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Dear National Transport Commission,

OPTIONS TO HARMONISE ROLLING STOCK TESTING AND TEST LOCATIONS DISCUSSION PAPER

The Australian Rail Track Corporation (ARTC) welcomes the opportunity to comment on the National Transport Commission's (NTC's) *Options to harmonise rolling stock testing and test locations Discussion Paper*. ARTC supports reforms that reduce unnecessary duplication, improve transparency and make rolling stock evidence more consistent and portable across networks. This has the potential to reduce cost, delay and uncertainty for rolling stock operators, manufacturers and rail infrastructure managers.

Australia's energy transition, freight growth and supply chain productivity objectives will require significant investment in new rolling stock, fleet renewal and emerging technologies. To attract that investment, the rail industry must provide a transparent, efficient and nationally consistent approval pathway. Harmonisation should therefore be viewed not only as a technical or regulatory reform initiative, but also as an investment-enabling reform that improves productivity, competitiveness, innovation and confidence to invest in Australia's rail network.

However, reform should not equate to automatic mutual recognition or a transfer of responsibility for interface risk. Rolling stock testing and approval must continue to reflect the infrastructure, operating conditions, route characteristics and safety risks of the relevant network.

Harmonisation also has the potential to improve both safety and efficiency by supporting consistent assurance practices, transparent evidence requirements and improved visibility of network-specific risks and operating conditions. It should not be portrayed as a trade-off between safety and efficiency. A nationally consistent framework can strengthen assurance quality while reducing unnecessary complexity and rework.

ARTC's preferred approach is to establish a baseline national testing framework, supported by common methodologies, documentation and data requirements, while retaining a transparent process for network-specific variations, operating conditions, non-conformances and derogations.

SUMMARY OF ARTC POSITION

The objective of rolling stock testing reform should not be harmonisation for its own sake, nor simply a reduction in administrative burden. It should create the conditions for long-term investment, innovation, fleet modernisation and growth in the rail sector by improving interoperability, reducing unnecessary duplication, accelerating the introduction of new rolling stock, and improving the productivity and competitiveness of Australia's rail network while preserving safety assurance and Rail Infrastructure Manager (RIM) responsibility for network-specific interface risks.

ARTC supports a national baseline framework that improves the portability, quality and transparency of rolling stock testing evidence. Reform should be prioritised and sequenced to reduce duplicated effort, approval uncertainty and investment risk, while preserving RIM responsibility for genuine route-specific safety and operational risks.

ARTC supports:

1. A nationally agreed baseline requirements matrix that distinguishes common requirements from justified RIM or corridor-specific variations.
2. Common test methodologies, core data fields, evidence summaries and acceptance criteria where a shared technical basis exists.
3. A register of recognised testing locations, with any dedicated national testing facility considered only after a robust business case demonstrates net industry benefit.
4. Cost-efficient validation and assurance methodologies, including validated simulation, digital engineering, digital twins and model-based assurance where appropriate.
5. A technically governed implementation workstream that supports national consistency, innovation and evidence portability, while retaining RIM and Rolling Stock Operator (RSO) responsibilities for route-specific interface risks, network access and operational risk management.

The key policy problem is not simply that rolling stock testing requirements differ between networks. Some differences are justified by infrastructure, operating and safety conditions. The problem is that it is not always transparent which differences are justified, what evidence is reusable, and when additional route-specific evidence is required.

ARTC's preferred policy model is a national baseline framework that makes common evidence readily available and reusable, along with transparency of justified variations. It should include agreed baseline requirements, consistent evidence and documentation standards, recognised testing locations, validated simulation where appropriate, and a clear process for route-specific operating conditions, non-conformances and derogations. The framework should reduce unnecessary uncertainty for investors, manufacturers and rolling stock owners while preserving RIM control over network access, capacity and operational risk management.

SPECIFIC FEEDBACK TO DISCUSSION PAPER QUESTIONS

Question 1: To what extent do current rolling stock testing requirements and practices contribute to inefficiency and delay in certification and registration? How should efforts to address testing requirements be prioritised relative to other rolling stock approval elements of the National Pathway?

Regulatory reform matters because investment decisions are made over long asset lives. Rolling stock owners, manufacturers and operators need confidence that approval requirements are transparent, predictable and proportionate. Fragmented requirements create uncertainty, additional cost and approval risk, particularly for new rolling stock, modified vehicles and emerging technologies. Good regulatory reform is not about reducing standards; it is about reducing unnecessary uncertainty while maintaining safety assurance.

Rolling stock testing reform should focus on reducing unnecessary duplication that delays the introduction of new or modified rolling stock, increases assessment costs and limits interoperability across the national rail network. In many cases, duplication arises through differing documentation requirements, terminology and assessment methodologies, rather than entirely different physical testing obligations.

Harmonising these administrative and evidentiary requirements offers a practical opportunity to reduce time, cost and complexity without compromising safety assurance.

This is also a competitiveness issue. Rail will need to compete effectively with road and other transport modes if Australia is to achieve better supply chain productivity, stronger freight resilience and lower-emissions transport outcomes. A clearer national approval pathway can help bring new rolling stock and lower-emissions technologies into service sooner, supporting both productivity and decarbonisation objectives.

Harmonisation can also create economic value across the broader rail ecosystem. Clear and nationally consistent testing, approval and registration pathways give rolling stock manufacturers, suppliers, owners and above-rail operators greater certainty to invest in new products, fleet platforms and technologies. A larger and more predictable national market can support economies of scale, increase competition among suppliers, reduce unit and whole-of-life costs, and accelerate technological advancement.

The road freight sector provides an illustrative comparison: competition and innovation among truck and trailer suppliers have delivered lighter and stronger equipment, contributing to payload gains beyond those achieved through vehicle-length changes alone. While these outcomes are not the primary objective of the framework, they are important enablers of a stronger domestic rail supply chain, lower freight costs and improved rail competitiveness across the national economy.

ARTC supports reform that removes unnecessary duplication in rolling stock testing, particularly where materially the same vehicle evidence is required repeatedly across comparable infrastructure and operating interfaces. However, network-specific assessment remains necessary where the relevant interface differs. Track detection is a clear example: compatibility should be demonstrated for each relevant type of detection technology, such as particular track-circuit or axle-counter arrangements, rather than repeated indiscriminately across every network.

Practical examples include repeated testing of comparable infrastructure interfaces, track-detection testing across similar technologies, delays caused by incomplete records for modified or legacy vehicles, applications submitted before registration and prerequisite assurance activities are complete, and circumstances where evidence has been generated but is not readily portable between networks. These examples demonstrate why reform should focus on evidence quality, comparability and portability rather than automatic recognition.

Testing requirements, methods, acceptance criteria, and nominated locations can contribute to inefficiency and delay. However, delay also arises from the completeness and quality of evidence, and the genuine differences in route-specific infrastructure or operating conditions. These broader sources of delay are often evident where:

- a test plan is presented before the rolling stock has received the relevant interim registration or pre-testing acceptance,
- non-compliant or modified rolling stock is presented for acceptance after construction without prior consultation,
- existing vehicle records are incomplete, particularly for aged, transferred or heritage rolling stock,
- RSO operating and maintenance arrangements are not sufficiently harmonised or clearly documented,
- initial application information and recorded operating conditions differ between networks, or
- track geometry, maintenance limits or other infrastructure conditions vary across corridors.

Testing reform should therefore be progressed in parallel with the other national pathway reforms, including clarification of RIM and RSO roles, development of agreed interface parameters and the single registration application process.

ARTC supports harmonisation where it improves the quality, consistency and portability of evidence without diminishing safety assurance. Evidence should only be accepted across networks where the underlying infrastructure assumptions, operating conditions, route characteristics and interface risks are sufficiently comparable.

Priority should initially be given to common test methodologies, acceptance criteria and core documentation and data requirements, particularly where comparable evidence can be reused. Testing that depends on materially different interface or operating conditions should be addressed through a transparent, proportionate variation process.

Question 2: Are there particular types of tests or approvals where harmonisation would be most effective?

ARTC considers that harmonisation should be prioritised according to strategic value rather than engineering discipline alone. Priorities should be determined by their ability to reduce duplicated work, enable evidence portability, support new and modified rolling stock and emerging technologies, improve rail productivity, and maintain proportionate safety assurance.

This prioritisation should be linked to national outcomes: faster introduction of productive rolling stock, greater confidence for fleet renewal, improved interoperability across corridors, and an approval environment that supports innovation and emerging low-emissions technologies.

Harmonisation is likely to be most effective where RIMs already require broadly similar evidence, but apply different terminology, methodologies or acceptance criteria. Priority areas include:

- **Common vehicle and performance evidence,** where shared methods and acceptance criteria are demonstrably appropriate. This may include dimensional, mass and axle-load data; static and dynamic braking evidence; vehicle-to-vehicle interaction, dynamic ride performance, twist and wheel-unloading; kinematic assessment; light-engine testing; and lighting and visibility assessments.
- **Common evidence architecture,** including agreed data definitions and evidence summaries, supported by transparent records of approved operating conditions, non-conformances and derogations.

Greater caution is required where outcomes depend on local infrastructure or train operation, including loading and speed assessments, signalling and track-detection compatibility for particular technologies, braking in the intended train configuration, route geometry, and wheel-rail interface risks.

ARTC does not support an approach where rolling stock described as “similar” is accepted without appropriate testing, assessment or validation. Similarity should instead be addressed through a design-type comparison framework, with clear criteria for when further testing, reassessment or operating controls are required.

The preferred outcome is a baseline national testing framework that maximises the portability of evidence and supports productivity, while retaining a transparent risk-based process for route-specific variations, non-conforming vehicles and operating restrictions.

Question 3: Could the various tests be identified as belonging to certification, registration or network approval?

ARTC supports clearer allocation of responsibility across certification, interim registration or pre-testing acceptance, evidence and record management, and route-specific network approval. The framework should retain the distinction between demonstrating vehicle conformity, recording verified evidence, and determining suitability for a particular route and operating condition.

At a high level, certification should establish vehicle conformity; registration should record verified vehicle data and supporting evidence; and network approval should determine compatibility with a particular route and operating condition, including any controls or restrictions.

ARTC suggests the following allocation:

Approval stage	Primary matters
Certification	Vehicle design and construction conformity; supporting structural and component evidence; static testing and measurements; maintenance arrangements; modification assessment; and certification by and independent competent person.
Registration	Registration status (interim or final); core vehicle parameters and characteristics; static and dynamic-performance testing evidence; and sought operating conditions.
Network approval or acceptance	Route compatibility; relevant dynamic, braking and train-detection evidence; train-configuration impacts; operating conditions and route-specific operating restrictions; and derogation controls.

Some test results will inform more than one stage. The framework should therefore distinguish between:

- testing environment
- where the evidence is recorded
- how the evidence is relied upon for route-specific approval, and
- the operating conditions for which the evidence remains valid.

The framework should include clear reassessment triggers for material change, including modification, changed maintenance or operating conditions, or operation on a new route with materially different interface conditions.

Question 4: Are there additional learnings or approaches from international jurisdictions that should be investigated?

International approaches warranting further investigation include future assurance models that improve productivity, support innovation and maintain safety, including:

- validated simulation, digital engineering, digital twins and model-based assurance
- recognition of competent assessors and representative test locations, and
- evidence portability, data governance and structured treatment of modified or similar rolling stock

International models should not be adopted without assessing their suitability for the Australian rail environment. Australia's operating context includes different network ownership models, varied track geometry, signalling and train-detection systems, mixed freight and passenger operations, and long-

distance interstate freight corridors. Assumptions that overseas track conditions, infrastructure configurations or operating practices are directly comparable should be avoided.

The principal lesson from international models is not necessarily centralisation. The value lies in a common assurance architecture: agreed standards, validated methods and digital models, competent assessors, recognised testing locations, clear data governance and transparent management of justified variations.

The future state should be one where validated modelling and simulation progressively reduce unnecessary physical testing while maintaining confidence in safety assurance. Digital engineering, digital twins and model-based assurance should be treated as part of the future national assurance framework, not merely as supplementary tools. Over time, these methods can support faster assessment of modifications, clearer comparison of vehicle types and more targeted physical testing where evidence gaps remain.

As Australia progresses towards digital train control and in-cab signalling technologies, consideration should be given to nationally recognised testing and validation environments that can demonstrate safety, performance and interoperability. This may create opportunities to establish common evidence once and reduce repetitive testing requirements across networks, while preserving appropriate management of network-specific risks.

Question 5: To what extent is there a need for a national testing facility in Australia, and how could it deliver value?

A national testing facility may deliver value in some circumstances, but ARTC does not support committing to a new facility without a clear business case demonstrating net industry benefit. A dedicated facility may assist with repeatable dynamic, kinematic and braking assessments; signalling or track-detection assessments; validation of simulation models; and testing of emerging technologies.

However, many of these tests may also be capable of being undertaken at existing recognised facilities, including established international facilities such as the Transportation Technology Center in Pueblo, Colorado, operated by ENSCO for the United States Federal Railroad Administration, as well as other suitable locations where the test environment is demonstrably representative of the relevant Australian interface conditions.

National testing facilities, recognised test environments or digital test beds may also support the safe introduction of future technologies, including alternative propulsion systems, digital train control, in-cab signalling, advanced train monitoring and condition-based technologies. The focus should be on proving safety, functionality and interoperability in a way that allows evidence to be reused across multiple networks where appropriate, while retaining targeted network-specific validation where genuinely required.

However, centralisation may also create additional access, operational and cost challenges. These may include the need to deliver rolling stock to the facility, driver route knowledge, network access, RSO accreditation requirements and the limited ability of one site to replicate the range of Australian operating environments.

ARTC supports a staged approach:

1. Establish a register of recognised existing testing locations
2. Identify gaps in current testing capability
3. Consider targeted upgrades to existing locations, and

4. Only then consider a dedicated national facility where a robust business case supports it

Recognised testing locations should document the parameters necessary to determine representativeness for each test, including track condition and geometry, speed, gradient and curve characteristics, signalling and detection configuration, access availability and safeworking arrangements. Government funding may be required where upgrades are needed to provide reliable and representative testing environments.

The business case, funding model and operating model should demonstrate that RIMs will not be required to provide access, capacity, technical review or ongoing administration on an unfunded basis.

A national facility should not become an additional mandatory approval hurdle where existing, validated evidence is sufficient. It is also unlikely that a single facility could meet all national testing needs.

Question 6: Should the options for harmonisation be implemented separately, in combination or altogether? Which should be prioritised?

Implementation should focus on reforms that deliver the greatest practical benefit to industry and the national freight task. Early wins should reduce duplicated evidence requests, improve transparency of requirements, increase consistency between RIMs and create a stronger foundation for longer-term interoperability, fleet modernisation, investment confidence and innovation. ARTC supports the options being progressed as an integrated, staged package.

Implementation should also strengthen safety through consistency. Common testing methodologies, evidence requirements and assurance practices can improve confidence in safety outcomes where the assumptions, operating conditions, limitations and network-specific variations are transparent. Safety outcomes are enhanced when evidence generation, validation and acceptance are repeatable, visible and subject to clear governance across the industry.

The first priority should be national alignment on the most complex and variable testing requirements, particularly dynamic ride performance, track detection and kinematic testing. This should be achieved through a common framework that identifies baseline requirements, justified RIM- or corridor-specific variations and their rationale, and associated testing and evidence requirements. Existing alignment through Australian Standards and established industry practices should be used wherever practicable.

This should be supported by nationally aligned competency and independence requirements for Independent Competent Persons (ICPs) who provide assurance on testing requirements. These requirements should establish clear minimum expectations for relevant qualifications, rail systems experience, technical scope of competence, independence and conflict-of-interest management. A common framework would support greater confidence in ICP assurance and enable its recognition across RIMs where appropriate.

The second priority should be standardised test methodology and acceptance criteria where technical alignment exists. Harmonisation should not be forced where a route-specific variation is material.

The third priority should be recognition of representative testing locations and validated simulation models, supported by a transparent process for modification, reassessment and non-conformance management. As an early practical step, a national record of existing testing locations should identify each location’s infrastructure characteristics, capability, constraints and conditions relevant for particular test types.

This future capability will become increasingly important as the industry moves towards Digital Railway, in-cab signalling and nationally interoperable train control technologies. Recognised testing, simulation and assurance environments could help demonstrate safety, functionality and interoperability before deployment, accelerate technology introduction, improve confidence for investors and technology providers, and support long-term rail productivity and competitiveness.

ARTC recommends that implementation be sequenced through a staged roadmap, with early emphasis on practical reforms that improve consistency and evidence portability without waiting for full technical harmonisation.

- **Phase 1 – foundation activities:** establish common terminology and definitions, consolidate existing requirements and areas of alignment (including those reflected in relevant standards and established industry practices), and develop a standard operating-condition summary.
- **Phase 2 – targeted technical harmonisation:** prioritise the testing disciplines where divergence has the greatest impact on efficiency, particularly dynamic ride performance, track detection and kinematic testing, through agreed methodologies, justified acceptance criteria and simulation validation protocols.
- **Phase 3 – capability, infrastructure and assurance:** establish a recognised testing location register, undertake a capability gap analysis and targeted upgrades, develop a business case for any national testing facility, and periodically review portability arrangements and RIM-specific variation schedules.

Success should be measured by fewer repeated evidence requests, reduced approval uncertainty, increased use of standard methods and recognised locations, transparent documentation of justified variations, fewer late-stage disputes about evidence adequacy, and improved confidence to invest in new rolling stock and emerging technologies. Work to consolidate relevant Australian Standards and document RIM-specific variations should proceed in parallel but should not delay practical quick wins.
The framework should also establish clear processes for non-conformances and derogations, modified or aged rolling stock, material changes in ownership, maintenance or operating conditions, and route-specific loading or speed constraints.

The framework should preserve appropriate commercial, access and risk-management arrangements for testing on operating networks, but these requirements should support reform rather than become the dominant feature of the national model.

ARTC does not support a lowest-common-denominator approach, or a single composite requirement that creates unnecessary restrictions or retrofit obligations for rolling stock that is already safely operating on particular networks. The framework should instead make common requirements and justified variations visible, transparent and manageable.

Question 7: Are there specific acceptance criteria or documentation requirements that could be quickly harmonised?

The most immediate benefits are likely to arise from harmonising documentation and data requirements before attempting full technical harmonisation.

Quick wins should focus on three related areas: core vehicle data fields and datum conventions; evidence summaries for type and route tests, including rolling stock outline, twist, braking, dynamic ride and kinematic assessments; and management of non-conformance and derogation records.
Acceptance criteria should initially be harmonised where there is already a common technical basis across RIMs. Where criteria differ, the difference should be documented and linked to the relevant infrastructure, operating or safety rationale.

The National Rolling Stock Register may support common data fields and improved record retention. However, it should not replace the need for RIM and RSO interface risk management. ARTC also supports development of a standard matrix of modification testing criteria to identify when retesting or reassessment is required.

Question 8: Would greater flexibility in testing locations reduce costs and improve timing?

Greater flexibility may reduce cost and delay, particularly for static tests and standardised measurements. Flexibility should be conditional on an agreed methodology, calibrated equipment, competent assessors, suitable test conditions, standardised and traceable evidence, and acceptance by the affected RIMs. Done well, this can improve productivity and reduce approval risk without reducing safety assurance.

Recognition of a location or portability of evidence must not create a right of access to a network. Testing should remain subject to the controlling RIM's approval and appropriate contractual arrangements, including, where applicable, a track access agreement and a separate rolling stock testing agreement.

Testing must be planned and undertaken so as not to unreasonably compromise network availability, maintenance activities, contracted freight services or other operational priorities. RIMs should retain discretion to defer, reschedule or impose conditions on testing where necessary.

Static tests are generally more suitable for broader recognition where methodology and documentation are standardised. Dynamic tests require greater caution because outcomes may be influenced by track condition, geometry, line speed, gradient, wheel and rail profiles, maintenance condition and other route-specific factors.
ARTC supports recognition of approved test locations, but not a rule requiring all networks to accept results from any location in all circumstances. Test results should only be portable where the test site is demonstrably representative of the relevant interface conditions.

The conduct of testing on a RIM's network, or inclusion of a location on the register, should not be treated as a representation or warranty that rolling stock is suitable to operate beyond the scope of the specific testing approval or network acceptance decision. The RSO should complete all required static testing and certify that the vehicle is suitable to undertake the test on the proposed track location. The RIM should be able to reject an application if these assurance activities have not been appropriately demonstrated and supplied as part of the application process.

RIMs should retain the ability to seek additional evidence where the relevant route-specific risk has not been addressed, the test location or operating conditions are not demonstrably comparable, the rolling stock has been modified, or the record is incomplete or aged.

ICPs may support greater flexibility, but any framework should include requirements for competence, independence, auditability, validation of evidence and management of non-conformances.

Question 9: Is simulation testing a viable alternative to physical trials?

ARTC supports simulation as part of the evidence toolkit, but not as a universal substitute for physical testing. Simulation may support preliminary dynamic and kinematic assessments, wheel-unloading and twist analyses, sensitivity testing, assessment of some modifications and comparison of similar vehicle designs. It may also reduce the scope of physical testing where the model is validated.

Simulation should only be accepted where it has been validated against relevant physical-test data; its inputs, assumptions and limitations are traceable and explicit; and its outputs are independently reviewed and subject to configuration and version control.

Simulation should not fully replace physical testing for novel vehicles, materially modified vehicles, new technology or circumstances where the model has not been validated against representative conditions.

The objective should be to build a future assurance framework that uses validated modelling, digital twins and model-based assurance to reduce unnecessary physical testing while maintaining confidence in safety outcomes. Protocols should identify when validated modelling can supplement or reduce physical testing, when physical testing remains necessary, and when a RIM may require further evidence. This approach can support faster innovation, targeted assurance and more efficient introduction of new rolling stock technologies.

Question 10: Should harmonisation be progressed as a dedicated project or through the Technical Working Group for the single registration application pilot?

ARTC considers that harmonisation should be progressed through a dedicated, industry-led technical workstream, coordinated with, but not dependent on, the single registration application pilot.
The pilot can improve the consistency of evidence collection and presentation. However, it will not independently resolve technical matters such as test methodology and acceptance criteria, route- and site-specific requirements, simulation, modified rolling stock, non-conformance management, data ownership and evidence portability.

A structured industry technical process will be needed to provide specialist advice, resolve technical issues and support consistent implementation. This should draw on relevant expertise from RIMs, operators, rolling stock owners, manufacturers, ICPs and other technical specialists. The delivery and governance mechanism should be confirmed once the scope, funding arrangements and implementation model are settled. This may involve the current Technical Working Group or another appropriate industry forum and should not be assumed to be NTC-led or to continue beyond existing funding arrangements.

Any national approach should include clear arrangements for data ownership, confidentiality, permitted use and retention, including protection of commercially sensitive rolling stock information and security-sensitive infrastructure, signalling and operating data.

Implementation should be sequenced so that documentation and data-related improvements are delivered early, while more complex issues relating to acceptance criteria, simulation and recognition of representative testing locations progress through a structured technical process.

Question 11: Would a testing location register be useful?

A testing location register would be a useful transparency and efficiency measure, provided it is governed, maintained and linked to recognised test methodologies. The register should not simply list potential locations. It should identify what each location is suitable for and the circumstances in which test results are likely to be portable.

The register should include:

- the location, controlling RIM and relevant track section
- permitted test types, applicable testing arrangements and access requirements

- technical and operating characteristics relevant to those tests, including speed, track topography and geometry, and signalling or train-detection arrangements, and
- access, commercial and contractual prerequisites, insurance and liability arrangements, operating constraints and relevant safeworking protections.

The register must not be treated as conferring access rights or as a substitute for test-specific commercial and operational arrangements. For testing on ARTC's network, access requirements vary according to the nature of the testing being undertaken, including whether testing occurs within standard track operating conditions or requires dedicated arrangements for higher-speed or non-standard testing.

These arrangements should ensure that test plans, safety and safeworking requirements, insurance, incident response and protection of infrastructure and third parties are clear before testing occurs. Recognition of a testing location should not create a service-level commitment or oblige a RIM to make capacity available. Testing must remain subject to the controlling RIM's safety, operational, capacity and commercial requirements. A testing location register is a practical first step before considering whether a dedicated national testing facility is required.

CONCLUSION

ARTC supports a national, risk-based framework that reduces unnecessary duplication, improves the portability of evidence and supports productivity, interoperability, investment certainty and innovation. The framework should harmonise evidence, methodology, documentation and data where practical, while retaining a transparent process for genuine network-specific variations and route-specific risk management. This reform should be positioned as part of a broader national productivity agenda that helps rail remain competitive, supports supply chain resilience, enables fleet modernisation and assists Australia's transition to lower-emissions freight and passenger transport.

Harmonisation should therefore be treated as a key enabler of Australia's future freight and transport system, not simply as a testing reform initiative. A transparent national framework can give industry greater confidence to invest in new rolling stock, emerging technologies and more efficient operations, while preserving the safety and accountability required for route-specific interface risks.

A nationally coherent assurance framework should also support the safe and timely introduction of future rolling stock and rail technologies, including fleet modernisation, alternative propulsion, digital train control, in-cab signalling, advanced train monitoring and condition-based technologies. Where appropriate, solutions should be proven once and reused across multiple networks, while preserving clear accountability for network-specific validation, interface risks and operating conditions.

ARTC looks forward to continuing to work with the NTC, RIMs, RSOs, manufacturers and technical experts to develop a practical and safety-focused national approach. Please don't hesitate to contact our Policy and Regulation Advisor, Melissa Ras [redacted], if you would like to discuss further.

Kind regards,

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