POWERED FROM WITHIN

New Zealand-Made Energy for New Zealand Security

A framework for the investments and better decisions that will keep New Zealand's essential services, supply chains, and food systems running through future fuel disruptions, investments that pay for themselves even if disruption never comes.

Why This Matters Now

The current disruptions to global trade and fuel supply chains, driven by geopolitical realignment, conflict, and economic nationalism, have opened New Zealand's eyes to a vulnerability we have long ignored.

This is a rare moment of clarity.

Historically, nations that act on these moments build lasting resilience; those that wait for the next crisis to pass find themselves making the same regrets a generation later. Critically, every investment proposed in this framework is 'no regrets': electrifying our critical fleet, installing solar on hospitals, and transitioning school heating will save money, reduce operating costs, and increase productivity whether or not a fuel disruption ever occurs.

We do not need a full-blown disaster to justify acting - the economics already stack up.

Which raises the question: why wait?

Why This Will Matter in the Future

The current crisis is a wake-up call, not an isolated event.

The forces that create fuel supply risk are intensifying. Geopolitical conflict, climate-driven disaster, pandemic, economic nationalism, and the accelerating energy transition itself, are not diminishing. A conflict disrupting Middle Eastern or refinery output in Asia, a major climate event severing Pacific shipping lanes, or a rapid shift in global oil markets could each trigger a supply shock with little warning.

New Zealand's geographic isolation, which is an asset in many respects, becomes a critical liability in a fuel emergency.

The question is not whether another disruption will come, it is whether we will have acted before it does.

NZ-MADE ENERGY = NZ SECURITY

New Zealand's dependence on imported liquid fuels represents one of the most significant and underappreciated risks to national security and public wellbeing. Unlike many vulnerabilities, this one is directly addressable: the technologies, vehicles, and systems required to dramatically reduce our fuel exposure exist today and are commercially viable. However, electric alternatives and switching to these machines may cost more upfront, and face other barriers to adoption that slow their spread.

This is where well-designed government action matters most.

The Prize: Spend Once, Save Forever

Many of the recommendations will cost the government in the short term, but they will save money in the medium and long term, build world-leading economic resilience and productivity along the way. This isn't frivolous spending; it is investment in assets that pay dividends for decades, with returns far exceeding the upfront cost.

The evidence is already running on New Zealand roads, roofs, and water: the solar on a major hospital pays for itself in five to seven years and then provides free energy for the next 20 years; the battery beside it is bought for resilience, and over its life costs about the same as the diesel generator infrastructure it displaces. School solar pays back in five to seven years. An electric ambulance costs somewhat more than a diesel one to buy and a quarter as much to run, repaying the difference many times over its service life. The world's first electric tug operates in Auckland at less than a third of the cost of its diesel twin. An electric vehicle running on New Zealand-made energy can save its owner tens of thousands of dollars over its lifetime.

Scaling that logic across the whole country, the numbers become transformational. New Zealanders currently spend roughly $40 million every single day buying fuel. Full electrification of New Zealand's homes would save approximately $29 million per day by 2040, money that stays in New Zealand, circulating through local wages, local firms, and regional economies instead of departing on a tanker.[1] Every year of delay is roughly $10 billion sent overseas; every year of progress converts a slice of that outflow into permanent domestic value.

And the prize is bigger than money. New Zealand starts with an advantage few other countries have: an electricity system already among the most renewable on earth, world-class wind, hydro and geothermal resources, and proven local innovation from electric ferries to electric rubbish trucks. No nation is better positioned to become the first whose hospitals, emergency services, schools, food system, and freight backbone can run indefinitely on energy made at home. This approach buys not just protection from the next fuel shock, but a permanent structural upgrade to the New Zealand economy, cheaper to run, cleaner, more productive, and impossible to blockade. Countries spend fortunes on security they hope never to use. This is security that pays for itself whether the crisis comes or not.

[1]Rewiring Aotearoa, The Electrification Opportunity Report and 'Release the Pressure' (Watt Now, August 2026): daily national fuel spend approximately $40 million in normal conditions (exceeding $60 million during recent shocks); estimated household savings from full electrification of New Zealand's homes and household machines approximately $29 million per day by 2040.

This document provides a framework for government to prioritise, enable, and more fully value the investment, public and private, that fuel security requires, across seven mutually reinforcing pillars:

- **Pillar 1: Electrify Crown-Owned Assets.** Direct electrification of government-owned vehicles, facilities, and backup systems, from emergency vehicles to hospital generators to school boilers, corrections, courts, and government vehicle fleets. Every replacement decision should be “electric-first”: no new fossil fuel purchase unless there's no electric option available that economically stacks up over the lifetime of the asset.
- **Pillar 2: Local Government & Public Transport.** Requiring and supporting councils to electrify public transport fleets, Emergency Community Hubs and council facilities, and essential local services such as wastewater and waste collection.
- **Pillar 3: Critical Private Infrastructure.** Funding support and regulatory incentives to electrify privately-owned but nationally essential services, including: ambulances; food production, processing and distribution; critical logistics fleets, and other essential freight; and resilience for telco backup power.
- **Pillar 4: Essential Workers’ Personal Transport.** Active government support to help essential workers (nurses, paramedics, teachers, tradespeople) to electrify their own vehicles, reducing their personal fuel dependency and strengthening the human component of our critical services.
- **Pillar 5: Charging Infrastructure.** Building the national charging backbone that keeps every electric fleet moving, from heavy freight charging hubs on priority routes to depot, workplace, and marine charging. These should be designed as resilience infrastructure with battery buffering and bidirectional capability.
- **Pillar 6: Value Fuel Security Properly.** Reforming Treasury and cost-benefit frameworks so that reduced exposure to overseas fuel insecurity is recognised and valued as a recurring contingent liability removed, fixing the mis-accounting that currently biases investment decisions against resilience.

The framework also addresses the fuel that remains: protected priority access, aligned with the Government’s Fuel Response Plan 2026, for uses that cannot yet be electrified, such as Cook Strait ferry services and essential aviation, and it shows how electrification transforms the reserve arithmetic, so existing storage stretches toward a 60-day reserve for critical uses.

Drawing on Rewiring Aotearoa’s national machine count data[2] and supply chain resilience lessons from the COVID-19 pandemic and other crisis responses, this document demonstrates that the transition is not only technically feasible but fiscally prudent. The cost of electrifying our critical infrastructure is a fraction of the economic damage a sustained fuel shock would cause. Nor is this untested ground: China treats electrification as core energy security strategy and industrial policy, the EU cut Russian gas dependency from 45% to 12% in three years, Ukraine’s solar-and-battery hospitals have kept functioning under missile attack, and the US Army is putting a renewable microgrid on every base by 2035.

[2]Rewiring Aotearoa, The Machine Count: New Zealand’s First Complete Inventory of Fossil Fuel Machines, May 2025. Available at rewiring.nz/machine-count. Developed in partnership with Ara Ake and EECA.

HEADLINE RECOMMENDATIONS

The clock starts now

Take immediate action by ministerial decision. The following key decisions can be actioned within several months, without waiting for a Budget or a new appropriation.

1. Designate a lead Minister for Energy Security and Resilience.
2. Require the Officials' Committee for Domestic and External Security Coordination (ODESC) to advise on action that actively reduces New Zealand's fuel supply exposure, not just respond once a crisis hits.
3. Direct every government vehicle and machine replacement to default to electric, starting today.
4. Set a 60-day fuel reserve target.
5. Assure school communities that if they invest in solar, they will get to keep the money they save.

Fund the backbone

Commit the money in the next Budget to electrify and provide resilience to NZ’s economy.

1. Establish a Critical Infrastructure Energy Security Fund.
2. Fit the ten highest-priority hospitals with solar and batteries.
3. Fund solar and batteries for priority Community Emergency Hubs and Emergency Operations Centres.
4. Enact EV Salary Boost in the next tax bill.
5. Zero-rate (or significantly discount) Fringe Benefit Tax for electric vehicles.
6. Scale up EECA’s heavy vehicle charging pilot into a planned national network, starting with design and consenting for an Auckland to Wellington freight charging network.

Much of this isn't new spending, it’s capital that government agencies were already going to spend, redirected to electric, and fuel and generator budgets converted into the investment that eliminates the need for them.

Assess the risks, and fix the rules

In the next 12 month:

1. Require the Treasury to assess the fuel security impact of major policy and funding decisions.
2. Publish the National Fuel Prioritisation Protocol and commence implementation for fuel users now.
3. Assess risks from fuel disruption for food production, processing, and distribution.
4. Set a 72-hour backup power standard for critical telecommunication systems.
5. Change the rules for grid upgrades so first movers (converting from fossil fuels or installing large-scale charging infrastructure) are not unreasonably penalised.

Scale what works…

Extend the priority-site programmes to full coverage, and bring public transport into the electrification effort.

1. Fit the 20 largest hospitals with solar and batteries.
2. Fit every public school that's a Community Emergency Hub with solar and batteries.

3. Extend solar and battery support to all Community Emergency Hubs and Emergency Operations Centres.
4. Electrify public transport.
5. Get the Auckland to Wellington freight charging network operational.

…and make sure it's tracked and protected

6. Publish a quarterly National Energy Security Dashboard, tracking risk exposure and progress on demand reduction across every portfolio.
7. Give MBIE’s critical supply chains function an explicit requirement to act on emerging energy and fuel security risks.
8. Require critical logistics fleets to develop fuel contingency plans now, not only once Phase 4 is triggered.
9. Direct the Treasury to recognise fuel supply dependency as a standing risk in the Statement of Specific Fiscal Risks at every Economic and Fiscal Update, with an estimated fiscal cost range.

Finish the job

In the next ten years, every public hospital and school should have solar and battery backup, every Emergency Operations Centre should be able to operate independently of the grid, and critical freight should be able to move around the country if there is a significant fuel disruption.

1. Fit every public hospital with solar and batteries.
2. Fit every public school with solar and batteries.
3. Require every Emergency Operations Centre to have solar and batteries.
4. Support mode shift for freight to rail.

*********** Review ends here **************

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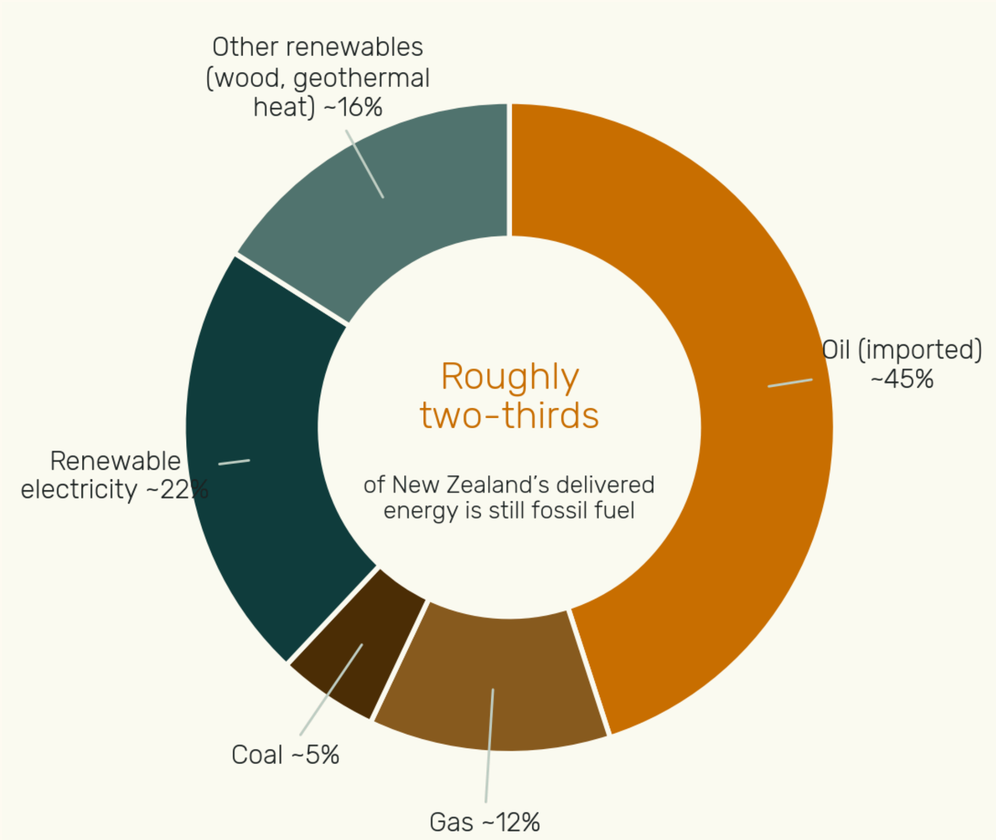
1. NEW ZEALAND'S FUEL VULNERABILITY: THE STRATEGIC CONTEXT

1.1 OUR IMPORT DEPENDENCY

New Zealand has no meaningful domestic oil production and, since the closure of the Marsden Point refinery in 2022, no domestic refining capacity. But it is important not to overstate the significance of that closure: even when Marsden Point operated, it depended almost entirely on imported crude oil, and on a narrow range of crude grades it was configured to process. The refinery provided a processing buffer, not supply independence. Our fundamental vulnerability has always been our near-total reliance on global oil markets and the long supply chains connecting us to them. Essentially all of our liquid fuel, petrol, diesel, and aviation fuel, arrives by ship from refineries in Singapore, South Korea, Japan, and the Middle East. Transit times of 10–20 days, combined with thin in-country storage buffers, mean our exposure to supply chain disruption is acute.[3]



Where New Zealand's delivered energy comes from: roughly two-thirds is still fossil fuel, with imported oil the single largest share. Every percentage point electrified moves from the orange side of this chart to the green, permanently. Source: MBIE energy balance data; shares approximate.

The Ministry of Business, Innovation and Employment (MBIE) now publishes weekly stock data under the Fuel Response Plan 2026, and it shows in-country stocks running at roughly 25–30 days' cover per fuel (25.5 days of petrol, 29.7 of diesel, and 28.0 of jet fuel in late

[3] MBIE, New Zealand Energy Security Assessment 2019, pp. 12–16. Wellington: Ministry of Business, Innovation and Employment.

August 2026), with New Zealand operating in Phase 1 of the Plan since 27 March 2026.[45] However, this figure is misleading: it represents national aggregate across all fuel types and all locations. Actual diesel availability in any given region, on any given day, may be far lower. Nor should the on-paper totals reassure: roughly a third of the headline days' cover at any moment is fuel on ships, some up to three weeks away, and cargoes at sea are not guaranteed to arrive, in a global squeeze they can be diverted to higher bidders, and a small market at the end of the world's longest supply lines competes for marginal cargoes at exactly the moment everyone else wants them. Much of New Zealand's IEA 90-day compliance is met not with fuel in New Zealand at all but with 'ticket' contracts over oil stored in the United States, United Kingdom, and Japan. The government's strategic diesel reserve at Marsden Point, purchased under agreement with Z Energy, is scheduled to be folded back into normal commercial supply from December 2026. Diesel is disproportionately critical because it powers nearly all heavy transport, most agricultural machinery, emergency generator backup, and much of the marine sector.[6]

Days of Fuel Reserves (National Average)

~25–30 days in-country per fuel type, with roughly a third more on ships up to three weeks away. Diesel stocks in any single region may be as low as 7–10 days under normal conditions.

Domestic Refining Is Not the Answer

The closure of Marsden Point in 2022 is sometimes cited as the source of our vulnerability. In reality, even when the refinery operated, New Zealand was almost entirely dependent on imported crude oil, and on a narrow range of crude types it could process. Domestic refining provided a buffer in processing, not in supply. Our fundamental exposure to global oil markets has always been the core risk. MBIE's own Fuel Security Study reached the same conclusion: reestablishing the refinery would cost an estimated $4.9–7.3 billion and take six years, and of all the options assessed it delivered among the least security per dollar, 'inefficient due to either high costs and/or limited effectiveness' in the study's words. The same study recommended accelerating zero-emission vehicles instead.

[4] MBIE, 'Fuel Stock and Shipping Updates', week of 23 August 2026: in-country stocks 25.5 days (petrol), 29.7 (diesel), 28.0 (jet fuel); roughly a further third of headline cover on ships within or en route to the EEZ. New Zealand entered Phase 1 of the National Fuel Response Plan 2026 on 27 March 2026. IEA 90-day compliance includes 'ticket' contracts over stocks held in the United States, United Kingdom, and Japan; the strategic diesel reserve at Marsden Point is scheduled for reintegration into commercial supply from 1 December 2026 (MBIE; RNZ, 2026).

[5] MBIE, Energy in New Zealand 2024, Table 12: Oil stocks and IEA minimum stockholding obligations. Available at mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-statistics-and-modelling/energy-publications/energy-in-new-zealand

[6] MBIE, 'Fuel Stock and Shipping Updates', week of 23 August 2026: in-country stocks 25.5 days (petrol), 29.7 (diesel), 28.0 (jet fuel); roughly a further third of headline cover on ships within or en route to the EEZ. New Zealand entered Phase 1 of the National Fuel Response Plan 2026 on 27 March 2026. IEA 90-day compliance includes 'ticket' contracts over stocks held in the United States, United Kingdom, and Japan; the strategic diesel reserve at Marsden Point is scheduled for reintegration into commercial supply from 1 December 2026 (MBIE; RNZ, 2026).

Not Just Us Saying It: The Independent Assessments

Cameron Bagrie, independent economist (peer reviewer, Electric Homes and Vehicles 2026): Petroleum and related imports exceeded $10 billion in the year to mid-2026, and every dollar of it, in his words, 'literally siphons money out of pockets'. Security in food, energy and technology has become the organising theme of the global economy, and New Zealand's point of vulnerability is energy. Energy price spikes propagate through every household and business, widening the trade deficit, adding to inflation, and compressing living standards, while electrification improves the balance of trade, reduces exposure to global price shocks, and helps rebuild the economic foundations that declining terms of trade are eroding. The economics of solar, he notes, have passed a key inflection point.

Bagrie on the new era (NZ Herald, July 2026): The decades of cheap, stable global conditions, the 'Great Moderation', are over. New Zealand is a 'two-bit player at the international roulette table', exposed to swings in global commodity, interest rate and asset markets it cannot influence. Global tensions and fuel shocks are the new operating environment, not an aberration.

OECD Economic Survey of New Zealand 2026: The OECD's formal country assessment warns that leaning on gas and LNG would risk locking in fossil fuel dependence and 'further exacerbate New Zealand's already high vulnerability to liquid fuel import stoppages and price volatility', and concludes that accelerating electrification will support competitiveness, investment, and resilience to foreign energy shocks.

University energy researchers (The Conversation, July 2026): Independent analysis of IEA data shows New Zealand is the only IEA member whose public oil reserves are held entirely overseas, a safety net progressively moved offshore over fifteen years, while countries like Japan and South Korea hold around 200 days of reserves at home. New Zealand sits near the bottom of the IEA for domestically held cover.[7]

[7]Bagrie, C., 'Electric Homes and Vehicles 2026: The Strategic Context', independent peer review commentary, Rewiring Aotearoa, June 2026; Bagrie, C., 'Global Tensions and Fuel Shocks Mark End of Great Moderation Era', NZ Herald, July 2026; OECD Economic Surveys: New Zealand 2026, 'Towards a More Affordable, Secure and Sustainable Electricity System'; 'Over the Past 15 Years, NZ Moved Its Fuel Safety Net Offshore', The Conversation, July 2026.

1.2 LESSONS FROM COVID-19 AND OTHER DISRUPTIONS

The government has already done the analytical work: the MBIE Fuel Security Study (Envisory/Castalia, peer reviewed by Beca) found that accelerating the transition of the vehicle fleet to electric is the most efficient long-term way of increasing New Zealand's fuel security, and recommended it over reopening the Marsden Point refinery. This document is not relitigating that conclusion; it joins the dots from the government's own study to the investment decisions that follow from it, and the case has only strengthened since the study was completed, as EV prices have fallen further and model availability has widened. This document provides the investment framework to do exactly that, and more.[8]

The COVID-19 pandemic provided a live stress test of New Zealand's supply chain resilience. While New Zealand's response to the health emergency was internationally recognised, the pandemic exposed significant weaknesses in critical supply chains, weaknesses that would be far more acute in a fuel disruption scenario:

- The 2020 Pandemic Preparedness and Response reviews identified grocery supply chains, pharmaceutical distribution, and healthcare logistics as critical but fragile.
- The Ministry of Health's 2021 Health System Preparedness Review found that many DHB facilities relied on fuel-dependent generators with limited fuel storage, in some cases holding only 24–48 hours of backup fuel on-site.[9]
- NEMA's 2022 National Disaster Resilience Strategy highlighted fuel supply as a Tier 1 vulnerability alongside telecommunications and water infrastructure.[10]
- Treasury's 2020 Living Standards Framework analysis of pandemic impacts found that economic shocks radiating from supply chain failures were disproportionate to their physical cause, due to the interconnected nature of modern logistics.
- The 2021 Infrastructure Commission Te Waihanga report on critical infrastructure identified transport fuel as a foundational dependency across all other infrastructure categories.[11]

The 2022 Auckland floods and 2023 Cyclone Gabrielle further demonstrated how quickly fuel access can be disrupted in regional centres, with Hawke's Bay experiencing critical diesel shortages that threatened hospital operations, water treatment, and agricultural recovery for weeks.

Cyclone Gabrielle Precedent

During Cyclone Gabrielle in February 2023, road access to Hawke's Bay was severed for multiple days. Diesel for essential generators, farm equipment, and emergency vehicles had to be airlifted. Hospital backup generators at Hawke's Bay DHB were run

[8] MBIE Fuel Security Study (Envisory and Castalia, peer reviewed by Beca, 2024–25); NZ Herald, April 2026. The study found electrifying the vehicle fleet was 'the most efficient long-term way of increasing New Zealand's fuel security' and recommended accelerating zero-emission vehicles over reestablishing the Marsden Point refinery, which it estimated at $4.9–7.3 billion over six years and assessed as 'inefficient due to either high costs and/or limited effectiveness'.

[9] Ministry of Health, Health System Preparedness Review 2021. Wellington: Manatū Hauora. The review found backup generator fuel on-site at many DHB facilities was sufficient for 24–48 hours of critical load only.

[10] National Emergency Management Agency, National Disaster Resilience Strategy 2022. Wellington: NEMA. Fuel supply is identified as a Tier 1 vulnerability alongside telecommunications and water.

[11] Te Waihanga Infrastructure Commission, New Zealand Infrastructure Strategy: Rautaki Hanganga o Aotearoa 2022, p.45. Wellington: Infrastructure Commission.

continuously for over 72 hours.[12] This was a regional weather event, a national fuel import disruption would be orders of magnitude more severe and last far longer.

1.3 IDENTIFYING CRITICAL SERVICES AND SUPPLY LINES

For the purpose of this framework, 'critical services' are defined using criteria consistent with the National Civil Defence Emergency Management Plan (CDEM Plan) and the Infrastructure Commission's Critical Infrastructure Risk Management Framework. A service or supply line is classified as critical if its failure would:

- Directly threaten human life or safety (hospitals, ambulances, fire and emergency, police)
- Prevent the population from accessing essential nutrition (food supply chains, water treatment)
- Cause cascading failure in other critical systems (electricity grid operations, telecommunications infrastructure, financial system operations)
- Prevent national recovery and coordination (inter-island connectivity, major arterial freight, government communications)

This framework draws additionally on the MBIE's 2019 Energy Security Assessment, the MCERT's (formerly Ministry of Transport) Critical Transport Infrastructure work, and the COVID-19 Essential Services Schedule (as amended) which provides a government-endorsed tiered classification of service criticality.

1.4 THE WORLD IS ALREADY ACTING: INTERNATIONAL PRECEDENT

New Zealand is not being asked to pioneer anything, and it is better placed than most to leapfrog: the renewable electricity system other countries are still building, we already have. Around the world, nations facing exactly this vulnerability, dependence on imported fuel moving through contested supply chains, have concluded that electrification and distributed renewable energy are national security strategy. The precedents span fifty years, five continents, and every kind of government. Each one makes a distinct part of the case.

Denmark, 1973: What Happens When a Small Nation Takes the Wake-Up Call Seriously

When the 1973 oil embargo hit, Denmark was approximately 94% dependent on imported oil for its total energy consumption, a position remarkably similar to New Zealand's liquid fuel position today. The crisis forced car-free Sundays and rationed street lighting. But where most countries let the lesson fade as prices eased, Denmark never let up: five decades of deliberate policy converted near-total import dependency into energy leadership, with wind alone now supplying close to half of Danish electricity and a world-leading energy technology export sector built on the back of it.[13] The lesson is precise: the countries that act on the wake-up call, and keep acting after the crisis passes, convert vulnerability into permanent advantage. Those that wait relive the same crisis a generation later.

China: The Superpower That Treats Electrification as Energy Security

[12] Hawke's Bay Regional Council, Cyclone Gabrielle Recovery Report 2023; NZ Herald, 'Hawke's Bay Hospitals on Emergency Power for Days after Cyclone Gabrielle', March 2023.
[13] Rüdiger, M. (2014), 'The 1973 Oil Crisis and the Designing of a Danish Energy Policy', Historical Social Research 39(4); EBSCO Research Starters, 'Denmark and Energy Diversification'. Denmark was approximately 94% reliant on imported oil for total energy consumption at the time of the 1973 embargo; wind supplied 46.8% of Danish electricity in 2024.

In 2003, China's President Hu Jintao named his country's core strategic vulnerability the 'Malacca Dilemma': roughly 80% of China's oil imports pass through a single strait it does not control. China has spent two decades and hundreds of billions of dollars attacking this problem from the supply side, a strategic stockpile of nearly 1.4 billion barrels, overland pipelines through Myanmar, Kazakhstan and Russia, and the pipelines still carry only a fraction of what moves by sea.[14] The most effective response has been on the demand side: China's extraordinary push into electric vehicles, batteries, and renewables is at its core an energy security programme, every EV sold permanently shrinks the strategic exposure that no navy or pipeline could solve. When the world's most resourced strategic planners conclude that electrification is the answer to fuel import vulnerability, a country with a fraction of those resources and none of those mitigations should take note.

Europe, 2022: Proof of Speed

When Russia weaponised gas supplies in 2022, the European Union demonstrated how fast a determined bloc can rewire its energy dependency. Under REPowerEU, Russian gas fell from 45% of EU imports to 12% in three years; Russian oil from 27% to 2%; Russian coal to zero. Accelerated renewable deployment and efficiency measures cut EU gas demand by more than 60 billion cubic metres per year.[15] Europe's rewiring was reactive, executed under crisis pressure at premium prices. The opportunity in front of New Zealand is to do the equivalent proactively, at today's historically low solar and battery prices, on our own timeline, before the shock arrives.

Ukraine: Battlefield Proof That Distributed Energy Survives

Ukraine is the live experiment no one wanted: what happens to a nation's energy systems under systematic attack. The answer has redrawn energy security doctrine worldwide. Centralised infrastructure, power plants, substations, transmission lines, proved devastatingly vulnerable to single strikes. Distributed solar-plus-battery systems proved the opposite: harder to destroy, faster to repair, deployable in days. Ukraine has installed hybrid solar and battery systems at hospitals, water utilities, and schools across the country, 22 major installations serving 1.5 million people between 2022 and 2024, with hospitals and clinics functioning as 'Points of Invincibility' providing heat, light, water, and communications to their communities through blackouts.[16] This is precisely the community resilience hub architecture proposed in Pillars 1 and 2 of this framework, validated under the most extreme conditions imaginable. New Zealand's threat is fuel disruption and natural disaster rather than missiles, but the engineering logic is identical: distributed generation plus storage at critical facilities is the resilient architecture.

The United States Military: The Hardest-Nosed Endorsement Available

[14] Hu Jintao first articulated the 'Malacca Dilemma' at a Chinese Communist Party Economic Work Conference in November 2003. Approximately 80% of China's oil imports transit the Strait of Malacca; China maintains a strategic stockpile of nearly 1.4 billion barrels and has invested billions in overland pipelines that still carry only a fraction of seaborne volumes. See Atlas Institute, 'Navigating the Malacca Dilemma in 2025'; Foreign Policy, 'China's Malacca Dilemma, After the Hormuz Blockade', May 2026.

[15] European Commission, 'REPowerEU, 4 Years On' (2026). Russian gas fell from 45% of EU gas imports in 2022 to 12% in 2025; Russian oil from 27% to 2%; Russian coal eliminated entirely. Renewable deployment and energy savings reduced EU gas imports by more than 60 billion cubic metres annually between 2022 and 2024.

[16] World Bank, 'Ukraine's Health Clinics Use Solar Power to Overcome Electrical Outages' (HEAL Project), November 2025; SolarPower Europe, 'Solar Supports Ukraine', 2025; Government of Norway, Kharkiv hospital solar programme announcement, 2025. Between 2022 and 2024, 22 hybrid solar-plus-battery installations were completed across eight Ukrainian regions serving 1.5 million people.

No institution scrutinises energy security more ruthlessly than the US Department of Defense, and it has concluded that renewable microgrids are mission assurance. The US Army's climate strategy commits to a microgrid on every installation by 2035, and sufficient renewable generation and battery storage to self-sustain critical missions on all installations by 2040. Congress has directed the Department to promote microgrids specifically 'to ensure the energy security and energy resilience of critical missions'.[17] The institution with the most to lose from energy romanticism has run the numbers and chosen solar, batteries, and microgrids for its most critical facilities. New Zealand's hospitals, emergency services, and civil defence centres deserve the same standard of energy assurance as a US Army base.

New Zealand's Own Malacca Dilemma: Without Any of China's Mitigations

New Zealand's refined fuel arrives predominantly from refineries in Singapore, South Korea, and Japan, transiting the South China Sea and adjacent waters, the most contested maritime space on earth and the very chokepoint region that keeps Chinese strategic planners awake at night. But consider the asymmetry: China faces this vulnerability with a 1.4 billion barrel strategic stockpile, overland pipeline alternatives, domestic refining, a blue-water navy, and the world's largest shipbuilding industry. New Zealand faces a longer version of the same supply line with roughly three weeks of onshore stocks, no domestic refining, no pipeline alternatives, no capacity to escort shipping, and no ability to influence events in the region our fuel transits. Every risk China spends hundreds of billions mitigating, New Zealand simply carries, unpriced and largely undiscussed. The one mitigation available to us is the same one China has pursued hardest: reduce the need for fuel.[18]

The pattern across all five precedents is consistent. Energy security through electrification is not a niche environmental position, it is the settled conclusion of a superpower's strategic planners, a war economy's engineers, the world's largest military, a fifty-year small-nation success story, and the world's largest trading bloc under fire.

[17] US Army Climate Strategy (2022): 'The Army will install a microgrid on every installation by 2035. The Army will also pursue enough renewable energy generation and battery storage capacity to self-sustain its critical missions on all its installations by 2040.' See also 2021 National Defense Authorization Act, § on installation energy resilience.

[18] The majority of New Zealand's refined fuel imports originate from refineries in Singapore, South Korea, and Japan, transiting the South China Sea and adjacent waters. See MBIE fuel supply chain documentation; Z Energy and bp supply chain disclosures. On China's mitigations, see Foreign Policy, 'China's Malacca Dilemma, After the Hormuz Blockade', May 2026.

2. PILLAR 1: CROWN-OWNED ASSETS. DIRECT GOVERNMENT ACTION

The most direct and immediate action government can take is to electrify the assets it owns and operates. Crown-owned assets include emergency service fleets, hospitals, schools, prisons, government office buildings, and defence infrastructure. Many of these are already subject to carbon reduction targets; the fuel security imperative adds further urgency and justification for accelerated investment.

The Procurement Principle: The Cheapest Fuel Security Is the Replacement You Were Making Anyway

Government replaces vehicles, boilers, generators, and machines constantly, on ordinary asset cycles, with money already budgeted. Every one of those replacement decisions is now a fuel security decision: an ICE replacement locks in ten to twenty more years of imported fuel exposure; an electric one permanently removes it, at little or no marginal capital cost, because the spend was happening anyway. So this framework's first and cheapest ask, running through every pillar that follows, is to lock in the default: from today, every government and council procurement of a vehicle or fuel-burning machine at its natural end of life is electric unless no viable electric option exists, with exceptions recorded on a published register. Only then does the second, dearer lever come into play: bringing forward the replacement of the most critical and most fuel-exposed assets ahead of their natural cycle, which is where CIESF capital is targeted. Lock in the free win first; buy the acceleration second.

2.1 EMERGENCY VEHICLE FLEETS

Police New Zealand

New Zealand Police operates approximately 4,700 vehicles including patrol cars, pursuit vehicles, highway patrol units, and specialist vehicles. The passenger vehicle fleet is now well-served by electric alternatives, the BYD Seal, Tesla Model 3 Long Range, BMW i4 and Hyundai IONIQ 6 all meet or exceed the range and performance requirements of urban and suburban patrol duties. This is no longer speculative: New Zealand Police's own BMW i4 patrol cars, deployed in frontline service, have in Police's words exceeded expectations.[19]

- Recommended target: 80% of Police passenger fleet electrified by 2030
- Priority: Urban patrol vehicles first (highest utilisation, shortest daily range requirements)
- Retain ICE capability for specialist pursuit and rural highway patrol on routes where electric range remains a genuine constraint, pending next-generation battery improvements
- Fast-charge infrastructure at all major stations to be funded through the Critical Infrastructure Energy Security Fund

Fire and Emergency New Zealand (FENZ)

FENZ operates a mixed fleet of approximately 1,700 vehicles including fire appliances, support vehicles, and command units. Proof of concept already exists on New Zealand soil: Christchurch Airport operates the Southern Hemisphere's first airport electric fire truck, a Rosenbauer RT running as its primary first-response vehicle, electric in normal operation

[19] Stuff, 'NZ Police Say Its BMW i4 Electric Patrol Cars Have Exceeded Expectations', 2026.

with a small onboard diesel range-extender generator for exceptional circumstances, with European testing indicating fire service diesel use falls by more than 75%, and a second, larger e-Panther arriving in 2026[20], demonstrating that electric firefighting capability is not a future aspiration but a present reality. The question is scale and speed of rollout.

Sequencing matters here. Light support vehicles have the clearest electric alternatives available today and should transition first, freeing budget and building organisational EV capability ahead of the more complex appliance transitions. Heavy appliance replacement cycles are long (15–20 years), so decisions made now about what to procure in the late 2020s will lock in the fleet profile for the 2040s.

- Recommended target: 100% of light support vehicles (utes, crew vans, command vehicles) fully electric by 2028. Rationale: these vehicles have the shortest daily range requirements, the widest range of available electric models, and the lowest operational risk if a vehicle requires charging. Starting here builds FENZ's EV operational competency before tackling appliances.
- Fully electric utes such as the Ridarra and growing international equivalents are the default procurement choice now. Plug-in hybrids retain fuel dependency and should not be procured.
- Vans and crew transport: Ford Pro E-Transit and Farizon SV[21] available now. Target: all new van procurement electric from 2026.
- Recommended target: 50% of medium appliances fully electric by 2030, 100% by 2033. Rationale: Rosenbauer full electric medium appliances are entering service internationally now; NZ procurement cycles align with this timeline. Urban stations, where charging infrastructure is easier to install and response distances are shorter, should receive electric appliances first.
- Recommended target: Begin heavy appliance electric procurement from 2028, with 50% of replacements electric by 2035. Rationale: the Rosenbauer RT is operational in European cities[22]; NZ's longer replacement cycle gives time to assess performance before full commitment, but planning must begin now.
- Solar + battery storage at all FENZ stations to be completed by 2029, prioritising stations with the largest fleets and highest operational tempo. V2G-capable chargers contribute to station backup power.

Ambulance Services: Note on Jurisdiction

While ambulance services in New Zealand are delivered by St John and Wellington Free Ambulance (covered under Pillar 2), government funds the vast majority of ambulance operations through the Ministry of Health. This creates a direct funding lever that should be used to mandate electrification timelines as a condition of funding agreements.

2.2 HOSPITAL AND HEALTH FACILITY BACKUP SYSTEMS

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[20]Christchurch Airport, 'Christchurch Airport Leads the Way with New Zealand's First Electric Fire Truck', February 2025; contract announcement May 2023. The Rosenbauer RT operates as the airport's primary first-response vehicle and is the first electric fire truck at any Southern Hemisphere airport. The vehicle is battery-electric with a small onboard diesel range-extender generator for exceptional circumstances; European testing indicates fire service diesel usage reductions exceeding 75%. A second, larger Rosenbauer e-Panther is contracted for delivery in 2026.
[21]The Farizon SV is on sale in New Zealand (class winner, 2025 NZ Autocar Awards; up to 376 km real-world range, 140 kW DC charging, vehicle-to-load capability), with the smaller V7E launched in March 2026; the V7E platform is produced overseas in passenger variants with five to nine seats, expected to follow in right-hand-drive markets.
[22]Rosenbauer Group, Rosenbauer RT Electric Fire Vehicle: Product and Performance Documentation, 2024. The Rosenbauer RT is in active service in Hanover, Vienna, and several other European cities.

This is arguably the highest-priority single investment within the Crown asset portfolio. Hospital backup power systems currently rely almost entirely on diesel generators. A fuel shock affecting diesel supply would, within 48–72 hours, begin to threaten life-critical operations in hospitals that do not maintain large on-site fuel stores, which is most of them.

The sequencing logic is clear: largest facilities first, because they serve the most patients and typically have the greatest generation area for solar. Tertiary and regional hospitals in areas with known civil defence risk, Wellington (seismic), Hawke's Bay (flood and cyclone), Northland (isolation), should be prioritised within each tier.

A critical point often missed in solar feasibility assessments: hospitals should not limit their thinking to rooftops. Large hospital campuses typically have extensive surface carparks that are ideal for solar canopy installations. Carpark solar canopies simultaneously generate electricity, provide covered parking, and can include EV charging points underneath. At major hospitals like Waikato, Auckland City, and Christchurch, carpark solar capacity can easily match or exceed rooftop potential, doubling the available generation area. Every solar feasibility assessment for a hospital or health facility should assess carparks and other hardstanding areas as a primary generation surface, not an afterthought, and increasingly walls and facades as well, as a growing number of buildings in New Zealand and overseas now demonstrate.

The recommended approach is a layered resilience system at all public hospitals and major health facilities:

- Layer 1, Solar PV across all available surfaces: rooftops, carpark canopies, and covered walkways, feeding direct into facility loads during daylight hours
- Layer 2, Large-scale battery storage (minimum 4–8 hours of critical load at each facility) charged from solar and grid. Battery storage also manages peak demand, reducing lines charges significantly, and critically can buffer the substantial new electrical loads that arise when diesel or gas boilers are replaced with heat pump hot water systems, avoiding costly grid connection upgrades that can otherwise run to hundreds of thousands of dollars per site.
- Layer 3, As solar and battery capacity grows, diesel generators should be progressively decommissioned rather than retained. The priority is to eliminate diesel dependency entirely, not to build larger diesel stockpiles. Where generators are retained during the transition period, modest on-site fuel storage (sufficient for 7 days of critical load, not the commonly cited 24–48 hours) provides a bridge while solar and battery installations are completed.
- Layer 4, Bidirectional (vehicle-to-building) charging infrastructure, allowing electric ambulances, staff EVs, and fleet vehicles to feed power back into the facility during a grid outage or fuel disruption. A fleet of 10 electric ambulances each providing 30–40 kWh of V2B capacity contributes 300–400 kWh of additional backup power, equivalent to a substantial additional battery installation at no extra hardware cost beyond the bidirectional chargers themselves.
- Recommended target: All 20 largest public hospitals (tertiary and major regional) to have solar + battery installed by 2028. Rationale: these facilities carry the highest patient acuity and longest operating hours; a power failure here is immediately life-threatening. They also have the largest roof and carpark areas, making solar installation most cost-effective.
- Recommended target: All remaining public hospitals and major health facilities (approximately 60 further sites) completed by 2031. Rationale: smaller facilities serve as critical regional hubs in emergencies; their resilience is as important as central hospitals for communities distant from tertiary care.

- Recommended target: Diesel generators at all major public hospitals to be decommissioned as solar + battery installations are completed, not supplemented with more diesel storage. The goal is elimination of fuel dependency, not managing it at a slightly larger scale.

Case Study: Te Whatu Ora Waikato Hospital. The Financial Case in Detail

Waikato Hospital is one of New Zealand's largest tertiary facilities with over 600 beds and a total floor area exceeding 100,000 m². A hospital of this scale typically spends \$4–6 million per year on electricity. The figures below are Rewiring Aotearoa illustrative modelling for a facility of this scale, not a completed project:Generation capacity: 2.5 MW solar (rooftop + carpark canopy combined). Annual generation: approximately 3,250 MWh (at 1,300 kWh/kW/year, conservative for Hamilton's solar resource). This represents roughly 15–20% of the hospital's total electricity consumption.Capital cost breakdown: Solar PV panels and inverters (\$1.8–2.2M) + carpark canopy structures (\$600K–1.0M) + 4 MWh battery system (\$1.8–2.2M) + installation, commissioning, and grid connection (\$400–600K) = total \$4.6–6.0M.Annual savings: Energy cost avoidance from solar at \$0.20/kWh average = \$650,000. Peak demand charge reduction via battery dispatch = \$150,000–300,000. Diesel generator testing and maintenance reduction = \$40,000–70,000. Total direct annual savings: \$840,000–1,020,000.Payback: the solar component pays for itself in five to seven years on conservative assumptions, before accounting for electricity price inflation (historically 3–5% per year) which compresses it further, and then delivers 20+ years of savings under 25-year performance warranties. The battery is deliberately not asked to pay for itself through bill savings: its case is the diesel infrastructure it displaces. A hospital-scale generator fleet costs \$1–2 million to replace when due, plus fuel, compliance testing, and maintenance every year of its life; against that lifecycle, a battery delivering demand-charge savings and export earnings on top, with network tariffs increasingly rewarding what batteries contribute to the grid, is close to cost-neutral while providing categorically better resilience, instant, silent, and fuel-free. Net present value of the combined system over 25 years: conservatively \$8–12 million positive. This remains one of the highest-return capital investments available to Health NZ, and the return is honest: the solar earns it, and the battery converts the diesel budget into something that actually works when the grid is down.

When Diesel Generators Fail: The Lesson of Superstorm Sandy, and the New Architecture Replacing Them

During Superstorm Sandy in 2012, NYU Langone Medical Center in New York lost primary power and its rooftop backup generators failed. The hospital was forced into full evacuation, carrying critically ill patients, including newborns on ventilators, down darkened stairwells. Multiple hospitals across the region were evacuated for the same reason: the diesel generator, the default backup technology for a century, failed precisely when it was needed most. Contrast the emerging architecture: in 2025, a major California medical centre commissioned a system combining 2 MW of on-site solar, 9 MWh of battery storage, and a fuel cell, capable of serving the hospital's entire emergency load for ten continuous hours on batteries alone, and far longer in practice because the solar array recharges the batteries every daylight hour, operating as the primary power source in normal times with the grid as secondary and the diesel generators relegated to third-line backup. As its energy director put it: the microgrid is the first line of defence, and the generators are the backups. That inversion, renewables primary, diesel last resort, is precisely the architecture this framework proposes for every New Zealand hospital.[23]

2.3 SCHOOLS AS COMMUNITY RESILIENCE HUBS

New Zealand has approximately 2,500 state and state-integrated schools. These buildings are among the most strategically valuable assets in the Crown portfolio for resilience purposes: they are geographically distributed across every community in the country, they have large roof areas ideal for solar, they have substantial internal space for sheltering people, and they are already embedded in community life. In many towns and suburbs, the school, or its hall, is the designated Civil Defence centre.

The opportunity here goes well beyond simply replacing a boiler. A school equipped with solar PV, a large battery, heat pump heating, EV charging, and communications infrastructure becomes a genuine community resilience hub: a place that can operate independently of the grid and fuel supply for extended periods, shelter and warm the surrounding community, charge essential vehicles and devices, and serve as a coordination point during an emergency. The co-benefits in normal times are equally compelling, dramatically reduced energy bills, warmer and healthier learning environments, and a living demonstration of clean energy for every child in the school.

Government has already taken the first step on this path. The Solar on Schools programme announced in Budget 2026 provides $30 million, $20 million from EECA's Community Renewable Energy Fund and $10 million from the Ministry of Education, to install solar panels and batteries at up to 500 schools.[24] This is welcome and exactly the right platform to build on, but the current design leaves most of the opportunity on the roof: 294 of the 500 schools are slated for 10 kW systems, smaller than the average system now going onto a single Australian home. Schools are large daytime energy users under big, largely empty roofs, the exact profile rooftop solar suits best, and the economics reward size: the fixed costs of crew, scaffolding, design, and electrical works are paid whether the system is small or large, so cost per kW falls steeply with scale, from around $1,900 per kW for a 10 kW residential-scale install to roughly $900 per kW at 120 kW commercial scale. As Rewiring Aotearoa put to the Minister of Education in August 2026, the fixes are straightforward and, because the programme is still at the request-for-interest stage, entirely achievable.[25] Make larger systems the default, sized to each school's roof and demand, even if that means fewer schools first: it is always cheaper to do it well once than to pay the set-up costs

[23] On the Sandy evacuations: NYU Langone Medical Center lost primary power and backup generation during Superstorm Sandy (October 2012), requiring full evacuation including ICU and NICU patients; multiple regional hospitals were evacuated after generator failures. See Clean Energy Group, 'Energy Resilience Ten Years After Sandy' (2022). On the California system: 2 MW solar / 9 MWh battery / 1 MW fuel cell microgrid commissioned April 2025, serving full emergency load for 10 continuous hours, operating as primary power source.
[24] MBIE/EECA, 'Government Announces New Solar on Schools Programme', 3 June 2026 (Budget 2026); RNZ and The Press coverage, June 2026. EECA modelling: standard 30 kW school system saves up to $8,000/year in electricity costs with a five-to-seven-year payback; programme generation estimated at approximately 10.1 GWh/year; first installations scheduled for the 2026/27 summer, with rollout to 2028.
[25] Rewiring Aotearoa to Hon Erica Stanford, Minister of Education, 'Solar on Schools', 17 August 2026. System sizing (294 of 500 schools at 10 kW; average new Australian residential system now exceeds 11 kW), price-per-kW data (MySolarQuotes 2025 survey: ~$1,900/kW at 9–10 kW residential falling to ~$1,400/kW at 13–14 kW; ~$1,100/kW at 56 kW and ~$900/kW at 120 kW Canterbury commercial), and the three recommendations (larger systems as default; community top-up mechanism; savings-retention certainty for a set period) are from this letter. The programme was at request-for-interest stage on GETS at time of writing.

twice, and 500 schools is a headline, not an outcome. Give schools a simple mechanism to top up the Crown-funded system with local trust and community money, panels and batteries alike, at no further cost to the Crown. And give schools certainty they retain the full benefit of solar savings for a set period, say fifteen years: because operational grants are tied to energy bills, schools and funders currently fear the Ministry will claw back the savings, and community trusts have shelved multi-million-dollar solar funding for exactly that reason. This framework adds the resilience layer on top: upsize systems and batteries at schools that serve as designated Civil Defence centres so they can operate islanded from the grid for days, extend beyond the initial 500 schools toward the full estate of approximately 2,500, and add the bidirectional charging and communications infrastructure that turns a solar-equipped school into a genuine resilience hub, funded through the CIESF.

- Transition schools still relying on fossil fuel heating, coal, diesel, or fuel oil boilers, to heat pump systems as the primary solution. This is concentrated in cooler regions: Southland, Otago, inland Canterbury, and Manawatū-Whanganui, where heating loads are greatest. Many schools in warmer northern regions have already transitioned or never required significant heating infrastructure. The Ministry of Education's property data should be used to identify and sequence the remaining fossil fuel-dependent schools, rather than assuming the full 2,500-school estate requires action.
- Install solar PV on all schools with suitable orientation, secondary schools with larger roof areas and carparks should be prioritised first, followed by contributing and full primary schools. School carparks and sealed play areas can host ground-mounted or canopy solar where rooftop space is limited.
- Battery storage should be included as standard in school solar installations, not treated as optional, a solar-only system without storage provides no resilience during grid outages or at night
- Battery storage provides an important additional co-benefit when schools transition from fossil fuel boilers to heat pump heating: heat pumps draw significantly more electrical power than boilers, and without battery buffering, this load increase can trigger costly distribution board or transformer upgrades. A battery smooths these peaks, deferring or entirely avoiding upgrade costs that can reach $100,000–400,000 per site, often more than the cost of the battery itself. This co-benefit should be factored into all school energy upgrade business cases.
- Bidirectional (vehicle-to-building) charging should be installed at school hubs wherever possible. Staff EVs and council or community vehicles parked at the school during the day can feed power back into the building, providing virtual battery capacity at minimal additional cost, and in an emergency, community members' EVs arriving at the school-as-civil-defence-centre become part of its power supply.
- EV charging infrastructure at schools serves essential workers (teachers) in normal operation and provides community charging during emergencies
- Schools designated as CDEM centres should receive an enhanced resilience package: larger battery capacity (minimum 24–48 hours of building load), communications equipment, and water storage
- The Ministry of Education's existing school property programme should integrate community resilience hub specifications into all upcoming energy system upgrades, with NEMA input on the emergency capability requirements

Case Study: Paraparaumu College as a Community Resilience Hub

Paraparaumu College on the Kāpiti Coast, a region with significant civil defence exposure from tsunami and earthquake risk, illustrates the potential perfectly, and the figures that follow are illustrative modelling. Large schools like it are natural civil defence centres for their communities. Its north-facing roof and carpark could host 500–700 kW of solar PV. A 500–1,000 kWh battery would provide 24–48 hours of full building operation including heating, lighting, and communications, entirely independent of the grid.Financial case: A secondary school of this size typically spends $200,000–350,000 per year on electricity. 600 kW of solar generates approximately 780 MWh/year, saving $150,000–180,000 annually in energy. The battery adds demand charge avoidance of $20,000–50,000/year and can defer or avoid a costly transformer or distribution board upgrade when switching from fossil fuel heating to heat pumps, a capital avoidance worth $100,000–400,000. Capital cost: $800K–1.2M solar + $350–500K battery = $1.2–1.7M total. Payback: the solar pays for itself in five to seven years from energy savings alone. The battery is substantially offset up front by the avoided connection upgrade ($100,000–400,000), with demand charge savings covering much of the remainder over its life, meaning the 24–48 hours of community emergency capability comes at little or no net cost. After payback: 20+ years of near-free energy. The resilience value sits on top of an already compelling financial case.

Case Study: Decile Diversity. Cannons Creek School, Porirua

Community resilience hubs are most valuable in the communities with the fewest private resources to fall back on. Cannons Creek School in Porirua serves one of New Zealand's most economically deprived communities, a community where very few households have the savings to weather a fuel or power disruption. Solar + battery at this school would reduce the school's energy costs (freeing resource for students), provide a warm, powered community space during emergencies, and demonstrate that clean energy investment is not only for wealthy suburbs. Equity must be built into the school resilience hub prioritisation framework.

2.4 CORRECTIONS, COURTS, AND OTHER CROWN FACILITIES

Corrections New Zealand operates 17 prisons housing approximately 10,000 people. These facilities have non-negotiable energy needs for security systems, lighting, water treatment, and heating. All major prisons should be prioritised for solar + storage, both to reduce fuel dependency and to reduce the significant operating cost of energy for these large facilities. Similar logic applies to courts, government office buildings, and NZDF facilities.

2.5 GOVERNMENT VEHICLE FLEET

The broader government vehicle fleet, across all agencies, is estimated at 15,000–20,000 vehicles (including state-owned enterprises). Government once required exactly this: until early 2025, procurement rules directed mandated agencies to choose a battery electric vehicle first, or a plug-in hybrid where a BEV was not workable. That mandate was scrapped in the March 2025 procurement overhaul, one of 24 rules removed in favour of a general economic-benefit test, leaving agencies to weigh total cost of ownership with no fuel security consideration anywhere in the calculation. This framework recommends the default be restored on fuel security grounds, strengthened by the Procurement Principle in Section 2: at natural replacement, electric is the default unless no viable option exists, with exceptions published, and binding fleet electrification milestones on top, reserving exemptions for genuinely specialist vehicles where no electric alternative exists.[26]

Asset Category	Estimated Fleet/Asset Scale	Electrification Feasibility	Priority Tier
Police passenger vehicles	~3,500 units	High, now available	Tier 1
Hospital backup systems (solar + battery)	~80 major facilities	High, now available	Tier 1
FENZ light support vehicles	~600 units	High, now available	Tier 1
School heating (fossil fuel boiler transition)	Cooler-region schools, MoE audit needed	High, now available	Tier 1
Schools as community resilience hubs (solar + battery)	~500 priority schools	High, now available	Tier 1
Government general fleet	~15,000 units	High, now available	Tier 2
FENZ medium appliances	~300 units	Medium, 2–3 years	Tier 2
Prison and corrections facilities	17 major facilities	High, now available	Tier 2
FENZ heavy appliances	~200 units	Lower, 3–5 years	Tier 3
NZDF transport fleet	~2,000 units	Medium, mixed feasibility	Tier 3

[26]Procurement overhaul announced by Hon Nicola Willis, March 2025: the requirement for mandated agencies to purchase battery electric vehicles first (or plug-in hybrids where a BEV was not appropriate) was among 24 rules removed, replaced by a broader economic benefit test. See Autotalk, 'Govt Looks to Scrap EV Mandates in Procurement Overhaul', March 2025.

3. PILLAR 2: LOCAL GOVERNMENT & PUBLIC TRANSPORT

Local government sits at the intersection of central government direction and community delivery. Councils own and operate assets that are deeply embedded in daily life and essential in emergencies: public transport fleets, community halls, libraries used as civil defence centres, water and wastewater infrastructure, and local road networks. Empowering and funding councils to electrify these assets is one of the highest-leverage investments central government can make.

Public transport deserves particular attention. A well-electrified public transport system dramatically reduces the number of private vehicles that need to be on the road in a fuel disruption, effectively multiplying the impact of remaining fuel reserves. Every electric bus running full serves the same passengers as dozens of private cars.

3.1 ELECTRIC PUBLIC TRANSPORT FLEETS

New Zealand's urban bus networks, operated under contract to regional councils in Auckland, Wellington, Christchurch, Hamilton, Tauranga, and Dunedin, collectively operate approximately 3,500–4,000 buses. The electrification of urban bus fleets is established, commercially proven technology with clear economic and resilience benefits.

- Auckland Transport has already begun its electric bus transition; central government should accelerate this nationally through a dedicated Public Transport Electrification Fund
- The economic case is compelling independent of fuel security: electric buses have significantly lower operating and maintenance costs over their lifetime, reducing the long-run cost of public transport delivery
- In a fuel disruption, an electrified bus fleet powered by renewable electricity can continue operating when private vehicles cannot, dramatically extending the functional reach of essential workers and food access
- Regional rail services (Auckland's City Rail Link network, Wellington's commuter rail) are already electrified and should be treated as anchor resilience assets, protected and prioritised for grid power allocation in any emergency
- Ferry services in Auckland Harbour (Fullers360 / Auckland Transport) are already being electrified, two fully electric ferries built in Auckland and two electric-hybrid ferries built in Whanganui are entering service in 2025–26, with MCS megawatt charging infrastructure being installed at Downtown Ferry Terminal. This programme should be protected and accelerated, not supplemented with new diesel procurements. Wellington harbour electric ferry experience (Ika Rere) has highlighted the importance of parts supply chain resilience for locally-operated electric vessels, a lesson to be built into future specifications.

Shenzhen: The At-Scale Proof. 16,000 Electric Buses Since 2017

Any argument that bus fleet electrification is unproven at scale ended in December 2017, when Shenzhen, a city of 12 million, completed the electrification of its entire 16,359-vehicle public bus fleet, roughly three times the size of New York City's. It then electrified all 22,000 of the city's taxis. The results: energy consumption down approximately 73% compared with diesel buses, around 345,000 tonnes of fuel replaced every year, lower maintenance costs, and, notably, bus ridership rose after electrification following years of decline. New Zealand's entire national urban bus fleet is roughly 3,500–4,000 vehicles, less than a quarter of what one city electrified eight years ago. Operators elsewhere now frame this explicitly as fuel security: Cape Town's largest bus operator describes its electrification programme as escape from fuel price volatility driven by oil cartel dynamics. An electric bus fleet is not just cleaner and cheaper to run, it is a public transport system that keeps moving when the diesel stops.[27]

3.2 COMMUNITY RESILIENCE HUBS: THE NETWORK APPROACH

New Zealand's emergency management system depends on a network of community facilities that can be activated during a crisis. These range from formally designated CDEM centres to community halls, marae, libraries, and schools. Many of the most important nodes in this network are already dual-use, the school hall that becomes the welfare centre, the marae that feeds the street, the library that becomes the information point. The critical gap in almost every case is energy independence: without solar and battery storage, these buildings go dark the moment the grid fails or the diesel runs out.

Government should formalise and fund a National Community Resilience Hub Network, a geographically distributed system of energy-independent community facilities, capable of operating for a minimum of 72 hours without grid power or fuel, providing warmth, light, communications, water, and EV charging to the surrounding community. This is not a new concept; it is a consolidation and proper resourcing of what communities already try to do in emergencies.

- Every community of 2,000 or more people should have access to at least one designated and properly equipped resilience hub within reasonable distance
- Hubs should be equipped as standard with: solar PV (sized to building load), large battery storage (minimum 48–72 hours of critical load), heat pump heating, satellite communications backup, and bidirectional EV charging (V2G/V2B) capability
- Schools are the highest-priority hub locations: they are geographically well-distributed, have large roof areas, are Crown assets (simplifying funding), are already often designated CDEM centres, and have community legitimacy. Where a school is suitable, it should be the default hub.
- Where no suitable school exists, marae, community halls, or council facilities should be upgraded to hub standard, with priority to facilities already used by communities in past emergencies
- Marae deserve particular recognition: they have a long history as community anchors in times of crisis, often serve communities with limited access to other resources, and are frequently in locations not well served by other facilities. EECA's Community Renewable Energy Fund (CREF) already supports solar PV and battery installations at marae, schools, and community halls as resilience sites, this is exactly the right model. Government should significantly scale CREF's community resilience programme (currently funding 150 sites nationally)[28] as the foundational mechanism for the marae resilience hub network, rather than creating a parallel structure. Additional dedicated funding through Te Puni Kōkiri and the Provincial Growth Fund should complement CREF for marae in areas not yet covered.

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[27] IEA, 'Case Study: Electric Buses in Shenzhen, China'; Shenzhen Transport Commission announcements December 2017; Yale E360, 'A Chinese Megacity Bus Fleet Goes Fully Electric' (2018). Fleet of 16,359 buses fully electrified by end-2017; official figures cite 72.9% energy consumption reduction vs diesel and approximately 345,000 tonnes of fuel replaced annually. On Cape Town: Golden Arrow Bus Services electrification programme statements, 2024–25.
[28] EECA, 'Support for Energy Affordability and Resilience', press release 2025. CREF is currently funding 150 community resilience sites across Northland, Bay of Plenty, Tairāwhiti, Hawkes Bay, Tararua, Wairarapa, Marlborough, Nelson, Tasman, West Coast and Canterbury.

- All designated hubs should be tested in annual CDEM exercises, with energy resilience (not just communications) tested as part of the exercise scenario

Case Study: Edgecumbe 2017. What a Resilience Hub Would Have Changed

When the Rangitāiki River stopbank failed in April 2017 and floodwaters inundated Edgecumbe within hours, residents were evacuated to community facilities in surrounding towns. The Edgecumbe community hall, the natural gathering point, had no independent power. Welfare operations depended on diesel generators that required constant refuelling over road networks that were themselves compromised. A solar + battery resilience hub at the Edgecumbe school or hall would have provided a stable, self-sufficient community anchor from the first hours of the event. The 2017 floods were a contained regional event; Cyclone Gabrielle in 2023 demonstrated the same gaps at far greater scale across the entire Hawke's Bay region.

Case Study: Te Karaka Area School, Tairāwhiti. The School That Became the Town

This is not hypothetical; New Zealand has already run the experiment. When Cyclone Gabrielle put the town of Te Karaka under water in February 2023, four to five hundred residents fled to the hills with twenty seconds' warning, then made their way to Te Karaka Area School, which became the official welfare centre, in the words of its principal, Renae Savage, 'the school as the town base' whose main priority was keeping whānau 'safe, fed and warm'. When floods returned in June 2023, around 80 residents sheltered at the school again, through power cuts, in a township completely cut off by road. Rural schools like Te Karaka are already their districts' de facto community centres; what they lack is the energy infrastructure to do the job when the grid and the roads fail. Equipping them with solar, battery, satellite communications, and EV charging at relatively modest cost (an estimated $200,000–400,000 per site) would turn the role they already perform into one they can perform indefinitely, in exactly the communities most exposed to fuel disruption: longer distances, older vehicle fleets, less grid reliability, and fewer private resources.[29]

- All designated Civil Defence Emergency Management (CDEM) centres should be prioritised for solar + battery installation as an immediate programme, ensuring they can operate independently of the grid for a minimum of 72 hours
- Council-owned community halls and libraries designated as secondary hubs should be upgraded progressively over a five-year programme
- Council swimming pools and recreation centres, which have high heating loads, should transition from gas and fossil fuel boilers to heat pumps and solar thermal, reducing both fuel dependency and operating costs

3.3 WATER AND WASTEWATER INFRASTRUCTURE

Councils operate the water and wastewater systems that keep communities healthy. These systems rely heavily on electric pumps, but the pumping stations and treatment plants often have diesel generator backup. In a fuel disruption, maintaining water and wastewater is a Tier 1 life-safety priority.

[29] Cyclone Gabrielle, February 2023: approximately 400–500 Te Karaka residents evacuated; Te Karaka Area School served as the official welfare centre (Tairāwhiti Civil Defence; RNZ; NZ Herald / Gisborne Herald; Newstalk ZB, 'the school as the town base', principal Renae Savage, February 2023). June 2023 floods: around 80 residents sheltered at the school again amid power cuts with the township cut off by road (RNZ, June 2023).

- All major water treatment plants and pumping stations should have solar + battery backup sufficient for 48–72 hours of minimum operation, complementing (and progressively replacing) diesel generator backup
- The water reform settings are now locked in: Three Waters has been repealed and replaced by Local Water Done Well, with the Local Government (Water Services) Act 2025 establishing the enduring system, councils' Water Services Delivery Plans submitted, and new water services organisations being stood up through 2026. Two levers are open right now and should be used: the Water Services Authority's National Engineering Design Standards, in consultation over 2025–26, should embed backup power and fuel resilience requirements for treatment plants and pumping stations; and the Commerce Commission, as the sector's new economic regulator, should treat resilience investment as prudent expenditure so water organisations are not penalised for funding it[30]

3.4 COUNCIL VEHICLE FLEETS

Councils operate substantial vehicle fleets: maintenance vehicles, inspection utes, parks and reserves equipment, waste collection trucks, and more. Many of these are in the light-to-medium commercial category now well-served by electric alternatives.

- Central government should extend the existing government fleet electrification policy to local government through the Local Government Funding Agency (LGFA) or through conditions on infrastructure grants
- A shared procurement framework for electric council vehicles would provide pricing leverage and simplify transition for smaller councils that lack specialist procurement capability

3.5 WASTE COLLECTION: THE QUIET ESSENTIAL

Rubbish and recycling collection was classified essential during COVID for good reason, uncollected waste becomes a public health emergency within days. Collection fleets are almost entirely diesel, yet their duty cycle, depot-return, fixed urban routes, constant stop-start, is close to ideal for electrification, with regenerative braking recovering energy at every stop. Electric collection trucks are already operating in Auckland and other centres, including vehicles converted locally. Councils and central government should make electric collection vehicles a standard condition of waste service contracts as they come up for renewal, with CIESF concessional finance available to operators for the transition.

3.6 CENTRAL GOVERNMENT'S ROLE: FUNDING AND STANDARDS

Local government cannot fund this transition alone. Councils face significant rate and debt pressures, and resilience investment that benefits the whole country should not fall entirely on local ratepayers. Central government's role should include:

- A dedicated Local Government Resilience Fund within the CIESF, providing co-investment for CDEM centre upgrades, public transport electrification, and water infrastructure resilience
- National minimum standards for CDEM centre energy resilience, enforceable through the CDEM framework
- Integration of fuel resilience requirements into the Infrastructure Funding and Financing Act mechanisms used to fund large-scale local infrastructure

[30] Local Government (Water Services) Act 2025 and Local Government (Water Services) (Repeals and Amendments) Act 2025, completing the Local Water Done Well programme; Water Services Delivery Plans due to the Secretary for Local Government by 3 September 2025; Water Services Authority – Taumata Arowai, draft National Engineering Design Standards, consultation late 2025 to early 2026; Commerce Commission appointed economic regulator for water services.

Local Govt Asset	Scale	Electrification Feasibility	Resilience Priority
Urban bus fleets	~3,500–4,000 buses nationally	High, now available	Very High
CDEM emergency centres	~100+ designated centres	High, now available	Very High
Water/wastewater pumping stations	Hundreds nationally	Solar+battery backup, now available	Very High
Auckland/Wellington rail	Already electrified	Protect & prioritise	Very High
Auckland harbour ferries	~30 vessels	High, now available	High
Community halls / libraries (emergency hubs)	~500+ priority sites	High, now available	High
Council light vehicle fleets	~10,000–15,000 vehicles	High, now available	Medium
Recreation centre heating	~200+ facilities	High (heat pumps), now available	Medium

4. PILLAR 3: CRITICAL PRIVATE INFRASTRUCTURE

Many of the services most critical to New Zealanders in a fuel shock are not Crown-owned but are privately or NGO-operated. Government has a range of tools to drive electrification of these services: targeted subsidies, funding conditions, regulatory requirements, tax incentives, and procurement leverage through the government's role as a major customer.

4.1 AMBULANCE SERVICES: ST JOHN AND WELLINGTON FREE AMBULANCE

New Zealand's ambulance sector is funded approximately 75–80% by the Crown through the Ministry of Health, with the remainder from charitable fundraising. This makes ambulances a uniquely tractable target for government-driven electrification, government can make electrification a condition of the funding relationship.

Electric ambulances are now commercially available and in service in the United Kingdom, Europe, and Australia. The Mercedes-Benz eSprinter and Ford E-Transit both have ambulance body variants in production. Range profiles of 150–200 km per charge are sufficient for the vast majority of urban and suburban responses.

- St John operates approximately 630 frontline ambulances; Wellington Free operates approximately 60
- Urban fleet (Auckland, Wellington, Christchurch) should be prioritised for immediate electrification, typical urban shifts do not exceed 150 km
- Rural ambulances present genuine range challenges; these should be addressed through a combination of rapid-charge infrastructure at stations and retention of hybrid or extended-range ICE vehicles in the interim
- Funding conditions should require all new ambulance procurements from 2026 to be zero-emission, with a full fleet transition target of 2032 for urban and 2035 for rural
- V2G-capable ambulances at stations contribute to grid resilience and can power emergency equipment during outages

Case Study: ASB and Hato Hone St John. Australasia's First Electric Emergency Ambulance

In 2024, ASB Bank funded the construction and gifting of Australasia's first fully electric emergency ambulance to Hato Hone St John, at a cost of $291,000.[31] The custom-built vehicle was assembled at Action Manufacturing in Hamilton and is based at St John's Hamilton Station for a real-world trial on 12-hour urban day shifts, with EV chargers donated by Siemens and YHI. Ambulance officers report staff have adapted readily and the vehicle performs strongly in urban service.The cost picture is honest and still compelling: a standard diesel ambulance costs approximately $250,000–$350,000 fully fitted, and the $291,000 electric build sits within that range, though production electric ambulances internationally still carry a modest upfront premium over diesel today, a premium that is falling as volumes grow. The economics are decided by the running costs, where the difference is dramatic: international data shows electric ambulances cost approximately one-quarter as much to run per kilometre as diesel equivalents (London Ambulance Service reports electric running

[31]Hato Hone St John and ASB, Media Release: 'Australasia's First Electric Emergency Ambulance Trial', April 2024. The $291,000 in funding was allocated by ASB specifically for this project and covers design, build, and trial costs. Available at stjohn.org.nz/ev

costs of around £2,100/year versus £8,100/year for diesel on equivalent duty[32]). International studies estimate lifetime savings of US$400,000–800,000 per vehicle over a 12-year service life, and that is before factoring in NZ's largely renewable electricity grid, which makes the per-kilometre energy cost even lower. The financial case for electric ambulances is at least as strong as the resilience case. Government should build directly on this foundation.

The Ambulance Charging Precedent

St John UK has operated electric ambulances since 2022 and reports that for urban operations, electric vehicles are operationally superior, lower maintenance costs, less noise in patient care environments, and no warm-up time. NZ can draw directly on this operational experience. The Ministry of Health should work with St John NZ to design a transition plan that addresses rural range concerns without using them as a reason for inaction on urban fleets.

4.2 SUPERMARKET AND GROCERY SUPPLY CHAINS

The COVID-19 pandemic made viscerally clear that New Zealanders depend on supermarket supply chains for daily sustenance. Foodstuffs and Woolworths NZ together operate the dominant grocery supply chains serving over 500 supermarkets nationwide. Their distribution networks rely almost entirely on diesel-powered heavy trucks.

Government's leverage here is more indirect but still significant:

- The Commerce Commission's ongoing oversight of the grocery sector creates a regulatory relationship that could include supply chain resilience requirements
- A Critical Supply Chain Electrification Grant scheme, co-funded investment in electric truck fleets for grocery distribution, would reduce diesel dependency in the sector most critical to food access
- Recommended target: 50% of grocery distribution centre-to-store delivery fleet (medium rigid trucks, typically under 150 km daily) electric by 2029. Rationale: these vehicles operate on fixed urban routes with predictable range, return to depot daily for charging, and represent the highest-volume daily food access point for New Zealanders. This is the most tractable segment of the logistics fleet to electrify first.
- Electric trucks suitable for last-mile grocery distribution are now available: the Fuso eCanter, Mercedes eActros, Volvo FE Electric, and BYD 8TT operate in New Zealand and Australia
- Distribution centre solar + battery storage should be incentivised through the Business Growth Fund or similar mechanism, ensuring distribution centres can operate during grid disruptions. Target: all major distribution centres with solar + battery by 2030.
- Require Foodstuffs and Woolworths to publish and test fuel disruption contingency plans annually, with NEMA oversight

Case Study: Foodstuffs North Island. Electric Heavy Truck on the Lower North Island

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[32]London Ambulance Service NHS Trust, Electric Vehicle Programme Annual Report 2023. Running costs of £2,100/year electric vs £8,100/year diesel are based on 30,000 miles per year and London electricity tariff.

In March 2026, Foodstuffs North Island put its latest fully electric heavy truck into regular service on the lower North Island[33], a DeepWay Star electric tractor unit towing a zero-emissions refrigerated trailer (introduced 2024), meaning the entire unit including refrigeration runs on electricity. The truck operates six days a week from Palmerston North: a 200 km round trip to Kāpiti Coast stores in the morning (with a 90-minute recharge), followed by a 280 km afternoon run to other lower North Island stores including Wellington.In trials in 2025 it covered over 1,000 km towing a fully loaded refrigerated trailer including over Transmission Gully, and drivers report it is quieter, smoother, and less fatiguing than diesel. Emissions are reduced by approximately 85% (200 tonnes CO2 saved per year vs a comparable diesel truck). Foodstuffs North Island CEO Chris Quin noted: "At a time when global events are creating uncertainty around fuel prices, shifting to electric trucks makes increasing sense."This is happening now, on NZ roads, with real grocery loads. The case for government to accelerate this transition across the critical food supply chain could not be more clearly made.

4.3 CRITICAL FREIGHT AND LOGISTICS

Beyond groceries, a number of freight categories are critical in a fuel disruption scenario: pharmaceutical distribution, medical supply chains, rural mail and courier services, and fuel itself (ironically, the tanker fleet distributing remaining reserves).

Rewiring Aotearoa's national machine count data shows New Zealand operates approximately 150,000 trucks, vans, and utes in commercial freight applications. The electrifiable proportion of this fleet is growing rapidly:

- Light commercial vans (NZ Post, courier services): Recommended target: 80% electric by 2030. Rationale: NZ Post has already demonstrated operational viability; these vehicles have the shortest routes and most predictable daily distances, making range anxiety a non-issue. Prioritise pharmaceutical and medical delivery fleets first within this category.
- Medium rigid trucks (urban freight, bulk goods): Recommended target: 50% electric by 2029, 90% by 2033. Rationale: the economics and technology are already here, electric medium rigid trucks have lower total cost of ownership than diesel equivalents over a typical 7–10 year fleet life, and models from Fuso, Volvo, and Mercedes are available in NZ now. Depot-return urban operators have zero range constraints; there is no credible reason to delay. A targeted grant of $30,000–50,000 per vehicle will accelerate first-movers and bring forward the tipping point where economics stand alone.
- Heavy articulated trucks (long-haul freight): Recommended target: 30% of national freight task electrified by 2030 on routes served by charging infrastructure, 60% by 2033. Rationale: the technology is here now, Tesla Semi, Volvo FH Electric, and Kenworth T680E are in production. With the national charging network (Section 7.1) in place from 2027, the economics stack up on major corridors. Waiting underestimates the pace of change and leaves NZ exposed. Priority to Auckland–Tauranga and Auckland–Hamilton corridors where infrastructure will be earliest and freight volumes highest.

4.4 RURAL AND AGRICULTURAL CONTRACTORS

[33] Foodstuffs North Island, Media Release: 'Foodstuffs' Latest Fully Electric Truck Hits the Road', March 2026. Available at foodstuffs.co.nz/news-room/2026/foodstuffs-latest-fully-electric-truck-hits-the-road. The DeepWay Star tractor unit is coupled with a Fairfax electric refrigerated trailer; gross combination mass 50,000 kg.

Farm vehicles and rural contractors do not typically sit in 'critical infrastructure' frameworks, but in a fuel disruption scenario, their ability to continue operating (harvesting, processing, transporting) is directly linked to food security. The agricultural sector's fuel exposure is covered in greater depth under Pillar 5.

4.5 TELECOMMUNICATIONS AND IT INFRASTRUCTURE

Mobile towers, data centres, and exchange facilities all require backup power, and most rely on small batteries backed by diesel generators. A government co-investment fund for telecommunications infrastructure resilience, particularly at sites serving rural communities, would address a critical gap in the resilience picture. Communications infrastructure is the nervous system of emergency response, and the energy required to keep it alive is surprisingly modest: a typical cell site draws roughly 1–5 kW continuously, around 25–120 kWh per day, with rural single-carrier sites at the low end of that range. Keeping a cell site running is not an industrial energy problem; it is a battery-sized problem.

- Recommended target: 100% of mobile towers serving designated rural and remote communities to carry a minimum 24 hours of on-site battery backup by 2030, paired with a V2G-capable electric service fleet that can sustain sites beyond that, with solar added only where the site genuinely supports it. Rationale: these sites are most exposed to grid outages and most difficult to reach for diesel refuelling during a disruption. Urban tower backup can follow.
- All Tier 1 data centres (those hosting critical government and financial systems) to have minimum 72-hour battery backup complementing existing diesel generators by 2028.

Cyclone Gabrielle exposed telecommunications as perhaps the most fuel-fragile essential service in the country. Only two cell towers were physically damaged by the cyclone, yet mobile coverage collapsed across Hawke's Bay and Tairāwhiti. Approximately 80% of cell site outages were caused by loss of power: most sites carry only a few hours of battery, designed for routine faults rather than disasters. Operators trucked in some 40 diesel generators and flew others to hilltop sites by helicopter, and some of those generators were then stolen. People could not call 111. Emergency services, which have increasingly moved from radio networks to cellular, were themselves compromised.[34]

The fix has two layers, and honesty about site conditions matters here. On-site solar is genuinely viable at only a minority of cell sites: many are small hilltop platforms with no panel area, shaded, on leased land, or in locations where winter solar output would contribute little, international trials have found solar-supported sites can cover their needs in summer but generate almost nothing through winter. Solar should be added where sites support it, but it cannot be the backbone of the standard. The backbone is the battery. Extended on-site battery storage, sized for 24 hours rather than the few hours typical today, is compact, works on any site, and at a 1–5 kW draw is an entirely practical proposition. Taiwan and California already mandate 72 hours of backup power at mobile sites; New Zealand mandates nothing. Government should set a 72-hour backup standard for critical cell sites, established in regulation through MBIE as telecommunications policy lead, met not with 72 hours of fixed battery, but with 24 hours of on-site battery plus a guaranteed bidirectional fleet-vehicle response. The fixed battery only needs to bridge the dispatch window; the V2G fleet carries the site from there. This is a substantially cheaper

[34]RNZ, 'Why NZ's Communications Networks Broke Down in Cyclone Gabrielle', March 2023; Stuff, February 2023 (40 generators deployed; generator theft reported); Brewer, J., 'Only Two Cell Towers Were Damaged in Cyclone Gabrielle, Yet Our Phones Turned into Expensive Paperweights', NZ Herald, 2025, drawing on the telecommunications resilience report commissioned by the Hawke's Bay Regional Economic Development Agency. Approximately 80% of cell site outages were power-related; Taiwan and California mandate 72 hours of backup power at mobile sites.

way to meet the same resilience outcome, co-funded with network operators through the CIESF.[35] The second layer is mobile: bidirectional electric service fleet vehicles. A modern electric ute carries 60–100+ kWh of battery, enough to run a typical rural cell site for one to two days from the vehicle alone. A telecommunications service fleet of V2G-capable electric utes means every technician's vehicle is a mobile power station: drive to the site, plug in, and the site is alive, no diesel logistics, no helicopter, and no generator sitting on a hillside waiting to be stolen. Fixed batteries carry sites through the first days; electric fleet vehicles extend them indefinitely wherever a road is open.

- Emergency broadcasting, RNZ's transmission network and Civil Defence broadcast capability, is the last-resort information channel when cellular and internet fail, and its transmission sites rely on the same vulnerable diesel backup as cell sites. These sites should meet the same 72-hour backup standard proposed for critical telecommunications infrastructure, 24 hours of on-site battery plus bidirectional fleet-vehicle response.

The COVID-19 Essential Services Schedule is New Zealand's most rigorous real-world statement of what must keep running when everything else stops, a revealed-preference list, tested under actual national emergency. Cross-checking this framework against that list exposes several essential sectors whose fuel dependency has not yet been addressed. Each of them, notably, already has New Zealand-proven electric alternatives in operation.

4.6 PORTS: THE GATEWAY EVERYTHING ELSE DEPENDS ON

Every import this document discusses, including fuel itself, arrives through a port, and port operations run almost entirely on diesel: the cranes, the container handlers, the straddle carriers, the tugs. A port that cannot operate is a fuel crisis multiplier. Yet New Zealand holds a world-leading proof point: Ports of Auckland's Sparky (Tiaki), the world's first full-size electric ship-handling tug, operating since 2022 with a 70-tonne bollard pull, equal to the port's strongest diesel tug, at less than a third of the operating cost. The port is now deploying New Zealand's first electric container handlers, with CentrePort Wellington following.[36]

Government should establish a Port Electrification Programme within the CIESF: co-investment in electric container handling equipment, tugs, and charging infrastructure at the major ports (Auckland, Tauranga, Napier, Wellington, Lyttelton, Otago), plus shore power so berthed vessels can run on grid electricity rather than marine diesel. Ports are precisely the kind of critical private infrastructure this pillar exists for: privately operated, nationally essential, and already demonstrating that electrification works.

4.7 MILK COLLECTION: DAILY, TIME-CRITICAL, AND ALREADY PROVEN ELECTRIC

Milk collection is among the most time-critical fleet operations in the country: tankers must reach every supplying farm on schedule, every day, or milk is dumped and animal welfare is compromised, which is why dairy processing was classified essential during COVID.

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[35] Typical cellular base station consumption is approximately 1–5 kW continuous depending on site configuration, equipment generation, and cooling (Scientific American, 'Why Cellular Towers in Developing Nations Are Making the Move to Solar Power'; industry measurement studies). On seasonal solar limits: Latvian operator LMT's multi-year solar base station trial found sites could largely self-supply in summer but generated almost no power in winter (Data Centre Dynamics, 2022).

[36] Ports of Auckland / Damen, delivery of RSD-E Tug 2513 'Sparky' (Tiaki), August 2022: 70-tonne bollard pull, 2,784 kWh battery, approximately two-hour recharge, operating cost less than one-third of an equivalent diesel tug, saving approximately 465 tonnes CO2 annually. Port of Auckland electric empty container handler deployment and EECA co-funding (up to $500,000 each for Port of Auckland and CentrePort), 2024–25.

Fonterra has already proven the electric pathway: Milk-E, New Zealand's first electric milk tanker, was built at Fonterra's own Morrinsville workshop and operates from the Waitoa site. Government should work with Fonterra and other processors to accelerate electric tanker deployment, with depot charging at processing sites, which typically have substantial electrical infrastructure already, through the same co-investment mechanisms as the supermarket distribution fleet in Section 4.2.[37]

- Veterinary services were classified essential during COVID, animal welfare and the food production chain both depend on vets reaching farms. Rural veterinarians should be included in the essential worker definition for Pillar 4 mechanisms (including the EV Salary Boost) and in Band C protected fuel access during the transition.

[37]Fonterra, 'Fonterra Welcomes Milk-E, New Zealand's First Electric Milk Tanker', launched by the Minister of Energy and Resources at Morrinsville, November 2022. The tanker was assembled at Fonterra's Morrinsville workshop and operates from the Waitoa site.

5. PILLAR 4: ESSENTIAL WORKERS' PERSONAL TRANSPORT

The resilience of New Zealand's essential services ultimately rests on the people who deliver them. Nurses, paramedics, midwives, teachers, social workers, electricians, plumbers, and other essential workers travel to and from work every day, often at irregular hours, in personal vehicles. In a fuel disruption, their ability to get to work is as critical as the institutions they serve.

This is not simply an equity issue, though it is that too. It is a strategic resilience investment. If hospitals are running on solar power but half the nursing staff cannot get to work because they cannot fuel their cars, the resilience of the hospital is fundamentally compromised. Supporting essential workers to electrify their personal transport closes this gap.

5.1 DEFINING 'ESSENTIAL WORKERS' FOR THIS PURPOSE

For the purpose of this pillar, 'essential workers' should be defined by reference to the COVID-19 Essential Services Schedule and the CDEM critical services framework, and should include at a minimum:

- Health and medical: nurses, paramedics, midwives, hospital orderlies, GPs, pharmacists, aged care workers
- Emergency services: police, firefighters, search and rescue personnel
- Education: teachers, early childhood educators (who enable other essential workers to work)
- Essential infrastructure: electricians, plumbers, water and wastewater operators, telecommunications technicians, waste collection operators, port workers
- Food supply and primary industries: supermarket workers, distribution drivers, food processing workers, milk tanker operators, rural veterinarians
- Social services: social workers, disability support workers, mental health workers

5.2 THE CASE FOR GOVERNMENT SUPPORT

Many essential workers are not highly paid. The upfront cost of an electric vehicle, even with the expanding range of affordable second-hand EVs now available in New Zealand, remains a barrier for many. Yet these are precisely the workers whose transport security matters most to national resilience.

The investment logic is straightforward: government spends very large sums building and maintaining the hospitals, schools, and emergency infrastructure that essential workers staff. Spending a relatively small additional sum ensuring those workers can reliably reach their workplaces, including during a fuel crisis, protects the entire upstream investment.

No-Regrets Economics for Essential Workers Too

An essential worker who transitions to an EV saves an estimated $2,000–3,500 per year in fuel and maintenance costs at current prices. Government support for this transition is not a subsidy that disappears, it returns immediate and ongoing economic benefit to the worker, reduces household energy bills, and builds a more resilient workforce. The no-regrets case is as strong here as anywhere in the framework.

5.3 POLICY MECHANISMS

Government has a range of tools to support essential worker EV transition. The most powerful is one Rewiring Aotearoa has already designed and costed: the EV Salary Boost.

EV Salary Boost: The Primary Mechanism

The EV Salary Boost is a lease on a new or used electric vehicle paid from an employee's pre-tax salary through payroll. The arrangement sits between the employee, their employer, and a leasing provider: no deposit is required, running costs such as insurance, maintenance, and tyres are bundled into one predictable weekly payment, and the lease, and the car, goes with the employee if they change jobs. Like the Government's Investment Boost policy, which gives businesses a tax discount for upgrading their equipment, the EV Salary Boost offers a discount on income tax in exchange for switching to a vehicle that runs on New Zealand-made energy.[38]

The model is proven at scale across the Tasman, where it operates as novated leasing: one in four new vehicles sold in Australia in June 2026 was fully electric, and over half of those were purchased through the scheme. Critically for this pillar, the biggest beneficiaries are not high earners, the scheme's greatest uptake is among workers earning A$40,000–79,000: health workers, teachers, tradies, public servants, and hospitality staff. That is precisely the essential workforce this framework targets. New Zealand should not copy the Australian settings wholesale, vehicle price caps, GST treatment, and the level of any additional FBT relief are all dials New Zealand can set for its own fiscal conditions, but the mechanism itself is demonstrated, popular, and delivered almost entirely by the private market through employers, payroll systems, and leasing providers that already exist.

The numbers work at household level and national level simultaneously. For a worker choosing between a $19,000 second-hand petrol car on standard vehicle finance (~$220/week all-in) and a new $39,000 EV through the Salary Boost (~$190/week), the EV is roughly $30 per week cheaper, around $8,000 over a five-year lease, while swapping the most volatile bill in the household budget for a single predictable payment. At national scale, conservative estimates suggest 30,000 new leases per year, reaching 150,000 active leases within five years, displacing approximately 150 million litres of imported fuel annually, more displacement than the accelerated EV transition scenario costed in MBIE's Fuel Security Study, which that study identified as the only measure that permanently reduces fuel demand.

The fiscal design is notably efficient: an estimated two-thirds of the foregone income tax revenue is recovered through GST on the vehicle purchases the scheme enables, and because GST arrives at the time of sale while the foregone revenue accrues over the full lease term, the scheme could be revenue-positive in its early years. Contrast the current approach: government is paying over 100,000 households $50 per week to help with fuel costs, relief that ends the moment payments stop and leaves the underlying exposure untouched. The EV Salary Boost costs the Crown less per worker, delivers comparable weekly savings to the household, and the benefit endures for the life of the vehicle.

What Government Must Do to Enable It

The EV Salary Boost requires no new agency, no grant administration, and no procurement. It requires government to clear three specific regulatory pathways:

[38]Rewiring Aotearoa, 'Release the Pressure: How the EV Salary Boost Scheme Would Help Consumers, Communities and the Country', Watt Now, August 2026. Available at rewiring.nz/watt-now. Scheme parameters, worked examples, uptake estimates (30,000 leases/year; 150,000 active within five years), fuel displacement (~150 million litres/year, central scenario), and fiscal recovery estimates (approximately two-thirds of foregone income tax recovered via GST at time of sale) are drawn from this analysis and Rewiring Aotearoa's Electric Homes and Vehicles research.

- Clarify the income tax treatment: confirm that EV lease payments under the scheme can be made from pre-tax salary through payroll. Workers can already access public transport, bikes, e-bikes, and scooters through pre-tax arrangements where employers participate, but not the vehicle that more than 1.8 million New Zealanders actually rely on to get to work. Extending the same logic to electric vehicles is a clarification of settings, not a new subsidy architecture.
- Clarify the FBT treatment: settle the Fringe Benefit Tax position of salary-based EV leases so the arrangement's economics are certain for employers and providers, aligned with the FBT changes for company EVs already announced. Additional FBT relief remains available as a dial to accelerate uptake further if government chooses, but certainty is the precondition; relief is an option.
- Sort the CCCFA barriers: ensure that salary-based EV leases are workable under the Credit Contracts and Consumer Finance Act. Consumer-credit compliance obligations designed for other lending products should not prevent employers and established leasing providers from offering a payroll-based lease at scale. The consumer protections that matter should be preserved; the compliance barriers that serve no protective purpose for this product should be removed.

None of these steps requires significant fiscal outlay, they are clarifications and amendments. With them in place, the scheme could be operating within months of enactment, with the private market carrying delivery. For essential service employers specifically, hospitals, schools, emergency services, government should go one step further and actively promote participation, so that the workforces this pillar exists to protect are first in the queue.

Workplace Charging Infrastructure Grants

Many essential workers, particularly those in shift work, charge at work rather than at home. Government should fund workplace EV charging infrastructure at all major public hospitals, schools, police stations, fire stations, and other essential service workplaces. Bidirectional (V2G/V2B) chargers at these sites contribute to backup power capability, making the charging investment do double duty as resilience infrastructure.

Targeted EV Grants for Lower-Income Essential Workers

For the lowest-paid essential workers, aged care workers, social workers, disability support staff, where salary sacrifice may provide insufficient benefit, a targeted top-up grant of $3,000–5,000 framed explicitly as a national resilience investment would make EV ownership accessible. This should be time-limited and highly targeted to avoid becoming a general EV subsidy.

Fleet Turnover as the Used EV Market Solution

The most affordable path to EV ownership for many essential workers is a quality second-hand EV. However, unlike many comparable markets, New Zealand currently has limited supply of quality used EVs domestically. The solution is not primarily to facilitate used imports (supply from Japan is declining as Japan's own fleet electrifies), it is to accelerate new EV fleet purchases by government and large organisations and turn them over quickly. A government fleet vehicle that is 3–4 years old and enters the used market provides a quality, well-maintained EV at an accessible price point. Government should set fleet turnover cycles specifically to maximise used EV supply into the broader market, particularly targeting essential worker segments.

5.4 CHARGING AT HOME: ADDRESSING THE APARTMENT AND RENTAL BARRIER

A significant proportion of essential workers live in rental accommodation or apartments without dedicated off-street parking or charging capability. This is one of the most stubborn structural barriers to EV adoption for this group. Government should:

- Require all new residential developments that include parking to make that parking EV-capable, futureproofing the infrastructure without mandating new parking where it is not otherwise planned
- Fund a retrofit programme for EV charging in existing apartment complexes and social housing, prioritising locations with high concentrations of essential workers
- Work with local government to expand public charging in residential areas where home charging is not possible, ensuring coverage is not concentrated only in affluent suburbs

Mechanism	Target Group	Estimated Scale	Funding Approach
EV Salary Boost (pre-tax EV leasing)	All workers; essential service employers promoted first	~30,000 leases/yr; 150,000 in 5 years	Tax + CCCFA settings (partly GST-offset)
Workplace charging grants (bidirectional)	All essential service employers	~2,000–3,000 sites	CIESF
Targeted EV purchase grant	Lowest-income essential workers	~20,000–30,000 workers	Direct appropriation
Fleet turnover acceleration (used EV supply)	Government + large employers	Systemic market effect	Procurement policy
Rental/apartment charging retrofit	Essential workers without home charging	~5,000–10,000 sites	MCERT / social housing fund

6. PILLAR 5: FOOD PRODUCTION & DISTRIBUTION RESILIENCE

Rewiring Aotearoa's core focus is electrification, and nowhere is the electrification of energy systems more directly connected to food security than in the processing, cold chain, and distribution infrastructure that gets food from farm to table. This pillar focuses on the electrification investments within the food system that most directly reduce fuel dependency for essential food access.

6.1 ELECTRIFYING THE FOOD PRODUCTION AND PROCESSING CHAIN

Key electrification investments with the highest food security impact:

- Irrigation pump electrification: Many irrigation pumps serving vegetable and horticulture production run on diesel. Transition to electric pumps, powered where possible by on-farm solar, removes fuel dependency from a critical stage of domestic food production. EECA's existing co-funding programmes can support this and should be scaled.
- On-farm solar and battery for processing: Dairy sheds, cool stores, and processing facilities with solar and battery storage can continue operating during grid disruptions with no fuel dependency. This is commercially viable now and should be accelerated through targeted co-investment.
- Cold chain and food processing backup: Major food processing facilities should demonstrate solar + battery backup capability sufficient for 48–72 hours of critical refrigeration. Regional cool stores serving domestic supply chains should be prioritised for co-investment in renewable backup.

6.2 ELECTRIC VEHICLES FOR FOOD ACCESS AND COMMUNITY DISTRIBUTION

The distribution of food to communities, particularly vulnerable communities that depend on food banks, social services, and meal delivery programmes, is highly fuel-dependent. These organisations typically operate with very thin margins and ageing vehicle fleets. Targeted EV grants represent a high-value, low-cost investment in community resilience that sits squarely within the electrification mandate.

- Food banks, community food hubs, and meal delivery services (such as Meals on Wheels) should be eligible for targeted EV transition grants for their delivery fleets. These vehicles travel short, predictable urban routes, ideal for electrification, and their operation in a fuel disruption is directly life-supporting for vulnerable people who cannot access supermarkets independently.
- The grant model should be simple and low-overhead: organisations delivering food to people who cannot easily access food independently apply for an EV replacement grant for a delivery vehicle, covering the premium over a diesel equivalent.
- The New Zealand Food and Grocery Council, working with MPI and NEMA, should map the critical electrification dependencies across the food system and provide a framework for investment prioritisation. Tested annually against fuel disruption scenarios.

Why Electrification Is the Food Security Answer

A food distribution system running on electricity is qualitatively more resilient than one running on diesel. New Zealand generates over 85% of its electricity from renewable sources. In a fuel disruption that cuts off liquid fuel imports, the electricity grid continues to operate. The Foodstuffs North Island electric truck keeps delivering groceries to Kāpiti. An electric irrigation pump keeps watering the vegetable crop. A solar-powered cool store keeps the produce fresh. Electrification decouples our food system from the global oil market, and that is the core of the fuel security argument.

7. PILLAR 6: CHARGING INFRASTRUCTURE. THE NETWORK THAT KEEPS IT ALL MOVING

Every fleet recommendation in this framework, the ambulances, the buses, the supermarket trucks, the milk tankers, the waste trucks, the essential workers' cars, depends on one shared foundation: charging infrastructure. Charging is the connective tissue of the electric economy, and it is also where the chicken-and-egg problem bites hardest: operators will not commit to electric fleets without confidence in charging, and charging investors will not build without committed fleets. Government's role is to break that deadlock, exactly as it did a century ago when public roads made private vehicles viable. This pillar covers the full charging picture, from the big end of town, heavy freight, to depots, workplaces, and the marine sector.

7.1 THE NATIONAL ELECTRIC FREIGHT CHARGING NETWORK: THE BIG END OF TOWN

Heavy truck electrification will not happen without charging infrastructure on the routes that matter. This is the classic chicken-and-egg problem: operators won't commit to electric trucks without confidence in route charging, and private investors won't build charging without committed truck volumes. Government must break this deadlock through direct infrastructure investment, exactly as it did with roads for diesel trucks a century ago.

Critically, as of 2026 there are no dedicated public charging stations for heavy vehicles anywhere in New Zealand, confirmed by EECA.[39] This is not a minor gap; it is a foundational barrier to fleet electrification. Meanwhile, Foodstuffs North Island is already running a fully electric heavy truck from Palmerston North to Wellington and back on a daily basis, without any public charging infrastructure, relying solely on its depot charger. The demand is real. The barrier is the network.

Route prioritisation should be driven by actual need for intermediate charging. Modern electric heavy trucks, the DeepWay Star, Volvo FH Electric, Tesla Semi, have real-world ranges of 300–500 km on a charge. Short routes of under 150 km do not need intermediate charging infrastructure; the trucks can return to depot. The priority routes are those where the journey length genuinely requires en-route charging to be viable:

- Priority Route 1, Auckland to Wellington via Hamilton and Palmerston North (State Highway 1, ~650 km): The spine of New Zealand's freight network and by far the most critical route for intermediate charging. No electric heavy truck can complete this without a charge stop. Charging hubs at Te Kauwhata (or Hamilton), Taupo, Taihape, and Levin. These align with existing truck stops and service centres. Target: operational by 2027.
- Priority Route 2, Christchurch to Invercargill via Dunedin (State Highway 1, ~500 km): The South Island main trunk connecting Canterbury, Otago, and Southland, New Zealand's most important agricultural freight corridor. At ~500 km, a single charge stop is required. Charging hubs at Ashburton, Timaru or Oamaru, and Balclutha. Target: operational by 2028.
- Priority Route 3, Hamilton to Napier via Taupō, and Napier to Palmerston North: Important east-west links for food production regions. Hubs at Taupō and Taihape. Target: operational by 2029.

[39] EECA, cited in RNZ, 'Tough Road to Electrifying New Zealand's Truck Fleet', April 2026. EECA's Heavy Vehicle team confirmed there are no dedicated public charging facilities for heavy trucks anywhere in NZ as of 2026.

- Priority Route 4, Christchurch to Picton via Kaikoura (State Highway 1, ~300 km): Critical route for freight accessing the Cook Strait ferry connection. At 300 km this is at the limit of current truck range under load; a single hub at Kaikoura provides confidence and enables fuller loads. The challenging terrain and geographic isolation also makes this a high-value public investment where private investment is unlikely to lead. Target: operational by 2029.
- Note on Auckland to Tauranga (SH2, ~100 km): This route does not require intermediate charging infrastructure, all current electric heavy trucks can complete this easily without a charge stop. Depot charging at Auckland and Tauranga is sufficient. It should not be treated as a priority for public charging investment.

Each charging hub should meet a minimum specification: 350+ kW DC charging capability, minimum 4 simultaneous heavy truck bays, and, critically, on-site battery storage of 500 kWh to 1 MWh per hub. The battery serves two essential functions: it buffers the very high power draw of simultaneous truck charging (which can exceed 2 MW when all bays are in use), avoiding the need for expensive grid connection upgrades at each site; and it provides resilience, allowing the hub to continue operating during grid disturbances or outages, exactly the conditions that may coincide with a fuel disruption. Hubs should be co-located with existing truck stops wherever possible, adding EV infrastructure to an established service location rather than building greenfield.

A Collaborative Funding Model: Government, Freight, and Food Supply Chain Together

The national heavy truck charging network should not be funded by government alone, nor should it be left entirely to the market. The right model is a structured co-investment partnership between the parties who benefit most: central government (resilience and emissions), major freight operators (Mainfreight, Toll, Ovation etc.), and critical supply chain users who have the most to lose in a fuel disruption, particularly supermarket operators like Foodstuffs and Woolworths.Government's role: provide concessional loans (low or zero interest, 10–15 year terms) for hub capital costs, removing the financing barrier for private co-investors. Guarantee minimum usage levels on priority routes through government freight commitments. Develop the network through NZTA as a national infrastructure project.Freight operator and supermarket co-investment: operators who commit to electric fleet transition timelines contribute capital proportional to their route usage. Foodstuffs and Woolworths, given their role as Tier B critical supply chain operators, should be offered preferential access to hubs in exchange for co-investment and fleet electrification commitments.This model mirrors how service stations were established along major routes as the petrol vehicle fleet grew, with government enabling the infrastructure and commercial operators building the demand. The difference is that this time, the national resilience benefit is explicit and the financing structure should reflect it.

Sector	Government Lever	Technology Solution	Funding Mechanism
Ambulances (St John / Wellington Free)	Funding conditions	Electric ambulance vans + fast chargers	Health funding conditions
Supermarket distribution fleet	Regulatory / grants	Electric distribution trucks + solar DCs	Critical Supply Chain Grant
NZ Post / couriers	Procurement leverage / grants	Electric vans (fleet replacement)	Light EV Transition Grant

Sector	Government Lever	Technology Solution	Funding Mechanism
Medium freight trucks	Targeted subsidy	Electric rigid trucks	Heavy Vehicle EV Grant
Heavy truck charging network (4 priority routes)	Direct infrastructure investment	350 kW DC hubs every 80–100 km	NZTA / Critical Infrastructure Fund
Telecom tower backup (rural)	Co-investment fund	24hr battery + V2G fleet vehicles	Comms Resilience Fund
Pharmaceutical logistics	Supply chain standards	Electric cold-chain vans	Health supply chain fund

Both the route hubs and the depots in the next section run into the same structural barrier: the grid connection. Rewiring Aotearoa's proposed Connections of National Significance framework addresses this directly, and this framework adopts it. The grid upgrades required for the four priority freight routes, major fleet depots, and port charging should be designated Connections of National Significance: an MBIE-led designation under which government co-invests in shared network upgrades rather than leaving each operator to fund and risk them alone, and the Commerce Commission and Electricity Authority are directed to align EDB and transmission pricing settings so first movers are not penalised for building capacity that later users share. The same designation accelerates industrial fuel-switching off gas and coal and gives renewable generation investors confidence in demand: one instrument, three national wins. Alongside it, a dedicated heavy charging delivery team should be established within EECA to actively broker each project between charge point operators, lines companies, and freight operators, because every site currently requires bespoke coordination that no single commercial party can drive.

7.2 DEPOT CHARGING FOR ESSENTIAL FLEETS

Most of the essential fleets in this framework, buses, waste collection trucks, milk tankers, courier vans, ambulances, are depot-return operations: they go out, do their route, and come home. For these fleets, the primary charging infrastructure is not public, it is the depot. The barrier is rarely the chargers themselves; it is the electrical capacity of the site. A bus depot charging 50 electric buses overnight can draw several megawatts, and the grid connection upgrade to support that can cost millions and take years to consent and build.

- Every depot electrification project co-funded through the CIESF should include on-site battery storage as standard, buffering charging loads to avoid or reduce grid connection upgrades, and doubling as resilience capacity that keeps the fleet charging during grid disturbances.
- Electricity distribution businesses (EDBs) should be required to publish standard timelines and transparent pricing for fleet depot connections, and the Commerce Commission should treat fleet electrification connections as a priority category in its regulation of EDB investment, with major depot connections eligible for Connections of National Significance designation.
- Solar over depot roofs and parking canopies should be assessed at every depot as a matter of course, large flat roofs above vehicles that charge during the day (waste trucks between shifts, milk tankers between collections) are close to ideal solar assets.

7.3 WORKPLACE AND DESTINATION CHARGING FOR ESSENTIAL WORKERS

Pillar 4 established the mechanisms for essential workers to access EVs, including the EV Salary Boost. Those vehicles need somewhere to charge, and for shift workers in particular, that is the workplace. The workplace charging grants described in Section 5.3, deployed at hospitals, schools, police and fire stations, and other essential service sites, form part of this national charging picture. They should be specified bidirectional (V2G/V2B) wherever practicable, so that every essential workplace charger is simultaneously backup power capacity for the facility it serves.

7.4 MARINE AND PORT CHARGING

The marine dimension of charging is already being built in New Zealand. Auckland's electric ferry programme includes megawatt-scale MCS charging at Downtown Ferry Terminal and Half Moon Bay, among the first such marine charging deployments globally. Ports of Auckland's electric tug Sparky recharges in approximately two hours from a shore charging station. The Port Electrification Programme proposed in Section 4.6 requires the same charging backbone: shore power for berthed vessels, high-power charging for tugs and harbour craft, and depot charging for electric container handling equipment. Marine charging should be an explicit eligible category within the CIESF, and the MCS deployments already underway should be treated as national reference projects whose learnings are systematically shared.

7.5 CHARGING AS RESILIENCE INFRASTRUCTURE

Charging infrastructure, done properly, is not just an enabler of electric fleets, it is resilience infrastructure in its own right. Battery-buffered charging hubs keep operating through grid disturbances. Bidirectional chargers turn every parked fleet vehicle into backup power for the building it is plugged into. And at national scale the effect is remarkable: a fully electric light vehicle fleet would hold more overnight storage in its batteries than New Zealand's hydro lakes can deliver, and a single medium-sized EV battery can run an average home for around three days in an emergency.[40] The charging network is how that distributed national battery gets connected. Every charger specification, every hub design, and every depot project funded under this framework should be assessed for its resilience contribution, not only its throughput.

[40] Rewiring Aotearoa, Electric Homes and Vehicles research and 'Release the Pressure' (Watt Now, August 2026): a fully electric light fleet would hold more overnight storage in its batteries than New Zealand's hydro lakes can deliver; a medium-sized EV battery can run an average home for approximately three days in an emergency.

8. PILLAR 7: VALUING FUEL SECURITY. REWIRING THE CORE MACHINERY OF GOVERNMENT

The six pillars above describe what to invest in. This pillar addresses something more fundamental: how government decides. Perhaps the most consequential, and least costly, action government can take is to change how its core financial machinery, the budgeting, appraisal, and accounting rules that every investment and policy must pass through, treats fuel security. New Zealand's current fiscal and cost-benefit frameworks systematically undervalue reduced exposure to overseas fuel insecurity, and this mis-accounting quietly biases every investment decision against the electrification and resilience measures this framework recommends. This is not a niche evaluation exercise; it is the core machinery of government operations, the Fiscal Strategy Report, the Budget Economic and Fiscal Update, CBAx appraisal, and the national accounts. Until that machinery is rewired, every other pillar fights uphill against an accounting system that cannot see its main benefit.

8.1 THE MIS-ACCOUNTING PROBLEM

The 2026 fuel-price shock illustrates the problem precisely. When prices spiked, government responded with household support payments, booked as a 'one-off' cost against a single year's operating allowance, framed as having no ongoing fiscal cost because the package was time-limited. But the underlying object is not a one-off. New Zealand imports essentially all of its liquid fuel, which means the country carries a permanent, unhedged exposure to global oil-price and exchange-rate shocks. The relief package is simply what that exposure costs the Crown when a bad state occurs. Shocks recur. The true fiscal object is a recurring contingent liability sitting unpriced on the national balance sheet, and permanently removing the exposure through electrification is what current frameworks fail to value.

This has a direct and perverse consequence: the cost of electrification investment is fully counted, while much of its benefit, the removal of a recurring, correlated, tail-heavy fiscal liability, is counted at zero. Under these rules, the fiscally responsible choice looks like inaction, when the opposite is true.

8.2 WHAT PROPER VALUATION LOOKS LIKE

Valuing reduced fuel-security exposure separates into four channels, each already within the capability of New Zealand's existing fiscal machinery:

- Avoided fiscal interventions: the expected present value of the future stream of relief packages, excise cuts, and subsidies that government would otherwise keep triggering when fuel prices spike. The 2026 package provides real parameters, the trigger price, payment size, and eligible population are now known, making this directly modellable.
- Avoided import outflow: every litre not imported is foreign exchange retained onshore, a current-account and GDP-retention benefit. International bodies already quantify this: analysis by Ember estimates China's existing EV fleet is avoiding over US$28 billion per year in oil imports, and Europe's around US$8 billion per year. New Zealand's equivalent, with liquid fuel imports of $5–7 billion per year, and substantially higher in shock years, is proportionally enormous.
- Removal of tail risk, the actuarial heart of it: import dependency behaves like an open short position in oil and US dollars. Its cost is convex and correlated with the bad state, government intervenes precisely when prices spike and the currency weakens. A deterministic mid-price NPV therefore badly undervalues removing the exposure, because most of the value lives in the tail. Electrification functions as a

permanent put option against fuel-price and exchange-rate shocks, and it must be modelled stochastically, across thousands of simulated price paths over 30–40 years, for that value to be visible at all.

- Co-benefits already monetised: avoided ETS liability (a real Crown cashflow, the emissions liability sits on the government balance sheet), air-quality health gains, and congestion effects. Treasury's CBAx tool already holds approximately 200 monetised impact values covering exactly these categories, the machinery exists; it simply is not being pointed at fuel security.

The Put Option the Crown Refuses to Buy

Imagine a financial adviser told the government: you hold a large, permanent short position in oil and US dollars; every few years it costs you hundreds of millions in crisis payments, always at the worst possible moment; and there is an instrument available that permanently closes the position while paying for itself in operating savings. No responsible balance-sheet manager would decline that instrument. Yet that is precisely what the Crown's current appraisal and accounting rules do, by valuing the exposure at zero, they make closing it look like a cost rather than the removal of a liability. Fixing this machinery costs almost nothing and reframes every subsequent investment decision.

8.3 THE BALANCE OF PAYMENTS DIVIDEND: MONEY THAT STAYS IN NEW ZEALAND

An aligned reform is for government to proactively recognise, in its economic reporting and forecasting, not just its risk accounting, the balance of payments benefits of reduced fossil fuel imports. New Zealanders currently spend around $40 million every day on fuel, rising above $60 million a day during the recent supply shocks. Almost all of that money leaves the country the moment it is spent: it flows to offshore producers, refiners, and shippers, and it is gone from the New Zealand economy.[41]

Electrification redirects that flow. A dollar spent charging an EV is spent on New Zealand-generated electricity, it flows to New Zealand generators, lines companies, and increasingly to the household's own rooftop, and a large share of it recirculates through New Zealand wages, local firms, and regional economies. The same is true of the investment itself: solar installation, battery installation, charging infrastructure construction, and fleet maintenance are New Zealand jobs performed by New Zealand businesses. Fossil fuel spending exits the economy immediately; electrified energy spending largely stays and multiplies. For a country running persistent current account deficits, fuel imports are one of the largest single import lines, and fleet electrification is one of the very few available policy levers that structurally and permanently improves the current account.

This benefit is real, measurable, and currently invisible in the government's forward economic picture. Two proactive recognitions would fix that:

- Treasury and the Reserve Bank should explicitly model and report the fossil fuel import component of the current account, and forecast the 'electrification dividend', the projected improvement in the balance of payments from fleet and machine electrification, in the Budget Economic and Fiscal Update and long-term economic projections, just as they model terms-of-trade effects today.

[41] Rewiring Aotearoa, 'Release the Pressure' (Watt Now, August 2026): New Zealanders spend approximately $40 million per day on fuel in normal conditions, exceeding $60 million per day during the recent supply shocks; total fuel imports approach $10 billion per year in normal conditions.

- Stats New Zealand should publish, as a standing series, the value of avoided fossil fuel imports attributable to the electrified fleet and machine stock, the domestic equivalent of the analyses Ember already publishes internationally, which credit China's EV fleet with over US$28 billion per year in avoided oil imports. What is measured and published gets valued; what is invisible gets ignored.

This is the flip side of the contingent liability argument in Section 8.1: the liability view prices the downside of staying dependent; the balance of payments view counts the upside of switching, the import bill shrinking year on year, and household energy spending redirected into the domestic economy. Both belong in the government's books, and neither is there today.

8.4 PRECEDENT: GOVERNMENTS HAVE JUSTIFIED SPENDING THIS WAY, AND WHERE NEW ZEALAND GOES FURTHER

The reform proposed here is less radical than it may sound. Governments facing imported-fuel dependence have repeatedly justified major investment on exactly the ground that it shrinks the national fuel-import bill. Two cases show the argument already carrying real spending decisions:

- The European Union quantified the avoided import bill as part of the justification for REPowerEU, estimating the plan would save on the order of €80 billion in gas, €12 billion in oil and €1.7 billion in coal import expenditure per year by 2030, set against roughly €210 billion of investment. That is the structure this framework proposes: a large one-off capital programme justified against a recurring avoided outflow. (Section 1.4 cites REPowerEU for the speed of its response; here it is the explicit import-bill accounting that matters.)[42]
- Brazil's Proálcool programme, launched after the 1970s oil shocks to reduce oil-import dependence, had its avoided imports tallied over decades, the International Energy Agency credits it with around US$52 billion in avoided oil imports between 1975 and 2002. It is the clearest historical case of a government valuing a domestic fuel-substitution programme in national-import terms over the long run.[43]

Where New Zealand can go further, and why this pillar is not mere imitation, is the fiscal-liability framing in Section 8.1. The EU and Brazil both argued the case in macroeconomic and energy-security terms: money leaving the economy, exposure to hostile suppliers, strategic vulnerability. None of them priced their own recurring crisis response, the relief payments, subsidies and excise concessions, as a contingent liability on the public balance sheet, and treated the investment as the instrument that extinguishes it. The nearest analogue is the way the IMF and World Bank treat fossil-fuel subsidies as a volatile, oil-price-exposed fiscal liability, but that logic has been used to justify withdrawing support, not investing to remove the need for it.

That gap is the opportunity. The strategic case for electrification as energy security is, internationally, settled. What this framework adds is the refinement that makes it legible to Treasury specifically: not merely that fuel dependence is dangerous, but that it is an unpriced, recurring, tail-heavy liability the Crown already carries, and that the investments

[42] European Commission, REPowerEU Plan, COM(2022) 230, May 2022, and accompanying staff working documents: estimated annual avoided import expenditure by 2030 of approximately €80 billion (gas), €12 billion (oil), and €1.7 billion (coal), against approximately €210 billion of additional investment to 2027.
[43] International Energy Agency, Biofuels for Transport: An International Perspective (2004); Goldemberg et al. Cumulative avoided oil imports attributable to Brazil's Proálcool ethanol programme estimated at approximately US$52 billion (1975–2002).

in Pillars 1–6 are how it is bought out. Framing the ask this way borrows the credibility of well-established international precedent while staking out the genuinely novel contribution.

8.5 RECOMMENDED ACTIONS

- Direct Treasury to formally recognise fuel-import dependency as a recurring contingent liability in the Fiscal Strategy Report and the Long-Term Fiscal Statement, with an estimated expected present value, making the exposure visible in the documents that frame every Budget.
- Amend CBAx guidance so that all transport, infrastructure, and energy investment appraisals must include a fuel-security value line, quantifying the reduction in fuel-import exposure the investment delivers, using a standard stochastic methodology published by Treasury.
- Commission an actuarial valuation of New Zealand's fuel-import exposure, modelling the 'stay dependent' baseline (stochastic oil and NZD/USD paths, with the government's crisis reaction function parameterised from the 2026 relief package) against the 'electrify' scenario, reporting NPV, benefit-cost ratio, fiscal breakeven year, and critically the full distribution of outcomes, not just the mean. The Government Actuary, Treasury's modelling teams, or an independent actuarial firm are all capable of this work; international precedent exists in sovereign risk-management and energy-security valuation practice.
- Require the annual National Fuel Resilience Dashboard (Section 13) to report the estimated remaining contingent liability alongside physical metrics, so that each year of electrification progress is visibly converted into balance-sheet risk reduction.
- Direct Treasury, the Reserve Bank, and Stats NZ to report the fossil fuel import component of the current account and forecast the electrification dividend in the Budget Economic and Fiscal Update, making the balance of payments benefit as visible in the national accounts as the risk reduction is on the balance sheet.
- Apply the same lens to policy design, not just capital investment: when future fuel-shock relief packages are designed, their cost should be booked transparently as a draw on the fuel-exposure contingent liability, not as an unforeseeable one-off, keeping the recurring nature of the cost politically and fiscally visible.

This rewiring of the core fiscal machinery is the accounting counterpart to the governance changes proposed in Section 12: the Energy Security Council coordinates fuel security across government, and this pillar ensures it is correctly priced within it. Together they determine whether the investments in Pillars 1–6 are funded, which is why valuing fuel security properly, in the systems through which government actually operates, earns its place as a pillar in its own right.

9. THE ELECTRIFICATION OPPORTUNITY: WHAT THE MACHINE COUNT TELLS US

Rewiring Aotearoa's national machine count[44] provides the most comprehensive picture available of New Zealand's vehicle and equipment fleet by category. It reveals the scale of the electrification opportunity, and demonstrates that the vast majority of New Zealand's fuel-consuming fleet is, or will shortly be, electrifiable with commercially available technology.

9.1 KEY FINDINGS FROM THE MACHINE COUNT

New Zealand's on-road vehicle fleet of approximately 4.2 million registered vehicles is dominated by passenger vehicles (approximately 3.5 million), followed by light commercial vehicles (approximately 400,000), with medium and heavy trucks, buses, and specialist vehicles making up the remainder.

- Passenger vehicles: Fully electrifiable now. The EV market in New Zealand includes over 40 models across multiple price points. The used EV import market (primarily from Japan) has made EVs accessible at price points under $15,000.
- Light commercial vans: Fully electrifiable now. The Ford Pro E-Transit, Mercedes eSprinter, VW Transporter (electric), Renault Master E-Tech, and BYD deliver strong range and payload for commercial use.
- Utes (including dual-cab): Now electrifiable with full battery electric options. The Ridarra electric ute is purpose-built for the NZ market, with further models arriving shortly from multiple manufacturers. Full electric is the only option that genuinely addresses fuel dependency.
- Medium trucks (Class 5–7, GVM 5,000–16,000 kg): Growing range of electric options available. The Fuso eCanter, Mercedes eActros 200, Volvo FE Electric, and Kenworth T480E are all available or arriving in Australasia.
- Heavy articulated trucks (Class 8, GVM 16,000 kg+): Options expanding rapidly. Tesla Semi, Volvo FH Electric, Daimler eCascadia, and Kenworth T680E are in production. Range for fully loaded long-haul remains a genuine constraint but is improving with each generation.
- Buses: Electric buses are established technology. NZ Bus, Go Bus, and Ritchies have all taken delivery of electric buses. Full electrification of the urban bus fleet is achievable within this decade.

9.2 APPLYING THE MACHINE COUNT TO CRITICAL INFRASTRUCTURE

For the purposes of this framework, the most important machine count categories are those overlapping with critical services and supply chains. Rewiring Aotearoa estimates suggest:

Vehicle/Equipment Category	Estimated NZ Fleet Size	Electric Alternative Available	Fuel Saving Potential
Government passenger fleet	~15,000–20,000	Yes, now	Very High
Police vehicles	~4,700	Yes, now (most)	Very High
Ambulances	~700	Yes, now (urban)	Very High

[44]Rewiring Aotearoa, The Machine Count: New Zealand's First Complete Inventory of Fossil Fuel Machines, May 2025. Available at rewiring.nz/machine-count. Developed in partnership with Ara Ake and EECA.

Vehicle/Equipment Category	Estimated NZ Fleet Size	Electric Alternative Available	Fuel Saving Potential
Courier/delivery vans	~25,000–30,000	Yes, now	Very High
Urban buses	~3,000–4,000	Yes, now	Very High
Distribution trucks (medium)	~8,000–12,000	Yes, now	High
Heavy freight (long-haul)	~20,000–25,000	Partially, improving	Medium
Agricultural tractors	~80,000–90,000	Limited, 2–3 years	Medium (via hybrid)
Farm utility vehicles/utes	~40,000–50,000	Yes (PHEV), now	High
Fishing vessels (inshore)	~2,000–3,000	In development	Medium

9.3 THE CASE FOR ACTING NOW

The electrification transition is already underway in New Zealand, but it is proceeding at the pace of consumer and business economics, not at the pace that national resilience requires. Government investment to accelerate electrification of the critical fleet segments identified in this document would:

- Permanently reduce New Zealand's fuel import bill (estimated at $5–7 billion per year and growing)[45]
- Generate substantial domestic economic activity in EV charging infrastructure, installation, and maintenance
- Significantly reduce transport sector emissions, supporting New Zealand's climate commitments
- Provide a lasting structural reduction in national fuel security risk

The cost of inaction, the economic damage from a 30–90 day fuel disruption to a country with no electrified critical fleet, dwarfs the investment required to achieve resilience. Notably, a government-commissioned fuel security study in 2024 found that accelerating the vehicle fleet's electrification was the single most efficient path to improved fuel security.[46]

[45]MBIE, Energy in New Zealand 2024; Statistics New Zealand, Merchandise Trade Data 2023–24. New Zealand's liquid fuel import bill has consistently exceeded $5 billion/year and reached approximately $7 billion in 2022–23 during the period of elevated global fuel prices.

[46]MBIE Fuel Security Study (Envisory and Castalia, peer reviewed by Beca, 2024–25); NZ Herald, April 2026. The study found electrifying the vehicle fleet was 'the most efficient long-term way of increasing New Zealand's fuel security' and recommended accelerating zero-emission vehicles over reestablishing the Marsden Point refinery, which it estimated at $4.9–7.3 billion over six years and assessed as 'inefficient due to either high costs and/or limited effectiveness'.

10. SHRINKING THE PROBLEM: ELECTRIFICATION AND THE FUEL THAT REMAINS

Even with aggressive electrification, some liquid fuel will remain essential for years. But this framework's core contribution to fuel emergency management is not a better rationing scheme, it is a smaller problem to ration. The best fuel prioritisation protocol is one with less and less to prioritise. This section works with the Government's existing machinery, protects the uses that cannot yet be electrified, and shows how electrification transforms the reserve arithmetic itself.

10.1 WORKING WITH THE FUEL RESPONSE PLAN 2026

The Government's Fuel Response Plan 2026 (released March 2026) establishes a sound foundation: a four-phase response framework, Watchful, Precautionary, Managed, and Protected, with defined trigger criteria and indicative priority bands (A through E) for the managed phases, placing emergency services, hospitals, and lifeline utilities in Band A and supermarket freight in Band B.[47] This framework endorses that structure and proposes three targeted adjustments: rural GPs, district nurses, and rural pharmacies should be elevated from Band C to Band A, because in rural communities they perform the life-preserving function of an ambulance service; 'international air links' in Band B should be narrowed to flights carrying essential cargo and personnel, medicines, medical equipment, critical components, rather than all aviation; and primary production protection should prioritise production directly feeding New Zealanders over export production. Cook Strait ferry services should be named explicitly in Band B.

The detailed band design, allocation machinery, a Fuel Criticality Register of the volumes and locations each critical function requires, regional fuel reserve obligations on distributors, and a National Fuel Controller function for declared emergencies are properly MBIE's work within the Fuel Response Plan, and should be developed, published, and exercised before they are needed. This framework's distinctive contribution is on the demand side, and it is set out in the two subsections that follow: which uses genuinely need protection, and how electrification shrinks what protection must cover.

10.2 THE FUEL THAT REMAINS: USES THAT CANNOT YET BE ELECTRIFIED

Honest acknowledgment of current electrification limits is essential for credible planning. The following applications cannot currently be electrified at the required scale and should be explicitly protected in the Fuel Prioritisation Protocol:

Interisland Ferry Services (Cook Strait): Locked In, With One Task Remaining

The Cook Strait ferry services are among the most strategically critical infrastructure in New Zealand, moving NZ$8.5 billion in freight annually across more than 4,000 crossings[48] and carrying nearly 800,000 passengers. The current fleet, already aged and troubled, is in the early stages of replacement. The Aratere was retired in August 2025.[49] Replacement vessels are now contracted for 2029 delivery.

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[47]MBIE/Beehive, New Zealand Fuel Response Plan 2026, March 2026. Available at beehive.govt.nz/sites/default/files/2026-03/Fuel%20Response%20Plan%20factsheets.pdf
[48]KiwiRail, Annual Report 2024; The Maritime Executive, 'New Zealand Looks to Future for Troubled Interisland Ferry Service', 22 August 2025. KiwiRail reports 4,000+ crossings annually carrying NZ$8.5 billion in freight.
[49]The Maritime Executive, 'New Zealand Looks to Future for Troubled Interisland Ferry Service', 22 August 2025. The Aratere's final crossing was 18 August 2025.

This replacement is now locked in, and the outcome is a good one. A fixed-price contract was signed in November 2025 with Guangzhou Shipyard International for two rail-enabled vessels, named Kupe and Cook in July 2026, with construction from 2027, delivery in 2029, and KiwiRail confirmed as operator for the assets' 30-year life. Critically for fuel security, the ships are specified as diesel-electric hybrids with large battery banks, able to run on conventional fuel or biofuel, with batteries rechargeable both at sea and from shore power. The specification this framework would have argued for is the specification that was procured.[50]

Cook Strait Ferries: Now Build the Shore Power That Makes the Hybrids Count

A hybrid ferry only reduces fuel dependency to the extent its batteries are actually charged from the grid. The remaining task is on land: shore power at Wellington and Picton, sized so Kupe and Cook charge from New Zealand electricity at every turnaround from day one of service in 2029, and progressively larger battery operation share over the vessels' 30-year life as battery costs fall and mid-life refits allow. The port infrastructure programme for the new ferries is being delivered now by Ferry Holdings, CentrePort, and Port Marlborough; shore charging capacity should be embedded in that infrastructure scope rather than retrofitted later at greater cost. During any fuel disruption, every megawatt-hour delivered through those shore connections is diesel the crossing does not need, on the single most critical freight route in the country. The residual fuel requirement remains a Band B protected use under the Fuel Prioritisation Protocol.

Auckland and Wellington Harbour Ferries: Leading the Way

New Zealand's urban harbour ferry procurement is, encouragingly, already underway. Auckland Transport has commissioned two fully electric 200-passenger ferries built by EV Maritime at McMullen and Wing in Auckland, with the first arriving in late 2025, and two 300-passenger electric-hybrid ferries from Q-West in Whanganui arriving in 2025–26.[51] Megawatt-level charging infrastructure using the internationally standardised MCS charging system is being installed at Downtown Ferry Terminal and Half Moon Bay. This is a genuine New Zealand success story, electric ferries, built in New Zealand, on the water.

However, Auckland Transport has simultaneously reversed direction: an advance notice in December 2025 sought three to four 'Metro Class' diesel ferries for the western routes, and by July 2026 the programme had grown, with the western-route contract at the point of award and a further two diesels mooted for the Pine Harbour route, taking AT's new diesel fleet to as many as eight to ten vessels.[52] The irony is painful: in the same month, EV

[50] Ferry Holdings / Beehive announcements: NZ$596 million fixed-price contract with Guangzhou Shipyard International signed November 2025; vessels named Kupe and Cook and KiwiRail confirmed as operator, 17 July 2026; construction from 2027, delivery 2029. Vessel specification (Shippax, November 2025): diesel-electric hybrid propulsion with large battery banks, conventional fuel or biofuel capable, batteries rechargeable at sea and from shore power. Port infrastructure agreements signed 30 June 2026 (Ferry Holdings, CentrePort, Port Marlborough, KiwiRail).
[51] Auckland Transport, Low Emission Ferry Programme media releases 2023–26; Engineering New Zealand / Beca, 'Electric Transition: Auckland's Future Ferry Fleet', EG Magazine, March 2025. The programme is one of the first marine megawatt charging system (MCS) deployments globally.
[52] NZ Herald, 'AT Turns Its Back on Electric Ferries with Tender for Four New Diesels', December 2025; NZ Herald, 'AT Triples Down on Diesel Ferries as Auckland's EV Maritime Wins Big Aussie Deal', July 2026: western-route contract due for award July 2026, two further diesels mooted for Pine Harbour taking new diesels to as many as eight to ten, and EV Maritime contracted for Western Australia's first electric ferry fleet on the Auckland design. AT issued advance notice procurement documents for three to four diesel-powered Metro Class passenger ferries, in parallel with the Low Emission Ferry Programme.

Maritime, the Auckland company that designed AT's own electric ferries, won the contract for Western Australia's first electric ferry fleet, built on the Auckland design. Auckland is exporting electric ferries while buying diesel ones. Shorter harbour routes are exactly the use case where battery-electric is most technically straightforward. Whatever the status of the first contract, central government cannot simply direct Auckland Transport, a council-controlled organisation, and after this year it will not need to: under the Local Government (Auckland Council) (Transport Governance) Amendment Act 2026, transport policy and planning transfer from AT to Auckland Council by November 2026, AT is refocused as a public transport delivery CCO, and a new Auckland Regional Transport Committee, with Ministerial appointees among its voting members and a chair jointly appointed by the Minister of Transport and the Mayor, will prepare Auckland's 30-year Transport Plan.[53] The diesel ferry programme is being decided at the precise moment this governance changes hands, and government holds three legitimate levers it should use together: embed a no-further-diesel, electric-or-hybrid vessel standard in the ARTC's first 30-year Transport Plan and Regional Land Transport Plan; make electric or hybrid specification a condition of NZTA co-investment in any new ferry through the National Land Transport Fund; and work directly with Auckland Council, where these decisions will now democratically sit, to halt the Pine Harbour diesel tranche and complete the Downtown and Half Moon Bay charging infrastructure so operators can no longer cite its absence.

The NZ-based electric ferry industry deserves particular recognition and support. EV Maritime and Q-West are building world-class electric ferry technology in New Zealand. Vessev is developing electric foiling ferries, a 10-passenger VS-9 already in commercial operation, with a 100-passenger vessel planned. Government procurement preferences should actively support this emerging domestic industry, which builds resilience (locally maintained vessels with locally sourced electricity) while developing export-capable technology.

Case Study: Auckland's Electric Ferry Programme

Auckland Transport's Low Emission Ferry Programme demonstrates that harbour electrification is not theoretical. The first fully electric ferries, capable of over 30 knots on battery power alone, are entering service now. The MCS charging system being installed at Downtown Ferry Terminal is one of the first marine megawatt charging deployments globally. In normal operation these ferries reduce emissions and operating costs; in a fuel disruption they continue running entirely on grid electricity while diesel ferries are grounded. The programme should be accelerated, not supplemented with new diesel procurements.

Aviation

Commercial aviation is entirely dependent on Jet A-1 aviation fuel. Electric aviation is in early stages of commercial development for very short-range routes but will not be available at meaningful scale for scheduled services within the timeframes relevant to this framework. Under the revised band structure, aviation fuel in a disruption should be strictly allocated by purpose:

[53] Local Government (Auckland Council) (Transport Governance) Amendment Act 2026, passed 30 April 2026, in force 7 May 2026, with transition to the new arrangements by November 2026. The Act transfers transport policy, planning, and road controlling authority functions from Auckland Transport to Auckland Council, re-establishes the CCO as a public transport delivery body, and creates the Auckland Regional Transport Committee with Ministerial appointees among its voting members and a chair jointly appointed by the Minister of Transport and the Mayor of Auckland. See Ministry of Transport, 'Reforming Transport Governance for Auckland'; Beehive, 30 April 2026.

- Band A: Air ambulance, rescue helicopters, emergency management flights, uncapped
- Band B*: International freight carrying essential medicines, medical supplies, and critical infrastructure components; essential personnel repatriation
- Band C: Minimum domestic airline schedule to maintain national connectivity and access to isolated communities
- Not prioritised: Leisure, tourism, and non-essential business travel, these should not receive protected fuel allocation while critical services are constrained

Agricultural Machinery

The bulk of New Zealand's approximately 85,000 agricultural tractors are diesel-powered and will remain so for some years. Under the revised band structure, agricultural machinery fuel protection is narrowed to Band C: in-season operations for crops and production directly contributing to domestic food supply. This is a meaningful protection but avoids the open-ended inclusion of all primary production that the government's Band B implies.

Heavy and Medium Freight: Transitional Note

As the national electric freight charging network (Section 7.1) is built out and heavy electric trucks enter the fleet in growing numbers through the late 2020s, the fuel dependency of this category will reduce progressively. The fuel prioritisation protocol should be reviewed every two years to reflect actual fleet electrification progress, progressively removing freight categories from protected fuel status as they transition to electric operation.

Coastal Marine Freight

Coastal shipping services that supplement road and rail freight depend on marine diesel. Under Band C, priority should go to vessels serving communities without road access and ports essential to the national supply chain.

10.3 HOW ELECTRIFICATION TRANSFORMS THE RESERVE EQUATION

New Zealand's current IEA obligation requires approximately 90 days of oil stock coverage, though in practice our usable reserve is closer to 21–28 days. Achieving a genuine 60-day reserve of liquid fuel at current consumption levels would require enormous and expensive additional storage infrastructure. But this framing obscures a transformative insight: as the recommendations in this framework are implemented, New Zealand's daily liquid fuel demand falls dramatically, making the same physical storage capacity cover far more days of critical need.

New Zealand currently consumes approximately 38–42 million litres of liquid fuel per day across all uses (petrol, diesel, and aviation fuel combined; total approximately 14,500–15,500 megalitres per year). The following table estimates the daily fuel displacement attributable to the full implementation of this framework's recommendations:

Recommendation	Vehicles / Assets	Est. Daily Fuel Displaced	Basis
Heavy trucks (60% of freight task electrified)	~13,000 trucks	3.0–4.5 ML/day	Heavy trucks ~2,000–2,500 ML diesel/year nationally; 60% displaced
Medium trucks (90% electrified)	~9,000 trucks	0.2–0.35 ML/day	Medium trucks ~80–130 ML diesel/year; 90% displaced
Urban buses (100% electric)	~3,750 buses	0.23–0.27 ML/day	Bus fleet ~85–100 ML diesel/year

Recommendation	Vehicles / Assets	Est. Daily Fuel Displaced	Basis
Essential worker personal vehicles	~75,000 EVs	0.27–0.33 ML/day	75,000 vehicles avg 1,500L/year petrol
Courier & delivery vans (80% electric)	~24,000 vans	0.10–0.12 ML/day	Van fleet ~35–45 ML petrol/year; 80% displaced
Government fleet (80% electric)	~14,000 vehicles	0.04–0.07 ML/day	Avg 15,000 km/year at 10L/100km
School heating (fossil fuel boiler transition)	Cooler-region schools (MoE audit needed)	0.01–0.03 ML/day	Fossil fuel-heated schools only; many already transitioned
Police fleet (80% electric)	~3,750 vehicles	0.02–0.03 ML/day	High utilisation, 25,000 km/year
Ambulances & FENZ light vehicles	~1,300 vehicles	0.01–0.02 ML/day	High utilisation fleet
Auckland / harbour ferries (full electric)	~30 vessels	0.01–0.02 ML/day	Current harbour ferry diesel use

Combined estimated daily fuel displacement at full implementation: approximately 4.0–5.7 million litres per day, representing a reduction of roughly 10–15% in total liquid fuel demand. Diesel demand specifically, the most critical fuel type for emergency services, freight, and generation, falls by an estimated 20–30%, because the recommendations are specifically targeted at the diesel-heavy fleet and facility categories.

The Reserve Arithmetic Changes Completely

At current demand of ~40 million litres per day, a 60-day reserve requires approximately 2,400 megalitres of storage, a very large and expensive infrastructure commitment. But the 60-day reserve target is designed to protect only Band A–C critical uses, not total demand.After full implementation of this framework, the daily fuel requirement for Band A–C critical protected uses falls dramatically, because hospitals run on solar, ambulances run on electricity, buses run on electricity, and courier fleets run on electricity. The residual protected fuel demand, Cook Strait ferries, agricultural machinery, residual heavy freight, aviation for critical uses, might be 8–12 million litres per day rather than 40 million. A 60-day reserve of that protected demand requires only 480–720 megalitres of storage.Critically, this may already be achievable with existing and near-term infrastructure. Channel Infrastructure currently has approximately 300 million litres of diesel storage in use at Marsden Point, with a further 350 million litres of unused capacity.[54] The Government has just committed $21.6 million[55] to recommission 90 million litres of that unused capacity, adding approximately 8 days of diesel supply. If the full remaining 350 ML of unused Marsden Point capacity were brought into use, combined with other storage around the country, New Zealand's total diesel storage capacity would approach 600–700 megalitres, sufficient for 60+ days of Band A–C critical use at post-electrification demand levels. The electrification programme and the storage programme are not alternatives, they

[54] Channel Infrastructure NZ Ltd, public filings and Beehive announcement April 2026. Channel Infrastructure currently has approximately 300 ML of diesel storage in use at Marsden Point and 350 ML of further unused capacity in decommissioned crude tanks.
[55] Beehive.govt.nz, 'Government Supports Additional Diesel Storage', 2 April 2026. Minister Shane Jones confirmed $21.6 million from the Regional Infrastructure Fund to Channel Infrastructure NZ Ltd for recommissioning of 90 million litre diesel storage capacity at Marsden Point.

are complementary. Electrification makes the storage achievable; the storage buys time for electrification to scale.

This compounding effect should be central to the business case for the Critical Infrastructure Energy Security Fund. Government does not just save on fuel bills and reduce emissions, it dramatically reduces the cost and complexity of maintaining fuel security. Every electric bus, every electric ambulance, every hospital running on solar, removes a slice of daily demand from the protected reserve calculation. The investments are complementary and self-reinforcing: the more the critical fleet is electrified, the cheaper and more achievable the fuel reserve target becomes.

11. CLEAN ENERGY SUPPLY CHAIN INTELLIGENCE: BEING READY TO ACT

Electrification does not eliminate New Zealand's dependency on global supply chains, it fundamentally transforms the nature of that dependency. Understanding the difference, and what it means for how government should prepare, is one of the most important strategic insights in this entire framework.

11.1 THE CRITICAL DIFFERENCE: FLOW DEPENDENCY VS STOCK DEPENDENCY

Fossil fuels create what might be called flow dependency: they must keep arriving, continuously, week after week, year after year, forever. A 28-day diesel reserve is exactly that, 28 days. The day after that supply runs out, the system stops. There is no way to buy ahead more than a few months' worth of reserve without enormous physical storage infrastructure.

The clean energy economy works on an entirely different basis. Solar panels, wind turbines, EV batteries, and electric vehicles are capital equipment, bought once, installed once, and then they generate energy or enable transport for 15 to 30 years without any further import. A container of solar panels installed on a roof in 2026 is still generating electricity in 2051, without a single further import. An EV bought today needs no fuel imports for its entire operating life. A heat pump installed this year does not need a weekly gas delivery.

This means something profound: in a global crisis where supply chains tighten, a country can 'buy ahead' decades of clean energy supply in a matter of months, locking in its energy and transport security far into the future, in a way that is simply impossible with fossil fuels. Government needs to understand this option and be ready to exercise it.

Locking In Decades of Security in Months

Imagine two scenarios. In Scenario A, a global geopolitical shock tightens oil supply. New Zealand rushes to buy diesel. Six months of purchase buys six months of supply. The dependency continues forever.In Scenario B, a global shock signals that solar panels, EV batteries, and electric vehicles may become harder to source in coming years. New Zealand acts early. Six months of accelerated procurement: 50,000 EVs for the critical fleet, 500,000 solar panels, 10,000 battery storage systems, charging infrastructure. These assets are installed. They generate energy and transport capacity for the next 25–30 years. New Zealand has bought three decades of energy security in six months of supply chain activity. No fossil fuel approach can come close to this leverage.

11.2 UNDERSTANDING THE SUPPLY CHAINS WE DEPEND ON

Before government can act at scale in a supply chain stress scenario, it must understand the supply chains well enough to know what is available, at what price, at what volume, and with what lead time. New Zealand currently has no systematic intelligence function focused on clean energy supply chains. This is a gap that should be closed.

The key supply chains for clean energy security are:

- Solar PV panels and inverters: Dominated by Chinese manufacturers, Longi, JA Solar, Trina, BYD Energy, and others. Global manufacturing capacity has expanded dramatically and prices have fallen by over 90% in the last decade.[56] In a supply constraint scenario, early buyers with committed volumes and established relationships can secure priority allocation. New Zealand should have pre-established supplier relationships and a clear sense of what volume it could procure quickly and at what cost.

- Electric vehicles (batteries included): An increasingly competitive global market with significant Chinese manufacturing (BYD, NIO, SAIC, and dozens of others), alongside established Japanese, Korean, and European manufacturers. The battery cells and packs, the key embedded component, are produced at enormous scale by CATL, BYD, LG Energy Solution, Samsung SDI, SK On, and Panasonic, and the same cell supply chain serves stationary storage systems. Vehicles arrive with their batteries on board; there is no separate battery dependency to manage for the fleet. The market is deep and competitive at volume, prices continue to fall, and the key risk is not availability in normal times but securing priority allocation in a stressed market. New Zealand already imports large volumes of EVs; the question is whether government has the frameworks and relationships to scale that dramatically if needed.
- Wind turbines: More geographically diverse manufacturing than solar, with significant capacity in China, Europe (Vestas, Siemens Gamesa), and the US (GE). New Zealand's wind resource is excellent; the supply chain is less concentrated than solar and batteries.
- Geothermal equipment: New Zealand has a globally significant geothermal industry with substantial domestic expertise and some local manufacturing capability (TurbineAero, for example). This supply chain has a meaningfully different risk profile, more specialised, with longer lead times, but also with more domestic resilience.
- Grid components and smart infrastructure: Transformers, switchgear, cables, smart meters, and grid management systems are manufactured globally. Supply constraints on these components (which affected many countries during rapid grid expansion phases) can slow electrification even when end-use equipment is available.

11.3 ACKNOWLEDGING THE REMAINING DEPENDENCY, AND WHY IT'S VASTLY BETTER

Honesty about remaining dependencies is important. New Zealand's clean energy future still relies on components manufactured predominantly in China and, to a lesser extent, Korea and Japan. A major disruption to Chinese manufacturing, whether from conflict, disaster, or trade policy, could constrain the supply of solar panels, batteries, and EVs. This is a real risk and should not be minimised.

But it is categorically different from fossil fuel dependency in ways that matter enormously:

Fossil Fuel Dependency	Clean Energy Supply Chain Dependency
• Continuous: needs to arrive every week• Consumable: once burned, gone forever• No forward purchase possible beyond physical storage• Disruption immediately affects operations• Cost rises with global	• Episodic: capital equipment bought once, generates for decades• Durable: asset operates long after purchase• Forward purchase possible: buy years of energy capacity ahead of a crisis• Disruption

[56]International Energy Agency, World Energy Outlook 2024; BloombergNEF, New Energy Outlook 2024. Solar PV module prices fell from approximately USD $4/W in 2010 to under $0.15/W by 2024, a decline of over 96%.

market indefinitely• 28 days of reserve = 28 days of buffer. Full stop.	affects future procurement, not existing installed base• Cost has fallen 90%+ and continues to fall• One purchase = 25+ years of energy security per unit installed

The strategic implication: even if we cannot eliminate dependency on global supply chains, we can dramatically reduce the frequency and urgency of that dependency. A country that has installed solar on every critical facility, electrified its fleet, and built substantial battery storage is insulated from supply chain disruptions in a way that a fossil fuel economy simply is not, because the energy-generating equipment is already in place and generating.

11.4 WHAT GOVERNMENT SHOULD DO: SUPPLY CHAIN READINESS

Rewiring Aotearoa is not recommending that government immediately bulk-purchase thousands of EVs or millions of solar panels. The recommendation is to be ready to do so quickly if global conditions warrant it, and to build the intelligence, relationships, and procurement frameworks that make rapid action possible.

- Establish a Clean Energy Supply Chain Intelligence function within MBIE, reporting quarterly to the Energy Security Council, tracking price, volume availability, lead times, and geopolitical risk across solar, batteries, EVs, wind, and grid components. This is a small, specialised team, not a large agency. Its output is a quarterly Supply Chain Risk Assessment available to Ministers.
- Develop pre-qualified supplier panels and framework agreements with major EV, solar, and battery manufacturers, led by MBIE with New Zealand Government Procurement, allowing government to execute large purchases rapidly without running a full procurement process under time pressure. Several countries have done this; New Zealand has not.
- Design 'ready-to-deploy' procurement packages: pre-specified bundles of EVs (by fleet category), solar panels (by building type), and battery systems (by facility scale) that can be ordered at volume with a ministerial decision, against pre-negotiated pricing. Think of these as procurement 'plans on the shelf', not commitments, but options that can be exercised quickly.
- Assess installation capacity constraints: the limiting factor in a rapid procurement scenario may not be the supply of panels or vehicles but the installer workforce and port handling capacity. Government should understand these constraints and have plans to relax them, through workforce acceleration, port infrastructure, and streamlined consenting, so that a bulk purchase can actually be deployed, not sit in containers.
- Build relationships with key exporting nations: formal government-to-government relationships with China, South Korea, Japan, and key European manufacturers on clean energy supply chains. These relationships matter when global supply is stressed and allocation decisions are being made.

The Strategic Opportunity: A Window That May Not Stay Open

Global clean energy supply chains are currently abundant and highly competitive. Solar panel prices are at historic lows. EV prices are falling rapidly. Battery costs continue to decline. This is an extraordinary moment to lock in clean energy infrastructure at scale and at good prices. But the window may not stay open: as global electrification accelerates, small markets get outbid. Countries that build the relationships and frameworks now will act decisively when conditions tighten. Preparedness is not paranoia, it is strategy.

12. THE CROSS-GOVERNMENT IMPERATIVE: BREAKING OUT OF SILOS

The single greatest risk to the implementation of this framework is not technology, cost, or political will. It is fragmentation. What this document recommends is not the domain of any one Minister or government agency. It cuts across at least eight major portfolios simultaneously. Without deliberate, empowered cross-government coordination sitting at the centre of government, each recommendation will be absorbed into the wrong budget, contested by the wrong Minister, and deprioritised by agencies whose core mandate does not include national energy security.

This has already happened. The fuel security opportunity has been visible to government for years. Individual agencies have taken individual steps. But no one has had the mandate, budget, or authority to see the whole picture and drive investment across it. The result is a patchwork of good intentions and an overall system that remains deeply fuel-dependent.

9.1 THE SILO PROBLEM IN DETAIL

Consider how the recommendations in this framework currently land across government:

Recommendation	Current Portfolio Owner	Why They Can't Drive It Alone
Hospital solar + battery	Health NZ / Minister of Health	Energy investment not a core health KPI; no resilience budget line; competes with clinical funding
School heating + community resilience hubs	Ministry of Education / Minister of Education	School property focuses on educational outcomes; no cross-agency resilience mandate
Crown vehicle fleet electrification	Multiple agencies / no single owner	Each agency procures independently; fleet policy is advisory not binding; no central accountability
Police and FENZ fleet	Minister of Police / Minister for Emergency Services	Operational budget pressure; fleet decisions made on cost, not fuel security
Electric public transport	Minister of Transport / Regional Councils	Regional variation; funding contestable; not framed as national security investment
National freight charging network	NZTA / Minister of Transport	Not within NZTA's current mandate; requires co-investment from private sector not in their toolkit
Fuel prioritisation protocol	MBIE / NEMA	Joint ownership creates accountability gaps; neither has power over other agencies' fuel use
EV Salary Boost enablement (tax + CCCFA settings)	Inland Revenue / MBIE (Commerce), split ownership	Tax and consumer credit policy; neither portfolio sees it as an energy security instrument
Food supply chain electrification	MPI / Commerce Commission	No energy security mandate; supply chain policy is separate from fleet policy
Prisons energy resilience	Corrections / Minister of Corrections	Energy is an operating cost, not a strategic investment; no resilience mandate

The pattern is clear. Every recommendation in this framework makes sense in isolation, and every individual agency can see the case for its slice of it. But no agency owns the whole. The national resilience benefit is a public good that transcends any single portfolio, and public goods without a clear owner are systematically under-invested.

9.2 THE CO-BENEFITS CASE FOR CENTRAL COORDINATION

The flip side of the silo problem is a co-benefits opportunity that is currently invisible to any single agency. The investments in this framework do not just serve national energy security. They simultaneously deliver cost savings, productivity improvements, and resilience benefits across virtually every part of government. Seen from the centre, the aggregate return is compelling:

Portfolio / Outcome Area	How This Framework Delivers Value
Energy security & MBIE	Systematic reduction in fuel import dependency; pre-built resilience before a crisis rather than reactive spending during one
Transport & NZTA	Lower fleet operating costs; national charging network unlocks private sector EV investment; supports decarbonisation targets
Health & Health NZ	Resilient hospitals that can operate through fuel disruptions; $1M+ annual savings per major hospital from solar + battery; lower ambulance running costs
Education & MoE	Warmer schools with lower energy bills; solar income partially offsets school operating costs; schools as community resilience hubs add social value
Emergency management & NEMA	Pre-crisis investment in resilience reduces the scale and cost of disaster response; electrified emergency services function when diesel does not
Local government	Co-funded public transport electrification; lower council fleet costs; community hubs that serve civil defence functions without additional infrastructure
Corrections	Large facilities with high energy costs benefit materially from solar + battery; improved energy independence for facilities that cannot be evacuated
Finance & Treasury	Net positive fiscal position: $5–7B/year reduction in fuel import bill[57]; lower whole-of-government fleet operating costs; improved balance of payments
Primary industries	Electrified food supply chain reduces exposure to fuel price shocks; more resilient cold chain and distribution infrastructure
Climate & emissions	Transport is New Zealand's largest emissions source; fleet electrification delivers material emissions reductions across all government portfolios simultaneously

The Invisible Billion

No single agency can see the full picture of what this framework delivers, because the benefits are distributed across portfolios. Treasury sees the import bill reduction. Health

[57]MBIE, Energy in New Zealand 2024; Statistics New Zealand, Merchandise Trade Data 2023–24. New Zealand's liquid fuel import bill has consistently exceeded $5 billion/year and reached approximately $7 billion in 2022–23 during the period of elevated global fuel prices.

sees the hospital energy savings. Education sees the school bills. Transport sees the fleet costs. Emergency management sees the resilience investment. Police sees the patrol car fuel savings. But when you add it up across government, the operating cost savings, the avoided disaster response costs, the import bill reduction, the productivity gains from warmer and more resilient public facilities, the aggregate return to government from this framework is almost certainly a net positive within a decade. No agency is currently tasked with making this calculation. One should be.

9.3 THE GOVERNANCE SOLUTION: ENERGY SECURITY AT THE CENTRE

New Zealand has solved the cross-agency coordination problem before when the stakes are high enough. The COVID-19 response was coordinated centrally through Cabinet and the Department of Prime Minister and Cabinet (DPMC), with a lead Minister, clear cross-agency mandate, dedicated resource, and daily accountability. The National Emergency Management Agency provides a standing model for cross-agency coordination in crisis. What is needed now is the equivalent machinery for pre-crisis energy security investment.

Rewiring Aotearoa recommends the following governance structure:

A Dedicated Minister for Energy Security and Resilience

Energy security of this nature is not adequately served by an Associate Energy Minister whose primary portfolio sits elsewhere. The scale of investment and the cross-portfolio coordination required demands a dedicated senior Minister with explicit responsibility for national energy security and resilience, including the electrification of critical infrastructure. This Minister should have read-across rights to decisions in Health, Education, Transport, Corrections, and Emergency Management that bear on energy security.

A Cross-Agency Energy Security Council

The Minister should be supported by a standing Energy Security Council of senior officials from all affected agencies: MBIE (energy), MCERT (transport, local government, environment, and housing), DPMC (central coordination), Treasury (fiscal), NEMA (emergency management), Health NZ, Ministry of Education, NZTA, New Zealand Police, FENZ, Corrections, and MPI. This is not a committee, it is an accountability structure, with its secretariat hosted by DPMC alongside the national security system it already runs. It should meet monthly, report quarterly to Cabinet, and have binding authority to require agencies to incorporate energy security criteria into their capital procurement decisions.

This is a proven model, not new bureaucracy, and among comparable countries it is the standard architecture. Finland's National Emergency Supply Agency has run since 1993: roughly one hundred experts coordinating a national network of government-business 'pools' across energy, food, transport, health, and communications, maintaining classified strategic stockpiles, and holding a 24.9% stake in the national grid operator, security of supply treated as core state business, and widely regarded as world best practice. Australia has operated the National Oil Supplies Emergency Committee since 2002 under the Liquid Fuel Emergency Act 1984: a statutory standing committee of the Commonwealth, every state and territory, and the liquid fuel industry, one of three permanent energy emergency committees reporting through to Energy Ministers. The United Kingdom's Energy Emergencies Executive Committee is the standing interface between government, devolved administrations, regulators, and industry for energy emergency planning, tested through real events. And the IEA's emergency response framework assumes member countries maintain standing national emergency machinery before a crisis, not assembled after one begins.[58]

The lesson from every precedent runs the same way: coordination bodies formed during a crisis spend the first weeks of the crisis discovering who holds which lever, as New Zealand's own COVID-19 experience demonstrated. The bodies that work are standing, senior, exercised in peacetime, and cheap. The Council proposed here requires no new agency: it is officials who already exist, a small DPMC secretariat, and meeting discipline, closer to a heartbeat than a bureaucracy. The genuinely unusual option is the status quo, in which New Zealand stands out among comparable economies for having no standing cross-government energy security machinery at all. Without it, the actions in this framework have no owner, and in government, what has no owner slips until it is too late.

Central Oversight of the CIESF

The Critical Infrastructure Energy Security Fund should not be administered solely by EECA, a capable agency but one without the mandate or seniority to direct spending decisions across Health, Education, and Transport. EECA should provide technical expertise and delivery capability. But the investment decisions of the CIESF should be made by the Energy Security Council, accountable to the dedicated Minister, with Treasury co-oversight on value for money. This is the only governance structure that can prioritise across portfolios rather than within them.

A Whole-of-Government Energy Security Dashboard

The Minister and Council should be accountable to a public National Energy Security Dashboard, tracking electrification progress, fuel reserve levels, hospital backup power capability, fleet transition rates, and charging network deployment across all portfolios. Published quarterly. No agency can hide behind its silo if every portfolio's contribution to national energy security is publicly tracked.

Precedent: The Infrastructure Commission Model

Te Waihanga, the Infrastructure Commission, demonstrates that New Zealand can create a central body with cross-agency visibility and authority over infrastructure investment that previously sat in fragmented departmental silos. The Energy Security Council proposed here follows the same logic: expertise and coordination sitting at the centre, agencies retaining delivery responsibility, Cabinet retaining final authority. The difference is urgency: the fuel security window is open now, and the cost of delay is measurable in days of diesel.

The recommendation is not to create a large new bureaucracy. It is to ensure that the substantial public investment and procurement decisions already happening across government, hospital capital works, school property upgrades, fleet procurement, emergency infrastructure, are made with energy security criteria embedded, under a Minister and council with authority to hold agencies to account. That is a governance

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[58] Finland: National Emergency Supply Agency (Huoltovarmuuskeskus), established 1993, Ministry of Economic Affairs and Employment; the agency coordinates the National Emergency Supply Organisation's sector pools, maintains state emergency stockpiles, and holds 24.9% of grid operator Fingrid. Australia: National Oil Supplies Emergency Committee, established 2002 under the Liquid Fuel Emergency Act 1984 and a 2006 Intergovernmental Agreement, chaired by DCCEEW with all states, territories, and the liquid fuel industry; one of three standing energy emergency committees (with NGERAC for gas and NEMEMF for electricity) reporting through the Energy and Climate Change Ministerial Council. United Kingdom: Energy Emergencies Executive Committee (E3C), the standing government-devolved-regulator-industry forum for gas and electricity emergency planning and response.

design choice, not a spending decision, and it determines whether this framework is implemented or quietly forgotten.

13. IMPLEMENTATION FRAMEWORK AND FUNDING PRIORITIES

13.1 PROPOSED CRITICAL INFRASTRUCTURE ENERGY SECURITY FUND

A critical framing point before discussing the fund: the majority of the spending contemplated by this framework is not new spending, it is existing spending redirected. Government already buys ambulances, police cars, FENZ vehicles, hospital backup systems, school boilers, and prison heating systems. The question is not whether to spend this money, but what to specify when spending it. Mandating electric vehicles in fleet procurement, specifying solar and battery in hospital capital works, and requiring heat pump heating in school property upgrades costs little or nothing more than the status quo procurement decision, and frequently costs less over the asset life due to significantly lower running costs.

The total cost of ownership advantage is material. An electric patrol car costs approximately $8,000–12,000 less per year to run than its diesel equivalent. An electric bus saves $30,000–50,000 per year in fuel and maintenance. Hospital solar pays back in five to seven years and then generates savings for 20+ more, while the battery alongside it displaces diesel generator infrastructure and its running costs. These are not costs that need to be justified against a baseline of zero, they are investments that pay for themselves and then generate surpluses. Much of what this framework recommends is simply bringing forward investments that will happen anyway, capturing the energy security and resilience co-benefits at the same time, and letting the lower operating costs fund the next wave of transition.

The Critical Infrastructure Energy Security Fund (CIESF) is therefore sized to cover the genuinely additional capital required, the premium for electric over diesel in new procurements, the solar and battery installations that are not part of existing capital works programmes, the charging infrastructure that needs to be built from scratch, and the co-investment in private sector critical supply chains. It complements and builds on existing funding mechanisms including EECA's Community Renewable Energy Fund (CREF), the New Zealand Green Investment Finance vehicle, and Warmer Kiwi Homes, it does not replace them.

Government should establish the CIESF of $2–3 billion over ten years, administered by EECA with technical oversight from NEMA and fiscal oversight from Treasury. Funding should be allocated across the pillars on approximately the following basis:

Funding Pillar	Indicative Allocation	Primary Recipients
Pillar 1: Crown-Owned Asset Electrification	$700M–1.0B	Health NZ (hospitals), MoE (schools), Police, FENZ, Corrections
Pillar 2: Local Government & Public Transport	$500M–800M	Regional councils, Auckland Transport, Wellington, CDEM centres
Pillar 3: Critical Private Infrastructure	$600M–900M	St John, Wellington Free, food logistics operators, telecom
Pillar 4: Essential Workers' Personal Transport	$300M–500M	Kiwibank loan scheme, workplace charging, targeted grants
Pillar 5: Food Production Resilience	$300M–500M	Irrigators, food processors, regional food programmes

Funding Pillar	Indicative Allocation	Primary Recipients
Pillar 6: Charging Infrastructure (freight hubs, depots, marine)	$400–600M	NZTA, CIESF, EDB regulation, co-invested with freight, supermarket, and port operators via concessional loans
Pillar 7: Core Fiscal Machinery (Treasury / CBAx / actuarial valuation)	<$10M	Treasury, Government Actuary, near-zero cost, unlocks the business case for all other pillars
Fuel Prioritisation Infrastructure	$100M–200M	MBIE (reserve storage), CDEM preparedness
Research, EV Infrastructure, and Monitoring	$100M–200M	EECA, research institutions, regional councils

13.2 SEQUENCING AND QUICK WINS

The sequencing logic across the whole framework runs in two steps. Step one costs almost nothing: lock in the procurement default, so that every vehicle and machine government was going to replace anyway is replaced electric, converting business-as-usual capital expenditure into permanent fuel security. Step two costs real money and is prioritised by criticality: bringing forward the replacement of the most fuel-exposed critical assets ahead of their natural cycle, funded through the CIESF. Much of the investment this framework describes is not new spending at all; it is existing replacement spending pointed in the right direction.

Not all investments need to wait for the full Fund to be established. Several high-impact, low-complexity actions can be taken immediately:

- Immediate (Year 1): Bind all new government vehicle procurement to full battery-electric, with exceptions only where no electric alternative exists for the specific operational requirement. Plug-in hybrids do not qualify as an exception, they retain fuel dependency and undermine the resilience rationale. Cost: near-zero (built into existing procurement budgets).
- Immediate (Year 1): Commission a full audit of hospital backup power systems, including current diesel fuel storage levels and duration capability. Cost: $2–5 million.
- Year 1–2: Begin solar + battery installations at the 20 largest public hospitals. Estimated cost: $150–250 million. This is the single most impactful resilience investment available.
- Year 1–2: Make electric or PHEV vehicles mandatory in all new ambulance procurements. Cost: a modest upfront premium over diesel, recovered several times over through running costs approximately a quarter of diesel's.
- Year 1–2: Develop and publish the Fuel Prioritisation Protocol through MBIE and NEMA. Cost: $1–2 million in policy development.
- Year 2–3: Launch the Critical Supply Chain Electrification Grant for food distribution fleets. Initial fund: $50–100 million.

13.3 MEASURING PROGRESS

Government should establish and publicly report on a National Fuel Resilience Dashboard, compiled by the Energy Security Council secretariat and published annually, measuring:

- Percentage of critical fleet electrified by category (Police, FENZ, ambulance, government general fleet)
- Hospital backup power duration (average hours of backup across all public hospitals)

- Percentage of school heating systems converted from fossil fuels
- Percentage of food distribution fleet electrified
- National fuel reserve levels and geographic distribution
- Number of critical infrastructure sites with solar + battery backup installed

13.4 RELATIONSHIP TO EXISTING POLICY FRAMEWORKS

This framework complements and draws on several existing government strategies and should be integrated with rather than duplicated by them:

- New Zealand Energy Strategy (MBIE): Fuel security objectives should be explicitly incorporated
- National Disaster Resilience Strategy (NEMA): Fuel security should be elevated to a top-tier risk
- New Zealand ETS and emissions reduction targets: Accelerated critical infrastructure electrification advances both resilience and emissions goals
- Government Fleet Policy (DIA): Binding electrification timelines should be set immediately
- Infrastructure Commission 30-year plan: Fuel security should be treated as a foundational infrastructure requirement

13.5 A FUEL SECURITY LENS ON BROADER POLICY: THE MISSING STATEMENT IN CABINET PAPERS

The pillars and programmes above cover decisions made in the name of fuel security. But many of the decisions that most affect New Zealand's fuel security are made in policy processes where fuel security is never mentioned at all. Vehicle standards, freight policy, planning rules, agricultural settings, and energy market design all move the national fuel exposure, sometimes by more than any single investment in this framework, and none of them currently passes through any fuel security assessment on the way to Cabinet.

The Clean Vehicle Standard is the live example. On 21 August 2026, government decided to retain the Standard following a first-principles review in which scrapping it was an open option, and is now recalibrating its settings, with industry engagement reporting back in early 2027 and new targets taking effect from 1 January 2028. Every part of that decision, and the entire public rationale, is framed in terms of CO2 and vehicle affordability. Fuel security appears nowhere. Yet the Standard is among the most consequential fuel security instruments New Zealand has: it shapes the efficiency and electrification of every vehicle entering the fleet, and the settings chosen between now and 2028 will determine national fuel demand for the twenty-year life of the vehicles imported under them. A weaker trajectory means measurably more imported litres, more exposure, and a larger contingent liability, none of which will have been weighed, because the analytical frame never asked the question. The recalibration now underway should assess displaced litres alongside abated tonnes, and every settings option should carry an estimate of its fuel security impact.[59]

The fix is a standard piece of machinery government already knows how to run. Cabinet papers are already required to address climate implications where relevant, through the

[59] Hon Chris Bishop, 'Government to Retain Clean Vehicle Standard', 21 August 2026: the Standard retained for new and used imports following a first-principles review; settings to be recalibrated with industry engagement reporting back in early 2027 and new targets effective 1 January 2028. The announcement and review framing address emissions targets, cost-effectiveness of lower-emissions vehicle supply, and vehicle affordability; fuel security is not referenced. Analysts noted during the review that removal would have left New Zealand one of only two OECD countries without a vehicle emissions standard.

Climate Implications of Policy Assessment. The same discipline should apply to fuel security:

- Require a Fuel Security Impact Statement in Cabinet papers where relevant, modelled directly on the Climate Implications of Policy Assessment: a short, standard assessment of whether and how the proposal changes New Zealand's liquid fuel demand, fleet composition, or critical infrastructure fuel dependency, established by Cabinet Office circular with assessment guidance and support from MBIE.
- Set a simple relevance test: the statement applies to proposals materially affecting vehicle fleet composition, liquid fuel demand, freight movement, energy systems, or the backup arrangements of critical infrastructure, and is a single line for everything else.
- Apply it to the decisions already in train, starting with the Clean Vehicle Standard recalibration, the Government Policy Statement on Land Transport, and the LNG import decision, so the lens arrives while these settings are still open.

This completes the set. Pillar 7 wires fuel security into how government appraises investment and accounts for risk; the Energy Security Council wires it into how government coordinates; and the Fuel Security Impact Statement wires it into how government decides policy. A Cabinet Office circular is all it takes, no legislation, no new agency, and no future government should be able to reset a policy that moves billions of litres of fuel demand without the paper in front of Ministers saying so.

14. SUMMARY OF RECOMMENDATIONS

The following recommendations are presented by timing horizon. Where things could start sooner, they should. The current moment, with fuel prices high, supply chains exposed, and public attention focused, is the strongest mandate this agenda is likely to have. The appetite is now.

Act in This Window

Crises create political permission that normal times do not. The current fuel supply disruption has opened a window for decisions that would ordinarily take years of advocacy to achieve. Every week of delay is a week of missed opportunity. Several of the 'immediate' actions below can be executed within days or weeks with existing ministerial authority, no new legislation, and no new budget. The governance actions in particular cost almost nothing and unlock everything else.

NOW: WITHIN THE MONTH (MINISTERIAL DECISIONS, NO NEW LEGISLATION REQUIRED)

- Announce the establishment of an Energy Security Council of senior officials across MBIE, DPMC, Treasury, NEMA, Health NZ, MoE, NZTA, Police, FENZ, Corrections, and MPI, to meet monthly and report to a designated lead Minister. Cost: near-zero. Impact: unlocks cross-agency coordination immediately.
- Issue a Cabinet Office circular requiring a Fuel Security Impact Statement in Cabinet papers where relevant, modelled on the Climate Implications of Policy Assessment, applying immediately to the Clean Vehicle Standard recalibration and other fuel-consequential decisions already in train (see Section 13.5). Cost: near-zero. Impact: every future policy decision that moves fuel demand is made with eyes open.
- Designate a lead Minister for Energy Security and Resilience with explicit cross-portfolio mandate. This is a Cabinet decision, not a budget decision.
- Direct Health NZ to commission an immediate audit of backup power duration at all public hospitals and report within 30 days. Cost: minimal. This data almost certainly does not exist in one place and is needed before any investment can be sequenced.
- Issue a direction to all government agencies that all new vehicle procurement from today is full battery-electric unless a specific exemption is approved by the lead Minister. This requires no legislation, it is a Government Fleet Policy update.
- Require Health NZ to include full battery-electric as the mandatory specification in all new ambulance tenders from today.
- Direct MBIE to establish a Clean Energy Supply Chain Intelligence function and produce a first Supply Chain Risk Assessment within 90 days.
- End further diesel ferry procurement in Auckland through the new governance settings: embed an electric-or-hybrid vessel standard in the Auckland Regional Transport Committee's first plans, condition NZTA ferry co-funding on it, and work with Auckland Council, which resumes transport policy control by November 2026, so no Pine Harbour diesel tranche proceeds and harbour charging is completed at pace. Auckland-designed electric ferries are being exported to Australia; Auckland should not be buying diesel.

IMMEDIATE ACTIONS (BUDGET AND YEAR 1)

- Establish the Critical Infrastructure Energy Security Fund ($2–3B over 10 years) in the next Budget, with an initial allocation sufficient to begin hospital solar + battery at the ten highest-priority sites within 12 months.
- Scale up the school fossil fuel heating transition, Government has begun, with $37 million announced in April 2026 to replace diesel boilers at up to 70 schools. Extend this from 70 schools to the full remaining fossil-fuelled estate, funded through MoE's property programme with CIESF top-up, prioritising Southland, Otago, and inland Canterbury where fuel dependency and heating loads are greatest, and pair every boiler replacement with the Solar on Schools rollout so each school is visited once, not twice.
- Launch the Critical Supply Chain Electrification Grant for food distribution fleets (Foodstuffs, Woolworths, and key logistics operators). The Foodstuffs North Island electric truck is on the road today, the proof of concept is done. Don't wait for a grant scheme to be designed from scratch; adapt EECA's existing Low Emission Heavy Vehicle Fund and scale it specifically for critical food supply chain operators.
- Begin the national electric freight charging network design and consenting process for Priority Route 1 (Auckland–Wellington). Procurement can follow; but design and consenting on a motorway corridor takes 12–18 months, start now.
- Develop and publish the National Fuel Prioritisation Protocol, aligned with and updating the Government's existing Fuel Response Plan 2026 bands, with the adjustments proposed in Section 10 of this framework.
- Enact the EV Salary Boost in the next tax bill: clarify pre-tax salary treatment of EV leases, settle the FBT position, and amend the CCCFA settings that currently block payroll-based EV leasing. Minimal fiscal cost, partly GST-offset and potentially revenue-positive in early years, with an estimated 150 million litres of annual fuel displacement at scale.
- Establish the whole-of-government National Energy Security Dashboard and begin quarterly public reporting.
- Develop pre-qualified supplier panels and 'procurement packages on the shelf' for bulk EV, solar, and battery procurement, not to spend, but to be ready to spend quickly if global supply chain conditions warrant it.

SHORT-TERM ACTIONS (YEARS 1–3)

- Complete solar + battery installation at the 20 largest public hospitals
- Establish National Food Chain Resilience Plan with MPI and the food industry, mapping electrification dependencies and fuel-exposed nodes
- Deploy Priority Route 1 (Auckland–Wellington) electric freight charging hubs, operational by 2027
- Require Foodstuffs and Woolworths to develop and test fuel disruption contingency plans with NEMA oversight
- Achieve 100% electric specification for all new Auckland and Wellington urban bus procurement
- Set a 72-hour backup power standard for critical cell sites and emergency broadcast transmission sites, met with 24 hours of on-site battery plus guaranteed bidirectional electric fleet-vehicle response (and solar where sites allow), co-funded with network operators, closing the vulnerability Cyclone Gabrielle exposed
- Establish regional fuel reserve obligations and geographic distribution requirements
- Scale EECA's Community Renewable Energy Fund to cover 500+ community resilience hub sites (marae, schools, community halls), prioritising CDEM-designated centres

- Deploy solar + battery at all major food distribution centres through co-investment with Foodstuffs and Woolworths
- Complete first Supply Chain Risk Assessment and establish government-to-government clean energy supply chain relationships with key partners

MEDIUM-TERM ACTIONS (YEARS 3–5)

- Complete hospital solar + battery programme across all public hospitals
- Achieve 50% electrification of Police and FENZ light vehicle fleets
- Complete Priority Routes 2–4 of the national electric freight charging network
- Achieve full electrification of urban ambulance fleet
- Complete school fossil fuel heating transition in all cooler-region schools
- Achieve 90% electrification of medium truck fleet (depot-return urban operators)

LONG-TERM TARGETS (YEARS 5–10)

- Achieve fuel independence for all Band A–B critical services: zero fuel dependency for hospital operations, emergency vehicles, ambulances, and urban freight
- Achieve 80% electrification of the Crown-owned vehicle fleet
- 60-day fuel reserve coverage for Band A–C critical protected uses, achievable through the combination of fleet electrification (dramatically reducing critical daily demand) and expanded storage at Marsden Point and other terminals
- 30% of heavy truck freight task electrified on routes served by national charging network
- Kupe and Cook (hybrid diesel-electric, battery banks) in Cook Strait service from 2029 with shore power at Wellington and Picton operating from day one, and battery operation share growing over the vessels' life

SUGGESTED NEXT STEPS: DEEPER ANALYSIS

This framework identifies the strategic investment priorities and their rationale. Several areas warrant deeper quantitative analysis to strengthen the case and inform implementation:

- Macroeconomic and fiscal impact modelling: A full analysis of the macroeconomic benefits of this framework would likely show substantial positive returns, reduced import costs (currently $5–7 billion/year in liquid fuels), improved balance of payments, increased domestic economic activity in clean energy installation and maintenance, and the avoided cost of fuel disruption scenarios. Treasury or an independent economic research body should be commissioned to model these effects. We expect the overall fiscal picture to be strongly positive even before resilience benefits are counted.
- Detailed fleet-by-fleet electrification modelling: A granular analysis of each critical fleet category (by vehicle type, age profile, replacement cycle, and available electric alternatives) would provide the basis for more precise funding requirements and transition timelines.
- Hospital and school solar + battery feasibility programme: A systematic roof and carpark survey across all public hospitals and eligible schools, producing site-by-site solar generation estimates, battery sizing, and financial models. This would convert the aggregate recommendations in this framework into a shovel-ready investment pipeline.
- Regional fuel vulnerability mapping: A region-by-region analysis of fuel dependency, storage proximity, critical service concentration, and electrification progress would

enable more targeted prioritisation of investment and identify the most exposed communities.
- Freight network electrification modelling: Working with major freight operators and NZTA to model the specific charging infrastructure investments needed to enable heavy truck electrification on each priority route, including grid connection requirements and battery hub sizing.

The Bottom Line

New Zealand's fuel import dependency is not a fact of nature, it is a policy choice. The technology to dramatically reduce that dependency exists today and is being deployed right now: electric ambulances in Hamilton, electric trucks delivering groceries on the lower North Island, electric ferries on Auckland Harbour. The economic case is compelling. The resilience argument is urgent. What is required is political will and a structured investment framework. Powering New Zealand from within, through homegrown renewable energy and an electrified critical fleet, is one of the highest-return infrastructure investments government can make[60]: it reduces our vulnerability to international shocks, cuts our import bill, reduces emissions, and builds a more resilient foundation for all the essential services New Zealanders depend on.

Key Reference Documents

This framework draws on the following key documents and datasets:

- Rewiring Aotearoa, National Machine Count Data (various years)
- MBIE Energy in New Zealand (annual publication)
- MBIE Energy Security Assessment 2019
- MBIE Fuel Security Study 2024 (cited in NZ Herald, April 2026)
- National Disaster Resilience Strategy, NEMA 2022
- National Civil Defence Emergency Management Plan (CDEM Plan)
- Infrastructure Commission Te Waihanga, 30-Year Infrastructure Strategy
- Infrastructure Commission, Critical Infrastructure Risk Management Framework
- Ministry of Health, Health System Preparedness Review 2021
- Treasury, Living Standards Framework pandemic economic analysis 2020
- IEA Oil Emergency Response Mechanisms, New Zealand country profile
- COVID-19 Essential Services Schedule (NZ Government 2020, as amended)
- European Commission, REPowerEU: 4 Years On (2026)
- IEA, Case Study: Electric Buses in Shenzhen, China
- World Bank, HEAL Project: Ukraine Health Facility Solar Programme (2025)
- US Army Climate Strategy (2022), installation microgrid and energy resilience commitments
- Ember, Avoided Fossil Fuel Import Analyses (China and EU EV fleets)
- Rüdiger, M., The 1973 Oil Crisis and the Designing of a Danish Energy Policy, Historical Social Research 39(4), 2014
- Commerce Commission, Market Study into the Retail Grocery Sector 2022
- KiwiRail, Interislander Fleet Replacement Programme documentation
- EECA, New Zealand Energy Efficiency and Conservation Strategy

[60] Rewiring Aotearoa, The Electrification Opportunity Report 2024. The report estimates combined household and business savings from full electrification of NZ's fossil fuel machine fleet at approximately $29 million per day by 2040.

- MCERT (formerly Ministry of Transport), Decarbonising Transport Action Plan
- Cyclone Gabrielle Recovery Reports, Hawke's Bay Regional Council 2023
- St John UK, Electric Ambulance Fleet Programme evaluation reports