Buildings & Infrastructure (BU)

Construction, retrofit, heating and cooling

- CPI GLCF 2025 — Buildings & Infrastructure (BU) Index
- New Zero-Emission Construction
- Retrofit & Energy Efficiency
- Heating, Cooling & HVAC

CPI GLCF 2025 — Buildings & Infrastructure (BU) Index

source	cpi
source_version	GLCF 2025
source_name	CPI GLCF 2025 — Buildings & Infrastructure (BU)
sector	BU
origo_nodes_mapped	TBD
last_verified	2026-05-26
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Description

CPI Global Landscape of Climate Finance 2025 coverage for: Construction, retrofit, heating and cooling. Populate with specific CPI sub-sector and activity nodes during Phase 0.

Cleantech Taxonomy Mapping Notes

[To be populated during Phase 1 schema alignment — document how this source node maps to Cleantech Taxonomy IDs, including convergences, divergences, and gaps.]


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New Zero-Emission Construction

Source Metadata

Field	Value
source	cpi
source_version	GLCF 2025
source_id	CPI-BU-001
sector	Buildings & Infrastructure
subsector	New Zero-Emission Construction
mitigation	Y
adaptation	Y
last_checked	2026-05-26

CPI Definition & Scope

New Zero-Emission Construction in CPI's GLCF framework tracks finance directed at the design and construction of buildings that achieve near-zero or zero operational carbon emissions from the outset. CPI captures investment in net-zero energy buildings, passive house construction, green building certification programs, low-carbon construction materials (mass timber, low-carbon concrete), and building-integrated renewable energy systems. The buildings sector accounted for significant investment growth in CPI's tracking, with a 40% increase between 2018 and 2023.

Subsectors & Examples

- **Net-Zero Energy Buildings** — buildings that produce as much energy as they consume annually
- **Passive Design** — passive house standards, natural ventilation, daylighting optimization
- **Low-Carbon Materials** — mass timber, low-carbon cement, recycled steel, bamboo construction
- **Green Building Certification** — LEED, EDGE, BREEAM-certified new construction
- **Building-Integrated Renewables** — rooftop solar, building-integrated PV, solar thermal

Mitigation & Adaptation Classification

New zero-emission construction is classified as **dual-benefit** in CPI's framework. Mitigation comes from avoiding lock-in of high-carbon building stock and reducing embodied carbon in materials. Adaptation benefits arise from climate-resilient design features including flood-resistant foundations, heat-resilient envelopes, and passive cooling that reduce vulnerability to extreme temperatures and weather events.

LATAM Relevance

Latin America's rapid urbanization drives enormous demand for new construction. Colombia's EDGE green building program has certified hundreds of residential and commercial projects, making it one of the most active markets globally. Peru's construction boom in Lima offers opportunities for green building standards adoption. Costa Rica's ambitious climate goals extend to its building sector with national green building policies. Bamboo and mass timber construction offer regionally appropriate low-carbon material alternatives.

Cleantech Taxonomy Crosswalk

Maps to Cleantech Taxonomy sector **BU** (Buildings) for new construction. Cross-references with **IN** (Industry) for low-carbon building materials manufacturing and **ES** (Energy Systems) for building-integrated energy generation.

Retrofit & Energy Efficiency

Source Metadata

Field	Value
source	cpi
source_version	GLCF 2025
source_id	CPI-BU-002
sector	Buildings & Infrastructure
subsector	Retrofit & Energy Efficiency
mitigation	Y
adaptation	N
last_checked	2026-05-26

CPI Definition & Scope

Retrofit and Energy Efficiency in CPI's GLCF framework tracks climate finance directed at improving the energy performance of existing building stock. CPI's 2025 edition expanded coverage of energy efficiency as a tracked category. This includes investment in building envelope improvements (insulation, windows, air sealing), lighting upgrades, building energy management systems, appliance efficiency programs, and comprehensive deep energy retrofits that reduce a building's energy consumption by 50% or more.

Subsectors & Examples

- **Deep Energy Retrofits** — comprehensive renovation achieving 50%+ energy reduction
- **Building Envelope** — insulation, high-performance windows, air barrier systems
- **Lighting Upgrades** — LED retrofits, smart lighting controls, daylighting systems
- **Building Automation** — energy management systems, smart thermostats, occupancy sensors
- **Appliance & Equipment Efficiency** — high-efficiency HVAC replacement, efficient motors

Mitigation & Adaptation Classification

Retrofit and energy efficiency is classified as **mitigation** in CPI's framework. The primary benefit is direct reduction of energy consumption and associated greenhouse gas emissions from the existing building stock.

Energy efficiency is often described as the "first fuel" of the energy transition, and CPI tracks it as a core mitigation investment category.

LATAM Relevance

Building energy efficiency presents significant untapped potential in Latin America. Colombia's commercial building stock, particularly in Bogota and Medellin, offers major retrofit opportunities with payback periods attractive to private investors. Peru's Lima has a large stock of inefficient buildings where cooling demand is rising due to climate change. Costa Rica's government buildings are targets for efficiency programs linked to its National Decarbonization Plan. IFC's EDGE program is driving regional adoption of efficiency standards.

Cleantech Taxonomy Crosswalk

Maps to Cleantech Taxonomy sector **BU** (Buildings) for retrofit and efficiency. Cross-references with **ES** (Energy Systems) for demand-side energy management and **IC** (ICT) for building automation and smart energy systems.

Heating, Cooling & HVAC

Source Metadata

Field	Value
source	cpi
source_version	GLCF 2025
source_id	CPI-BU-003
sector	Buildings & Infrastructure
subsector	Heating, Cooling & HVAC
mitigation	Y
adaptation	Y
last_checked	2026-05-26

CPI Definition & Scope

Heating, Cooling and HVAC in CPI's GLCF framework tracks climate finance directed at decarbonizing thermal comfort systems in buildings. The 2025 edition added heat pumps as a specifically tracked energy transition technology. CPI captures investment in electric heat pumps (air-source, ground-source, water-source), district heating and cooling networks, efficient air conditioning with low-GWP refrigerants, and solar thermal systems. This subsector addresses both space heating/cooling and domestic hot water production.

Subsectors & Examples

- **Heat Pumps** — air-source, ground-source, water-source heat pumps for heating and cooling
- **District Energy** — district heating networks, district cooling systems, combined heat and power
- **Efficient Cooling** — high-efficiency air conditioning, low-GWP refrigerant systems
- **Solar Thermal** — solar water heaters, solar-assisted HVAC, solar cooling
- **Natural Refrigerants** — CO2, ammonia, and hydrocarbon-based cooling systems

Mitigation & Adaptation Classification

Heating, cooling and HVAC is classified as **dual-benefit** in CPI's framework. Mitigation comes from electrification of heating (replacing gas/oil boilers with heat pumps) and improving cooling efficiency. Adaptation is critical

because rising temperatures from climate change are driving exponential growth in cooling demand, making efficient and accessible cooling a direct adaptation measure for protecting human health and productivity.

LATAM Relevance

Cooling is the dominant HVAC concern in tropical Latin America and represents a rapidly growing source of electricity demand and emissions. Colombia's Caribbean coast cities (Barranquilla, Cartagena) face extreme heat that drives air conditioning demand. Peru's coastal cities are experiencing rising temperatures with growing cooling needs. Costa Rica's tropical climate makes efficient cooling essential. The Kigali Amendment to the Montreal Protocol, which phases down HFC refrigerants, creates both regulatory and investment momentum for low-GWP cooling in the region.

Cleantech Taxonomy Crosswalk

Maps to Cleantech Taxonomy sector **BU** (Buildings) for HVAC systems. Cross-references with **ES** (Energy Systems) for heat pump electricity integration and **IN** (Industry) for industrial heat processes.