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To: Matt.Adams@mfe.govt.nz
Subject: CLASSIFICATION Copilot summary - too big to put in chat

Below is an economist's assessment of the **Insight Economics – “Economic Assessment of Marine Carbon Dioxide Removal Activity in New Zealand’s EEZ” (Final Report, 19 Feb 2026)**, focusing on **carbon removal economics** and **macro/real-economy impact methods**.

I’ve tried to be very concrete about **what the report does well**, **where the analysis is fragile**, and **what you’d want added/changed** if this were being relied on for regulatory decision-making or public value claims.

1) What the analysis is (and is not)

What it is

- A **gross economic impact statement** using **multiplier (input–output) analysis**, separating:
 - 9(2)(b)(ii) [\[Insight Ec...- 19022026 | PDF\]](#)
 - **Ongoing operations (2030 steady state)** impacts, based on a domestic share of **OPEX** and an assumption that **COGS may fully accrue within NZ**. [\[Insight Ec...- 19022026 | PDF\]](#)
- It reports **direct + indirect** effects and explicitly excludes **induced** effects (a sensible choice for avoiding inflated “economic benefit” claims). [\[Insight Ec...- 19022026 | PDF\]](#)

What it is not

- It is **not a cost–benefit analysis**, not a welfare assessment, and not a net national benefit estimate:
 - It **does not quantify displacement**, resource constraints, crowding out, or opportunity cost (it notes gross impacts and that displacement is not quantified). [\[Insight Ec...- 19022026 | PDF\]](#)
 - It **does not test** the commercial viability of the project (no NPV/IRR, no break-even analysis, no price/volume risk).
 - It **does not quantify environmental externalities** (positive or negative) and therefore cannot weigh “economic benefit” against “economic cost” from environmental risk.

Bottom line: as written, this is best interpreted as an **upper-bound “activity uplift” narrative**—*conditional on the spend actually occurring in NZ at the stated scale*—rather than a decision-grade estimate of net benefit to NZ.

2) Strengths / good practice

A. Clear separation of development vs operations, and consistent price basis

- The structure is clean: CAPEX impacts are one-off; OPEX/COGS are recurring; results expressed in **2025 prices**. [\[Insight Ec... - 19022026 | PDF\]](#)

B. Appropriate caution on induced effects

- Excluding induced impacts is defensible in NZ conditions (tight labour markets, high substitutability of labour across projects, and the “everyone spends their wages anyway” critique). Their explanation is broadly correct. [\[Insight Ec...- 19022026 | PDF\]](#)

C. Transparency on “gross impacts”

- They state plainly that operational figures are **gross** and may have occurred elsewhere absent the project; they do not quantify displacement. That honesty is important. [Insight Ec...- 19022026 | PDF](#)

D. Attempts to link the project to evolving CDR market context

- The report gives a coherent story about durable CDR demand, MRV quality preferences, and the role of standards (e.g., Puro.earth) in enabling market access. [\[Insight Ec...- 19022026 | PDF\]](#)

3) Key weaknesses / where the analysis is most vulnerable

3.1 9(2)(b)(ii)

What's missing: a *local content model* that breaks COGS into:

- import share vs domestic supply,
- which items are realistically manufacturable in NZ at scale,
- capacity constraints in relevant NZ industries,
- timeline for localisation (it's rarely "fully domestic" in year one).

A robust approach would present **scenarios**, e.g.:

- **Low localisation** (e.g., 20–30% domestic),
- **Medium** (50–60%),
- **High** (80%+), with impacts scaled accordingly.

3.2 Implausible industry mapping signals “multiplier leakage” and classification problems

The **Top 10 industries by annual FTEs** during operations lists “**Textile and leather manufacturing**” as 9(2)(b)(ii) FTEs 9(2)(b)(ii). [\[Insight Ec...- 19022026 | PDF\]](#)

That is a red flag for at least three reasons:

1. The report simultaneously states **NZ does not produce cellulose fibres at scale** and raw fibre inputs may be sourced internationally. [\[Insight Ec...- 19022026 | PDF\]](#)
2. Even if substrates use natural fibres, the employment intensity implied by ~9(2)(b)(ii) FTE in “textile/leather manufacturing” is large relative to NZ’s existing industrial structure and suggests the IO concordance may be forcing spending into a high-labour coefficient sector.
3. It may be capturing **polymer/composite fabrication** or **nonwoven manufacturing** incorrectly under textiles, inflating labour impacts.

Why it matters: IO multipliers are highly sensitive to sector classification. Misclassification can materially distort jobs and value added.

What to request: a concordance table showing:

- each cost line item → IO sector code → domestic share assumption → multiplier used.

3.3 The analysis is “gross output driven”; it does not test macro constraints or net benefit

They note IO limitations (no price/capacity constraints; fixed coefficients; no feedback effects).

But given the scale claimed—~9(2)(b)(ii) FTE ongoing—those limitations become first-order: [\[Insight Ec...- 19022026 | PDF\]](#)

- **Labour availability:** can South Island ports and adjacent regions supply/attract specialised staff without displacing other sectors?
- **Wage inflation/crowding out:** IO assumes away the mechanism that usually bites first in NZ (tight skill markets).
- **Exchange rate & Dutch disease risk:** if CRU exports were truly large, NZD appreciation can offset tradables competitiveness (not modelled).
- **Capital scarcity and sequencing:** \$9(2)(b)(ii) CAPEX and heavy manufacturing scale-up would compete with other infrastructure priorities.

To be clear: these aren’t reasons the project can’t be beneficial—just reasons **IO multipliers overstate net benefit** unless paired with a macro-consistent framework (CGE or at least constraint-adjusted scenarios).

3.4 Revenue, price, and delivery risk are not stress-tested (yet they underpin the narrative)

The report cites:

- 9(2)(b)(ii)

But:

- No **sensitivity analysis** is provided on:
 - achievable volumes,
 - credit issuance discount factors / buffers,
 - MRV costs,
 - project under-delivery penalties under offtakes,
 - price compression in durable CDR markets,
 - reputational/standard eligibility risk.

For CDR projects, **delivery risk** and **MRV/standard risk** are central economic variables. Without stress tests, the “economic opportunity” story is one-sided.

What to request: a compact sensitivity table:

- volume (e.g., 1, 3, 7 Mt),
- price (e.g., 100, 150, 250, 330 USD),
- domestic share of COGS (e.g., 30/60/90%),
- MRV cost escalation,
- and credit invalidation/reversal buffers.

3.5 Tax contribution estimates look internally inconsistent with the scale of claimed NZ activity

9(2)(b)(ii)

This is not necessarily wrong—transfer pricing and offshore IP ownership can legitimately shift profits—but it is economically and politically salient:

- It means a large share of value could be captured offshore even if activity is onshore.
- It weakens “fiscal benefit” claims.
- It heightens scrutiny on whether GDP/job claims represent *New Zealand value capture* versus *pass-through production*.

What to request: a value chain / incidence view:

- wages retained locally,
 - domestic supplier margins,
 - depreciation/returns to capital,
 - profits retained in NZ vs offshore,
 - and what policy levers (if any) would increase NZ value capture.
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4) Carbon removal economics: additional gaps specific to CDR

A. Additionality and counterfactuals aren't addressed economically

The report defines additionality conceptually.

But it doesn't apply additionality thinking to the NZ "economic benefit" counterfactual: [\[Insight Ec...- 19022026 | PDF\]](#)

- Would substrate manufacturing simply displace other manufacturing?
- Would vessels and MRV providers be redeployed from other marine work?
- Would skilled labour be imported (net gain) or reallocated (net neutral)?

For decision-making, you'd ideally want **net additional employment** and **net additional GDP**, not only gross.

B. Permanence/durability is asserted rather than economically risk-adjusted

It claims sequestration below thermocline for "hundreds to thousands of years" and positions credits as durable. Economically, durability needs a **risk discount**: [\[Insight Ec...- 19022026 | PDF\]](#)

- probability of non-performance,
- methodological uncertainty buffers,
- monitoring duration and liabilities,
- reputational/market discounting.

Without converting durability uncertainty into either:

- buffer deductions (tonnes issued), or
- higher MRV costs / insurance costs, the economic story is optimistic by construction.

C. System boundary: emissions from operations and embodied emissions

There's an assertion of "net-positive carbon removal" by using existing shipping routes.

But the economics of removals depend on: [\[Insight Ec...- 19022026 | PDF\]](#)

- life-cycle emissions,
- allocation rules for shared shipping,
- verification acceptance.

Even small changes in net-to-gross removal ratios can be economically material at scale (and can affect credit issuance volumes).

5) A “decision-grade” improvement checklist (what I’d ask Insight/Gigablue to add)

If this assessment is being used in an EEZ Act process or to support claims of national benefit, I’d recommend requesting:

1) Local content scenarios (core)

- Explicit domestic shares for each COGS component (raw materials, production equipment, vessels, labs, sensors, data services).
- Three scenarios: low/medium/high localisation with resulting GDP/jobs ranges.
(This addresses the biggest single sensitivity in the report.) [\[Insight Ec...- 19022026 | PDF\]](#)

2) Concordance transparency

- Cost lines → IO sectors → multipliers.
- Explain the “textile and leather manufacturing” result and validate it against realistic NZ manufacturing capability. [\[Insight Ec...- 19022026 | PDF\]](#)

3) Constraint-adjusted labour analysis

- Identify occupational categories, likely supply source (local vs imported), and whether jobs are new or displaced.
- Provide a qualitative (or quantified) crowding-out adjustment.

4) Commercial and MRV risk sensitivities

- Volume, price, issuance buffers, MRV cost, regulatory/standard eligibility.
- Break-even price per tonne (delivered, verified) at different scales.

5) Value capture and fiscal incidence

- Where profits accrue (NZ vs offshore), and what remains in NZ (wages, supplier surplus, taxes).
- Consider alternative structuring assumptions (still lawful) that increase NZ retention.

6) Overall judgement (short)

As an economic impact statement:

It’s competently structured and cautious about induced effects, and it clearly communicates gross activity impacts. [\[Insight Ec...- 19022026 | PDF\]](#)

As evidence of “economic benefit to New Zealand” in a robust sense:

It is **highly contingent** on a small number of untested assumptions—especially the assumption that **COGS may fully accrue domestically**—and it lacks the scenario/sensitivity work needed to make the headline numbers decision-grade. [\[Insight Ec...- 19022026 | PDF\]](#)

Most important takeaway:

Treat the reported ^{9(2)(b)(ii)} FTE / \$ ^{9(2)(b)(ii)} GDP p.a. as an **upper-bound** conditional estimate, not a central forecast, until:

- domestic share of COGS is evidenced,
- sector mapping is reconciled (esp. textiles),
- and volume/price/MRV uncertainties are risk-adjusted. [\[Insight Ec...- 19022026 | PDF\]](#)

Quick question so I can tailor the next step

Are you using this assessment to support:

1. an **EPA/EEZ Act consenting process** (economic benefit section),
2. an **internal MfE critique / peer review**, or
3. a **public-facing summary**?

If you tell me which, I can produce either:

- a **peer review memo** with "issues / implications / questions to ask", or
- a **tight set of tracked critique bullets** aligned to statutory tests (s33(3)(g)), or
- a **plain-English risk summary** for non-economists.

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Ministry staff work flexibly by default. This means I work in the office/at home from 8:30 – 4:30.

