Water supply and demand risk

WWC Workshop

9 June 2023

Wellington Water

Our water, our future.

The purpose of this workshop

The workshop is intended to:

- **Outline** the current and future states for regional water demand and supply
- **Present** the investment pathway expected to provide the best outcomes for the water, the community, and the environment.
- **Seek alignment** on the inclusion of necessary investment in 2024/34 investment plans.

The focus of the workshop is on water supply and demand for the metropolitan region (and does not discuss South Wairarapa)

The workshop reflects the Committee's direction from its 2023/24 Letter of Expectations.

What we'll be discussing

- Demand growth, water loss, climate change and environmental pressures have brought our water supply to its limits
- These pressures are increasing, and the current approach is unsustainable
- Investment must commence in a combination of supply and demand initiatives (i.e. conserve and construct) to achieve a sustainable water future
- Metering and increased water loss management are essential to deferring very high-cost solutions such as desalination.
- Achieving this investment requires regional alignment

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Water supply – expectations and obligations

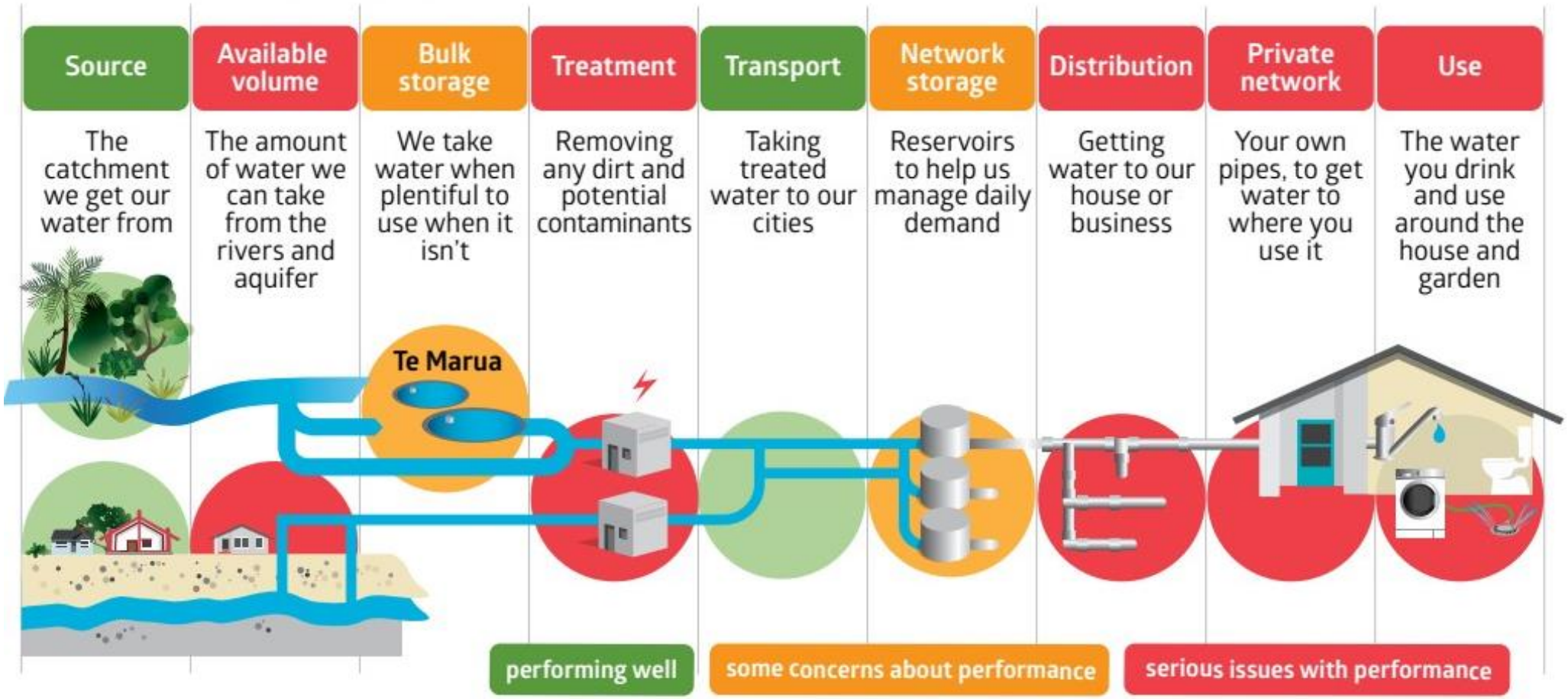
What customers and communities are expecting:

- Provide sufficient, safe water
- Ensure it is supplied and used efficiently
- Sustain the health of source waters and their connected ecosystems
- Ensure this is sustainable for future generations, including financially

What the obligations are:

- Sufficient water to meet normal demand up to 1-in-50-year drought
- Provide reliable supply
- Provide a sufficient quantity of water (Water Services Act)
- Restore te mauri o te wai/Operate within resource consents

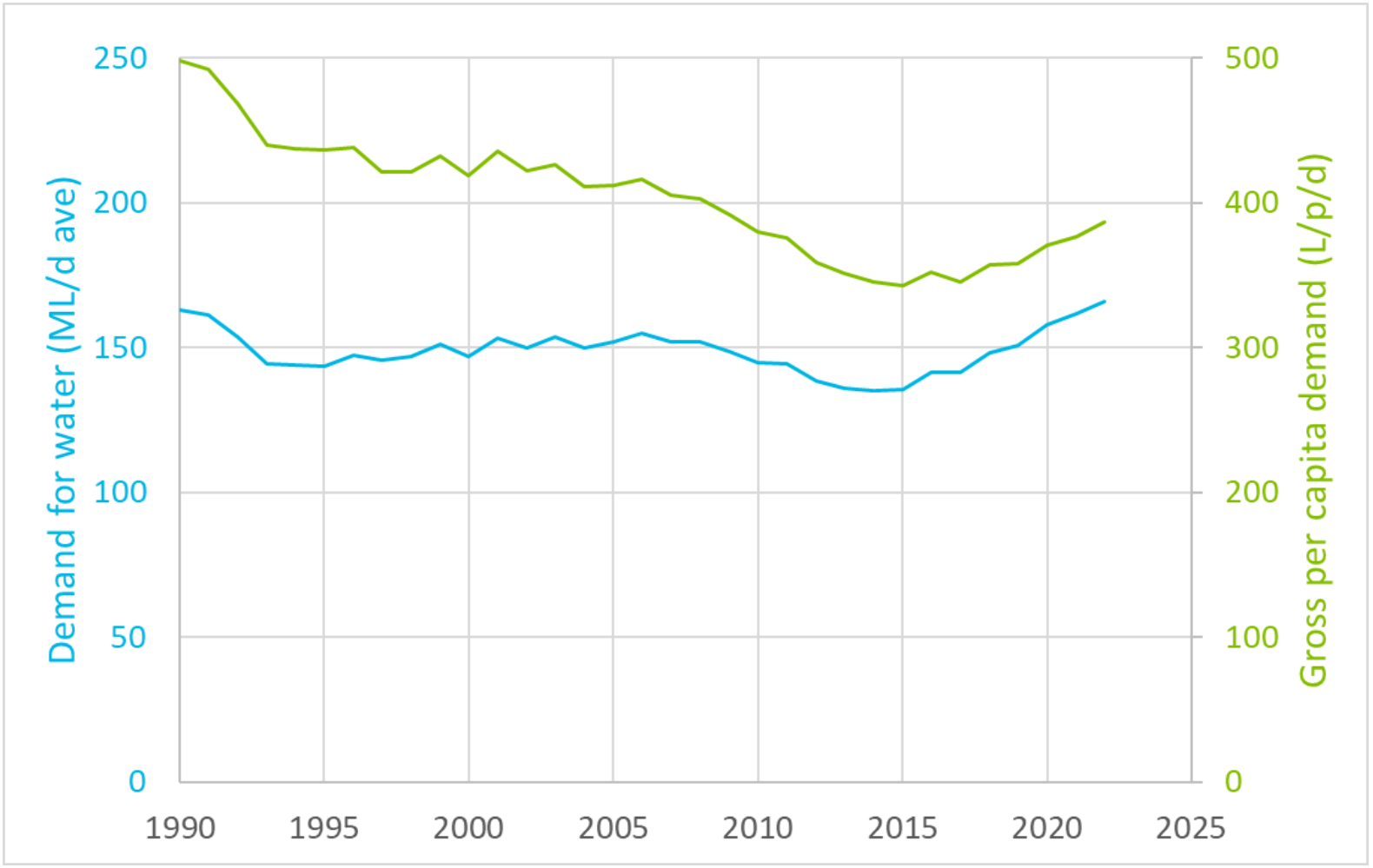
Water – from catchment-to-tap



The focus here is on the enduring risk

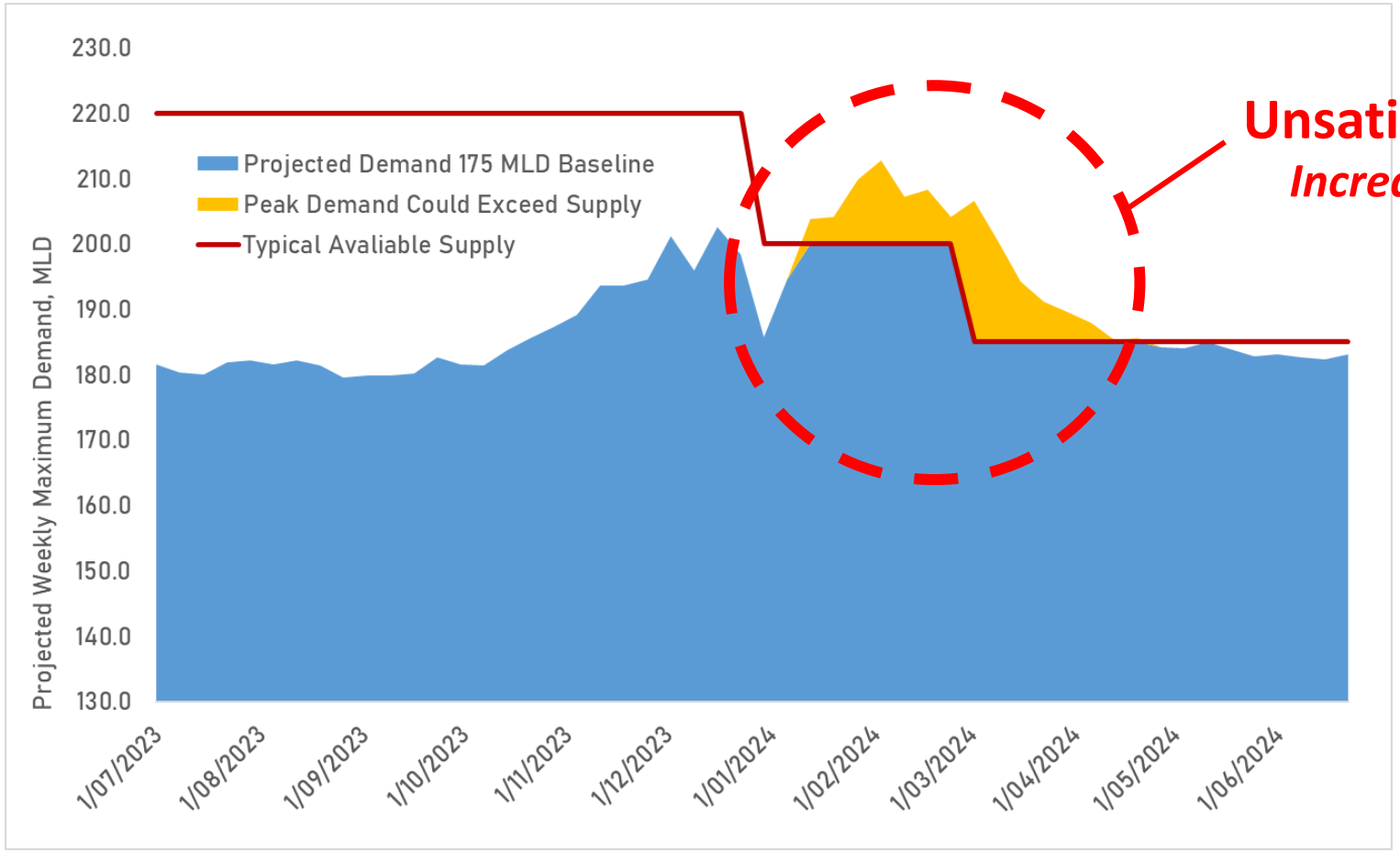
Timescale	**Summer day**	**Summer**	**Enduring**
Issue	Peak usage exceeds supply	Water demand exceeds availability	Population & demand growth Environmental limits
Consequence for customers	Acute water shortage	Severe water restrictions	Ongoing shortages

A system at its limits

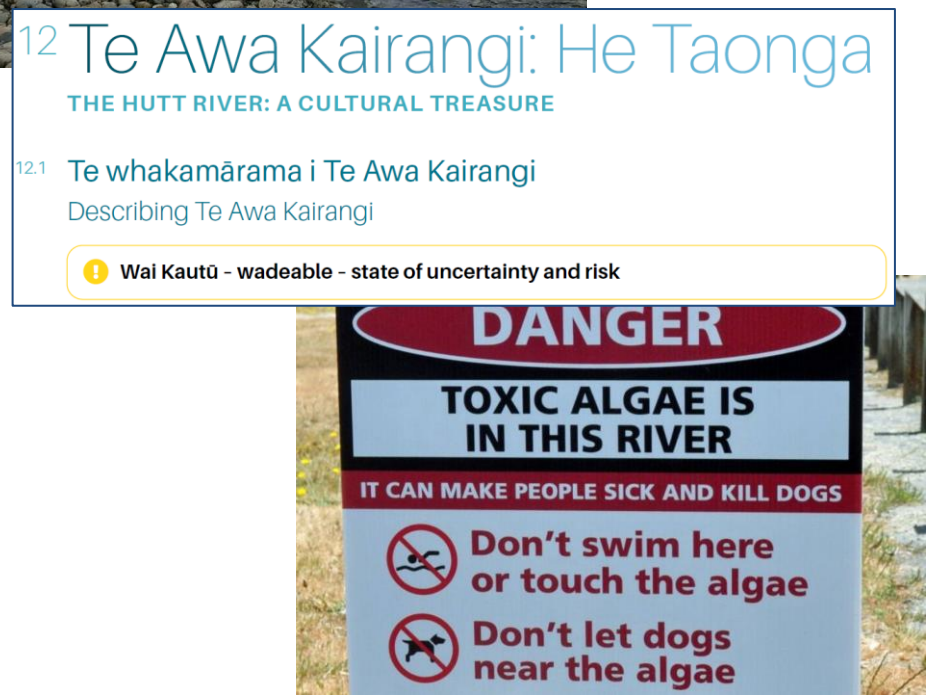


…and 135,000 more people expected in the next 30 years

With real consequences for communities…



…and consequences for the water



- Need to restore the balance between people, the water, and the environment
- Current water takes are unsustainable *(over-allocation)*
- Water lost is water that could be left to the rivers
- Re-consenting in 2035 will need to give effect to Te Mana o te Wai *(allocations and efficient use)*

The risk is increasing into the future

Population Growth
(and per capita demand)

Te Mana o te Wai

Climate Change
(including sea level rise)

Increasing Resilience
(and expected Level of Service)

Any questions on the context, before we move into the solutions?

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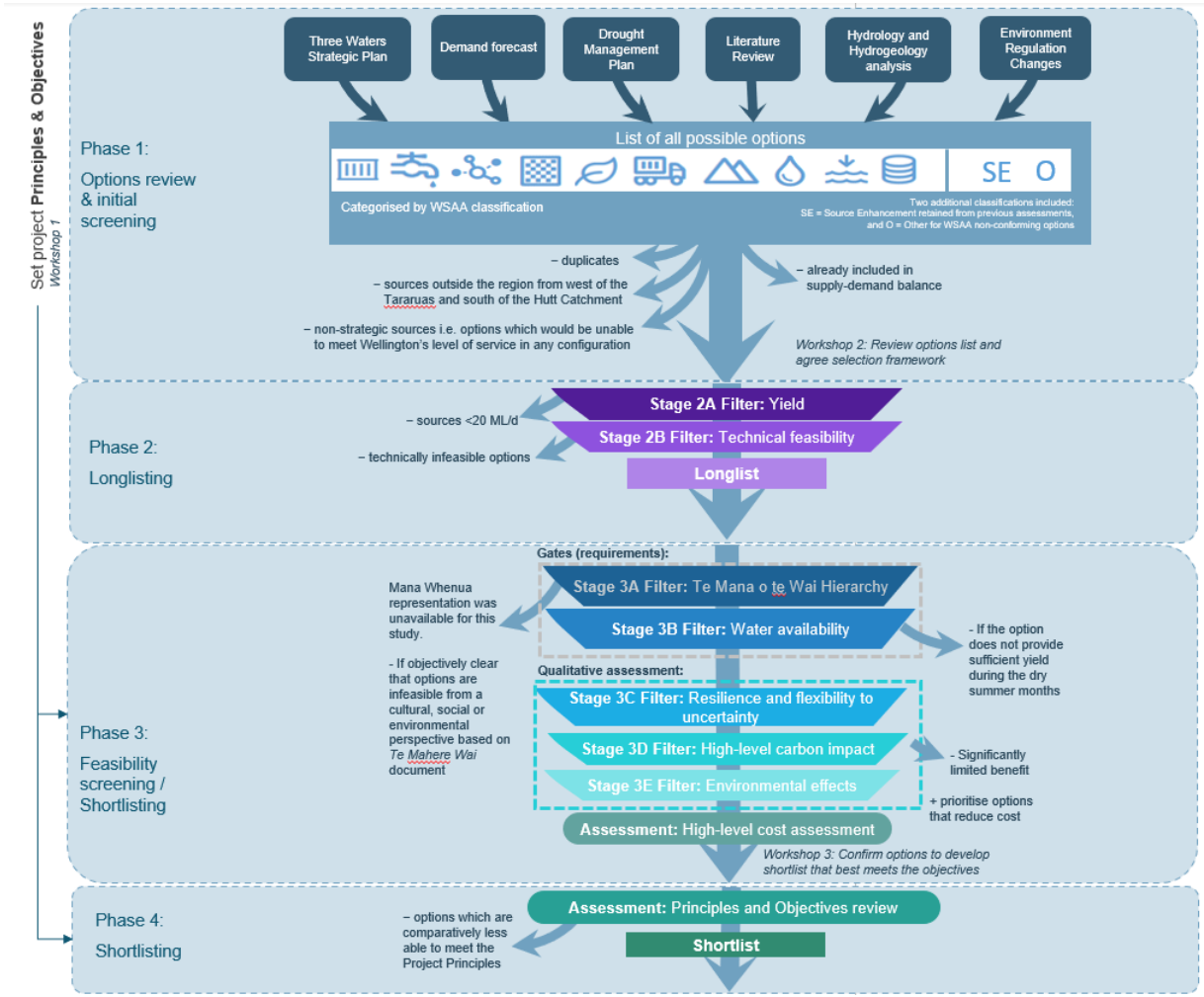
We are planning for this future

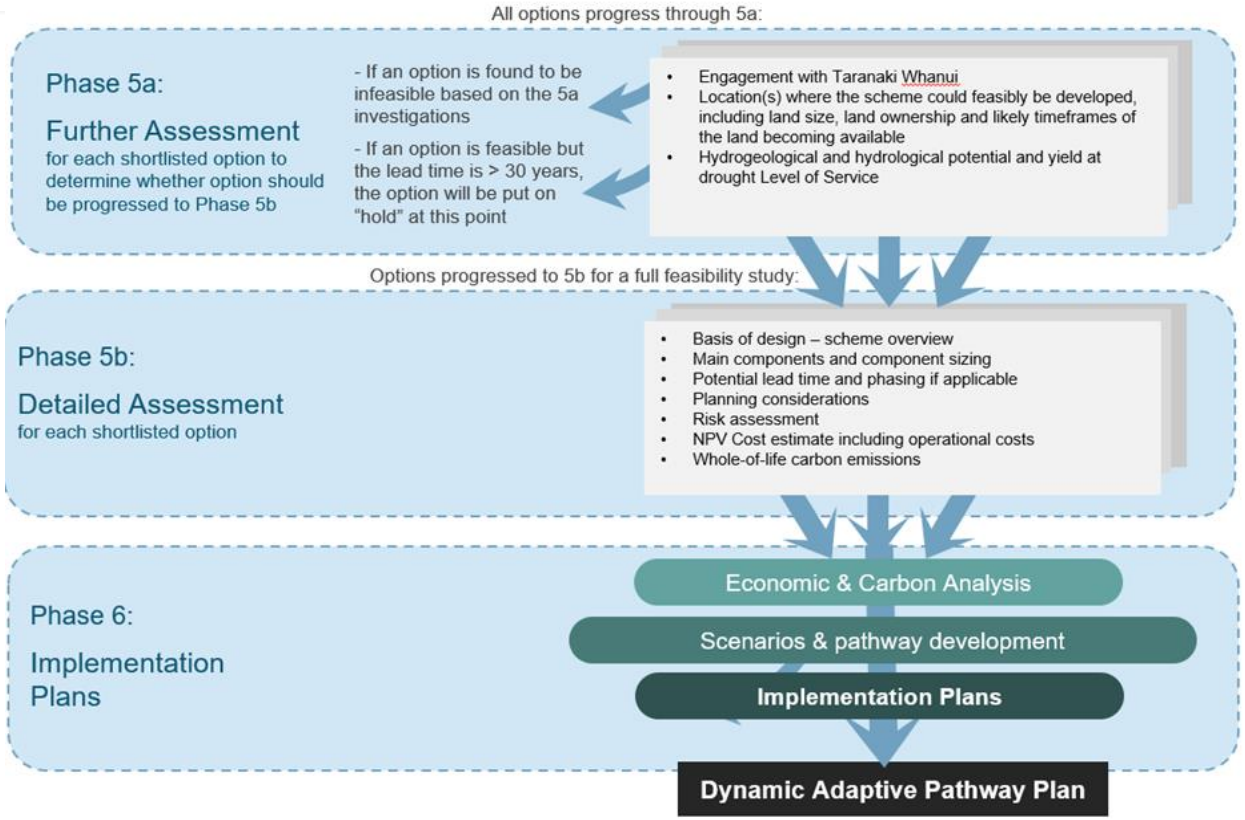
- While the future is uncertain, it can still be planned for
- We are looking through a multi-generational lens (Te Mana o te Wai, long-lived cities and assets)…
- …for solutions that are sustainable for the water, environment, and people (Te Ika Rō Wai)
- Using a set of principles/outcomes
- Conceivable pathways have been identified, sequenced and tested

Project principles

- 100-year approach prioritising affordability, environment & climate responsibility.
- Recognise the significance of *wai*, *mai uta ki tai*, and *Te Mahere Wai*
- Enhance Wellington's water health, and supply diversity and resilience.
- Twin-track approach (i.e. both construct & conserve)
- Able to adapt to uncertainty, including climate change
- Engage meaningfully with mana whenua.
- Collaborate with the regulator, Greater Wellington Regional Council
- Meet relevant regulatory, legal and governance requirements
- Community and stakeholder-first approach

A comprehensive approach, applying recognised good practice





The shortlist includes supply- and demand-side options

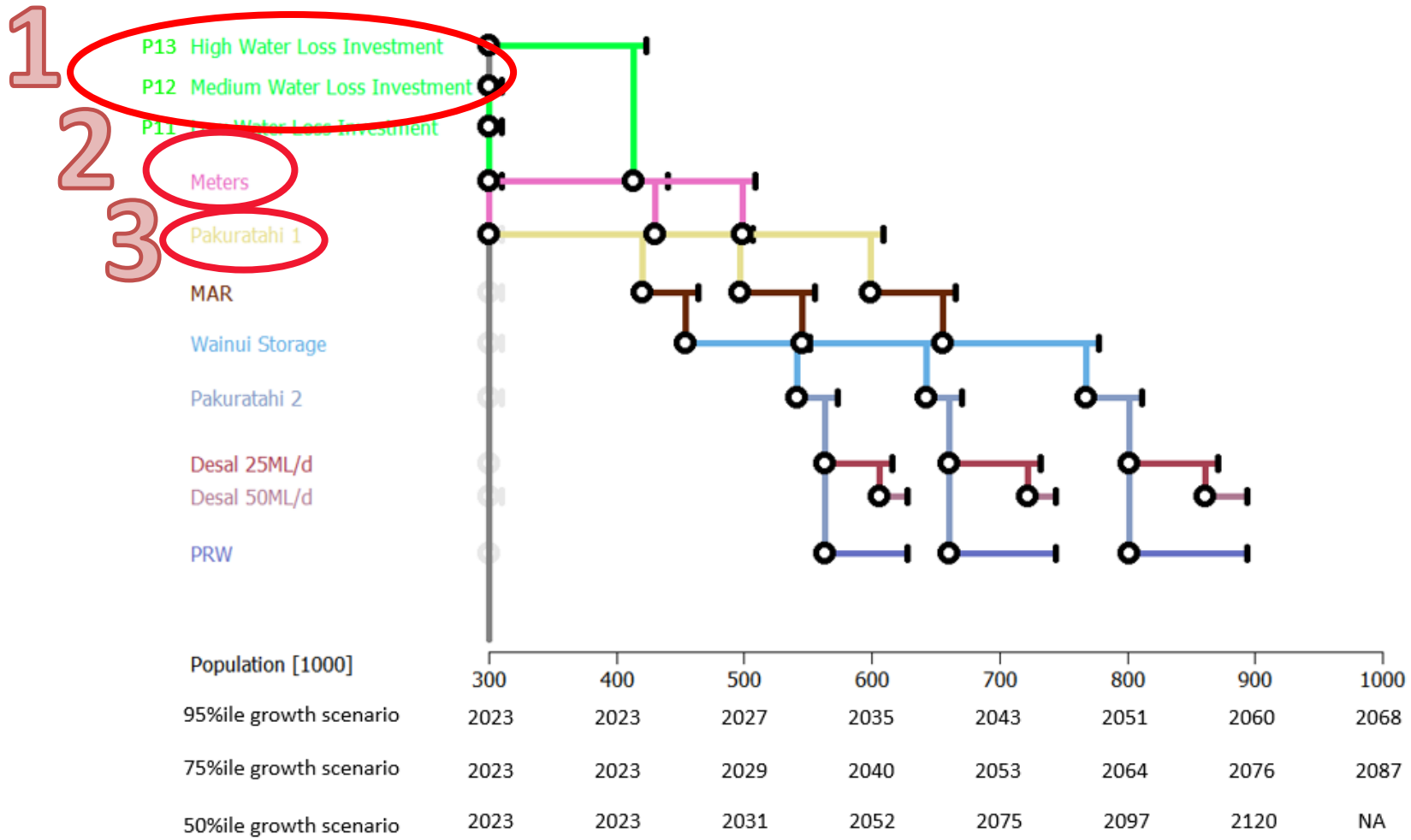
‘Construct’ Options
Storage at Pakuratahi Lake 1 and 2
Storage at Pakuratahi Lake 3
Storage at Wainuiomata
Desalination plant
Purified recycled water scheme
Managed aquifer recharge

‘Conserve’ Options
Universal metering
Leakage – medium investment
Leakage – high investment

Water loss management, meters and storage are the lowest cost pathways

- Water loss management and meters are effectively new sources, but without taking the water, needing major infrastructure, or generating carbon emissions
- Savings from meters are equivalent to the water demand of 90,000 people (or “enough for two Upper Hutts”)
- Costs are a quarter to a half of pathways with high water loss and no meters (ca. $1bn NPV versus $2.5-$4bn)
- Greatest flexibility to respond to population uncertainty and future expectations

Recommended pathway starts today - water loss reduction, meters, and lakes



Summary

- Demand growth, water loss, climate change and environmental pressures have brought our (weather-dependent) water supply to its limits
- These pressures are increasing, and the current approach is unsustainable
- Investment must commence in a combination of supply and demand initiatives (i.e. conserve and construct) to achieve a sustainable water future
- Metering and increased water loss management are essential to deferring very high-cost solutions such as desalination and treated wastewater re-use.

Any questions, before we move into the workshop discussion?

For discussion

- Do you support the proposed initial investment pathway of water loss reduction + meters + new lakes?
- If not, what pathway would you be prepared to accept, and why?
- How do we achieve regional alignment on 2024/34 investment in LTPs and/or the Entity G AMP?
  - With councils?
  - With the community?
  - With the NTU?
- How well does the community understand this risk (including the level of service)? Should this investment story be presented to them?
- Is there anyone that you'd like to hear from on meters? (i.e. New Plymouth, Christchurch, Kapiti, Auckland, etc.)

Supporting material

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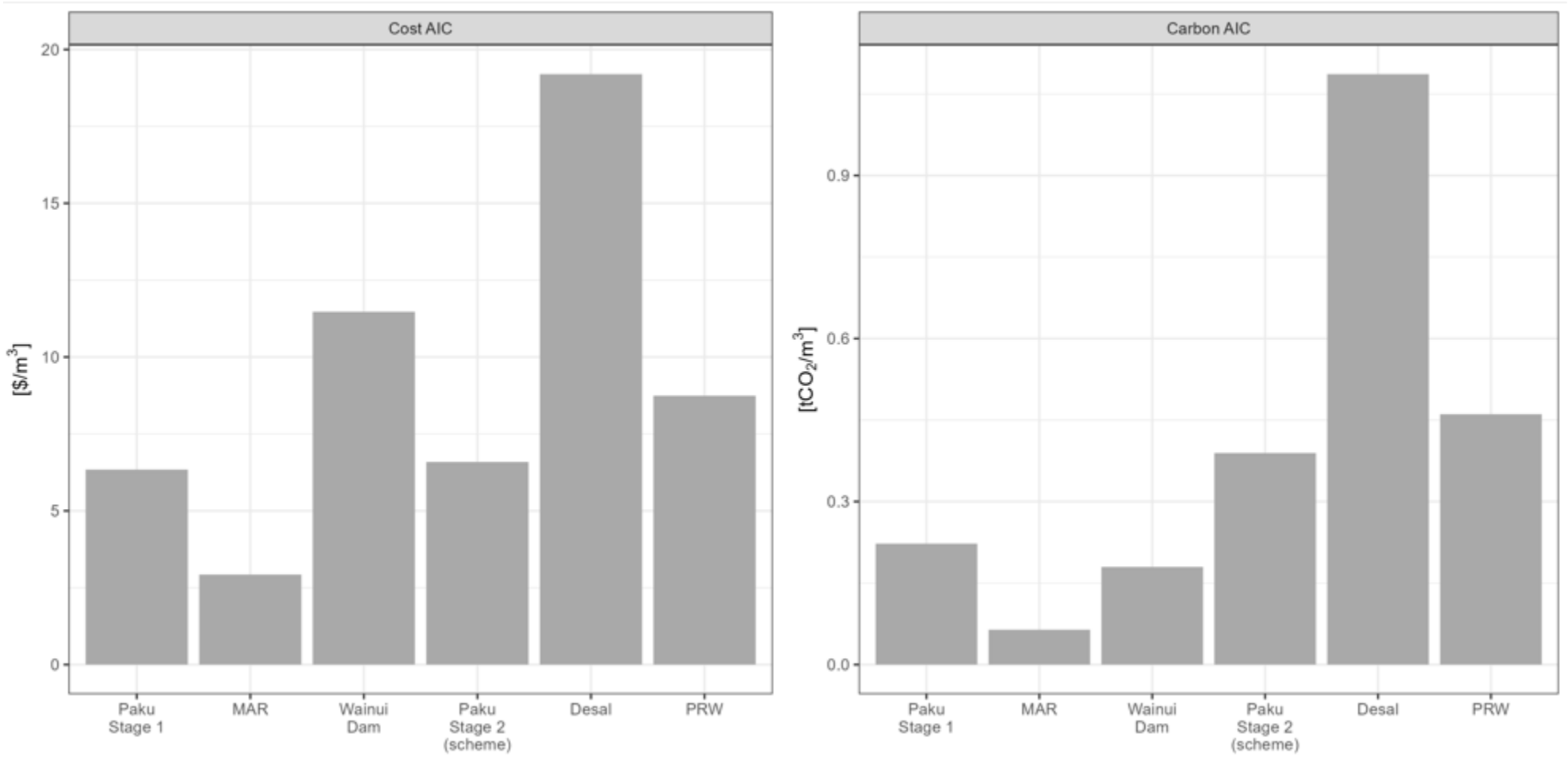
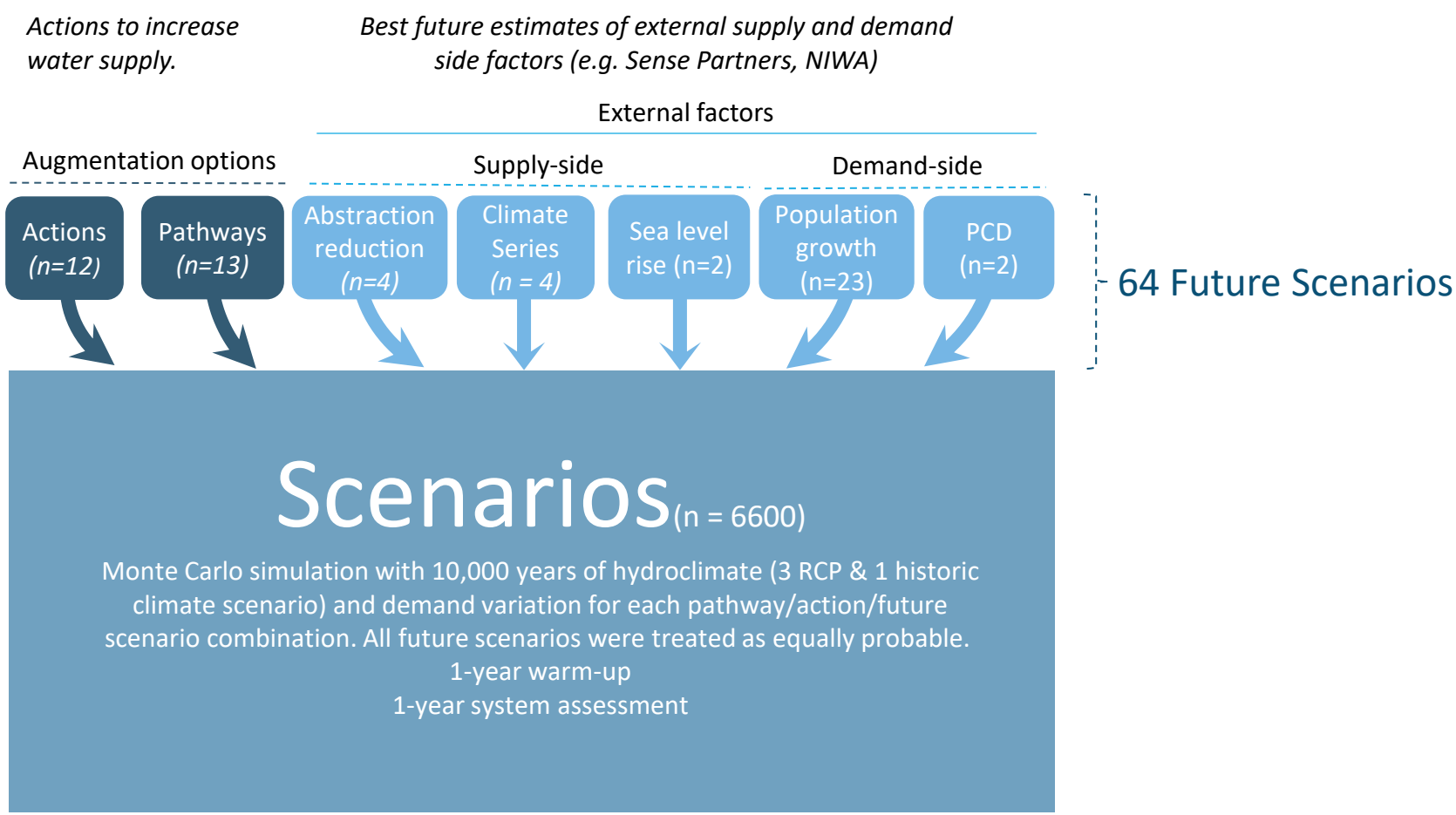
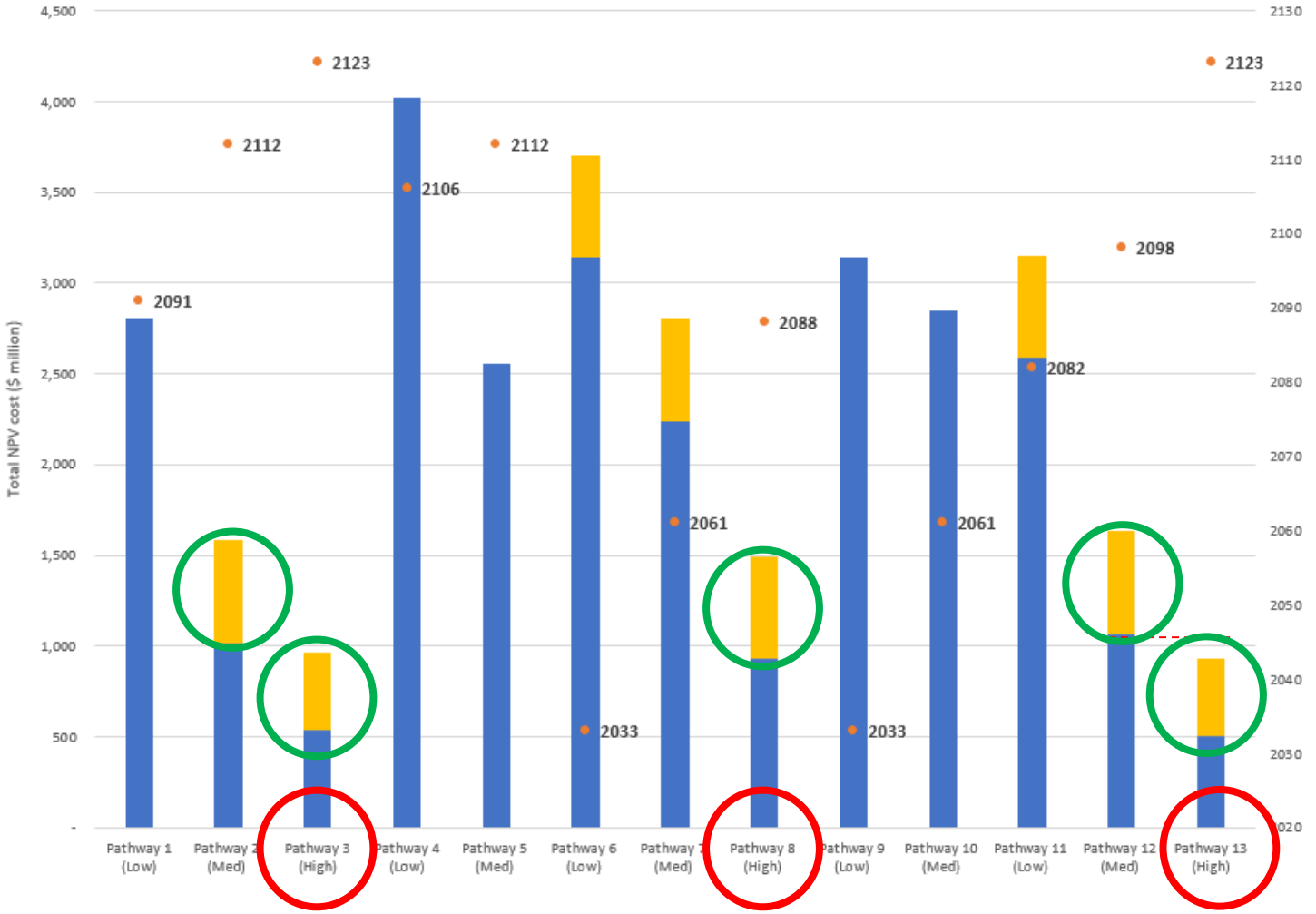
Costs and carbon emissions have been assessed



The full range of pathways and scenarios have been tested



The lowest cost pathways include water loss management, meters and storage



Meters

High water loss investment

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