

FAST FACTS: NET-ZERO AT MASDAR CITY

Net-zero and the UAE:

- In 2021, the UAE was the first country in the MENA region to commit to achieving net-zero by 2050 through its **UAE Net Zero 2050 Strategy**.
- Masdar City is accelerating the UAE's journey to net-zero by reducing energy and water demand in the built environment, harnessing renewable energy, and offsetting carbon emissions.

Net-zero energy projects and ratings:

- A net-zero energy building produces at least as much energy as it consumes on an annual basis.
- Our first net-zero energy office building, **NZ1**, was completed in late 2023 and is on track to receive the **LEED Zero Energy** certification.
- We have **two additional net-zero energy projects under construction**, with more planned.
- **Masdar City Square's HQ building** and **The Link's CO-LAB building** are on track to receive the **Zero Energy Certification** awarded by the International Living Future Institute.
- All three projects are also on track to be rated **LEED Platinum**, **WELL Gold**, and **Estidama 4-Pearl**.

NZ1:

- NZ1 is **the first net-zero energy office building in the UAE**.
- It demonstrates that achieving net-zero energy is attainable in business-as-usual office building.
- It is designed to **reduce energy use by 101%** compared to international baselines and **produce 102%** of its annual energy needs.

Masdar City Square's HQ building:

- Masdar City Square is a cluster of seven LEED Platinum commercial buildings that will be complete in 2024.
- It is a commercial development designed to encourage a sense of community and common purpose.
- The focal point is the **net-zero energy corporate HQ building**, the first of its kind in Abu Dhabi.
- The HQ building features a distinctive canopy of **1,033 PV panels** that will provide shade and generate renewable energy.
- The panels will be oriented to the south and angled at **22 degrees** to maximize solar gain.
- The building is designed to **reduce energy use by 102%** compared to international baselines and **produce 104%** of its annual energy needs.

The Link's CO-LAB building:

- CO-LAB, a **net-zero energy shared working and living space**, is the focal point of The Link, a cluster of five commercial and residential buildings that will be complete in 2025.
- CO-LAB will be the first building of its kind in the region.
- It is designed to **reduce energy use by 117%** compared to international baselines and produce **135%** of its annual energy needs.
- It is projected to produce **233,696 kWh of excess clean energy** every year, to be fed into the local grid.

- This is equivalent to offsetting **129,935 kgCO₂e** of carbon emissions annually.
- Upfront embodied carbon is the CO₂ associated with the development of a building or other infrastructure. It includes any CO₂ created during the manufacturing of building materials, transportation to the job site, and construction itself.

Passive design:

- Masdar City's architectural approach is rooted in a concept called **passive design**, which emphasizes a building's physical components and works with the natural environment to achieve energy efficiency.
- Our buildings use several sustainable design features, including an airtight building envelope, an optimal window-to-façade ratio, window shading, and orientation that minimizes direct sun.

Embodied carbon:

- Masdar City has been measuring the upfront embodied carbon of its self-developed assets since breaking ground in 2008.
- In 2022, Masdar City-owned buildings emitted a total of **642 kgCO₂e/m²**, about **20%** lower than industry average.

Practices to reduce upfront embodied carbon:

- Using low-carbon cement, insulation, and finishing materials
- Using steel and aluminum with recycled content
- Sourcing materials from local vendors to reduce shipping-related emissions

Future plans to further reduce carbon emissions:

- Optimize all building operations
- Engage and consult with stakeholders in our supply chain about adopting low-carbon practices
- Maximize the use of renewable energy
- Continue to invest in research and innovation
- Explore technologies and other carbon-capture tools, including natural tools such as mangroves
- Continue to measure, monitor, and optimize energy, water, and waste

Offsetting carbon emissions:

- In 2022, operations in Masdar City-owned buildings achieved an **average energy reduction of 38%** compared to international baselines.
- This is **equivalent to avoiding 7,400 tCO₂e/year** of carbon emissions (equivalent to **taking 1,600 cars off the road**).
- By 2025, our projected operations energy reduction will be **48%**.
- This is **equivalent to avoiding 13,300 tCO₂e/year** of carbon emissions (equivalent to **taking 2,900 cars off the road**).