University of Auckland Geothermal Institute Submission: From the Ground Up Draft Geothermal Strategy Consultation

September 2025

The Government's draft Geothermal Strategy **'From the Ground Up: a draft strategy to unlock New Zealand's geothermal potential'** represents an ambitious and timely framework that can reinforce Aotearoa New Zealand's global leadership in geothermal. To achieve this, the Government must invest in the scientific and educational underpinnings of the sector, alongside industry and iwi. The university sector is able and ready to support this endeavour, contributing cutting-edge research, world-class training, and international industry and research connectivity — but to do so at scale will require dedicated support and continuity of resourcing commensurate with the outcomes sought in the strategy. With these refinements, the strategy can deliver transformational outcomes for New Zealand's energy system, economy, and communities.

The responses below are aligned to the numbered questions in the consultation document.

1. Suitability of the strategic outcomes

We support the three strategic outcomes focused on world-leading innovation, accelerating energy resilience, and strengthening regional economies and te Ōhanga Māori. These are well chosen and reflect the multi-dimensional value that geothermal brings to New Zealand. However, we suggest the inclusion of a fourth outcome centred on **Workforce and Education**. The growth of the sector will ultimately be constrained by capability bottlenecks unless there is explicit attention to skills forecasting, pathways for vocational and professional training, and postgraduate research opportunities – above and beyond what exist today. A dedicated outcome would enable clearer alignment between industry demand and tertiary and vocational sector delivery, and ensure that the next generation of scientists and engineers are trained and equipped to deliver on the strategy's ambitions. Our universities and educational providers have a unique role to play in this regard, but will be unable to meet the rising demand for talent in the absence of dedicated support.

2. Action plan goals

The five overarching goals provide a sound scaffolding for the strategy, particularly the emphasis on regulatory fitness, data accessibility, place-based clusters, and support for innovation. We do, however, consider that two important themes are underrepresented: workforce development (as detailed above), and international connections/services exports. The draft positions New Zealand as a global leader, but does not follow through with an action plan to leverage this standing in training, services, and technology exports. Given that New Zealand's universities and geothermal industry already have deep international linkages and active networks in key geothermal markets, a dedicated action goal around internationalisation would help amplify these strengths and signal to partners and investors that New Zealand intends to remain a front-rank player globally. It could also unlock additional support across government, drawing in key export and investment agencies' capabilities and networks that supplement those agencies with mandates limited to domestic economic development.

3. Government interventions and priorities

The action plan identifies the right areas for government intervention, but greater specificity will be needed to ensure momentum. Many of the actions currently use framing such as “explore” or “consider”. Converting these into time-bound and funded programmes with clear accountability will provide industry, researchers, and investors with greater confidence. We recommend establishing a **National Geothermal Innovation Fund** to support priority R&D aligned to the technology roadmap (e.g. supercritical and enhanced geothermal systems, advanced drilling and materials, reservoir modelling and sensing, geoheat integration). This would enable universities and public research organisations to mobilise multi-disciplinary teams in partnership with industry and iwi, and to deliver demonstrator projects that de-risk new technologies and generate economic as well as scientific outcomes.

4. Role of the wider sector

The sector has an essential role to play in co-delivery of this strategy. Industry is best placed to lead on the establishment of geothermal data compacts, accelerate deployment of geothermal direct heat through anchor customer partnerships, and co-invest in workforce initiatives such as scholarships, internships, apprenticeships. We also see scope for industry–research–iwi consortia to lead preparatory work on supercritical safety and design standards, ensuring that New Zealand’s first ultra-deep wells are underpinned by robust evidence and risk management.

The research community, for its part, can provide world-class and international-standard postgraduate training, advanced subsurface modelling, and field-scale validation of new approaches, provided there is resourcing and continuity of support. As noted above, this will be critical to ensuring New Zealand has the talent pipeline to support the growth of industry.

5. Realising aspirations of tāngata whenua

We welcome the emphasis on te Ōhanga Māori and believe the strategy sets the right tone. To move from aspiration to implementation, however, tailored mechanisms will be required. These might include capacity funding for iwi-led project development, co-investment instruments designed for Māori landholders, and streamlined approvals for integrated energy ventures on Māori land. Research institutions can play a role in providing assessments of geothermal resource potential, supporting geothermal development lifecycle training and project management, and co-designing monitoring frameworks that embed both scientific and mātauranga Māori perspectives while upholding data sovereignty standards, ensuring that community priorities are reflected in decision-making.

6. Opportunities not yet fully considered

We see significant opportunities to scale up low heat applications, particularly for process industries, district energy systems, and emerging energy-intensive users such as data centres. Greater emphasis could also be placed on the valorisation of geothermal brines, for example through silica recovery and selective mineral extraction where environmentally and commercially viable. International education and training is another underdeveloped opportunity: New Zealand’s geothermal programmes already attract students and practitioners from around the world, and with strategic support could expand into a recognised services export sector in its own right. The emerging areas of enhanced geothermal

systems, digital twins, advanced sensing, and AI-enabled reservoir management also warrant explicit recognition in the technology roadmap.

7. Challenges not yet fully considered

Key challenges that need stronger treatment include regulatory complexity for integrated electricity-heat-bioproduct projects, grid and transmission readiness in geothermal development zones, and public acceptance of supercritical exploration (particularly given resource demands – water – and if seismic activity becomes a factor). Workforce shortages — particularly in drilling, instrumentation, and advanced modelling — represent another near-term constraint, which will become more challenging to address as international geothermal growth results in stronger competition for limited talent in a global marketplace. Finally, while the strategy rightly calls for improved data, it does not yet address the underlying issues of data rights, IP, and real-time sharing that limit collaborative innovation. Addressing these barriers will require both policy clarity and investment in shared digital infrastructure.

8. Additional inclusions or exclusions

We recommend that the final strategy include:

- A dedicated Workforce & Education pillar, with long-term capability targets and co-funded delivery mechanisms.
- An Exports & International Connections pillar, leveraging New Zealand's global reputation to generate offshore revenue in training, services, and technology.
- A National Geothermal Innovation Fund linked to a clear technology roadmap, supporting mission-led consortia anchored at demonstration sites.
- A National Geothermal Data Platform governed by common standards and mandatory contribution rules for public datasets.
- A published regulatory reform timetable covering Crown Minerals Act clarifications, geothermal minerals, and supercritical permitting.

We also encourage the authors to consider reducing the number of exploratory actions, focusing instead on a smaller set of funded, owned, and measurable commitments across each horizon.