



**CANADIAN  
UNIVERSITY  
DUBAI**

Your portal to Canadian education

# **CUD Facilities Carbon Performance and Sustainability Roadmap**

Prepared by: Quraish Alharahsheh

Director of Facilities and Administration

  
INSPIRING MINDS  
TRANSFORMING LIVES

## CUD Utilities Carbon Performance

### Overview

The analysis of utilities-related emissions (electricity, cooling, and water) indicates that Canadian University Dubai (CUD) is operating at a high level of efficiency when benchmarked against international higher education standards.

Performance has been assessed using two complementary and globally recognized methodologies:

- **Per capita emissions** (operational efficiency indicator)
- **Area-based carbon intensity** (engineering benchmark)

### Key Performance Results

- Total Utilities Emissions 2025: 2,673 tCO<sub>2</sub>e annually
- Campus Population: 3,645 users (students and staff)
- Total Built-Up Area: 22,753 m<sup>2</sup>

## 1. Per Capita Performance

**CUD: 0.73 tCO<sub>2</sub>e per person per year**

This reflects the university's emissions relative to its total population and is widely used in institutional sustainability reporting.

### Benchmark (Institutional Reporting) Per Capita

Global higher education sustainability practices indicate:

- Typical range: **1.0–2.2 tCO<sub>2</sub>e/person/year**

**CUD Position:** Significantly below international benchmarks

## 2. Area-Based Performance

**CUD: 117.5 kgCO<sub>2</sub>e per m<sup>2</sup> per year**

This represents building carbon intensity and aligns with international engineering benchmarking practices.

### International Benchmark Positioning

#### Area-Based Benchmark (Engineering Standard)

Global references, including the Chartered Institution of Building Services Engineers (CIBSE) and ASHRAE, indicate that:

- Typical university buildings: **80–160 kgCO<sub>2</sub>e/m<sup>2</sup>/year**
- High-performance range: **60–80 kgCO<sub>2</sub>e/m<sup>2</sup>/year**

**CUD Position:** Within the strong performance band, closer to the lower end of the global range.

## Conclusion and Recommendations:

CUD is operating at a high-efficiency level in utilities consumption, achieving 0.73 tCO<sub>2</sub>e per capita and 117.5 kgCO<sub>2</sub>e/m<sup>2</sup>, positioning the university among well-performing institutions globally in operational carbon management.

- CUD demonstrates exceptional performance on a per capita basis, with emissions substantially below global reference ranges.
- Building-level performance is strong and within the lower range of international benchmarks, despite the inherently high cooling demand in the UAE.
- The results confirm that current operational strategies and facilities management practices are delivering measurable efficiency outcomes.
- **Recommendations:** CUD is striving to reduce 117.5 kgCO<sub>2</sub>e/m<sup>2</sup> to less than the internationally recognized high performance ratio cap of 80 kgCO<sub>2</sub>e/m<sup>2</sup>/year by implementing the approved following energy initiatives:

## **Conclusion and Recommendations:**

### **Phase 1: Infrastructure Optimization**

AC system upgrade & smart thermostats (*in progress – April 2026*)

Building Management System (BMS) implementation (*in progress – June 2026*)

Comprehensive MEP rectification (*in progress – May 2026*)

### **Phase 2: Renewable Energy Integration**

Approval of the landlord of the campus (On going negotiations with the landlord for the project NOC)

Solar panel installation on HUB building (In coordination with landlord to initiate implementation framework and – June 2027)

### **Sustainable Mobility Initiative (In Progress)**

#### **Electric Fleet Transition**

Replacement of 4 leased vehicles with electric vehicles in 2026.

Reduction of fuel dependency and operational emissions

## **CUD Facilities Sustainability Roadmap**

### Smart Infrastructure Transformation | Energy Optimization | Renewable Transition

#### **Why This Matters Now**

Canadian University Dubai operates in an environment where:

- Energy costs are rising year over year
- ESG expectations are increasing globally
- UAE Net Zero 2050 commitments are accelerating regulatory focus
- Students and stakeholders expect visible sustainability leadership
- LEED O&M certification requires measurable infrastructure performance

#### **Our facilities sustainability roadmap directly supports:**

- Operational cost control
- Institutional reputation
- Environmental responsibility
- Long-term asset performance
- Data-driven campus governance

## **Sustainability Roadmap Framework**

### **Phase 1: Infrastructure Optimization**

- AC system upgrade & smart thermostats (*in progress – April 2026*)
- Building Management System (BMS) implementation (*in progress – June 2026*)
- Comprehensive MEP rectification (*in progress – May 2026*)

### **Phase 2: Renewable Energy Integration**

- Solar panel installation on HUB building (In coordination with landlord to initiate implementation framework)

## Sustainability Roadmap Framework

<u>Initiative</u>	<u>Objective</u>	<u>Scope of Work</u>	<u>Estimated Impact</u>	<u>Strategic Value</u>
<b>AC System Upgrade &amp; Smart Thermostats</b>	Centralize and digitally control HVAC performance across campus zones	<ul style="list-style-type: none"> <li>• Upgrade selected AC systems</li> <li>• Install smart thermostats in classrooms &amp; common areas</li> <li>• Implement scheduling aligned with academic timetable</li> <li>• Restrict uncontrolled manual override</li> </ul>	<ul style="list-style-type: none"> <li>• 10–15% HVAC energy reduction</li> <li>• Elimination of after-hours cooling waste</li> <li>• Improved thermal consistency</li> <li>• Reduced equipment strain</li> </ul>	<ul style="list-style-type: none"> <li>• Operational governance</li> <li>• Controlled energy consumption</li> <li>• Extended HVAC lifecycle</li> <li>• Foundation for smart campus control</li> </ul>
<b>Building Management System (BMS)</b>	Integrate and monitor major building systems via centralized digital platform	<ul style="list-style-type: none"> <li>• HVAC integration</li> <li>• Pump monitoring</li> <li>• Electrical system monitoring</li> <li>• Selective lighting integration</li> <li>• Real-time analytics dashboard</li> </ul>	<ul style="list-style-type: none"> <li>• 5–10% system optimization</li> <li>• Early fault detection</li> <li>• Reduced downtime</li> <li>• Improved preventive maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Data-driven decision making</li> <li>• Executive-level energy reporting</li> <li>• ESG readiness</li> <li>• Enables measurable sustainability governance</li> </ul>
<b>Comprehensive MEP Rectification</b>	Eliminate infrastructure inefficiencies causing hidden energy waste	<ul style="list-style-type: none"> <li>• Duct leakage correction</li> <li>• Mechanical system balancing</li> <li>• Pump optimization</li> <li>• Electrical load correction</li> <li>• Insulation improvements</li> <li>• Water leakage rectification</li> </ul>	<ul style="list-style-type: none"> <li>• reduction in energy waste</li> <li>• Reduced chiller load</li> <li>• Improved system efficiency</li> <li>• Lower long-term maintenance costs</li> </ul>	<ul style="list-style-type: none"> <li>• Asset lifecycle protection</li> <li>• Infrastructure performance restoration</li> <li>• Reduced financial leakage</li> <li>• Strengthened operational resilience</li> </ul>
<b>Fleet Electrification (EV Transition)</b>	Reduce carbon emissions from campus operations	<ul style="list-style-type: none"> <li>• Replace 4 leased vehicles with electric vehicles</li> <li>• Optimize fleet usage</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction in fuel consumption</li> <li>• Lower carbon emissions</li> <li>• Reduced operating cost (fuel &amp; maintenance)</li> </ul>	<ul style="list-style-type: none"> <li>• Expansion beyond buildings to operations</li> <li>• Visible sustainability commitment</li> </ul>

# Planned sustainability initiatives

## Work Habits

### Daily Habits

- Switch off lights when leaving offices
- Shut down PCs (not sleep mode overnight)
- Avoid personal heaters or additional cooling devices
- Keep office doors closed when AC is running
- Report temperature issues instead of adjusting blindly
- Minimize the paper printing
- **Workspace Discipline**
- Respect thermostat settings
- No unauthorized AC changes
- Avoid blocking air diffusers
- Use natural light where possible

## Classroom Habits

### Teaching Discipline

- Do not open doors/windows while AC is operating
- Turn off projector, smart board, and equipment immediately after lecture
- Report malfunctioning thermostats instead of overriding
- Avoid requesting AC activation for empty rooms

### Scheduling Awareness

- Inform Facilities if sessions are canceled
- Consolidate classes when possible (reduce cooling zones)

## Responsible Campus Citizenship

### Classroom Behavior

- Do not tamper with thermostats
- Do not leave classroom lights on after sessions
- Close doors properly when leaving
- Avoid charging unnecessary devices

### HUB & Common Areas

- Avoid occupying large cooled zones individually
- Use designated study zones
- Report water leaks or unusual noise
- Make sustainability part of student identity.

## “Last Person Out” Rule

- In every space:  
Last person leaving checks:
- Lights off
- AC not running unnecessarily
- Equipment powered down

## Default Settings Culture

- Campus operates on:
- Standard temperature setpoint
- Controlled scheduling
- Limited override permissions
- Automatic shutdown protocols

## Sustainability culture

*“Infrastructure saves energy. Culture protects the savings.”* Our goal is to make sustainability a daily habit across the entire CUD community.

- If you see waste → **act**.
- If you leave → **switch off**.
- If you don't need it → **don't use it**.

Shift from:  
“Facilities will handle it”

To:  
“**We all own it**”

# Thank You

مُرَخَّصَة من وزارة التعليم العالي والبحث العلمي - دولة الإمارات العربية المتحدة

Licensed by the Ministry of Higher Education and Scientific Research - United Arab Emirates

INSPIRING MINDS  
TRANSFORMING LIVES