1.0	TECHNICAL MEMO – ECONOMICS
To:	Stacey Sharp & Blair Masefield, Beca (consultant planners)
From:	Peter Clough, Senior Economist, NZIER
Date:	4 July 2023

1.1 Statement of Qualifications and Experience

I am a Senior Economist at the New Zealand Institute of Economic Research ("NZIER") in Wellington, an incorporated society that provides economics research and consultancy services for a range of public and private sector organisations, in New Zealand and overseas. My **qualifications** include: a Bachelor of Arts in Geography and Land Economy from Cambridge University, UK; a Master of Science in Recreational Land Management from the University of Reading, UK; and Post-Graduate Diploma in Agricultural Economics from Massey University at Palmerston North. I have in the past held executive committee positions in the Australian Agricultural Economics Society (New Zealand Branch) and the New Zealand Agricultural and Resource Economics Society.

My **expertise** derives from over 35 years' of applied economic research and consultancy, both at NZIER and previously as research officer at Massey University. During this time, I have specialised in applying economics to the natural environment and public sector issues such as regulation of third-party effects and "externalities", provision of public goods, and appraisal of projects and policies in fields such as biosecurity, environmental regulation, energy, transport, public health and safety. I am familiar with non-market valuation methods applied to hard-to-value matters such as public recreation space and the value of preventing fatalities.

Experience most relevant to the issues raised by this application by Northport include:

- Economic evidence prepared for Refining New Zealand and presented to a commissioners' hearing on that company's application for consents for proposed channel deepening to accommodate heavier laden tanker deliveries (2018)

- Review and critique prepared for Panuku (Ports of Auckland) of Market Economics "Cost Benefit Analysis" of building mooring "dolphins" to enable extra-large cruise liners to berth at Queen's Wharf in Auckland, enabling passengers to spend more time and money in the City, and higher value exchange visitors to join or leave cruises in the City, for the benefit of its tourism industry and flow on effects in the community (2019)

- Economic evidence prepared for Port of Tauranga Ltd in support of its application for consent to extend the length of its container wharf and general wharf, to enable access to larger vessels used by shipping companies for economic reasons, and thus increase the range and timeliness of vessel availability for the port's customers, with direct benefits for those customers, port operational efficiencies and the flow on effects in the wider community (2022).

I confirm that the statements made within this memorandum are within my area of expertise and I am not aware of any material facts which might alter or detract from the opinions I express.

Whilst acknowledging this consenting process is not before the Environment Court, I have read and agree to comply with the Code of Conduct for Expert Witnesses as set out in the Environment Court practice note. The opinions expressed in this memorandum, are based on my qualifications and experience, and are within my area of expertise. If I rely on the evidence or opinions of another, my statements will acknowledge that.

2.0 APPLICATION DESCRIPTION

Applicant's Name:	Northport Limited (Northport)
Activity type:	**Land Use (s9), Coastal Permit (s12), Water Permit (s14), Discharge Permit (s15)**
Purpose description:	Northport seek to construct, operate, and maintain an expansion of the existing port facility to increase freight storage and handling capacity, and transition into a high-density container terminal.
Application references:	Northland Regional Council: APP.005055.38.01 Whangārei District Council: LU2200107
Site address:	Ralph Trimmer Drive, Marsden Point, Whangārei

3.0 SITE AND PROPOSAL DESCRIPTION

1.2 Site and Environmental Setting

A description of the subject site and surrounding environment was provided in section 4.0 of the Assessment of Environmental Effects (AEE) entitled: *Application for resource consents for the expansion of Northport*, prepared by Reyburn & Bryant, dated 6 October 2021. The matters this Technical Report refers to are those of Appendix 22, Economic Assessment, which contains a report by M.E Consulting named *Northport Expansion (Berth 5) Economic Assessment,* September 2021.

1.3 Proposal

The proposal is as described in section 3.0 of the AEE and depicted on the design drawings attached as Appendix 3 of the application (referenced in Section 2.3 below). I adopt that description for the purpose of this assessment.

This memorandum is limited to the consideration of matters relating to economics.

1.4 Reference documents

The following application documents have been reviewed and inform this technical memorandum.

Application

- Assessment of Environmental Effects entitled: *Application for resource consents for the expansion of Northport*, prepared by Reyburn & Bryant, dated 6 October 2021 (henceforth referred to as AEE)
- *Northport Expansion (Berth 5) Economic Assessment,* prepared by M.E Consulting, dated September 2021 (henceforth referred to as the ME Report)
- Two draft *Assessments of Economic Effects* prepared by Brown Copeland Ltd, dated January 2020 and June 2021 – these were reviewed but do not appear to have been retained among the web-posted application supporting documents
- Further information response prepared by Reyburn and Bryant, dated 21 February 2023 (henceforth referred to as s92 Response).
- Appendix 24, Cultural Effects Assessment (Draft) prepared by Patuharakeke Te Iwi Trust Board (PTB), dated V2 November 2021, also makes comments on the M.E Consulting report which we address https://www.nrc.govt.nz/media/uopfdtey/application-document-lodged-06-10-2022-appendix-24-cultural-effects-and-values-assessments.pdf
- Cultural Effects Assessment (Final) prepared by PTB, dated December 2022, also makes comments on the M.E Consulting report which we address

S92 Request for Information

- Northport confirmed in their s92 response that the Polis report Socio-economic impacts of Northport expansion on Tai Tokerau/Northland (https://northport.co.nz/node/21107) also forms part of the application. I include a review of that report in this memo.

4.0 REASON FOR CONSENT

4.1 Reasons for Consent

A list of resource consents sought (as per the application documents as lodged) are summarised in Sections 1.5 – 1.7 of the AEE, and are as amended by the s92 Response.

4.2 Overall Activity Status

Overall, the resource consent is considered as a **Discretionary Activity**.

5.0 TECHINICAL ASSESSMENT OF APPLICATION AND EFFECTS

In this technical assessment of the application and effects from an economic perspective, I look first at the ME Report which provides most specific detail about the application. I then include some commentary on the Polis Report, which provides a broader assessment of strategic implications for Northland of expansion at Northport.

5.1 ME Report synopsis

The ME assessment examines the potential for growth of different parts of Northport's business and the effect of port capacity constraints on meeting that growth. Its underlying premise is that the Northland Region is going to face increasing demands on port capacity for export and import of goods, which will be better managed through expanded port capacity that the proposed Berth 5 expansion will provide.

The ME assessment usefully draws distinction between economic impacts on spending and jobs generated by Port Activity, and the much larger impacts of Facilitated Trade across the wider economy that are enabled by ports, including both direct impacts and indirect and induced impacts of flow-on effects of new business created for suppliers of inputs to the port and suppliers of consumer goods to people whose incomes are enhanced by the port. The assessment confines itself to economic impacts on measures of economic value added and employment. It uses standard economic measures for comparing alternative futures with and without the proposed investment in wharf extension which indicate there are likely to be positive economic effects from the investment proceeding, not just for the Port company but also for the wider economy. But there is uncertainty over the scale of the estimates and the assessment has a sparsity of qualifying comments that would aid their interpretation.

5.2 Assessment of Effects on the Environment

While most assessments of environmental effects focus on a proposal's impacts on the bio-physical environment, economic assessments generally focus more on a proposal's impacts on the economic environment. This is consistent with the RMA's definition of environment to include "the social, economic, aesthetic and cultural conditions which affect" the biophysical environment or are affected by it. It is also aligned with the Act's section 2 definition of sustainable management to include use, development and protection of natural resources at a way or at a rate that enables people and communities to provide for their social, economic and cultural well-being. It also aligns with section 7(b) requirement to have regard to the efficient use and development of natural and physical resources. In short, assessments examine what do people get out of the use of natural and physical resources in the proposal, which is a fundamental economic problem.

The ME assessment sticks to a relatively narrow definition of economic effects. The following effects have been identified and assessed:

- Changes in the expenditures, employment creation and value added (GDP) enabled by the proposed port expansion under a selection of potential future scenarios
- The direct effects generated by the proposal, and the flow on effects in stimulating other business and employment by enabling increased throughput in the port.

<u>Assessment methodology</u>

The Market Economics (ME) report is an economic assessment of extension of the Northport wharf to the east (Berth 5), beyond the Berth 4 extension which is currently consented and due for construction. It is primarily an Economic Impact Analysis, using a multi-regional input output model to estimate how the injection of spending and job

creation on the port extension translates to wider economic activity across the Northland regional economy and the New Zealand economy at large.

It provides contextual background on the role of Northport in serving different traded goods – containers, bulk materials (mainly forest products) and other goods – in the context of the economies of Whangarei District, Northland Region and the Upper North Island (the area including Northland, Auckland, Bay of Plenty and Waikato). It then projects future business through Northport under four potential scenarios:

- Business as Usual (BAU), with Northport continuing to focus on regional trade
- North Auckland Imports (NAI), with the Port expanding to serve both regional and national trade
- Upper North Island Ports Constrained (UNIPC), a high growth scenario in which constraints at Auckland and/or Tauranga cause more of Auckland region's trade being sent via Northport
- North Auckland Growth (NAG), a low growth scenario in which Northport captures a share of the container trade serving areas north of the Auckland isthmus

Using ME's multi-regional input output model, ME's assessment compares the future under BAU with that under NAI. The focus is on this first comparison of expansion of port activity into a national role compared to continuation of current trends based on regional activity alone. While other comparisons may have been examined, no results are presented for the UNIPC scenario, which will be higher than the NAI, or the NAG which will be lower than the NAI but higher than BAU.

Results and interpretation

The ME modelling is based on the premise that under BAU Northport's growth will be constrained by its current capacity (including completed Berth 4). The NAI and other growth scenarios are enabled by the investment in the extra capacity provided by Berth 5, which will not be in place until 2030 if consented. The critical result is the difference between BAU without Berth 5 and NAI with Berth 5, as this is the gain in economic activity and employment enabled by the new investment if consents are granted and the investment proceeds.

Table 1 below reproduces the summary results from the ME report showing the difference between the BAU (without port extension) and NAI (with extension), expressed as both millions of dollars and mean employment count. The two right hand columns calculate the average annual percent change from the start to the end of the time series presented in the tables. This shows the BAU annual average is higher from 2020 than the average from 2030, which would be consistent with current capacity being less constrained early in the period than later on after growth has occurred. It also shows the growth rates under NAI are higher than under BAU, the more so for the New Zealand-wide results than for the Northland results.

Table 1 Results from the Economic Impact Analysis

Economic Value Added ($m/year); Employment MEC = Modified Employment Count

Northland	Unit	2020	2030	2040	2050	2020-2050 aapcc	2030-2050 aapcc
BAU	$m	438	654	888	1,094	3.1%	2.6%
NAI	$m		691	954	1,201		2.8%
Difference	**$m**		**37**	**66**	**107**		5.5%
BAU	MEC	6,300	8,900	12,000	14,800	2.9%	2.6%
NAI	MEC		9,400	12,900	16,200		2.8%
Difference	**MEC**		**500**	**900**	**1,400**		5.3%
New Zealand		**2020**	**2030**	**2040**	**2050**		
BAU	$m	907	1,351	1,838	2,265	3.1%	2.6%
NAI	$m		2,043	3,827	5,584		5.2%
Difference	**$m**		**692**	**1,989**	**3,319**		8.2%
BAU	MEC	10,700	15,700	21,300	26,300	3.0%	2.6%
NAI	MEC		23,000	42,100	60,900		5.0%
Difference	**MEC**		**7,300**	**20,800**	**34,600**		8.1%

Source: NZIER growth estimates from extracts from ME Northport Expansion (Berth 5) Table 4.1 and Table 4.2

This is an unusual result, as an investment would normally be expected to have a larger proportional impact on its local economy and growth than on the wider national economy, where it is just one investment among many with lots of other competing opportunities for trade. Therefore, the NAI results could be considered to be optimistic. While it is possible that Northport's expansion could be driven by trade with other regions more than by Northland business, as the ME report implies, the assessment specifically does not model internal transport costs, which are critical to Northport's competitiveness in attracting trade from Auckland and further south, and therefore determine Northport's contribution to nationwide activity.

The recurring storms of early 2023 and in earlier years have indicated the fragility and susceptibility to disruption of some of the internal transport infrastructure heading into Northland, so sustained expansion of Northport's business is likely to be dependent on new investment in improving and strengthening the internal transport networks. This is not explicitly considered in the ME modelling.

Also not mentioned in ME's report is the closure of Marsden Point oil refinery, which had provided about 6% of Northland's regional value added and provided work for around 470 employees and contractors. It is a significant contextual matter for the expansion of Northport, both in creating desire for alternative employment in the District to enable people and communities to provide for their wellbeing, and because of the decongestion of the shipping approaches with the cessation of crude deliveries.

The latest ME report is a simplification on an earlier version I reviewed in 2022.1 This latest version has expanded its description of scenarios to include four, but focuses its analysis only on economic impact analysis and only on one modelled scenario as alternative to BAU. This may be easier for the public to understand, but also loses some of the detail and nuance that a wider report showcasing all four scenarios could provide. There is significant uncertainty over the likely outcome of Berth 5's provision, so there is a wider range of potential outcomes to the port expansion than is modelled in ME's assessment, and that could be made clearer in interpretation of the results. While it is impractical and unreasonable to expect modelling reported on every potential outcome, a few more modelled outcomes reflecting variations in assumptions could be provided with assessment of relative likelihood of each, to give the public and decision makers a better sense of the potential range of outcomes, from the worst case to the best case.

Requests for further information and ME responses

The ME responses to requests for information and explanations are for the most part reasonable, but rather limited. They elaborate slightly on their four scenarios, expand on their description of the Northland economy as context for the port expansion, comment on interpreting results when assumptions are breached and defend the use of input output modelling over computable general equilibrium (CGE) modelling by asserting that the extra cost of CGE usually outweighs the marginal benefit to be gained.

Their explanation of assumptions includes:

- Constant value of trade: holding constant the price international consumers pay per unit of export product.
    - It is standard practice in economics to hold future prices constant in real terms – introducing price changes for international currency fluctuation or domestic inflation complicates forecasting and adds "noise" to the results that can obscure what's really happening to the volume of trade, so this assumption is reasonable.
- Constant distribution of trade: the distribution or mix of goods traded is held constant, for practical reasons similar to those for holding prices constant.
    - This is more debateable, as across the four scenarios it is unlikely the proportional mix of trade will stay the same – the current mix of containers, bulk goods (logs) and other trade would likely change in scenarios where Northport attracts more trade from Auckland or further south. ME claim that changes in the mix of trade would have to be significant to change the outcomes of modelling outside the range presented in the report.
- No capacity constraints in the Upper North Island ports: ME assumes that other

1 This was titled *Northport Expansion – Berth 5: Final Draft, April 2021.* That report described only two scenarios, BAU and NAI, but also contained a table summarising positive benefits for GDP, incomes and regional transport but indeterminate costs for recreation, noise, visual, environmental, heritage, cultural and local transport effects. This summary was not an economic cost benefit analysis, being entirely unquantified and adding no economic insight to what experts in other disciplines could provide.

existing North Island ports do not have capacity constraints, and significant modelling effort would be needed to estimate capacity at other ports that is beyond the scope of their assessment, ME describe this assumption as "conservative", because more trade would flow through Northport if that assumption was relaxed.

  - This assumption is implicitly contradicted by ME's assertion that "Northport's role is likely to extend beyond its regional trade tasks, to support trade from outside the region … a national role". As Northport occupies a location peripheral and remote from the main centres of export production and import demand in the North Island, that statement leaves an unanswered question about what would drive such increasing national role, as that would necessitate goods travelling further on internal transport arteries than they do to closer ports such as Auckland or Tauranga? Northport might attract such national traffic if it generated efficiency gains to offset the increased transport costs from outside the region, or if it avoided potential congestion delays at other ports, which would be a sign of capacity constraints at those other ports. This is an assumption inconsistent with the premise of the scenarios. It is not a fatal flaw to the modelling, but somewhat misleading.

- No capacity constraints in land transport networks: this means that the model assumes there are no constraints in terms of taking containers to and from the port. In their response, ME acknowledge that in reality there are likely to be constraints on the roading network, but this is outside the scope of their report.

In short, ME's assessment is not a fully integrated modelling exercise in which all inputs and outputs act consistently with each other. It is not, and doesn't claim to be, a comprehensive cost benefit analysis or a business case for the port's eastward expansion. Expansion of port capacity is required to meet increased demand for goods passing across the wharf, but ME identify current capacity at Northport to be sufficient to meet foreseeable demands from within Northland. Growth in trade to justify the expansion of Berth 5 will need to come from outside the region in North Auckland or further south, and that growth will be curtailed by constraints on southward domestic transport links to Northport.

ME's assessment is an exercise in bounded rationality, in which the model's main function is to compare outcomes under different scenario settings with a limited range of variables differing between them. They could be clearer about the limitations and internal inconsistencies, but they have not taken up the opportunity to do so in their answers to the information requests.

ME's defence of its use of input output modelling over CGE modelling acknowledges that conventional input output models may overstate results. They claim, however, that using CGE modelling would not have changed the conclusion of the report, that from an economic perspective, expansion of Northport has a positive impact on the regional and national economies.

That may be so, but it fudges the question of what is the scale of positive impact when using a CGE or an IO model? Their response in the penultimate paragraph on Page 6 of Attachment 14 provides some figures that can be read as implying that the CGE results

are 80% of the IO results. The 80% can be construed as saying that a CGE analysis implies a multiplier of 2 where an IO analysis implies a multiplier of 2.5. If that is its intended purpose, where has the 80% figure come from, given that the scale of difference in results depends on a range of specific factors? As CGE results sometimes imply multipliers nearer to 1.5 (66%) or below, it makes a significant difference which figures are chosen as illustrative examples. The explanation that's required here is not a concocted figure based on arbitrary assumption presented as a certainty, but an acknowledgement that IO does generally overstate compared to CGE, the scale of difference varies with a number of factors specific to each application, and that this difference is one of a range of uncertainties to recognise when interpreting the modelling results and implications for future outcomes for the port.

5.3 The Polis Report on *Socio-economic Impacts of Northport Expansion for Tai Tokerau/Northland*

This report, prepared in 2022 by Polis Consulting for business intelligence firm NZInc, provides a broader strategic assessment of the implications of Northport expansion for the region and the country at large. It makes a case for Northport expansion to address a range of issues of underperformance within Northland compared to other regions, and presents some numerical estimates for the value for GDP and employment of the eastward expansion of the port (Berth 5), the westward expansion into a shipyard with floating dock, and the opportunities and risks of proceeding with both concurrently.

The report's method is to assemble some baseline data on the state of the region and opportunities for future growth, hold interviews with 40 key regional stakeholders and knowledge holders, review various reports that have previously been undertaken of issues to be resolved in Upper North Island supply chains (including the ME report), undertake scenario based economic impact analysis, distil results and draw conclusions and recommendations.

The premise of the Polis report is that many measures show Northland's economic performance has been worse than the New Zealand wide average, and that Maori have been disproportionately heavily affected by this. Manufacturing had been the most productive industrial sector in Northland while the Marsden Point Refinery was in operation, but its closure and conversion to an oil product import terminal has had a large negative effect on the region's manufacturing sector and led to net loss of highly skilled, high-income jobs in the region. Northland needs investment in growth-prospective activity to counter those losses, and development of the Northport site and its surroundings provides an opportunity to focus such investment and create a new industrial hub there.

The Polis report also identifies headwinds for the regional economy, with its important log export trade likely to drop off in the medium-term future. This presents an opportunity for pivoting away from exports from Northland dominated by goods of high bulk and relatively low value (such as logs and dairy commodities) to expand handling of higher value goods and the container trade. The marine sector comprising boat- and ship-building is well established in Northland with a higher share of regional GDP than in the national economy, and could expand further to supply more high value jobs, given the right port facilities.

The report forecasts that with Northport's eastwards expansion the regional economy could grow to gain additional $160 million per year in GDP contribution by 2060, and create 1500 more jobs. Such growth results are predicated on improved capacity on road and rail infrastructure linking Northport to Auckland and further south. It also claims that Northport would contribute to a lower carbon future, by enabling more integrated logistics, increased capacity on low carbon transport modes like rail and coastal shipping, and more efficient point to point transport than is currently possible in the region.

The method underlying the forecasts is not described in any detail, but it is clearly an economic impact analysis, focusing on effects on GDP, jobs and incomes, and distinguishing direct effects from indirect and induced flow on effect by using economic multipliers. The report explains at some length the uncertainties around its estimates and it provides low, medium and high forecasts. But its forecasts are only estimates of what might eventuate under a restricted range of alternative futures, and they are not informative of the costs that would be incurred in realising them, both the costs of the investments required and the disruptions in industrial activity brought about by them and by the emergence of new industries in the region.

5.4 Conclusion

Overall, the modelling approach chosen by ME presents mainly positive effects in new spending, job creation, and contribution to GDP from both investments in the port and the resultant increase in trade facilitated by the enlarged port capacity. These effects are significant primarily for the Northland region, although ME also allude to the port serving trade from outside the region. With respect to adverse effects:

- the ME assessment does not account for any adverse effects on the physical environment associated with increased trade or traffic, such as emissions to atmosphere, discharges into water or soil, disruptions to local amenity and biodiversity impacts. That would require a comprehensive cost benefit analysis with defensible economic values to apply to all such adverse effects, which is a challenging and costly exercise in New Zealand.
- the ME assessment does not account for any adverse effects in the economic environment, such as changes in prices in the local economy caused by the increased demands for key inputs (such as certain types of skilled labour) required for the construction and operation of the expanded port facilities; nor for any reallocation of input resources across sectors, which may cause some existing businesses to contract in face of new activity raising their input prices. To do this would require a general equilibrium model.

In defence of the ME assessment, it is not common practice in RMA processes that require an assessment of economic effects to use comprehensive cost benefit analysis that values all effects, positive or negative, in economic terms. Many lawyers and judges have limited expectations about the scope of economic evidence and are quick to push back on economists opining on what may be viewed as being outside their area of expertise. Even in situations where economists can give informed opinion beyond the "growth, jobs and incomes" nexus, such as the economic consequences of an environmental harm, hearings often give them little weight due to the uncertainty about the economic values that might be applied.

With few exceptions, most environmental impacts are felt locally and do not have obvious market-priced effects, so require customised non-market valuation processes to assess the economic value of potential adverse effects. That would be an additional cost of doubtful worth, and hence rarely undertaken. RMA processes commonly rely on subject matter experts to assess the significance of biophysical effects and potential mitigations, confining economic evidence to matters that can be inferred from market data. This may sometimes include environmental matters of national significance, such as greenhouse gas emissions, which can be valued using a standard value per tonne across the country.

The Polis report also focuses on the positive impacts and omits to mention potential negatives. It does acknowledge some issues that are absent from the ME report, such as the importance for benefit realisation of improved internal transport links from Northport to the South, the possibility of improving integration of transport modes to reduce the carbon emissions from transport in Northland, and rebuilding from the recent setback caused by the closure of the refinery. But its results suggest gains will not become significant until around 2050, and that the port expansion is a strategic investment.

At face value the Polis results are considerably more optimistic than those of the ME forecasts: The Polis estimate of additional GDP in 2060 is 50% bigger than that in the ME report for 2050, a difference too large to be explained simply by the 10 year interval between them. The difference in added jobs is proportionately smaller. These differences cannot be reconciled from the variable information about the respective modelling in the two reports.

	ME report 2021	Polis report 2022
Forecast year	2050	2060
Added GDP $m	107	160
Added jobs	1,400	1,500

Potential adverse economic effects of the proposal have not been enumerated by either the ME or the Polis economic assessment, but that is common practice for economic assessments in RMA processes. Both assessments have concluded that, given certain limited assumptions around future scenarios, the port extension is likely to provide economic benefits for both the port company and the wider regional and national economies. But the current modelling is not designed to estimate whether adverse effects will be less than minor or minor or significant.

I conclude that the proposed eastward expansion will likely generate positive effects if domestic transport constraints out of Northland are relieved over time, but that there's considerable uncertainty over the different growth scenarios, the scale of their effects and their timing. Neither economic assessment is particularly informative about the risks and uncertainties around the future growth expected from the port expansion. However, given the need to provide for a growing population in Northland and providing alternative outlets for economic activity in the region after recent adverse events, the proposal should be significant at a regional level. In the longer term it may become significant at a national level, but that depends on other investments in inland transport and developments at

other ports.

6.0 TECHNICAL RESPONSE TO MATTERS RAISED IN SUBMISSIONS

From a review of submissions received by NRC on the Northport Extension, 218 expressed support for granting consent and 133 opposed consent being granted. A total of 136 submissions – all supporting consent being granted – gave economic matters as a key issue behind their decision. Within that 136, 94 gave the key issue as "Economics", and 46 gave their key issue as "Supply Chain". These general themes are addressed in section 5 above.

One submitter opposing consent being granted is the Patuharakeke Te Iwi Trust Board (PTB). The Board did not give economics as a key issue in its opposition, but in its Cultural Effects Assessment (CEA) it was critical of various aspects of the economic assessment, in statements appearing in both its CEA and in an embedded review by Dr Peter Nuttall, of S4S (Fiji) Ltd. Responses to these matters are set out below.

6.1 Submission Theme: Type of Economic Analysis presented

The PTB CEA concludes on economic effects that "insufficient analysis and evidence is provided to determine the economic effects (whether positive or adverse) of this proposal on Patuharakeke and its taonga." Elsewhere they state that they have yet to see a full cost benefit analysis, and they consider it preferable there be a more integrated, holistic approach such as triple bottom line reporting or application of principles of the circular economy or the Doughnut Economy espoused by UK economist Kate Raworth.

- There is validity in these criticisms, for as identified above, the scope of the ME report is narrowly constrained (and that of Brown Copeland 2021 even more so). However, none of the alternative assessment frameworks suggested provides a practical alternative that can be expected to be applied in a consenting context:
    - Although some in the legal profession acknowledge the usefulness of cost benefit analysis in RMA settings, the Act does not require CBA or any other method to be used in its economic assessments: section 32 comes close in its requirement to identify costs and benefits, assess alternatives, but guidance issued by the MfE has indicated that such assessment does not need to be a quantified economic cost benefit analysis. Section 32 does not apply to consent applications, and as identified above, many judges and lawyers do not request to see cost benefit analysis
    - Triple Bottom Line reporting is a form of accounting that assembles information (primarily at a company level) from financial accounts, environmental measures and social outcomes (or sometimes governance arrangements). This is a multi-disciplinary method that is broader than the expertise attributed to economists, so would not normally be found in economic evidence presented before the courts
    - The circular economy is an approach to reducing material waste in the economy through better design and improved recyclability of recoverable

materials;

- The doughnut economy is a conceptual approach to economic management in which aggregate economic consumption and production are kept at levels within the limits of planetary boundaries to avoid severe environmental effects, while produced goods and services are distributed to ensure all people reach at least a defined minimum standard of consumption.

- The circular economy and doughnut economy models are conceptual frameworks that have yet to be demonstrated as practical alternatives to conventional financial and economic reporting.

- Other frameworks that could be applied include the Ecosystem Services approach to enumerating environmental effects on the environment, and Natural Capital Accounting. Again, these are conceptual ideas that some have tried to put into practice, but in which issues of data limitation, risks of double counting and doubts over the non-market valuations used have made official agencies and statisticians in NZ and internationally cautious about using them to supplement or replace conventional economic accounting measures.[2]

6.2 Submission Theme: Scope of inputs into economic assessment

The CEA makes several criticisms about the narrowly conventional focus of the economic analysis provided in support of this application, the limited consideration of alternative futures in the modelling, lack of consideration of climate change impacts and mitigation measures, or of future "shock events" like the pandemic (or Cyclone Gabrielle). It notes that the economic assessments do not factor in non-market values including ecosystem services and cultural values.

- There is validity in these criticisms, but again issues of practical feasibility loom large in the limited application of alternative approaches. Non-market valuation, ecosystem services and cultural values naturally fit within a cost benefit analysis framework, but if such a framework is problematic to use because of data limitations and not required by the wider assessment process, there is little incentive for economic consultants to apply it.

- PTB criticise the ME analysis for not even mentioning climate change and climate response policies as a potential influence on future Northport activities. This is a valid point, but also a challenging one to factor into modelling when policy in New Zealand and overseas is changing with uncertain effects on outcomes.

- PTB have a valid concern that the economic assessments are quite narrow and limited in consideration of what may happen in future, which arguably skews the expected outcomes of the scenarios examined by ME. But it is unreasonable in terms of cost to expect a comprehensive range of modelling of alternative futures

[2] A recent literature review is available here: https://www.treasury.govt.nz/sites/default/files/2018-08/LSF-capturing-natural-capital-in-decision-making.pdf

in support of consenting applications, and such reports will tend to be built on past patterns of activity and predictable future changes, such as those driven by demographic changes. It is also reasonable that they at least acknowledge uncertainties over the future outcomes, and factors, such as climate change impacts and mitigation policies that may affect the future outcomes they are modelling. ME has not done this in their report, and do not identify climate change as a specific exclusion. The Polis report only touches lightly on transport integration to reduce carbon emissions, rather than resilience against the risks of climate change related events.

- It is a fair point that given the uncertainties around their estimated impacts, it would be informative for the economic assessment to provide a wider range of low, medium and high results and a clearer statement of caveats and limitations around their numerical results.

7.0 STATUTORY CONSIDERATIONS

The ME Economic Assessment does not refer to any statutory considerations with respect to its modelling. It is explicit that it does not analyse "well-being impacts of changing Northport's role and/or the alternative options that could be utilised to handle the trade tasks" [page 5]. Its relevance to the RMA's section 5 references to enabling communities to provide for their wellbeing is left to the reader to infer rather than explicitly examined.

7.1 Duration and Review of Consents

The Applicant seeks 35 year durations for the regional consents.

Major infrastructure investments are inherently risky and investors seek security for long periods to earn a return on their investment and cover their risks. From an economic investment perspective, long consent periods provide certainty and enable efficient timing of new investment. If they have a lapse period within which the consent needs to be acted upon and requirements for on-going monitoring and adaptive management of the project as it is implemented, economic efficiency requires that these be predictable and allow sufficient time to be acted on and leave expectation of earning a return on investment.

As the modelling indicates the Berth 5 port expansion is not required to meet regional demand and depends on improved transport links out of Northland to serve markets to the south, there have been suggestions that port expansion should be triggered by these domestic transport infrastructure investments coming into effect. However, this is not necessary from an economic perspective.

- The port extension is a major investment and it will not be economic for Northport to proceed with building it until the company is satisfied transport constraints can be overcome.

- The location of the proposed Berth 5 is already zoned for port activity, so Northport's application for consent is effectively seeking an option to develop Berth 5 if and when the time is right for it to do so.

- The company is best placed to make its own assessment of the adequacy of

domestic transport links and it bears the financial risk of getting the timing wrong.

- Requiring consents to be triggered by some other specified investment being made first makes the port extension hostage to third party decisions and will be economically inefficient in constraining private decisions of what and when to invest.

- If triggers delay the extension and increases its costs, as domestic transport projects have their own requirements for consenting and building times, there will also be a cost from forgone jobs and incomes in the wider community, as well as to the investing company.

- While triggers may be used on research on such things as impacts on the local seabed which may lead to marginal adjustments in how the project is implemented, a trigger making the whole project dependent on other investment decisions in the public sphere would be a blunt intervention that reduces the favourability of the investment environment.

The Polis report describes the port extension as a strategic investment with a significance that will become apparent decades into the future. As such the extension increases options for future developments, some of which may not even be foreseeable at present. It may be strategic in another sense, in that once it is built it strengthens the arguments for other transport improvements.

Both regional significance, and to a greater extent national significance, will be enhanced by the improvement of domestic transport connections to the port (such as Marsden Point rail line, coastal shipping services or multilane highway to Auckland). But consents for the port extension should not be contingent on these connections first being built, as this will delay the port extension, forgo some early benefits for the community, and add uncertainty to the investment environment to the detriment of efficient resource use decisions.

I recommend that the consent be granted for a duration of 35 years (from the date of implementation).

8.0 RECOMMENDATION

8.1 Adequacy of information

The above assessment is based on the information submitted as part of the application. It acknowledges the ME economic assessment is limited in scope. It also acknowledges that the ME assessment has been revised from an earlier draft, and that ME has already provided answers to one request for further information. Given its limitations, the ME assessment is reasonable, although it could do with more explanation on how their results should be interpreted in view of uncertainties around the future, to avoid creating misplaced certainty around the results. This has been raised with the consultants who have responded by doubling down in defence of their method. I doubt further requests for information will yield much more light on matters that might appear to be just a disagreement of opinion among economists. Given the consultants' limited explanation of the uncertainties in their assessments, the size of their results should be regarded as optimistic, and the certainty around them should be treated with caution.

I have also reviewed the Polis report, which provides more of an aspirational statement about the opportunity for port expansion to stimulate recovery in Northland following recent setbacks such as the closure of the Marsden Point refinery. The Polis report is even more opaque in its forecasting methodology, but given the high level nature of its content I doubt that further information requests will yield much.

Neither of the reports provides a complete analysis of costs and benefits or a business case of the Berth 5 extension, but such analysis is not required nor commonly seen in consent applications. It is considered that the information submitted is sufficient to enable the consideration of the above matters on an informed basis.

8.2 Recommendation

The assessment in this memo does not identify any economic reasons to withhold consent.

8.3 Recommended Conditions and Advice Notes

The economic assessment in this memo does not give grounds for recommending condition conditions to avoid, mitigate, or remedy environmental effects of the proposal, should consents be granted.

Memo prepared by:	Peter Clough, Senior Economist, NZIER
Date:	14/3/2023

Memo reviewed and approved for release by:	Blair Masefield, Technical Director, Beca Limited On behalf of the Whangārei District Council and Northland Regional Council
Date:	2 August 2023