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AI Readiness Assessment

Facility AI-Density Capability and Conversion Analysis

FACILITY

Clonshaugh DC (Fictional Reference Facility)

DATE

April 2026

PREPARED BY

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CLIENT

Sample Client — For Demonstration Only

REFERENCE

LBE-AIR-CLN-001

CLASSIFICATION

Sample — Demonstration Only



Executive Summary

AI READINESS VERDICT



AMBER — Partially AI-Ready. Hall A Convertible; Hall B Not Viable.

Clonshaugh DC can support AI-capable density in Hall A following targeted infrastructure upgrades. Hall B fails on power density headroom, cooling retrofit path, and economic life. A MIC increase application to ESB Networks is the critical path item before any conversion proceeds. Hall A, once converted, would operate at 15 kW/rack average density and achieve EU Taxonomy alignment.

6 kW

CURRENT AVG DENSITY

▲ Below AI threshold

15 kW

HALL A TARGET DENSITY

Enhanced air viable

5 MVA

CURRENT MIC

▲ Insufficient at target

1.243

TARGET WEIGHTED PUE

✓ EU Taxonomy PASS

SIX-CRITERIA AI READINESS ASSESSMENT

Each criterion assessed for AI-density conversion viability. GREEN: no constraint. AMBER: manageable within programme scope. RED: hard block.

CRITERION	HALL A	HALL B
1. Power Density Headroom	AMBER — 8 kW busway; upgrade to 15 kW required	RED — 6 kW busway; MIC at 76%; no headroom
2. Cooling Infrastructure	AMBER — 2019 CRAH with VSD; in-row path feasible	RED — 2013 CRAH; 600 mm void; no retrofit path
3. Structural Floor Loading	AMBER — 10 kN/m ² ; DLC feasible; no immersion	AMBER — Same constraint; limits cooling options
4. Grid Adequacy (MIC)	RED — Target demand 5.49 MVA exceeds 5 MVA MIC	RED — Same MIC constraint; no independent solution
5. Connectivity	AMBER — SM fibre available; OM3 at 30% spare	AMBER — No SM fibre; installation required
6. EU Taxonomy at Target Density	GREEN — PUE 1.243 weighted; Taxonomy PASS	RED — Retention only; no density uplift
AI Readiness Verdict	AMBER — Convertible with upgrades	RED — Not viable for AI conversion

CRITICAL — MIC Increase Required Before Any Conversion Works

Total target facility demand of 5.49 MVA exceeds the current 5 MVA MIC by 9.9%. ESB Networks MIC increase application must be submitted immediately. Typical lead time 6–12 months. No Hall A conversion works proceed until MIC approval is confirmed.



Technical Assessment and Indicative Cost

2.1 Facility Profile	
Facility	Clonshaugh DC (Fictional)
Year Built	2013
Total Racks	400 (200 per hall)
Current IT Load	2.4 MW (6 kW/rack avg)
MIC	5 MVA (ESB Networks 10 kV MV)
Current PUE	1.50 ABOVE 1.3
Hall A Cooling	CRAH 2019, VSD fitted
Hall B Cooling	CRAH 2013, no VSD

2.2 AI Density Target Analysis

Hall A conversion to 15 kW/rack average density (200 racks = 3.0 MW IT) is achievable with enhanced air cooling using in-row supplement to the existing 2019 CRAH plant. At target, Hall A PUE of 1.20 is required to keep whole-site weighted PUE at or below 1.243 (EU Taxonomy threshold: 1.3).

Binding design target for the appointed MEP firm: Hall A must achieve PUE 1.28 or below. Verification: $(1.3 \times 4.2 - 1.2 \times 1.35) / 3.0 = 1.28$.

Immersion cooling and full direct liquid cooling are excluded — 10 kN/m² floor loading does not support the additional weight. Enhanced air with in-row DLC at rack level is the viable path.

2.3 Indicative Conversion Cost	
<i>AACE Class 5 (-20% to +50%). Supply-and-install. Q1 2026 Dublin rates. Excludes design fees, prelims, contingency, VAT, ESB Networks MIC costs.</i>	
WORK PACKAGE	RANGE (EUROS)
Power distribution upgrade (busway, PDUs)	400K – 800K
In-row cooling units and CRAH integration	500K – 1,100K
Containment and airflow management	100K – 200K
SM fibre and structured cabling	120K – 200K
Protection study and commissioning	8K – 20K
BMS and PUE instrumentation	140K – 160K
Hall A Total (200 racks)	1.268M – 2.480M

EU Taxonomy alignment at target: Whole-site weighted PUE of 1.243 achieves Taxonomy compliance without converting Hall B. Hall B conventional retention at PUE 1.35 is sufficient alongside Hall A at 1.20.

SEQUENCING AND CRITICAL PATH

STEP 1 — IMMEDIATE

Submit ESB Networks MIC increase application for 10 kV connection upgrade. Lead time 6–12 months. Critical path for entire programme.

STEP 2 — PARALLEL

Appoint MEP firm for Hall A detailed design. Scope: busway upgrade, in-row cooling, containment, SM fibre, protection study. Design to PUE 1.28 binding target.

STEP 3 — POST-MIC

Hall A conversion on MIC approval. 6–9 months construction. Total programme 12–18 months. Hall B efficiency measures can proceed in parallel at any point.



Methodology and Professional Sign-Off

3.1 Scope and Basis

This report presents the results of an AI Readiness Assessment conducted by Legacy Business Engineers Ltd for the Clonshaugh DC reference facility. The assessment applies LBE AI Readiness Framework v1.0, which provides the six-criteria methodology, thresholds, and calculation procedures used throughout. LBE does not design, specify, or select equipment or contractors — this is the source of its independence. Because LBE has no interest in recommending a specific contractor or technology, this report is the only truly independent intelligence you can put in front of your investment committee. The framework is a proprietary LBE methodology. It does not constitute engineering design, detailed cost estimation, or a recommendation to appoint any specific contractor or product manufacturer. Design, specification, and delivery responsibilities remain with the client's appointed MEP firm.

3.2 Information Relied Upon

This assessment relies on facility data supplied by the client. LBE has not independently verified this data. Where data was unavailable or uncertain, conservative assumptions have been applied. The assessment does not substitute for a detailed site survey by the appointed engineering firm.

3.3 Professional Indemnity

All findings are indicative and screening-level only. Figures are estimated and not exact or 100% accurate. LBE carries PI insurance appropriate to its scope as an engineering intelligence consultancy. LBE does not carry PI insurance for engineering design or delivery.

3.4 Canonical Values

PARAMETER	VALUE	TIER
Grid EF	0.2241 kgCO ₂ /kWh (SEAI 2026)	T1
EU Taxonomy PUE	≤ 1.3 (Delegated Act 2021/2139)	T1
Power Factor	0.95	T1
Electricity	0.12 euros/kWh (CRU Q4 2024)	T2
Carbon Tax	71 euros/tCO ₂ → 100 by 2030	T1
Cost Benchmarks	SCSI M&E, RICS NRM1, mfr data	T2/T3

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PROFESSIONAL SIGN-OFF

PREPARED AND SIGNED BY

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DATE

April 2026

STATUS

SAMPLE

SIGNATURE

Standards: EU Taxonomy Delegated Act 2021/2139; SEAI 2026; CRU/2025236; AACE Class 5; RICS NRM1; SCSi M&E Benchmarks 2025; LBE AI Readiness Framework v1.0. Tool: DC-RPT-AIR-001 v1.0.0.

SAMPLE