




# New Zealand Cleantech Trek USA

22-26 January 2024 San Diego | San Jose | San Francisco

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Callaghan Innovation  
Te Pōkapū Auaha



# Innovators

## **Aspiring Materials Carbon Capture**

Creating materials to cut down global industrial CO2 emissions.

## **Bspkl Hydrogen Innovation**

Developing catalyst-coated membrane solutions to overcome catalyst supply challenges and manufacturing bottlenecks.

## **Cetogenix Waste to Value**

Delivering a climate tech platform that unlocks the hidden potential for organic waste-to-renewables value addition through proprietary deconstruction, separation and fermentation.

## **EnPot Energy Efficiency**

Technology to enable smelters to flex their power usage creating a virtual battery, supporting the adoption of renewable energy.

## **Geo40 Sustainable Mineral Recovery**

Enabling critical minerals such as lithium and silica to be extracted from underground fluids at scale.

## **Hydroxsys Water Treatment**

Solving wastewater and sustainability challenges for food and industrial processors, using new membrane filtration technology.

## **Neocrete Decarbonising Concrete**

Neocrete replaces cement with nano-activated volcanic ash, creating low-carbon, high-performing concrete, at no extra cost.

## **Nilo Waste to value**

Transforming plastic waste into high-value industrial products, with a current focus on wood panel board adhesives and eco-concrete.

## **Openstar Technologies Fusion Energy**

Mission is to deliver clean, abundant, and available fusion energy to the world.

## **Sleaktek Biopolymer**

Sleak™ is a completely natural 100% plant derived hot melt compound used to make adhesives, sealants and plastic film substitutes.

## **Vortex Power Systems Waste to value**

Using low grade waste heat recovered from thermal processes in industry, Vortex Power Systems technology generates and controls a freestanding atmospheric buoyancy vortex, and harnesses its power using a vortex turbine to create clean electricity.

## **Zincovery Waste to Value**

Low temperature reactor technology to convert zinc ferrite compounds into any form so it can be recycled.

# Investors

## Outset Ventures

New Zealand's Home of Deep Tech

## Pacific Channel

New Zealand deeptech venture capital fund

## Quidnet Ventures

Bring Kiwi Innovation to the World

# Agencies and Research

## Callaghan Innovation

Aotearoa New Zealand's Government Innovation Agency

## Invest NZ | New Zealand Trade & Enterprise

Invest New Zealand is managed by New Zealand Trade and Enterprise (NZTE), the New Zealand Government's international economic development agency.

## Tātaki Auckland Unlimited

Auckland's economic and cultural agency

## Uniservices

Commercial research and knowledge transfer from the University of Auckland





## Aspiring Materials

Aspiring Materials is building New Zealand's inaugural carbon mineralisation facility, planned to be operational by mid-2024. We're gearing up to scale the plant to continuously process 1 tonne/day of feedstock, with a series of commercial trials on the horizon.

Working closely with the Breakthrough Energy Fellows (as part of the 2023 cohort), Aspiring is on a mission to unleash the full potential of our cutting-edge process IP and our deep expertise in ultramafics. Together, we're set to transform industries and embark on a journey to decarbonize a spectrum of industrial products.

We recognize the challenges associated with the implementation of DAC/CCTU technologies and the substantial cost barriers they present. Here's how we're changing the game — our process will make carbon capture not just feasible, but incredibly cost-effective at \$0/tonne. By eliminating the financial hurdle, we're turning DAC/CCTU into a viable, accessible pathway for reducing carbon emissions. Join us in reshaping the future of sustainable industry!

Aspiring Materials looks to raise US\$10m to accelerate its phased development and establish operations in the USA.

[aspiringmaterials.com](https://aspiringmaterials.com)

**Mark Chadderton** CEO | [mark@aspiringmaterials.com](mailto:mark@aspiringmaterials.com)

**bspkl.**

**bspkl**

How can Catalyst Coated Membranes be manufactured at gigafactory scale? Can we reduce the amount of iridium and platinum used to ultra-low levels? Is it possible to achieve a performance of 3A/cm<sup>2</sup>? Can we mine or recycle enough iridium to meet the explosive growth in demand for electrolyzers? These are the technical challenges facing the electrolyser manufacturing industry if it's to achieve the USA's goal of \$1/kg hydrogen by 2030.

Bspkl is the answer to many of these questions. Our technology disrupts the traditional method of manufacturing catalyst-coated membranes (CCM). A CCM is the heart of an electrolyser and splits water into hydrogen and oxygen. It is what drives the efficiency and performance of the electrolyser and has the most significant impact on the eventual price of the hydrogen produced. A high-performing, low-iridium CCM is essential to achieve the US\$1/kg goal.

Our approach leverages technology traditionally seen in the semiconductor industry to produce CCM with 25x less iridium and platinum at volumes relevant to electrolyser gigafactories. Our functioning pre-production system is capable of manufacturing 16,000m<sup>2</sup>, equivalent to 200,000 units per year (or one-third of a gigafactories demand). We are actively researching ways to achieve the ambitious 3A/cm<sup>2</sup> performance target ahead of the US 2030 target.

With Bspkl providing catalyst-coated membranes for electrolyser stack manufacturing, we can take a significant step forward in solving the supply chain problems hindering the adoption of clean hydrogen and work towards making it affordable.

We are in the USA looking to build relationships in anticipation of a capital raise in mid-2024.

**[bspkl.co](https://bspkl.co)**

**Christina Houlihan** CEO | [christina@bspkl.co](mailto:christina@bspkl.co)



## Cetogenix

Cetogenix transforms organic waste from a disposal burden by reprocessing it into new valuable products, including renewable natural gas (RNG), bioplastics, and biofertilizers. Our initial product — Ceto-Boost™ — will enable a 40% increase in RNG production for existing anaerobic digestion (AD) plants when retrofitted. Elimination of digestate — the leftover waste material discharged from traditional AD — is a particularly compelling element of the technology as this can reduce operating costs by up to 70% and mitigate environmental impacts associated with land disposal of this residual material - a critical requirement for both regulators and operators.

We are also exploring emerging commercial opportunities for distributed agri-waste energy and nutrient hubs within the primary sector, elimination of biosolids from wastewater treatment, and, globally, small communities seeking self-sufficiency in energy supply and fertilizer use.

We have identified over 15,000 AD plants that could benefit from retrofit installation of Ceto-Boost™ — a US\$18B total addressable market. Additional configurations for the new-build AD-RNG market (estimated to be 14.8B per year by 2025) or non-RNG outputs offer further revenue growth opportunities.

Cetogenix's end-to-end technology is currently being proven to pilot scale in NZ. We will be moving to the design, productisation, and build of demonstration-scale (100 – 1000L/hr) products in-market in 2024/25. Accelerated development of the overall technology to demonstration-scale, in-market deployment, and integration of enhanced IP will be supported by an international Series A capital raise in 2024.

[cetogenix.co.nz](https://cetogenix.co.nz)

**Trevor Stuthridge** Co-Founder & CEO | [trevor.stuthridge@cetogenix.co.nz](mailto:trevor.stuthridge@cetogenix.co.nz)

# ENPOT

## EnPot Ltd

EnPot modulation technology transforms primary aluminium smelters from huge dead-end users of power into flexible power users able to release energy on demand to the power grid. With EnPot's patented shell heat exchanger technology, smelters can now use up to 30% more or less energy without disturbing the delicate heat balance required to make aluminum.

This new-found flexibility makes smelters more compatible with the variable electricity supply provided by renewable generation. Decarbonization of power systems by renewable energy is by far the most impactful way to reduce aluminium smelters' scope 2 CO<sub>2</sub> emissions, with the potential to reduce emissions from aluminium production by a third, or ~1% of global CO<sub>2</sub>. Other technology benefits include using the waste heat that EnPot recovers for co-location of Carbon Capture Utilisation and Storage (CCUS) plants at reduced operating cost, district heating and other industrial processes that require pre-heating.

The technology has been developed over numerous lab and plant-scale trials, including one now permanently in operation at commercial scale at TRIMET Aluminium Smelter in Essen, Germany. EnPot is well progressed with numerous smelters in North America, the Pacific region and has a Cooperation Agreement and pipeline projects with China's largest technology supplier to aluminium smelters, SAMI.

EnPot is seeking to engage purpose-driven investors and corporates to support scaling the EnPot technology and supercharge deployment.

[enpot.com](https://enpot.com)

**Karyna Young** CEO | [karyna@enpot.co.nz](mailto:karyna@enpot.co.nz)



## Geo40

Geo40 develops unique, innovative technologies for mineral recovery from underground fluids, for deployment at scale in the global transition towards cleaner energy and greener critical minerals. Geo40 operates two silica recovery sites and a lithium pilot plant in Taupo, New Zealand. Geo40 has developed a unique ion-exchange direct lithium extraction (DLE) technology, and the Company is focussed on recovery of lithium from low to moderate grade fluids (including oil and gas separation waters) in North America.

Geo40 will commence a North American tour with its brand new mobile lithium DLE plant in January 2024, and is talking to strategic investment and resource partners in North America.

**[geo40.com](http://geo40.com)**

**John Worth** CEO | [johnw@geo40.com](mailto:johnw@geo40.com)



## Hydroxsys (NZ) Ltd

The world is running out of fresh water. Today, one third of the planet's population cannot meet its freshwater needs, and this will increase to more than 40% by 2030. Climate change and poor environmental practices have led to the water crisis becoming a global problem with all major geographies suffering either water shortages or water quality issues. Hydroxsys is on a mission to secure the future of water.

Unlike other solutions that utilise expensive and inefficient treatment systems, Hydroxsys' patented membrane filtration provides more efficient, low carbon, effective options for resource recovery and reuse. The unique properties of the Hydroxsys system break all the rules in terms of membrane application, enabling its use in situations previously unachievable by traditional membrane systems. We have completed dozens of field trials across multiple industries and installed our first commercial beta facility in South Auckland processing 300,000//80,000 gal per day of wastewater from a dairy factory. We are currently commercialising our technology with solutions across a range of industrial customers in New Zealand and Australia.

Hydroxsys is seeking to engage with investors in anticipation of planned Series A funding to provide resources to enable expansion into International markets such as the United States, Europe, and Asia, and scaling our local manufacturing systems to support the increased demand these markets will require.

**[hydroxsys.com](http://hydroxsys.com)**

**Chris Macbeth** CEO | [chris.macbeth@hydroxsys.com](mailto:chris.macbeth@hydroxsys.com)



## Neocrete

Concrete is the most used product in the world, after water. The manufacture of cement for concrete accounts for 8% of global greenhouse gas emissions.

Neocrete replaces cement with abundant volcanic ash, which we activate with the Neocrete nano-Activator. (Neocrete can also activate industrial waste such as slag and fly ash.)

Unlike other cement alternatives, Neocrete requires no heating or significant processing. This means it emits around 85% less carbon than cement — and is cheaper to produce. It also matches conventional concrete strength at all ages, and is more durable.

Neocrete can currently replace 40-50% of the cement in concrete. We're on track to create carbon-neutral concrete by 2027.

Neocrete has been tested at scale and is now building a pilot plant in Auckland to supply our first commercial customers around the world in Q1 2024.

We are now looking for partners to help us scale globally and achieve our goal of reducing greenhouse emissions by 1% each year from 2033. We are interested in talking with investors, industry and government.

[neocrete.co.nz](https://neocrete.co.nz)

**Matt Kennedy-Good** Co-Founder | [matt@neocrete.co.nz](mailto:matt@neocrete.co.nz)



## Nilo Limited

NILO is a company focused on addressing the global plastic waste crisis. We are a group of over 20 scientists, engineers, entrepreneurs and global innovators based in Auckland New Zealand.

NILO has developed a patented, scalable technology that transforms problematic plastic waste into reusable, low-energy binding agents. These agents are used to manufacture safer and environmentally friendly products. NILO's innovation includes a binder to replace Urea Formaldehyde (UF), a binding agent with a high carbon footprint and harmful emissions. UF is commonly used in thousands of applications, including the production of wood-based products like particle board, plywood, and MDF.

The company utilizes non-recyclable plastic wastes, such as plastic films and post-industrial waste, which typically end up in landfills or oceans. Using these wastes, NILO produces industrial binders and adhesives through a patented, clean, safe, and energy-efficient process. These binders are then combined with other substrates, including other waste materials. Our current focus is on the wood board adhesive market (US\$15 billion pa) utilising Nilo Adhesive plus wood chips to produce particle boards and other wood-based products such as MDF, OSB, and plywood. We are working with partners and investors, including IKEA as they drive to develop more economic and environmentally safe adhesive.

NILO's approach not only repurposes waste but also aligns with a circular economy model, as their particle board can be reground and used as feedstock for new board production. We have a range of other product verticals in development, including replacing cement in concrete products.

Nilo has a capital raise open, US\$8 million equity raise.

[nilo.world](https://nilo.world)

**Glen Willoughby** CEO | [glen@nilo.net](mailto:glen@nilo.net)



## Openstar Technologies

OpenStar Technologies is a highly ambitious, forty-strong, Māori-led start-up, founded and based in Te Whanganui-a-Tara, Aotearoa. OpenStar is on a mission to repeat the feats of Maui and capture the power of the sun. The company will achieve this eye-watering feat by mastering fusion, the process that powers the stars, to generate safe, clean, carbon free, baseload electricity in a way that is economically scalable to the challenge of mitigating climate disaster and giving birth to the next industrial revolution. OpenStar is reviving the levitated dipole — a concept historically pushed furthest at the LDX at MIT, and one which has several incredible and unique advantages in the context of the fusion landscape. OpenStar's approach to the dipole is completely unique. It combines rapid iteration cycles, inherently stable plasma physics, and ground-breaking high-temperature superconductor technologies within a framework of reliable magnetic confinement fusion. This means quicker and cheaper risk retirement than other fusion schemes. Costs scale like infrastructure not hi-fi science, giving superior unit economics. OpenStar has its roots at Robinson Research Institute, Victoria University of Wellington, who have pioneered many of the necessary technologies, not just for OpenStar, but for many fusion efforts relying on High Temperature Superconductors (HTS) around the world.

OpenStar will take its Series A round of fundraising to market in early 2024, as well as look to open a second office in the USA during the same year. OpenStar is looking for investors, business collaborators, and strategic partners to join our mission.

[openstar.tech](https://openstar.tech)

**Ratu Mataira-Cole** Founder & CEO | [info@openstar.nz](mailto:info@openstar.nz)



## Sleaktek LTD

Sleaktek is disrupting without disturbing! Introducing a radical technology platform — Sleak™ — to help existing manufacturers make their current products sustainable and plastic-free. Our platform is a 100% natural (no PLA or forever chemicals), fully sustainable, rapidly biodegradable, microplastic-free, hot melt compound that's designed to replace petroleum-based/Bioplastic hot melts for making adhesives, sealants, coatings and plastic-like film. Sleaktek believes the key to fast, large-scale environmental change is to make existing products sustainable, working with existing manufacturers to simply change out their hot melts to enable their product to be sustainable and cost-effective. For example, Sleak™ can help make diapers sustainable, biodegradable and cost-effective. A customer could walk into the supermarket and buy diapers without even noticing they are now biodegradable, because they don't cost any more than previously. Disrupting the industry without disturbing the customer. Sleak™ has been independently tested and more trials are underway. We are looking for industry partners and investors to join Sleaktek as we embark on this exciting journey.

[sleaktek.com](https://sleaktek.com)

**Juliet Hull** CEO and Co-founder | [juliet@juliethull.com](mailto:juliet@juliethull.com)





## Vortex Power Systems

Vortex Power Systems(VPS) is a New Zealand based clean energy start-up that is developing a revolutionary method for converting waste low-grade heat from thermal processes into electricity. VPS' technology uses low grade( <80°C ) waste heat, the most prevalent and wasted resource on the planet(124 EJ), to generate and power a controllable freestanding atmospheric vortex that drives a turbine and generates electrical power.

Vortex's technology efficiently converts low-grade waste heat into power, integrates smoothly with existing waste heat recovery units, is easy to deploy, and eliminates the need for tower construction — so it's cost-effective, with a competitive edge.

VPS is currently constructing a full scale 400kw pilot plant that is expected to be completed in Feb 2024. This unit will enable us to create full scale vortices that can prove our technology's commercial potential and assist in our development of our first electricity generating pilot plant. Vortex is looking to engage with early adopters that may want to consider adoption post results from the pilot as well as strategic investors and clean tech investors for it's upcoming Series A raise.

[vortexpowersystems.com](http://vortexpowersystems.com)

[Perzaan Mehta](#) CEO | [perzaan@vortexpowersystems.com](mailto:perzaan@vortexpowersystems.com)



## Zinccovery

At Zinccovery, our mission is to decarbonize zinc recycling, a \$10B opportunity. Current recycling technologies are coal-dependent and produce double the emissions of mined zinc.

We have developed an industry-disrupting technology that recycles zinc with 20 times fewer emissions and with 45% lower production costs. This makes Zinccovery the world's only producer of low-carbon, high purity, and fully recycled zinc. We've received over \$100 M USD of signed expressions of interest in our Green Zinc. All we need to do is scale-up.

We've achieved all of our milestones from our previous capital raise; scaling up 100X from laboratory to Pilot, achieving the Special High Grade zinc standard of 99.995% purity, and signed over \$100 M in expression of interest. To take Zinccovery to the next level, we are raising \$8 M USD. This will enable us to build our demonstration plant, producing up to \$3 M USD worth of Zinc annually and Europe's second largest zinc alloy producer has signed a binding offtake for the entire production.

It is our mission to decarbonize zinc recycling. We invite you to join us on this journey to make a lasting impact on our world.

[zinccovery.com](http://zinccovery.com)

[Jonathan Ring](#) CEO and Co-founder

[Leatham Landon-Lane](#), Business Development Manager | [leatham@zinccovery.com](mailto:leatham@zinccovery.com)

# Investors

## Outset Ventures

### Outset Ventures

Outset Ventures, based in Auckland, New Zealand, specializes in early-stage deep technology investments. We not only provide funding but also offer a 50,000 square foot lab and engineering facility to support innovative projects from day one. This facility was the birthplace of LanzaTech, New Zealand's leading cleantech venture, recently listed on NASDAQ. Our portfolio includes a range of pioneering companies like fusion startup Open Star and materials innovator Aspiring Materials, showcasing our commitment to transforming the cleantech industry. We are here to partner with US investors and customers to help scale these technology companies globally.

**[outset.ventures](https://outset.ventures)**

**[Angus Blair](#)** Partner | [angus@outset.ventures](mailto:angus@outset.ventures)



# Investors



## Pacific Channel

Pacific Channel is New Zealand's oldest deep-tech venture capital fund focussing on the Future of Environment, Food and Health. With over \$80M in AUM, Pacific Channel invests in companies from pre-seed to Series A stages and focuses on investing in IP rich technologies and businesses. Many of our portfolio companies operate in the cleantech sector. We would like to introduce our portfolio companies and also build relationships with investors looking at co-investing in early stage cleantech opportunities.

[pacificchannel.com](http://pacificchannel.com)

[Ashwath Sundaresan](#) Investment Manager | [ashwath@pacificchannel.com](mailto:ashwath@pacificchannel.com)



## Quidnet Ventures

Quidnet Ventures is a NZ seed stage deeptech fund that identifies Kiwi founders taking on the hardest and most impactful global problems and helps them grow and succeed in the global market.

[quidnetventures.com](http://quidnetventures.com)

[Mark Bregman](#) Managing Director | [mark.bregman@quidnetventures.com](mailto:mark.bregman@quidnetventures.com)

# Agencies and Research



## Callaghan Innovation

We activate innovation and help businesses grow faster for a better New Zealand. We partner with ambitious businesses of all sizes, providing a range of innovation and research and development (R&D) services to suit each stage of growth. Our people – including more than 200 of New Zealand’s leading scientists and engineers – empower innovators by connecting people, opportunities and networks, and providing tailored technical solutions, skills and capability development programmes, and grants co-funding. We also enhance the operation of New Zealand’s innovation ecosystem, working closely with government partners, Crown Research Institutes, and other organisations that help increase business investment in R&D and innovation. We operate across New Zealand from four urban offices and a regional partner network in a further 14 locations. Callaghan Innovation views CleanTech as critical for a zero-carbon, climate-resilient future, and leads the Cleantech Mission for New Zealand.

[callaghaninnovation.govt.nz](http://callaghaninnovation.govt.nz)

**Phil Anderson** Cleantech Lead | [phil.anderson@callaghaninnovation.govt.nz](mailto:phil.anderson@callaghaninnovation.govt.nz)



## Invest NZ | New Zealand Trade & Enterprise

Invest New Zealand is managed by New Zealand Trade and Enterprise (NZTE), the New Zealand Government’s international economic development agency. We are focused on building a vibrant investment market that is dedicated to supporting and growing a productive, sustainable and inclusive economy.

Our global team use their networks, commercial expertise and deep knowledge of New Zealand to bring investment and opportunity together.

We’re independent, impartial, and focussed on value-add investment that’s good for investors, businesses and New Zealand.

Te haumi, te tipu tahi rānei me mātau. Invest and grow with us.

[investnewzealand.nz](http://investnewzealand.nz)

[nzte.govt.nz](http://nzte.govt.nz)

**Paul Burnaby** Greenfield Ventures and Investment | [paul.burnaby@nzte.govt.nz](mailto:paul.burnaby@nzte.govt.nz)

**Charlie Wilkinson** Investment Manager, North America | [charlie.wilkinson@nzte.govt.nz](mailto:charlie.wilkinson@nzte.govt.nz)

# Agencies and Research



## Tātaki Auckland Unlimited

Tātaki Auckland Unlimited is the economic and cultural agency for Tāmaki Makaurau Auckland – Aotearoa New Zealand’s largest city. We work to enrich our region’s economic and cultural life, increase capital invested into Auckland, lead the development of our growth industries, and provide economic opportunities for all Aucklanders. We are New Zealand’s largest producer of cultural, entertainment, sporting and wildlife experiences, and largest regional economic development agency. We work with diverse public and private sector partners, as the region’s lead agency for investment and business attraction, visitor and screen production attraction, cultural and sporting venues. Auckland is an exciting place to do business. It is an innovation hub of Asia-Pacific and the economic centre of New Zealand, generating 40 per cent of the country’s GDP. One of the most culturally diverse cities in the world, it is home to a third of the country’s population. As New Zealand’s tech hub, Auckland’s technology industry is dynamic and growing. It boasts more than 11,000 firms and 112 of New Zealand’s top 200 tech companies.

[aucklandunlimited.com](http://aucklandunlimited.com)

**Paula Cooper** Manager, Tech Industry | [paula.cooper@aucklandnz.com](mailto:paula.cooper@aucklandnz.com)



## UniServices

UniServices, a not-for-profit entity of the University of Auckland (UOA), champions research from the University, fostering innovation and collaboration across academia, industry, and government, acting as a vital link in the innovation ecosystem. Committed to supporting researchers, we secure funding and connections to enhance their work. We contribute to an increasingly entrepreneurial campus and invest in emerging technologies and companies at UOA via a NZD40M investment fund and work with founding teams to de-risk and validate their ventures.

Our impact services are rooted in evidence-based research, leading the way in education, public health, and innovation, contributing to social, health, and economic benefits. Our collective aim is to ensure the opportunity for impactful ideas and research from the University can help solve global challenges, including reducing emissions, fulfilling global commitments, and effectively adapting and flourishing in the midst of climate change.

We are seeking partnering and investment opportunities for existing portfolio companies and applied research.

[uniservices.co.nz](http://uniservices.co.nz)

**Analeise Murahidy** Director Strategic Growth | [a.murahidy@auckland.ac.nz](mailto:a.murahidy@auckland.ac.nz)

**Benjamin Pearson** Senior Investment Manager | [benjamin.pearson@auckland.ac.nz](mailto:benjamin.pearson@auckland.ac.nz)

# New Zealand Cleantech for the world

Come and meet us

**22 to 24 January** San Diego

**Cleantech Forum North America**

New Zealand Pitch and Networking Breakfast (24 January)

[Register Now](#)

**25 January** San Jose

**Plug and Play HQ**

New Zealand Pitch and Networking (afternoon)

[Register Now](#)

**26 January** San Francisco

**The Historic Klamath**

New Zealand Pitch and Networking (late morning)

[Register Now](#)

Or contact [phil.anderson@callaghaninnovation.govt.nz](mailto:phil.anderson@callaghaninnovation.govt.nz) for more information, and to join us.



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