

Bioenergy Association of New Zealand (BANZ)

Submission to the Ministry for the Environment

Proposed Changes to the New Zealand Emissions Trading Scheme Regulations 2026

Executive summary

The Bioenergy Association of New Zealand (BANZ) welcomes the opportunity to comment on the proposed changes to the regulations that govern the New Zealand Emissions Trading Scheme (NZ ETS). BANZ represents organisations working across the bioenergy sector, including the recovery of energy and nutrients from organic material through anaerobic digestion and related technologies. Our members have a direct interest in how the ETS accounts for emissions from organic waste, because the accuracy of that accounting shapes the relative cost of landfill disposal compared with diversion to higher-value uses.

This submission concentrates on the waste-related proposals in the consultation (Proposals 4 to 7 and the associated questions), together with the general questions on the regulatory update process. We offer brief comments in support of the routine default emissions factor (DEF) updates for natural gas, geothermal activities and liquid fossil fuels, and focus our detailed feedback on the waste proposals, where the scientific and policy stakes are greatest for our members.

This submission has been prepared with technical input from Professor Saeid Baroutian, Professor of Chemical Engineering at the University of Auckland. Professor Baroutian's research and teaching focus on sustainable resource recovery, organic waste treatment, bioenergy, and greenhouse gas emissions from waste systems. His expertise is particularly relevant to the scientific assessment of landfill methane generation, organic-waste diversion, and the role of engineered treatment systems and strategies in reducing fugitive emissions.

Overarching position

The accuracy of emissions accounting determines the integrity of the waste hierarchy. Under the NZ ETS, every tonne of emissions a landfill avoids reporting through generous default assumptions or optimistic capture claims is a tonne of cost it does not carry — and that untaxed cost is an artificial price advantage over diverting the same organic material to anaerobic digestion, composting or other circular treatment. In the absence of a landfill ban or a disposal mandate for organic waste, the ETS is one of the few instruments available to move organic material up the waste hierarchy and to help meet New Zealand's methane-reduction commitments. Getting the basis for ETS right is therefore not a technical detail; it is central to whether the scheme delivers the outcomes sought under the second Emissions Reduction Plan.

BANZ supports the general direction of the proposals, which move landfill accounting closer to physical reality. The comments below identify where we believe the proposals should go further, and one significant area — the treatment of methane generated before gas capture is effective — where the science warrants a more cautious approach than the consultation currently proposes.

3. Default emissions factors: natural gas, geothermal and liquid fossil fuels (Q1–Q8)

BANZ supports updating these DEFs using more recent and reliable data (Q1, Q3, Q7). Although the individual changes are modest, DEFs feed directly into emissions reporting, and keeping them current reduces systematic over- or under-reporting and maintains confidence that ETS obligations reflect actual

fuel and activity characteristics. We encourage the Ministry to publish, for each update, the data period, method, key assumptions and any corrections applied, and, in cases where the underlying data is reported by suppliers or producers, to explain how that data has been checked (Q2). Where reliable site- or supplier-specific data is available, participants should be encouraged to use it in preference to default values.

4. Improving the accuracy of the waste default emissions factor (Q9–Q10)

BANZ supports a staged approach to the waste DEF. **Option 2**, i.e. updating the organic component of the DEF to reflect current waste composition, should be **implemented now as a minimum correction**. The current factor rests in part on 2017–2019 composition data; more recent data indicate a higher organic fraction, and continuing to use the older figure simply extends a known under-statement. This correction should not wait for the more complex ETS Register changes on which Options 3 and 4 depend.

Over the longer term, BANZ considers **Option 3** the stronger approach, because it ties the DEF more closely to waste composition. Option 4 (differentiation by landfill size or class) may provide useful context, but size and class should not displace composition as the primary basis for estimating methane generation.

The scientific reason for preferring a composition-based factor is that the methane generation depends mainly on the quantity and type of degradable organic material, together with moisture and decay rate. Food waste and other putrescible organics matter disproportionately as they break down quickly and can generate methane before a landfill's gas collection system is fully installed and operating. A single national DEF cannot capture this variation. Instead, a factor grounded in waste source or composition is inherently more accurate.

On the evidence base (Q10), BANZ does not submit site-specific landfill composition data with this submission, but we strongly encourage the Ministry to draw on the following streams when finalising the DEF:

- recent SWAP-aligned waste composition surveys, particularly for food waste, garden waste, paper and cardboard, timber, textiles and other putrescible fractions;
- activity-category reporting data now collected by disposal facilities and transfer stations;
- site-specific unique emissions factor (UEF) data, including waste composition, gas captured, destroyed and used, and the assumptions used in first-order decay modelling;
- information on landfill operational status — active tipping areas, temporary and final cover, timing of gas-well installation, cap integrity, leachate systems, and flare or engine downtime; and
- direct methane measurement data where available, including surface-emission monitoring, flux measurements, and aerial or satellite remote sensing.

The key gap in the evidence is not only what waste is landfilled, but **whether methane is generated before the gas collection system can realistically capture it**. This matters most for food waste and other fast-degrading organics.

5. The oxidation factor (Q11–Q12)

BANZ strongly supports setting the oxidation factor to zero in landfill gas UEF calculations (Q11). As proven by scientific reports, methane oxidation occurs only when methane escapes the collection system and passes through biologically active landfill cover, where microbes convert part of it to carbon dioxide. It does not apply to methane already collected under the cap and destroyed in a flare or used for energy. Applying

a 10% oxidation deduction to the captured-gas calculation is therefore not physically correct; it makes gas collection appear more effective than it is and leads to under-reporting of methane.

If an oxidation credit is reintroduced in future, it should apply only to the fraction of methane that is not captured, and only where there is sound evidence on cover, moisture, temperature and actual methane movement through the cover — not as a blanket 10% discount.

For the same reason, BANZ does not support a one-year delay in implementing this change (Q12). Continuing the status quo for a further reporting year would knowingly allow methane emissions to be under-reported.

6. Tiered information requirements and the efficiency cap (Q13–Q14)

6.1 Tiered evidence for higher efficiency claims (Q13)

BANZ supports, in principle, a tiered approach that requires a higher standard of evidence for higher claimed gas-capture efficiencies. A landfill claiming higher efficiency pays lower ETS costs, so the claim should be backed by stronger evidence. The tier as proposed should, however, be strengthened. Waste composition surveys and measurements of gas captured and destroyed are necessary, but they demonstrate only how much gas has been collected — not how much methane has escaped. That distinction is critical in achieving accurate and fair methodology. Methane can still escape from active tipping areas, temporary covers, cracks, side slopes, leachate systems and parts of the landfill not yet connected to gas wells. A site may have accurate meters on its collection system and still have significant fugitive emissions. For high-efficiency claims, BANZ recommends that the Ministry require independent verification and, where practical, direct evidence of fugitive methane emissions — surface monitoring, flux measurements or remote sensing — with the underlying data provided to the Ministry and the Environmental Protection Authority.

6.2 Removal of the 90% cap on claimable efficiency (Q14)

BANZ does not support removing the 90% cap as proposed. We support recognising landfills that genuinely achieve high capture, but allowing claims of up to 100% is not scientifically sound unless there is independently verified, direct evidence that very little methane is escaping. In practice, 100% capture across a whole landfill — even within a single reporting period — is extremely unlikely: methane is produced before gas wells are installed, while waste is still being tipped, under temporary cover, through cracks and edges of the cap, through leachate systems, and during system downtime.

There is also a modelling problem. Capture efficiency is calculated as the gas collected divided by the methane the model estimates was generated. If the first-order decay model under-estimates generation, the calculated efficiency is inflated — a site may appear to exceed 90% simply because the denominator is too low. Measuring collected gas does not measure what escapes.

For these reasons, BANZ recommends retaining the 90% cap unless a landfill can provide independently verified evidence of very low fugitive emissions. If claims above 90% are to be permitted at all, they should require direct methane monitoring, transparent data submission, an explicit adjustment for methane emitted early — before gas collection was effective — and independent audit. As the consultation document itself observes, an unverified high-efficiency claim could artificially reduce ETS liabilities and revenue without any real reduction in emissions; a firm evidentiary floor is the safeguard against that outcome.

7. Remediated waste from historic contaminated sites (Q15–Q19)

BANZ supports in principle an exemption for waste arising from the remediation of pre-1991 HAIL sites, where the material is largely decomposed and has negligible remaining methane potential (Q15). We recommend that eligibility include a simple organic-content or site-investigation check, so the exemption cannot inadvertently capture material with meaningful residual methane potential. We have no objection to limiting eligibility to sites where HAIL-verified activities took place (Q19), provided that check is in place.

8. The missing piece: recognition of avoided emissions from diversion

Correcting landfill-side accounting is necessary but not sufficient. The NZ ETS still contains no mechanism to recognise the emissions avoided when organic material is diverted from landfill to anaerobic digestion, where methane is captured by design within a sealed, engineered system rather than partially collected from an open and heterogeneous landfill. The result is an asymmetry: a landfill can reduce its ETS obligation through claimed capture efficiency, while diversion — which avoids the fugitive pathway altogether — receives no equivalent recognition. BANZ asks the Ministry to commit to assessing, within a defined work programme, factors for recognising avoided emissions from diversion, so the scheme's incentives reflect the full emissions consequences of how organic waste is managed.

9. The regulatory update process (General Q1–Q2)

BANZ supports a clearer and more regular process for updating the ETS regulations, including a published work programme, clear cut-off dates for the data used, transparent calculation methods, and a statement of the uncertainty in the estimates. Where a scientific or methodological error is identified — such as the misapplication of the oxidation factor — it should be corrected promptly and not carried forward into further reporting years. We note that several waste-accounting issues, including the oxidation factor and the treatment of destroyed landfill gas, were identified in the 2025 update cycle and not progressed; we ask that the Ministry publish a committed work programme, with defined decision points, for the outstanding items.

For waste specifically, BANZ recommends that the Ministry establish a standing technical advisory group, bringing together independent academics, landfill engineers, waste-composition experts, anaerobic digestion specialists, methane-measurement experts and greenhouse-gas inventory specialists. Such a group would help ensure that future updates rest on the best available science, on New Zealand-specific data, and on independent technical review.

Looking further ahead (General Q2), BANZ encourages the Ministry to strengthen the scientific basis of landfill methane accounting. The first-order decay model is a useful and transparent baseline tool for regulatory reporting, but it should not be treated as direct evidence of actual emissions or capture efficiency: it estimates generation; it does not measure what reaches the atmosphere. Future updates should improve the model using New Zealand-specific data on waste composition, organic content, moisture, decay rates, landfill design and operating conditions — again, most importantly for fast-degrading organics — and should require validation of modelled results against direct methane measurements, particularly for landfills claiming high capture efficiency.

BANZ further recommends that the Ministry commission independent scientific research — using operator data where appropriate but independent of operators, with results made public — to measure fugitive methane from representative landfill types, assess methane generation from fast-degrading organic waste, evaluate the timing gap between methane generation and gas collection, and validate the first-order decay parameters used in ETS calculations. A stronger New Zealand-specific evidence base would improve DEF

and UEF accuracy, support fair ETS obligations, and give greater confidence that the scheme is reducing real emissions rather than only improving modelled estimates.

10. Summary of recommendations

1. Update the natural gas, geothermal and liquid fossil fuel DEFs, and publish the data period, method and assumptions for each (Q1–Q8).
2. Implement Option 2 for the waste DEF now; adopt Option 3 as the long-term approach; do not let Option 4 displace waste composition (Q9).
3. Draw on the listed composition and measurement data streams when finalising the waste DEF (Q10).
4. Set the oxidation factor to zero and do not delay implementation (Q11–Q12).
5. Strengthen the tiered evidence requirements with direct fugitive-emission evidence for high-efficiency claims (Q13).
6. Retain the 90% cap unless independently verified low-fugitive evidence is provided; if it is lifted, require direct monitoring, an early-methane adjustment and independent audit (Q14).
7. Support the pre-1991 HAIL exemption, subject to an organic-content check (Q15–Q19).
8. Commit to a work programme to recognise avoided emissions from diversion to anaerobic digestion and composting.
9. Establish a standing technical advisory group, commission independent landfill-methane research, and correct identified errors promptly (General Q1–Q2).

BANZ would be pleased to provide further information or to discuss any aspect of this submission. Please contact

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