



LEGACY BUSINESS ENGINEERS LTD

# Asset Carbon Risk Screening

Investment Screening — Carbon, Regulatory & Retrofit Economics

INDICATIVE SCREENING ASSESSMENT

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## Clonshaugh Data Centre

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Professional Indemnity Insurance held — Intelligence layer only: this report identifies and quantifies, it does not design or deliver solutions.

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## Executive Summary

**Risk position:** This facility operates at **elevated misalignment risk**, crossing the CRREM 1.5°C pathway in **2027**. Current carbon intensity is 336 kgCO<sub>2</sub>/MWh<sub>IT</sub> — above the threshold where ESG-screened investors and lenders apply valuation discounts.

**Cost to fix:** A PUE retrofit from 1.50 to 1.3 is estimated at **€2,640,000**, generating annual energy savings of €504,576/yr and 942 tCO<sub>2</sub>/yr reduction. Simple payback: **5.2 years**.

**10-year hold thesis:** **ROBUST** At 8% (base) / 10% (stressed) discount rate, retrofit NPV is **+€745,746** (base) and **+€925,461** (stressed). The retrofit recovers its cost in both scenarios and improves exit positioning.

## Asset Carbon Position

LOCATION-BASED

**336**

kgCO<sub>2</sub>/MWh<sub>IT</sub>

**HIGH**

MARKET-BASED

**202**

kgCO<sub>2</sub>/MWh<sub>IT</sub>

**MODERATE**

Market-based intensity is lower than location-based due to 40% renewable energy procurement (PPA). Location-based figures reflect the physical grid emission factor regardless of contractual arrangements.



## Facility Performance Summary

METRIC	VALUE	BENCHMARK
PUE	1.50	EU Taxonomy: ≤1.30
Total Facility Energy	31,536 MWh/yr	—
IT Energy	21,024 MWh/yr	—
Location-Based CO <sub>2</sub>	7,067 tCO <sub>2</sub> /yr	—
Market-Based CO <sub>2</sub>	4,240 tCO <sub>2</sub> /yr	—
Renewable Share	40%	CRU target: 80%
Generator CO <sub>2</sub> (Scope 1)	521 tCO <sub>2</sub> /yr	DIESEL, 200 hrs/yr
Cooling Strategy	Chilled water	—
Racks / Density	400 racks @ 6 kW/rack	—
MIC (Grid Connection)	5 MVA	ESB Networks offer
Halls / Zones	Hall A, Hall B	—

SAMPLE



## 10-Year Hold Model

METRIC	BASE CASE	STRESSED CASE
Electricity Rate	€0.120/kWh	€0.138/kWh
Discount Rate	8.0%	10.0%
Grid EF	0.2241 kgCO <sub>2</sub> /kWh	0.18 kgCO <sub>2</sub> /kWh
Carbon Tax	€71/tCO <sub>2</sub>	€100/tCO <sub>2</sub>
Target PUE	1.30	1.30
Annual Energy Cost	€3,784,320	€4,351,968
Retrofit CAPEX	€2,640,000	€2,640,000
Annual Energy Saving	€504,576	€580,262
Total Annual Benefit	€504,576	€580,262
10-yr NPV	<b>+€745,746</b>	<b>+€925,461</b>
Simple Payback	5.2 yrs	4.5 yrs
Carbon Saving	942 tCO <sub>2</sub> /yr	757 tCO <sub>2</sub> /yr

## Regulatory Alignment Status

### CRREM Misalignment Year: 2027

The facility's carbon intensity (336 kgCO<sub>2</sub>/MWh<sub>IT</sub>) exceeds the CRREM data centre decarbonisation pathway. Misalignment is estimated at 2027 based on current operational parameters.



## Regulatory Exposure Summary

DOMAIN	STATUS	KEY FINDING
EED Reporting		Facility exceeds 1 MW IT threshold. Annual reporting of energy and environmental KPIs required from May 2025.
CRU 80% Renewable		Current renewable share (40%) is 40 percentage points below CRU 80% target.
EU Taxonomy		PUE 1.50 exceeds EU Taxonomy threshold of 1.30. Taxonomy alignment requires PUE reduction of 0.20.
Carbon Tax		Current exposure: €36,990/yr. Projected 2030: €52,099/yr.
F-Gas Exposure		Cooling system (Chilled water) may use regulated F-gas refrigerants. EU F-Gas Regulation (2024/573) phases down high-GWP refrigerants. Verify refrigerant type and plan transition.

## Retrofit Options & Economics

### 1. Cooling System Optimisation

Upgrade to free cooling with adiabatic assist. Target PUE reduction from 1.50 to 1.25.

CAPEX: €1.9M–€3.6M    CO<sub>2</sub> reduction: 1,178 tCO<sub>2</sub>/yr    Payback: 3–5 years

### 2. Corporate PPA / Renewable Procurement

Procure additionality-verified PPA to increase renewable share from 40% to 80%. Addresses CRU 80% target.

CAPEX: Revenue cost: indicative premium €2–10/MWh over grid    CO<sub>2</sub> reduction: 2,827 tCO<sub>2</sub>/yr (market-based)    Payback: Cost-neutral to 5-year horizon depending on PPA structure

### 3. Generator Fuel Switch to HVO

Replace diesel with Hydrotreated Vegetable Oil (EN 15940). Drop-in compatible with existing generators. Approximately 90% lifecycle CO<sub>2</sub> reduction.

CAPEX: Minimal CAPEX; 15–25% fuel cost premium (indicative)    CO<sub>2</sub> reduction: 465 tCO<sub>2</sub>/yr (Scope 1)    Payback: Immediate — operational cost increase only



## Desktop Assessment — from €15,000 + VAT

A Desktop Assessment is the first step toward a full facility evaluation. It validates these screening figures with site-specific data, produces a phased retrofit programme, and confirms whether the hold thesis is defensible. This is the entry point to our DC-S01 independent engineering intelligence service. typically 6–8 weeks from receipt of data pack.

Contact: [info@legacybe.ie](mailto:info@legacybe.ie) | [legacybe.ie](http://legacybe.ie)

### NOT ASSESSED BY THIS SCREENING

1. Site-specific conditions not assessed (desktop screening only)
2. Detailed MEP design, equipment specification, or tender documentation
3. Uptime Institute certification assessment
4. Environmental Impact Assessment or planning compliance
5. Investment recommendation or financial advice

This Asset Carbon Risk Screening constitutes an independent desktop screening using published data and industry benchmarks. It is not a detailed design, Uptime Institute certification, Environmental Impact Assessment, planning application, or investment recommendation. All findings are indicative and subject to detailed design verification. Carbon intensity calculations use SEAI 2026 published grid emission factor (0.2241 kgCO<sub>2</sub>/kWh) and do not account for future grid decarbonisation. CRREM data centre pathway bands (200/300/400 kgCO<sub>2</sub>/MWh<sub>IT</sub>) are derived by LBE from the CRREM v2.01 commercial real estate methodology. CRREM has not published a sector-specific pathway for data centres. These bands are screening-level estimates (T3/T4) and should not be cited as CRREM-published values. CRREM misalignment year is a technical indicator — it does not predict financial impairment.

### Independent Technical Sign-off

**Les Murphy CEng MIEI MBA**

Chartered Engineer | Independent Technical Advisor

Legacy Business Engineers Ltd

Date: \_\_\_\_\_

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