Submission to the Electricity Authority

Regarding: Minimum Offer Price Exclusions and Tie-Breaker Provisions

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1. Executive Summary

This submission does **not support** the proposal to exclude intermittent generators from offering at $0/MWh. Instead, it recommends a more robust, efficient, and physically-aligned approach:

- **Allow intermittent renewables to continue offering at $0/MWh**,
- **Gate all $0/MWh offers behind transparent 'must-run' criteria**, applicable to *any* technology—including hydro, geothermal, thermal—where verifiable physical or consent-driven constraints justify a zero-price offer,
- **Enhance the new SPD tie-breaker provisions** by layering in a simple priority rule based on physical system security needs.

This approach **better meets the System Operator's Principal Performance Obligations (PPOs)**, improves efficiency, increases market fairness, and removes the historical "hydro at $0" structural advantage—without penalising intermittent generators or creating artificial price floors.

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2. Background

The System Operator must schedule and dispatch generation to maximise gross economic benefit under the Dispatch Objective (clause 13.57) while respecting network constraints, PPO obligations, and restoration requirements. [ea.govt.nz]

The Authority has proposed:

1. New SPD tie-breaker provisions that proportionally allocate capacity when equal-priced offers exceed transmission limits.
2. A Code amendment preventing intermittent generators from offering at $0/MWh, with the intention of differentiating them from inflexible generation.

However, this proposal addresses symptoms rather than causes. Intermittent offers at $0 are not the source of dispatch inefficiency—rather, the market lacks a **transparent, physics-aligned method** for distinguishing *genuinely must-run* plant from *discretionary* plant.

3. Why Intermittent Generators Should Not Be Penalised

3.1 PPO compliance depends on physical constraints, not offer pricing

PPOs require avoiding cascade failure, managing voltage and frequency, and ensuring demand–supply balance. These obligations are achieved through:

- constraints applied in SPD,
- operator discretion under clause 13.70, and
- minimum-generation or start-up-time constraints on inflexible plant.

None of these hinge on intermittent generation's offer price. The SPD model explicitly encodes the physical requirements that preserve stability and security.

3.2 The Code already empowers the System Operator to retain inflexible units online

If geothermal or thermal units with minimum stable loads or long start-up times must remain online to maintain PPO compliance, the System Operator is empowered to override dispatch and maintain them at their required operating level.
This is a long-standing and appropriate tool, recognised in the Authority's consultations.

Therefore, raising intermittent offer prices is unnecessary for PPO compliance.

3.3 Intermittent $0/MWh bidding is economically accurate

Wind and solar have near-zero marginal cost. Forcing them to bid above zero:

- distorts efficient merit-order outcomes,
- sends inaccurate investment and dispatch signals, and
- reduces transparency in periods of oversupply.
  Extreme low-price periods are already increasing due to growing renewable penetration.

3.4 Penalising intermittent creates inefficiencies without improving reliability

Mandating a minimum bid above $0/MWh for intermittent generation will:

- curtail renewables even when inflexible units do not require preferential dispatch,
- reduce utilisation of wind/solar during low-load periods,
- weaken price signals essential for storage, flexible demand, and future investment.

These effects are economically harmful and do **not** strengthen PPO compliance.

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4. The Real Problem: The Hydro $0/MWh Advantage Remains Untouched

The Authority's proposal removes intermittent generators from the $0/MWh bidding space—but leaves hydro unaffected.

Hydro is often *not* physically must-run (except under defined spill or consent-driven circumstances). Yet historically, hydro's unrestricted ability to bid at $0/MWh has given it an outsized advantage during tie-breakers and in price formation. It can suppress prices and crowd out intermittent generation even when water conservation or future peaks would favour a higher marginal value of water.

The proposal inadvertently **reinforces** this imbalance:

- Intermittent are pushed to $0.01/MWh or higher,
- Hydro can continue to bid $0/MWh voluntarily and without must-run verification.
- Hydro spill is no different from intermittent curtailment in terms of energy losses in the system.

This is neither economically efficient nor consistent with the Authority's long-term system objectives.

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5. The New SPD Tie-Breaker: A Necessary but Incomplete Improvement

The System Operator's tie-breaker enhancement—automatic proportional allocation when identical price offers exceed a constraint—is an important step toward predictable dispatch.

But because it treats *all* equal-priced bids the same, it still:

- fails to prioritise genuinely must-run plant, and
- systematically favours hydro if hydro remains able to offer zero unconditionally.

Without more, it will not resolve the underlying dispatch efficiency issues.

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6. Allowing Intermittent Renewables to Continue Bidding at $0/MWh Is Fully Compatible with PPO Obligations

PPOs require:

- maintenance of system stability,

- availability of frequency and voltage support,
- ensuring inflexible units are not cycled off inappropriately.

These needs are satisfied through:

- physical constraints embedded in SPD,
- the System Operator's discretion to depart from dispatch, and
- constraints on minimum stable operation of geothermal/thermal units.

The presence of $0/MWh intermittent bids does not limit the System Operator's PPO toolset.
In contrast, **the Authority's proposed intermittent price floor does not improve PPO compliance**, because PPO obligations are operational—not price-based.

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7. A More Effective Solution: Physics-Aligned Must-Run Status for All Generation Types

Instead of prohibiting intermittent offers at $0/MWh, the Authority should adopt a **consistent, evidence-based must-run mechanism** that applies across all generator types.

7.1 Core elements

1. **Any plant** (hydro, geothermal, thermal, or others) may bid **$0/MWh only if must-run status is formally approved**.
   Must-run criteria should include:
   - Verified spill risk (for hydro),
   - Consents/ramping or river flow constraints (hydro),
   - Minimum stable load (geothermal/thermal),
   - Security-of-supply requirements (inertia/voltage support),
   - Imminent restart-risk or long start-up times.
2. **All must-run approvals must be time-bound and quantity-bound**, and supported by evidence submitted to the System Operator.
3. **The System Operator should publish reason codes** for must-run offers on WITS, improving transparency.
4. **Zero-price offers beyond the approved must-run quantity should be rejected.**

This closes the hydro loophole, corrects existing distortions, and maintains the ability of intermittent generators to offer zero—where it is economically justified.

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8. Additional Layer for Tie-Breaker Resolution

To complement the new SPD proportional tie-breaker, the Authority should require SPD to apply a **priority order** before pro-rating:

1. **Approved must-run volumes**,
2. **Minimum stable loads of inflexible plant**,
3. **Pro-rata allocation among remaining offers at the tied price**.

This approach:

- preserves system security,
- aligns dispatch with physical capability, and
- avoids discretionary operator interventions except where PPOs require them.

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9. Recommended Path Forward

The Authority should:

A. Reject the proposed ban on $0/MWh offers for intermittent generation

It is unnecessary for PPO compliance, economically distortive, and reinforces existing hydro advantages.

B. Introduce a mandatory, technology-neutral must-run approval process

Zero-price offers should be permitted only where **validated must-run conditions** apply—across all generator types. This replaces technology classifications with factual operational constraints.

C. Enhance the SPD tie-breaker with a stability-aligned priority layer

Must-run → Minimum stable load → Pro-rata among remaining equal-priced offers.

D. Retain the System Operator's discretion as a PPO safeguard, not a routine tool

This ensures consistent, predictable dispatch while maintaining security.

E. Conduct a 12-month review of must-run use, zero-price offers, and tie-breaker impacts

Publish monthly statistics to maintain transparency and trust.

10. Conclusion

The Authority's objectives—greater certainty, consistent scheduling, reduced need for discretion, and improved dispatch efficiency—are appropriate and timely.
However, **penalising intermittent generators by prohibiting $0/MWh bids is unnecessary, economically inaccurate, and counterproductive**.

A more effective approach is to:

- **retain zero-marginal-cost bidding for intermittent renewables**,
- **gate all zero-priced offers behind a transparent must-run approval**, and
- **enhance the tie-breaker to reflect genuine physical system needs**.

This package will:

- meet PPO obligations more reliably,
- support renewable integration and security of supply,
- preserve dispatch efficiency,
- ensure fairness between technologies, and
- deliver the long-term benefits the Authority seeks.