Our Case Number: ABP-318802-24

An Coimisiún Pleanála

Dr Niamh O Riordan
17 The Moorings
Bailick Road
Midleton
Co. Cork
P25 D376

Date: 16 December 2025

Re: Proposed development of a resource recovery centre (including waste-to-energy facility) in Ringaskiddy, County Cork.

Dear Sir / Madam,

An Coimisiún Pleanála has received your recent submission in relation to the above mentioned proposed development and will take it into consideration in its determination of the matter. Please accept this letter as a receipt for the fee of €50 that you have paid.

The Commission will revert to you in due course with regard to the matter.

Please be advised that copies of all submissions / observations received in relation to the application will be made available for public inspection at the offices of the local authority and at the offices of An Coimisiún Pleanála when they have been processed by the Commission.

More detailed information in relation to strategic infrastructure development can be viewed on the Commission's website: www.pleanala.ie.

If you have any queries in the meantime please contact the undersigned officer of the Commission. Please quote the above mentioned An Coimisiún Pleanála reference number in any correspondence or telephone contact with the Commission.

Yours faithfully,

pp

Kevin McGettigan
Executive Officer
Direct Line: 01-8737263

PA04

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OBSERVATION ON STRATEGIC INFRASTRUCTURE DEVELOPMENT APPLICATION

Observer's Details

Name: Dr Niamh O Riordan
Address: 17 The Moorings, Bailick Road, Midleton, Co Cork P25 D376
Email: oriordan.nm@gmail.com

Agent's Details

Not applicable.

Postal Address for Correspondence

Please send all correspondence to the observer at the address in Part 1.

Details about the Proposed Development

Planning Authority:	Cork County Council
An Coimisiún Pleanála Case Reference:	PA04.318802
Planning Authority Register Reference:	Not applicable (SID application made directly to An Coimisiún Pleanála)
Location of Proposed Development:	Ringaskiddy, Co Cork
Proposed Development:	Resource Recovery Centre (including "Waste-to-Energy" facility)
Applicant:	Indaver NV t/a Indaver Ireland

1. Introduction and Standing

I, Dr Niamh O Riordan (PhD Business Information Systems), Chief Operating Officer of Snipp Interactive Inc. (acting in a personal capacity) and former Assistant Professor at UCD Smurfit Graduate Business School, make this observation under the Planning and Development Act 2000, s.37G(2)(b), concerning Indaver NV t/a Indaver Ireland's proposal for a Resource Recovery Centre at Ringaskiddy (Case PA04.318802). This submission is lodged in collaboration with the Cork Harbour Alliance for a Safe Environment (CHASE). Three annexes form integral parts of this observation:

- Annex 1 – Technical Submission: Structural and Legal Non-Compliance
- Annex 2 – Feasibility-of-Rectification Matrix
- Annex 3 – R_1 Verification and Legal-Classification Addendum

Each annex forms part of the statutory record within the meaning of s. 37G(2)(b); omission would constitute a failure to have regard to relevant considerations (O'Keeffe v ABP [1993] 1 I.R. 39).

2. Summary of Objection

The proposal is structurally and legally non-compliant with current Irish and EU law, including the Circular Economy and Miscellaneous Provisions Act 2022, the Climate Action and Low-Carbon Development (Amendment) Act 2021, the National Waste Management Plan for a Circular Economy 2024–2030, and Regulation (EU) 2021/1119 (EU Climate Law).

It is an electricity-only incinerator incapable of meeting the Waste Framework Directive 2008/98/EC, Annex II recovery threshold ($R_1 \geq 0.65$). Verified calculations in Annex 3 give $R_1 \approx 0.597$ (0.56–0.63 range) → D10 disposal classification. Without heat export (≈ 30 GWh required to qualify as recovery), the project fails the hierarchy duty in CEA 2022 s.7(3) and cannot lawfully be authorised.

The design also conflicts with:

- OPW Flood-Risk Management Guidelines (2009 & 2022) – site lies within Flood Zones A/B; no dry egress;
- Cork County Development Plan 2022–2028 (zoning RY-I-09 – education/marine enterprise, not industrial); and
- NWMP 2024–2030 Target 1A ("no new residual-waste capacity").

Inspectors Jones (2004), Yücel-Finn (2009) and Daly (2017) each found the site unsuitable; nothing since remedies those findings.

3. Legislative Basis
Primary domestic instruments:
- Planning and Development Act 2000 s.37G(2)(b);
- Circular Economy and Miscellaneous Provisions Act 2022 ss.7–9;
- Climate Action and Low-Carbon Development (Amendment) Act 2021;
- Water Services Act 2007 s.34;
- OPW Flood-Risk Management Guidelines (2009, rev 2022).

EU and direct-effect counterparts (alternative bases):
- Directive 2008/98/EC (WFD) Annex II;
- Directive 2010/75/EU (IED) Art 11(b);
- Directive 2007/60/EC (Floods Directive);
- Regulation (EU) 2021/1119 (EU Climate Law);
- Directive 92/43/EEC (Habitats) Art 6(3) and Directive 2009/147/EC (Birds).

This layered reliance preserves legal validity irrespective of transposition or repeal timing and aligns with the reasoning in *CHASE v ABP & Indaver* [2021] IEHC 629.

4. Determinative Grounds
Annex 1 organises all objections under seven categories corresponding to statutory decision tests:
1. **Policy and Legal Non-Compliance** – contravenes CEA 2022 and NWMP 2024–2030.
2. **R_1 Inefficiency and Misclassification** – fails Annex II ≥ 0.65 threshold; no CHP.
3. **Market and Economic Invalidity** – fictitious "Southern Region gap"; over-capacity breach of CEA 2022 s.7(3).
4. **Evidential and Methodological Defects** – record non-reproducible; breach of PDA 2000 s.37G(2)(b).
5. **Carbon and Climate-Law Conflict** – ≈ 190 000 t CO_2/y for 30 years; no ETS-cost integration.
6. **Hydrological and Access Non-Compliance** – Sequential Approach and Justification Test failed.
7. **Scientific and Ecological Uncertainty** – PFAS and UFP omissions → record incomplete under IED Art 11(b).

Annex 2 classifies most as **Level 1–2 (irremediable)**, requiring refusal or re-advertisement under s. 37G(2)(b).

5 Procedural Integrity
For clarity and avoidance of doubt: All analyses and data in Annex 1 (Technical Submission), Annex 2 (Feasibility-of-Rectification Matrix), and Annex 3 (R_1 Addendum) form a single record within s. 37G(2)(b). Failure to consider any would breach O'Keeffe v ABP [1993] 1 I.R. 39. This obligation extends to national or EU measures adopted before determination, including any post-COP30 or EU 2040 targets given legal effect in Ireland.

6. Reliefs Sought
That An Coimisiún Pleanála shall:
(a) Refuse permission for the proposed development on the grounds set out in Annexes 1–3; or
(b) Defer determination and require re-advertisement and resubmission incorporating any national or EU measures adopted before determination, including COP30 outcomes and the EU 2040 target once given legal effect; and
(c) Confirm that a D10-classified facility contravenes CEA 2022 s.7(3) and NWMP 2024–2030.

7. Fee and Attachments
Statutory fee €50 enclosed.

Attachments (forming part of this submission):
- Annex 1 – Technical Submission: Structural and Legal Non-Compliance (Nov 2025)
- Annex 2 – Feasibility-of-Rectification Matrix (Nov 2025)
- Annex 3 – R_1 Verification and Legal-Classification Addendum (Nov 2025)

8. Conclusion
Verified $R_1 \approx 0.597$ (< 0.65) establishes D10 disposal status. Under Annex II WFD, CEA 2022 s.7(3), and NWMP 2024–2030, authorisation is unlawful. The record demonstrates structural and policy ineligibility, flood-risk non-compliance, and carbon-budget inconsistency. Under CHASE v ABP & Indaver [2021] IEHC 629, the Commission must refuse permission or re-advertise to cure record deficiencies.

Signed: Dr Niamh O Riordan **Date:** November 10th, 2025

ANNEX 1 – TECHNICAL SUBMISSION

1. Purpose and Status

This Annex forms part of the observation lodged under the *Planning and Development Act 2000* (as amended) concerning the proposed Resource Recovery Centre at Ringaskiddy, Co. Cork (Case Reference PA04.318802). It should be read in conjunction with the accompanying letter of observation dated November 2025. The Annex provides the structured legal and evidential analysis required under *s. 37G(2)(b)* of the PDA 2000. It consolidates the statutory, policy, and technical grounds for refusal and identifies, for each discrete defect, the governing legislative basis. Detailed rectifiability levels are set out in Annex 2 (*Feasibility-of-Rectification Matrix*). All quantitative and regulatory references are current to EPA AER 2023, CSO EnvWaste 2024, and OPW 2023 flood datasets.

2. Structural Non-Compliance of the Ringaskiddy Proposal

The proposal is structurally non-compliant with the *Circular Economy and Miscellaneous Provisions Act 2022* (CEA 2022), the *Climate Action and Low-Carbon Development (Amendment) Act 2021*, and the *Planning and Development Act 2000* s. 37G(2)(b). It fails the statutory decision-making tests by:

1. Assuming continuing growth in residual waste contrary to the prevention-first hierarchy in CEA 2022 s. 7(3);
2. Misclassifying electricity-only incineration as "recovery" despite failing the Annex II *Waste Framework Directive 2008/98/EC* $R_1 \geq 0.65$ threshold; and
3. Relying on obsolete environmental and policy baselines inconsistent with the current *National Waste Management Plan for a Circular Economy 2024–2030*.

Without prejudice to those primary domestic statutes, and in the alternative where any are found inapplicable or superseded, the same breaches arise under their directly effective EU or antecedent counterparts:

- *Directive 2008/98/EC* (Waste Framework Directive) and *Waste Management Act 1996* s. 32 (hierarchy and policy consistency);
- *Directive 2010/75/EU* (Industrial Emissions Directive) (energy-efficiency and BAT compliance);
- *Directive 2007/60/EC* (Floods Directive) and *Water Framework Directive 2000/60/EC* Art 4(1)(c) (flood-risk avoidance and site selection);
- *Regulation (EU) 2021/1119* (EU Climate Law) (carbon-budget and neutrality alignment); and
- *Directive 92/43/EEC* (Habitats Directive) and *Directive 2009/147/EC* (Birds Directive) (ecological assessment and protection).

Accordingly, the proposal conflicts with binding obligations requiring:

1. Progressive reduction in residual-waste generation;
2. Demonstrable high-efficiency energy recovery ($R_1 \geq 0.65$);
3. Site selection compliant with flood-risk and coastal-resilience standards; and
4. Consistency with Ireland's and the EU's decarbonisation and biodiversity objectives.

The combination of R_1 ineligibility, absence of CHP or heat off-take infrastructure, flood-access non-compliance, and dependence on unconfirmed foreshore consents renders the site incapable of lawful approval under PDA 2000 s. 37G(2)(b) and Habitats Directive Art 6(3).

3. Determinative Grounds and Authority Framework

This section identifies the statutory and policy authorities governing each determinative ground of refusal. Each authority chain sets out the operative legal instrument, the applicable test or duty, its procedural scope, and the corresponding decision outcome under Planning and Development Act 2000 s. 37G(2)(b). The cross-reference architecture follows the hierarchy established in the main letter—primary domestic law, directly effective EU provisions, and antecedent domestic enactments. This ensures that every objection advanced in Sections 3A–3H rests on a complete and enforceable legal basis, regardless of transposition timing or legislative amendment. The authority table below links each decision lever to the corresponding statutory or policy source and defines its operational consequence for lawful determination. Each authority cited is cross-referenced to the corresponding objection series in Sections 3A–3H and to its rectifiability assessment in Annex 2, ensuring the evidential and legal coherence required under PDA 2000 s. 37G(2)(b).

AUTHORITY	INSTRUMENT / JURISDICTION	CORE TEST OR DUTY	OPERATIONAL SCOPE	DECISION
PRIMARY STATUTE	*Planning and Development Act 2000* s. 37G(2)(b)	Record must be current, sufficient, and auditable	3D, 3A–3H / D1–D7, A4, C7, G1, H8	Refuse or re-advertise if record insufficient
	Planning and Development Act 2000 s. 34(2)(a)	Development must accord with the development plan	3C, 3F, 3H (H6) / C3, C9, F2, H6	Refuse
	Circular Economy and Miscellaneous Provisions Act 2022 ss. 7–9	Enforces waste hierarchy; prohibits new residual-disposal capacity	3A, 3C, 3H / A1–A3, A7, C1, C3, C9, H7	Refuse
	Climate Action and Low-Carbon Development (Amendment) Act 2021	Compliance with national carbon budgets	3E, 3A (A5) / E1–E4, A5	Refuse or defer
	Water Services Act 2007 s. 34	Evidence of sewer capacity required	3F (F2)	Refuse (condition impossible)
GUIDANCE (S. 28)	OPW *Flood-Risk Management Guidelines* 2009 and 2022	Sequential approach and Justification Test	3F / F1–F5	Refuse
POLICY	*Cork County Development Plan 2022–2028*	Zoning and flood-risk conformity	3F, 3H / F4–F5, H6	Refuse
	National Waste Management Plan for a Circular Economy 2024–2030	Target 1A and capacity-alignment requirement	3A, 3C, 3D / A1, A7, C1–C10, D1	Supports refusal under CEA 2022 s. 7(3)
EU DIRECTIVE	*Waste Framework Directive 2008/98/EC* Annex II + JRC 2011	$R_1 \geq 0.65$ gate test	3B, 3A (A9) / B1–B3, A9	Refuse (D10 classification under Annex II)
	Industrial Emissions Directive 2010/75/EU	BAT and energy-efficiency obligation	3B, 3G / B1C, G2–G5	Refuse (BAT failure)
	Ambient Air Quality Directive 2008/50/EC	Maintain ambient-air standards	3G / G3, G6	Refuse
	Floods Directive 2007/60/EC	Flood-risk assessment duty	3F / F1, F3–F4	Refuse
	Water Framework Directive 2000/60/EC Art 4(1)(c)	Prevent deterioration of water status	3F / F1–F4	Refuse pending redesign
EU REGULATION / DIRECT EFFECT	*European Climate Law (Reg (EU) 2021/1119)*	2050 neutrality and 2040 pathway consistency	3E, 3A (A5) / E1–E3, A5	Refuse or defer
EU DIRECTIVE + DOMESTIC REG.	*Habitats Directive 92/43/EEC* Art 6(3) + *S.I.* 477/2011	Complete information; no scientific doubt	3G (G6–G7), 3H, 3E (E5)	Refuse
EU DIRECTIVE	*Birds Directive 2009/147/EC*	SPA protection duty	3G, 3H / G6–G7, H3	Refuse
	EIA Directive 2011/92/EU (as amended 2014/52/EU)	Complete and reproducible EIA record	3D, 3H / D1–D5, H3–H5	Re-advertise
FALLBACK STATUTE	*Waste Management Act 1996* ss. 32, 60	Hierarchy and policy consistency	3A, 3C / A1–A3, C3, C9	Alternate refusal basis
SECONDARY REGULATION	*Waste Management (Licensing) Regulations 2004* Sch. 3	Energy-efficiency licensing standard	3B / B1C, B2	Confirms D10 status
EU DIRECTIVE (CONTEXT)	*Renewable Energy Directive (EU) 2018/2001*	RES accounting context only	3A (A6)	Interpretive only
CASE LAW	*CHASE v ABP* [2021] IEHC 629	Auditable record and bias precedent	3A (A4, A9); 3B (B1A); 3H (H2)	Re-advertise
	O'Donnell v ABP [2020] IESC 39	Objective-bias standard	3H (H1)	Set aside
	Holohan (C-461/17) (CJEU)	AA completeness test	3D (D8); 3H (H3); 3G (G6)	Refuse
	An Taisce v ABP [2018] IEHC 282; [2020] IEHC 90	Alternatives and health assessment in EIA	3H (H4–H5); 3D (D5)	Re-advertise

3A. Policy and Legal Non-Compliance
The proposal breaches the binding waste-hierarchy and policy-consistency duties in the *Circular Economy and Miscellaneous Provisions Act 2022* and the *National Waste Management Plan for a Circular Economy 2024–2030*. It rests on repealed regional plans and obsolete tonnage data, creating a policy base that no longer exists at the date of determination. Without prejudice to those Acts, and in the alternative if either is found inapplicable or superseded, the same defects arise under *Directive 2008/98/EC* (Arts 4–11) and, further in the alternative, the *Waste Management Act 1996* s. 32. These inconsistencies render the application ultra vires *Planning and Development Act 2000* s. 37G(2)(b).

Authority chain:
Primary — *Circular Economy and Miscellaneous Provisions Act 2022* s. 7(3) and *National Waste Management Plan for a Circular Economy 2024–2030*
EU fallback — *Directive 2008/98/EC* (Arts 4–11)
Domestic fallback — *Waste Management Act 1996* s. 32

ID	LAYPERSON EXPLANATION	CONCISE LEGAL FORMULATION
A1 POLICY-CONSISTENCY FAILURE	The project assumes Ireland's waste will keep growing even though official plans require decline.	Contradicts NWMP 2024–2030 Target 1A and CEA 2022 s. 7(3). Relies on 2015 regional tonnages (707 800 t / yr) though current national recovery capacity (Dublin 602 066 t, Meath 234 680 t, cement ≈ 400 000 t) already meets projected 2030 residuals (~1.26 Mt / yr). Additional capacity would exceed need and create ETS liabilities (Phase V 2026–2030).
A2 HIERARCHY MIS-USE	It calls simple incineration "high efficiency" though it exports no heat.	Electricity-only operation mis-represented as recovery. No CHP → fails Annex II WFD ≥ 0.65 threshold. Breaches CEA 2022 s. 7(3).
A3 REGULATORY OBSOLESCENCE	It relies on regional rules that no longer exist.	Cites repealed regional plans instead of the single national framework under CEA 2022 and NWMP 2024–2030.
A4 LEGAL-BASELINE CONTRADICTION	It cites 2018 permission and 2016 data as if still valid.	Uses obsolete data contrary to the "current-law" duty in PDA 2000 s. 37G(2)(b) and *CHASE v ABP and Indaver* [2021] IEHC 629.
A5 CLIMATE-POLICY INCONSISTENCY	It locks in fossil-energy emissions when Ireland must cut them.	Adds long-lived combustion capacity inconsistent with *Climate Action and Low-Carbon Development (Amendment) Act 2021* and *Reg (EU) 2021/1119* (net-zero 2050; –90 % GHG 2040).
A6 ENERGY-SYSTEM MISALIGNMENT	It undermines renewable transition by claiming grid benefit from waste burning.	"Energy-recovery" claim conflicts with hierarchy obligations; *Renewable Energy Directive (EU) 2018/2001* Art 2 and 7 context only.
A7 CIRCULAR-ECONOMY INCONSISTENCY	It would divert recyclable material into incineration.	Breaches NWMP 2024–2030 Policy 1A ("Stop growth of residual waste and new disposal capacity") and CEA 2022 s. 7(3).
A8 TEMPORAL-LAW FAILURE	It applies yesterday's laws to today's decision.	Relies on superseded 2015 plans and 2018 data instead of current instruments (CEA 2022; Climate Act 2021; Reg (EU) 2021/1119).
A9 R_1 GATE TEST	If they can't prove ≥ 0.65, it's disposal by law.	Annex II WFD sets binary gate: $R_1 \geq 0.65$ → recovery; $R_1 < 0.65$ → D10 disposal. Determination must classify before balancing. *CHASE v ABP* [2021] IEHC 629 requires auditable evidence.
A10 REGULATORY-INTEGRATION FAILURE	It ignores that the 2022 Act abolished regional categories and made the hierarchy binding.	Any reliance on regional tonnage balancing is ultra vires post-2022.

Cross-references: A1 ↔ B1 (R_1 inefficiency); A2 ↔ B2 (absence of CHP).
Evidence anchors: Planning Report § 5; EIS Ch. 3 (Alternatives) § 3.5.

3B – R_1 Ineligibility and Misclassification
The proposed facility cannot lawfully qualify as "recovery". Under *Directive 2008/98/EC* Annex II, installations achieving R1 < 0.65 are classified as D10 disposal. The Ringaskiddy design is electricity-only with no heat export or network, making that threshold physically unreachable. Without prejudice to the Waste Framework Directive and, in the alternative should domestic transposition govern, the same defect arises under the *Industrial Emissions Directive 2010/75/EU* Art 11(b) and the *Waste Management (Licensing) Regulations 2004* Sch. 3. These instruments jointly require verifiable, metered-export accounting and BAT-level efficiency, which are not demonstrated. Because recovery vs disposal is a statutory gate test, not a balancing exercise, any R1 < 0.65 compels D10 classification.

Authority chain:
– Primary: Directive 2008/98/EC, Annex II (Waste Framework Directive) and JRC *Guidance on the Calculation of R_1 Energy Efficiency* (2011).
– EU corroborant: Directive 2010/75/EU, Article 11(b) (Industrial Emissions Directive).
– Domestic fallback: *Waste Management (Licensing) Regulations* 2004 (S.I. No. 395 of 2004), Schedule 3.

Pursuant to section 7(3) of the *Circular Economy Act 2022*, national waste policy may not promote disposal over recovery. Accordingly, the D10 classification also constitutes a breach of the domestic hierarchy obligation. The sequence begins with EU law because the R_1 efficiency gate test is defined directly in Annex II of Directive 2008/98/EC. Domestic reliance is correctly framed as a fallback transposition reference, whereas other subsections follow the standard Irish → EU → fallback order.

ID	LAYPERSON EXPLANATION	CONCISE LEGAL FORMULATION
B1 R_1 INELIGIBILITY	They say it's "recovery," but the numbers prove otherwise.	Using JRC 2011 formula and applicant data: Ew = 633 681 MWh, Ef = 2 263 MWh, Ee = 141 912 MWh → $R_1 \approx$ 0.60 (range 0.55–0.65). < 0.65 = D10 disposal. No auditable metering supplied.
B1A EVIDENTIAL DEFICIENCY	Their figures can't be checked.	Inputs reused from legacy models without calibration or primary meter records, breaching *PDA 2000 s.37G(2)(b)* transparency and *CHASE v ABP* [2021] IEHC 203, 629.
B1B BENCHMARK NON-EQUIVALENCE	Real plants prove 0.65 is unreachable.	Dublin WtE 2023 $R_1 \approx 0.79$ (with 112 400 MWh heat export); Meath WtE 2023 ≈ 0.66 (no heat export). A zero-heat design cannot lawfully exceed 0.65.
B1C COMPUTATION INTEGRITY	Count only exported, not gross, energy.	Annex II WFD and JRC 2011 require exported-only energy; exclude parasitic loads, include auxiliary fuels, apply national climatic constants.
B1D SENSITIVITY ENVELOPE	Even optimistic assumptions stay below 0.65.	Applying Irish curtailment and outage rates yields 0.56–0.61; all credible scenarios < threshold.
B2 ABSENCE OF HEAT RECOVERY	It burns waste but wastes the heat.	No CHP infrastructure or off-take agreements; fails Annex II "high-efficiency" criterion → classified D10.
B2A CONDITION PRECEDENT	Without a heat network, recovery status is impossible.	Any consent would need prior CHP/off-take commissioning and verified $R_1 \geq 0.65$ before operation—conditions unmet.
B3 PHYSICAL INCAPACITY FOR CHP	There's no room or route for pipes.	Site topography and adjacent uses (NMCI, UCC Beaufort Centre, foreshore slope) preclude network installation; retrofit infeasible.
B4 COMPARATIVE DISCIPLINE	Compare with their own Meath plant.	Meath 2023 AER data confirm achievable $R_1 \approx 0.66$ without heat export, verifying that Ringaskiddy's zero-heat design = D10.

Conclusion: Even under favourable assumptions the verified $R_1 \approx 0.60$ (< 0.65). Under *Annex II WFD, IED Art 11(b)*, and *2004 Licensing Regs*, the activity is **D10 disposal**. No balancing, condition, or supplementary data can convert it to recovery status.

Cross-references: A1 ↔ B1 (policy consistency); A2 ↔ B2 (hierarchy breach).

Evidence anchors: EPA AER 2023 (Meath and Dublin); EIS Ch. 3 Alternatives § 3.5; Appendix 16 Flood Risk Assessment § 3.3.

3C – Economic Need, Market Logic, and Financial Viability
The claimed "Southern Region capacity gap" is unsupported by current national data. Residual waste is declining, and existing recovery capacity already meets projected 2030 arisings. Re-labelling national headroom as a regional deficit mischaracterises need and conflicts with national circular-economy governance. Without prejudice to the *Circular Economy and Miscellaneous Provisions Act 2022* and, in the alternative, the same defects arise under *Directive 2008/98/EC* (Arts 4–11) and, further in the alternative, the *Waste Management Act 1996* s. 60 and PDA 2000 s. 34(2)(a). On this record the proposal is economically unsound and ultra vires PDA 2000 s. 37G(2)(b).

Authority chain: Primary — CEA 2022 s. 7(3) and NWMP 2024–2030; EU — *Directive 2008/98/EC* Arts 4–11; Domestic fallback — *Waste Management Act 1996* s. 60 and PDA 2000 s. 34(2)(a).

ID	LAYPERSON EXPLANATION	CONCISE LEGAL FORMULATION
C1 STRANDED-ASSET RISK	Falling waste means the plant would sit half-empty and lose money.	EPA AER 2023 confirms national thermal-recovery throughput of ≈ 1.26 Mt / y (Dublin 602 066 t + Meath 234 680 t + cement ≈ 483 000 t). When approved but unbuilt capacity is included—Glanpower 65 000 t + Ringaskiddy 216 000 t = ≈ 1.46 Mt / y authorised envelope—Ireland's total recovery capacity already meets the NWMP 2024–2030 residual-waste projection of ≈ 1.87 Mt / y, equivalent to ≈ 0.35 t per capita by 2030[1].
C2 POTENTIAL FISCAL LOCK-IN RISK	Councils could pay even if there's no waste to burn.	A put-or-pay contract would create fiscal lock-in favouring disposal over prevention, breaching hierarchy duty in Circular Economy Act 2022 s.7(3); financial structure must be disclosed and assessed before lawful determination.
C3 FALSE DEMAND / REGIONALISATION ERROR	Their "capacity gap" is made up using old regional data.	Claims a Southern Region deficit by re-labelling national headroom as regional shortfall; regional categories were abolished by CEA 2022 ss.7–9.
C4 POOR VALUE FOR MONEY	Recycling and reuse create more jobs per euro.	Prevention and recycling yield ≥ 2× employment of incineration, contravening NWMP 2024–2030 § 6.3 value-for-money criterion.
C5 EMPLOYMENT EXAGGERATION	They count construction jobs but ignore those lost elsewhere.	Ignores displaced recycling and logistics roles; misstates net employment effect contrary to NWMP § 6.3.
C6 RISING FINANCE COSTS	Banks now treat incinerators as high-risk, not green.	Excluded from EU Sustainable Finance Taxonomy (Delegated Reg (EU) 2023/2486); higher credit risk (> 200 bps) erodes viability.
C7 EVIDENTIAL DEFECT	Their "need" data can't be traced.	Capacity model lacks input tables, data sources, or formulae; fails *PDA 2000 s.37G(2)(b)* sufficiency standard.
C8 TEMPORAL MISALIGNMENT	They mixed old growth data with new decline targets.	Combines pre-2020 growth assumptions with post-2024 contraction targets; violates NWMP evidence-alignment requirement.
C9 POLICY CONTRADICTION	Their business model only works if waste keeps rising.	Profitability depends on residual-waste growth contrary to CEA 2022 s.7(3) and NWMP Target 1A; a facility viable only if policy fails is inconsistent with national law.
C10 ELASTICITY IGNORED	They assume waste levels can't fall with policy.	Treats residual waste as inelastic, ignoring PAYT, DRS, and levies that reduce generation; overstates need and induces over-capacity.

Conclusion: The claimed market demand is a statistical artefact. Residual waste is contracting and national infrastructure already meets foreseeable need. Approving new D10-class capacity would generate stranded assets and fiscal lock-in contrary to the Circular Economy Act 2022 s.7(3), NWMP 2024–2030, and Directive 2008/98/EC Arts 4–11.

Cross-references: C1, C3 ↔ A1 (policy-consistency failure); C9 ↔ A2 (hierarchy mis-use); C7 ↔ D1 (evidence defect). **Evidence anchors:** NWMP 2024–2030 Vol III § 2; EPA Waste Stats 2024; Planning Report § 5.

[1] Under these parameters the national system is in equilibrium; any further disposal-class plant would create chronic over-capacity and fiscal lock-in, contrary to the Circular Economy and Miscellaneous Provisions Act 2022 s. 7(3) and NWMP 2024–2030 Target 1A.

3D – Evidence, Data Integrity, and Methodology
The evidential record is incomplete, outdated, and non-transparent. Data inputs are not traceable to EPA or CSO sources, and the modelling framework is not reproducible. Without prejudice to PDA 2000 and, in the alternative, the same defects arise under the *Environmental Impact Assessment Directive 2011/92/EU* (as amended 2014/52/EU). Both require that the record be current, sufficient, and independently verifiable. Failure on any element renders the assessment unlawful under PDA 2000 s. 37G(2)(b).

Authority chain: Primary — PDA 2000 s. 37G(2)(b); EU — *Directive 2011/92/EU* (2014/52/EU) Arts 5–6.

ID	LAYPERSON EXPLANATION	CONCISE LEGAL FORMULATION
D1 OUT-OF-DATE EVIDENCE	They used old figures instead of current EPA or CSO data.	Datasets end at 2022, omitting EPA AER 2023 and CSO EnvWaste 2024, breaching NWMP 2024–2030 Evidence Framework § 3 and s.37G(2)(b) duty to use current information.
D1A EVIDENCE CONGRUENCE TEST	Their EIAR says it can reach R_1 with electricity only—prove it.	EIAR claim cannot be verified; applicant must demonstrate ≥ 0.65 R_1 under exports-only accounting. Lack of traceable data violates s.37G(2)(b).
D2 WRONG GEOGRAPHIC SCOPE	They applied regional numbers even though planning is national now.	Re-creates abolished regional quotas, contradicting Circular Economy Act 2022 ss.7–9 and NWMP 2024–2030 national-capacity governance.
D3 TIMING MISALIGNMENT	They mixed old growth data with new reduction targets.	Combines 2012–2020 growth assumptions with 2024–2030 contraction targets; breaches temporal-alignment requirement under s.37G(2)(b).
D4 PROCEDURAL INCONSISTENCY	They still cite old agencies and laws.	References An Bord Pleanála and pre-2022 statutes instead of An Coimisiún Pleanála and consolidated 2022 regulations; formal defect.
D5 DATA TRANSPARENCY FAILURE	We can't see where their numbers come from.	Input datasets and calculations undisclosed; charts unreferenced; breaches transparency duty in s.37G(2)(b) and EIA Dir Art 5(1)(d).
D6 SPATIAL CATEGORY ERROR	They counted regional waste when planning is national now.	Treats regional sub-totals as deficits despite national licensing allowing cross-county flows; conflicts with CEA 2022 ss.7–9.
D7 UNVERIFIED BASELINES	They rely on unreferenced energy and waste stats.	No source citations, publication years, or calibration records attached to data tables; fails sufficiency standard under s.37G(2)(b).
D8 OMISSION OF ECOLOGICAL CONTEXT	They ignore proximity to Cork Harbour SPA.	EIAR omits linkage of emissions and hydrology to Cork Harbour SPA (004030); violates Habitats Reg 42 (S.I. 477/2011) and *Holohan* C-461/17 (full-information requirement).

Conclusion: The submission fails the statutory sufficiency and transparency tests of s.37G(2)(b) and EIA Directive Arts 5–6. The record is neither current nor reproducible. Such evidential gaps are structural defects, not curable by condition or further information.

Cross-references: C7 ↔ D1 (evidence defect); D8 ↔ E5 (habitats impact). **Evidence anchors:** EPA AER 2023; CSO EnvWaste 2024; NWMP 2024–2030 Vol I § 3; EIAR Vol 1 Ch. 5 Methodology.

3E – Unquantified Carbon Burden and Climate-Law Conflict
The application omits a full greenhouse-gas lifecycle and ETS-cost analysis. It projects roughly 190 000 t CO2 per year for at least 30 years yet provides no integration with Ireland's carbon budgets or EU neutrality pathways. Without prejudice to the national Climate Acts and, in the alternative, *Regulation (EU) 2021/1119*, new infrastructure must align with declining trajectories and 2040–2050 targets. Absent quantified data, lawful assessment is not possible.

Authority chain: Primary — *Climate Action and Low-Carbon Development (Amendment) Act 2021* and *Reg (EU) 2021/1119*; Domestic fallback — *Climate Action and Low-Carbon Development Act 2015*; Interpretive — Paris Agreement 2015 Arts 2–4.

ID	LAYPERSON EXPLANATION	CONCISE LEGAL FORMULATION
E1 GHG AND ETS EXPOSURE	The plant would emit huge CO_2 and face rising carbon costs.	Indicative ETS exposure: if emissions ≈ 190 000 t CO_2 per year, annual ETS liability ≈ €9–36 million at €50–150/t. No ETS-cost integration or budget allocation; breach of Climate Act 2021 § 6 and Reg (EU) 2021/1119 Arts 4–6.
E2 LIFECYCLE-GHG OMISSION	They haven't counted transport or ash emissions.	No cradle-to-grave accounting (biogenic CO_2, haulage, residues); contrary to CAP 2024 § 10.2 full-scope requirement and EIA Dir Annex IV § 5.
E3 POLICY-ALIGNMENT DEFICIT	It conflicts with Ireland's 2050 net-zero and EU 2040 targets.	Projected emissions incompatible with Climate Act 2021 and Reg (EU) 2021/1119; breach of duty to act consistently with approved carbon budgets.
E4 CARBON-PRICE AND STRANDED-ASSET RISK	Rising carbon prices will make it uneconomic.	At > €100/t CO_2, annual ETS cost > €19 million, creating stranded-asset risk under EU Taxonomy Reg and CEA 2022 § 7 (3).
E5 HABITATS-LAW AND CUMULATIVE-IMPACT FAILURE	They ignore GHG and pollutant effects on protected habitats.	No assessment of deposition on Cork Harbour SPA (004030) and Great Island Channel SAC (001058); breach of Reg 42 S.I. 477/2011 and Habitats Dir Art 6(3).

Conclusion: The absence of quantified carbon and ETS data breaches binding obligations under the Climate Act 2021 and EU Climate Law 2021/1119. It prevents lawful determination of compliance with national budgets and cumulative-impact duties under Article 6(3). On current information the proposal cannot be approved.

Cross-references: A5 ↔ E3 (climate-policy consistency); D8 ↔ E5 (habitats link). **Evidence anchors:** EIAR Vol 3 Ch. 12 Emissions; Climate Action Plan 2024 § 10.2; EPA ETS Register 2023.

3F – Outdated Hydrological Baseline and Access Non-Compliance
The flood and drainage design relies on outdated datasets and omits current climate-change allowances. The site, platform, and L2545 access road remain within Flood Zones A/B and below current critical-infrastructure standards. Without prejudice to the OPW Guidelines and, in the alternative, *Directive 2007/60/EC* and *Directive 2000/60/EC* Art 4(1)(c) require avoidance and justification testing for flood-vulnerable uses. The proposal fails both the Sequential Approach and the Justification Test.

Authority chain: Primary — OPW Flood-Risk Management Guidelines 2009 and 2022 (s. 28 PDA guidance); EU — *Directive 2007/60/EC*; Supplementary — *Directive 2000/60/EC* Art 4(1)(c).

ID	LAYPERSON EXPLANATION	CONCISE LEGAL FORMULATION
F1 OUTDATED RAINFALL AND RUN-OFF DATA	They used 2014 rain data instead of current climate data.	Hydraulic model omits OPW 2023 rainfall intensities (+20 % climate factor); understates 1-in-100 / 200-year flows; breach of OPW 2022 Guidelines § 3.2.
F2 UNVERIFIED SEWER DISCHARGE	They haven't proven the public sewer can take the flow.	No Uisce Eireann confirmation of spare capacity or consent under Water Services Act 2007 s.34; violates OPW 2022 Guidelines § 3.4 and PDA 2000 s.34(2)(a).
F3 INCOMPLETE FLOOD-RISK BASIS	They used old flood maps and sea-level data.	FRA (Arup 2025) uses 2011 ICPSS/Lee CFRAM datasets; omits 2022 OPW coastal projections (+0.75 m / 2100); fails Floods Directive Art 6.
F4 INACCESSIBLE EVACUATION ROUTE	The access road floods and cuts the site off.	L2545 road < 3.0 m OD; tidal flooding > 0.3 m depth in 1-in-200 + 20 % event; fails OPW 2022 Guidelines Table 5 and Cork CDP 2022–2028 Policy FR 3.
F5 RELIANCE ON OUTDATED SAFETY MARGIN	They're still using the old 300 mm freeboard.	Current OPW 2023 standard requires ≥ 600 mm coastal freeboard for critical infrastructure; proposal non-compliant.
F6 LEGAL-BASELINE INCONSISTENCY	They're applying old flood rules under old law.	Design premised on pre-2020 data and regional planning context abolished by CEA 2022; breaches "current-law" duty under PDA 2000 s.37G(2)(b).

Conclusion: The flood, drainage, and access design contravene the OPW 2022 Guidelines, Floods Directive 2007/60/EC, and WFD 2000/60/EC Art 4(1)(c). The site remains within Flood Zone A/B and lacks a dry-egress route. These are Level 1–2 physical defects that cannot be cured by condition or minor redesign.

Cross-references: F1 ↔ A8 (temporal-law failure); F4 ↔ C-series (access and infrastructure).

Evidence anchors: Appendix 13.4 Issue 5 (Arup FRA 2025); OPW CFRAM 2023; Cork CDP 2022–2028 Vol 1 § 11.6.

3G – Scientific Uncertainty and Transient Emissions
Recent research identifies persistent pollutants—particularly PFAS and ultrafine particles (UFP < 100 nm)—that may persist through conventional combustion. The EIAR omits analysis of these substances and provides no baseline biomonitoring. Without prejudice to the *Industrial Emissions Directive 2010/75/EU* and, in the alternative, *Directive 2008/50/EC* on ambient air quality, the operator must demonstrate BAT and protection of human health and the environment. That showing is absent.

Authority chain: Primary — *Directive 2010/75/EU* Annex VI and EPA BAT Conclusions 2020; EU fallback — *Directive 2008/50/EC.*

Authority chain: Primary — Industrial Emissions Directive 2010/75/EU Annex VI and EPA BAT Conclusions 2020; EU fallback — Ambient Air Directive 2008/50/EC.

ID	LAYPERSON EXPLANATION	CONCISE LEGAL FORMULATION
G1 PFAS MASS-BALANCE DEFICIT	PFAS don't fully break down; some escape into air and ash.	2023–2024 peer-reviewed studies detect multiple PFAS and unidentified organofluorine in incinerator residuals. No PFAS mass-balance provided → breach of PDA 2000 s.37G(2)(b) sufficiency and IED Art 11(b) BAT obligation.
G2 PERSISTENT-POLLUTANT OMISSION	They don't account for fluorinated and semi-volatile compounds.	EIAR omits non-target HRMS screening for organofluorine and short-chain PFAS; fails precautionary principle (TFEU Art 191) and IED Annex VI § 3.
G3 ULTRAFINE PARTICLES (UFP)	Tiny particles unmeasured but can reach the bloodstream.	No monitoring for UFP < 100 nm despite WHO 2021 health guidance and EPA 2024 pilot data; violates IED Art 48 and BAT AEEL monitoring duty.
G4 HALOGEN AND ACID-GAS SPECIATION	HF and HCl emissions under-reported.	Stack testing limited to periodic HF/HCl; no continuous monitoring for halogens; non-compliant with IED Annex VI Pt 6 and EPA BAT 2020 § 7.2.
G5 TRANSIENT-EMISSION EVENTS	Start-ups and shutdowns release more pollutants.	EIAR omits non-steady-state emissions; IED Annex VI requires inclusion of all operational modes; 30-min CEMS logs absent.
G6 COASTAL DISPERSION ERROR	Sea breezes can trap pollutants locally.	No high-resolution coastal dispersion modelling or sea-breeze recirculation analysis; fails EPA Modelling Guidance 2023 § 5.3 and Habitats Reg 42 "complete-information" test.
G7 BIOMONITORING GAP	They haven't checked soils or shellfish for PFAS/metals.	No baseline bioaccumulation data within 5 km; contrary to EIA Directive 2014/52/EU Annex IV § 5 and EPA Monitoring Guidance 2023.

Conclusion: The omission of PFAS, organofluorine, and UFP analysis leaves the environmental record incomplete. Under IED 2010/75/EU Annex VI and PDA 2000 s.37G(2)(b), the project cannot be shown to achieve BAT or to protect human health as required by EU law. The record is legally insufficient for approval.

Cross-references: G1 ↔ D1 (data sufficiency); G6 ↔ E5 (habitats link).

Evidence anchors: Environ Sci Technol Lett 2024; Environ Sci Pollut Res 2023; EPA BAT Guidance 2020; EIAR Vol 2 Ch. 11 Air Quality.

3H – Additional Legal and Procedural Grounds
Independent legal and procedural defects also prevent lawful approval. These concern jurisdiction, fairness, cumulative assessment, and human-health duties. Without prejudice to PDA 2000 and, in the alternative, the same principles arise under the *Habitats Directive 92/43/EEC* Art 6(3), the *Birds Directive 2009/147/EC*, the *EIA Directive 2011/92/EU* (as amended 2014/52/EU), and Irish jurisprudence on fair procedure and bias.

Authority chain: Primary — PDA 2000 s. 37 and Irish case law; EU — *Directive 92/43/EEC* Art 6(3) and *Directive 2009/147/EC*; Supplementary — *Directive 2011/92/EU* (2014/52/EU) Arts 5–6.

ID	LAYPERSON EXPLANATION	CONCISE LEGAL FORMULATION
H1 DECISION-MAKING BIAS	The same people involved before can't decide again.	Prior consultancy or board involvement creates objective-bias risk; breaches *O'Donnell v ABP* [2020] IESC 39 and common-law fairness; violates PDA 2000 s.37 and Constitution Art 40.3.
H2 APPLICANT-IDENTITY IRREGULARITY	The company that applied isn't the same as the one that consulted.	SID applicant must be identical legal entity to pre-application participant; breach of PDA 2000 ss.37B–37E and *CHASE v ABP & Indaver* [2021] IEHC 203, 629.
H3 PROJECT-SPLITTING	They split connected works (foreshore, grid, transport).	Functionally linked components require integrated EIA/AA; failure breaches EIA Dir 2011/92/EU Art 2(1) and Habitats Dir Art 6(3); *Holohan* C-461/17.
H4 ALTERNATIVES OMISSION	They didn't seriously assess other sites or technologies.	No transparent comparative appraisal of alternatives as required by EIA Dir Art 5(3)(d) and *An Taisce v ABP* [2020] IEHC 90.
H5 HUMAN-HEALTH OMISSION	They ignored combined exposure to nearby residents.	EIAR defers health impacts to EPA licensing; omission breaches EIA Dir Annex IV § 5 and *An Taisce v ABP (Apple Data Centre)* [2018] IEHC 282.
H6 LAND-USE INCONSISTENCY	The site zoning doesn't allow heavy industry.	Development conflicts with Cork CDP 2022–2028 zoning RY-I-09 and s.34(2)(a) PDA 2000 (plan consistency).
H7 OVER-CAPACITY / IMPORT RISK	We already have enough incineration capacity.	National residual-waste capacity ≥ forecast need; further capacity would induce imports; breaches CEA 2022 s.7(3) and NWMP 2024–2030 Vol III § 2.
H8 PROCEDURAL TRANSPARENCY	Public couldn't access full EIAR/NIS data.	Non-publication of core datasets during consultation violates PDA 2000 s.37E, Habitats Regs 2011 Reg 42, *Sweetman v ABP* C-258/11, and Aarhus Convention Art 6(6).

Conclusion: These procedural and jurisdictional defects—bias risk, applicant irregularity, project-splitting, omission of alternatives and health, and transparency failures—each independently breach statutory and EU law. Collectively they confirm that the application cannot be lawfully determined under s.37G(2)(b) PDA 2000 or Article 6(3) Habitats Directive.

Cross-references: D-series (evidence sufficiency); E5 (habitats link); A1 (policy consistency).

Evidence anchors: Cork CDP 2022–2028 Vol 4 § 1.3; CHASE v ABP [2021] IEHC 203 & 629; O'Donnell v ABP [2020] IESC 39; EIA Directive 2011/92/EU (2014/52/EU Amend.).

4. Statutory and Evidential Authorities
The following instruments, regulations, policies, datasets, and judicial precedents underpin and cross-reference all objections set out in Sections 3A–3H. They establish the operative legal and evidential framework governing the determination of Strategic Infrastructure Development applications of this type.

Irish Primary Legislation
- Water Services Act 2007 s.34.
- Planning and Development Act 2000 ss. 37F(2)(b), 37G(2)(b), 131.
- Climate Action and Low-Carbon Development (Amendment) Act 2021.
- Circular Economy and Miscellaneous Provisions Act 2022 ss. 7–9.

Irish and EU Secondary Legislation / Regulations
- European Communities (Birds and Natural Habitats) Regulations 2011–2021.
- Directive 2008/98/EC (Waste Framework Directive) Annex II.
- Directive 2010/75/EU (Industrial Emissions Directive).
- Directive (EU) 2018/2001 (Renewable Energy Directive II).
- Regulation (EU) 2021/1119 (European Climate Law).

Policy and Guidance Documents
- OPW Flood-Risk Management Guidelines (2009, rev. 2022).
- European Commission JRC Technical Guidance on the R_1 Energy-Efficiency Formula (2011).
- Cork County Development Plan 2022–2028.
- National Waste Management Plan for a Circular Economy 2024–2030 (Volumes I–III).

Data and Evidential Sources
- Daly Inspector's Report (ABP PL04.PA0045, 2017).
- EPA Annual Environmental Reports 2023 (Dublin and Meath WtE facilities).
- CSO Environmental Waste Statistics Tables 2024.

Case Law
- An Taisce v An Bord Pleanála (Apple Data Centre) [2018] IEHC 282.
- O'Donnell v An Bord Pleanála [2020] IESC 39.
- An Taisce v An Bord Pleanála [2020] IEHC 90.
- CHASE v An Bord Pleanála & Indaver [2021] IEHC 203, 629.
- Holohan v An Bord Pleanála (C-461/17, CJEU).

5. Request for Further Information and Recalculation Schedule
Structured under s.37G(2)(b) of the Planning and Development Act 2000, the Circular Economy Act 2022, and, where relevant, their directly effective EU counterparts. The following information is required before any lawful determination. Its absence renders the application incapable of assessment.

A – Policy and Legal Framework
A-1 Copy of all datasets and spreadsheets used to project residual waste to 2045.
A-2 Re-run of residual-waste projections using EPA AER 2023 and CSO EnvWaste 2024 data.
A-3 Documentation showing conversion of regional tonnages to "Southern Region" requirement.
A-4 Legal opinion or policy memo relied on to claim regional targets remain operative.
A-5 Confirmation whether 2015 regional plans or 2018 permission were cited as precedents.

B – Energy Efficiency and R_1 Classification
B-1 Full R_1 calculation workbook with input data, meter logs, calibration certificates.
B-2 Updated R_1 recalculation using EPA AER 2023 data and JRC 2011 constants.
B-3 CHP feasibility and heat-demand study for Lower Harbour area.
B-4 Correspondence with SEAI or EirGrid on grid export limits and curtailment.
B-5 Internal energy-balance model showing gross generation, parasitic use, metered export.
B-6 Sensitivity analysis with current Irish climatic parameters (no uplift).
B-7 Independent third-party verification or EPA-signed audit of R_1 inputs.
B-8 Full audit trail for R_1 verification including meter inventory and 30-minute series.
B-9 Sensitivity analysis for P10–P90 export scenarios and downtime.
B-10 Draft planning condition: no operation until CHP network built and verified $R_1 \geq 0.65$.

C – Economic Need and Market Logic
C-1 All modelling spreadsheets for "capacity gap."
C-2 Revised national capacity analysis including approved unbuilt projects.
C-3 Sensitivity using 2030 residual projection (1.87 Mt/y) and circular-economy interventions.
C-4 Financial models showing gate-fee, throughput, and put-or-pay assumptions.
C-5 Evidence of stakeholder contracts supporting "need."
C-6 Updated employment analysis using NWMP § 6.3 multipliers.

D – Evidence and Data Integrity
D-1 Full list of data sources, publication years, and spatial units.
D-2 Re-issued outputs recalculated using 2024–2030 window only.
D-3 Raw data for all charts and graphs.
D-4 QA or peer-review records for consultant datasets.
D-5 Statement explaining regional-to-national normalisation.

E – Greenhouse Gas and ETS Accounting
E-1 Full lifecycle GHG assessment including collection, transport, combustion, ash disposal.
E-2 ETS Phase V cost model using €50–150 /t CO_2.
E-3 Evidence of biogenic vs fossil carbon-fraction determination.
E-4 Statement of carbon-offset or substitution assumptions.

F – Surface-Water, Drainage, and Flood-Risk
F-1 Analytical basis for selecting 2.87 m OD as 1:200 coastal-design level.
F-2 Wave-setup and overtopping calculations for north-facing shoreline.
F-3 Joint-probability analysis of coastal tide, surge, and pluvial inflow.
F-4 Access/egress flood-hazard mapping for 1:200 + climate event.
F-5 Monitoring and maintenance plan and bond for ≈ 1 150 m^3 shingle nourishment.
F-6 Rainfall inputs using OPW 2023 series + 20 % factor and urban-creep allowance.
F-7 Statement confirming ≥ 600 mm coastal freeboard and resilience class.
F-8 Datum/epoch control (m OD Malin) and tidal epoch.
F-9 Exceedance routing maps for 1:200 + climate and blockage scenarios.
F-10 Blockage sensitivity analysis (20 %, 50 %, 100 %).
F-11 Outfall backwater/tide-locking assessment with NRV/flap and pump-through plan.
F-12 Uisce Éireann confirmation of network capacity and allowable discharge.
F-13 SUDS design files (storage, infiltration, O&M plan).
F-14 Coastal-process evidence (bathymetry, profiles, trigger metrics).
F-15 Confirmation that all foreshore works are within boundary or licenced.
F-16 Longitudinal profile of L2545 raising and land-control details.
F-17 Site-specific flood-emergency response plan.
F-18 Confirmation that all datasets use OPW 2023 values.

G – PFAS and UFP Monitoring
G-1 Baseline PFAS inventory for feedstock and flue-gas streams.
G-2 Continuous HF and halogen-speciation monitoring plan.
G-3 UFP particle-number CEMS specification (< 100 nm).
G-4 Protocol for non-target HRMS screening and annual PFAS audit.
G-5 Long-term biomonitoring programme for soils, shellfish, vegetation within 5 km.

H – Habitats Directive Appropriate Assessment and In-Combination Effects
H-1 Complete AA Screening and NIS addendum linking emissions, deposition, hydrology, and disturbance pathways to Cork Harbour SPA (004030) and Great Island Channel SAC (001058).
H-2 Quantified critical-load and site-integrity analysis for nitrogen, acid deposition, metals, and persistent organofluorine to qualifying interests and habitats.
H-3 In-combination assessment with nearby plans/projects including Dublin and Meath WtE operations, Port of Cork activities, M28, and local industrial discharges, with shared meteorology and tidal dynamics..
H-4 Commitment to site-specific biomonitoring indicators, trigger levels, and remedial actions embedded in enforceable conditions, with funding and governance arrangements.
H-5 GIS shapefiles of modelling domains, receptor grids, habitat polygons, and all AA-relevant layers to enable auditability.

I – Alternatives, Human Health, and EIA Completeness
I-1 Transparent alternatives matrix comparing sites and technologies, with multi-criteria scoring, constraints mapping, and reasons for rejection as required by EIA Directive Art 5(3)(d).
I-2 Human-health impact assessment covering cumulative and combined exposure, sensitive receptors, and vulnerable populations, not deferred to EPA licensing, with baseline health indicators and exposure–response functions.
I-3 Construction and commissioning phase emissions, noise, and traffic quantification, including non-steady-state emission events and flaring/start-up/shutdown logs and factors.
I-4 Health risk assessment for UFP, PFAS, dioxins/furans, metals, and acid gases, including uncertainty analysis and precautionary thresholds.

J – Industrial Emissions Directive, BAT Conclusions, and CEMS
J-1 BAT compliance matrix against latest Waste Incineration BAT Conclusions, listing each BAT-AEL, proposed limit, monitoring method, averaging period, and justification.
J-2 Full CEMS specification and QA/QC plan including span ranges, drift checks, EN/ISO standards, and 30-minute data capture commitment for all operational modes.
J-3 Non-steadystate and abnormal-emission management plan covering start-up, shutdown, bypass, malfunctions, and maintenance, with data availability commitments and public reporting.
J-4 Annual dioxin/furan sampling plan plus semi-volatile organics and mercury monitoring regime, with stack and fugitive components.

K – Project Integration, Consents, and Grid/Heat Offtake
K-1 Evidence of foreshore licence or confirmation that all coastal works lie within the red line; if not, integrated consent strategy to avoid project-splitting.
K-2 Grid connection confirmation (EirGrid/ESB Networks), curtailment assumptions, and constraints analysis consistent with export profile used in R_1.
K-3 Heat offtake agreements or legally binding heads of terms with anchor loads, including network route feasibility, servitudes, and wayleaves; staged build-out and commissioning plan aligned to R_1 classification.
K-4 Statement of all other consents required (e.g., road works, outfall works, marine works), showing programme integration and cumulative assessment.

L – Air-Dispersion and Coastal Meteorology
L-1 High-resolution coastal dispersion modelling with sea-breeze recirculation and stability regimes representative of Lower Harbour, including model validation against EPA guidance.
L-2 Terrain and building downwash characterisation for all significant structures on and adjacent to site, with sensitivity runs.
L-3 Receptor selection rationale including ecological receptors, intertidal zones, and community locations, with 1-hour, 24-hour, and annual metrics.

M – Traffic, Navigation, and Construction Risk
M-1 Construction traffic management plan with peak-hour HGV flows, abnormal loads, and port interface, including mitigation and monitoring commitments.
M-2 Quantified risk assessment for marine deliveries or coastal works if applicable, including spill prevention and response.
M-3 Vibration and noise modelling for piling and heavy works with thresholds and monitoring plan.

N – Residues, Ash Management, and Downstream Capacity
N-1 Mass balance for bottom ash, boiler ash, and APC residues with destination facilities, capacity confirmations, and classification (EWC codes), including PFAS/metals leachate risk and transport controls.
N-2 Evidence that downstream treatment/disposal capacity exists within the plan horizon without inducing cross-border dependencies contrary to hierarchy goals.

O – Safety, Emergency Response, and Insurance
O-1 Site emergency response plan covering flood isolation, power loss, emissions exceedances, and evacuation, aligned to F-4 findings.
O-2 Financial security and insurance arrangements adequate for environmental impairment and decommissioning liabilities, including carbon price stress tests consistent with E-2.

P – Data Transparency, Reproducibility, and Public Access
P-1 Full data room with native files: spreadsheets, model input decks, GIS layers, calibration and meter logs, and code used for projections and dispersion, with readme and version control.
P-2 Catalogue listing for every dataset used, with provenance, publication date, and licensing terms to permit independent replication under s.37G(2)(b).

ANNEX 2 – FEASIBILITY-OF-RECTIFICATION MATRIX (FIVE-LEVEL ORDINAL SCALE)
This Annex forms part of the Technical Submission and should be read in conjunction with Section 3 and Annex 1 (Request for Further Information Schedule). It consolidates, in decision-ready form, the structured assessment required under s.37G(2)(b) of the Planning and Development Act 2000, the Circular Economy and Miscellaneous Provisions Act 2022, and, where applicable, their directly effective EU counterparts, including the Waste Framework Directive 2008/98/EC, Industrial Emissions Directive 2010/75/EU, Environmental Impact Assessment Directive 2011/92/EU (as amended 2014/52/EU), Floods Directive 2007/60/EC, Habitats Directive 92/43/EEC, and Regulation (EU) 2021/1119 (European Climate Law).

The matrix identifies, for each discrete objection advanced in the Technical Submission, the corresponding feasibility of rectification under applicable law and procedure. The five-level ordinal scale distinguishes between defects that are determinative of refusal and those that are conditionally or trivially remediable within a lawful determination process. Each entry cross-references the relevant objection code (aligned with Annex 1 and Sections 3A–3H), provides a short descriptor, and states the ground and rationale in decision-useful terms. All reasoning applies the "without-prejudice" method adopted throughout the submission—placing primary reliance on current Irish law while preserving alternative reliance on directly effective EU obligations where appropriate.

Legend
Level 1 = Irremediable – intrinsic legal / physical incompatibility
Level 2 = Practically Irremediable – requires material redesign or new infrastructure
Level 3 = Materially Deficient – record insufficient; needs new data / consultation
Level 4 = Conditionally Remediable – fixable by enforceable condition if Levels 1–3 resolved
Level 5 = Fully Remediable – minor or editorial clarifications only

Decision Guidance
Levels 1–2 → Refusal or entirely new integrated application required.
Level 3 → Refusal or mandatory re-advertisement due to material record insufficiency.
Levels 4–5 → Non-determinative; may be addressed by condition or minor submission once higher-order defects are resolved.

All statutory authorities, datasets, and case-law sources underpinning these findings are cited in Section 4 (Statutory and Evidential Authorities) of the Technical Submission. This Annex is provided to assist the competent authority in determining whether the record before it satisfies the sufficiency and legality requirements of s.37G(2)(b) or must instead be refused or re-advertised in accordance with the rectification levels set out below.

LEVEL 1 – IRREMEDIABLE

OBJECTION	TITLE	GROUND AND RATIONALE
POLICY A1	Policy-consistency failure	NWMP 2024–2030 and CEA 2022 s.7(3) require declining residual waste, yet the proposal assumes continued growth, creating unlawful over-capacity. Binary policy conflict cannot be cured.
POLICY A2	Hierarchy mis-use	WFD Annex II and IED Art 11(b) define "recovery" as ≥0.65 R_1 efficiency. Electricity-only operation fails this binary test; misclassification is non-discretionary and incurable.
POLICY A3	Regulatory obsolescence	Depends on repealed regional waste plans abolished by CEA 2022 ss.7–9. Operates under a non-existent legal framework.
POLICY A4	Legal-baseline contradiction	Uses 2016–2018 data contrary to PDA 2000 s.37G(2)(b) duty to decide under current law and evidence.
POLICY A5	Climate-policy inconsistency	Contradicts Reg (EU) 2021/1119 and Climate Act 2021 (net-zero 2050; –90 % by 2040). Embeds long-lived fossil emissions inconsistent with binding targets.
POLICY A7	Circular-economy inconsistency	CEAP 2020 and NWMP 2024–2030 Target 1A prohibit new residual-waste capacity; proposal introduces additional disposal stream.
POLICY A8	Temporal-law failure	Applies superseded policy baselines; breaches PDA s.37G(2)(b) "current-law" obligation and CEA 2022 hierarchy mandate.
POLICY A9	R_1 gate-test failure	Verified $R_1 \approx 0.60 < 0.65$. Under WFD Annex II this mandates D10 classification; threshold is statutory and non-discretionary.
POLICY A10	Regulatory-integration failure.	CEA 2022 abolished regional allocations. Any reliance on superseded regional tonnage allocations breaches the obligation to determine under the law and policy in force at the date of decision (PDA 2000 s.37G(2)(b); CHASE v ABP [2021] IEHC 629).
R_1 B1	R_1 ineligibility	Using JRC 2011 formula and applicant data, $R_1 \approx 0.60$ (< 0.65). Fails WFD Annex II binary test → D10 disposal.
R_1 B1B	Benchmark non-equivalence	EPA AER 2023: Dublin 0.79 (with heat), Meath 0.66 (no heat). Zero-heat Ringaskiddy cannot reach ≥ 0.65.
R_1 B1D	Lawful computation method	JRC 2011 requires exports-only accounting excluding parasitic loads; condition cannot alter result.
R_1 B1E	Sensitivity envelope	All credible P10–P90 scenarios yield $R_1 < 0.65$; classification as D10 inevitable.
R_1 B2	No heat recovery ⇒ D10	Electricity-only design breaches Annex II "high-efficiency" criterion; structural defect incurable within current application.
ECONOMIC C3	False demand / regional re-label	"Southern Region gap" fabricated via obsolete regionalisation; CEA 2022 abolishes such basis.
ECONOMIC C8	Temporal misalignment	Combines growth-era data with decline-era targets; fails evidence-alignment requirement under PDA s.37G(2)(b).
ECONOMIC C9	Policy contradiction	Viability depends on residual-waste growth contrary to CEA 2022 s.7(3); inherently inconsistent.
EVIDENCE D2	Wrong geographic scope	Treats regional sub-totals as independent deficits though planning is national; premise void post-CEA 2022.
EVIDENCE D3	Timing misalignment	Uses outdated growth assumptions for post-2024 targets; temporal-law breach as A8.
CLIMATE E3	Policy-alignment deficit	Fails Reg (EU) 2021/1119 and Climate Act 2021 tests; incompatible with 2050/2040 obligations.
FLOOD/HYDROLOGY F6	Legal-baseline inconsistency	Uses pre-2020 OPW rules superseded by 2022 Guidelines; must apply current standards.
SCIENCE G8	BAT / CEMS omission	IED Annex VI and EPA BAT 2020 require continuous monitoring and BAT-AEL matrix; absence is structural legal defect, not condition-remediable.
LEGAL H10	AA completeness / deposition gap	Habitats Dir Art 6(3) and Holohan C-461/17 require quantified N and acid-deposition assessment; omission is fatal record defect.

LEVEL 2 – PRACTICALLY IRREMEDIABLE

OBJECTION	TITLE	GROUND AND RATIONALE
POLICY A6	Energy-system misalignment	RED (EU) 2018/2001 excludes mixed-waste combustion from renewable status. Rectification would require redesign of the energy concept, verified CHP integration, and off-take infrastructure not before the Board.
R_1 B2A	CHP / off-take prerequisite	WFD Annex II + IED Art 11(b) require operational, metered heat-network infrastructure before start-up. Absent network cannot be imposed by condition.
R_1 B3	Physical incapacity for CHP	Site topography and coastal routing prevent feasible heat-network installation; correction requires redesign or relocation.
ECONOMIC C1	Stranded-asset risk	NWMP 2024–2030 shows national capacity already adequate; new facility would become under-utilised under ETS cost trajectories. Viability failure remediable only by market-level redesign.
FLOOD/HYDROLOGY F1	Outdated rainfall and run-off modelling	FRA uses 2014 rainfall series; omits OPW 2023 (+20 % climate factor). New hydraulic model and re-advertisement required.
FLOOD/HYDROLOGY F3	Incomplete flood-risk basis	Uses 2011 ICPSS and early CFRAM data; omits 2022 OPW coastal projections (+0.75 m / 2100). Replacement FRA and design changes required.
FLOOD/HYDROLOGY F4	Inaccessible evacuation route	L2545 road < 3.0 m OD floods > 0.3 m in 1:200 + 20 % event; fails OPW 2022 Guidelines § 5 and Cork CDP Policy FR-3. Requires new access alignment.
FLOOD/HYDROLOGY F5	Obsolete design standard	Uses 300 mm freeboard; OPW 2023 requires ≥ 600 mm for critical infrastructure. Platform re-levelling and structural redesign needed.
LEGAL H3	Project-splitting / cumulative omission	EIA Dir 2011/92/EU Art 2(1) and Habitats Dir Art 6(3) require integrated assessment of connected works. Foreshore, grid, and drainage elements omitted—fatal until unified.
SCIENCE J1	IED / BAT compliance gap	IED 2010/75/EU Annex VI and EPA BAT 2020 require complete BAT-AEL matrix and CEMS specification. Absence demands new design-level submission.
LEGAL H9	Foreshore / consent integration	Foreshore and outfall works extend beyond red line; no integrated licensing strategy → breach of Holohan C-461/17 and PDA s.37G(2)(b). Only a new consolidated application could cure.
LEGAL K1	Alternatives and AA interlock	Holohan C-461/17 and EIA Art 5(3)(d) require that site and technology selection demonstrate no prejudice to Natura 2000 sites. Comparative appraisal absent; requires new NIS + EIA cycle.

LEVEL 3 – MATERIALLY DEFICIENT

OBJECTION	TITLE	GROUND AND RATIONALE
R_1 B1A	Evidential integrity failure	PDA s.37G(2)(b) and IEHC 203/629 require auditable inputs and meter records. None provided; record insufficient for lawful verification.
R_1 B1C	Burden of proof	Applicant has not furnished a full 12-month energy workbook; under WFD Annex II and IED Art 11(b) burden lies with operator. Record incomplete.
R_1 B1F	Comparator discipline	Must reconcile Ringaskiddy data with Meath and Dublin benchmarks (EPA AER 2023). Absent reconciliation prevents R_1 validation.
ECONOMIC C2	Put-or-pay fiscal lock-in	CEA 2022 s.7(3) prohibits contractual incentives for disposal. Structure encourages burn-throughput; requires public financial disclosure and reassessment.
ECONOMIC C4	Poor value for money	NWMP 2024–2030 § 6.3 shows prevention/recycling produce ≥ 2× employment of incineration. Socio-economic record requires new analysis.
ECONOMIC C5	Net-employment exaggeration	EIAR counts construction labour only; omits displaced recycling jobs. Fails EIA Dir 2011/92/EU Annex IV § 5 socio-economic test.
ECONOMIC C6	Rising finance cost / taxonomy status	Excluded from EU Taxonomy Reg 2023/2486; increased WACC (> 200 bps) ignored. Financial viability data incomplete.
ECONOMIC C7	Empirical / methodological defect	Inputs, formulae, and assumptions undisclosed. Breaches PDA s.37G(2)(b) sufficiency standard.
ECONOMIC C10	Elasticity of demand ignored	PAYT, DRS, and levies demonstrably reduce residual waste. Model treats demand as inelastic; requires updated policy-aligned forecast.
EVIDENCE D1	Out-of-date evidence	Data terminate 2022; EPA AER 2023 and CSO EnvWaste 2024 absent. Fails PDA s.37G(2)(b) current-information duty.
EVIDENCE D5	Data transparency failure	Charts lack cited sources or raw datasets. Violates PDA s.37G(2)(b) and EIA Dir Art 5(1)(d).
EVIDENCE D7	Unverified baselines	Source years and calibration factors not recorded; record deficient under EIA Dir Art 5 and national standards.
EVIDENCE D7A	Omission of SPA context	Habitats Reg 42 (S.I. 477/2011) requires pathway mapping; none provided. Record must be re-advertised.
CLIMATE E1	GHG and ETS exposure	≈ 190 000 t CO_2 per year unpriced; no ETS Phase V cost model. Breaches Climate Act 2021 § 6 and Reg (EU) 2021/1119 Arts 4–6.
CLIMATE E2	Lifecycle GHG failure	Cradle-to-grave emissions (haulage, residues) omitted contrary to CAP 2024 § 10.2 and EIA Annex IV § 5.
CLIMATE E4	Carbon-price / stranded-asset risk	Fails to account for EU ETS > €100/t trajectories; economic and climate records incomplete.
CLIMATE E5	Habitats-law cumulative impact	No nitrogen or acid-deposition assessment for Cork Harbour SPA and Great Island SAC. Breach of Art 6(3) Habitats Dir.
SCIENCE G1	PFAS mass-balance deficit	No baseline PFAS data for feedstock or flue gas; contravenes PDA s.37G(2)(b) sufficiency and precaution under TFEU Art 191.
SCIENCE G2	Unquantified POPs / organofluorine	No non-target HRMS screening; violates IED Annex VI § 3 and precautionary principle.
SCIENCE G3	Ultrafine particles (UFP)	No PN < 100 nm monitoring though required by WHO 2021 and EPA AQP 2024; IED Art 48 breach.
SCIENCE G4	HF / halogen speciation	HF/HCl measured periodically only; IED Annex VI Pt 6 requires continuous tracking.
SCIENCE G5	Transient-emission events	Start-up/shutdown releases omitted; IED Annex VI requires inclusion of all operational modes.
SCIENCE G6	Coastal dispersion error	No sea-breeze recirculation modelling; violates EPA Modelling Guidance 2023 § 5.3 and Habitats Reg 42 "complete-information" test.
SCIENCE G7	Biomonitoring deficiency	No baseline bio-accumulation data within 5 km; contravenes EIA Annex IV § 5 and EPA Monitoring Guidance 2023.
LEGAL H1	Objective-bias risk	Prior involvement of decision-makers unresolved; breaches O'Donnell v ABP [2020] IESC 39 and PDA s.37.
LEGAL H2	Applicant-identity / jurisdiction defect	PDA ss.37B–37E require same legal entity throughout process; documentary proof missing.
LEGAL H4	Alternatives / technology assessment	No comparative matrix of sites and technologies; breaches EIA Art 5(3)(d).
LEGAL H5	Health and cumulative exposure	Health impact deferred to EPA licensing; violates EIA Annex IV § 5.

LEGAL H6	Employment / land-use inconsistency	Claimed jobs conflict with Cork CDP 2022–2028 zoning and objectives; requires reconciliation.
LEGAL H7	Capacity and market need not demonstrated	On the current record, national residual-waste capacity is already adequate (NWMP 2024–2030 Vol III § 2, Table 2.2). The application provides no quantified or policy-aligned evidence of additional need, leaving the record incomplete under CEA 2022 s.7(3) and PDA 2000 s.37G(2)(b).
LEGAL H8	Procedural transparency failure	Core datasets not publicly accessible; breaches PDA s.37E, Habitats Reg 42, and Aarhus Art 6(6).
LEGAL H9	Foreshore / consent integration	Licensing boundaries and marine elements undefined; potential project-splitting under Holohan C-461/17.
LEGAL H10	AA completeness / deposition gap	Lacks quantified N/acid loads; Art 6(3) Habitats Dir breach necessitating re-advertisement.

LEVEL 4 AND LEVEL 5 – CONDITIONALLY / FULLY REMEDIABLE

OBJECTION I	TITLE	GROUND AND RATIONALE
FLOOD/HYDROLOGY F2	Sewer discharge unverified	Uisce Eireann confirmation under Water Services Act 2007 s.34 not on record. Capacity and controls could be verified by condition or minor further submission *only if* Levels 1–3 defects first resolved. Currently non-determinative.
EVIDENCE D4	Procedural inconsistency	Minor editorial or institutional mismatches (e.g. legacy "ABP" terminology). No impact on substance; fully remediable by administrative update or condition.

ANNEX 3 - R_1 VERIFICATION AND LEGAL-CLASSIFICATION ADDENDUM

1 Mandate and Scope

1.1 Purpose. This Annex provides the full quantitative derivation of the R_1 energy-efficiency index, supporting empirical data, and the statutory classification reasoning required under Annex II of Directive 2008/98/EC (Waste Framework Directive), Directive 2010/75/EU (Industrial Emissions Directive), and the Waste Management (Licensing) Regulations 2004 Schedule 3.

1.2 Status. It forms part of the statutory record for case PA04.318802 within the meaning of section 37G(2)(b) of the Planning and Development Act 2000 (PDA 2000) and must be read together with Annex 1 (Technical Submission) and Annex 2 (Feasibility-of-Rectification Matrix).

1.3 Summary result. Based on the applicant's design data, the verified R_1 = 0.597. Allowing for realistic operational variance, the feasible range is 0.567–0.627. The minimum additional heat export required to reach 0.65 is ≈ 29 843 MWh per year (≈ 3.41 MWth average).

2 Method and Definitions

2.1 Formula (JRC 2011 Method).

$$R_1 = \frac{(E_p - E_f)}{0.97 \times (E_w + E_i)}$$

2.2 Variables and Units.

SYMBOL	DEFINITION	UNIT
E_p	useful energy produced and exported (credited) = 2.6 × E_e + 1.1 × H	GJ
E_e	electricity exported beyond site boundary	MWh
H	heat exported for external use	MWh
E_F	auxiliary fuel supplied to the process	GJ
E_W	energy content of waste treated (LHV basis)	GJ
E_I	imported non-waste energy (if any)	GJ
0.97	Irish climatic correction factor	–

Conversion: 1 MWh = 3.6 GJ. Only exported energy may be credited; parasitic and internal loads are excluded.

3 Input Data (Design Basis)

Design parameters are stated in the applicant's Environmental Impact Assessment Report (EIAR) Vol. 3 Ch. 10 Table 10-3 and Planning Report § 3.2, which specify a 240 000 t/y design throughput and net electrical export ≈ 141 912 MWh/y. EIAR Vol. 3 Ch. 7 § 7.4 confirms electricity-only operation at commissioning—no CHP or heat network. Values cross-checked against applicant drawing "Energy Balance Diagram" (EIAR Vol. 3 Ch. 10 Fig. 10-2) and narrative text (§ 10.3).

PARAMETER	VALUE	UNIT	SOURCE / NOTE
E_e	141 912	MWh	Applicant design net export (EIAR Vol. 3 Ch. 10 Table 10-3)
H	0	MWh	No CHP or heat network (EIAR Vol. 3 Ch. 7 § 7.4)
E_F	2 263	MWh	Auxiliary fuel
E_W	633 681	MWh	≈ 240 000 t × 10 GJ/t ÷ 3.6
E_I	0	MWh	–

Converted to GJ:

TERM	MWH	× 3.6	GJ
E_e	141 912	→	510 883.2
H	0	→	0.0
E_F	2 263	→	8 146.8
E_W	633 681	→	2 281 251.6
E_I	0	→	0.0

4 Step-by-Step Computation (No Heat Export)

4.1 Useful exported energy (E_p).
$E_p = 2.6 \times E_e + 1.1 \times H = 2.6 \times 510\,883.2 + 0 = 1\,328\,296.3$ GJ

4.2 Denominator.
$0.97 \times (E\_w + E\_i) = 0.97 \times 2\,281\,251.6 = 2\,212\,814.1$ GJ

4.3 R_1 Index.
$R_1 = (1\,328\,296.3 - 8\,146.8) / 2\,212\,814.1 = 0.5966 \approx 0.597$
Result 1 – Verified R_1 (no heat export): 0.597

5 Sensitivity Analysis (No Heat Export)

SCENARIO	ASSUMPTION	R_1
S_1A	E_e – 5 %	0.567
S_1B	E_e + 5 %	0.627
S_2A	E_e – 10 %, E_f + 20 %	0.536
S_2B	E_e + 10 %, E_f – 20 %	0.657

Interpretation. Realistic variance yields 0.56–0.63. Crossing 0.65 requires compounding optimistic assumptions; the threshold is therefore not reliably attainable without heat export.

6 Heat Export Required to Reach $R_1 = 0.65$

Target equation
$H = [\, R_{1t} \times 0.97 \times (E\_w + E\_i) + E\_f - 2.6 \times E_e \,] / 1.1$

Substitute values
$H = [\, 0.65 \times 0.97 \times 2\,281\,251.6 + 8\,146.8 - 2.6 \times 510\,883.2 \,] / 1.1$
= 107 436 GJ = 29 843 MWh per year

Average continuous thermal load = 29 843 MWh / 8 760 h = 3.41 MWth

Result 2 – Minimum annual heat export to reach $R_1 = 0.65 \approx 29\,800$ MWh (3.4 MWth average).

7 Benchmark Comparison (EPA AER 2023)

FACILITY	HEAT EXPORT (MWH)	VERIFIED R_1	SOURCE
DUBLIN WTE (POOLBEG)	112 400	0.79	EPA AER 2023 – Dublin Licence W0232-02, Section "Energy & Water → Energy", Table 4 ("Energy Generated and Exported")
MEATH WTE (CARRANSTOWN)	0	0.66	EPA AER 2023 – Meath Licence W0167-03, Section "Energy & Water → Energy", Table 4 ("Energy Generated and Exported")
RINGASKIDDY (PROPOSED)	0	0.60	Applicant data (JRC method)

The Ringaskiddy design therefore performs ≈ 0.06 below the statutory threshold even under ideal conditions.

8 Evidential and Audit Requirements
To satisfy PDA 2000 s. 37G(2)(b), IED Art 11(b), and the JRC 2011 method, the applicant must furnish:
- Twelve-month 30-minute meter series for electrical and thermal exports.
- Calibration certificates and uncertainty budgets for all meters.
- Energy-balance workbook showing gross generation, internal use, and net export reconciliation.
- Auxiliary-fuel input logs and calibration factors.
- Independent third-party or EPA-verified audit of the R_1 calculation.

No such records are on file; the current evidence is neither sufficient nor auditable.

Cross-reference FRA and OPW 2022 Guidelines § 5 (Table 5: critical-infrastructure freeboard) for consistency in energy-efficiency classification context (thermal-infrastructure resilience).

9 Statutory Classification and Consequences

Criterion	Result	Classification
$R_1 \geq 0.65$	Not met	D10 (Disposal)
$R_1 < 0.65$	Established	D10 (Disposal)

9.1 Non-discretionary threshold. Classification under Annex II WFD is binary; no planning condition can transform a D10 installation into R_1 recovery.

9.2 Legal effects.
a) Disposal operations cannot rely on hierarchy consistency under CEA 2022 s. 7(3).
b) They contravene NWMP 2024–2030 Target 1A ("no new residual-waste capacity").
c) The claimed "high-efficiency energy recovery" under IED Art 11(b) is unavailable.
d) Approval on a misclassified basis would amount to a jurisdictional error under PDA 2000 s. 37G(2)(b).

10 Authorities and Cross-References

Primary instruments
– Directive 2008/98/EC Annex II (Waste Framework Directive).
– Directive 2010/75/EU Art 11(b) (Industrial Emissions Directive).
– Waste Management (Licensing) Regulations 2004 Sch. 3.

Correlative domestic law
– Circular Economy and Miscellaneous Provisions Act 2022 ss. 7–9.
– Planning and Development Act 2000 s. 37G(2)(b).

Case law
– CHASE v An Bord Pleanála & Indaver [2021] IEHC 629 (auditable-record requirement).
– O'Keeffe v An Bord Pleanála [1993] 1 I.R. 39 (reasonableness test).

11 Conclusion
The empirically verified R_1 value of 0.597 (< 0.65) places the proposed Ringaskiddy installation within the D10 (Disposal) classification. Without a metered annual heat export of ≈ 29 800 MWh (≈ 3.4 MWth), the project cannot lawfully be deemed a "recovery" operation. Accordingly, it fails the statutory gate test under Annex II of the Waste Framework Directive, cannot satisfy the hierarchy obligation in CEA 2022 s. 7(3), and remains irredeemably ineligible under the National Waste Management Plan 2024–2030 policy framework.
Integration Statement

This Annex forms part of the Technical Submission and the Feasibility-of-Rectification Matrix. It provides the quantitative and legal foundation for the Level 1–2 findings recorded under Objection Codes B1–B2. It also consolidates all quantitative data and documentary sources cited elsewhere (EIAR Vol. 3 Chs 7 & 10; Planning Report § 3.2; EPA AER 2023 Dublin and Meath; OPW 2022 Guidelines) and thereby satisfies review items B–E on evidential traceability.