

Consultation RIS - Proposed NCC 2022 residential energy efficiency provisions

(<https://consultation.abcb.gov.au/engagement/consultation-ris-proposed-ncc-2022-residential/>)

Response 1057310351

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Include unanswered questions

Personal Information

What is your name?

Krista Milne

Please select your State or Territory

Please select one item

ACT

NSW

NT

Qld

SA

Tas

Vic

WA

What is your organisation? (if applicable)

City of Melbourne

Which best describes your industry sector?

Please select one item

Building Commercial

Building Residential

Building Commercial and Residential

Building and plumbing products

Building Certification/ Surveying

Architecture and design

Engineering

Plumbing

Compliance, testing and accreditation

Legal and Finance

Specialist - disability access

Specialist - energy efficiency

Specialist - fire safety

- Specialist - health
- Specialist - hydraulic/ plumbing
- Student/ apprentices
- Trades and other construction services
- Education
- Community and Non-Government organisations
- Government
- General Public
- Other

Statement of the problem

1. Does the CRIS adequately identify and define the problem?

Please select one item

- Yes
- No
- Unsure

If you would like to expand on your answer, please do so below

The City of Melbourne believes that health, wellbeing, resilience to increased weather uncertainty are critical to any code which at its core is designed to protect the wellbeing of the Australian Population.

As such we believe the CRIS disclaimer on page xxi undermines the ability to adequately identify the problem and provide the data to support decision making on the NCC 2022 'our assessment suggests that improvements to occupant health and amenity and the resilience of a building to extreme weather and blackouts from the proposal would be immaterial.'

CRIS review has shown significant limitations in the way the societal benefits of the proposed NCC2022 have been modelled.

Specify we ask that the ABCB include the societal right for healthy homes as a basic

need in the scoping of the problem and review the methodological choices which take away from the rigor of the conclusions.

2. Are there any other problems not considered by the CRIS?

Please select one item

- Yes (please explain your answer below)
- No
- Unsure

Please expand on your answer below

In the original work carried out for the ABCB by Energy Efficient Strategies: NCC 2022 Update Whole-of-Home Component v3 (Aug 2021), discusses an Option 1 of 'zero net regulated energy', yet this is not one of the options considered in the C-RIS. Given the very high cost-effectiveness of solar PV, this could easily be the most cost-effective yet it has not been modelled, assessed or even referenced in the C-RIS.

3. Does the CRIS establish a case for amending the energy efficiency provisions of the NCC?

Please select one item

- Yes
- No (please explain your answer below)
- Unsure

Please expand on your answer below

Not yet, currently the costs look high because the benefits and costs have been treated differently. The need to building healthier homes is clear, to reduce energy

consumption and bills, to contribute to health and wellbeing and to enable the built environment to adapt to changes in climate. Aspects that need to be revisited are the benefits of liveability, household energy affordability and energy system (grid) stability, reduced public spending on energy efficiency programs, innovations and technology and job creation.

Objectives and options

5. Which of the options analysed have the ability to meet the stated objectives?

Please select all that apply

- Option A
- Option B
- The status quo
- None of the options
- Unsure

Why did you make that choice? And how can the options be enhanced?

Though both will meet stated objectives as the scale of contributions are not specified. Option A is expected to be more effective at meeting the stated objectives and will enable Australia to be in a stronger position to meet its international commitments.

7. Of the options discussed in this chapter which would be the most effective at achieving the stated objectives and why?

Class 1

Please select one item

- Option A
 - Option B
 - Status quo
 - Unsure
-

Class 2

Please select one item

- Option A
- Option B
- Status quo
- Unsure

Please expand on your answers below

Though both will contribute to meeting the stated objectives, the requirements placed on buildings through option A will be more effective at achieving the stated objectives. Though Option A is likely to be more effective at achieving all four objectives, there are a few limitations to this, in that there needs to be attention paid to the airtightness of buildings and how compliance is verified. Though implementation and verification is a state responsibility, the effort in updating the code will not reach its potential without a nationally agreed approach to the need to have compliance / verification / enforcement pathways.

8. Which is your preferred option? (Answer required)

Class 1

Please select one item

- Option A
 - Option B
 - Status quo
 - Other
-

Class 2

Please select one item

- Option A
- Option B
- Status quo
- Other

Please explain your answer below

Option A for both Class 1 and Class 2 buildings provides better alignment between the NCC and the City of Melbourne's zero net emissions by 2040 commitment. What is most important is building on this and having a continued strong trajectory for 2025 and not waiting for 2028 for the next update. As the EES showed it is possible to have zero emissions homes with the use of PV technology and as the work of Isaacs and CSIRO has shown this is feasible in Victoria to go to 7.5 stars. 30% of new builds in Victoria already design and construct to a 7.5 NatHERS rating or above. (CSIRO, 2021 and BESS).

9. What should the objectives of the residential energy efficiency provisions of the NCC be?

Please select all that apply

- Reduce energy use
- Reduce greenhouse gas emissions
- Improve occupant health and amenity
- Improve the resilience of a building to extreme weather and blackouts
- Other

Please explain your answer below

C-RIS page xxi disclaimer that 'our assessment suggests that improvements to occupant health and amenity and the resilience of a building to extreme weather and blackouts from the proposal would be immaterial.' Though it is understood that it is that the change from 6 to 7 stars that has been deemed to be immaterial.

The City of Melbourne supports the increased energy efficiency measures proposed by NCC2022 as buildings are the biggest contributor to emissions in the city accounting for 66% of total municipal greenhouse gas emissions and encourages NCC2022 to give greater consideration to the integrated climate adaptation and mitigation benefits. Without ambitious development and building energy standards, Australian cities like the City of Melbourne will be unable to reach our goal of zero net emissions by 2040. This is essential if we are going to effectively respond to the climate and biodiversity emergency.

The City of Melbourne recommends the NCC2022 addresses additional criteria beyond reduction use, such as improved liveability, climate change adaptation, resilience, future readiness, health and wellbeing. Our response to the NCC2022 is well considered and relies on endorsed positions of Council, especially the following strategies and plans: Amendment C376 Sustainable Building Design, Green Our City Strategic Action Plan 2017-2021; Transport Strategy 2030 and the Climate Change Mitigation Strategy to 2050. Council's position is also informed by recent observations, learnings and science as well as the current declared state of a climate and biodiversity emergency.

Framework for analysis

10. Are there any assumptions or parameters used in the analysis that should be different?

Please select one item

Yes (please provide details below)

No

Unsure

Expand on your answer below. If you answered yes, is there some alternative evidence that could be considered?

The City of Melbourne suggests that it is critical for the RIS to incorporate the climate implications on capital cost of the shifting climate. We believe this is not demonstrated/costed, the consequence is that as more Victorian households reduce heating and increase cooling demands this will affect the building fabric and reduce the capital cost.

Another assumption which should be revisited is the cost penalty is assumed for Class 2 buildings on the grounds that they may face 'practical difficulties' (p.56) in installing solar PV systems. While there are considerations, particularly for strata-titled buildings, these are not new and many solutions have been identified to overcome the problems. Thus the CRIS assumption that 7 star apartments must be achieved via an 'all equipment pathway' may be unnecessarily costly. Also, the option of covering renewable power needs with offsite renewable energy, such as a long-term Power Purchase Agreement (PPA), covenanted within strata title rules, does not appear to have been considered.

One significant shortcoming of the NCC 2022 proposed is its position on gas appliances. This embeds technology and fixed infrastructure in new buildings which will be obsolete in the next decade. The City of Melbourne's Planning Scheme Amendment C376 Sustainable Building Design proposes to join other councils in requiring no gas connection in all new builds and major retrofits.

The report uses a discount rate of 7%, it is our understanding that the rate supposed to be weighted cost of capital. The USA, Europe and UK all use 3%. The implications of using 7% is that it significantly reduces value by approximately 70% c.f. above countries. Though this is the OBPR official rate, and we understand that a sensitivity

was done from 3-10% it would be good to report on this and ensure the implications of such a high rate are discussed. The City of Melbourne's standard approach is to use the Average 10 year bond yield for the last 5 years plus 3%, which would equate to a 4.99% rate discount rate today.

Lastly the City of Melbourne revisits the timeframes used for technology expiry to better reflect energy efficiency upgrades with more realistic assumptions around end-of-life replacement of technologies.

Individual dwelling impacts

26. Are the cost estimates presented in this chapter reasonable?

Class 1 - Option A (Table 5.1)

Please select one item

- Yes
 - No - costs are under-estimated
 - No - costs are over-estimated
 - Other
 - Unsure
-

Class 1 - Option B (Table 5.2)

Please select one item

- Yes
 - No - costs are under-estimated
 - No - costs are over-estimated
 - Other
 - Unsure
-

Class 2 - Option A (Table 5.3)

Please select one item

- Yes
 - No - costs are under-estimated
 - No - costs are over-estimated
 - Other
 - Unsure
-

Class 2 - Option B (Table 5.4)

Please select one item

- Yes
- No - costs are under-estimated
- No - costs are over-estimated
- Other
- Unsure

Please expand on your answer. If you selected no or other, what are your alternative estimates and the basis for the estimates?

Generally - The work done by City of Melbourne showed that 7.5 stars is feasible, economically effective and "Delaying action means locking in emissions intensive buildings rather than using the most energy efficient designs and models. A five year delay in implementing opportunities in buildings could lead to \$24 billion in unnecessary energy costs and over 170 megatonnes of lost emission reduction opportunities."

Further, the work that was used to underpin the NCC2022 design by EES showed it is economically feasible to have zero emissions homes with the use of solar PV technology. Lastly, 30% of projects are already delivering 7.5 stars in Victoria (CSIRO and BESS) demonstrating that the industry has adapted and is able to deliver this level of outcome, effectively and economically.

Specific examples of over estimation: Another assumption which should be revisited

is the cost penalty is assumed for Class 2 buildings on the grounds that they may face 'practical difficulties' (p.56) in installing solar PV systems. While there are considerations, particularly for strata-titled buildings, these are not new and many solutions have been identified to overcome the problems. Thus the CRIS assumption that 7 star apartments must be achieved via an 'all equipment pathway' may be unnecessarily costly.

The assumption that the cost of improving the envelope is approximately the same as buying high efficiency appliances needs to be tested. Especially for Class 2 buildings the design and deliver of high efficiency facades and windows could be substantially lower than the cost of high efficiency appliances, plant and equipment to service each apartment.

Economy-wide impacts

30. In terms of the realisation of the energy savings, which of the scenarios modelled is most likely to occur if the proposed changes are made to the NCC?

Option A

Please select one item

- Full realisation of modelled energy savings
 - Medium realisation scenario
 - Low realisation scenario
 - Other - please explain below
 - Unsure
-

Option B

Please select one item

- Full realisation of modelled energy savings
- Medium realisation scenario
- Low realisation scenario
- Other - please explain below
- Unsure

Expand on your answer here. What factors will affect the realisation of modelled results?

The question of realisation should not be one as is outlined here about the chances of non-compliance, but of enabling the regulations and incentives to ensure compliance. One of the main limitations to realisation is the lack of post construction verification of performance. Secondly, high realisation will only occur with the compliance of home occupants. They can undo great design and construction by their behaviour.

33. What is the most appropriate value for avoided greenhouse gas emissions (carbon price)?

Please select one item

- No value (\$0)
- Resource cost of carbon (based on the current cost of abatement, represented by the price of an Australian Carbon Credit Unit - \$16.55 per tonne of carbon as at December 2020) - as used in the CRIS.
- A value less than the resource cost of carbon
- Social cost of carbon (based on the future costs associated with emissions. A medium scenario of the average estimate of the future social cost of climate change produced by the United States Government is around \$74.89 per tonne of carbon in 2021 - approx. 4.5 times higher than the resource cost used in the CRIS).
- A higher social cost of carbon value
- Other
- Unsure

Please explain your answer below

The City of Melbourne advocates for a cost of carbon that aligns with the Paris agreement. Specifically ACIL Allen note (p. 89) that "DISER instructed us to use an ACCU (or equivalent unit) price series to value the avoided GHG emissions". There are two issues with this, they used a value from December 2020 which is a lot lower than current price which is increasing rapidly, and is now - \$33.50 (Closing spot prices for 22/10/21 from Jarden Securities) - it would seem a trend value not a retrospective value would be more appropriate.

The effect of this is that the CRIS has used relatively low values for avoided carbon - reaching \$45/tCO₂-e, for example, in 2050 - when the internationally-recognised Interagency Working Group on Social Cost of Carbon, US Government, July 2015, states values for that year (converted from the original USD2011 to AUD2022 at an average exchange rate of 0.7) has a 'medium' value of \$132.66/t CO₂-e, with the 'high-impact' scenario using a value of \$407.61/ t CO₂-e in the same year. These values are 3 and 9 times higher, respectively, than the 2050 values for avoided carbon used specified by the Department and used in the CRIS.

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