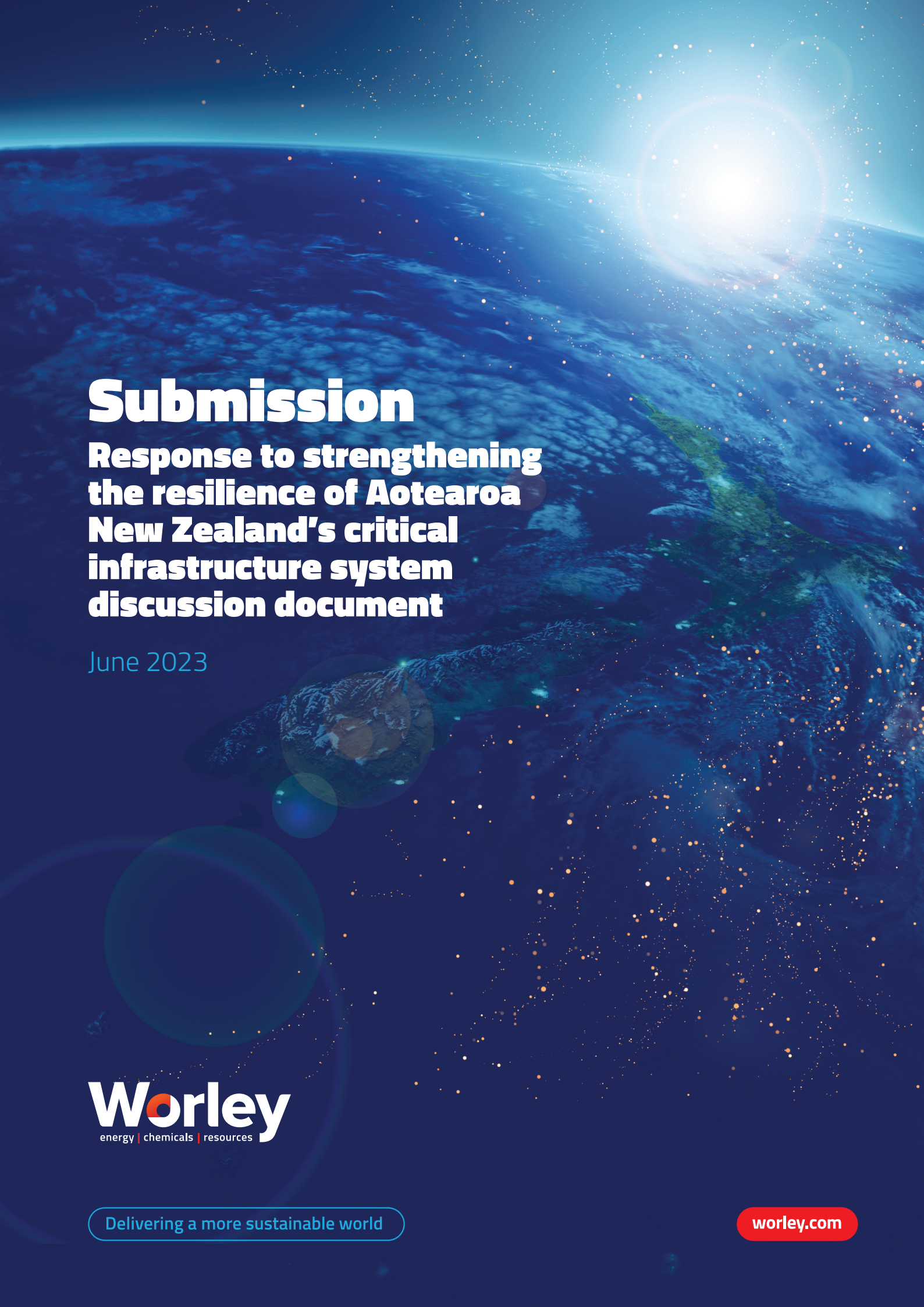

Submission

Response to strengthening the resilience of Aotearoa New Zealand's critical infrastructure system discussion document

June 2023

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Delivering a more sustainable world

worley.com

Introduction

At Worley, we firmly believe in the power of collaboration and recognize the pivotal role that strong partnerships with industry and government entities play in driving positive change within societies. With a proven track record of innovation, expertise, and dedication, we have been supporting both industry and governments worldwide in overcoming their most pressing challenges and advancing their vision for progress.

Our primary mission is to empower industry with tailored solutions that cater to their unique needs and aspirations. Through our extensive suite of services, which includes strategic consulting, project management, engineering, and environmental solutions, we assist in enhancing infrastructure, optimising resource allocation, and improving overall governance.

With a legacy spanning over 50 years, Worley has amassed an unparalleled understanding of the complexities and intricacies faced by industry bodies. Our diverse team of multidisciplinary experts, spread across the globe, is equipped to navigate a wide range of challenges, such as energy transitions, infrastructure development, environmental sustainability, and digital transformation.

At Worley, we firmly believe in the significance of collaboration at every stage of a project's lifecycle. By engaging closely with local stakeholders, we ensure that our solutions are not only technically robust but also deeply rooted in the context and needs of the communities they serve. Our commitment to social responsibility and ethical practices has earned us recognition as a trusted partner in numerous regions worldwide.

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Worley has been involved in within Aotearoa New Zealand:

Marsden Point Oil Refinery Upgrade

Worley provided engineering, procurement, and construction management services for the upgrade of the Marsden Point Oil Refinery, one of New Zealand's largest and most critical energy infrastructure facilities.

Huntly Power Station Conversion

Worley was involved in the conversion of the Huntly Power Station from coal to gas-fired, contributing to New Zealand's efforts to transition towards cleaner energy sources.

Kapuni Gas Treatment Plant

Worley played a role in the design and construction of the Kapuni Gas Treatment Plant, an essential facility for processing and extracting natural gas in New Zealand.

Renewable Energy Projects

Worley has been engaged in various renewable energy projects in New Zealand, supporting the development of wind farms, solar installations, and other sustainable energy initiatives such as Taupo Geothermal projects

Underground Gas Storage

Design and construction of the Ahuroa Gas Storage facility which was the first underground facility of its type in the southern hemisphere.

Communications Infrastructure

Installation of longest over water microwave link in NZ from land (Mahoe Communications Station) to Maui Platform Bravo and world first integration of Emerson DeltaV process control system in redundant mode.

Water Infrastructure Projects

Worley has been involved in the design and implementation of water infrastructure projects, such as wastewater treatment plants and water supply systems, to address the country's water management needs.

Refinery Shutdowns and Turnarounds

Worley has provided turnaround and maintenance services for New Zealand's oil refineries, ensuring smooth operations and adherence to safety standards during scheduled shutdowns.

Energy Sector Engineering and supports

Ongoing engineering and project management services for the Maui offshore and onshore platforms. These services include maintenance, modifications, and upgrades to ensure the safe and efficient operation of the platforms.

In conclusion, Worley stands ready to support industry in fulfilling their vision for a prosperous and sustainable future. We are eager to explore opportunities for collaboration and contribute our expertise towards the realization of strategic objectives.

We warmly welcome the chance to engage in meaningful discussions around future legislation and explore potential avenues for partnership.

Section 2:

Potential barriers to infrastructure resilience

Setting proportionate resilience requirements

1

Would you support the government having the ability to set, and enforce, minimum resilience standards across the entire infrastructure system? If so:

- what type of standard would you support (eg. requirement to adhere to a specific process or satisfy a set of principles)?
- do you have a view on how potential minimum resilience standards could best complement existing approaches to risk management?

2

Would you support the government investing in a model to assess the significance of a critical infrastructure asset, and using that as the basis for imposing more stringent resilience requirements? If so:

- what options would you like the government to consider for delivering on this objective?

3

What criteria would you use to determine a critical infrastructure asset's importance??investing in a model to assess a critical infrastructure asset's criticality, and using that as the basis for imposing resilience requirements that are more stringent on particularly sensitive assets? If so:

- what options would you like the government to consider for delivering on this objective?
- what features do you think provide the best proxies for criticality in the New Zealand context?

1

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Worley Response:

Having a statutory standard for critical infrastructure requirements in New Zealand is of paramount importance for several compelling reasons.

Firstly, critical infrastructure serves as the backbone of any modern society, encompassing essential systems like energy, transportation, telecommunications, and water supply.

A well-defined statutory standard ensures that these crucial facilities meet rigorous criteria for resilience, security, and reliability, safeguarding against potential disruptions caused by natural disasters, cyber-attacks, or other unforeseen threats.

Such standards act as a proactive measure to identify vulnerabilities, enabling the government and relevant authorities to implement robust risk management strategies and allocate resources efficiently.

Moreover, a statutory standard provides a unified framework for all stakeholders involved, encouraging collaboration, information sharing, and consistent best practices across sectors. By adhering to established

benchmarks, New Zealand can bolster its critical infrastructure's overall preparedness, enhancing national security, public safety, and economic stability for the benefit of its citizens and businesses alike.

Our experience is that Statutory requirements play a crucial role in driving cost efficiencies by encouraging early infrastructure installation during a project's lifecycle when costs are relatively lower than modifying a running plant.

By establishing clear and well-defined standards at the outset of a project, regulatory authorities motivate stakeholders to integrate critical infrastructure components in the initial design stages.

Early installation ensures seamless integration, optimizing resources and reducing the need for costly modifications during later phases.

Moreover, adherence to statutory guidelines fosters foresight and planning, helping to identify potential bottlenecks and design flaws that could escalate expenses if left unaddressed.

Ultimately, embracing statutory requirements paves the way for a streamlined and cost-effective infrastructure development process, enabling projects to be completed on time and within budget while maintaining the highest standards of safety and performance.

The absence of implementation of a voluntary standard can lead to significant challenges and missed opportunities across various sectors.

Without a mandatory framework in place, voluntary standards may fail to achieve widespread adoption, resulting in a lack of consistency and interoperability among different products and services. This can lead to confusion among consumers, who may struggle to make informed choices about the quality and safety of the offerings available to them.

Additionally, the absence of a unified standard can hinder innovation, as companies may be less motivated to invest in research and development to meet specific benchmarks.

In critical sectors such as healthcare, technology, and environmental protection, the lack of a mandatory standard could compromise public safety and hinder efforts to address pressing challenges effectively.

Part of this standard should include requirement for external compliance reviews as they play a crucial role in validating conformance to standards by ensuring transparency, credibility, and accountability in various industries.

These reviews provide an impartial and objective assessment of a company's adherence to established standards, safeguarding against potential biases that could arise from internal evaluations.

By involving external entities, organizations can gain an unbiased perspective on their compliance efforts, identifying areas for improvement and taking corrective actions where necessary. Such validation not only enhances the credibility of the auditing process but also fosters trust among stakeholders, including clients, partners, and regulators.

External compliance reviews serve as a powerful mechanism for upholding the integrity of standards, enabling businesses to demonstrate their commitment to quality, safety, and ethical practices. Ultimately, this rigorous external validation instils confidence in consumers and investors, promotes fair competition, and contributes to the overall growth and sustainability of industries both in New Zealand and worldwide.

- **do you have a view on how potential minimum resilience standards could best complement existing approaches to risk management?**

This is an area Worley can contribute considerable value to as our core business is in understanding existing global, local and client standards (Primarily Heavy Industry) along with best practices.

If we use national security as an example there are already standards that are widely adopted that already incorporate the requirement for cyber risk management within, one such standard is IEC61511 – Functional Safety – safety instrumented systems for the process industry sector

IEC 61511, also known as Functional Safety - Safety Instrumented Systems for the Process Industry Sector, is an international standard developed by the International Electrotechnical Commission (IEC). This comprehensive standard provides guidelines and requirements for ensuring the functional safety of safety instrumented systems (SIS) in the process industry. Its primary objective is to prevent and mitigate potential hazards that could lead to accidents, injuries, or environmental damage within industrial processes.

IEC 61511 outlines a systematic approach to designing, implementing, operating, and maintaining safety instrumented systems, ensuring they function as intended to achieve a safe shutdown or safe state in response to hazardous events. By adhering to IEC 61511, organizations can confidently address functional safety concerns, improve risk management, and enhance overall process safety performance, while complying with international best practices and regulations.

IEC61511 is not currently a mandatory requirement in NZ however is widely adopted as a method to demonstrate all practicable steps to protect people, assets and the environment.

Page 46 from this standard has the following requirement:

8.2.4 A security risk assessment shall be carried out to identify the security vulnerabilities of the SIS. It shall result in:

- a description of the devices covered by this risk assessment (e.g., SIS (Safety Instrument System), BPCS (Basic Process Control System) or any other device connected to the SIS);
- a description of identified threats that could exploit vulnerabilities and result in security events (including intentional attacks on the hardware, application programs and related software, as well as unintended events resulting from human error);
- a description of the potential consequences resulting from the security events and the likelihood of these events occurring;
- consideration of various phases such as design, implementation, commissioning, operation, and maintenance;
- the determination of requirements for additional risk reduction;
- a description of, or references to information on, the measures taken to reduce or remove the threats.

NOTE 1 Guidance related to SIS security is provided in ISA TR84.00.09, ISO/IEC 27001:2013, and
NOTE 2 The information and control of boundary conditions needed for the security risk assessment are typically with owner/operating company of a facility, not with the supplier. Where this is the case, the obligation to comply with 8.2.4 can be with the owner/operating company of the facility.
NOTE 3 The SIS security risk assessment can be included in an overall process automation security risk assessment.
NOTE 4 The SIS security risk assessment can range in focus from an individual SIF to all SISs within a company.

As can be seen, above there are examples of existing widely adopted standards that if made mandatory would greatly enhance the cyber security of existing and new infrastructure at relatively small expense.

We think more discussion on this topic is necessary and welcome the opportunity to contribute.

2&3

Would you support the government investing in a model to assess the significance of a critical infrastructure asset, and using that as the basis for imposing more stringent resilience requirements? If so:

- **what options would you like the government to consider for delivering on this objective?**

what criteria would you use to determine a critical infrastructure asset's importance??investing in a model to assess a critical infrastructure asset's criticality, and using that as the basis for imposing resilience requirements that are more stringent on particularly sensitive assets? If so:

- **what options would you like the government to consider for delivering on this objective?**
- **what features do you think provide the best proxies for criticality in the New Zealand context?**

This aspect of the process entails complexity, demanding a thorough and comprehensive discussion. Our proposition is to conduct a risk assessment for each asset identified as having national significance. This assessment may be developed either by the government independently or in collaboration with industry.

Both physical and cyber compromises on these assets are likely to exert distinct impacts on people, infrastructure, and the environment. To ensure an appropriate solution, it is imperative to model these impacts at a basic level. Several crucial factors must be taken into account during this evaluation:

Human Factors:

Considering short, medium, or long-term effects on the physical or psychological well-being of individuals.

Reputation and Strategic Legal Considerations:

Assessing the potential implications of notifying events or trends to the global or New Zealand public.

Environmental Factors:

Analyzing low, medium, or major impacts on the environment, encompassing air, water, soil, flora and fauna.

Financial Assets:

Estimating short, medium, or long-term losses of assets and their ramifications on the trade of New Zealand or the international market.

By incorporating these considerations into the risk assessment, we can ensure the proper sizing and implementation of the solution to safeguard assets of national significance effectively.