Net Zero Commission

Pathways Call for Evidence Submission

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MARITIME INDUSTRY AUSTRALIA LIMITED

MIAL Response to NSW Net Zero Commission Decarbonisation Pathways Call for Evidence

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1. About MIAL

1.1. Maritime Industry Australia Ltd (MIAL) is the voice and advocate for the Australian maritime industry. MIAL is at the centre of industry transformation, coordinating and unifying the industry and providing a cohesive voice for change.

1.2. MIAL represents Australian companies which own or operate a diverse range of maritime assets from international and domestic trading ships; floating production storage and offloading units; cruise ships; offshore oil and gas support vessels; domestic towage and salvage tugs; scientific research vessels; dredges; workboats; construction and utility vessels and ferries. MIAL also represents the industries that support these maritime operators – finance, training, equipment, services, insurance and more. MIAL provides a full suite of maritime knowledge and expertise from local settings to global frameworks. This gives us a unique perspective.

1.3. We work with all levels of government, local and international stakeholders ensuring that the Australian maritime industry is heard. We provide leadership, advice and assistance to our members spanning topics that include workforce, environment, safety, operations, fiscal and industry structural policy.

1.4. MIAL's vision is for a prosperous Australia with strong sovereign maritime capability.

1.5. MIAL's overarching position concerning maritime policy in Australia is that we ought to have a sustainable, viable maritime industry. This activity can occur anywhere – coastal, offshore and international. This maritime activity should encompass anything – freight, tourism, passenger movement, port and harbour services, offshore oil and gas, construction, scientific/research, essential services, and government services.

1.6. MIAL is an advocate for a fiscal and regulatory regime that makes it attractive for shipping and maritime businesses to exist in Australia and affords those Australian businesses every opportunity to compete for work and participate in maritime activity worldwide.

3. MIAL Response to NSW Net Zero Commission Decarbonisation Pathways Call for Evidence

Transport sector specific questions

Transitioning to electric vehicles, considering passenger and heavy vehicles, and autonomous/shared ownership models, including rollout of charging infrastructure

From an Australian maritime perspective, electrification will form part of the transition, but its application will vary significantly according to vessel type, operating profile and trade.

Battery-electric propulsion is already technically suited to some short-distance and highly predictable maritime operations, including ferries, harbour craft, workboats and other vessels that return regularly to a fixed berth. Hybridisation also provides opportunities across a broader range of vessel types. For larger coastal and international trading vessels, however, battery weight, energy density and charging requirements mean that full electrification is unlikely to provide the primary decarbonisation pathway in the foreseeable future.

The Australian Government's Transport and Infrastructure Net Zero Roadmap and Action Plan recognises that maritime decarbonisation will require a combination of electrification, energy-efficiency measures, low-carbon liquid fuels and hydrogen-derived fuels.

For maritime, the critical infrastructure issue is therefore broader than the rollout of conventional EV charging. Ports will increasingly need access to substantially greater electricity capacity to support vessel charging, shore power, electrified cargo-handling equipment and potentially the production, storage and transfer of low- and zero-emission fuels. Planning for electricity transmission and distribution infrastructure needs to anticipate these future port requirements now, given the long lead times associated with major network upgrades.

Indicative timeline: electrification and hybridisation of suitable small and short-route vessels can accelerate this decade. For larger coastal and ocean-going vessels, alternative fuels and efficiency improvements are likely to play a substantially greater role through the 2030s and beyond.

Transitioning and mode shifting for freight and the infrastructure and fuel supply needed, including for road freight, shipping and aviation

Australia should approach freight decarbonisation as a whole-of-freight-system challenge, rather than seeking to decarbonise road, rail, aviation and maritime independently.

One of the most immediate opportunities is to shift suitable long-distance freight from

road to lower-emissions modes, including coastal shipping. Australia has an extensive coastline, widely separated population and industrial centres and very long interstate freight routes. These characteristics make coastal shipping particularly well suited to carrying non-time-critical, high-volume freight.

MIAL has consistently argued that increased use of shipping should form part of Australia's freight decarbonisation strategy. Australia currently underutilises the maritime leg of its domestic freight system and there is an opportunity to move suitable freight from road/rail to sea MIAL has been working with the MUA to investigate the potential of mode shift to maritime to contribute to national decarbonisation pathways, reduced national diesel use, improved sovereign capability and resilience. The commissioned report ('The Emission Reduction Potential of Mode Shift to Maritime Transport', produced by the Transport Energy/Emission Research (TER) consultancy

> *"…showed that a potential shift to coastal shipping consistently delivered a significant to large reduction in the mean WTW greenhouse gas emission intensity for road transport, on all routes and for all vessel sizes that were considered in this study.*
>
> *For rail transport the results were more mixed. Coastal shipping could provide significant reductions in the mean WTW greenhouse gas emission intensity for rail on the conditions that both the route was long enough, and the vessel cargo capacity was large enough."*

The final report has not yet been publicly released but can be provided to the Commission if desired after publication.

Importantly, this should not be framed as eliminating road freight. Coastal shipping depends upon efficient first- and last-mile road and rail connections.

There are, however, significant barriers to achieving this shift. These include the small size of the Australian-flagged trading fleet; availability and frequency of coastal services; freight aggregation; port and intermodal infrastructure; regulatory settings; the commercial requirement for reliability and competitive transit times; and the need for freight customers to have confidence that services will remain available over the long term.

The development of the Australian Strategic Fleet is therefore relevant not only to resilience but potentially to freight decarbonisation. The Strategic Fleet Taskforce identified coastal trade as a significant strategic freight need and recognised the role of Australian-controlled vessels in moving essential goods during disruptions.

Indicative timeline: Consideration of mode shift opportunities are able to commence immediately, with a focus suggested on using each mode where it is most efficient: road for flexibility and shorter distances, rail for appropriate high-volume corridors, and shipping for suitable longer-distance and high-volume movements and to provide necessary resilience and redundancy in national supply chains.

Adoption of renewable and low emission fuels, including hydrogen

For the Australian maritime industry, renewable and low-emission, Zero/Near Zero (ZNZ) fuel will be critical to decarbonisation.

There is unlikely to be a single replacement for conventional marine fuel. Future fuel choice will depend upon vessel type, route, operational profile, engine technology, fuel availability, cost and infrastructure. MIAL maintains a technology/fuel agnostic position to enable the Australian maritime industry to choose the most appropriate pathway for their business requirements.

In the near term, drop in lower carbon fuels are particularly important because they provide an opportunity to reduce emissions from existing vessels. This matters in maritime because commercial ships are long-lived assets and fleet turnover is slow. A vessel purchased today may remain in operation for several decades.

Hydrogen also has an important role, but maritime policy should distinguish between direct use of hydrogen and the use of hydrogen derivatives – hydrogen as a molecule rather than an endpoint. For larger ships, fuels such as renewable methanol, ammonia and synthetic hydrocarbons may ultimately prove more practical than hydrogen itself. Australia's National Hydrogen Strategy specifically identifies the future role of ports in storing and handling hydrogen and hydrogen-derived marine fuels including ammonia and methanol.

Australia has a significant opportunity here. Our renewable energy resources, major ports and role in global commodity supply chains create the potential for Australia not simply to consume future marine fuels but to become a producer and supplier of them.

The Commonwealth now recognises low-carbon liquid fuels as an important decarbonisation pathway for heavy vehicles, rail and maritime, and the $1.1 billion Cleaner Fuels Program is intended to support development of an Australian low-carbon liquid-fuels industry. This is highly relevant to maritime because domestic production can potentially contribute simultaneously to emissions reduction, fuel security and sovereign industrial capability. However, production announcements alone will not create a functioning marine-fuel market without the government developing an enabling policy framework that provide positive market signals in the absence of an economy wide carbon pricing mechanism.

Government policy needs to address:

- sufficient domestic production and reliable availability of fuels;
- cost differentials between conventional and low-emission fuels;
- bunkering, storage and port infrastructure;
- safety regulation and workforce training;
- internationally consistent fuel specifications;
- lifecycle greenhouse-gas accounting and certification;
- compatibility between Australian regulation and IMO requirements (noting the

absence of a clear regulatory outcome from the IMO at the moment); and
- mechanisms that connect producers with credible long-term demand from shipowners;
- opportunities to develop green corridors.

Indicative timeline: energy-efficiency measures and increased use of sustainable drop-in fuels can deliver reductions now and through 2030. of methanol, ammonia, battery and other zero/near-zero technologies will continue during this decade, with broader uptake likely during the 2030s as vessels are renewed and fuel supply chains mature.

General Guided Questions – Input from MIAL member and NSW operator NMRA

1. Policies and Market Mechanisms

What opportunities could improve the effectiveness of NSW's transition to net zero?

Opportunities

Auckland Transport and New Zealand more broadly have made significant progress in maritime transport decarbonisation, including:

- Lightweight carbon fibre vessel construction
- Foiling and wing-in-ground technologies, including autonomous operation concepts
- Vessel electrification
- Charging infrastructure deployment
- Hydrogen technologies

Australia should learn from New Zealand's experience and consider the policies and market drivers that have enabled rapid development and deployment.

What policies or market mechanisms could accelerate emissions reductions in specific sectors or communities?

International experience demonstrates that successful maritime decarbonisation programs typically combine:

- Direct infrastructure funding
- Operational incentives during early technology deployment phases

These approaches help reduce commercial risk and accelerate adoption.

How could the NSW Government better stimulate private finance at the scale and pace needed for the net zero transition?

Reducing technology risk is often more effective than direct subsidies. Investors require confidence that assets will remain commercially viable throughout their operating life before committing capital.

What are the drivers and risks to reaching NSW's interim targets in 2030 and 2035, and net zero by 2050?

Drivers

- Increasing customer and stakeholder expectations regarding sustainability
- Improved access to low-carbon marine fuels at Sydney Harbour bunkering facilities
- Government policy support and infrastructure investment
- Falling battery costs and improvements in energy density for class-approved marine battery systems

Risks

- The AMSA Novel Vessel Policy restricts many marine decarbonisation initiatives and increases compliance costs through classification society requirements
- Slow deployment of supporting electrical and wharf infrastructure
- Supply chain constraints impacting vessel construction and modification
- Uncertainty surrounding future fuel pathways, including hydrogen, ammonia, methanol and sustainable biofuels
- Shortages of skilled labour required to operate and maintain emerging technologies

What are the opportunities or barriers for collaboration across sectors to support the transition?

Opportunities

- Shared charging and fuelling infrastructure supporting multiple operators and transport modes

Barriers

- Different regulatory frameworks across transport modes
- Limited availability of operational performance data from emerging technologies

2. Technology and Behaviour Change

What are the opportunities and barriers to technology development and deployment?

Opportunities

- At current fuel prices, some technologies can already provide a positive business case through operating cost reductions

Barriers

- Emerging technologies require long-term commitments with suppliers
- Vessel availability and fleet resilience can be impacted during installation and commissioning activities

What technologies are available or emerging in your sector, and what is their current state of readiness?

Technology	Current Readiness
Battery-electric ferries	Commercially proven on short routes with shore charging capability
Hybrid-electric propulsion	Mature and commercially available today
Advanced hull coatings and drag reduction technologies, including robotic hull grooming	Proven and deployable
High-efficiency propellers and vessel optimisation systems	Proven and deployable
Sustainable biofuels	Available but supply remains limited
Hydrogen propulsion	Emerging, with early commercial deployments in Europe
IMO Tier III diesel engines	Proven and deployable

What constraints exist around technology uptake and deployment?

- Weight, space and regulatory requirements for marine battery systems, which can reduce a vessels carrying capacity
- Wharf access and charging infrastructure availability
- AMSA safety and regulatory requirements
- Higher capital costs and uncertainty regarding future technology pathways
- Limited local capability for construction and maintenance of advanced vessel systems

What does the evidence say about current and future costs?

Low-emission marine technologies generally require higher upfront capital investment than conventional diesel propulsion. However, these technologies can deliver lower operating costs through reduced fuel consumption if contracts are long enough.

What role could the NSW Government play in strengthening technology development and deployment?

Transport for NSW is currently investing in port and wharf electrification infrastructure. Making this infrastructure technology visible and accessible to all commercial ferry operators could help accelerate technology uptake across Sydney Harbour.

What are the opportunities to foster demand reduction and behaviour change?

Public transport, including ferry services, can support behaviour change by providing an attractive alternative to private vehicle use.

Key opportunities include:

- Encouraging modal shift from private vehicles to public transport
- Promoting low-emission transport choices through public awareness campaigns
- Supporting tourism initiatives that utilise public transport networks rather than private vehicle travel

3. Economic Impacts and Just Transition

What are the likely economic effects on NSW of different emissions pathways to net zero?

A successful maritime decarbonisation pathway can:

- Create jobs in vessel design, engineering, maintenance and infrastructure
- Drive innovation and advanced manufacturing opportunities
- Enhance Sydney's position as a leader in sustainable maritime transport

However, transition costs may place pressure on operators if adequate policy and contractual support is not provided.

What are the most significant economic or workforce pressures the pathways should account for?

- Increased capital investment requirements
- Workforce reskilling and training needs
- Managing fleet renewals and major vessel refits while maintaining reliable passenger services

What are the opportunities and barriers to addressing socio-economic priorities for a just transition?

Opportunities

- Developing new maritime technical skills and career pathways
- Supporting regional shipbuilding and maintenance capability
- Creating jobs in renewable energy and transport infrastructure

4. Evidence and Other Considerations

What evidence can you provide to inform pathway inputs and assumptions?

NRMA is currently pursuing multiple pathways to achieve its emissions reduction targets and has implemented the following initiatives:

Advanced Below-Waterline Coatings

NRMA has removed all biocidal and ablative antifouling coatings from its fleet. This has:

- Reduced fuel consumption by approximately 3%
- Eliminated the release of microplastics and biocides into Sydney Harbour

Robotic Hull Grooming

NRMA utilises Hullbot technology to clean vessel hulls twice per week, delivering:

- Approximately 10% fuel reduction

Advanced Propeller Technology

NRMA has partnered with VEEM to install high-performance propellers with reduced gauge thickness and drag characteristics through the use of advanced materials.

Outcome:

- Approximately 5% improvement in fuel efficiency

IMO Tier III Engine Technology

NRMA has worked with Volvo to adopt lower-capacity, higher-performance engines incorporating exhaust after-treatment systems using AdBlue.

Outcome:

- Approximately 17% fuel reduction
- Reduced NOx and SOx emissions

Beyond emissions reduction, what other outcomes should be considered?

The following outcomes should be considered alongside net zero pathways:

- Availability of suitable marine precincts to undertake required works
- Economic competitiveness
- Workforce capability requirements
- Improvements in urban air quality
- Reductions in noise impacts

Additional Comments

Commercial ferry operators are willing to support the transition to net zero. However, maritime decarbonisation will require significant collaboration between government, regulators, infrastructure providers and industry.

The most effective pathway is likely to combine:

- Vessel efficiency improvements to reduce drag
- Low-carbon fuels such as HVO and B100
- Electrification where practical
- IMO Tier III compliant engines where electrification is not practical
- Investment in enabling infrastructure

Long-term policy certainty and targeted support mechanisms will be essential to achieving meaningful emissions reductions while maintaining safe, reliable and affordable ferry services for the people of NSW.

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