



WATER SERVICES
ASSOCIATION OF AUSTRALIA

Hydrogen and water – AHC webinar

20 October 2022

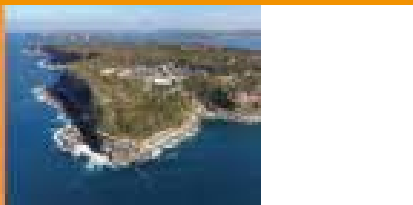
Danielle Francis, WSAA Manager Policy and Strategy



WSAA – Peak policy body for Aust/NZ urban water industry

Functions

1. **Collaboration** (networking, cross-industry projects)
2. **Advocacy for good water policy** (state, national, international)
3. **Innovation** (technology, benchmarking)



Hydrogen prominent... but water rarely mentioned



Australian Government
Department of Climate Change, Energy,
the Environment and Water

#ABCNews #ABCNewsAustralia

Tasmania hopes to be exporting hydrogen by the end of the decade | ABC News

4,510 views • Jul 28, 2022

62 DISLIKE SHARE SAVE

New

Hydrogen fuel stations to be built between Sydney and Melbourne under \$20m plan

World's largest hydrogen plant to be built in South Australia

Home / Energy / Growing Australia's hydrogen industry

August 21, 2022 - 10:08AM sky news .COM.AU

Blue hydrogen – what is it, and should it replace natural gas?

Tom Baxter, University of Aberdeen

- Energy
- Renewable energy
- Establishing offshore renewable energy

Growing Australia's hydrogen industry

Australia's hydrogen potential: A message from the Chief Scientist

NSW Hydrogen Strategy

Australia's National Hydrogen Strategy



How urban water planning works

Each region plans a secure water supply:

- **25 - 50 year horizon**

- Strategic planning process: **2 – 4 years**

- Utilities & govt cooperative process + extensive **community engagement**

- **To ensure there's enough water for communities + associated needs:**

- People, industry, business
 - Flows to the environment

- Cultural, First Nations
 - Agriculture

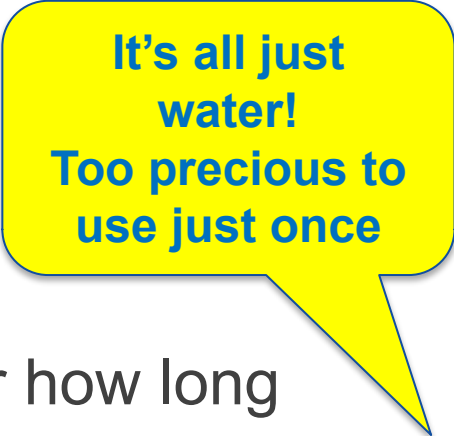
- **Meet defined sustainable water supply criteria**

- 'Yield, reliability, robustness'

- ie. How much water needed, how often we go into restrictions, & for how long

- **All sources utilised: Surface (river/dams), groundwater, desalination, recycled water**

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- Overall community values about water
 - **Supply/demand options**



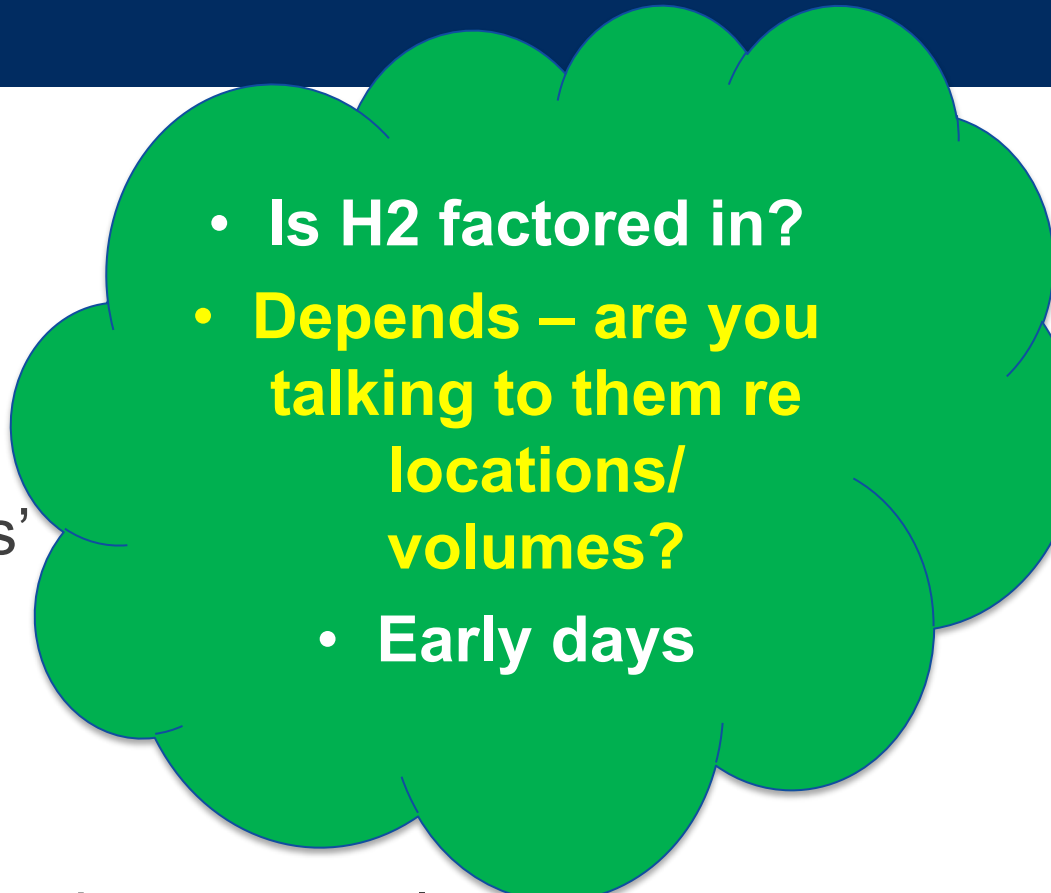
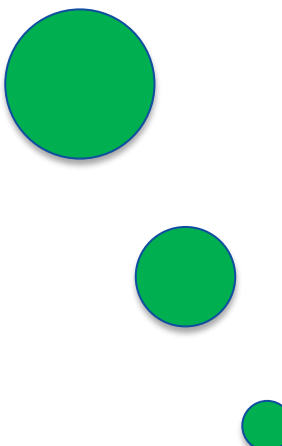
It's all just water!
Too precious to use just once

- **Specific challenges**

- Scarce, stressed – 2 droughts in 20 years
- Seasonal, fluctuates
- Vulnerable to climate change & drought
- Very location-specific – not just ‘total volumes’
- Hard, expensive to move

- **Then: Implementation**

- Infrastructure procurement - Environmental, other approvals
- Funding applications
- Construction
- Commissioning
- **6-10 years**

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- Is H2 factored in?
 - **Depends – are you talking to them re locations/ volumes?**
 - **Early days**
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Some common misconceptions

“Water is \approx 3% of the cost of green hydrogen.”

“We can just build \approx 30 new desal plants.”

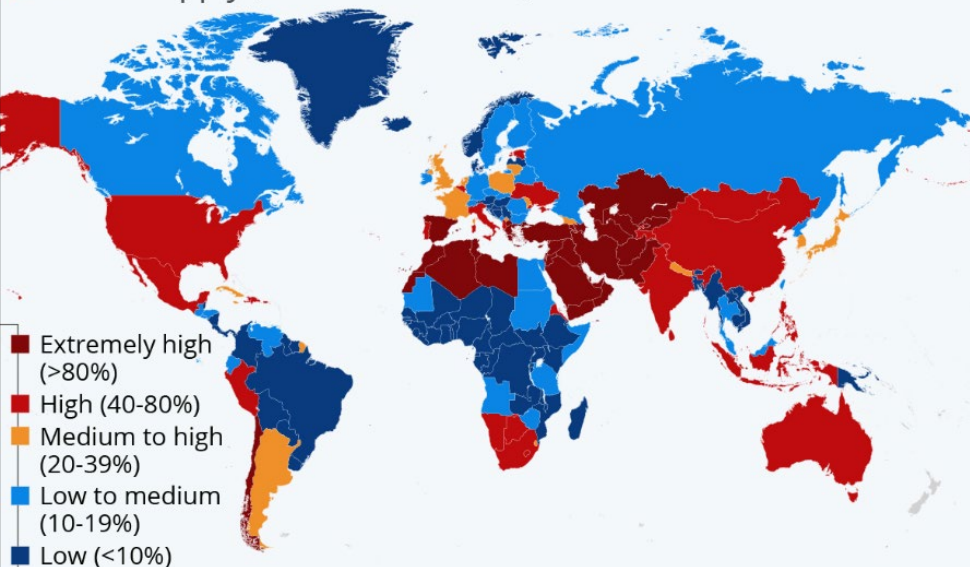
“There’s plenty of capacity in the existing desal plants.”

“If we don’t end up needing the desal water, we’ll use it to irrigate public spaces.”

“Water is $\approx 3\%$ of the cost of green hydrogen.”

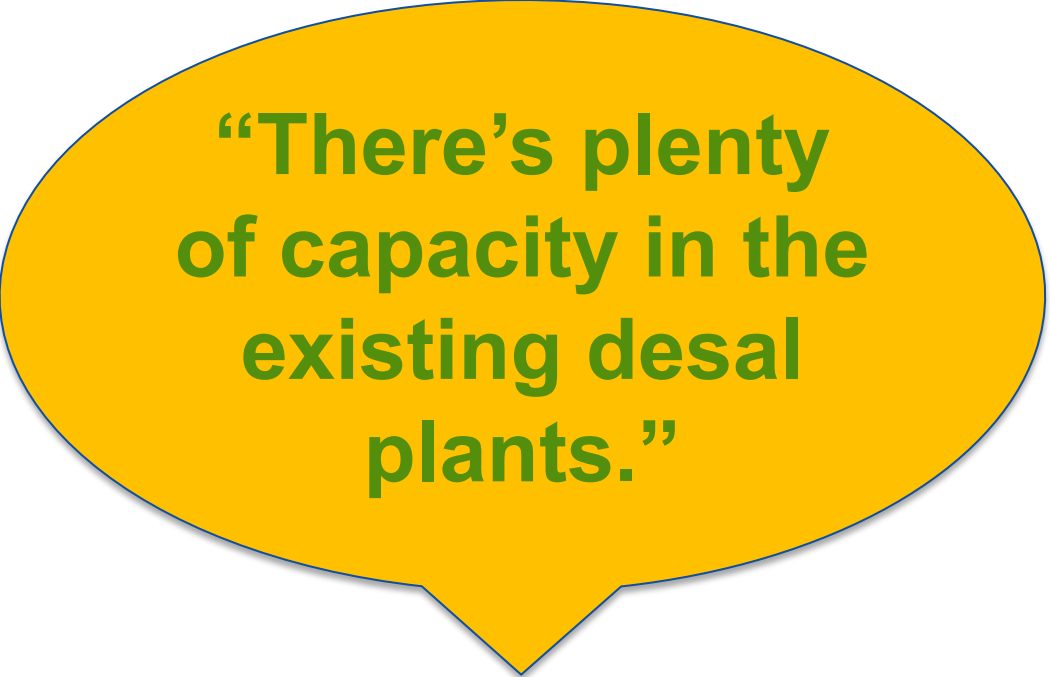
Where Water Stress Will Be Highest by 2040

Projected ratio of water withdrawals to water supply (water stress level) in 2040



Source: World Resources Institute via The Economist Intelligence Unit

- It's 3% you can't do without
- That 3% could be **more than Australia's total household water usage**
- How calculated? Water industry input?
- Does it assume current cost of water?
 - Optimistic
 - If additional capacity needed – Sydney Desal \$2bn+, Wonthaggi \$5bn+
- **Social licence: % of cost is the wrong lens.**
- **Communities care deeply about their water resources.**



**“There’s plenty
of capacity in the
existing desal
plants.”**

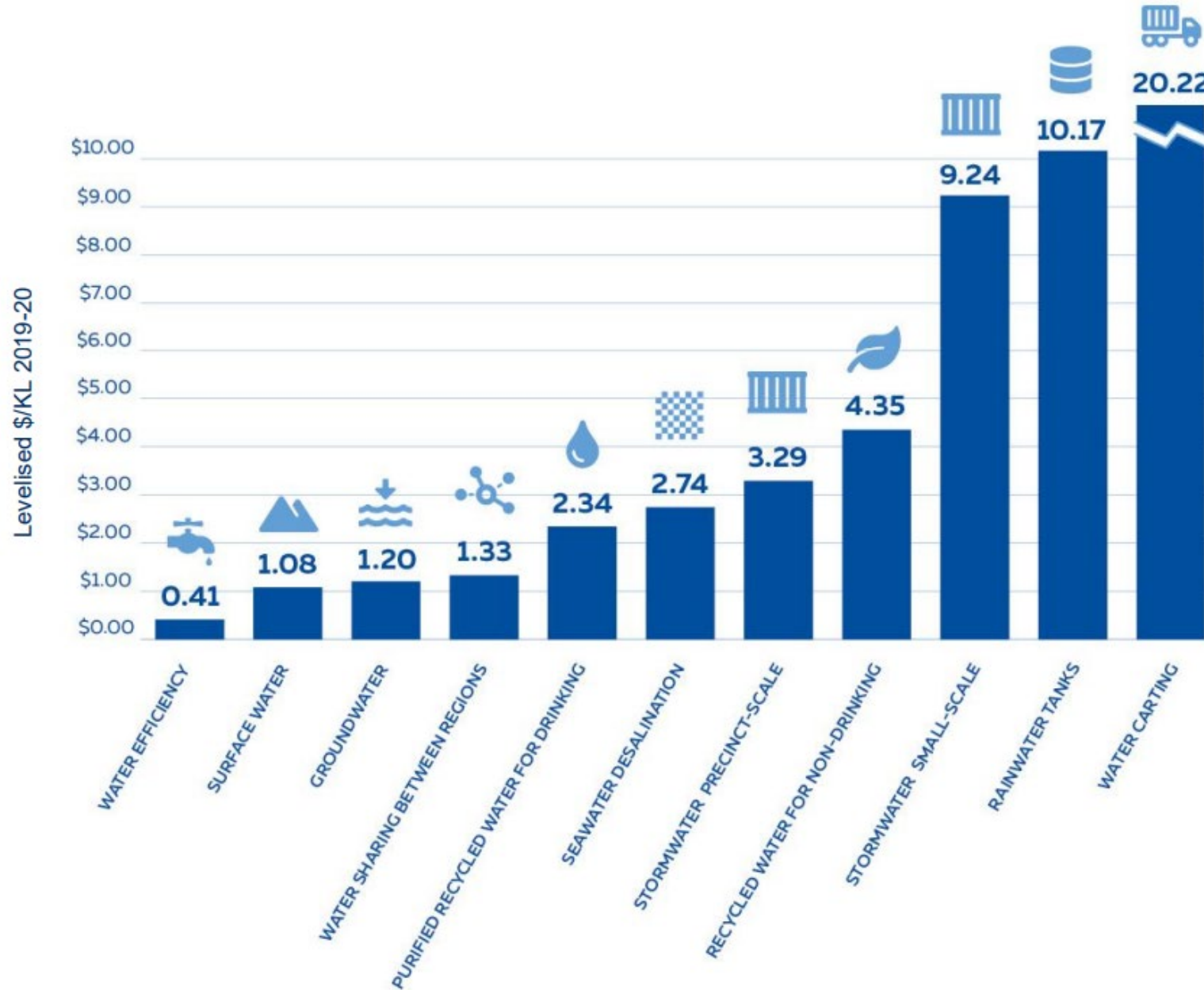
- **15 years ago seen as ‘insurance policy’**
- **Not any more – essential for resilience to droughts, floods, bushfires**
- **Existing capacity largely spoken for**
 - **Especially in drought**
- **Most capital cities looking to build more desal & recycling to meet basic community needs for growth, climate change, resilience.**

- **Not an easy undertaking**
- **Communities have had strong views about desalination plants**
- **Better appreciation of their value now, but still concerns over sites, marine impacts**
- **6+ years, \$\$\$billions, availability of sites**
- **Recycled water: These plants also need time, space, \$\$\$ and is the water 'spare'**



“We can just build ~30 new desal plants.”

WSAA 2020 levelised costs: **No substitute for local costings**



- **Desal is very expensive water – need holistic planning to work out right mix of water for different needs**
- **Communities prefer to see us using what we have, before building new infrastructure**
- **Doesn't make sense to build new desal plants in places where recycled water is available & flowing to sea**
- **Need to understand time profile of when the demand arises**

“If we don't end up needing the desal water, we'll use it to irrigate public spaces.”

What is needed? **In moving from pilot scale, to gigawatt...**

- **Collaboration, information-sharing, joint planning:**

- Hydrogen industry
- Water industry
- Governments (state, federal)

- **Policy guidance**

- Prioritisation for different water needs
 - **Eg community, environment, industry, cultural**
- Who should pay for (& own) water infrastructure for hydrogen?
 - **Suggest not via community water bills**
- Process for projects that cross state boundaries?
- Process for different proponents eyeing off same water?
- What happens in drought?
- Do Guarantee of Origin settings fairly reflect water source choices & overall sustainability?
- Should dry cooling methods be incentivised?



- **New National Water Initiative....**

- **Good vehicle for guidance?**



Valuable research for the Hydrogen industry to invest in

1. Water availability audit around Australia:

- Any places with available water, what source/s?
- Should this be an **input** to H2 Hub locations? (*not an afterthought*)

2. Timing profile of water needs:

- Will H2 use more/less than fossil fuels?
- How will the timings overlap? Are there only short-term peaks?
- What happens if the peaks coincide with drought?

3. Social licence re water & hydrogen:

- Which source/s of water do communities prefer for hydrogen?
- Are there views on using water resources **for H2 that is exported?**

THANK YOU

danielle.francis@wsaa.asn.au