

# Net Zero Precincts: Experimentation to Accelerate Decarbonisation

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NEW ECONOMY NETWORK AUSTRALIA  
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# WHY URBAN TRANSFORMATION IS NEEDED...

## Climate emergency and SDGs



More than half of the global population lives in cities, and this is expected to increase to 75% in 2050.



Cities account for over two-thirds of world energy demand and more than 70% of global carbon emissions.



Cities are economic powerhouses and contribute to over 80% of GDP.



509 cities, 2,162 businesses, 120 countries, and 571 Higher Education Institutions have committed to achieving net zero carbon emissions by 2050. This covers nearly 25% global CO2 emissions and over 50% GDP. (UN Race to Zero).



Precincts can be appropriate scale for accelerating the transition to Net Zero cities.

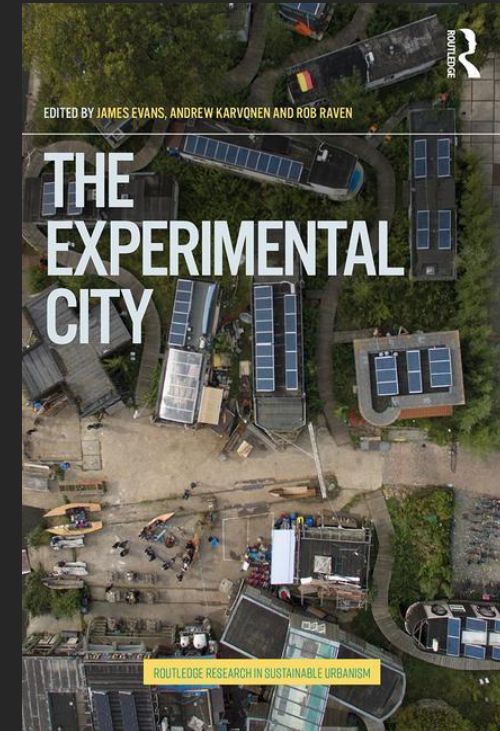
# URBAN EXPERIMENTATION

Diverse actors coming together to trial alternative city futures



*“Cities are sites of frantic interaction where multiple socio-technical systems connect, possibly providing opportunities for radical changes when tensions between multiple systems create windows of opportunity for agents of change.”*

Sengers, F., Wieczorek, A. J., & Raven, R. (2016). Experimenting for sustainability transitions: A systematic literature review.



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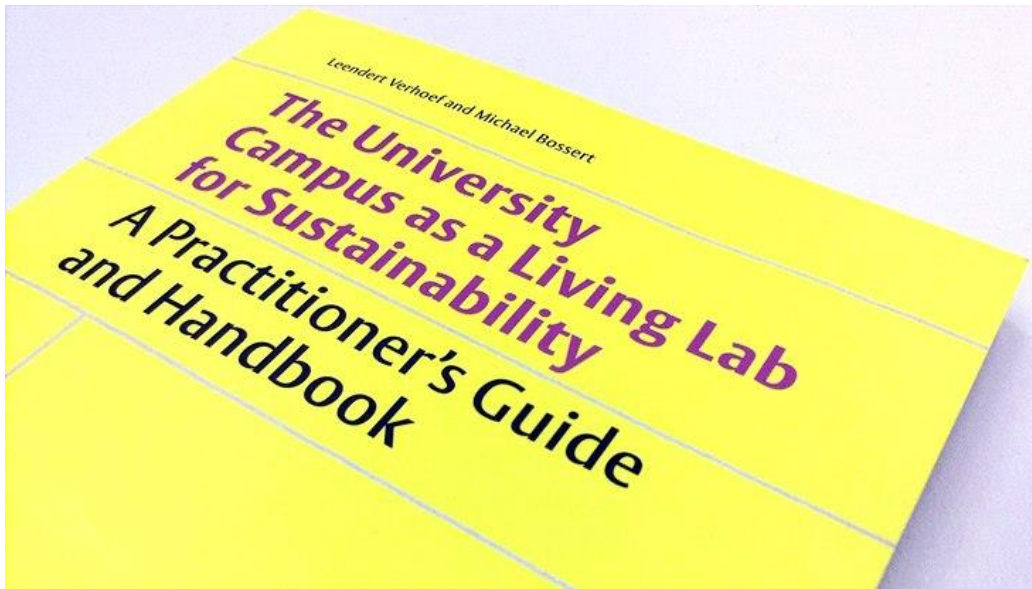
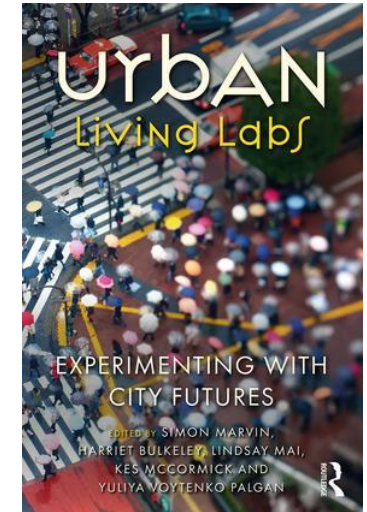
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# URBAN LIVING LABS

## Social learning and co-creation at local scale

- Urban Living Labs are sites for experimentation that utilise processes of social learning and participant co-creation for socio-technical innovation at the local scale (Liedtke, Welfens, Rohn, & Nordmann, 2012);
- ULLs enable participants to design, test, and learn in real-world contexts (von Wirth, Fuenfschilling, Frantzeskaki, & Coenen, 2019).



*“University communities are excellent venues for testing, accelerating and scaling solutions..[and]..have an astounding capacity to contribute to achieving global sustainability goals and to CO2 emission reduction.”*

Verhoef, L., & Bossert, M. (2019). The University Campus as a Living Lab for Sustainability: A Practitioner's Guide and Handbook. Delft University of Technology: Delft, The Netherlands.

# NET ZERO INITIATIVE

Leading the way to a 100% renewable future



## Energy efficiency

We're reducing the overall energy of our operations through LED lighting upgrades, sustainability certification for new buildings, and investing in smart building technology.



## Campus electrification

We're ending our dependence on natural gas by fully electrifying our Australian campuses. By 2030, energy consumption will be through electric-only appliances.



## Renewable energy

All energy on our campuses will be from renewable sources, ensuring net zero carbon emissions from our infrastructure and operations.



## Microgrid

We'll build an on-site microgrid at our Clayton campus, allowing us to control when and how to use our energy.



## Offsetting

We've committed to purchasing offsets with Verified Emissions Reductions, either through the Verified Carbon Standard or Gold Standard.

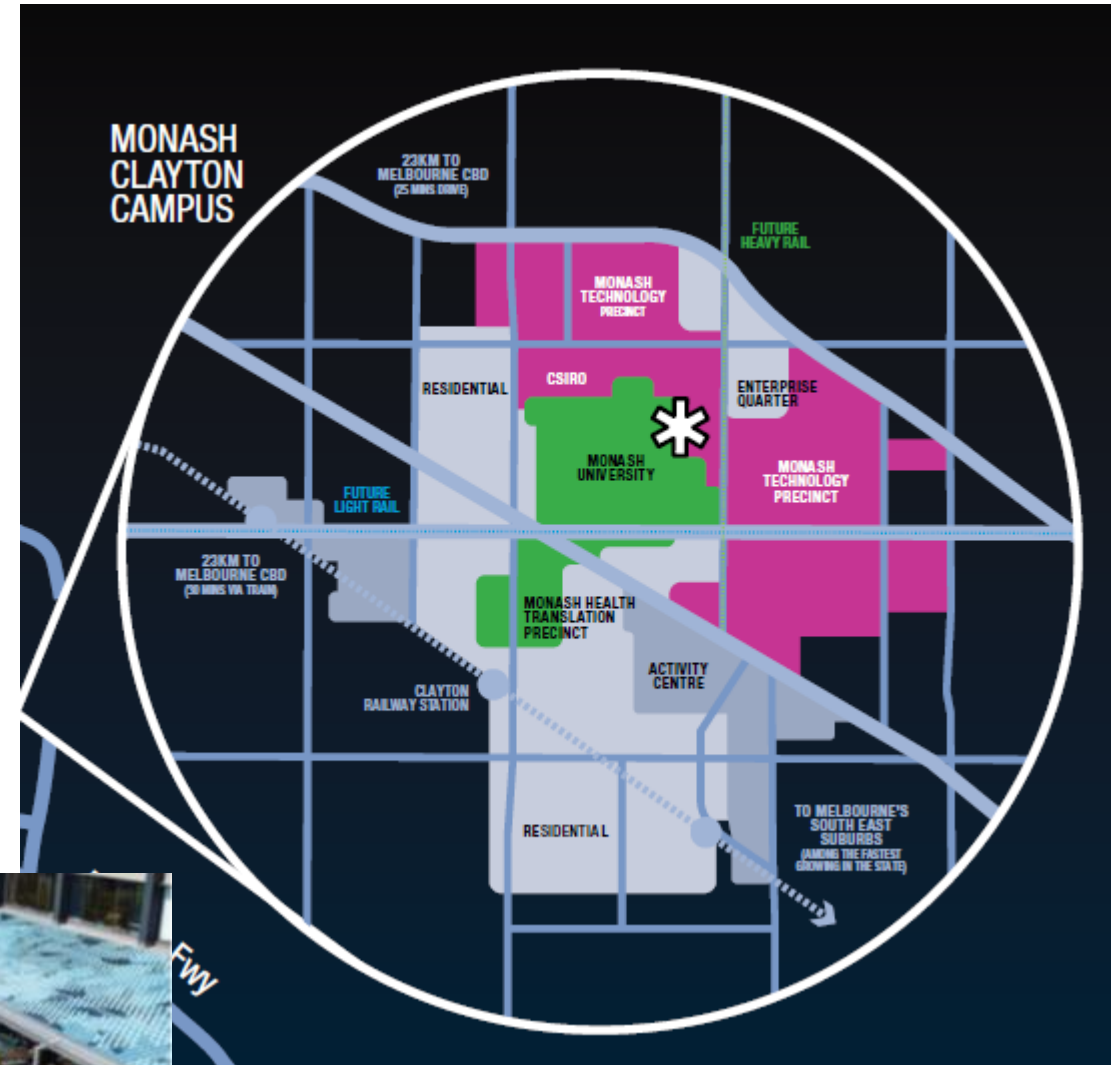
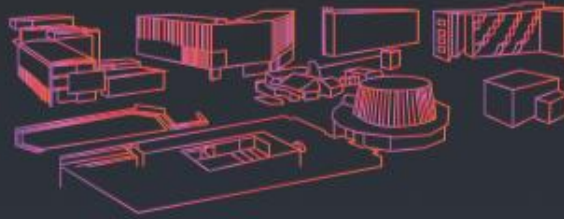


# MONASH NET ZERO PRECINCT

## Urban Living Lab

### PRECINCTS AS LIVING LABS TO EXPLORE FUTURE PATHWAYS FOR URBAN TRANSFORMATION

Precincts are relatively small urban environments where people come together to live, work, study, manufacture and do business. At the precinct scale, new technologies, business models, behaviour change and market reforms can be trialled to learn about their feasibility and desirability in a comprehensive, place-based and integrated way. Precincts can be **living labs** that demonstrate the transformative capacity of zero carbon energy, building and mobility solutions while positioning Australia for its rapidly growing population.

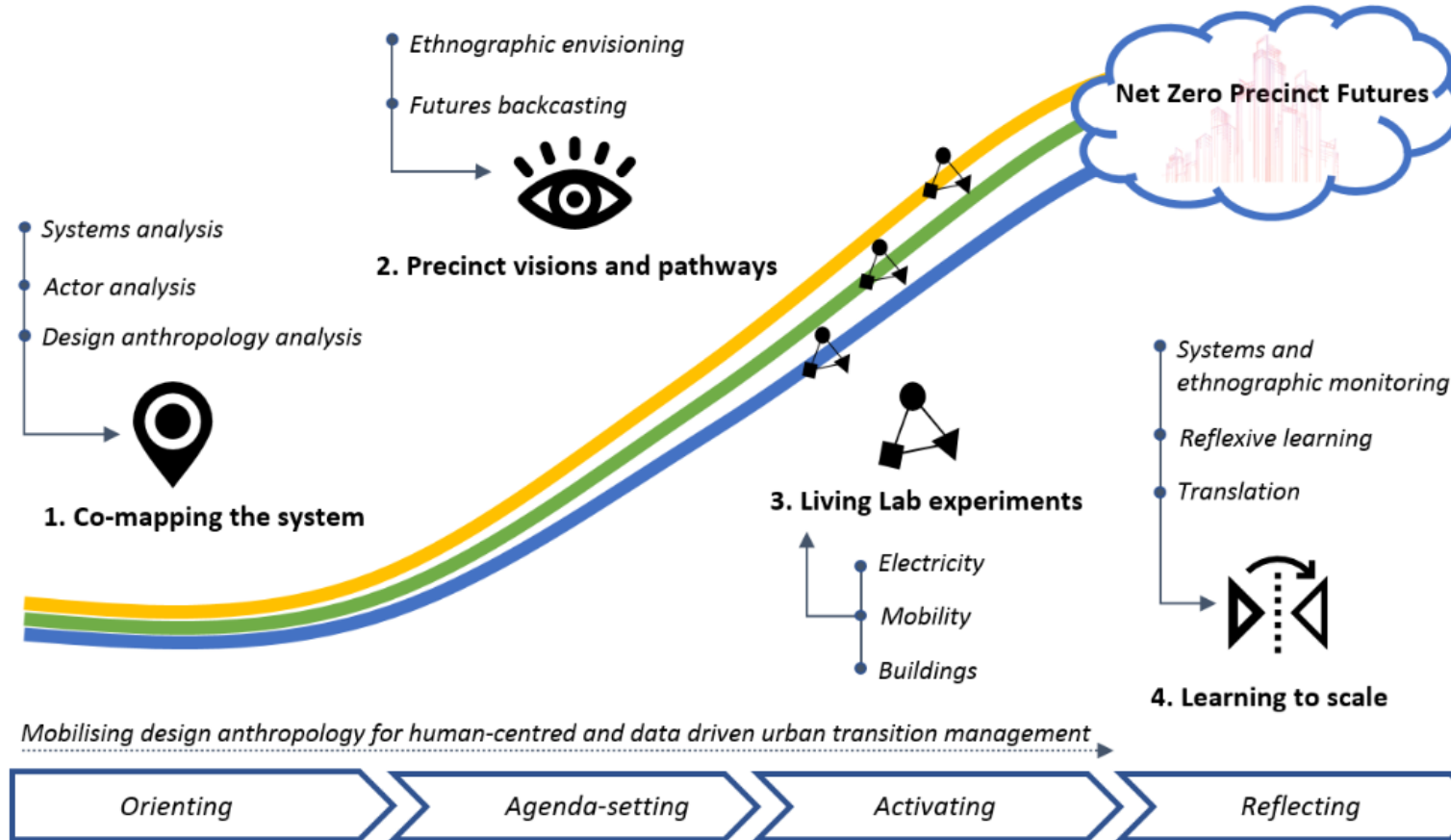


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# NET ZERO PRECINCTS

\$1m ARC Linkage project over 4 years



Adapted from Neven et al. (2013)

## Collaborators

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 **ENGIE**

 **energy efficiency  
COUNCIL**

 **GREATER  
DANDENONG  
City of Opportunity**

 **CITY OF  
MONASH**

 **ICLEI  
Local  
Governments  
for Sustainability**

 **GBPN  
Global Buildings Performance Network**

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# URBAN PLANNING BY EXPERIMENT AT PRECINCT SCALE

## Enabling processes of experimentation



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2021, Volume 6, Issue 1, Pages 195-207  
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Article

### Urban Planning by Experiment at Precinct Scale: Embracing Complexity, Ambiguity, and Multiplicity

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#### Abstract

Urban living labs have emerged as spatially embedded arenas for governing urban transformation, where heterogeneous actor configurations experiment with new practices, institutions, and infrastructures. This article observes a nascent shift towards experimentation at the precinct scale and responds to a need to further investigate relevant processes in urban experimentation at this scale, and identifies particular challenges for urban planning. We tentatively conceptualise precincts as spatially bounded urban environments loosely delineated by a particular combination of social or economic activity. Our methodology involves an interpretive systematic literature review of urban experimentation and urban living labs at precinct scale, along with an empirical illustration of the Net Zero Initiative at Monash University in Melbourne, Australia, which is operationalising its main campus into a living lab focussed on precinct-scale decarbonisation. We identify four processual categories relevant to precinct-scale experimentation: embedding, framing, governing, and learning. We use the empirical illustration to discuss the relevance of these processes, refine findings from the literature review and conclude with a discussion on the implications of our article for future scholarship on urban planning by experiment at precinct scale.

<http://dx.doi.org/10.17645/up.v6i1.3525>

### Enabling processes of experimentation:

- ***Embedding***: anchoring to formal and informal institutions;
- ***Framing***: problem structuring, visioning and narratives of change;
- ***Governing***: collaborative partnerships and new institutional arrangements;
- ***Learning***: reframe “problems and solutions” with stakeholders, ongoing monitoring;



# THANK YOU

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