



Energy Efficiency and the National Construction Code, 2019 and Beyond

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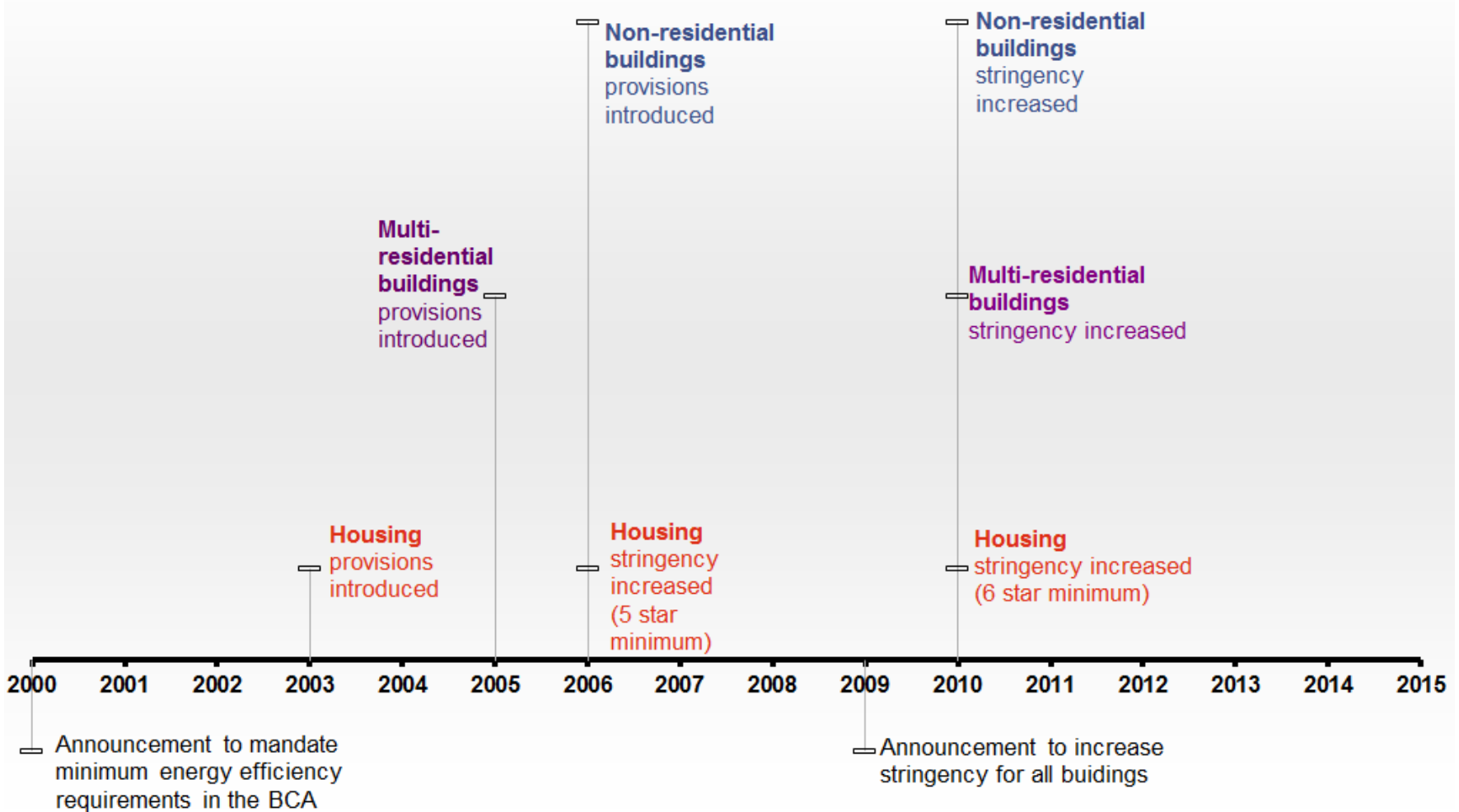


Contents

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 - Current NCC provisions and policy setting for change
- **Energy Efficiency Project**
 - Changes to the NCC proposed for 2019
- **Beyond 2019**
 - What lies beyond 2019 for the NCC



Background





Background

- Energy Efficiency – Quantification for 2016
- Re-write of JV3 – pilot for useability
- Summer energy performance
- NatHERS MOU and Commonwealth
- Consider de-regulating NatHERS for 2019 whilst retaining stringency of residential Performance Requirement
- NEEBP Phase 2 & 3 contributions
- NEEBP Phase 1 focus on improving useability of NCC to enhance compliance with Performance Requirements.
- GreenStar/NABERS rating tools as Performance Solutions
- Review of Building Energy Analysis Protocol for non-residential
- E3 work - i.e. MEPS & GEMS
- Education and training tools (revision to handbooks)



Policy Context

- **National Energy Productivity Plan (NEPP)**
 - Aims to improve Australia's energy productivity by 40% by 2030
- **COP 21 Paris Climate Change**
 - Australia has committed to reduce its emissions by 26–28% of 2005 levels by 2030
- Buildings account for approx. 23% of Australia's greenhouse gas emissions
- Buildings provide opportunity for significant emissions reductions before other sectors



Energy Efficiency Project

- The **NEPP** Measure 31, involves “*Advancing the National Construction Code – Energy efficiency requirements in building codes for both residential and commercial buildings are out of date with recent technologies. The Council will facilitate engagement with the Australian Building Codes Board and Building Ministers’ Forum to consider changes to the Code so as to achieve better energy efficiency outcomes for Australia’s buildings within the next cycle of revision of the National Construction Code, to be complete by 2019.*”



Key Research

Pathway to 2020 for Increased Stringency in New Building Energy Efficiency Standards (2012, 2016):

- Commercial buildings: 35-80% energy savings are achievable depending on 'learning rates' and shadow carbon price
- Residential buildings: only 12-16% energy savings are achievable, but this can be improved with photovoltaics



Key Research

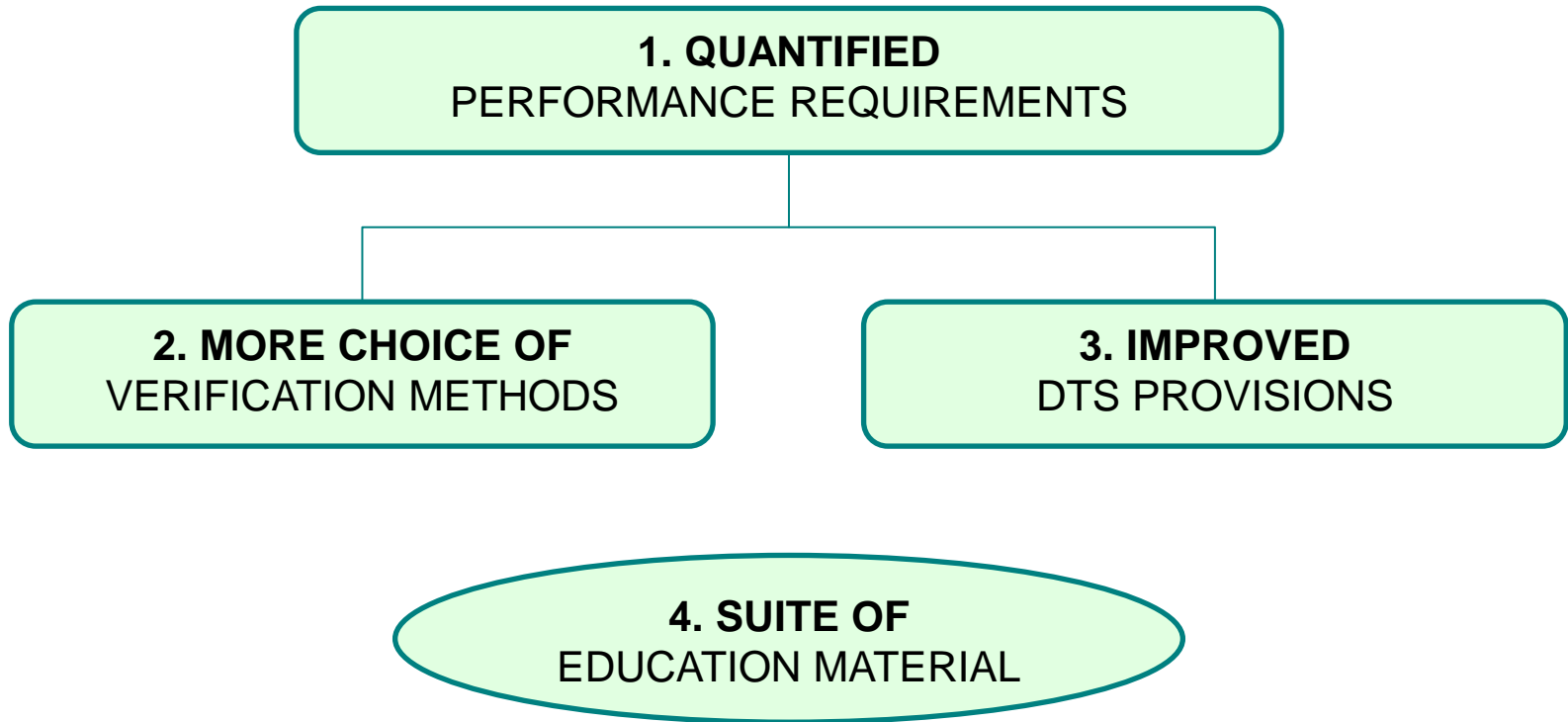
National Energy Efficient Building Project (2014):

“...Code compliance is poor...”

“...Australia’s building energy performance falls a long way short of best practice...”



Project Overview





Commercial Buildings



ECONOMICALLY FEASIBLE STRINGENCY INCREASE

PERFORMANCE REQUIREMENTS

Quantified PRs to consider:

- MJ/m².annum
- % improvement on baseline
- Whole-of-building Performance Requirement

VERIFICATION METHODS

Reference building

NABERS Energy

Green Star

Possible new VMs

DTS PROVISIONS

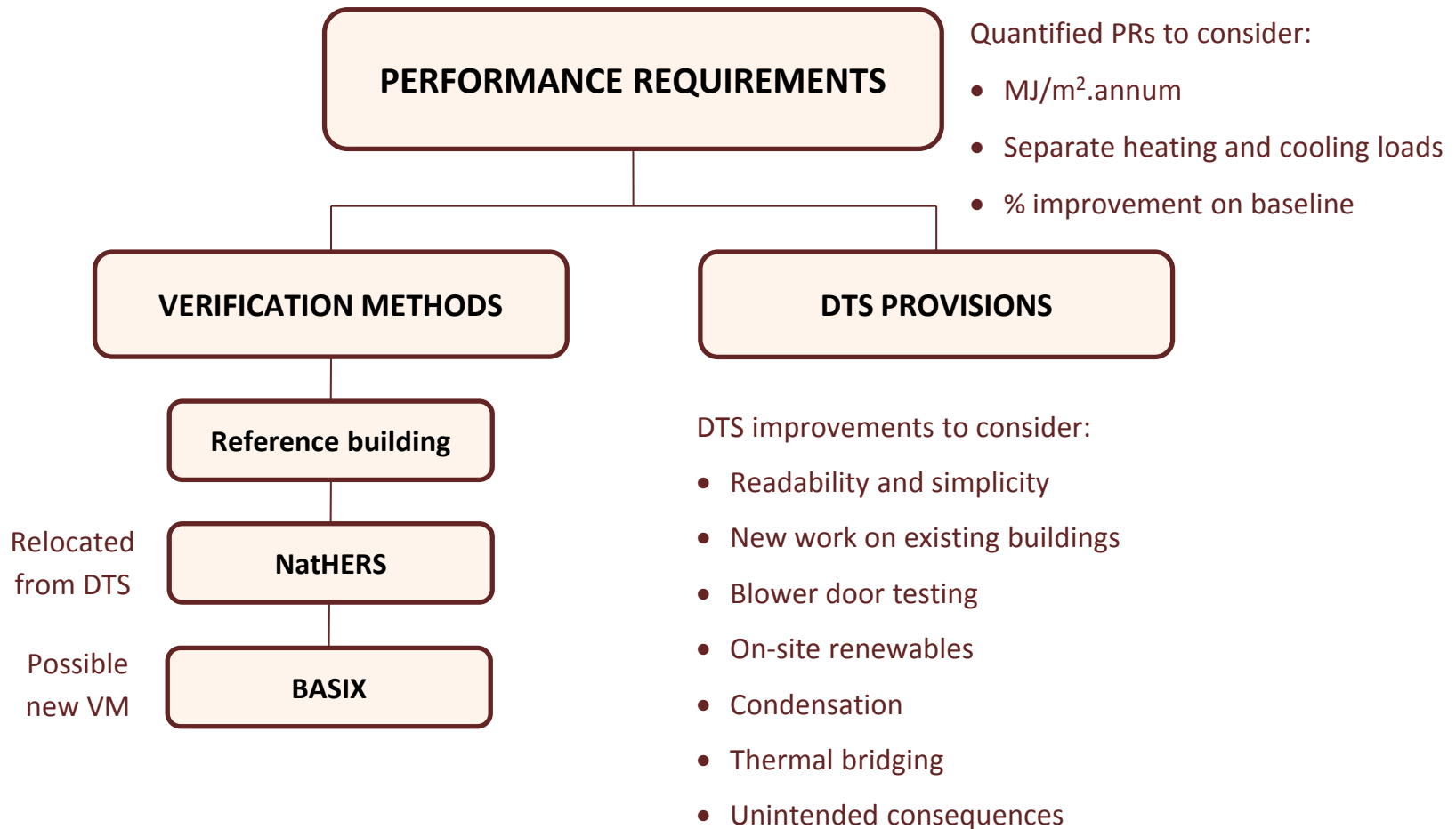
DTS improvements to consider:

- Readability
- New work on existing buildings
- Commissioning, blower door testing
- On-site renewables
- Condensation
- Thermal bridging
- Unintended consequences



Residential Buildings

ESTABLISHING THE FOUNDATION FOR A FUTURE STRINGENCY INCREASE





Benefits

- Provides more compliance options
 - Is more flexible and encourages innovation
- Improves interpretation and compliance
- Accommodates existing rating tools
 - NABERS Energy, Green Star and BASIX
- Reduces 'red tape'



Timeframes

Aug 2016 – Aug 2017	<ul style="list-style-type: none">• Major project work undertaken• Draft provisions developed
Sep 2017 – Jan 2018	<ul style="list-style-type: none">• Consultation Regulation Impact Statement developed• Draft provisions finalised for public comment
Feb 2018 – Apr 2018	<ul style="list-style-type: none">• NCC 2019 public comment period
May 2018 – Jan 2019	<ul style="list-style-type: none">• Regulation Impact Statement finalised• NCC 2019 provisions finalised
Feb 2019	<ul style="list-style-type: none">• NCC 2019 published
1 May 2019	<ul style="list-style-type: none">• NCC 2019 comes into effect



Beyond 2019

Research by the **Australian Sustainable Built Environment Council (ASBEC)** indicates buildings can achieve:

- half of Australia's 2030 energy productivity target
- a quarter of Australia's 2030 emissions reduction target
- net zero emissions by 2050

with existing technology



Beyond 2019

ASBEC recommend:

“minimum standards ... with a future trajectory aligned with the long-term goal of net zero emissions”

According to **ASBEC**, this would require:

- Energy efficiency
- Fuel switching
- Zero emissions electricity



Beyond 2019

The trajectory of future NCC energy efficiency stringency changes will need to consider:

- What is the end goal in light of the Government's separate energy productivity and emissions reduction targets?
- What should be the role of on-site and distributed low-emissions technology?
- How is a trajectory established and what is its status



Condensation

Research by the **University of Tasmania** indicates:

- The NCC energy efficiency provisions may be exacerbating condensation issues
- The NCC is out-of-step with mitigation measures in comparable countries
- The NCC should holistically consider:
 - Vapour management
 - Control of air movement (in and out of a building)
 - The level of conditioned internal temperatures



Summary of 2019 changes

- For both commercial and residential buildings:
 - Quantified Performance Requirements
 - More Verification Methods
 - Improved Deemed-to-Satisfy Provisions
 - Suite of educational material
- An economically feasible stringency increase for commercial buildings
- Foundation established for a possible future stringency increase for residential buildings



More information

www.abccb.gov.au