



UNIVERSITY OF
NEWCASTLE



CENTRE FOR

INNOVATIVE ENERGY TECHNOLOGIES (CINET)

Embrace the Green and Change the World with Us

The Centre for Innovative Energy Technologies (CINET) brings together a multi-disciplinary team from across UON (both well-established and emerging leaders) to help resolve technical, economic, and environmental challenges of clean energy technologies and importantly train the next generation of researchers capable of resolving the multidisciplinary issues associated with energy productivity.

R&D AGENDA AND PARTNERSHIP

CINET delivers innovative low-cost technologies for a clean energy future through strategic partnerships with industry and government. With input from the key stakeholders, the research strengths of CINET have been classified into thematic areas of:

- **Electrification and digitisation**
- **Proliferation of renewable energy**
- **Sustainable fuels and chemicals**
- **Energy efficiency and recycling**
- **Green infrastructures**
- **Cross-cutting**

PROVEN IMPACT

Development of 14 new technologies over the last 10 years:

- 2025 - KrakTek (Green ammonia to hydrogen reformer)
- 2025 - AMMONIAC (Green ammonia synthesis process)
- 2025 - Hydro Harvester (Atmospheric water generation)
- 2025 - PFAS Harvester (Destruction of PFAS contaminated media)
- 2024 - Shenavar (Buoyancy compressed air energy storage system)
- 2024 - TAME (For capturing fugitive methane emissions from air)
- 2022 - VGA (For production of green hydrogen from air)
- 2021 - KIMIYA (for conversion of solid waste to hydrogen)
- 2020 - PRC2 (for utility scale thermal energy storage)
- 2018 - CLAS (Chemical looping process for production of oxygen)
- 2017 - VAMCO (For point source capture of GHG emissions)
- 2016 - GRANEX (Engine for power generation from low grade heat)
- 2015 - GRANSAL (Portable / mobile desalination system)
- 2015 - GAPG (For geothermal assisted power generation)

HYDRO HARVESTER

The Hydro Harvester is an innovative atmospheric water generation technology that captures moisture from the air to produce safe, clean drinking water. Operating independently of rainfall and traditional water infrastructure, it provides a decentralised, reliable and sustainable water source in regions where supply is limited or uncertain.

Developed at the University of Newcastle, the system features a modular design that can be scaled from small standalone units to larger community deployments. It is tailored for dry and arid areas and supports applications across agriculture, remote communities, industry, disaster response, and defence, improving water security and strengthening resilience in water-scarce environments.



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