Relations - Andrew Mihno on 0406 454 549 to discuss this submission.

Yours sincerely



Col Dutton
UDIA National President