28 February 2022

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Sent via e-mail to designandplacesepp@planning.nsw.gov.au
https://www.planningportal.nsw.gov.au/draftplans/exhibition/basix-higher-standards

Dear Felicity

Re: The BASIX higher standards exhibition

Thank you for the opportunity to provide feedback on the BASIX higher standards exhibition.

The Southern Sydney Regional Organisation of Councils Inc (SSROC) is an association of eleven local councils in the area south of Sydney Harbour, covering central, inner west, eastern and southern Sydney. SSROC provides a forum for the exchange of ideas between our member councils, and an interface between governments, other councils and key bodies on issues of common interest. Together, our member councils cover a population of about 1.7 million, one third of the population of Sydney, including Australia's most densely populated suburbs. SSROC seeks to advocate for the needs of our member councils and bring a regional perspective to the issues raised.

SSROC population and housing data[1], in the period from 2011 to 2016, reveals a very diverse socio-economic area marked by rapidly rising numbers of dwellings and underlying growth in the number of households in the area. The estimated resident population increased by over 150,000 during this five-year census period.

Although the urban growth of the SSROC area is unique, our region shares a number of issues and drivers with many other urban areas managing rapid population and housing growth sustainably while enhancing liveability.

Because of its size and diversity, issues experienced within SSROC often reflect statewide trends. The experience of strong growth and related housing development across both highly urban as well as more suburban parts of Sydney has provided a number of valuable insights and has helped to shape our feedback on the exhibition of BASIX Higher Standards.

SSROC welcomes the introduction of the Design and Place SEPP (the SEPP) and the integration of SEPP 65 and SEPP BASIX. The move to higher BASIX standards that will

[1] Source: Australian Bureau of Statistics, Census of population and Housing 2011 and 2016, compiled by id https://profile.id.com.au/ssroc/

increase energy efficiency and thermal performance of new residential developments is strongly supported.

SSROC appreciates this opportunity to help shape and contribute to the policy to enable higher standards that deliver better outcomes for residents living in SSROC and other parts of the State through cheaper energy bills, more comfortable homes and fewer carbon emissions.

1 Understanding

BASIX is a scheme created by the Environmental Planning and Assessment Regulation 2000 and State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004 which aims to improve the environmental sustainability of residential developments in NSW. It requires certain development applications to be accompanied by a list of environmental sustainability commitments in a certificate issued by the Planning Secretary. This certificate certifies that the proposed development meets the Government's requirements for sustainability, which currently relate to mains-supplied potable water consumption, thermal efficiency and greenhouse gas emissions.

The NSW Government has committed to achieving net zero emissions by 2050. This aims to improve the quality of life for the people of NSW, protect the environment and maintain a strong economy.

The Net Zero Plan Stage 1: 2020–2030 sets out how the NSW Government will deliver on our commitment to achieving net zero by 2050.

The Building Sustainability Index (BASIX) will reduce water and energy consumption, and greenhouse gas emissions from new houses and apartments. This will help our communities reach net zero.

The Higher BASIX Standards propose to increase the standards for energy efficiency and thermal performance for all new residential developments, except for apartment buildings of up to five storeys and homes in the North Coast climate zones.

The cost of complying with the Higher Standards for developers is modelled to be $7,152 for the average home. However, the energy efficiency of these homes is modelled to save homeowners $845 in 2022 and $7,200 over 12 years. Further details are explained in a Cost Benefit Analysis report accompanying the Higher Standards.

The DPE has foreshadowed that BASIX requirements will be reviewed '*every few years*' to meet the State's net zero objectives.

The document foreshadows other BASIX-related changes which the NSW Government intends to integrate with its proposed Design and Place SEPP. These include:

- A new BASIX materials index to assess the embodied greenhouse gas emissions of the material used to build a home.
- Rebuilding and integrating the BASIX Tool with the Planning Portal (a sandbox version of which is currently available to test).
- Updated BASIX methodologies.
- A new '*merit assessment pathway*' by which a recognised professional can complete a sustainability assessment of a proposed development using accredited modelling software and submit it with a development application as an alternative to a BASIX assessment.

2 General Comments and Recommendations

SSROC strongly supports the retention of the BASIX policy and the move to higher BASIX standards to reduce greenhouse gas emissions and potable water consumption and improve thermal comfort in the residential sector and is pleased to provide the following.

2.1 BASIX Energy Standards

SSROC supports the NSW Government's commitment to reach Net Zero by 2050, and NSW's continued leadership in delivering sustainability reform to the residential sector.

Therefore, we recommend higher BASIX Energy Standards, so that all new homes built in NSW to reach net zero by 2035. This will enable government to turn its attention to retrofitting the existing housing stock, in time to meet the 2050 Net Zero goal for the state.

The continuation of measuring the BASIX Energy Index using carbon emissions is supported. In the future, moving this index to a units of energy measurement, once the penetration of renewables reaches close to 100%, will ensure maximum building energy efficiency is achieved.

SSROC is unclear as to what proportion of the Energy score increase is due to the change in Emissions Factor (EF) of grid powered electricity, and which is due to stringency increases. If the majority of increase is due to the EF increase, then the increased stringency gains seem relatively small, which is why we are advocating for increased energy standards.

It is noted that different dwelling types have different targets. For example, a small single dwelling (<100m2) has a lower target than a large single dwelling (>100m2). Secondly, single dwellings are required to reach higher targets than multi-unit apartments. In the interests of equity, greenhouse reduction targets should be consistent across all dwelling types. If there is a reason underpinning this differentiated policy, we request that this is communicated in a clear and transparent manner.

For residential under 5 storeys there is no increase in stringency for thermal performance or energy standards. This appears to be a major opportunity for improvement that will be missed. This proposed position was informed by a cost benefit analysis (CBA). The detailed CBA report rather than the summary needs to be released to better understand that the justification and this outweighs the equity considerations for these apartment dwellers and is consistent with the NSW Government's commitment to reach Net Zero.

It is noted that the number of targets in the BASIX tool has increased from 20 across NSW (4 building types x 5 climate zones) to a total of 114 targets (6 building types x 19 climate zones). The principle that differentiated climate zones should be a base consideration for housing design is supported, however this large number of targets generates complexity and may present communication and compliance challenges for local Councils and industry.

It is disappointing that Councils are not able to set higher targets in low carbon precincts within their LGAs and recommends that this position be reconsidered. As place managers, Councils should be empowered to manage risks, and meet community and strategic planning commitments in the Eastern City and South District Plans. Enabling Councils to set higher BASIX targets is supported by the Planning Principle 1.8 The planning system should enable councils to plan for their local areas, provided they promptly meet their responsibilities in achieving the strategic visions, priorities and targets set out in regional and district plans.

Recommendations:

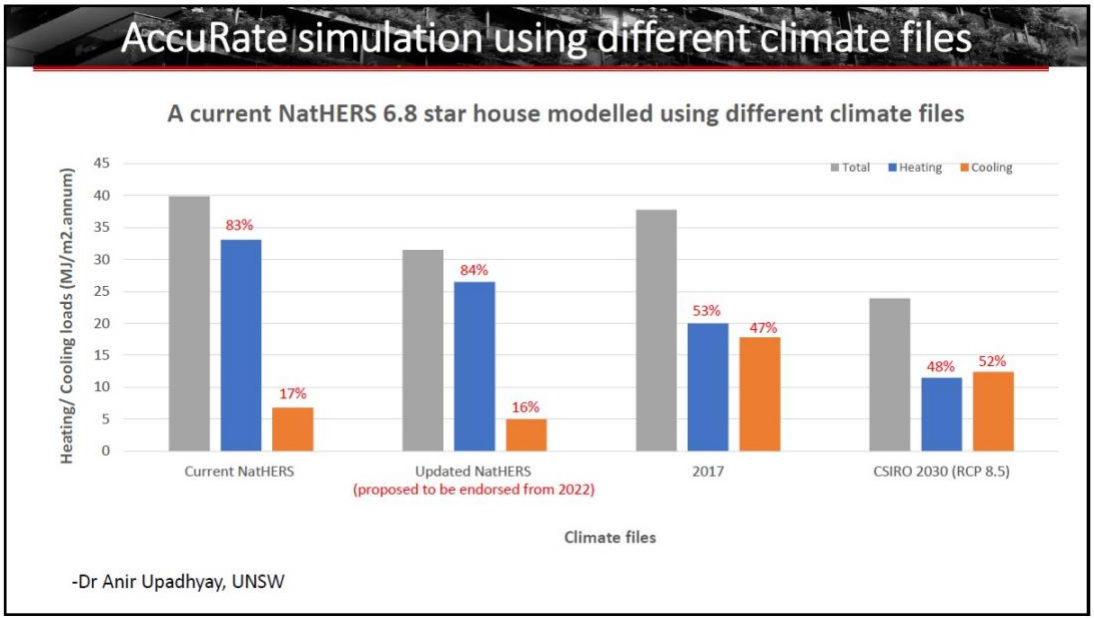
1. That through National Construction Code harmonisation, NSW does not lose its leadership status and continues to exceed national minimum standards, by maintaining the highest performing residential energy standards in the country.
2. That unified requirements for all dwelling types are applied to ensure adequate, safe, efficient, equitable and affordable housing standards for all. This will ensure that dwellers of low to mid rise development (< 5 storey) are not penalized by having less efficient housing due to the results from the Cost Benefit Analysis.
3. In line with meeting NSW emissions reduction targets, that the BASIX Energy Standard delivers, in a staged and timely manner, all electric homes in NSW which include:
    - Efficient building envelopes,
    - LED lights plus efficient controls,
    - Heat pump/solar-electric hot water systems,
    - High-efficiency air conditioners for heating and cooling,
    - Electric cooking,
    - High-efficiency swimming pool pumps,
    - Onsite renewable energy.
4. That local government are supported to apply higher BASIX standards in identified high-efficiency low carbon precincts, where outlined in the District Plans and other relevant strategic plans.
5. That DPE dedicate considerable resources to communicating how the BASIX benchmark and carbon reduction/water reduction standards work so that the strength and benefits of the policy can be appreciated by a broad range of stakeholders.

2.2 Thermal Comfort targets in BASIX

While the improvement of updating climate data from 1970-2004 to 2015 data is acknowledged and welcomed, the use of historic climate data in the NatHERS engine and BASIX tool, when designing and building housing stock that will last for the next 50-70 years is not supported. Data from Dr Anir Upadhyay (2021) indicate that the last six years of warm weather (2015 to 2021) is significantly hotter than pre-2015 climate data.

Homes must be designed to mitigate and adapt to risks of natural hazards, that include climate change effects. This must be addressed to adequately meet the Resilience Design Considerations of the new Design and Place SEPP.

Further data from Dr Upadhyay (UNSW) indicates that a house modelled through the proposed BASIX settings (2022) will have a heating load to cooling load ratio of ~ 4:1. However, the same house modelled using future climate data (2030) will have a more even 1:1 ratio for heating: cooling load. NSW homes must be designed to meet the predicted increased cooling load, rather than historic climate data, where the heating load is dominant.



Modelling work funded by DPE as part of the *Future Proofing Residential Development to Climate Change* project indicates that a detached house with a cooling load of 20.8 MJ/m^2 in 2020 had a modelled cooling load of 37.3 MJ/m^2 in 2030 and 91.6 MJ/m^2 in 2070. Under the proposal, the model dwelling is non-compliant with current and proposed caps by as soon as 2030. This will result in uncomfortable and unsafe homes and workplaces that will require mechanical cooling, making the occupants vulnerable to energy network failures during heatwaves.

The increase to 7 stars in line with the National Construction Code's energy efficiency provisions as part of the national Trajectory for Low Energy Buildings is supported.

The proposed reduction in heating and cooling loads (max) for Climate Zone 56 and the separate heating and cooling caps is supported.

It is noted that there is no increase in stringency for Low Rise and Mid-Rise apartments (<5 storey) due to the Cost Benefit Analysis finding that improvements to this sector were not cost-beneficial.

Concerns with the limitations of the Cost Benefit Analysis have already been noted. Low-midrise apartments should be as thermally comfortable and safe to live in as all other dwelling types. Apartments < 5 storey should also be as energy efficient and affordable to live in as all other dwelling types.

Some inconsistencies are noted in the definitions for low rise between the Thermal Comfort Standards and the Energy Standards. E.g., Thermal Comfort has a ruling for < 5 stories and Energy defines low rise as < 3 storey and mid-rise as 4-5 storey.

Recommendations:

6 That future Climate Files for the period that (CSIRO Climate File for 2050 or 2070) are adopted as the required data input for NatHERS and BASIX in 2022, to ensure that NSW's homes (and workplaces) are designed to be thermally safe for a warming climate, for the lifetime of the dwelling.

2.3 Greenhouse Gas Emission Factor for grid electricity

An update to the Emissions Factor[2] for grid electricity is supported. The NSW electricity grid has become greener as more electricity is produced from renewable energy sources. The proposed new energy standards will use updated the greenhouse emissions factor of grid electricity.

A 10-year average from 2022 to 2031 (or 0.67 kg CO2-e/kWh) will be adopted for calculating BASIX energy scores from 2022.

To ensure the consistency, accuracy and the rigor of the higher BASIX model the energy performance calculations need to capture both the predicted benefits of future improved performance through the Emissions Factor as well as energy performance in the forecast warmer climate for the same period.

While acknowledging that the Emissions Factor from grid electricity will be reduced significantly over the next decade, the proposed methodology, which averages the greenhouse gas emission factor over ten years means that the future oriented emissions factor effects the final 'standard/target significantly and gives the impression that a higher greenhouse reduction score is being achieved in BASIX.

Recommendations:

7. Update the Emissions Factor to be an accurate representation now and continue to update it every year based upon the National Greenhouse Emissions Reporting (NGERs) data when it is made available.

2.4 Achieving net zero emissions by 2050

The NSW Government's commitment to reach Net Zero by 2050 is strongly supported. Electrifying the housing stock, fostering the use of the most efficient technologies available and sourcing electricity from renewable sources is the best way of achieving this target for residential development.

A house built under BASIX in 2022 is expected to last 70 years, until 2092, therefore gas appliances should be heavily disincentivized under BASIX. Whilst single dwellings may more easily be able to remove gas infrastructure in the coming decades, retrofitting centralized gas boilers out of multi-unit apartments is extremely challenging and expensive. To enable this, gas could be excluded from multi-unit development.

Potentially, the installation of gas appliances should incur offset penalties under BASIX to discourage the use of this energy source. This could be built into a broader plan for how the whole residential sector, including existing dwellings, will meet net zero emissions as soon as possible.

Recommendations:

8. That BASIX considers how all new dwellings will meet the Government's net zero emissions targets by 2050.

[2] The greenhouse gas emission factor is the amount of emissions (expressed as kilograms of carbon dioxide equivalent (kg CO_2-e)) generated and transmitted from each unit of grid electricity to households. BASIX currently uses an emission factor of 1.062 kg CO_2-e for each kilowatt-hour (kWh) of electricity.

2.4 Other changes to the BASIX Energy section

The alignment of BASIX calculations with the NatHERS whole of home calculator is supported, where the methodology is published, peer reviewed and is best practice.

The parts of BASIX that are in addition to the current NatHERS whole of home tool are retained and improved, so that NSW continues to lead the way for the national tool to follow e.g., how BASIX handles swimming pool energy consumption and its inter-relation with the Water Index. Requirements to have an indoor clothesline have made a significant impact on apartments to improve internal drying amenity and have reduced the use of clothes dryers in apartments.

Other updates to the BASIX Energy Index listed in the consultation, including updating appliance efficiencies, the removal of some whitegoods from the multi-unit tool, improving lift (elevators), ventilation and centralized hot water system calculations, are supported.

In regard to lighting, the mandate of LED lighting only with best practice lighting controls is strongly supported. The installation of fluorescent lamps in common area carparks and fire stairs, often with no lighting management controls, locks body corporates into higher common area bills and expensive and wasteful retrofits. Additionally, fluorescent tubes contain mercury which is considered a problem waste for local governments. There is no longer a case for allowing fluorescent lamps to remain eligible under BASIX going forward.

Either fluorescent, incandescent and halogen lamps are removed from the tool. Alternately if fluorescent lamps or no lighting controls are selected for common areas in BASIX in the multi-unit tool, a pop-up help note is instigated to guide the proponent to make a better choice.

Recommendations:

9. That the NSW Government publish the BASIX methodology and any future changes to the methodology, to ensure that the calculations behind the tool are available for peer review in an open and transparent manner.
10. That the NSW Government review all calculations in the BASIX Energy section of the tool before the BASIX 2022 upgrade.
11. That the BASIX tool mandates LED lighting only with best practice lighting controls.

2.5 Cost Benefit Analysis

While the CBA did quantify some costs and benefits to both the individual dwelling occupiers and society as a whole, in our opinion it fails to adequately account for:

- Health benefits of people living comfortably, safely, sleep properly, ability to be productive e.g., work from home as climate warms. Here it is important to consider the differential equity issues for renters/users on lower incomes, especially to those who can't afford air conditioning.
- Cost to society of increased heat affected unwellness, lack of productivity, heat stroke/death, added impetus for older people to move to residential care. This would include impacts on the health and aged care budgets.
- Cost of inaction of not urgently lowering greenhouse gas emissions as we are currently all in a climate and biodiversity emergency.
- Cost of offsetting all carbon emissions from the residential sector post 2050 (currently trending at $40/tonne).

In this regard, the CBA is limited, and its findings should be considered in this context.

Recommendations:

12. That apartments < 5 storey are required to have an increase in thermal comfort and energy efficiency stringency in line with other multi-unit buildings.
13. That future scope of works for a Cost Benefit Study are expanded to include environmental and social costs and benefits in respect to a warming climate, as NSW Treasury has modelled in its 21-22 Intergenerational Report.

2.6 Communications & Reporting

Use of the term 'Targets' as opposed to 'Standards' is preferred, as the term target implies that we are trying to meet a goal, and is clearer to the general public.

The Future Proofing Development to Climate Change project identified the need to better support the ongoing implementation of the Building Sustainability Index (BASIX) to improve the sustainability outcomes and climate resilience of our housing stock.

Recommendations:

14. That the NSW Government develop BASIX training/explainer videos aimed to:
    a. improve the plan marking at Development Assessment (DA) and Complying Development Certificate (CDC) stage for BASIX and NatHERS commitments for new homes
    b. improve the Consent Authorities' confidence in assessing BASIX/NatHERS requirements as part of the planning process.
    c.improve understanding of the requirement for a BASIX Compliance Receipt to be issued at Occupation Certificate (OC) stage.
    d. improve general understanding of the BASIX policy, its aims, objectives, how the methodology works, real outcomes on the ground etc.
15. That the BASIX "help notes" and "pop ups" are reviewed, to educate BASIX tool users about the most efficient housing options in BASIX. E.g. if a user selects to install a less efficient technology, that a help note pops up outlining the best selection and the $ savings p.a. from the most efficient technology, to help guide improved decision making

2.7 Monitoring & Evaluation

The commitment to review and update where required the BASIX targets/standards at least every few years to meet the government net zero objectives is supported, noting that the success of BASIX is not reported on publicly and that this is a missed opportunity to build confidence in NSW leadership and regulatory effectiveness in regards residential development.

Recommendations:

16. That a BASIX Monitoring & Evaluation protocol is published with set dates for large updates and target/standard reviews.
17. That the BASIX Monitoring & Evaluation project be reinstated to ensure that utilities and the NSW Government monitor the on-ground greenhouse and water savings actually made by BASIX dwellings, report this publicly and that the tool is refined accordingly.
18. That more support is given to ensure that BASIX is implemented in practice, including:
    a. Working with the plumbing industry to ensure that rain tanks are installed and connected for internal water uses correctly, and issues such as sedimentation in toilets from tank water is resolved.
    b. That NatHERS compliance issues are resolved, and that the existing Quality Assurance pathway is substantially improved.

c. That training is introduced to planners, certifiers and industry practitioners.
d. That the NSW Government conducts audits and compliance checks on BASIX/NatHERS certificates at DA stage.
e. That the NSW Government conducts audits and compliance checks of private certifiers and BASIX compliance at OC stage.

2.8 New requirement for embodied Carbon emissions

The development of a new BASIX Material index is supported.

The development of an embodied carbon emissions target is supported as long as it is is separate to the existing operational energy carbon emissions target.

Recommendations:

19. That the NSW Government exhibits the BASIX Material index once it is ready for testing, including the methodology.

2.9 Merit Assessment Pathway

It is noted that an alternative pathway to BASIX compliance is being proposed, called the 'Merit Assessment Pathway' (MAP). Clear requirements around the professions that are authorised to perform assessments are supported.

Recommendations:

20. That the MAP has a strong governance process and a transparent methodology which is published in the public domain.
21. That the MAP is required to use the front end of BASIX to ensure electronic data is still captured in relation to the building, e.g., thermal loads.
22. That assessment of developments going through the MAP occurs through a non- Council process, such as the NSW DPE's BASIX Team for assessment, and not through Council's normal DA process as Councils are not resourced to deal with multiple systems.
23. That the MAP must be as robust as the current BASIX tool, meet clear carbon/water reduction targets, be able to quantify greenhouse/potable water savings, be built for all residential building sectors.
24. That the BASIX Completion Receipt continues to apply, and that adequate funding is given to educate certifiers to ensure that this is completed as legislated.

2.10 BASIX Water and BASIX Alterations & Additions

It is noted that neither the BASIX Water Index nor the Alterations & Additions tool are currently being revised.

The *Future Proofing Residential Development to Climate Change* project has highlighted concerns with outdated calculations in the BASIX Water tool in regard to landscaping and outdoor irrigation, especially in relation to future climate scenarios.

The *Future Proofing Residential Development to Climate Change* project also conducted a review of the BASIX Alterations & Additions tool, which would help to inform a broader review by the Department.

Recommendations:

25. That the BASIX Water index is reviewed in 2022.
26. That feedback from Councils is sought regarding compliance around landscaping in the tool, and as part of this, species lists are updated with Future species lists (such as identified

through the Which Plant Where tool) to ensure that the species we are planting today will be resilient as the climate warms.

27. That the BASIX Alterations & Additions tool is reviewed as soon as possible.

3 Detailed Comments

Further detailed comments on the design and implementation of Higher BASIX are made in Appendix 1, with regard to:

- Sustainability in Residential Buildings
- BASIX Proposed Higher Standards
- BASIX related parts of the State Environmental Planning Policy (Design and Place) 2021
- Proposed requirements for BASIX in 2022 Cost Benefit Analysis.

4 Conclusion

Thank you for the opportunity to comment on the BASIX Higher Standards.

SSROC member councils cover a large portion of Greater Sydney and have a direct interest in supporting and advocating for changes to improve and sustain place-making in a warmer climate and deliver higher residential amenity. SSROC would encourage the review process to consider the opportunities noted in this submission to strengthen what has been proposed for BASIX. New sustainability standards for homes should help all residents save on energy bills, provide more comfortable homes and help to reduce the State's carbon footprint as we move to net-zero emissions by 2050.

In order to make this submission within the timeframe for receiving comments, it has not been possible for it to be reviewed by councils or to be endorsed by the SSROC. I will contact you further if any issues arise as it is reviewed. If you have any queries, please do not hesitate to contact me or Mark Nutting, SSROC Strategic Planning Manager on 8396 3800.

Again, thank you for the opportunity to comment on the BASIX Higher Standards. SSROC looks forward to participating in further consultations around the implementation of Higher BASIX standards once the Design and Place SEPP is adopted.

Yours faithfully

Helen Sloan
Chief Executive Officer
Southern Sydney Regional Organisation of Councils

Appendix 1
Further detailed comments on the design and implementation of Higher BASIX

Exhibited document reference	Change proposed to BASIX scheme	Comment and recommendation
		Sustainability in Residential Buildings (SIRB)
Sustainability in Residential Buildings (SIRB) Page 2	**Introducing a new requirement for embodied carbon emissions** " a new requirement for embodied carbon emissions …we plan to add a new BASIX materials index"	· Support in principle, although there is insufficient information about embodied carbon emissions provided in the exhibited documents. There is currently a lack of information to determine how per person embodied carbon emissions will be calculated. · The Cost Benefit Analysis (CBA) does not include potential costs / benefits of the new materials index and thus the CBA work is incomplete. · BASIX Sandbox tool does not have an operative embodied carbon emissions index · It is unclear how the assessment of embodied emissions will occur. Will there be an auto-calculation within the BASIX tool based on dwelling dimensions and construction materials such as walls, floor, ceiling, roof? · No reference to the life cycle / embodied emissions method that will be used for calculations - this would need to use an Australian or international standard methodology · There is no way to determine whether user can improve their 'embodied emissions' score by nominating different materials. · Presumably if users can nominate particular materials to improve embodied carbon emissions score then consideration should be given to collection of evidence at construction stage for compliance. · No background is provided on how the single dwelling and apartment values of 12.5 tonnes and 9.4 tonnes (in the SEPP) have been derived and where the boundaries are established. Are common areas and carparks included? · Driveways and garages not attached to dwellings are presumably excluded (for single dwellings) yet could involve as much concrete as a house slab, and are an obvious improvement option re: concrete with lower embodied emissions · If user has to input construction materials into NatHERS rather than DiY thermal performance tool, will that information need to be manually re-entered into BASIX? Or will there be an auto-upload mechanism from NatHERS modelling direct into BASIX? ***Recommendation*** · Draft materials calculation methodology needs to be made publicly available (as soon as possible) and several months prior to implementation of the proposed new index · The way in which the two proposed per person embodied carbon emissions targets (in the SEPP) have been established needs to be transparent

Exhibited document reference	Change proposed to BASIX scheme	Comment and recommendation
		· Implementation of the embodied carbon emissions provision should be deferred until the tool and policy settings have been fully tested for practicality and effectiveness.
SIRB Page 2 + BASIX Website	**Updating the BASIX tool** General comment	· Support update to tool interface**.** · Lack of transparency about how new tool methodology and calculations compare to existing methods (see specific comments below) ***Recommendation*** · As per original BASIX policy exhibition in 2004 all revised calculations should be released publicly before finalisation. This allows time for further refinement and comment. · A tabular format describing how new calculations and methodologies differ from existing should be provided to improve stakeholder understanding of the changes proposed.
SIRB Page 2 + BASIX Website	**Updating the BASIX tool** Lighting	· Support within-dwelling changes to lighting assumptions and the simplification of lighting · Not yet clear if changes are proposed for common area lighting too? ***Recommendation*** · Clarify whether there are proposed improvements for common area lighting
SIRB Page 2 + BASIX Website	**Updating the BASIX tool** Appliances	· Support update on appliances, including removal of some appliance selection options for apartments · Detail needed on the proposed default assumptions for ratings of new appliances, citing sources (e.g., ABS / industry sales) ***Recommendation*** · Revised appliance energy end use assumptions should be released in public before finalisation of new appliance policy setting
SIRB Page 2 + BASIX Website	**Updating the BASIX tool** Lifts	· Support lift calculations update · Transparency required around impact of new lift selection options and calculations on BASIX scores ***Recommendation*** · New and revised lift options and calculations should be made available to stakeholders for comment before finalisation of new lift policy settings

Exhibited document reference	Change proposed to BASIX scheme	Comment and recommendation
Website	**Updating the BASIX tool** Apartment Hot Water calculations	· Support apartment hot water calculations update · Transparency required around impact of the new calculations on BASIX scores ***Recommendation*** · Apartment hot water calculations should be released in public before finalisation of new hot water policy setting
SIRB Page 3 + BASIX Website	**Incorporating the NatHERS whole-of-home calculation to align with the national requirements planned in the NCC**	· Support alignment with NCC calculations methodology · Transparency required around impact of new calculations on BASIX scores ***Recommendation*** ·Provide a table showing how the new calculation methodology compares with existing BASIX methodology. Confirm and state if new method assumes increased or decreased per-person energy use (carbon emissions) associated with particular components of 'whole of home' energy end use.
SIRB Page 2	**Introduction of new merit assessment pathway (MAP)**	· Exhibition material lacks detail about MAP, so it is difficult to comment on the proposal's appropriateness and efficacy. · Support the implementation of an audit process to ensure MAP delivers to acceptable standard · Due to a lack of evidence or analysis of current standards of compliance, it is not reasonable to assume that BASIX compliance standards are currently strong, especially for the apartment sector. An audit process should be required for BASIX at DA and building completion stages. · Good governance and scheme integrity require that DPIE apply an audit standard for BASIX so that scheme is held to account as per MAP audit · During stakeholder consultation (mid 2021), the City of Sydney advocated for MAP to require connection to BASIX interface via MAP projects entering headline project data and BASIX Completion receipt still being required. ***Recommendation*** · Governance framework for MAP must be developed and finalised *before* MAP implemented · Users of MAP should be required to enter 'front end' information into BASIX · MAP should require BASIX completion receipt to close out developments at O.C. stage · Establish a desktop audit process for BASIX to show commitment to improving and maintaining scheme integrity in line with proposed MAP audit process.
SIRB Page 3	**BASIX water saving standards will stay the same**	· There is no verification of compliance with BASIX Water standards at building completion stage, and the proposed update does not address this situation. ***Recommendation*** · Establish a desktop audit process for BASIX, including compliance with BASIX Water standards.

Exhibited document reference	Change proposed to BASIX scheme	Comment and recommendation
SIRB Page 3	**No change to low rise apartment energy and thermal performance standards (5 storeys or less)**	· This does not align with NCC 2022, as NCC does not propose to exempt low rise from '7 Star' Standard · This development type is especially suited to solar PV, due to adequate roof space and it is a cost- effective energy performance design solution, compared to high rise development. PV costs are falling annually. This raises the question of the correctness of CBA for this typology. · Is there a cost penalty assumption in CBA for Class 2 buildings, on the grounds that they may face practical difficulties in installing solar PV? Many solutions have been identified to overcome these challenges. · Has the CBA assumed that an apartment target uplift must be achieved via an 'all equipment pathway' and if so, this is unnecessarily costly? ***Recommendation*** · CBA needs to be reviewed in light of existing critique associated with ABCB proposed changes to NCC exhibited in 2021 – including combined critique commissioned by ASBEC, GBCA and the Property Council · Apply Standards uplift to this category of apartment developments as per all other development types. It is not logical to exempt one sector, when a state-wide policy is being applied under a 'higher standards' banner, and all other housing is affected.
SIRB Page 5	**Indicative compliance pathway diagrams** – figures 3, 4, 5	· Many development proposals for dwellings of the size indicated in the diagrams are already installing solar PV to meet BASIX compliance targets. It is unclear how new settings are a 'higher standard' · Irrespective of current average BASIX air conditioning commitments, promoting 1-2 star rated air conditioning (figure 4) as a compliance pathway undermines the 'higher standards' claim - given that this represents a low performance standard · Typical compliance pathway diagrams for apartment development are needed to convey design/technology improvements anticipated to meet the 'higher BASIX standard' ***Recommendation*** · Prior to implementation, provide updated and clear illustrated guidance on anticipated compliance pathways for single dwellings (large/small) and the various apartment categories – indicating the most cost-effective design/technology solutions required to meet new 'higher standard' compared to current BASIX standards. · The *Your Home* guide provides some appropriate building designs for single dwellings that are logical to use for communications purposes. Appliance annotations could be attached to these diagrams.

Exhibited document reference	Change proposed to BASIX scheme	Comment and recommendation
	Existing air conditioning assumptions "Less than 5% of houses in NSW have specified air conditioners with the same efficiency as the 3-	· The assumption that the average Energy Efficiency Ratio (EER) of new air conditioning (AC) installed in NSW housing can be based on BASIX on-line certificates is problematic · Industry sources should be consulted and cited to establish current average ratings for split systems installed in single dwellings
	star rating. The analysis considered that 3-star air conditioners will be specified in Option A (electric hot water system) and Option B."	· If average installed rating is higher than 1-2 stars then the 'higher average installed' rating should be used in CBA and also in energy end use assumptions ***Recommendation*** · Review assumed current AC average EER rating, and update CBA
	Air conditioner rating system has changed	· While not addressed in the publicly exhibited material, the way that residential air conditioning (AC) units are rated has changed under the GEMS scheme. The star rating for any specific appliance varies depending on climate zone – with two different climate zones applying in NSW. · The BASIX tool will need to determine, for the user, which AC climate zone is applicable to a development, so that the right rating for the appliance is applied · The Sandbox Tool appears to do this, which is positive · The new level of complexity in the AC rating scheme may increase BASIX compliance issues ***Recommendation*** · Confirm that the BASIX tool will automatically determine the designated AC climate zone (GEMS - Zoned Energy Rating Labelling) relevant to the residential project location · Review wording in BASIX certificates to ensure confusion around rating labels is minimised · Consider communications needs and content for CPD for building certifiers to address existing compliance issues around BASIX AC commitments

Exhibited document reference	Change proposed to BASIX scheme	Comment and recommendation
SIRB Page 9	**Energy price modelling** "ACIL Allen modelled the price of gas and electricity going up over time from 2022 to 2061. The forecast prices of gas and electricity generally increase from 2022 to 2040 and remain steady from 2040 to 2061."	· Energy price estimation beyond the next 5-7 years is highly speculative. · The prediction that electricity prices will remain steady for two decades seems unrealistic · Overestimating the cost of electricity and/or underestimating the cost of gas will impact electrification of buildings, which is part of many tier one developers design solutions to achieve net zero buildings. ***Recommendation*** · A peer review (including a confidence rating) be undertaken of the CBA report, given existing critique of the CBA assumptions (both for the ABCB and BASIX policy review)
BASIX Proposed Higher Standards (BPHS)		
BASIX Proposed Higher Standards (BPHS) Page 2	**Proposed new single dwelling maximum allowable space heating and cooling loads "revised to align with the updated NatHERS star band"**	· It is not possible to determine, from the exhibited material, what material changes to envelope design are likely to occur for new single dwellings under new thermal load limits. · As per comment above for SIRB Page 5, the diagrams for single dwelling compliance options for the new 'higher standard' appear to describe business as usual design solutions. · If the most common design 'solution' that will be used to meet the new standard is additional insulation and changed glazing selections, then provide illustrative examples of these upgrades for the 9 dwelling types modelled across various climate zones. · To respond to resilience and climate risk and improve the comfort of occupants in the future when designing and building housing stock that lasts for the next 50-70 years, use more realistic climate files in NatHERS model rather than 2015 files. ***Recommendation*** · To be transparent and demonstrate the evidence base - provide practical examples of design changes (small and large), needed to respond to lower heating and cooling load allowances, for each of the 9 single dwellings used in the modelling analysis. · Advocate to CSIRO and NatHERS administrator to apply future climates within modelling settings in NatHERS thermal performance assessment tools.

Exhibited document reference	Change proposed to BASIX scheme	Comment and recommendation
BPHS Page 3	**Apartments 5 storey and less - maximum allowable thermal performance loads** "For multi-unit developments (5 storeys or lower), there are no changes from the current thermal comfort requirements"	· Not increasing the thermal performance standards for 1-5 storey apartment development does not appear to align with NCC, which NSW Government advise elsewhere in exhibited documentation, is an intended outcome of the BASIX policy refresh. · Justification cited in the BASIX CBA states improvements to envelope for this typology are not deemed cost effective. However, the low-rise multi-unit residential building typology is widely considered by design professionals as being much easier to modify for improved thermal performance than taller residential development. · The NCC proposal for 7 Star standard requires modest changes to insulation, double glazing and ceiling fans. No structural changes to building form are proposed, thus costs cannot be considered unreasonable in terms of making apartments more climate resilient. · The separate piece of work completed by Acil Allen, Consultation Regulatory Impact Statement (CRIS) for the for NCC 2022 has been widely critiqued and is not considered robust. ASBEC, Property Council of NSW and the Green Building Council of Australia commissioned an extensive review of the CRIS. The shortfalls identified in the NCC workflow directly through to the BASIX CBA. This issue is a major concern to SSROC councils. ***Recommendation*** · All residential apartments should meet the same thermal envelope performance standard. If this is not possible, and before finalisation of Higher BASIXs, DPE provide a definitive, plain English explanation (table format) of the specific design changes and attributed costs, that warrant no change to thermal performances standards for lower rise apartments.

Exhibited document reference	Change proposed to BASIX scheme	Comment and recommendation
BPHS Page 4	**Apartments 6 storey and above maximum allowable thermal performance loads**	· In relation to "values of maximum allowable loads are revised to align with the updated NatHERS star band" it is very difficult to gauge the actual design changes that will be driven by the proposed new thermal performance targets, as there is insufficient information. · Analysis of the design changes needed to move from 6 stars to 7 stars NatHERS undertaken by Tony Isaacs for proposed changes to NCC indicate the new standard would be largely achieved through wall insulation upgrades (typically R0.2), a shift to tinted glazing and some reduced glazing areas, and introduction of ceiling fans. · The City of Sydney currently sees extensive modelling inclusion of performance glazing for apartments thus this may not be a readily accessible compliance pathway for 7 Star equivalency; likewise all external walls are already modelled as insulated – so cost benefit assumptions carried from NCC modelling (simple apartment typologies used) to BASIX for Sydney mid and high rise contexts may not be valid. · Insulation and glazing are often currently poorly documented in apartment development proposals (evidenced by previous City of Sydney analysis presented to DPE's Thermal Comfort Protocol Working Group 2019/20, and current CoS 2022 analysis of apartment DAs from Greater Sydney councils -Support increased stringency in principle. But NSW Government need to be confident that the new standards will be met by actual design changes that improve building performance · There is a risk of increased non-compliance with NatHERS, if the new standard is not accompanied by improvements in compliance monitoring (i.e. DPE / Fair Trading- led auditing) - Training/re-training is needed for assessment staff and building certifiers on thermal rating documentation requirements - Uplift is needed in NatHERS administration quality assurance methods and much stronger communication to design and construction industry stakeholders of standards and compliance requirements. ***Recommendation*** · Provide illustrations and tabular guidance on the compliance pathways used in the BASIX CBA to demonstrate "7 Star average, 6 Star minimum" performance standard specifically for apartments · Work with NatHERS Administrator to reduce non-compliance issues for apartments, including improvements to the NatHERS quality assurance framework. NatHERS assessors need to be held more accountable for their assessments and transparent reporting of QA findings (e.g., annually published to NatHERS website).
BPHS Page 5	**Table D: Proposed energy standards for single dwelling and multi-dwelling developments**	· The significant increase in the number of energy targets to align with the climate zones/regional sensitivity adds unnecessary complexity to BASIX implementation and future reviews triggered by DP SEPP Division 2, Clause 28. - While logical for thermal performance targets to vary by climate zone (as per current policy), whole of home GHG emissions per person do not vary geographically with the degree of granularity implied by the proposed new BASIX Energy targets. The granularity has no strong relationship to differential energy end use across NSW.

Exhibited document reference	Change proposed to BASIX scheme	Comment and recommendation
		Recommendation · Avoid unnecessary complexity by removing theoretical granularity not reflected in real world · Maintain current range of map zones of BASIX Energy targets · Maintain BASIX Energy targets at 5 Point intervals
BPHS Page 5	**New BASIX typology – small single dwellings** ("floor area less than 110m2)"	· No explanation has been provided on the rationale for the introduction of a new category of single dwelling – "Small (floor area less than 110m2)". - if this is to do with small dwellings ('especially 'granny flat' scenarios) historically struggling to meet current BASIX Thermal Performance target, then that explanation needs to be provided. · A different target for smaller dwellings is not an unreasonable approach but transparency is needed to explain the rationale ***Recommendation*** · Plain English explanation and accompanying diagram(s) is needed on how small dwelling compliance will differ from large dwelling compliance pathway.
BPHS Page 5	**New BASIX typology – additional category of apartment development** 6 storeys and above now expanded to '6-20 storeys' and '21 storeys and greater'	· Support new high-rise apartment development categories. SSROC propose that further sub-categories would be appropriate, 6-10 storeys, 11-20 storeys, 21-30 storeys and 30 storeys and greater, as per the City of Sydney Performance Standards for Net Zero Energy Buildings informed by a cost benefit assessment and developer engagement. This finer grain approach will also be more appropriate for guiding the 6 Cities planning. ***Recommendation*** · Undertake additional analysis to identify whether more granular categorisation of apartments will deliver stronger policy outcomes

Exhibited document reference	Change proposed to BASIX scheme	Comment and recommendation
BPHS Page 5	Generally, the **new proposed target for very high rise** (20+ stories) is higher than the new target for 6-20 storeys	· A higher BASIX Energy target for 20+ storeys than 6-20 storeys runs counter to previous research and feedback from industry that it is more difficult for taller apartments to reach current BASIX targets. It also runs counter to the existing scenario of BASIX Energy Targets reducing with building height. · It is unclear if the new target for 20+ storeys is a result of changed calculations within the BASIX tool or other changes. ***Recommendation*** · A plain English explanation is needed for why the proposed new targets are higher for high rise over 20 storeys versus 6-20 storeys. The explanation should include any calculations that have changed to enable revised BASIX scoring for high rise development.
State Environmental Planning Policy (Design and Place) 2021 - BASIX related content only		
State Environmental Planning Policy (Design and Place) 2021 (SEPP) Page 12 Division 2 Clause 27	"Development consent must not be granted to BASIX affected development that involves the erection of a BASIX affected building unless the consent authority is satisfied that the development is capable of achieving the…. **standards for** (c) **embodied emissions"**	· Support in principle this policy change but there is insufficient detail to understand how the benchmarks have been created · 'embodied emissions' should be expressed as 'embodied carbon emissions' · In principle this is a progressive policy change but there is significant lack of detail, which prevents stakeholder comprehension of how benchmarks have been created · The BASIX Sandbox tool does not provide any further detail on the methodology of this new BASIX index ***Recommendation*** · Change terminology to 'embodied carbon emissions' · Re-exhibit this part of the SEPP with sufficient supporting information on methodology to allow engagement and effective feedback · As an alternative to re-exhibition, establish a stakeholder reference group, with clear governance be established to refine the proposed new BASIX index to ensure the methodology is fit for purpose for use in a regulatory mode.

Exhibited document reference	Change proposed to BASIX scheme	Comment and recommendation
SEPP Page 12 Division 2 Clause 27	*"Consultation note—* The final version of this Policy will include the standards for energy use, water use and thermal performance for other BASIX affected development, **such as alterations and additions**."	· It is not possible to provide feedback on the alterations and additions policy revision when no details are provided in exhibited documents. ***Recommendation*** · In line with good governance and transparency principles, DPE need to exhibit alterations and additions policy settings for comment before finalising proposed changes to BASIX.
SEPP Page 13 Division 2, Clause 27 (2)	"Subsection (1) [BASIX mandate] does not apply to development involving a **heritage item or within a heritage conservation area if the Planning Secretary is satisfied that the development is not capable of achieving the standard** …	· Heritage exemption clause as written, implies that a new building within a heritage conservation area (HCA) might be BASIX exempt if the Planning Secretary deems it so. · It is unclear why an all-new building (as opposed to alterations and additions) would not be able to comply with BASIX and still be sympathetic to any heritage context · It is unclear why this change is being proposed when this has not been a significant or unresolvable matter for new dwellings over the past 15 years. · More likely that other urban design issues will determine whether a particular new dwelling design is appropriate in a HCA – BASIX compliance will not be a key determinant · Lack of clarity about the process by which an applicant would request an exemption. ***Recommendation*** · Do not support the inclusion of a BASIX exemption pathway for new buildings within heritage conservation areas as set out, and request this draft clause be rewritten.
SEPP Page 13	**3 yearly Review of BASIX standards**	· SSROC supports a legislated regular review of BASIX policy settings every 3 years.

Exhibited document reference	Change proposed to BASIX scheme	Comment and recommendation
Division 2, Clause 28	"The Planning Secretary must review the standards specified in Schedule 2— (a) as soon as practicable after the beginning of 2025, and (b) at least once every 3 years after that"	· This is a significant improvement to when a previous change to BASIX Energy Targets in 2017 took 4 years to implement from commencement (commissioning of a cost benefit assessment by Acil Allen in 2013) to implementation · Provide the rationale for any changes. · To align with the NSW Government's Net Zero Emissions Plan, and recognising the degree of urgency of economy-wide response needed to address climate change, *the BASIX Review trigger proposed in the Draft SEPP should be time bound – i.e. specify that recommended changes to Targets be implemented within 12 months of commencement of 3 yearly review cycle* · 3 yearly review should include a public statement on the existing GHG baseline, whether any change is proposed and if so the rationale for that change. It should also include a public statement on the existing baselines, whether any changes are proposed and if so, the rationale for any changes. · A clear, succinct BASIX policy review procedure is required defining (i) what the minimum review requirements are (for example review of calculations methods, carbon intensity metrics, on ground building outcomes, new policy settings beyond planning system that could impact on BASIX) (ii) the consultation process (stakeholder notification and engagement) and (iii) time frames that will apply to the review process ***Recommendation*** · Support new BASIX clause requiring a 3-year review - The clause needs extending to provide a definition of how long the review process may take and the timeframe (12 months is appropriate) within which review outcomes must be implemented · A concise review procedure document is required to ensure good governance is applied to each 3- yearly review. This procedure document should be developed in conjunction with stakeholders
SEPP Page 19	"(2) **The standard represents a percentage**	·Support the continued use of a science-based carbon metric ie. modelled carbon dioxide emissions per person per annum, rather than the societal cost metric that is proposed for NCC.

Exhibited document reference	Change proposed to BASIX scheme	Comment and recommendation
Schedule 2 Energy use	**reduction in the amount of carbon dioxide emissions resulting from the use of energy attributable to each occupant** of the particular type of development over a year compared to a baseline amount determined by the Planning Secretary. ”	- The BASIX metric is easy to communicate to general public and focusses on the key challenge - carbon emissions and abatement. - “per person” is a logical metric that the public can engage with. ***Recommendation*** · Support the continued use of a science-based metric for the BASIX Energy standard
SEPP Page 20 Schedule 2 Table of Energy targets	**Many more Energy targets across the state due to increased BASIX ‘zones’ on map** and increase in building typologies (extra categories of apartments (21 stories and over) and single dwellings	·Do not support the approach to additional granularity of BASIX Energy targets i.e., more energy targets to align with climate zones. - This proposed change is highly theoretical - energy end use does not differ across the state to this level of granularity. It makes sense for thermal performance standard to differ by climate zone but not Energy Targets. - If the proposed change is being driven by significantly different energy end use assumptions for space heating and cooling these new calculations and how BASIX handles them needs to be presented transparently ·The addition of a larger number of energy targets adds significantly to the future policy review task (e.g., future Benefit Cost assessments) Recommendation · Maintain the existing approach to BASIX Energy Targets, i.e.., fewer targets, that reduce policy complexity.

Exhibited document reference	Change proposed to BASIX scheme	Comment and recommendation
SEPP Page 21 Schedule 2 Part 4	**Embodied Emissions for BASIX affected development**	·Currently the Draft SEPP refers only to 'embodied emissions'– this is clearly meant to refer to greenhouse gas emissions or carbon emissions and should state this also in clause 5 (1) and (2) · No background is provided on how the single dwelling and apartment values of 12.5 tonnes and 9.4 tonnes have been derived and where the boundaries are established (which materials) · No reference at this stage to the approved life cycle / embodied emissions method (international standard) that will be used for calculations. An Australian or international standard methodology should be used and referenced in Schedule 2 to address any ambiguity on calculations ***Recommendation*** · Clarify terminology in the SEPP to make explicit reference to embodied *carbon* emissions · Engage in a wider consultation process with stakeholders · Re-exhibit the proposed new BASIX index, with full methodology and boundaries explained and provide adequate time for stakeholders to respond, prior to implementing the proposed new BASIX index · Alternatively, a stakeholder reference group, with clear governance be established to refine the proposed new BASIX index to ensure the methodology is fit for purpose for use in regulatory mode.
SEPP Page 20 Schedule 2 Part 3	**Water use for BASIX affected development**	·Confirms BASIX will continue to use modelled mains potable per person per annum as the metric for the NSW residential Water Standard ·No change is proposed to the water efficiency standard for residential development in the Draft SEPP ***Recommendation*** ·Support the continued use of a science-based metric for the BASIX Water standard.

Exhibited document reference	Change proposed to BASIX scheme	Comment and recommendation
SEPP Page 21-24 Schedule 2 Part 5	**Thermal Performance for BASIX affected development** (1) This Part specifies the standard for thermal performance for different types of development … (2) The standard represents the maximum amount of energy required to heat and cool a dwelling, measured in mj per m2 of total floor area of the dwelling over a year	· BASIX proposes different thermal allowances for low rise (Table 3) and high-rise apartments (Table 4) – this is not what the NCC is proposing – how does this represent 'better alignment' between BASIX and NCC? · Current work by the NatHERS administrator on recalibration of the NatHERS Star Bands, such that maximum allowable loads are revised, makes it difficult to assess what practical changes in building design will be driven by the new NCC and BASIX thermal performance standard · Compliance issues for apartments are already an issue (due to poor documentation); the shift to 7 Star average will exacerbate compliance issues unless NatHERS Quality Assurance framework is improved and NatHERS assessors are held more accountable · Clause (2) should refer to "maximum amount of *modelled* energy required …." ***Recommendation*** · Make clear, in Schedule 2, Part 5 Clause (2) that this clause relates to *modelled* energy use not actual energy use for space conditioning ·When implementing this new standard advocate to the NatHERS Administrator on the issue of poor compliance standard of NatHERS modelling work submitted with apartment development applications, including advocating for a specific Quality Assurance program for apartment sector.
Proposed requirements for BASIX in 2022 Cost Benefit Analysis (BASIX CBA)		

Exhibited document reference	Change proposed to BASIX scheme	Comment and recommendation
Proposed requirements for BASIX in 2022 Cost Benefit Analysis (BASIX CBA) Exec Summary Page iii & Page 27	"Savings from the installation of smaller appliances" "As thermal performance improves, the dependence on these appliances to provide comfort decreases and smaller appliances can be installed to provide the same level of comfort."	· It is unrealistic to model that a significant proportion of development applicants will down-size the capacity of air conditioning based on proposed new policy settings. Floor area and total number of rooms to be serviced by AC are the key determinants of installed AC capacity used by builders and AC installers during construction of new dwellings. Air conditioning installers may be motivated to install larger capacity systems - drivers for this outcome include (i) the financial benefit that may accrue to them from installing larger AC units, (ii) awareness of a warming climate (more frequent extreme heat days and heatwave events) and not wanting to receive complaints from clients that systems are not effective on days of more extreme heat · The estimate capital cost savings provided (page 27) are so small that a consumer is more likely to retain the 'over capacity' option · " it was suggested that these appliance savings are applied to dwelling types that achieve 5.5 – 6 stars from the minimum compliance and over-compliance scenarios under the BAU." – this appears optimistic and no evidence base has been provided to validate this assumption. · "Importantly, while these appliance savings have been included in the CBA, EES noted that these benefits may not be achieved in practice due to a number of issues" (p 27) – *this is a more realistic observation* and should have been the default approach taken in the BASIX CBA.
BASIX CBA Page 8	**appliance lifespans** "heating and cooling equipment is assumed to have a lifespan of 12 years" hot water equipment is assumed to have a lifespan of 12 years."	The modelled lifespans for appliances are shorter than real world experience, especially for water heaters. ***Recommendation*** · Revisit these assumptions and seek industry association validation of replacement rates of appliances to give greater confidence to the modelled assumptions.

Exhibited document reference	Change proposed to BASIX scheme	Comment and recommendation
BASIX CBA Page 26	**Section 2.2.3 Assumed response to the new BASIX requirements: upgrade pathways Photovoltaics / apartment buildings – Option B** "The BASIX energy outcomes of the apartment buildings are aimed at 3 – 5 points higher than the over-compliance scenario in the BAU, corresponding to PV systems of 4.5 – 20 kW to be supplied to these buildings."	· Many apartment development applications received by some councils already include solar PV (with a range of capacities but commonly more than 20 kWp). Solar PV is being nominated by proponents as the most cost-effective way to meet current BASIX energy targets. · If this is a current outcome under existing policy setting it is not evident that the proposed new BASIX standards are actually higher (in terms of building design responses) than the current standards, even taking into account "differences in some of the underlying assumptions such as specifications of household appliances" (p.24) ***Recommendation*** · Develop a table that compares new BASIX Energy targets to existing policy setting. This table can compare modelled anticipated design and technology changes for different categories of BASIX affected development.
BASIX CBA Page 68 Table 4.6	**Retraining needs:** "Number of Thermal performance (NatHERS) assessors needing upskilling :- 2026"	· Irrespective of the citations Acil Allen have drawn upon, the number of assessors cited in the BASIX CBA appears to be incorrect. - ABSA is the dominant accrediting organisation for most practitioners undertaking ratings in NSW. - ABSA has less than 1,000 accredited assessors Australia wide. - The figure should be around 400 at most, not the 2000+ cited.
BASIX CBA Page 69 Table 4.6	**Training costs incurred by each stakeholder needs**	· The assumed cost cited on page 70 (over $22 million) appears to be a significant over-estimate - The industry leaves almost all NatHERS matters to accredited NatHERS assessors, there is very little time spent understanding scheme requirements within design and construction companies.

Exhibited document reference	Change proposed to BASIX scheme	Comment and recommendation
	"In addition to this, it has been assumed that 20 per cent of architects and building designers would also undertake four hours of additional training on NatHERS to understand how to use NatHERS to comply with the new requirements.	- 'Compliance' is largely outsourced to accredited assessors. ***Recommendation*** · Support formal training of planning and building assessment professionals · Given the lack of formal training or instruction to planning and building assessment professionals regarding checking for BASIX compliance over the past 15 years this is where DPE need to focus its training effort, in order for BASIX to deliver intended outcomes. Costs would be very modest compared to BASIX CBA.