



# ***Jupiter Ionics: Enabling Net-Zero Nitrogen***

Dr Dijon Hoogeveen, Jupiter Ionics

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# The MacFarlane-Simonov research team has a long-standing interest in Green Ammonia via multiple pathways

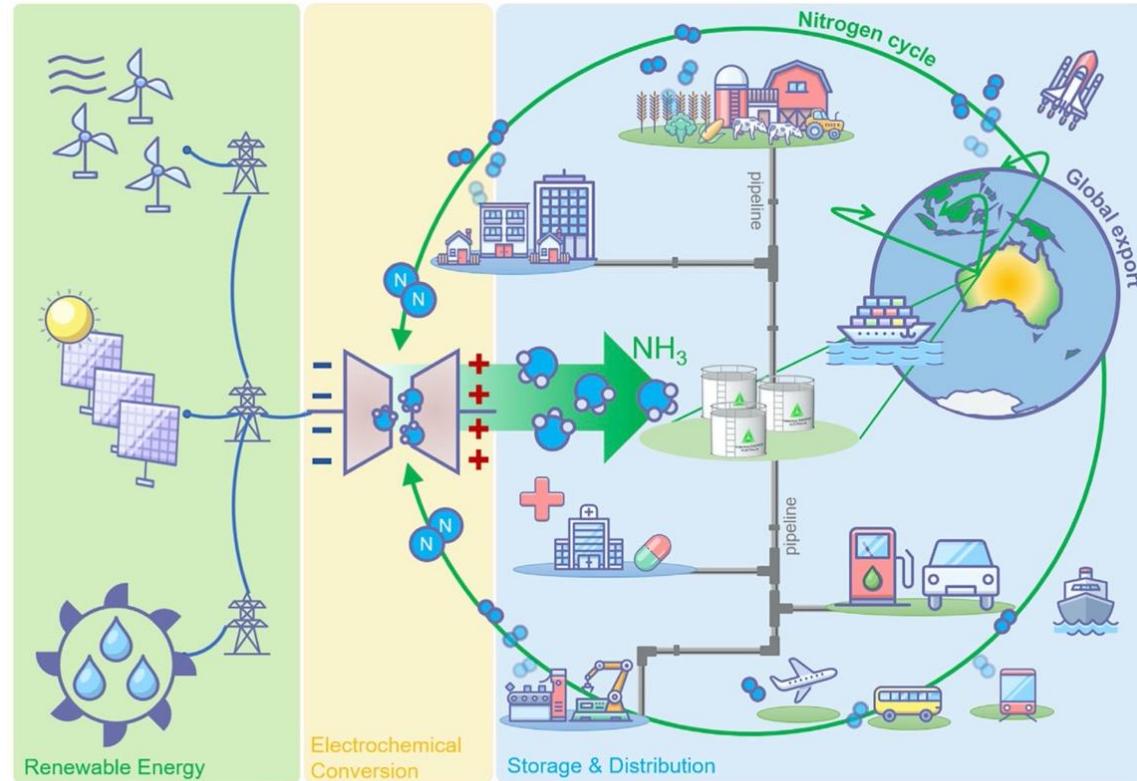


Figure 1. Vision of the "Ammonia Economy" in which the Energy Sources and Uses Are All Based on Ammonia

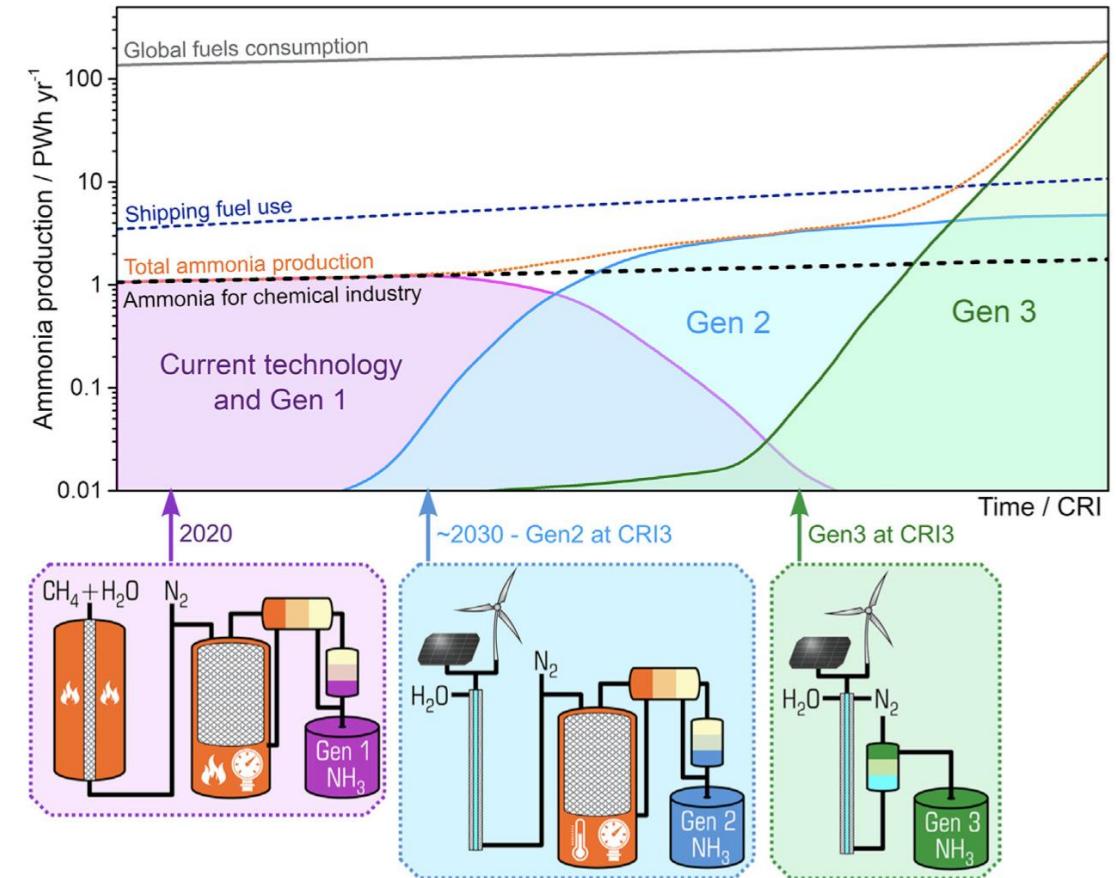


Figure 5. Ammonia Economy Roadmap Showing Current and Projected Contributions of the Current and Gen 1 (purple), Gen 2 (light blue), and Gen 3 (green) Ammonia Production Technologies

# *Introducing the Jupiter Ionics Team: a spin out developing breakthrough technology for electrochemical nitrogen reduction*

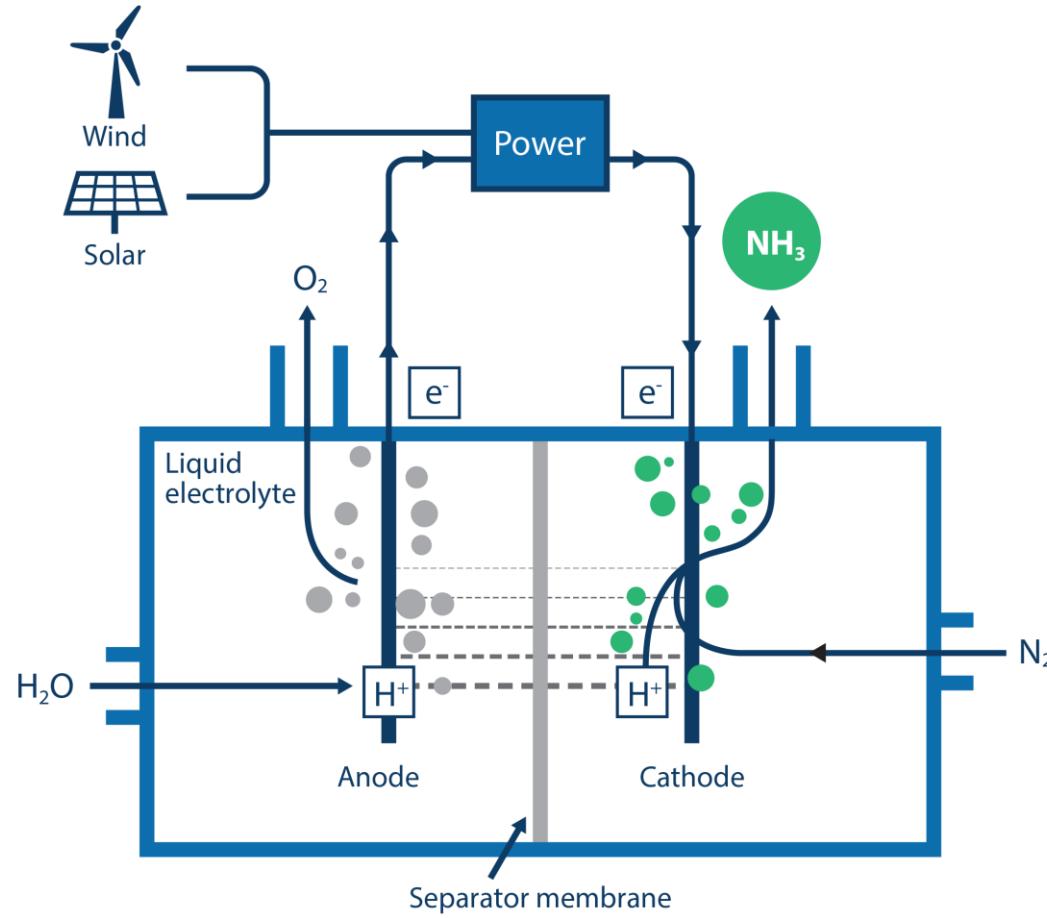


## FALLING WALLS VENTURE

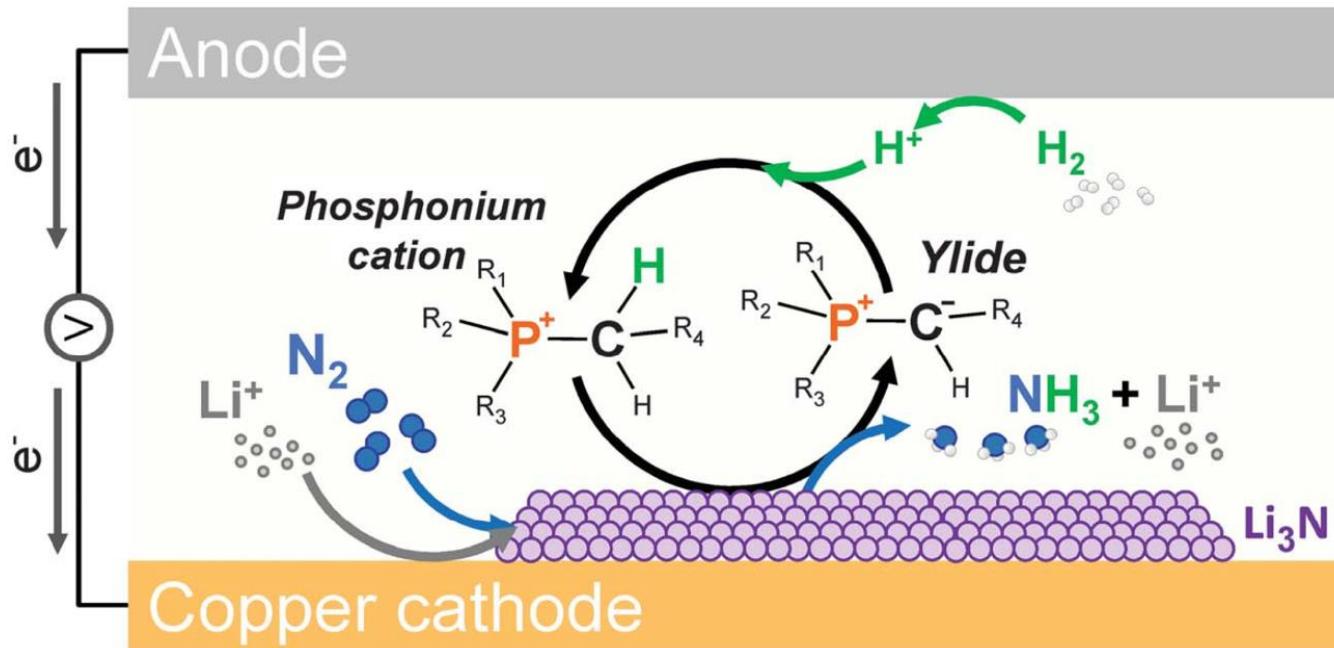
GOVERNOR OF VICTORIA STARTUP AWARDS



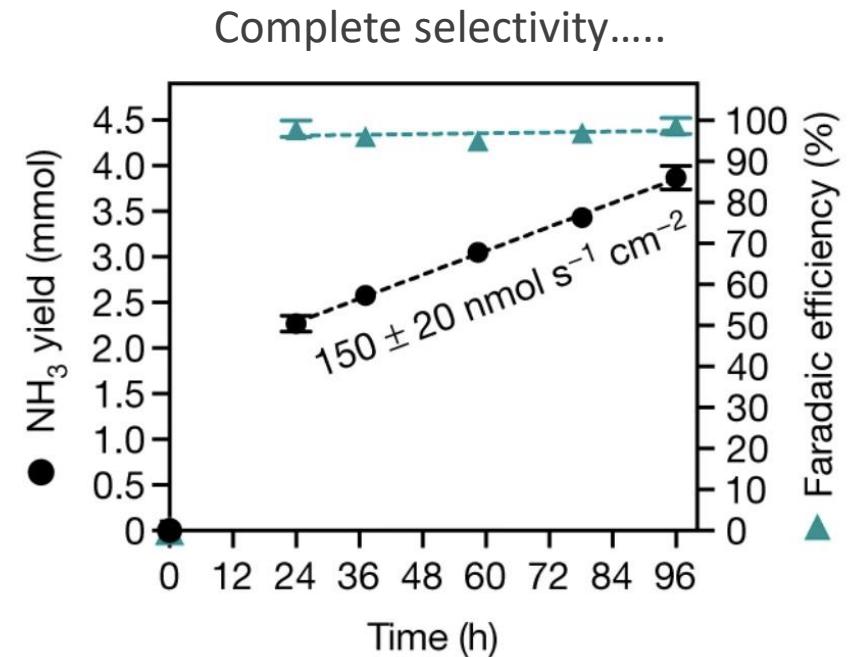
# We are developing a direct electrochemical pathway to green ammonia



# Key elements of our technology package enabling electrochemical NRR are a proton “shuttle” and the right electrolyte



Suryanto et al *Science* 2021  
<https://science.sciencemag.org/content/372/6547/1187>



Du et al *Nature* 2022,  
[www.nature.com/articles/s41586-022-05108-y](https://www.nature.com/articles/s41586-022-05108-y)

## ***Why do we think the electrochemical approach will be an important part of a Green Ammonia future?***

- Powered by green electricity -> no emissions at point of production
- Single step -> less complex system requirements, lower maintenance
- Flexible operation -> handles variable renewables (e.g. wind & solar) well
- Modular process -> deployable at a range of production scales, and in a wide range of locations
- Stable input costs -> predictable output costs

# We are grateful to our many partners who are helping push us forward

- **Investors: Roger Gillespie, John Clifford, Monash University, Tenacious Ventures**
- **Core R&D partner: Monash University**
- **Engineering/FEED partner: Synertec**
- **Product development and prototyping partners (as part of Aust Govt CRC-P grant):**
  - **Fortescue Future Industries**
  - **Wesfarmers Chemicals, Energy & Fertilisers**
  - **SJDC Produce**
- **Continuing to engage with potential additional partners**



**MONASH**  
University



**SJDC**  
PRODUCE  
PREMIUM AUSTRALIAN FRESH



**SYNERTEC**



**AusIndustry**  
Cooperative Research  
Centres Program

# *Questions*



charlie.day@jupiterionics.com



PO Box 8054, Monash University, Vic 3800



jupiterionics.com



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