

SUBMISSION:

HE TŪĀPAPA KI TE ORA - INFRASTRUCTURE FOR A BETTER FUTURE

Engineering New Zealand (formerly IPENZ) is New Zealand's professional home for engineers. We are New Zealand's strongest and most influential voice on engineering issues, with more than 20,000 members who want to help shape the public policy agenda and engineer better lives for New Zealanders.

This submission responds to the New Zealand Infrastructure Commission's consultation document *He Tūāpapa ki te Ora - Infrastructure for a Better Future* (the consultation document). Thank you for the opportunity to provide comment on this strategic consultation document. It is our understanding that feedback on this document will inform the draft Aotearoa New Zealand Infrastructure Strategy 2050 to be provided to the Minister of Infrastructure in September 2021.

The management of New Zealand's infrastructure has suffered significantly over many decades, as outlined on page 10 of the consultation document. We agree infrastructure plays a critical role in enabling the people, places and businesses in Aotearoa New Zealand to thrive for generations. Infrastructure can also be a tool for the protection of the natural world. We therefore urge the Commission to act swiftly on its strategy.

OUR POSITION

Overall, we support the strategy set out in the consultation document. The document clearly articulates many of the things we have heard from members and stakeholders when discussing New Zealand's management of infrastructure.

In this submission, we recommend the following:

- the inclusion of **appropriate** as a guiding outcome on page 8 (question 3)

- a reframing of the “proposed priorities” on page 13 of the consultation document to include **resiliency as a priority**, and for this priority to be better reflected through the wider consultation document (question 3)
- the need for the strategy to ensure the **capability and capacity of New Zealand’s workforce** to deliver the infrastructure work required (question 3)
- developing the **scope of a national energy strategy** (question 7)
- clarification of **roles and responsibilities across local and central government** to fund, manage, plan and implement infrastructure (question 26 and question 27)
- the creation of a framework for the **development and management of infrastructure standards** (question 31)
- **strengthening construction industry contractual terms and conditions**, enabling a higher trust environment and increased productivity (question 35)

OUTCOMES

‘APPROPRIATE’ SHOULD BE ONE OF THE OUTCOMES

Question 3

We recommend that **appropriate** be added to the guiding outcomes for infrastructure investment decisions (page 8). Infrastructure decisions need to address a targeted problem or meet identified needs. While some of the Commission’s “decision-making principles” lead to considerations of appropriateness, we recommend that this be clearly stated as a desired outcome and prioritised alongside the existing outcomes. Too often we hear of projects proceeding because they are efficient and affordable (two of the Commission’s stated outcomes) yet these projects fail to adequately address identified problems or meet the changing needs of society. Infrastructure decisions need to enable and support resiliency, sustainability and climate change adaptation. Prioritising appropriate infrastructure outcomes also includes meeting our obligations under Te Tiriti o Waitangi. Focusing on why we are building, and the appropriateness of decisions being made, will drive better decisions, and will support efficient, equitable and affordable outcomes.

RESILIENCY

RESILIENCY NEEDS TO BE A STATED PRIORITY

Question 3

Resiliency should be an explicit priority in infrastructure planning and investment decisions, and this should be reflected in the Commission’s consultation document, particularly the priorities set out on page 13. We need to plan for, and invest in, resilient infrastructure. As the Commission has highlighted on page 69 of the consultation document, New Zealand’s critical infrastructure is vulnerable to a range of threats. Leadership at the top level is needed to prioritise a focus on resilience. Decisions about future infrastructure need to factor in ways to reduce risk and increase resilience.

While much of the Commission’s consultation document implies a focus on resiliency, we recommend the Commission overtly state this focus and strengthen it throughout the document. Therefore, in response to the Commission’s question 3 (are there any other infrastructure issues, challenges or opportunities that we

should consider?) we recommend the Commission prioritise resiliency and include this in the actions for Government.

New Zealand Lifelines Council

The New Zealand Lifelines Council has undertaken work to understand New Zealand's critical lifeline infrastructure and to assess the vulnerability of that infrastructure to hazards, including those resulting from events such as volcanic activity, earthquakes and flooding.¹ We recommend the Commission utilise this work in developing options for Government to address resiliency concerns. In its submission to the Commission, the New Zealand Lifelines Council recommends several options for the Commission to strengthen its response to resiliency considerations. We support the New Zealand Lifelines Council's submission and the recommendations they have put forward.

CAPABILITY AND CAPACITY

THE CAPABILITY AND CAPACITY OF OUR WORKFORCE IS CRITICAL TO ADDRESSING NEW ZEALAND'S INFRASTRUCTURE CHALLENGES

Question 3

Page 10 of the Commission's consultation document highlights the significant gap between the infrastructure we need and what we can afford. The magnitude of this gap is alarming. To address this gap, we not only need money (as the Commission has highlighted), but also skills and talent. We need engineers.

Many engineering disciplines have long been on New Zealand's skills shortage list. PwC's research estimates we need about 1,500 new engineers every year (under normal circumstances) to support ongoing economic growth.² We also need to retain existing engineers and replace the large number of engineers due to retire in the next 5-10 years. Much of the work engineers do is highly specialised and requires years of training and experience.

With New Zealand's small scale on the international stage, in boom periods we often have to recruit these skills from overseas. And with work expanding across many industries, the demand for specialist skills is very high. The pandemic has made the recruitment and retention of specialist engineers very difficult. Delivering on major infrastructure programmes will require these engineers. Without these engineers we will struggle to deliver timely, quality projects.

We see a few options for addressing this. In the first instance we need certainty in the pipeline of infrastructure work. This certainty will support us to develop our workforce appropriately. To this end, we are very supportive of the Commission's plan to develop a 30-year infrastructure strategy. We also support options S5.1 (develop a priority list of projects and initiatives) and S5.2 (improve the use of the pipeline for commercial decision-making).

¹ New Zealand Lifelines Council. (2020). *New Zealand Critical Lifelines Infrastructure, National Vulnerability Assessment (2020 Edition)*. http://www.nzlifelines.org.nz/site/assets/files/1019/nzlc_nva_2020_full_report.pdf

² PwC. (February 2020). *Economic contribution of engineering (Final Report for Engineering New Zealand)*. https://www.engineeringnz.org/documents/587/Economic_contribution_of_engineering_PwC_February_2020.pdf

We also need the Government to support the development of our workforce. This starts in our public education system, through the strengthening of science, technology, engineering and mathematics education programmes. The Government can also support the professional placement of newly graduated engineers, as well as specialist training for experienced engineers. Training and retaining more engineers in New Zealand will decrease our dependence on the international market.

We ask the Commission to acknowledge not only the financial resource needed to address the current infrastructure gap, but also the workforce capability and capacity needed. Although the Commission has made passing comments on workforce (skill shortages during the pandemic (page 37) and the work of the Construction Sector Accord to grow capacity in the construction sector (page 122)), further acknowledgement of capability and capacity is needed. This will go some way in requiring Government to identify the opportunities available to develop the workforce. Therefore, in response to the Commission's question 3 (are there any other infrastructure issues, challenges or opportunities that we should consider?) we recommend the Commission add workforce capability and capacity to infrastructure issues, challenges and opportunities. We welcome a chance to discuss the framing of this with the Commission, should that be useful.

NATIONAL ENERGY STRATEGY

A NATIONAL ENERGY STRATEGY IS URGENTLY NEEDED

Question 7

We strongly support the development of a national energy strategy (pages 54-56). As outlined by the Commission, New Zealand will not reach carbon neutrality without a clear road map for managing our energy supply. Demand on supply is set to increase substantially while diversity of supply will decrease. The security of our supply is vital not only to our ability to meet net-zero carbon by 2050, but also to ensuring the health and wellbeing of Aotearoa. To this end we agree with the challenges and opportunities outlined by the Commission in its consultation document.

In response to question 7 (what infrastructure issues could be included in the scope of a national energy strategy), we recommend the following:

- a review of electricity industry regulations and the appropriateness of regulatory settings to achieve the outcomes needed
- clear accountability arrangements, so responsibility for the security of supply sits appropriately with providers, and
- a review of electricity market operating rules, including an approach to pricing, to ensure market settings suitably support security of supply.

ROLES AND RESPONSIBILITIES

WE WELCOME FURTHER CLARIFICATION ON ROLES AND RESPONSIBILITIES FOR THE DELIVERY AND MANAGEMENT OF INFRASTRUCTURE

Questions 26 and 27

The Commission acknowledges and highlights the complexities that exist in the provision and management of infrastructure across local and central government, as well as private service providers. Across all the

sectors engineers work within, infrastructure projects fail, and asset management is hindered because of a lack of financial resource *and* a lack of clarity on roles and responsibilities (see our comments on energy above).

It is our view that clarification of roles and responsibilities across local and central government (including subsidiaries), and the private sector, is needed. Much of the three waters reform work is focused on this. The Ministry for the Environment's 'Building competitive cities' work also addressed this.³ This type of work should be extended and mandated across the sectors identified on pages 94 and 95 of the Commission's consultation document. Clarity is needed.

Rail infrastructure

Rail is an example of the challenges that exist in the delivery and management of critical infrastructure. Across the key players in the rail industry (KiwiRail, central and local government), the roles and functions of these organisations have different drivers, funding models and time horizons. KiwiRail acts as both the operator of a national commercial freight business and a passenger business. Its delivery and time horizons are different from those of central and local government. KiwiRail is also the steward of rail infrastructure.

When it comes to asset management, KiwiRail is funded both through public funding and commercial revenue. While both funding sources are prone to fluctuations, commercial revenue is more susceptible to short-term volatility, due to changing business outlooks for freight and tourism. These funding fluctuations can jeopardise appropriate, sustained investment in capital and asset renewals. They challenge KiwiRail's ability to consistently deliver on its stewardship function and put the wider industry into boom-and-bust cycles. These cycles have a significant impact on the sustainability of the rail sector, including developing and maintaining the workforce needed for a world class industry. They drive increased costs to the industry (with steeper peaks and troughs to resource efficiency for) and reduce the confidence of companies working in the rail sector to invest in people and equipment.

Options

We support the Commission's option S1.2 to review the roles and functions of local government and other related infrastructure providers. We support a review of the institutional settings and structures, as well as a review of the ability of local government to provide, fund, maintain and operate both social and economic infrastructure. We agree that this work should be part of the Review into the Future of Local Government. We recommend this work be prioritised.

STANDARDS

STANDARDS SUPPORT PROJECT DELIVERY AND ASSET MANAGEMENT

Question 31

On page 33 of the Commission's consultation document, the Commission acknowledges "there needs to be rules and standards in place about infrastructure quality to make sure the decisions an infrastructure provider makes are consistent with community preferences".

³ Ministry for the Environment. (October 2010) *Building competitive cities, Reform of the urban and infrastructure planning system* (Discussion document). <https://environment.govt.nz/assets/Publications/Files/building-competitive-cities.pdf>

We are encouraged to see the following options put forward:

- F3.2 “accelerate common infrastructure metadata standards”
- C1.2 “standardise planning rulebooks to increase capability and reduce cost and uncertainty”

In addition to these options, we recommend the Commission create an option for Government to establish a framework for the development and management of infrastructure standards. The lack of standards within infrastructure development and asset management has significantly contributed to the infrastructure gap New Zealand is now facing. The Commission is well-placed to provide leadership on this.

Therefore, in response to question 31 (what options are there to better manage and utilise existing infrastructure assets?) we request the introduction of a framework from Government on the development and management of infrastructure standards.

CONTRACT TERMS AND CONDITIONS

CONTRACT CONDITIONS IMPACT PRODUCTIVITY

Question 35

In its consultation document, the Commission asks what could be done to improve the productivity of the construction sector and reduce the cost of delivering infrastructure. Current contract terms and conditions are impacting negatively on productivity. Work is needed to address the issues with the NZS Conditions of Contract, notably special conditions, liability settings, risk transfer and the role of the Engineer to the Contract.⁴

Several pieces of work are already underway in this space, including the review of NZ 3910 and our work to establish an Engineer to the Contract Panel. Further work to improve procurement practices will increase productivity, raise capability, and improved resilience. In addition, increasing our understanding of risk in the infrastructure sector will also support improved resilience.

In answer to question 35 (what could be done to improve the productivity of the construction sector and reduce the cost of delivering infrastructure?) we recommend the Commission develop options to build on existing initiatives to strengthen contract terms and conditions. Addressing known issues with NZS Conditions of Contract will improve productivity and decrease costs.

CONCLUSION

Thank you for the opportunity to submit to the Commission on its consultation document. We strongly support the work of the Commission and look forward to the Aotearoa New Zealand Infrastructure Strategy 2050.

We recognise the work ahead is significant and that engineers will play a significant role in this work. To this end, we welcome the opportunity to support the Commission in this work and are available to discuss the

⁴ Advisian Worley Group. (August 2019). *An examination of issues associated with the use of NZS Conditions of Contract* (Report for The Infrastructure Transactions Unit, The Treasury). <https://www.treasury.govt.nz/sites/default/files/2019-08/Treasury-NZS-Conditions-of-Contract-Report.pdf>

contents of this submission, or any other matters, with the Commission at its convenience. We welcome opportunities to meet with the Commission as it develops its strategy.