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Challenges in transport and logistics over the next decade

Sustainable Aviation Fuel: Helping keep New Zealand connected and competitive

DHL opens New Zealand's newest healthcare logistics hub

The Chartered Institute of Logistics and Transport

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ON THE COVER

The CILT Annual Forum and Awards Dinner at Public Trust Hall with MC Wendy Petrie celebrated excellence in the presence of Ministers, parliamentary leaders, and senior industry figures. *PHOTOS: Fineline Photography*

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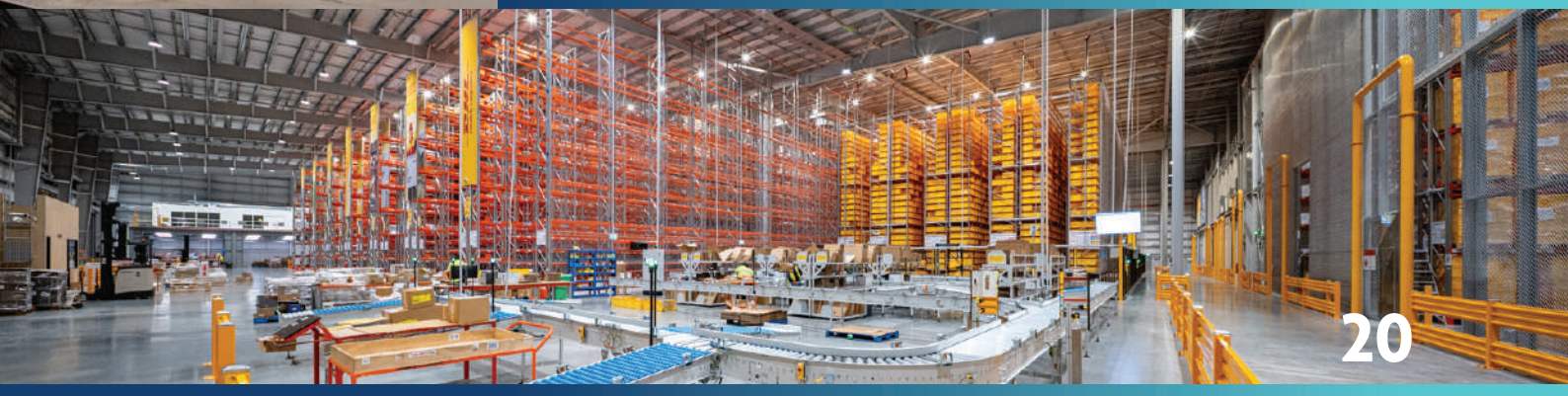
In the next edition

The editorial team welcomes expressions of interest for submitting an article for the March 2026 edition of this journal, especially from young professionals (those under the age of 35). Contributors should in the first instance contact the editorial convenor, Murray King (email murray.king@xtra.co.nz) to discuss their article. **Deadline for the March 2026 edition: February 13 2026.**



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Challenges in transport and logistics over the next decade

THE CILT ANNUAL FORUM, held on the eve of the Awards Dinner in Wellington, brought together industry leaders, analysts, and policymakers to examine how transport and logistics can "make it happen" in the decade ahead. Sponsored by MITO and hosted at the Ministry of Transport, the afternoon moved with the steady rhythm of a sector taking stock, linking workforce development, infrastructure planning, and supply chain productivity into a single conversation about capability and readiness.

Central Section Chair Andrew Body opened the forum, before handing to Sturrock Saunders, Chair of MITO. Mr Saunders framed the day's first discussion by reflecting on the April decision to disestablish Te Pūkenga, an intervention he described as an opportunity for MITO to return to industry ownership and regain the agility needed to respond to shifting skill requirements and technological change. With transport and logistics facing escalating pressures on capability, he underscored MITO's commitment to partnering closely with industry to shape training pathways that match real-world demands.

Phil Urlich of MITO then guided the room toward the forum's two central themes: infrastructure and supply chain productivity. He introduced a panel tasked with examining what a future-ready workforce should look like by 2035, and how targeted training, qualifications, and industry partnerships could support it.

Rob Hayes of Infometrics set the analytical foundation. He charted demographic, technological, and economic trends likely to shape the sector, noting that provincial regions and the South Island may lead short-term recovery. Opportunities, he argued, will come from greater diversity, more flexible training systems, deeper engagement with schools and technical education providers, and the increasing influence of digitisation, climate adaptation, freight growth, and tourism recovery. Yet the longer-term picture remains tempered by labour constraints, cost escalation, global volatility, and the restructuring of supply chains. These themes threaded through the contributions of fellow panellists Dallas Vince (Booths), Henry Boon (Toyota), James Smith (Road Carriers Association), and Wendy Morrison (Tranzit), each highlighting priorities specific to their operational contexts.

A second panel, introduced by Andrew Body, shifted attention toward infrastructure planning and investment. Robbie Woods outlined the progress of Te Utanganui, a major development near Palmerston North designed to strengthen national freight connectivity and unlock regional potential. His presentation reflected the hub's strategic significance, previously explored in depth in the September issue.

KiwiRail's Walter Rushbrook followed with an update on electrifying the Golden Triangle rail corridor. His remarks echoed themes discussed elsewhere in the publication, highlighting how decarbonisation is reshaping long-term rail planning.

Nadine Dodge of the Infrastructure Commission then brought a macro lens to the sector, presenting insights from the Infrastructure Priorities Programme (IPP). She noted that nearly $80 billion worth of major initiatives remain without identified funding, $65 billion of them transport-related. The IPP, she explained, is designed to offer a disciplined, transparent framework for assessing projects so decision-makers can avoid common pitfalls: unclear problem definitions, costly or inefficient solutions, inadequate options analysis, and projects not being as delivery-ready as proponents believe.

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NZTA's Emma Speight provided a practical grounding by walking the audience through key roading projects across the Lower North Island. Her update spanned programmes already delivered, projects under construction, and major works still undergoing consultation or consent processes, from the Ōtaki to north of Levin corridor to improvements through Wellington city. Together, the briefings painted a picture of a region where strategic investments in roading, safety, resilience, and connectivity must contend with tight funding, rising costs, and high public expectations.

The forum's final panel, chaired by CILT President Suhail Sequeira, returned to the question of productivity and how New Zealand might strengthen performance across supply chains. Speakers Wayne Johnson (ContainerCo), Marian Willberg (Ministry of Transport), Dom Kalasih (Transporting NZ), Andrew Locke (CentrePort), and Alan Piper (KiwiRail) contributed a spectrum of practical and policy perspectives.

Chris Money of EY provided the panel's anchor presentation on supply chain efficiency. He highlighted five persistent challenges: New Zealand's distance to markets, low capital intensity, an ageing and highly competitive labour market, rising input costs, and the increasing weight of sustainability obligations, including embedded (Scope 3) emissions. His analysis, set to feature in more detail in the next issue, framed productivity not merely as an economic measure but as a central determinant of resilience and competitiveness in turbulent global conditions.

Across the afternoon, a narrative emerged: transport and logistics in New Zealand stand at a critical junction where workforce capacity, infrastructure decisions, and supply chain design must intersect rather than evolve in silos. The forum created a space where industry and government could not only surface challenges but also identify the interdependencies that will shape the next decade.

This conversation continued into the evening at the CILT Annual Awards Dinner, attended by Parliamentary Under-Secretary Simon Court, and Andy Foster, Chair of the Transport and Infrastructure Select Committee, signals of the political weight placed on this sector's performance.

Suhail Sequeira summed up the Forum:
"The 2025 CILT NZ Forum brought together leaders from across the transport, logistics, and supply chain industry for a day of valuable insights, honest conversations, and forward-thinking solutions. With expert presentations and engaging panel discussions, the event highlighted the challenges facing our industry and the opportunities we can collectively unlock. The strong turnout and positive energy reinforced the industry's commitment to innovation, collaboration, and lifting capability across New Zealand. Thank you to everyone who contributed to making the Forum a standout success."


Focus on the
things you ca
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Take the time
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and health costs
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choice


Andrew Bo
CILT Central Committee Ch


CILT Annual
Awards Dinner
In partnership
with ContainerCo
ContainerCo
CentrePort
Wellington
Vitruvius
mito


ContainerCo


Pathway to 2035:
Workforce Development


Workforce Development
in Transport &
Moderator: Phil Urlich,
MITO

Celebrating excellence at the 2025 CILT Annual Forum and Awards Dinner

The 2025 CILT Annual Forum and Awards Dinner once again brought New Zealand's transport and logistics community together, this year in Wellington, to recognise the people and organisations lifting performance across the sector.

With senior government leaders in attendance and a room full of practitioners from every corner of the supply chain, the afternoon underscored both the complexity of the sector's challenges and the calibre of those stepping up to meet them. Across academic achievement, innovation, communications, and emerging leadership, the awards reflected the Institute's values: professionalism, service, and a commitment to shaping a safer, more efficient, and more sustainable transport system.

TRET Young Achiever of the Year: Shania Rajanayagam

The Young Achiever Award recognises emerging professionals who are already making a substantive contribution to the industry. This year's recipient, Shania Rajanayagam, exemplifies exactly the kind of future-focused leadership CILT aims to foster.

In just five years at Vitruvius, Shania has delivered work with a reach far beyond her age or tenure. Already a Chartered Professional Engineer, she has played integral roles in multiple major investment cases for the Auckland and Wellington rail networks and provided safety assessments for KiwiRail. Her portfolio spans technical analysis, project delivery, and strategic advisory across local government and national infrastructure agencies.

But proficiency alone does not explain why colleagues consistently describe her as exceptional. Shania brings confidence, clarity, and a collaborative manner to every engagement. Whether she is guiding senior leaders through complex engineering decisions, facilitating community-facing workshops, or coaching younger engineers, she operates with a level of authenticity that builds trust.

Her leadership is both outward-facing and inward-facing. Shania is known for mentoring junior staff, stepping in to support projects beyond her immediate remit, and contributing to a culture where learning and shared ownership are the norm. This approach (professional, people-focused, and proactive) reflects the best of CILT's values and signals a bright future for the sector.

Norman Spencer Memorial Medal: Kris Lancaster

The Norman Spencer Memorial Medal is reserved for those whose sustained contribution has reshaped New Zealand's logistics and transport landscape. This year's recipient, Kris Lancaster, General Manager Supply Chain at Foodstuffs South Island, stands firmly in that tradition.

Kris's work over many years has materially altered how essential goods move across the South Island. He has led transformative projects, from designing and implementing a centralised temperature-controlled distribution centre to developing a cross-docking system that strengthened the quality and integration of fresh products. His leadership in consolidating multiple distribution centres into modern, efficient sites has been widely recognised for lifting capability and resilience.

Importantly, Kris has also championed the adoption of technology, embedding a transport management system and semi-automated picking solutions that have improved agility and operational efficiency. During COVID-19, when supply chains were under unprecedented pressure, these systems and his steady leadership ensured continuity of essential services – a contribution felt across every supermarket aisle in the region.

Beyond Foodstuffs, Kris has been an advocate and educator within CILT. A former Southern Section Chair, regular presenter, and journal contributor, he has helped widen industry understanding of supply chain best practice and inspired emerging professionals. His commitment to community, through long-standing involvement in the Belfast Rugby Football Club and local sports centre,

rounds out a profile defined by service, integrity, and deep sector expertise.

Sir Bob Owens Memorial Award: Fiona Knight

If there is an award that captures the heart of CILT, it is the Sir Bob Owens Memorial Award. This year it was presented to someone who has shaped the Institute's culture and capabilities for more than 30 years: Fiona Knight.

Fiona's contribution is unique in both scale and character. A Fellow since 1997 and the first woman to chair a New Zealand Section, she has been a constant source of leadership, continuity, and organisational memory. Much of her influence has been behind the scenes, managing the CILT Awards for more than 15 years, coordinating judging panels, and encouraging teams and individuals to put themselves forward for recognition. Only with her recent handover has the sector fully appreciated the volume and importance of her work.

Her professional career has been equally distinguished. Fiona has advised on major policy reforms in shipping and land transport, represented New Zealand internationally, and chaired committees focused on improving road management and effluent control; real, practical issues that can often determine the reliability of freight networks.

Yet, Fiona's most enduring legacy may be the generations of young professionals she has mentored. Her warmth, encouragement, and genuine belief in people have strengthened not only careers but the profession itself. The award is a fitting recognition of someone who has devoted decades to lifting others.

Recognising excellence across the sector

CILT also highlighted outstanding contributors across a broad range of categories, underscoring the sector's diversity and depth of talent.

RISING STAR AWARD: Corintho Carpio, Maersk, honoured for exceptional performance in managing New Zealand's record reefer export season and demonstrating leadership across equipment and flow management.

MITO/CILT SCHOLARSHIP: Sophie Cosgrove, Foodstuffs South Island, recognised for her commitment to professional development and her leadership impact on driver capability and training.

BEST ARTICLE AWARD: Nina Elter and Peter Carr for a clear and practical analysis of international road-funding models.

HIGHLY COMMENDED ARTICLE: Alan Win for a significant evidence review on resilience and futureproofing infrastructure.

CILT PRESENTATION AWARD: Adam Prendergast, Foodstuffs South Island, for transformative delivery of the Skills Based Framework Orientation sessions.

DEXION AWARD FOR EXCELLENCE & INNOVATION: TR Group, recognised for pioneering New Zealand's first operational hydrogen truck network and accelerating zero-emission freight.

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Golden Triangle Electrification Project

BY WALTER RUSHBROOK

THE ARTICLE in this edition by Michael McKeon sets out KiwiRail's thinking on decarbonisation. It concluded that battery electric locomotives were the right choice for the future. Building on that, KiwiRail have developed outline plans for moving to electric propulsion for the Auckland-Hamilton-Tauranga lines (the "Golden Triangle").

Walter Rushbrook set out the key points in a presentation to the recent CILT Forum in Wellington

Already the route is partially electrified, in the Auckland metro area as far south as Pukekohe. As well, there is existing NIMT electrification between Palmerston North and Te Rapa in Hamilton. That leaves two relatively short (80-100km) gaps in the Golden Triangle (Pukekohe-Te Rapa on the North Island Main Trunk, and Hamilton – Tauranga on the East Coast Main Trunk.

The Golden Triangle is the busiest part of the rail freight network, carrying nearly half of all freight traffic on rail, and has capacity to grow. Prioritising decarbonisation investment in this area would help achieve the greatest reduction in freight carbon emissions from rail.

The project has further developed the locomotive ideas in the decarbonisation report. An option being considered is a hybrid overhead-battery electric locomotive.

This has a pantograph for drawing current directly from OHL (Overhead Lines) wires, and a 4-4.5 MWH battery for non-wired sections. The pantograph is lowered when running on battery. The locomotive battery would be predominantly charged at rail terminals during the strip and re-loading of the train. There is the option for some trickle charging of the battery in the overhead sections of the route and from regenerative braking.

The locomotive has a driving cab at each end to enable efficient operations. It is proposed that OHL would be provided for the NIMT gap between Pukekohe and Te Rapa. Possibly a short distance of OHL east of Hamilton may be required (depending on the final locomotive battery size), but the locomotive would rely on batteries elsewhere (including branch lines and lines east of Mt Maunganui). Static charging facilities would be required for this at a number of terminals, as shown on the map (right).

This is a long lead time programme still in the early development phases. Subject to obtaining delivery funding, the target is to build the infill OHL and buy a batch of hybrid locomotives by 2035.

Operations

When in operation, freight trains between Auckland and Tauranga would use the overhead power between Auckland and Te Rapa then mostly move on battery power between Te Rapa and Tauranga. No locomotive change would be required for the journey.

While the train is unloaded and re-loaded in Tauranga the hybrid loco battery would be re-charged to travel back to Te Rapa.

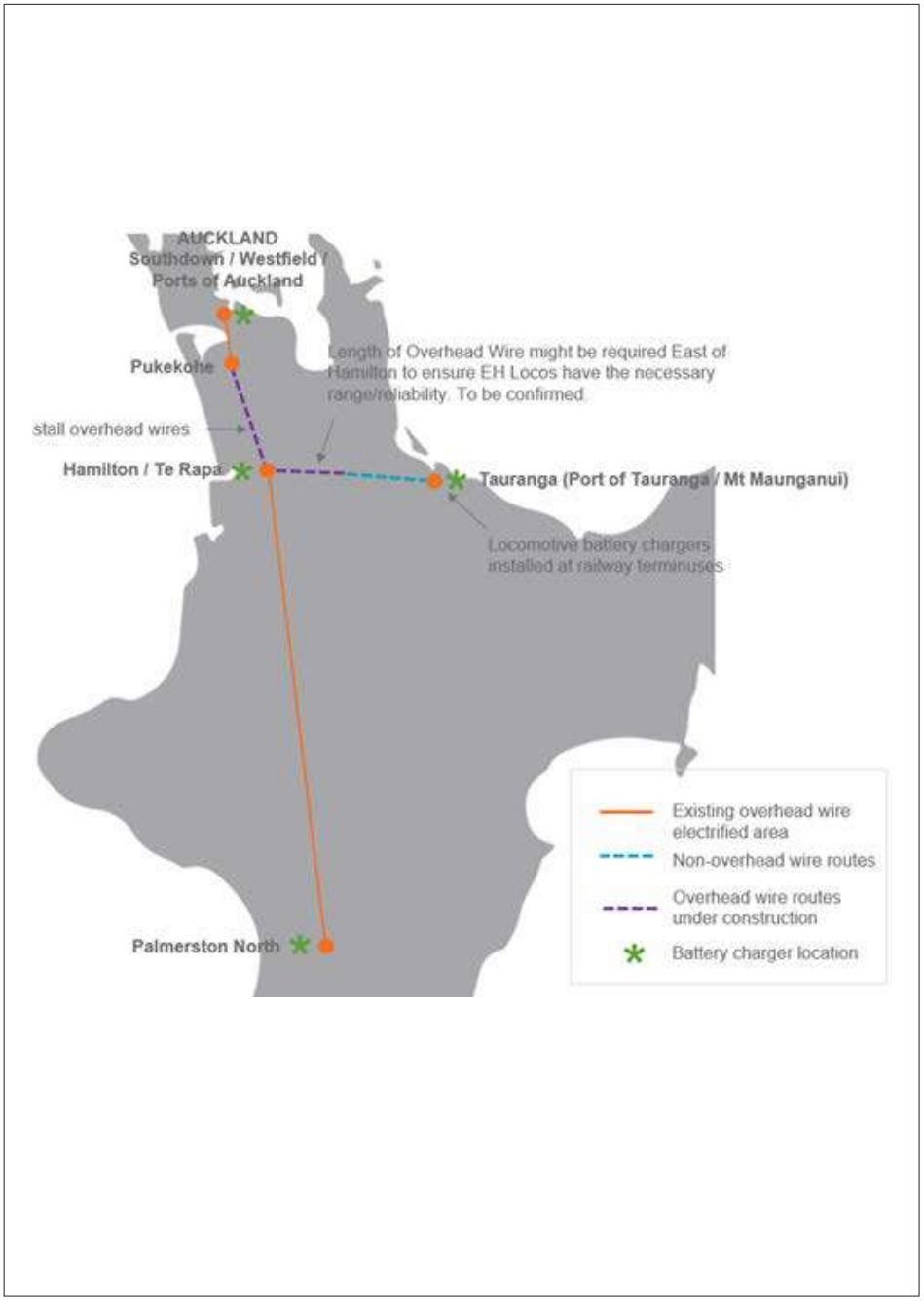
The hybrid locomotive also has the capability and range to serve all the Golden Triangle feeder lines and operate between Auckland and Palmerston North.

If desired in future, the hybrid solution could be relatively easily scaled up for all North Island routes by leveraging off the initial technology investment.

Benefits and opportunities

- Responds to customer expectations for low or zero carbon heavy freight options in the supply chain.
- Helps ensure that New Zealand's exports remain attractive to overseas countries plus avoids carbon tariffs and other trade barriers.
- Enables KiwiRail to contribute to New Zealand's GHG emission reduction targets for the wider land transport sector by providing a low-carbon heavy freight option.
- Help to reduce rail's operating and energy costs to provide an efficient transport option (including removing international exposure to fossil fuel price volatility).
- Enables Auckland metro electric multiple unit passenger trains to run south of Pukekohe
- Helps support establishment of decarbonised regional passenger and tourism train operations
- Electrification removes the Kaimai Tunnel diesel fume issues which could constrain rail volume growth
- Charging infrastructure created for rail electrification could also be used for other electric vehicle charging (e.g. reach stackers and first-/last-mile vehicles at intermodal hubs; private vehicles at locations along the rail corridor)

If desired in future the hybrid solution could be relatively easily scaled up for all North Island routes by leveraging off the initial technology investment.



Next steps

At the time of presentation, internal KiwiRail reviews are being undertaken. The business case will be shared with Government and other stakeholder in due course.

It is anticipated that the next programme stage will be a further development phase to take the Golden Triangle electrification planning to the next level of detail. This work would then be used to support obtaining the implementation funding.

Large programmes like the Golden Triangle Electrification Programme take time to consider and develop, so it is important to start thinking about them now.

Decarbonising New Zealand's freight railway

BY MICHAEL MCKEON[1]

SUMMARY

This article is derived from a paper presented at the August 2025 Conference on Railway Excellence in Auckland. It summarises an internal KiwiRail study[2] recommending electrification based on a mix of extending overhead line electrification ("OLE") and battery electric locomotives as the preferred path to decarbonising the KiwiRail mainline locomotive fleet by 2050. The article focuses on the technical rather than the business aspects of the issue.

1 The basic problem (opportunity)

Rail transport emits less carbon than road transport per tonne kilometre now and likely will in the future. If rail can achieve a higher freight mode share, this alone will lower supply chain emissions for New Zealand and enable KiwiRail to contribute to the Government's Emissions Reduction Plan freight target of a 35% reduction by 2035, even with the continued use of diesel locomotives.

But rail would still be creating some greenhouse gas ("GHG") emissions. Rail's full contribution can be achieved only by decarbonisation of its locomotives.

The evaluation of decarbonisation strategies integrated three significant analyses; the traffic levels to be carried in future, the potential technical choices on fuel and motive power, and the economic evaluation of these, in conjunction with a practical plan for delivery.

2 TRAFFIC AND TRAIN MODELLING

2.1 Traffic Levels

Determining a locomotive decarbonisation strategy starts with future traffic levels. A very busy railway can justify decarbonisation using high fixed cost solutions like conventional OLE.

The Ministry of Transport Freight Futures model was adapted by KiwiRail to test rail's 'full potential' under five supply chain scenarios . These represent different ways to configure NZ's freight supply chain to achieve lower emissions and are summarised in Table 1.

Table 1: Freight Scenario Modelling: impacts on rail

Scenario	Base 2020/21	BAU (Base/Do Minimum)	A: Enhanced KiwiRail investment	B1: Port Change	D: Strong Policy Push
Indicative mode share 2035 (% ntkm)	12.5%	15.2%	17.4%	18.7%	20.8%
Implied volume at 2035 (bn ntkm)	3.6	4.8	5.5	6.0	6.5
Volume increase relative to base year	-	32%	51%	65%	81%

2.2 Representative Trains

KiwiRail's new 3 MW/415 kN Stadler DM class was selected as the reference locomotive, as it represents the most capable and economical practical diesel-electric locomotive for New Zealand All the proposed locomotive options had to meet the same duty cycle as a DM hauled train and then be compared to the DM for economics and emissions.

2.3 Operational Simulation

Train operation was simulated using "Open Track" over fifteen operationally sensible route sections, outputting a wide range of performance parameters, including the energy used each second of the journey.

The results were also used to determine the parameters of the zero-GHG locomotives proposed to take over these duties; amount of on board energy storage required, per service energy supply demand and some infrastructure requirement e.g. fuel and energy storage and transmission infrastructure. This was an iterative process, particularly with the battery and hydrogen fuel cell locomotives, with early iterations falling short of the required performance in some criteria.

3 ENERGY SOURCES

A series of facilitated discussions with suppliers was held to better understand different technologies, leading to combinations of fuel and motive power.

- Drop-in Biofuel (2nd Generation)
- Blended Diesel
- Green Hydrogen
- Electricity Battery locomotive
- Electricity Continuous/full overhead electrification
- Discontinuous/partial electrification

4 TECHNICAL FEASIBILITY

The short listed solutions were then analysed to arrive at a practical concept which could meet the DM duty cycle. This sometimes required significant change to the locomotive configuration to offset weaknesses and take advantage of strengths of that that particular power train and deliver a concept that could be substituted for the reference locomotive.

5 CONVENTIONAL ELECTRIFICATION

Electrification of the economy and decarbonisation of electrification underpin plans to achieve zero GHG and railways are one of the few transport modes for which electrification is long established and conventional technology.

[1] Project Director – Future Rail, Kiwirail. The work on the study was done by a team of KiwiRail people and advisors.

[2] See (on KR website): **Mainline-Loco-Decarbonisation-Final-28-May-2024-Redacted.pdf**

The factor limiting OLE is the high capital cost of the fixed infrastructure required. In New Zealand the grid connection challenge is particularly high, also causing difficulties for battery locomotive charging.

The costs of electrifying at 25,000 volts AC were applied to the entire New Zealand network. As expected, at $8,298m the capital cost was considerable and the OLE option, when applied to all mainline freight routes, economically ranks as the worst performing of all the decarbonisation options.

Discontinuous electrification was also found to perform poorly in New Zealand conditions.

However, OLE can be more cost effective when the investment is filling gaps in an electrified route, including extending electrification to allow battery electric operation over the full length of a partly electrified route, so long as traffic levels are sufficient.

The Hamilton (Te Rapa) – Pukekohe and Hamilton – Tauranga (Mount Maunganui) routes are well used (just over 5 million gross tonnes p.a.) and would connect to the current Palmerston North – Hamilton electrification.

While only two routes, 46% of the entire KiwiRail freight task would be decarbonised by this initiative, using proven technology deliverable to a planned schedule. These two routes are where most of the traffic growth will occur, so this proportion will grow towards 60%. Selective electrification of these busy routes gives promising results.

6 BATTERY ELECTRIC LOCOMOTIVES

6.1 Battery Chemistry And Control

Three commercial scale battery chemistry options were considered, in terms of their energy density, specific energy, power density, charge and discharge rates, and lifespan vs depth of discharge vs charging rates. Because multiple locomotives are required, the more robust but lower performing Lithium Ferro Phosphate chemistry is viable and was assumed. Nevertheless the supply industry will settle on the optimum battery for 2030 and onwards.

6.2 Battery Locomotive Configuration

The driving factor for battery locomotives relative to diesel-electric is the low energy density of batteries per unit weight compared to diesel fuel. Time to recharge compounds the impact of the resulting limited range. Within the constraints of the NZ network, the volume of batteries is not limiting, but the weight of a battery fit-out is.

Two battery locomotive concepts were explored in depth, the "X-64" and X- 66". The X-66 represents a simple conceptual "conversion" of the DM locomotive to battery power. That is a double cab, six driven axle locomotive of 3MW power with a gross weight of 108 tonnes. A six axle locomotive is conventional technology. The weight of the locomotive rolling chassis itself reduces possible battery capacity and the high power of the single unit exhausts this limited capacity quickly.

The hypothetical X-64 starts with the DM configuration and optimises it to maximise battery capacity by minimising locomotive weight within the 108 tonne limit. The end result is a shorter single-cab locomotive of 1.8 MW power, with only four of the six axles driven, to reduce the weight over other components and leave more of the 108 tonnes available for battery.

The operating concept is that two 108 tonne X-64 locomotives are used on the reference train, this combination allowing a very high battery capacity to be taken on the journey. A towed battery tender is often proposed and essentially two smaller locomotives are the tender concept stripped of its operational disadvantages.

The X-64 is the preferred configuration (in the model) at this stage, with the best ratio between tractive power and battery stored energy. From the mid to late 2030's battery development is assumed to make the X-66 concept viable.

6.3 Charging

Currently, charging economically is the largest uncertainty surrounding the choice of battery-electric locomotives. This is a consequence of the sparse nature of the NZ electricity grid transmission and lines distribution network, the high-power demand of fast charging batteries of the size required for locomotives and this high demand being in rural and regional NZ.

All charging options depend on the available high voltage supply (the main Transpower transmission grid or, for most locations, the local lines company network). The power demands for rapid charging of two or four (ie, two pairs crossing) X-64 sized locomotives at a rate of 1C[3] are equivalent to a town or a significant industrial facility. In many rural lines networks the basic network will not be able to supply the load at all. Significant upgrades will be required. This challenge could seriously undermine the viability of a battery based operation that depends on judicious enroute charging.

This study assumed that a national initiative would overcome these connection and supply difficulties.

Limited study of Energy Storage Systems, or large batteries, at charge points suggests this offers a way to make high rate locomotive charging viable in local-lines-only areas.

6.4 In Motion Charging

Initially, it was assumed that a battery locomotive could charge from OLE strung for a few tens of kilometres at the right places on a battery operated route: In-Motion Charging (IMC).

The need to install high capacity on-board chargers, technical capacity limits with standard pantographs when stationary and the particularly high cost of the power supplies for isolated OLE sections resulted in IMC being set aside in favour of static charging.

Where battery locomotive range extension by using OLE was beneficial, this was best achieved by extending existing OLE a distance up the unwired route. This delays the need to begin drawing down batteries, without a very expensive isolated OLE section and its standalone power supply.

The potential for battery swapping as a rapid alternative to charging was not considered in any detail. In the rail context, swapping locomotives enroute is the equivalent of road vehicle battery swapping.

With the time and capital cost of providing for static charging or OLE extensions, in some cases taking more batteries along, in the form of an additional locomotive, will be the best value solution.

7 HYDROGEN

7.1 Hydrogen Fuel Cell Locomotive

Fuel cells are the preferred energy conversion approach for using hydrogen in a locomotive. While there are early production road vehicles and some prototype passenger trains in demonstration service, hydrogen fuel cell locomotives exist only as a handful of prototypes.

Fuel cells are very simple in concept, but the practical execution of this concept results in a precision device requiring significant on board support equipment and clean operating conditions.

Hydrogen has a low energy density. Even at very high pressures or cryogenically liquified a large storage volume is required on board a locomotive if it is to be able to complete its required duty cycle – run from one terminal to another hauling a useful load.

[3] "1C" means charging the battery at a rate that moves it from empty to full in 1 hour

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It was not possible to package the required H2 storage, batteries and fuel cells on a locomotive of this size and performance and deliver a useful range. On essentially any route a DM sized locomotive would require mid-route refuelling,

While not impossible, the cost, complexity and time delay of mid route H2 replenishment makes this option effectively impractical.

The result is to drive a solution similar to the battery locomotive, the required performance being spread over two locomotives that provide more total spare weight carrying capacity and volume per unit of performance than the single locomotive. The major difference from the battery case is that the limiting factor for batteries is weight, while for hydrogen weight and volume are both limiting.

Therefore, the recommended H2 fuel cell locomotive is a lower power single cab unit, used in pairs in the same way as the optimum battery locomotive.

7.2 Hydrogen Fuelling

The hydrogen production network required to service the 2030 KiwiRail need has a capacity (demand) of 199 MW, similar to the network for road planned by Hiringa New Zealand.

High volume hydrogen refueling is surprisingly slow. Hiringa consultants recommend a dual dispenser for each locomotive to deliver a theoretical maximum rate of 864 kg/h. They estimate that a practical dual dispenser can fill an empty locomotive in 1 - 2 hours, Typically the refill is more in the range of 600kg, 45 minutes with a dual dispenser, 1 ½ hours with one.

7.3 Discussion

The battery locomotive uses the generated electricity directly, without the complex technology, energy losses and risks resulting from interposing an additional intermediate energy carrier (H2) between generation and locomotive wheels.

The combination of poor overall energy efficiency, complexity, maintenance requirements, the requirement for a battery in addition to the fuel cell equipment, development risk, and also requiring a pair of locomotives, mean that an H2 fuel cell locomotive compares poorly to a battery locomotive (also a pair) wherever the duty cycle is within the capability of a pure battery locomotive.

For these reasons hydrogen fuel cell locomotives (or range extender units) have been rated as a future fall-back option to 1) battery-electric locomotives and 2) biofuel, if required in the late 2030's.

8 LIQUID BIOFUEL

8.1 Blended Biofuel

The study simplified non-mineral fuel into two streams. Sustainable fuels that are blended with fossil diesel; and those that used pure (100%) biofuel.

While a locomotive can use blends of up to 20%, they can be problematic, and blended fuels are not considered in detail in this study. KiwiRail takes its diesel from the general supply and will be a blended product consumer rather than creator. In addition the solution is transitional, making relatively minor reductions to GHG emissions while retaining all the other disadvantages of internal combustion engines.

8.2 Drop In Biofuels

Advanced biofuels ("second generation") are produced from non-edible biomass including agricultural and forestry residues. They have low net CO2 emissions and cause zero or low indirect land use change.

The study assumed that the resulting fuel could be used in a conventional diesel locomotive, either directly or with realistic fuel system modifications.

KiwiRail engaged with Air New Zealand, which has a project to advance the production of Sustainable Aviation Fuel, a drop in replacement for aviation kerosene. Drop in diesel fuel is a by-product ofSAF production.

While there are issues, including poor energy return on investment, and competition for a limited supply, second generation drop in biofuel was identified as the next best alternative to the battery and electric option. It also offered the possibility of early decarbonisation of the conventional but new generation diesel-electric fleet being retained to 2040 or beyond, ahead of their scheduled retirement and replacement by battery-electric locomotives.

9 HYBRID INTERNAL COMBUSTION LOCOMOTIVES

Hybrid locomotives, battery locomotives range extended by onboard diesel generators or diesel-electric locomotives with their efficiency increased by adding batteries, were initially considered to have promise, but quickly rejected when examined more closely.

At the required size of diesel generator for a range extender the fossil fuel equipment quickly displaces significant battery capacity, leading quickly to a situation where as little as 1/3 of the energy used is battery sourced. In effect, adding a diesel power source to a battery locomotive on KiwiRail duty cycles you quickly "chase your tail" and undermine the ability to complete most of a route on battery.

Hybrid consists, though, do have merit. This is where a standard battery-electric locomotive is paired with a conventional diesel locomotive and the two (or more) work in multiple to maximise the use of battery energy and the amount of battery energy recovered. The major OEMs advocate this as a transitional solution and are developing on board software to manage the consist.

Mixed consist operation is recommended as a way to commence pilot operation of battery locomotives before the enroute charging infrastructure is in place, to gain experience in their operation and achieve early reductions in emissions.

10 CONCLUSIONS AND DISCUSSION

Taking technological risks into account the study recommended a balanced approach.

Electrification is recommended for decarbonising most of the KiwiRail mainline locomotives and battery electric is the way of achieving this for the majority of routes. This assumes that battery and charging technology will develop over time.

To minimise the risks around this assumption, parallel pilot battery electric and OLE electrification on selected busy routes was recommended to buy time for confidence to be gained while guaranteeing significant decarbonisation progress.

While only two routes, 46% of the entire KiwiRail freight task will be decarbonised by this initiative, using proven technology able to be delivered to a planned schedule. Most of the modelled growth will occur on these routes, so this proportion will grow to 60%.

Battery electric must be considered a system comprising locomotives, charging and operational changes to best maximise the strengths and minimise weaknesses of the solution. Therefore, introduction must be considered as a transformation programme involving far reaching change to KiwiRail's organisations, operations, facilities, and people.

It was also recommended that maximum use be made of diesel powered rail now to take advantage of its inherently lower GHG emissions compared to road.

Fuel cell hydrogen performed poorly but its suitability can be revisited in the late 2030's when the DM fleet is nearing its major midlife overhaul decision and a decade of progress has been made with the hydrogen and battery solutions.

The NZTA Action Plan for Freight 2024–27 sets out to address three outcomes areas: economic growth and productivity, resilience, and safety.
PHOTO: NZ Transport Agency

NZTA's freight plan confronts systemic challenges

BY JAMES PAUL

New Zealand's freight system is under mounting pressure. Demand is rising, weather events are worsening, costs are volatile, and operators are navigating regulatory settings that have not kept pace with the country's freight task.

The NZ Transport Agency Waka Kotahi (NZTA)'s Action Plan for Freight 2024–27 sets out to address these structural issues by tightening its weakest bolts - not by reinventing the system. Crucially, this is NZTA's action plan, not a national freight master plan.

As David Shepherd, NZTA's National Manager for Rail and Freight, puts it: "There has been a degree of misunderstanding. This is NZTA's contribution to the wider freight conversation. It's not the action plan for the whole of New Zealand."

Even so, the plan is significant. For NZTA, it's a chance to spell out how it intends to use its roles as planner, investor, regulator, and system steward to help stabilise and strengthen the freight network over the next three years.

The Action Plan is built around NZTA's aforementioned functions, and each role influences the actions in the plan. For example, regulatory reforms draw on its statutory responsibilities, while the confirmation of nationally strategic freight routes sits within NZTA's planning remit.

Strengthening the freight lens in Arataki, the agency's 30-year plan, reflects its stewardship responsibility, pulling disparate datasets, local government inputs, and industry feedback into a more coherent picture of the national network.

Mr Shepherd describes the plan as taking on "thornier topics that are more systemic," with a deliberate focus on issues operators cannot solve alone. It's a fair description. Many of these issues, like permitting, data gaps, network consistency, have lingered for years without a clear owner.

The plan is structured around three outcomes: economic growth and productivity, resilience, and safety. NZTA and industry stakeholders intentionally framed these as interdependent.

"You only get economic growth if it's done safely and reliably. If you prioritise one over the other, you get unintended consequences," Mr Shepherd says.

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New Zealand has no unified national view of freight flows, and that gap can limit good decision-making. So, the Action Plan tackles it head-on, with actions such as determining the 'Value of Freight' to the economy; updating the National Freight Demand Study; creating freight heat maps using real-world heavy vehicle movement data; and confirming nationally and regionally strategic freight networks.

They're more than analytical exercises. They are meant to underpin future investment decisions, providing operators with clearer expectations about long-term corridors, service levels, and network reliability.

"This is about enabling industry to invest with higher degrees of assurance. If operators know a corridor is strategically recognised and maintained to a certain level of service, that supports confidence," says Mr Shepherd.

Extreme weather has already exposed weaknesses across state highways, rail lines, and coastal shipping routes. On the resilience front, NZTA is widening its scope in a few important ways: identifying strategic weak points across modes; strengthening adaptation planning through Tiro Rangi; sharpening the recovery framework; and, importantly for coastal operators, supporting the new Coastal Shipping Resilience Fund.

They're early steps but they point to a more deliberate approach to risk. The plan acknowledges that resilience is not a single asset issue (roads, rail and coastal shipping each play a part) and that "keeping the network open" is itself a productivity outcome.

Safety initiatives centre on compliance, vehicle standards, and the Commercial Vehicle Safety Programme. The plan also signals future regulatory changes, reflecting one of the Action Plan's most immediate real-world impacts.

As Mr Shepherd emphasises, "you only get productivity if it is delivered safely", and the plan's safety actions are designed to reduce risks without constraining freight efficiency. One of the most consequential parts of the Action Plan is the package of regulatory reforms already announced for consultation.

The proposals span everything from heavy vehicle licensing pathways to COF and WOF frequency, and even a rethink of 50MAX and over-dimension permitting. Vehicle import standards are also under review, with the possibility of phasing in modern safety systems.

Mr Shepherd calls these "real outcomes" for operators; changes that will make the regulatory environment "more efficient and effective", reduce compliance friction, and allow a more modern heavy vehicle fleet into the market. The reforms are also intended to support decarbonisation by reducing barriers to the adoption of low- and zero-emission heavy vehicles. In practice, that could remove some of the practical barriers that have slowed operators considering next-generation heavy vehicles.

The plan's most extensive actions sit under freight data and network understanding, areas that Mr Shepherd says are foundational. Three initiatives, in particular, have practical implications for operators.

Strategic Freight Network

By 2025 NZTA expects to publish updated nationally and regionally significant routes based on current data. This includes visualised freight flow mapping and identification of strategic freight hubs. For operators, this helps answer a longstanding question: Which routes will be prioritised for service continuity and investment? It won't settle every debate about regional priorities, but it does give operators a clearer picture than they've had in years.

Freight Heat Maps

Using EROAD data, NZTA will map heavy vehicle movements and mass, helping identify corridors of national importance based on actual usage patterns.

National Freight Demand Study Update

The plan commits to a long-overdue refresh of the NFDS, including a new methodology to enable ongoing trend analysis rather than one-off snapshots.

Mr Shepherd sees this as critical. "Without good data, you're not looking at the collective network picture. Data will improve decision-making—it shows where the challenge points and opportunities are."

Arguably the most significant structural shift may well be the establishment of a Freight Advisory Council. Mr Shepherd is unequivocal. It's also something industry groups have been pushing for, some form of shared table where decisions don't happen in isolation.

"Without industry, no action plan for freight can unlock outcomes."

The council is intended to bring together central and local government, operators, ports, rail, and related agencies such as MoT, EECA, and the Sustainable Business Council. Its purpose is to identify the "vital few" system issues and coordinate responses.

The updated freight forums within NZTA are designed to complement, not replace, this council, covering strategic, tactical, and operational engagement threads.

That theme continues when it comes to intermodal connections and the realities of last-mile freight. The plan acknowledges that 85 per cent of freight travels less than 200 km and that last-mile costs make up 53 per cent of delivery costs.

Mr Shepherd stresses that NZTA is "not advocating for a particular mode" but wants to improve intermodal efficiency, especially at mode-transfer nodes.

While the Action Plan covers just three years, it explicitly links to longer-term frameworks, such as the next Government Policy Statement on Transport, NZTA's 30-year plan, Arataki, and the need to address structural challenges such as an ageing fleet, ageing workforce, fragmented data, and urban growth pressures

Mr Shepherd sees the plan as a foundation. "My hope is that a longer-term approach is bought into, and we work collectively together." The Freight Advisory Council is expected to anchor that long-term alignment.

The Action Plan isn't an industry wish-list, and it's certainly not a silver bullet. It is a targeted, system-focused set of actions within NZTA's remit, reinforced by the recognition that freight is a whole-of-system task.

It acknowledges the scale of the challenge: rising demand, climate risk, ageing assets, fragmented systems, and workforce pressures. But it also sets out clear, achievable steps to address the structural impediments that limit New Zealand's freight productivity and resilience.

As Mr Shepherd notes, the plan works only if the sector works together. The next three will go a long way toward showing whether these incremental actions can add up to meaningful system change.

David Shepherd

Sustainable Aviation Fuel is increasingly becoming a practical tool for New Zealand corporates and exporters pursuing their own net zero and Scope 3 emissions targets. *PHOTO: Air New Zealand*

Sustainable Aviation Fuel: Helping keep New Zealand connected and competitive

FOR A NATION at the far edge of global trade routes, air connectivity is critical to New Zealand's economy. Every day, aviation carries high-value exports to key markets and brings tourists, students, and investors back home.

That same connectivity is heavily reliant on fossil fuel, however. Aviation is responsible for roughly 2 to 3 per cent of global carbon emissions, and one of the hardest sectors to decarbonise.

Sustainable Aviation Fuel (SAF) is a critical part of Air New Zealand's plan to meet its 2050 net-zero carbon emissions target, and it is increasingly relevant for exporters and corporates looking to address their own emissions.

Matt Connolly, Air New Zealand's Sustainability Lead - Energy Transition, oversees the work to secure SAF supply, partner with producers, and help support the broader environment needed for SAF to scale. In the year to July 2025, 1.7 per cent of Air New Zealand's total fuel uplift was SAF.

SAF and the business of staying connected

Aviation and trade are inseparable for New Zealand. Seafood, meat, horticulture, pharmaceuticals, and time-critical freight all rely on air transport to reach markets fast. Tourism and business travel, in turn, generate vital export income.

SAF offers the most immediate and scalable way for aviation to decarbonise. Currently produced primarily from renewable feedstock such as waste oils, forestry residues or other biogenic materials, SAF can cut lifecycle emissions by up to 90 per cent compared with conventional fossil jet fuel. SAF's benefits also extend beyond carbon reduction. Converting waste products such as used cooking oils into SAF supports the circular economy, and if SAF was produced in New Zealand in the future, it could bring investment, regional employment and greater energy security.

"The key with SAF is that it can be used in today's aircraft and airport fuel systems with no modification - a rare example where progress doesn't require massive changes to existing infrastructure or expensive aircraft," says Mr Connolly.

"The challenge is cost and supply. Global production still accounts for less than 0.3 per cent of total jet fuel demand, and SAF currently costs two to five times more than conventional fuel. Scaling production requires long-term investment, supportive policy and clear demand signals from airlines and customers."

Air New Zealand has taken a pragmatic approach, trying to balance commitments with affordability, and developing relationships with SAF producers. Mr Connolly describes it as a long game. "Scaling takes time; steady demand and consistency is what will give investors confidence to build the next generation of fuel plants."

SAF and corporate climate goals

SAF's significance extends well beyond aviation. It is increasingly becoming a practical tool for New Zealand corporates and exporters pursuing their own net zero and Scope 3 emissions targets.

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Under international greenhouse-gas accounting standards, emissions from air travel and airfreight sit in Scope 3, either as business travel, upstream transport and distribution, or downstream transport and distribution. For many companies, these categories represent a large share of their total footprint and are among the hardest to influence.

By helping fund SAF use by airlines, corporate customers can claim emissions reductions from that airline's use of SAF. This is considered "in-setting". Unlike offsetting, which compensates for emissions elsewhere, in-setting reduces emissions within the same value chain as the emissions' source.

Air New Zealand's SAF programme enables participating organisations to contribute to the airline's SAF purchases and receive verified data showing the associated emissions savings. This allows businesses to credibly report reductions under Scope 3 while supporting the broader energy transition.

Mr Connolly notes that this link between aviation and corporate sustainability goals is becoming more visible. "Many export buyers are now assessing not only how goods are produced but also how they are transported. As international markets tighten their supply-chain emissions reporting, SAF use will increasingly influence procurement decisions and brand reputation."

For logistics providers and freight forwarders, SAF also offers a way to differentiate services by embedding verifiable carbon-reduction options into their products. The same principle applies to business travel programmes - measurable reductions achieved through contributing to SAF can feed directly into corporate sustainability reporting.

A collective effort

While SAF alone won't solve aviation's climate challenge, for New Zealand, staying part of the conversation is critical, notes Mr Connolly.

"Air New Zealand's ongoing SAF work reflects that broader goal of keeping the country linked to the world. For airlines, exporters and corporates alike, support for SAF isn't a sustainability gesture - it's an investment in the resilience and reputation of New Zealand's trade economy for the long-term."

Need more information?
Email saf@airnz.co.nz

The 2023 Act is a comprehensive modernisation, crafted to reflect new technologies, evolving global standards, and increasing public demand for accountability. PHOTO: DREAMSTIME

What the Civil Aviation Act 2023 means for New Zealand

BY JAMES PAUL

ON 5 APRIL 2025, New Zealand's aviation regulatory landscape underwent its most significant transformation in over three decades. The Civil Aviation Act 2023 (the 2023 Act) replaced the Civil Aviation Act 1990 (the 1990 Act), streamlining outdated legislation while expanding regulatory tools to address the realities of 21st-century aviation, from drone regulation and airport master planning to climate change and safety-sensitive operations.

While the 1990 Act provided a robust foundation, the 2023 Act is a comprehensive modernisation, crafted to reflect new technologies, evolving global standards, and increasing public demand for accountability.

For logistics, transport and supply chain professionals, particularly those working with aviation assets or within regulated air corridors, understanding the nuances of this shift is vital.

The 1990 Act was enacted in an era before drones, autonomous aircraft, climate accountability, or real-time airspace tracking. It provided the basic framework for aviation safety, established the Civil Aviation Authority (CAA), and embedded the country's obligations under international agreements like those governed by International Civil Aviation Organization. However, as the Associate Transport Minister James Meager said when the new law came into force:

"This Government is committed to supporting the aviation sector to grow and innovate. The new Civil Aviation Act, focuses on keeping Kiwis safe while allowing for new technology and changing aviation needs."

A broader regulatory scope

The 2023 Act retains the core focus on safety and security but broadens the statutory scope to include environmental regulation, emerging technologies, and clearer oversight mechanisms. This legislative update also absorbs and replaces the Airport Authorities Act 1966, allowing for a single point of regulatory clarity across aviation infrastructure.

Key additions include:

- Environmental accountability under ICAO's CORSIA scheme;
- Explicit drone and autonomous aircraft regulation;
- Mandatory drug and alcohol management plans for safety-sensitive roles;
- Public input into airport spatial planning;
- Expanded independent review pathways for decisions made by the Director of Civil Aviation.

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Perhaps the most publicly visible update is the treatment of drones. Under the 1990 Act, drones were legally classified as aircraft but weren't specifically referenced: regulation depended on subordinate rules (Parts 101 and 102), which became increasingly inadequate as drone technology exploded.

The 2023 Act changes that. It clearly defines drones and remotely piloted aircraft systems (RPAS) as distinct aviation categories and gives the Minister of Transport direct authority to set new rules around registration, Remote ID, and enforcement.

This legislative clarity couldn't have come at a better time. In early April 2025, just days after the 2023 Act came into force, a passenger plane preparing to land at Auckland Airport narrowly avoided a mid-air collision with a drone flying illegally in controlled airspace. The RNZ headline was blunt: "Call for tighter rules after drone and plane nearly collide at Auckland Airport."

In that report, CAA officials cited the near-miss as a key example of why the new powers embedded in the 2023 Act were urgently needed. The incident confirmed what regulators and the public already suspected: our airspace is more complex, and more contested, than ever before.

The 2023 Act also introduces a more structured framework for airport designation and spatial planning, particularly for Tier 1 airports. Where the 1990 system relied on the Airport Authorities Act 1966 (requiring approval by the Governor-General for various operational changes) the new law establishes:

- A public register of airport operators;
- Mandatory spatial master plans for large airports;
- Transparent consultation requirements with local communities and stakeholders.

Another significant change is the introduction of mandatory drug and alcohol management plans for operators performing safety-sensitive functions. The 1990 Act did not require this explicitly; policies were implemented later through rules and industry guidance.

Under the 2023 Act, safety-sensitive employers must:

- Establish a written management plan
- Carry out random testing
- Report breaches and provide evidence of compliance

Another significant change is the introduction of mandatory drug and alcohol management plans for operators performing safety-sensitive functions.

Climate accountability and international alignment

In a first for New Zealand aviation legislation, the 2023 Act embeds climate obligations directly into its framework, specifically New Zealand's participation in ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

This shift marks a formal recognition that the aviation sector must contribute to national emissions reduction efforts. Operators of international flights are now subject to carbon reporting and offsetting obligations embedded in primary legislation—not just international guidelines or voluntary schemes.

Beyond new powers and expanded coverage, the 2023 Act was drafted with usability in mind. According to legal analysts, it's structurally clearer, with:

- A single, consolidated framework (replacing multiple Acts);
- Modern language and definitions;
- Streamlined sections for easier reference.

Industry implications

The practical implications of the Civil Aviation Act 2023 are wide-reaching. Drone operators will face more stringent rules, including potential mandatory registration and ID, while airports will need to adopt spatial planning practices and adhere to tighter consultation frameworks.

Additionally, freight and charter operators must review their internal safety policies for compliance with drug and alcohol provisions, and public and private sector air service buyers will be required to consider climate compliance obligations when procuring international flights.

These changes aren't merely procedural; they reflect a deeper alignment with international best practice and a growing expectation that aviation must do more than just operate safely. It must also operate sustainably, transparently, and with stronger public accountability.

Therefore the 2023 Act is a platform for future-proofing the sector in an age of drones, climate change, and rapid technological advancement. For professionals across the logistics and transport ecosystem, staying informed about this Act is a strategic necessity.

Whether you're flying cargo, managing airspace operations, or integrating aerial logistics into supply chains, the rules have changed. And they're likely to keep evolving.

DHL Supply Chain's new 14,100 m², $90 million development (including $10 million invested in automation) expands its national health logistics footprint in New Zealand by 20 per cent. *PHOTOS: DHL*

DHL opens New Zealand's newest healthcare logistics hub

DHL SUPPLY CHAIN'S (DHL) newest Life Sciences and Healthcare (LSHC) facility in Auckland arrives at a time when demand for compliant, resilient health logistics continues to climb. Rising volumes of biologics, stricter cold-chain requirements, and lessons from recent supply disruptions have sharpened expectations across the sector.

The new Te Kapua Drive facility responds directly to those pressures, adding significant capacity while introducing technology and design features that signal where the industry is heading.

The 14,100 m², $90 million development (including $10 million invested in automation) expands DHL's national health logistics footprint by 20 per cent. It also positions New Zealand more firmly within DHL's expanding Asia–Pacific LSHC network, which includes recent facilities in Singapore, Malaysia, India, and South Korea. Together, these sites form a connected platform for moving regulated, temperature-controlled products at pace.

"Te Kapua futureproofs our ability to distribute critical and life-saving healthcare products throughout New Zealand," says Javier Bilbao, CEO of DHL Supply Chain Asia Pacific.

What stands out on the warehouse floor is the scale of automation. Forty-one Geek+ robots — the largest deployment of their kind operated by a New Zealand 3PL provider — support a Goods-to-Person system designed to lift accuracy, speed, and safety. The robots handle the highly repetitive tasks that traditionally dominate health logistics, allowing staff to focus on higher-value work.

The system was integrated by Automate-X, a New Zealand-based automation specialist. The decision to partner locally was intentional, says Matt Casbolt, Managing Director of DHL Supply Chain New Zealand.

"Automate-X understand the environment, they're in our time zone, and can provide rapid support. Their experience with other complex automation projects in New Zealand proved invaluable."

Mr Casbolt is direct about the role of robotics: not a replacement for people, but a shift in the type of work undertaken. "The technology takes away the drudge work. Our people can focus on higher-value tasks. It's safer and more efficient," he says.

Around 80 staff operate the site, including what DHL identifies as the country's largest health logistics quality assurance team. Increasingly, these roles require skills in mechatronics, data analysis, and robotics oversight, a shift consistent with wider sector trends.

Demand for healthcare logistics in New Zealand is estimated to be growing by around 7–8 per cent each year, driven by population change and increased use of specialist medications. The facility has been built with this trajectory in mind, offering 12,000 pallet positions of temperature-controlled Very Narrow Aisle storage.

Temperature zones range from 2°C–8°C through to –30°C for sensitive biologics, supported by humidity control and a dedicated 2°C–8°C antechamber for safe packing and preparation. Dangerous goods

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areas (classes 2, 3, 6, and 8) and secure vaults for controlled substances round out the site's regulatory capabilities.

Mr Casbolt says that this capacity reflects broader changes in the pharmaceutical landscape. "Biologics, vaccines, and other temperature-sensitive products are the fastest-growing part of the market. We're expanding cold-chain and dangerous-goods capacity to support that," he says.

Additional services, including relabelling, overlabelling, and secondary repackaging under Medsafe licence, allow customers to configure product closer to the point of use, a practical benefit for companies operating across multiple markets.

A notable shift enabled by Te Kapua is the ability to support direct-to-patient and direct-to-pharmacy distribution. These models are gaining traction internationally as healthcare providers seek greater traceability and shorter lead times.

By integrating with DHL Global Forwarding, the site links inbound shipments with nationwide outbound flows, providing visibility from manufacturer to final recipient. Mr Casbolt says the value of these models became clear during COVID-19.

"COVID showed how fragile supply chains can be. This site is about building resilience and ensuring continuity when global disruptions occur."

Sustainability is built into the design. The five Green Star-rated building runs on renewable electricity and incorporates LED lighting with smart controls, rainwater reuse, cool roofing, and energy-efficient HVAC systems. DHL's Cool Green Cell reusable packaging also reduces transport waste in temperature-controlled movements.

These features align with DHL Group's wider €500 million regional healthcare logistics strategy, which includes decarbonisation and network resilience investments across Asia–Pacific.

COVID showed how fragile supply chains can be. This site is about building resilience and ensuring continuity when global disruptions occur.

The robotic zone currently supports up to 28,000 totes with multiple storage positions, with room for expansion as demand increases. Mr Casbolt expects automation to feature more prominently across DHL's wider network.

"We'll see a lot more automation and digitalisation across the network. The technology has now reached a level where it's commercially viable, scalable, and able to deliver real operational resilience," he says.

The facility also consolidates DHL's existing healthcare operations in New Zealand, creating a centralised hub with scope for future growth.

The implications for the sector are clear. New Zealand's health system depends on safe, efficient distribution of pharmaceuticals and medical devices. The Te Kapua site strengthens cold-chain capability, increases storage capacity, and provides a more resilient operational base.

For clinicians, manufacturers, and patients, the investment offers improved reliability and greater preparedness for future demand cycles or disruptions.

"This facility helps make the healthcare supply chain more resilient, responsive, and ready for the future, for patients, for healthcare providers, and for New Zealand as a whole."