



**WORLD
GREEN
BUILDING
COUNCIL**

Powering the Transition: Building Electrification

A position paper on the rationale, methods and benefits of removing fossil fuels from our built assets for businesses, policymakers and the WorldGBC global network.

February 2026



What is electrification?

Electrification refers to the transition from fossil fuel-based technologies or processes to electrically powered equivalents that are ideally supplied by renewable energy, for example switching a building's heating source from a gas boiler to a heat pump.

Introduction

Electrification is one of the fastest, most practical routes to building decarbonisation.

The transition to all-electric systems will support the elimination of fossil fuel combustion and its corresponding emissions from the operation of our buildings – which are currently responsible for 26% of global emissions.¹

The International Energy Agency's (IEA) Net Zero Emissions Scenario states that alongside energy efficiency, electrification measures are expected to account for nearly 70% of buildings-related emissions reductions by 2050.² Electrification is therefore essential to keeping the goals of the Paris Agreement within reach.

Delaying electrification risks locking in fossil fuel infrastructure and committing to higher emissions for decades to come. However, electrification measures are not a one-size-fits-all solution and should be conscious of, and adapted to, local realities. Overcoming challenges to electrification – ranging from infrastructural to socio-cultural – is a key enabler to the energy transition that will be explored throughout this paper.

The WorldGBC global network champions electrification as a key emissions reduction measure, and recognises building electrification, efficiency and the integration of renewables as the critical demand signal for the clean energy transition.

Building electrification requires more robust policy, as well as business and financial support to fully realise the benefits and necessary emissions reductions.

In this paper, we present:

- sector-wide overview of the benefits and key considerations of an all-electric future for buildings
- examples of the challenges associated with decoupling from fossil fuel use
- solutions being deployed across the WorldGBC global network
- high-level examples of electrification recommendations from published climate action roadmaps

The energy transition

In the words of the United Nations (UN) Secretary-General António Guterres, “We are in the dawn of a new energy era ... the energy transition is unstoppable”. The shift to clean energy isn’t just necessary, it is already underway.³

- **Solar and wind are now expanding fast enough to meet all new electricity demands**, a milestone reached in the first three quarters of 2025.⁴
- **Global clean energy investments are increasing annually, while the cost of renewables declines.** In 2024, global annual investments in clean energy exceeded US \$2 trillion for the first time,⁵ and the average global cost of generating electricity from solar PV and onshore wind was typically 41% and 53% cheaper than the lowest-cost fossil fuel alternatives.⁶
- **Solar photovoltaic (PV) installations are rapidly increasing.** In 2024, almost half of total installed capacity worldwide was added in just 3 years, with a 29% increase of installed capacity from 2023 to 2024.⁷

The energy transition is clearly underway, however, global CO₂ emissions from fossil fuels show no signs of slowing down.⁸ Whilst the growth in renewables investment is a positive signal, electricity demand in the building sector grew four times faster in 2024 than in 2023, accounting for nearly 60% of total growth in electricity consumption. This is driven by

rising demand for cooling, specifically air conditioning, and new demands for power from data centres.⁹

Demand from new data centres is also reshaping the electricity business at a rapid rate.¹⁰ It is critical that parallel improvements in energy efficiency and renewable energy integration are delivered alongside electrification efforts to ensure manageable electricity demand, minimise strain on infrastructure, facilitate increasing digitalisation and ensure buildings become an asset to the energy system.

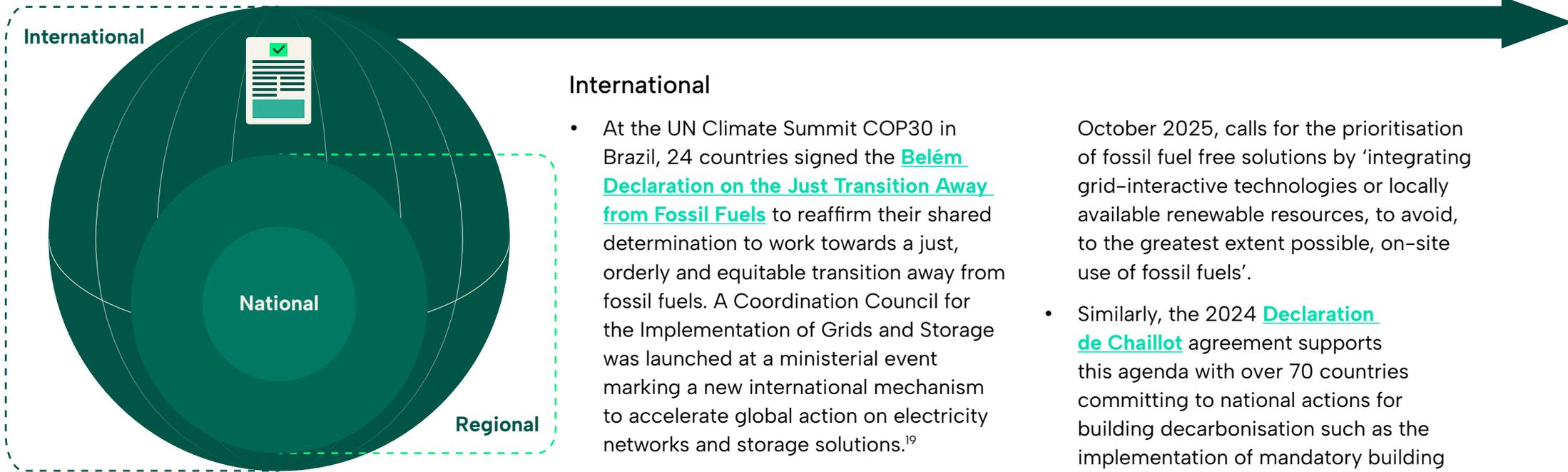
Government incentives for electrification

Government support for building electrification measures such as the purchase of heat pumps is increasing with financial incentives including low-interest loans and funding to cover upfront installation costs.¹¹ Countries such as Canada,¹² Germany,¹³ India¹⁴ and the United Kingdom¹⁵ have all created funding programmes to encourage the utilisation of electric technologies, particularly heat pumps and electric cooking options.

Spending on building electrification has risen steadily driven by supportive policies.¹⁶ The market share of heat pumps continues to increase. China, the largest heat pump market globally, has seen consistent growth in sales for five consecutive years.¹⁷ In the United States, in 2024 heat pumps outsold natural gas furnaces by 30%, the largest gap ever recorded.¹⁸

It is critical that parallel improvements in energy efficiency and renewable energy integration are delivered alongside electrification efforts

Policy progress towards electrification



Globally, building electrification is gaining traction as a vital pillar of energy and climate policy. This is being demonstrated through international cooperation, and at regional and national level via policy change.

International

- At the UN Climate Summit COP30 in Brazil, 24 countries signed the [Belém Declaration on the Just Transition Away from Fossil Fuels](#) to reaffirm their shared determination to work towards a just, orderly and equitable transition away from fossil fuels. A Coordination Council for the Implementation of Grids and Storage was launched at a ministerial event marking a new international mechanism to accelerate global action on electricity networks and storage solutions.¹⁹
- The [UAE consensus](#), a landmark agreement adopted by 198 parties at COP28, was the first time parties were called on to transition away from fossil fuels, to triple renewable energy capacity, and double energy efficiency by 2030.
- The United Nations' [Buildings Breakthrough](#), a global initiative launched at COP28 with support of over 29 countries, aims to make 'near-zero emissions and climate-resilient buildings the new normal by 2030'. The [Buildings Breakthrough Interim Report](#), released in

October 2025, calls for the prioritisation of fossil fuel free solutions by 'integrating grid-interactive technologies or locally available renewable resources, to avoid, to the greatest extent possible, on-site use of fossil fuels'.

- Similarly, the 2024 [Declaration de Chaillot](#) agreement supports this agenda with over 70 countries committing to national actions for building decarbonisation such as the implementation of mandatory building and energy codes to move towards carbon-neutral buildings. This initiative is carried forward by the [Intergovernmental Council for Buildings and Construction \(ICBC\)](#), which is expected to enable further collaboration on these issues.

These frameworks are significant as they represent a unified global effort to decarbonise the built environment, that will consequentially drive electrification as a transition lever.

Policy progress towards electrification

Regional

- Policies and regulations, such as the European Union's (EU) [Energy Performance of Buildings Directive \(EPBD\)](#), are accelerating building electrification through performance requirements, incentives, and national measures. The recast EPBD introduces a Zero Emission Building (ZEB) standard, which from 2030 (2028 for public buildings) limits operational greenhouse gas emissions in new buildings to near zero. Compliance will, in practice, require the use of electrified, renewable-based heating and cooling systems. Member states must also prepare for the phase-out of fossil fuel heating systems by 2040 and end financial incentives for stand-alone fossil fuel boilers from 2025.

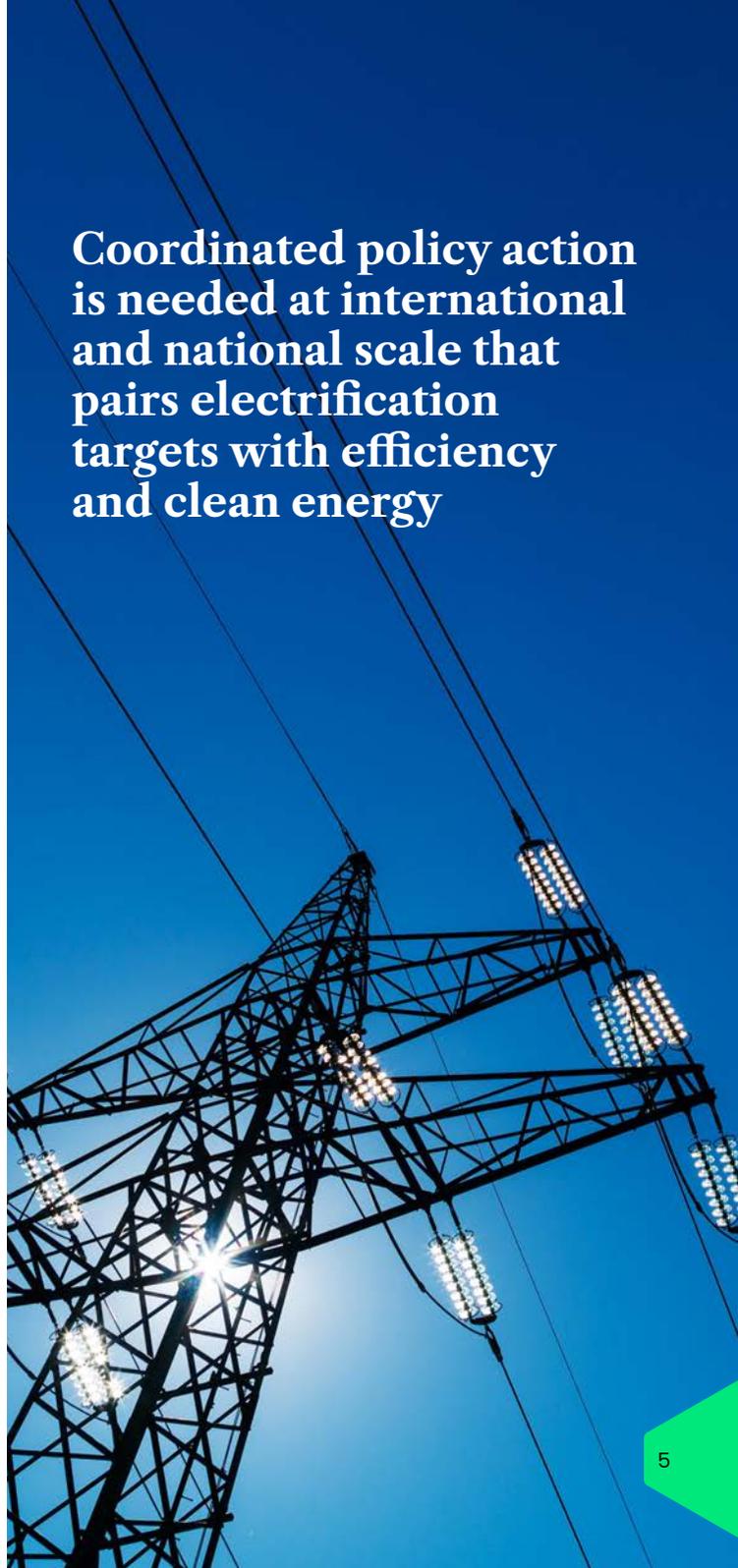
National

- Strong and directive policies are also emerging worldwide, such as mandates for all-electric buildings in the state of Victoria and the Australian Capital Territory,^{20,21} and all-electric heating and cooking in new buildings by 2029 in New York.²²
- Cities are also advancing building electrification such as Berkeley City Council, US, requiring new houses, apartments and commercial buildings be built all-electric from 2020,²³ and the City of Vancouver's plans to transition to zero emissions buildings in all new construction by 2030.²⁴

These promising policy developments are driving electrification of buildings and other sectors in many regions. However, built environment targets remain under-represented within countries' Nationally Determined Contributions (NDCs) or climate plans in the context of the Paris Agreement. Coordinated policy action is needed at international and national scale that recognises the urgency of tackling emissions from the built environment, and pairs electrification targets with efficiency and clean energy.



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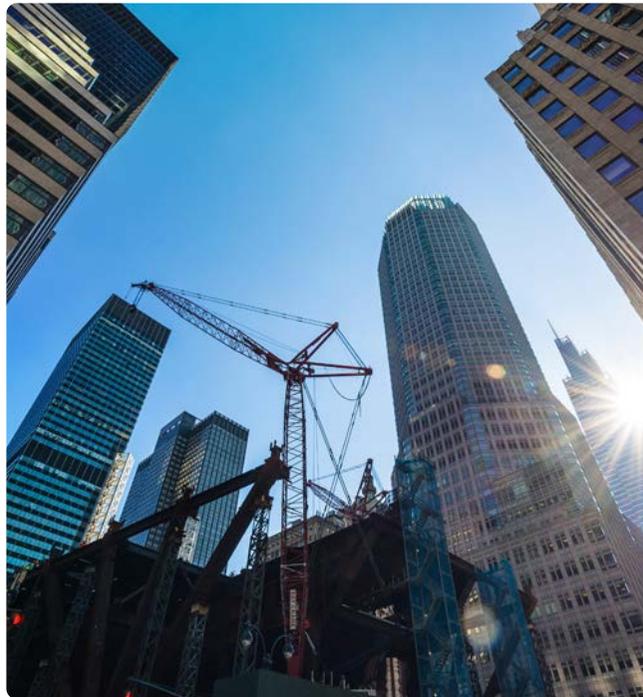
Business action for cleaner energy

The private sector is driving building electrification worldwide as part of targets in certifications and rating systems, and corporate Environmental Social, and Governance (ESG) strategies. Thousands of multinational companies are committing to net zero targets across their organisations, which requires advancing electrification and clean energy strategies for their real estate portfolios.

Initiatives such as [RE100](#) from the Climate Group are driving business action by encouraging the switch to renewables and accelerating change towards zero carbon grids at scale. Similarly, the We Mean Business Coalition's [Fossil to Clean campaign](#) encourages business to phase out fossil fuels and switch to clean solutions.

For many firms the motivation to implement building electrification measures goes beyond compliance. It reflects the transition towards digitalisation across the sector and the generation of the business case — including costs savings (as renewables like solar are now often cheaper and faster to deploy than fossil fuels), investor expectations, brand reputation, growing customer and employee demand, and unlocking financial benefits through more stable energy prices, tax credits, and new revenue streams.²⁵

Commitments to transition to renewable energy have been seen from global industry leaders, including [Google](#) and [Deloitte](#),^{26,27} which requires electrifying building operations. Similarly, pledges to implement net zero in all new designs are emerging. These include [Buro Happold's](#) commitment for all new build projects to be net zero carbon in operation by 2030, while [SOM](#) is targeting net zero operational carbon for 100% of active work by 2030, and net zero whole life carbon for 100% of active work by 2040.



Net zero operational city office building
[270 Park Avenue](#), JPMorgan Chase's new headquarters is New York City's largest all-electric tower powered by renewable energy from a New York State hydroelectric plant. This 60-story building was designed with sustainability at its core, featuring flexible design for future adaptability, intensive material recycling and green spaces.

Indoor Air Quality monitoring has been implemented throughout the building, as well as smart sensors for enhanced efficiency and occupancy-based HVAC control.

Source: Foster + Partners and Schneider Electric

The all-electric built environment

Energy efficiency is prioritised

Electric technologies typically convert energy far more efficiently than fossil fuel systems. Electrification is best coupled with energy efficiency measures to further reduce energy demand.

Fossil fuels are avoided

Construction processes are electrified and use low carbon materials. Buildings operate on electric systems and appliances and offer electric vehicle (EV) charging.

Energy is renewable

Buildings are powered by clean (renewable) electricity through on-site generation or renewable energy procurement.



Interactive and flexible grids

Buildings support grid interactivity and flexibility through measures such as demand response capabilities, smart energy management and digitalised systems, and energy storage or micro-grids.

Decision making is data driven

Every building and market is different, which is why modelling and assessments offer invaluable data insights to shape effective electrification strategies. *(See [Finding the right balance](#))*

Careful selection of refrigerants for electric equipment

Systems with high global warming potential (GWP) refrigerants often release fugitive emissions during their life cycle and can lead to future negative carbon impacts. Natural refrigerants and low-GWP alternatives for equipment should be prioritised.

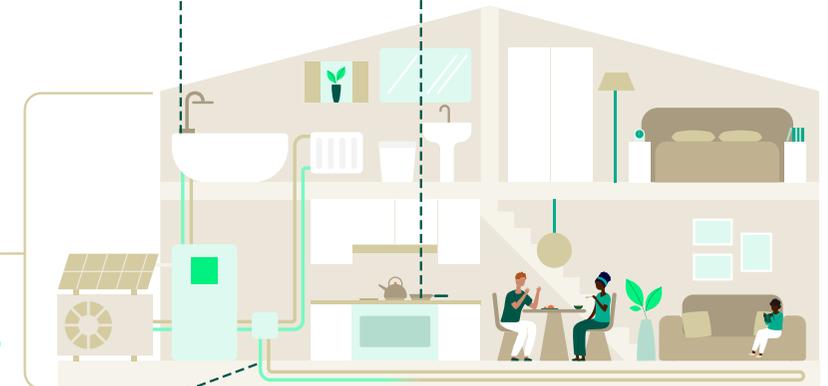
Operations that can be electrified

Water heating

Multi-functional heat pumps provide both space heating/cooling and hot water.

Cooking

Electric cooking is the most energy-efficient method, specifically induction hobs that transfer up to 90% of the energy consumed to food.²⁸



Space heating and cooling

Reversible heat pumps are a widely regarded replacement for conventional heating and cooling equipment. Current heat pumps are three to five times more energy efficient than natural gas boilers.²⁹

It is essential that all electrical appliances installed are highly energy-efficient, comply with recognised standards and use third-party labels.

These principles can be applied at a municipal and planning level as well as to individual buildings. The approach to building electrification will be different in each market and not every option will be possible or appropriate – in most cases electrification requires a multifaceted approach.

Why electrify our buildings?

Lower operating costs and improved energy security

Electric appliances are typically more efficient, reducing energy consumption and operating costs, especially when paired with energy efficiency upgrades and improved standards. Research shows that at least 85% of US households would save money on energy bills if they used modern all-electric equipment.³⁰ When combined with locally generated renewable energy, electrification can further support local and national energy independence, stabilise long-term costs, and reduce exposure to fluctuations in fossil fuel prices.

Attracting investors and tenants

All-electric buildings are becoming increasingly attractive to investors for their cost competitiveness and lower risk. Efficient electrification can help to preserve and in some cases increase building value.³² Many occupiers of commercial buildings also favour all-electric due to their own ESG targets, which can improve occupancy rates and increase green premiums.

Economic

Future-proofed buildings

Delaying building electrification potentially exposes assets to physical and regulatory risk, which could result in reduced value and uninsurable assets. For example, bans on gas connections in buildings are already law in some European countries and in regional governments such as the State of Victoria in Australia. Electrifying new buildings from the outset and retrofitting existing buildings (despite upfront costs) will mitigate these risks and get ahead of the curve. Research in the US shows that residential and commercial gas services will become significantly more expensive as states, cities, and utilities move to decarbonise their systems.³¹

Job creation

Electrification has been shown to drive demand for skilled workers, boosting local economies and the development of the workforce. For example, an additional 500,000–750,000 heat pump installers are needed across the EU by 2030.³³ Investment in reskilling, such as Ireland's €500 incentive for heat pump installation courses,³⁴ is also crucial to avoid existing workers in the fossil fuel sector being left behind in the transition.

Why electrify our buildings?

Reduced energy and emissions

Electric appliances are more efficient than their fossil fuel counterparts, resulting in reduced energy consumption and carbon emissions. e.g. [The YARDS](#), an all-electric industrial precinct in Australia, has excluded gas infrastructure from the outset, operating on electricity and rooftop solar with a predicted 85% reduction in emissions. Coupling electrified and efficient appliances, digitalisation and smart management systems will minimise energy demand and emissions.

Buildings as grids

Buildings are becoming crucial sources for electric vehicle (EV) charging, leveraging on-site renewables and storage, and using smart management to balance loads, creating “Buildings as a grid” ecosystems that offer revenue, sustainability and grid stability through technologies like bidirectional charging.

Social

Building resilience

Electrification and renewable energy play a key role in enhancing resilience. For example, microgrids, on-site renewables and battery storage can boost the resilience of locations that experience outages and shocks to their power systems. While back-up diesel generators are commonly used, there is an increasing uptake of battery powered back-up systems. Digitally connected systems can provide additional monitoring to shocks such as extreme weather or grid instability.

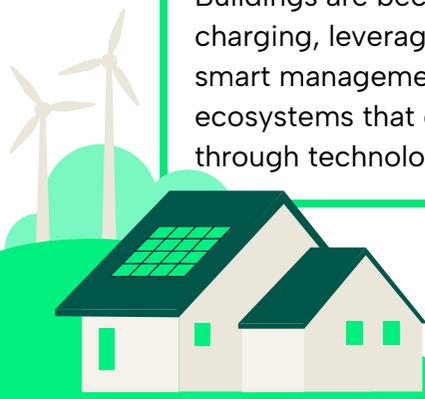
Enhanced grid-interactivity and flexibility

Grid-interactive efficient buildings could reduce 6% of total power sector CO₂ emissions by 2030.³⁵ Buildings acting as “prosumers” – producing and consuming energy – can support grid stability by optimising energy, flexibly shifting loads, exporting excess energy and storing power. Buildings can help reduce demands on grids, improving resilience and proving a vital element of modern energy systems.

Environmental

Health and safety benefits

Electrified buildings provide improved indoor air quality compared to buildings using fossil fuel-based systems. Electric stoves offer greater safety compared to gas and help improve air quality by avoiding harmful pollutants such as particulate matter and nitrogen oxides. Homes with gas stoves have nitrogen dioxide concentrations that are 50-400% higher than those with electric stoves.³⁶ Prioritising low-income or marginalised communities for electrification retrofits can directly address health disparities.



Overcoming barriers to building electrification

To drive the decarbonisation of national grids, modernise infrastructure, and shift mindsets, building electrification needs to become mainstream — supported by an enabling ecosystem of coherent policy, financing, and social and cultural frameworks.

While electrification offers one of the most powerful routes to phasing out fossil fuel use, many countries and regions face barriers that can slow progress. These range from systemic issues, such as ageing infrastructure, limited grid capacity, fossil fuel-dependent electricity systems, and uneven energy costs, to social and behavioural barriers like cultural attachments to gas cooking.

Technical challenges may also persist, including the cost and availability of electric equipment, the need for reliable backup systems, land use, and ensuring that technologies are suited to different climatic conditions.

These challenges are real, but they are also solvable.

**A Feed-in Tariff (FIT) is a government-supported programme that guarantees renewable energy system owners (such as those with solar panels) a fixed, usually above-market rate for the electricity they produce and supply to the grid. Countries including Germany, Denmark, Japan, China, Spain, South Africa, Kenya, and France are implementing such programmes.*

Pathways to overcome barriers

The transition to an all-electric, zero-emission and resilient built environment depends on coordinated action across four key areas:

Modernising energy infrastructure

Grid upgrades and improved interconnection are essential to manage growing demand, particularly where developments, including EVs and data centres, are dramatically increasing electricity use. Innovations in energy storage, distributed renewables, and flexible demand technologies can help maintain reliability and reduce pressure during peak loads.

Enabling policy and finance

Governments can accelerate electrification through targeted incentives (such as Feed-in Tariffs*), low-interest finance and phase-out timelines for fossil fuel systems. Clear and consistent regulation gives industry confidence to invest in clean technologies e.g. enabling policies to sell excess energy generated on-site back to the grid.

Cultural and behavioural change

Shifting public and industry perception — from viewing electrification as experimental to seeing it as efficient and aspirational — is crucial. Programmes that demonstrate the safety, performance, and health benefits of electric cooking and heating can drive widespread acceptance.

Collaboration and international cooperation

Sharing lessons and pooling investment across borders can help developing markets leapfrog to clean electric systems through blended finance and technology transfer.

Finding the right balance

Energy storage, primarily through batteries, will play an integral role in this transition by improving grid flexibility and enabling renewable energy integration. However, like all building systems, batteries come with embodied carbon impacts as well as socio-economic concerns, particularly linked to critical mineral extraction.

To ensure energy storage solutions are truly sustainable, circular action plans should be developed and prioritised by industry and governments with guidance on responsible sourcing, reuse and recycling strategies.

There will always be situations where backup power generation is required. This is particularly important for critical infrastructure, such as hospitals, which require reliable backup power without incurring excessive costs. In some applications batteries may be able to provide this backup. But in other cases, the technology may be prohibitively expensive or simply not yet capable of bridging longer power outages. In this instance, reliable power through lower-carbon infrastructure, for example biogas or biodiesel generators, may provide a preferential and valuable solution.

Decision making is data driven

Every building and market is different, which is why modelling and assessments offer invaluable data insights to shape effective electrification strategies.

Governments could carry out modelling to understand the social impacts of electrification to ensure lower income owners and renters are able to benefit. In addition, industry stakeholders could carry out whole life carbon (WLC) assessments to understand the impact of on-site renewable energy installations and ensure the operational carbon savings outweigh the embodied carbon emissions incurred across the life cycle.

We recognise these types of data insights are not feasible for all projects, and that many regions have yet to reach the tipping point of electricity having a lower grid emissions factor than on-site combustion of natural gas. However, if we continue to prioritise fossil fuel connections in buildings, we are locking in gas infrastructure for years to come. For this reason, electrification should be prioritised over fossil fuel use wherever possible.

Recognising that there is no one-size-fits-all approach, each country must tailor its solutions to local contexts — balancing technological readiness, affordability and socio-cultural norms.

Across the sector, stakeholders are already demonstrating how these challenges can be turned into opportunities for innovation and progress.

Ensuring a just transition

Climate action can reduce existing inequities but can also deepen them³⁸ — the global shift to electrification and clean energy being no exception. Risks include the extraction of metals like copper, often found in Indigenous People's lands,³⁹ and job losses in steel, cement and fossil fuel sectors. A sustainable shift to an all-electric future requires a just transition, which means considering all impacts, protecting people and communities, and ensuring benefits are shared fairly.

Solutions from across WorldGBC network



CO Architects and Hensel Phelps

All electric hospital

UCI Health's (University of California, Irvine) [Irvine Campus Medical Centre](#) is the first all-electric hospital in the US. WSP's approach was to avoid the use of fossil fuels entirely and implement electrification measures throughout the hospital. All electricity used is generated by onsite/offsite renewable and carbon-free sources, supporting University of California's [carbon neutrality initiative](#) and setting a new benchmark for sustainable healthcare. Source: WSP

Practical guides on electrification

Source: Green Building Council Australia (GBCA)

A Practical Guide to Electrification

The delivery of new all-electric buildings, refurbishment of existing buildings, and transition to all-electric precincts requires mass education of building professionals. This series of guides translates a high-level goal of electrification into clear recommendations for the built environment sector in Australia.

Freeze Frame Report

Poor refrigerant management risks creating stranded assets, compliance issues and costly retrofits amid rising scrutiny and phasedowns. Building owners must view refrigerants as long-term infrastructure, and demand future-ready, low-impact systems to safeguard value and advance climate goals. Report in collaboration with AIRAH.



THaT, PDW

Solar powering a whole village

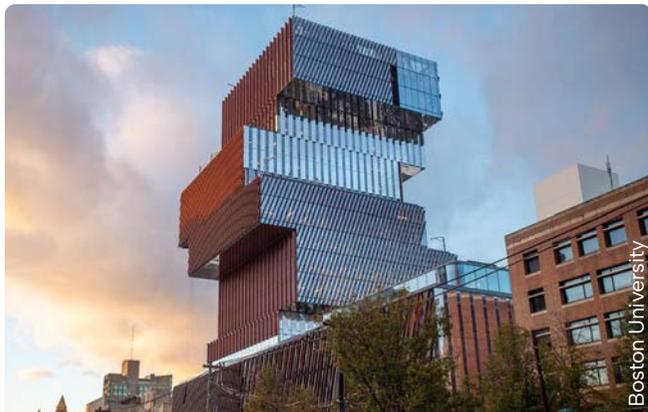
With only 80 households, [Tampelas Village](#), Indonesia, is not connected to the national grid, previously relying on a diesel generator. In 2024, a solar farm with battery storage was installed, providing cheap electricity for residents powered entirely from renewable energy and facilitating low-carbon refrigeration to support the local fishery industry. Source: Indonesia Green Building Council

Fossil fuel-free heating network

Buro Happold designed the [Shawfair District Heat Network](#) to deliver low-carbon, fossil fuel-free heating to over 3,000 homes and over 90,000m² of commercial space. The system includes a 20MWth energy centre, 12MWth of renewable backup, and an 8km district heating network, supporting a scalable transition to electrified heat. Source: Buro Happold

Net zero fast food restaurant

McDonald's UK developed their first net zero carbon building in Market Drayton by electrifying their operations and reducing the need to rely on natural gas. Installations on site include over 110m² of solar panels and its wind turbines that produce renewable energy for on-site use, with any excess provided back to the national grid. Source: GHD



Fossil fuel-free university building

Boston University's LEED Platinum certified Centre for Computing and Data Sciences is Boston's largest fossil fuel-free building. Completed in 2023, this 19-storey, 32,051 m² tower features 31 geothermal wells and ground-source heat pumps for heating and cooling, with electric backup. All energy is generated from wind and solar sources, enabling zero on-site emissions and supporting the University's 2040 carbon neutrality goal. Source: USGBC

Promoting safer cooking

The Global Cooksafe Coalition (GCC) brings together experts in health, property, hospitality and sustainability to drive the transition to safe, affordable, fossil fuel-free cooking. From co-developing scalable solutions with leading property companies to mobilising globally renowned chefs to lead the cultural shift, the GCC drives cross-sector collaboration to facilitate universal kitchen electrification. Source: The Global Cooksafe Coalition

Electrified steel plant

The Arabian Gulf Steel Industries' (AGSI) Abu Dhabi Steel Plant has electrified its operations by using the induction furnace method, powered by renewables and 100% scrap steel. The Plant stands as the first example of this approach at such scale in the MENA region. In 2024, there was a 6% reduction in energy intensity and 14% increase in renewable use. Source: Emirates Green Building Council



Carbon-cutting retrofit

Empire State Realty Trust, with Buro Happold, proves carbon cuts in skyscrapers are achievable and cost-effective with the groundbreaking retrofit of the Empire State Building. After a 42% energy reduction, new efficiency and heat pump strategies aim for 52% reduction by 2026 and 66% by 2030 – which translates to 63% and over 80% emissions cuts with a renewable-powered grid. Source: Buro Happold

Climate action roadmaps worldwide

This section outlines how climate action roadmaps, focused on decarbonisation and resilience within the buildings and construction sector, are accelerating implementation of electrification measures and driving impact worldwide.

Roadmaps provide sector-specific pathways for business, policy and finance to enable coordinated, measurable action. They serve as strategic plans to reduce greenhouse gas emissions and increase resilience and adaptation measures for buildings, ranging in scale from global to regional to national.

Creating a roadmap can help translate policies and building regulations into practical steps for implementation. The development of a centralised framework ensures a country's policymakers, businesses, financiers and investors are unified on the same journey.

Over the past decade, the WorldGBC network has played a pivotal role in shaping many of these initiatives — leading and supporting the development of national and regional climate action roadmaps that actively guide progress on electrification. For the buildings and construction sector, over 30 roadmaps have been developed worldwide, and the WorldGBC network continues to [champion the further development of these frameworks](#).

The impact of roadmaps

Climate action roadmaps present a proven mechanism for impact. They provide a clear, co-created pathway for how countries and cities can align policy, finance and industry action to achieve total decarbonisation and resilience in the built environment.

Roadmaps are driving impact through:

- setting out policy asks resulting in policy implementation
- outlining actions for businesses to follow
- facilitating private sector alignment
- creating an enabling environment for increased finance flow to support implementation.

WorldGBC, alongside our network, has been actively developing and implementing roadmaps in Europe under the [#BuildingLife](#) project for the last five years. Green Building Councils (GBCs) and their members have shown that concerted, coordinated action on roadmaps can empower industry to lead and inspire policymakers to raise ambition.

When [#BuildingLife](#) launched in 2021, whole life carbon was largely absent within the European policy agenda. Today, it is written into the [Energy Performance of Buildings Directive](#), a

landmark policy shift shaped by the project's EU and national roadmaps.

Businesses across the EU have used climate action roadmaps to strengthen their own climate commitments, emboldened by an enabling policy environment, moving from ambition to action.

- [Over 800 companies](#) have endorsed national climate action roadmaps
- [50% have gone on to publish action plans](#) outlining how they will cut emissions, delivering action and impact.⁴⁰

By mobilising stakeholders from governments to investors, collaborative roadmaps are a tool that have actively helped catalyse a major shift in EU policy on buildings, build resilience, and accelerate cross sector engagement.

Roadmaps serve as strategic plans to reduce greenhouse gas emissions and increase resilience and adaptation measures for buildings

Electrification targets and recommendations from climate action roadmaps

We have conducted a review of around 30 global, regional and national roadmaps from WorldGBC, our member Green Building Councils (GBCs), the UN Environment Programme (UNEP) – Global Alliance for Buildings and Construction (GlobalABC), and other organisations to identify common themes and calls to action that promote building electrification.⁴¹

This high-level outline supports stakeholders with electrification measures from a sample of climate action roadmaps. These recommendations offer visibility in trends for business and finance actors. GBCs and industry stakeholders may utilise these to inform the development of new roadmaps for their local market, or for updating existing ones to accelerate electrification implementation.

The following section provides recommendations from these roadmaps that relate to electrification. These recommendations span technical solutions to policy recommendations and financial actions. A list of the roadmaps featured is provided in the [resources section](#).

1.

Short-term (by 2030)

Early enabling frameworks and pilots

- The Roadmaps recommend **upgrading building energy codes and clean energy requirements**.
- Paths to electrification include **reviews of fossil fuel subsidies**, and **development of appropriate finance mechanisms** for faster electrification of appliances and new buildings.
- The **adoption of renewable energy** is expected to accelerate worldwide.

2.

Medium-term (by 2040)

Mainstreaming and scaling

- The Roadmaps envision **phasing out fossil fuels**, especially in heating, and new buildings to be **powered by renewable sources**.

3.

Long-term (by 2050)

Full transformation to an electrified built environment

- The Roadmaps envision a **universal access to clean cooking**.
- Buildings should achieve **greenhouse gas emissions neutrality** and integrate clean energy technologies.

by 2050

Overview



Australia (GBC)

- New buildings and fitouts must have no greenhouse gas emissions from their operations by no later than 2030.



Colombia (joint GBC and government)

- Existing buildings have between 70% and 80% of their end uses electrified (cooking and water heating). This would bring the total electricity share to 50% across the sector.
- 100% of new buildings and major renovations in high-income residential buildings, as well as commercial and institutional buildings in urban areas, have all final energy uses electrified.



Sri Lanka (government)

- The 2021 revision to the NDCs includes achieving 70% renewable energy in electricity generation by 2030.



Africa (GlobalABC)

- By 2040, electricity demand is expected to triple while renewables reach approximately 75% of supply.



Colombia (joint GBC and government)

- Existing buildings have electrified between 85% and 100% of their end uses (cooking and water heating). This brings the total electricity share to 72% across the sector.
- All new buildings and major renovations in urban areas have all their final energy uses electrified.



Costa Rica (government)

- 100% of new buildings are designed and built with low-emission and resilient systems and technologies.



Africa (GlobalABC)

- By 2050, the vision is net-zero buildings, universal energy access, and widespread adoption of smart, renewable-ready systems.



Australia (GBC)

- Existing buildings and fitouts must have no greenhouse gas emissions from their operations by 2050 or earlier.



Colombia (joint GBC and government)

- Total electricity share is 94% in the buildings sector as cooking and water heating are fully electrified in urban areas. The remaining 6% share is Liquefied Petroleum Gas (LPG) in rural areas.



Costa Rica (government)

- 50% of commercial, residential, and institutional buildings operate under emission standards (requiring high electrification or the use of renewable energy in cooking processes and water heating).

Short-term (by 2030)

Medium-term (by 2040)

Long-term (by 2050)

Standards, codes and finance



Global (GlobalABC)

- About half of countries globally to include clean energy requirements in building codes by 2030.
- Subsidy reform plan for gradual removal of fossil fuel subsidies or swaps.



Africa (GlobalABC)

- By 2030, reforms, incentives, and distributed renewables should be prioritised.



Global (GlobalABC)

- Increased use of incentive schemes for clean energy provided by all jurisdictions.



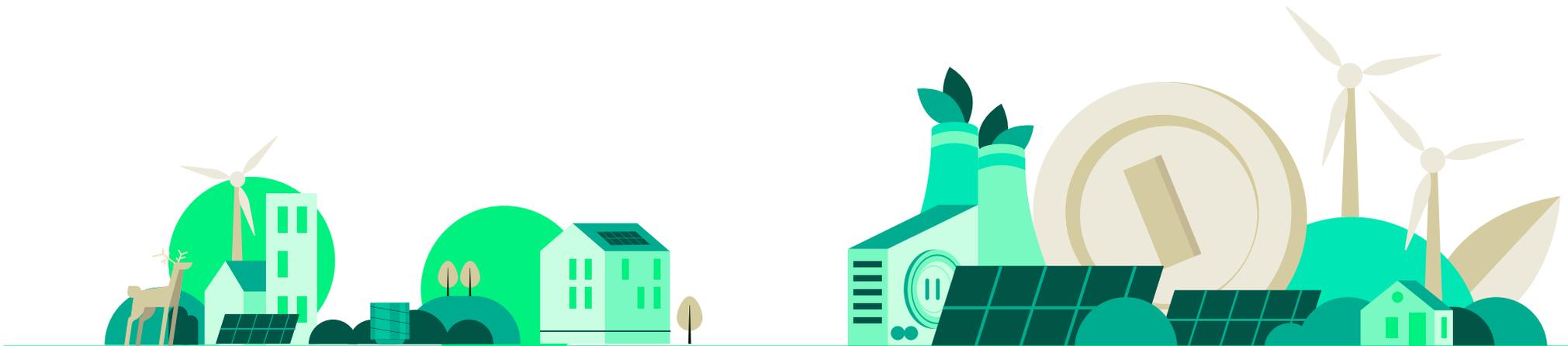
Sri Lanka (government)

- Make available financial and other tools such as loans, easy payment schemes tax concessions for house owners for low carbon technologies.



Costa Rica (government)

- The State Public Procurement System clearly notifies the market and operates under zero emissions parameters.



Space and water heating and cooling



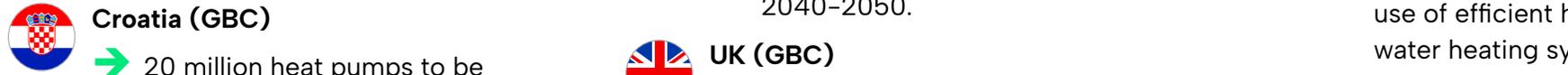
Bangladesh (various organisations)

→ 98% reduction of hydrochloro-fluorocarbons (HFC) in cooling by 2030.



Costa Rica (government)

→ Promotion of efficient equipment, including low Global Warming Potential air conditioning.



Croatia (GBC)

→ 20 million heat pumps to be installed by 2026, scaling to 60 million by 2030.



France

→ The requirements of current regulations will lead to the gradual disappearance of heating using fossil fuels in new buildings.



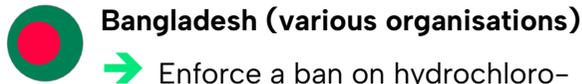
Spain (GBC)

→ No new fossil fuel boilers are installed from 2025 in either new buildings or renovations.



UK (GBC)

→ All new buildings have low carbon heating systems from 2025. No further sales of gas and oil boilers from 2030 for existing homes and non-domestic buildings.



Bangladesh (various organisations)

→ Enforce a ban on hydrochloro-fluorocarbons (HFC) by 2035.



Colombia (joint GBC and government)

→ GHG emissions from the use of HFC substitutes are progressively reduced in cooling or air conditioning equipment from 2040-2050.



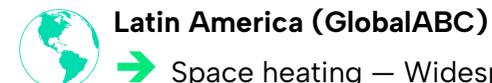
UK (GBC)

→ 80% of existing homes use heat pumps by 2040.



Global (GlobalABC)

→ Fossil fuels phased out. Almost all district heating systems to be renewable.



Latin America (GlobalABC)

→ Space heating – Widespread use of heat pumps by 2050.
→ Water heating – Wide availability and use of efficient heat pumps and solar water heating systems by 2050.



Colombia (joint GBC and government)

→ Water heating is fully electrified in urban areas.



Norway (GBC)

→ All buildings to be supplied with emission-free energy.



UK (GBC)

→ Remaining fossil fuel boilers are replaced ahead of 2050.

Short-term (by 2030)

Medium-term (by 2040)

Long-term (by 2050)

Cooking

-  **Africa (GlobalABC)**
→ Access to clean cooking solutions accelerated, especially in rural households.
-  **Bangladesh (various organisations)**
→ Develop policies to increase the use of clean fuels and technologies for cooking, particularly in rural areas.

-  **Costa Rica (government)**
→ To avoid using carbon-intensive technologies such as Liquefied Petroleum Gas (LPG) in cooking and water heating systems.
-  **UK (GBC)**
→ Domestic gas cooking in existing homes to be phased out by 2040 with all existing households using high efficiency electric induction cooking hobs by 2045.

-  **Latin America (GlobalABC)**
→ Universal access to clean, affordable and efficient cooking.
-  **Colombia (joint GBC and government)**
→ Cooking is fully electrified in urban areas.
-  **UK (GBC)**
→ Fossil fuel usage within cooking appliances should end by 2050.

Power from renewables

-  **Colombia (joint GBC and government)**
→ 15% of new buildings have installed on-site solar panels (starting at 10% in 2026).
-  **Croatia (GBC)**
→ The share of energy from renewable sources and waste heat should be increased to 38–42%.
-  **Sri Lanka (government)**
→ Increasing solar PV and water heating roof-top systems.

-  **Asia (GlobalABC)**
→ Renewables are expected to reach 70% of power by 2040.
-  **Latin America (GlobalABC)**
→ This roadmap foresees a near 90% renewable power mix by 2040.
-  **Colombia (joint GBC and government)**
→ 35% of new buildings have installed on-site solar panels.

-  **Global (GlobalABC)**
→ District energy systems to be powered by renewables.
-  **Colombia (joint GBC and government)**
→ 50% of new buildings have installed on-site solar panels.
-  **Sri Lanka (government)**
→ The 2021 revision to the NDCs includes attaining net carbon neutrality in electricity generation by 2050.
-  **UK (GBC)**
→ 30 GW PV rooftops to be installed on domestic buildings by 2050 (i.e. a typical c.4kW domestic system installed on 1 in 4 homes across the UK).

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Resources

Please see below a list of relevant content on building electrification provided by our network and partners for more information:

Building to Electrification Coalition – [B2E Commercial Building Electrification Guide](#)

Buro Happold – [The pathway to zero carbon buildings](#)

Energy Transitions Commission – [Achieving Zero-Carbon Buildings: Electric, Efficient and Flexible](#)

GBCA – [A Practical Guide to Electrification](#) (Electrifying existing buildings, new buildings and precincts)

Global Action Plan – [Policy Pathway for the Transition to Electric Cooking in the UK](#)

[Global Cooksafe Coalition](#)

IEA – [Efficient Grid-Interactive Buildings: Future of buildings in ASEAN](#)

IEA – [The Future of Heat Pumps](#)

Siemens – [The grid-interactive building](#)

World Economic Forum – [Urban Electrification and Energy Efficiency: 10 Global Best Practices](#)

National roadmaps

Australia – [Climate Positive Roadmap for the built environment](#)

Bangladesh – [Bangladesh Climate Action Roadmap for Buildings and Construction Sector](#)

Colombia – [National Roadmap for Net Zero Carbon Buildings](#)

Costa Rica – [The National Decarbonisation Plan](#)

Croatia – [Roadmap for Decarbonisation of Buildings in Republic of Croatia](#)

France – [Roadmap: A pathway to decarbonisation \(2050\)](#)

Norway – [The Property Sector's Roadmap Towards 2050](#)

Spain – [Whole Life Carbon Roadmap for a decarbonised built environment in Spain](#)

Sri Lanka – [Sri Lanka Sustainable Housing and Construction Roadmap](#)

UK – [Net Zero Whole Life Carbon Roadmap: A Pathway to Net Zero for the UK Built Environment](#)

Regional roadmaps

[GlobalABC Roadmap for Buildings and Construction](#)

[GlobalABC Regional Roadmap for Buildings and Construction in Africa](#)

[GlobalABC Regional Roadmap for Buildings and Construction in Asia](#)

[GlobalABC Regional Roadmap for Buildings and Construction in Latin America](#)

[WorldGBC Zero Carbon and Climate Resilience Readiness Framework](#)

[WorldGBC EU Policy Whole Life Carbon Roadmap](#)

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41. A selection of roadmaps were examined to showcase representative recommendations and targets. The review employed AI-assisted techniques to extract electrification-related mentions and targets from the documents, followed by a thematic review to identify recurring patterns. Manual verification was conducted to ensure the highest possible level of accuracy.

About World Green Building Council

At the World Green Building Council (WorldGBC) our role is to help property and construction markets around the planet reach tipping points and by 2050 achieve:

- total decarbonisation of the built environment
- healthy, equitable and resilient buildings, cities and communities
- regeneration of natural systems and a thriving circular economy

That means building the right policy environments, the right financing environments and the right social and cultural environments to deliver sustainable built environments.

As the largest local-regional-global action network leading the transformation to resilient and decarbonised buildings, cities and communities, we are driving systemic changes together with 85 Green Building Councils (GBCs) and industry partners from all around the world.

We work with businesses, organisations and governments to deliver on the ambitions of the Paris Agreement and UN Global Goals for Sustainable Development (SDGs).

This position paper complements WorldGBC's Building the Transition programme – our flagship global programme to deliver our *Strategic Plan 2025–2027*. This programme sees WorldGBC continue to scale solutions with the GBCs by matching global ambition with local impact.