

Business Breakthrough Barometer 2024

Buildings



World Business
Council
for Sustainable
Development

BAIN & COMPANY 



29 October, 2024



Key messages

1/2

- **More than half of business leaders believe the buildings sector is off course for net-zero**
 - 65% of sector leaders report feeling more ambitious than government and worried that policy is trailing behind industry efforts
 - Just over a third of businesses report an increase in confidence in governments' support in their key markets
- **Businesses are concerned about slowdown in investments in energy efficiency over the last year**
 - Businesses report a 5% drop in energy-efficient building investments over the past year, largely driven by a post-pandemic slowdown in Europe and China as commercial real estate markets recalibrate, with High financing costs are unanimously cited as the primary factor.
 - Despite the recent lull, companies expect a strong rebound by 2030 with investment in warehousing and data centres driving growth in the next 12 months
 - Industry leaders warn that ROW must act quickly to catch up or risk being left behind
- **Despite massive energy saving potential business say customers are still reluctant to commit upfront capital for residential and commercial retrofits**
 - Sector leaders see growing consumer awareness and increased momentum for energy efficient retrofits, but high installation costs are deterring consumers, with 52% of businesses believe that consumers have little to no willingness to pay upfront for longer-term energy savings
 - Businesses see strong potential for investment in energy-efficient systems but emphasize the need for greater government incentives to offset high upfront costs and encourage consumer uptake
- **Businesses are also facing some short-term head winds in HVAC deployment, particularly given the recent slump in EU heat pump sales**
 - HVAC market has enjoyed steady annual growth since 2020, but a recent 5% drop in heat pump sales across Europe—driven by relaxed subsidies and fluctuating gas prices—has sparked worry
 - Businesses are confident there is sufficient short term manufacturing capacity to accelerate the deployment of electric heat pumps, but a lack of skilled labour remains a major concern, but high upfront capital costs and widespread consumer misinformation are slowing progress
- **Looking ahead, business foresee warn low levels of heat pump manufacturing capacity could severely constrain the transition**
 - Businesses anticipate a major wave of demand acceleration over the next decade
 - Across Asia rapid pace of renewable build out and continued urbanisation will drive greater potential for demand electrification of heating and cooling
 - While in the EU, business expect the focus on phasing out fossil fuel heating
 - Without a shift in investment levels manufacturing capacity will be insufficient
- **Businesses more optimistic around community and residential on-site power generation as a solution for increased demand from building electrification**
 - Installation of solar PV in the US grew +180% from 2018-23 driven by an explosive build out in California
 - Companies highlight the growing role of distributed solar, with nearly half of future capacity expected from rooftop installations
 - Businesses point to PPAs, leasing models, and tax incentives as improving ROI and easing entry
 - Sector points to examples in Europe, where are energy sufficient communities (e.g., Adeje Verde) are being piloted to demonstrate possibility for locally integrated energy systems



Key messages 2/2

- **Businesses view city-level regulation as the primary driver for green investment**
 - Cities can be more flexible policy environments - faster decision-making and quicker implementation of new technologies means businesses see them as ideal testing grounds for innovation
 - However, businesses also point to a wide variety in risk profile across markets
 - Where policy is not in place green materials have not become standard for construction companies whose main concerns are safety and cost
 - Sector is concerned that the window for reaching 2030 goals is closing fast
- **Overall business is concerned that national policy making on buildings is often seriously lagging other sectors**
 - Businesses point to emergent policy in the EU on whole life carbon as driving important shifts to investment trends, as materials producers competing for a place in low-carbon construction
 - However, business stress need for better whole life carbon data systems to optimize decisions across a building's lifecycle, as current data fragmentation limits precision
 - Investors and tenants are also increasingly prioritizing buildings with low embodied carbon pushing businesses to incorporate LCAs to meet market and stakeholder demands
 - Business also repeatedly mention US and the IRA as an example of promoting investments into decarbonised new build, retrofits and clean sources for energy as it supports first and next of a kind innovation
- **Majority of sector cites investment case, consumer behaviour, and standards as barriers holding back zero emission and resilient buildings**
- **The Buildings sector sees key focus for gov. as uniform definitions, mandates for electrification & efficiency, financing, and adoption of whole life impact assessments**
- **Policy interventions in standards, mandates, assessment, and financing could accelerate investment into buildings' energy transition**

More than half of business leaders believe the buildings sector is off course for net-zero



65%

65% of sector leaders report feeling more ambitious than government and worried that policy is trailing behind industry efforts

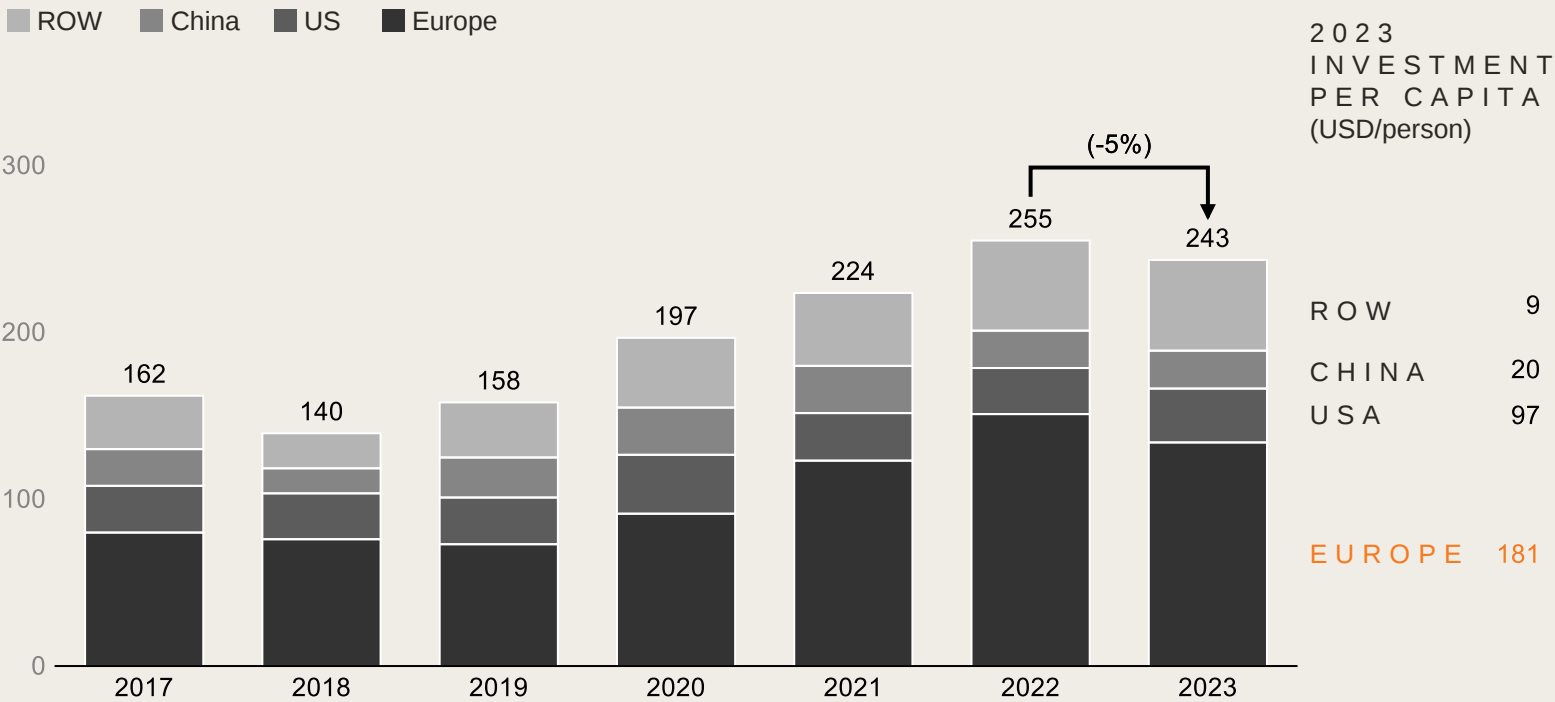
41%

41% report their confidence in governments to support and enable the transition has flatlined over the past 3 years

Source: Business Breakthrough Barometer Sector Survey (N=250)

Businesses are concerned about slowdown in global investments in energy efficiency over the last year

Annual investment in energy efficiency in buildings (USD, billions)



- Businesses report a 5% drop in energy-efficient building investments over the past year, largely driven by a post-pandemic slowdown in Europe and China as commercial real estate markets recalibrate
- High financing costs are unanimously cited as the primary factor
- Despite the recent lull, companies expect a strong rebound by 2030 with investment in warehousing and data centres driving growth in the next 12 months
- Industry leaders warn that ROW must act quickly to catch up or risk being left behind

“Heavy investment into energy efficiency has been driven mostly by retrofits and I see that continuing.”

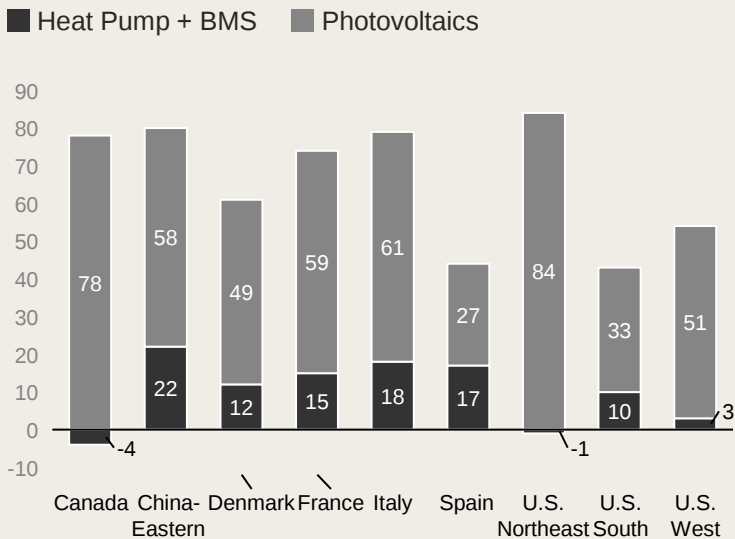
SUSTAINABILITY PRACTICE LEAD,
ARCHITECTURE FIRM

Source: IEA 2023



Despite massive energy saving potential businesses say customers are still reluctant to commit upfront for residential and commercial retrofits

SINGLE HOUSE
Contribution to reduction in yearly energy bill (%)

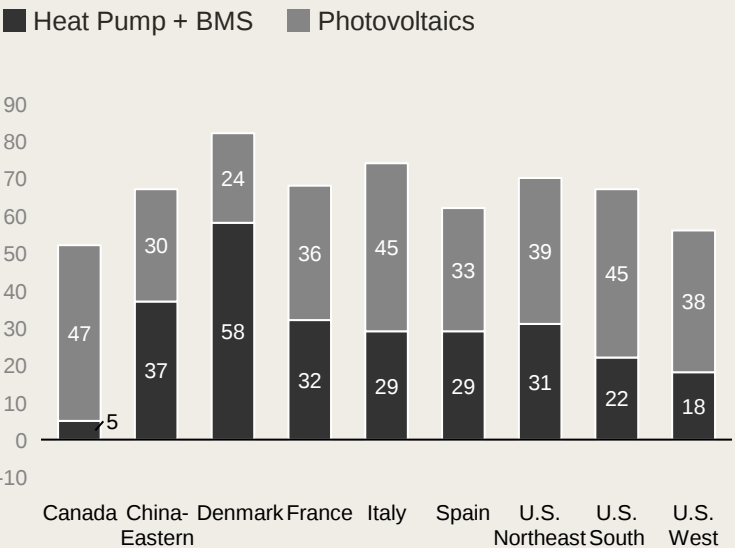


Retrofit CapEx intensity (USD/m²)

HP + BMS	79	67	64	67	59	67	64	51	45
PV	142	42	95	95	74	74	142	57	57

Note: Building Management System (BMS) includes HVAC monitoring, lighting control, energy monitoring
Source: Schneider Electric Sustainability Research Institute, "Decarbonizing Buildings to the Benefits of Consumers and Systems Operators" (2024)

RETAIL MALL
Contribution to reduction in yearly energy bill (%)



Retrofit CapEx intensity (USD/m²)

HP + BMS	194	143	179	143	130	143	179	96	95
PV	170	70	130	130	100	80	170	170	170

- Sector leaders see growing consumer awareness and **increased momentum for energy efficient retrofits**, but high installation costs are deterring consumers
- **52% of businesses believe that consumers have little to no willingness to pay upfront** for longer-term energy savings
- Businesses see strong potential for investment in energy-efficient systems, but emphasize the need **for greater government incentives to offset high upfront costs and encourage uptake**

“Demand-side technologies generally have a short return, but where the payback periods are longer, **investors and consumers are generally reluctant to invest** in these new and efficient technologies. Ideally, we need support and regulation from governments to ease the transition.”

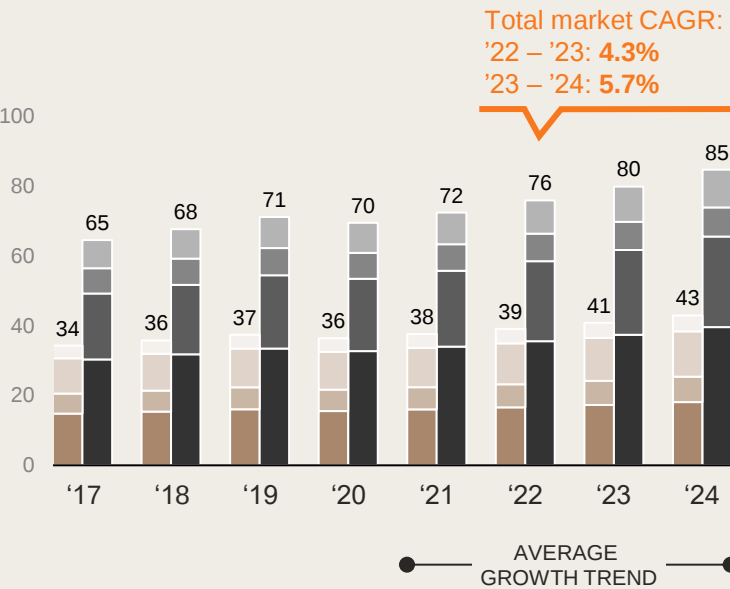
HEAD OF GOVT. AFFAIRS,
ENERGY MGMT. COMPANY

Businesses are also facing some short-term head winds in HVAC deployment, particularly given the recent slump in EU heat pump sales

HVAC MARKET SYSTEMS GROWS, WITH COOLING INCREASINGLY IMPORTANT

HVAC market size (USD Billion)

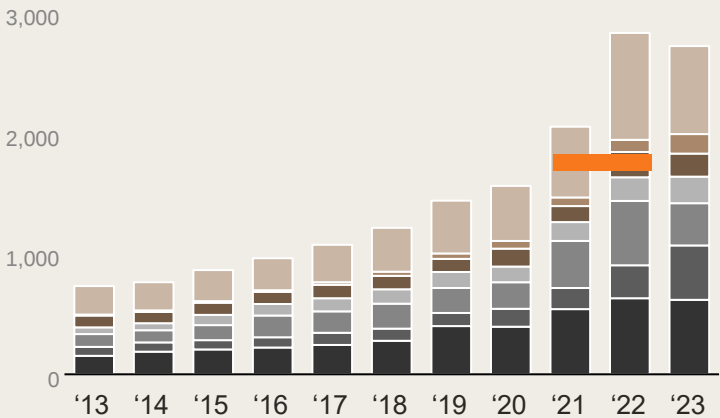
Heating US Europe China ROW
Cooling US Europe China ROW



EU HEAT PUMP SALES DROPPED AS GAS PRICES & SUBSIDIES RELAXED

Thousand units sold per year

France Germany Italy Spain Sweden
Netherlands Rest of Europe



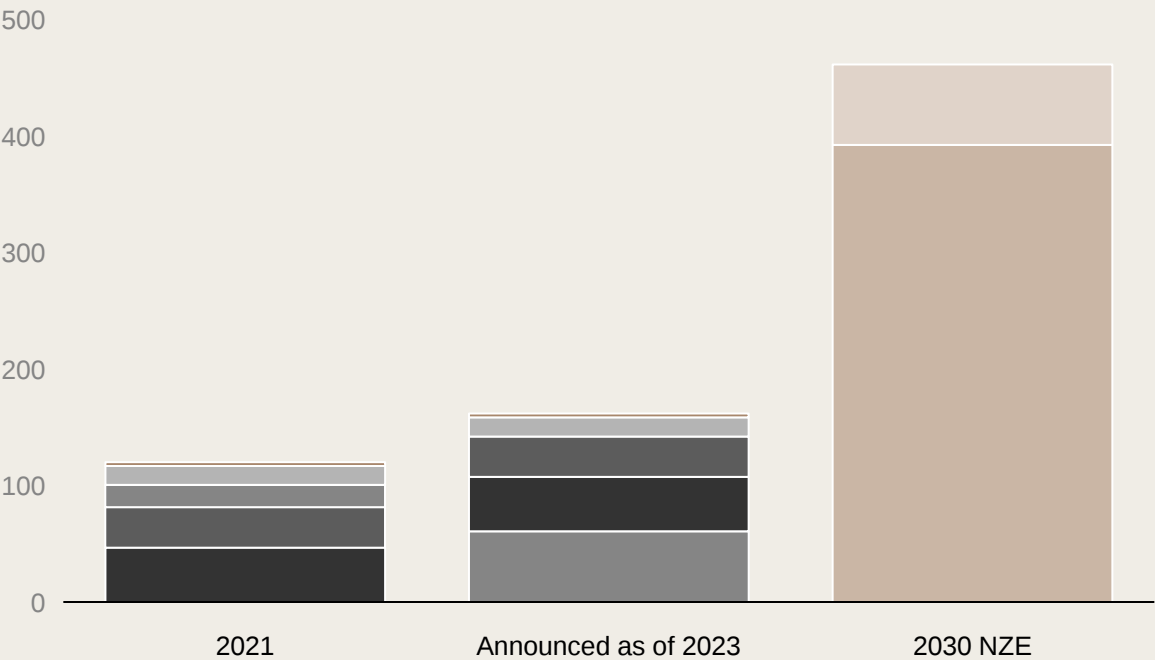
- HVAC market has enjoyed **steady annual growth since 2020**, but a recent 5% drop in heat pump sales across Europe—**driven by relaxed subsidies and fluctuating gas prices**—has sparked worry
- **Businesses are confident there is sufficient short term manufacturing capacity to accelerate the deployment of electric heat pumps**, but a lack of skilled labour remains a major concern
- But high upfront capital costs and **widespread consumer misinformation are slowing progress**

Source: EHPA, HVAC Market Systems Analysis, Carbon Brief

Looking ahead, business warn low levels of heat pump manufacturing capacity could severely constrain the transition

Heat pump manufacturing capacity (GW)

■ China ■ North America ■ Europe ■ Other APAC
■ RoW ■ NZE demand ■ NZE residual capacity



- Businesses anticipate a major wave of demand acceleration over the next decade
- Across Asia rapid pace of renewable build out and continued urbanisation will drive greater potential for demand electrification of heating and cooling
- While in the EU, business expect the focus on phasing out fossil fuel heating
- Without a shift in investment levels manufacturing capacity will be insufficient

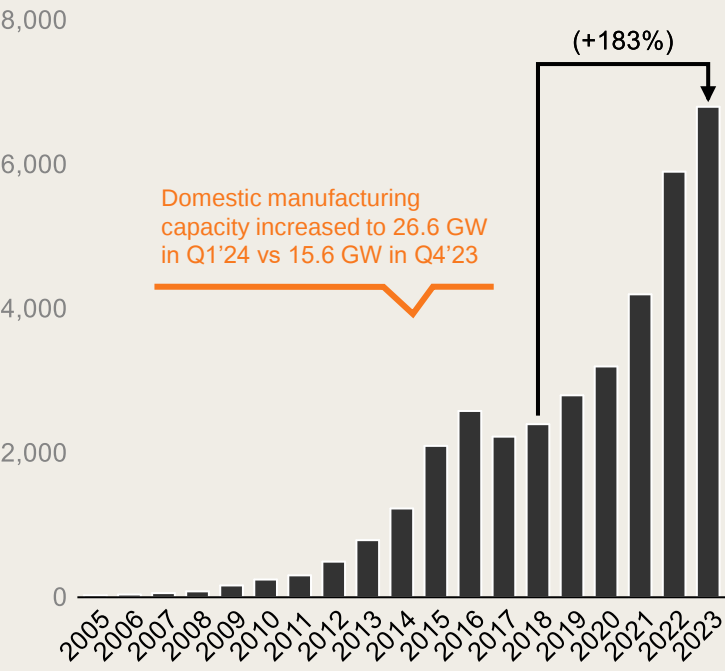
“Historically, regulation in France mainly focused on energy consumption and insulation linked to the need for heating in buildings, however, with the more frequent heat waves during summer times, we are seeing more and more the importance of summer comfort for the indoor environment.”

VICE PRESIDENT, ENVIRONMENT, CONSTRUCTION COMPANY

Source: IEA 2023, government websites, company interview, Bain analysis

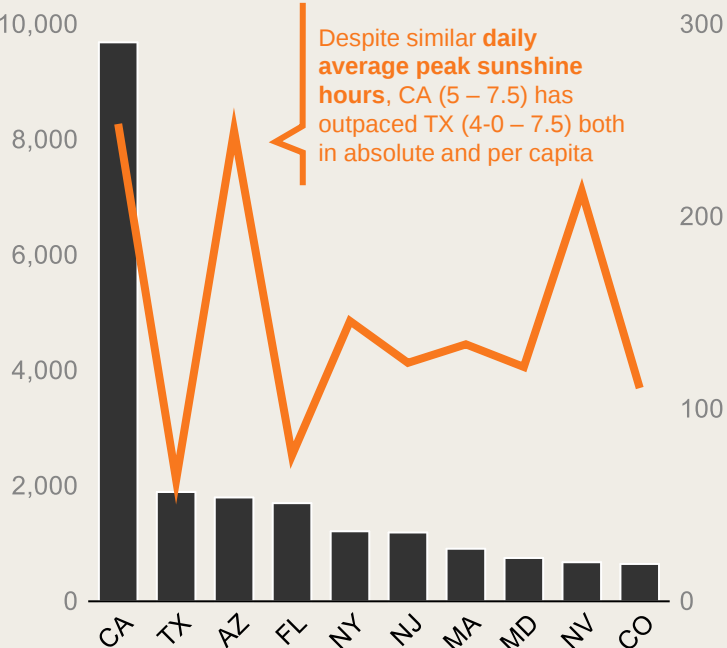
Businesses are increasingly optimistic about community & residential on-site power generation as a solution to rising demand from electrification

Annual residential solar PV installations, US (mW)



Estimated residential solar PV capacity in USA, 2022 (mW)

Residential solar PV capacity per capita, (mW / M inhabitants)



- Installation of solar PV in the US grew +180% from 2018-23 driven by an explosive build out in California
- Companies highlight the growing role of distributed solar, with nearly half of future capacity expected from rooftop installations
- Businesses point to PPAs, leasing models, and tax incentives as improving ROI and easing entry
- Sector points to examples in Europe, where are energy sufficient communities (e.g., Adeje Verde) are being piloted to demonstrate possibility for locally integrated energy systems

Source: EIA, SIEA, Solar Reviews, Adeje Verde release, Spain government website, Statista



Businesses view city-level regulation as the primary driver for green investment



PARIS

Integrated urban planning and policy

- Focussed on embedding sustainability within broader urban planning frameworks
 - City wide push refurbishing existing stock to be more energy efficient, incl. iconic buildings such as at the Cite Internationale de Paris
-



NEW YORK

Tech. and public private partnerships

- Focussed on public private partnerships (PPPs) to finance tech driven energy efficiency
 - Major hub for climate technology start-ups supported by a strong network of incubators, accelerators, and investors
-  PERFORMANCE MANDATES

 GREEN FINANCING MECHANISMS

 EFFICIENCY OPTIMIZATION

 ENERGY DECARBONIZATION



SINGAPORE

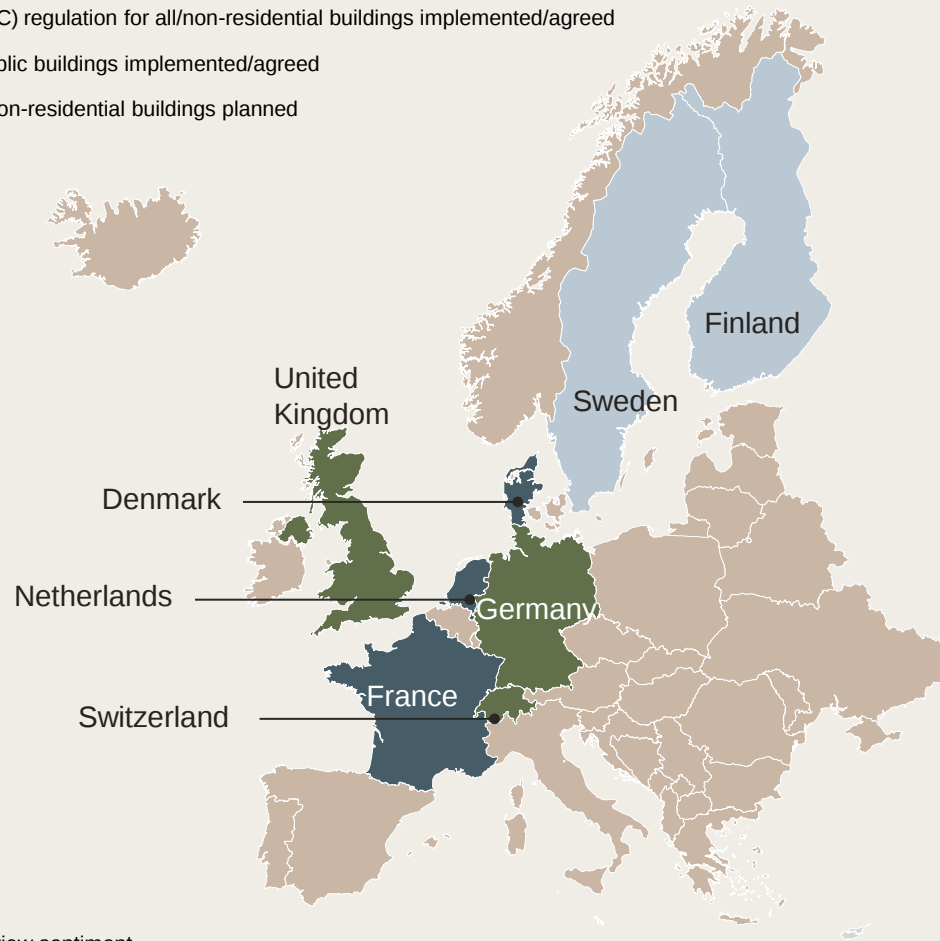
IoT driven green innovation

- Focussed on data driven IoT and integration of smart tech. with to create a dynamic and efficient
 - Rapidly deploying IoT devices and AI to optimize energy use in buildings incl. smart lighting, HVAC systems that adjust to real-time data
-

- Cities can be more flexible policy environments
 - faster decision-making and quicker implementation of new technologies means businesses see them as ideal testing grounds for innovation
- However, businesses also point to a wide variety in risk profile across markets
- Where policy is not in place green materials have not become standard for construction companies whose main concerns are safety and cost
- Given the multiyear lead time from project design to use, the sector is concerned that the window for reaching 2030 goals is closing fast.

Source: Cliche-Batignolles website, Paris municipality release, C40, EU Commission, Retrofit Accelerator Program website, NYC government website, Bain analysis, Singapore government website, CDP

Overall business is concerned that national policy making on buildings is often seriously lagging other sectors



- Businesses point to emergent policy in the EU on whole life carbon as driving important **shifts to investment trends**, as materials producers compete for a place in low-carbon construction
- However, business stress the need for better whole life carbon **data systems to optimize decisions across a building's lifecycle**, as current data fragmentation limits precision
- **Investors and tenants are also increasingly prioritizing buildings with low embodied carbon**, pushing businesses to incorporate LCAs to meet market and stakeholder demands
- Business also **repeatedly mention US and the IRA** as an example of promoting investments into decarbonised new build, retrofits and clean sources for energy as it supports first and next of a kind innovation

*"It's crucial for the buildings value chain to consider whole life carbon so we don't **sacrifice embodied carbon for marginal operational gains.**"*

SUSTAINABILITY PRACTICE LEAD,
ARCHITECTURE AND DESIGN FIRM

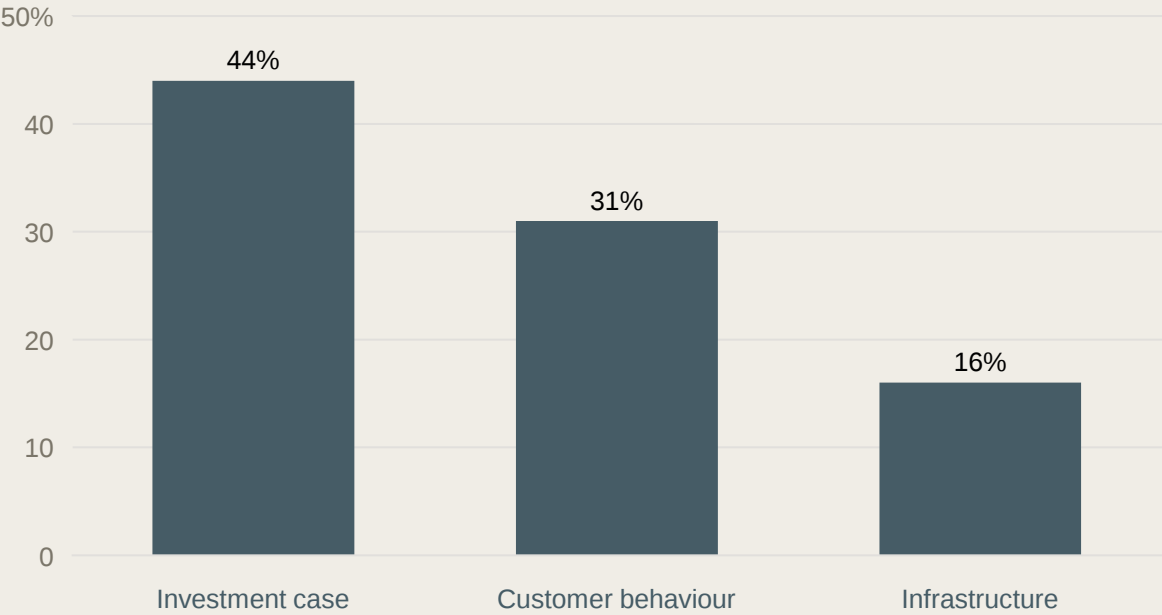
Source: BPIE (2022), interview sentiment

Majority of sector cites investment case, consumer behaviour, and standards as barriers holding back zero emission and resilient buildings

Which of the following do you view as the steel sector's largest barriers towards accelerating and investing in the development and deployment of near zero emission and resilient buildings?

Please select the top 3 most impactful barriers

Share of survey responding barrier in the top 3 (%)



Source: Business Breakthrough Barometer Sector Survey (N=250)



INVESTMENT CASE

- Businesses confirm structural challenges in the sector, (e.g., increased cost of capital, falling property values, and concerns over financial viability which have intensified due to economic headwinds) have caused sector wide investment efforts to stall
- Sector leaders say the lack of sustainable finance remains a significant hurdle, as the industry struggles to align traditional funding with long-term sustainability goals
- Building owners and operators cite upfront investments required for efficiency upgrades and new technology integration as a key barrier, despite positive returns on investment



CUSTOMER BEHAVIOUR

- Sector leaders say there is limited demand from consumers to reduce embodied carbon within building materials, as most are concerned with the decarbonized energy and operational efficiency impacting their Scope 1 and 2
- Businesses also point to misconceptions (e.g., concerns over poor performance, inefficiency, durability) as well as the general lack of awareness surrounding low embodied carbon alternatives as hindering buyers from making informed choice

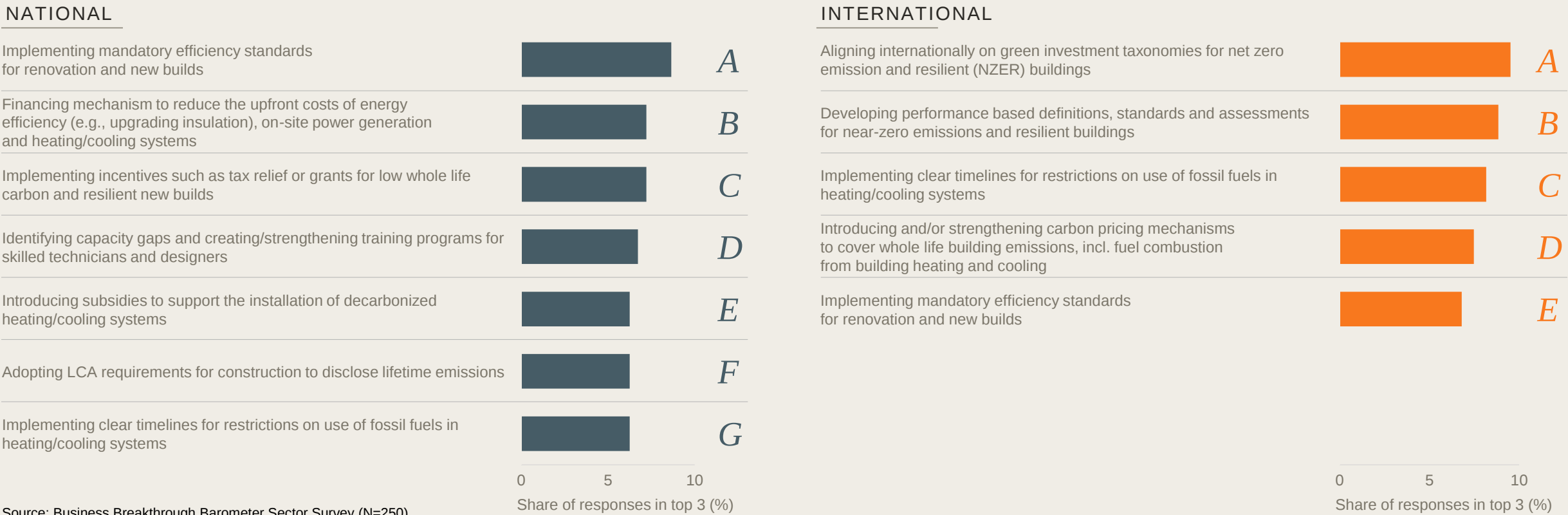


INFRASTRUCTURE

- Businesses point to lack of unified national and international building codes and certifications as slowing widespread adoption

The Buildings sector sees key focus for gov. as uniform definitions, mandates for electrification & efficiency, financing, and adoption of LCA

WHAT ARE THE TOP THINGS REGULATORS SHOULD FOCUS ON IN THE NEXT 12 MONTHS TO ACCELERATE INVESTMENT IN THE DEVELOPMENT AND DEPLOYMENT OF KEY TECHNOLOGIES AND SOLUTIONS TO ENABLE THE NET ZERO TRANSITION WITHIN THE BUILDINGS SECTOR?



Source: Business Breakthrough Barometer Sector Survey (N=250)

Policy interventions in financing, mandates, standards, and assessments could accelerate investment into buildings' energy transition

Policy focus

National 

International 



Financial mechanisms

-  Businesses stress the importance of addressing green financing given **interest rate hikes and slowdown in investments** over past two years
-  Leaders point to government intervention through **incentives, green bonds, rebates and subsidies**



Building mandates

-  Sector leaders are adamant that **building performance mandates must be put in place**, as well as reporting mandates to allow users to make informed decisions
-  **Clear requirements for building electrification and minimum energy efficiency** will send clear signal to the broader market and encourage investment



Standards and codes

-  Beyond financing and mandates, businesses are clear that common **building codes and standards** must be defined to simplify compliance for developers
-  Leaders note that expediting and simplifying **international certification processes** for buildings and materials can ease and encourage cross border investment in sustainable construction



Life cycle assessments

-  Looking further ahead, the sector is calling for **whole life carbon assessments for construction materials and methods** to reduce lifetime impacts and embodied carbon

Thank *You*



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