



Sector scorecards: Analysis



November 2022



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This section of the report assesses which sectors are performing and accelerating towards net zero in the 50 cities included in this report. Based on 48 indicators grouped under 'city enablers', decarbonization status "sector policies and preparedness" and climate equity', the analysis assesses the progress of cities in terms of climate action across the (energy, mobility, and connectivity, built environment and waste and sanitation sector).

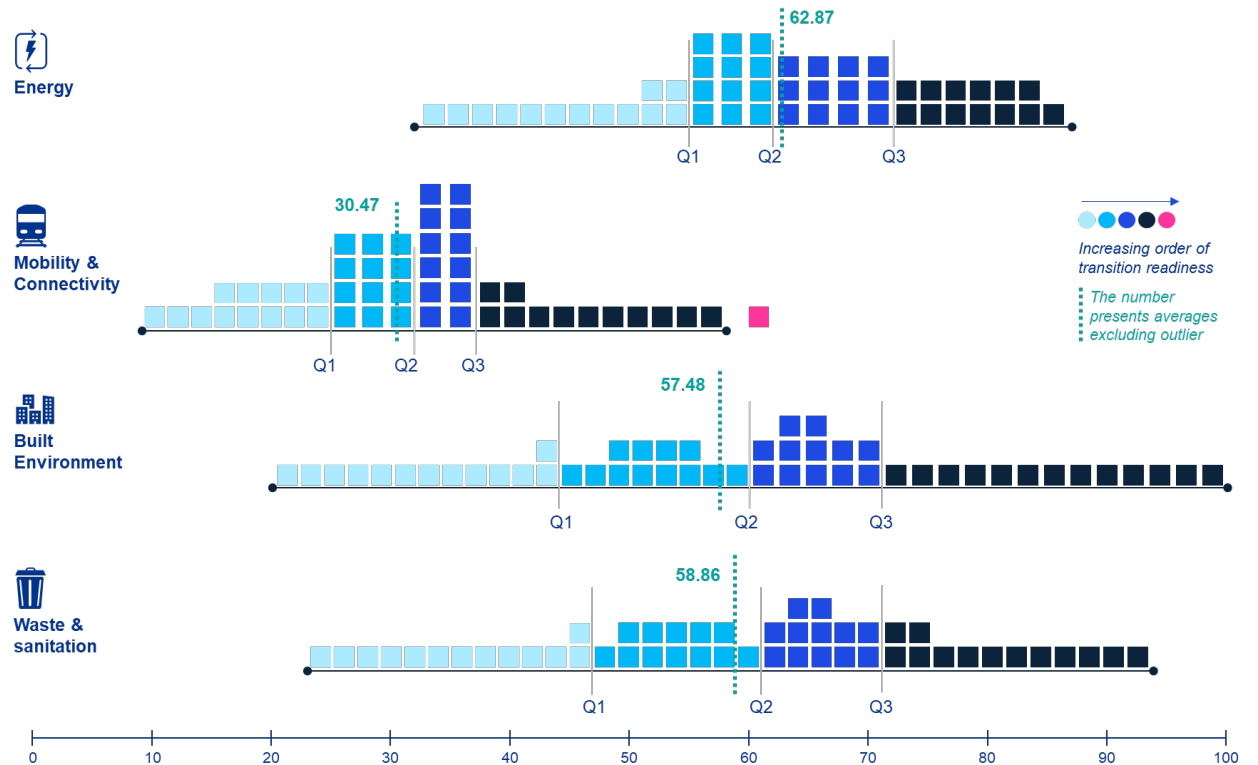
The framework categorizes cities into two groups: Pacesetters, cities that score above average against the indicators in a sector, and Followers, cities that score below average in a sector.

*Industry does not feature in the sector scorecard analysis due to the data type collected and the scoring applied.



Averages of the sector

The below figures are the adjusted averages calculated for each sector against 48 indicators



Energy sector

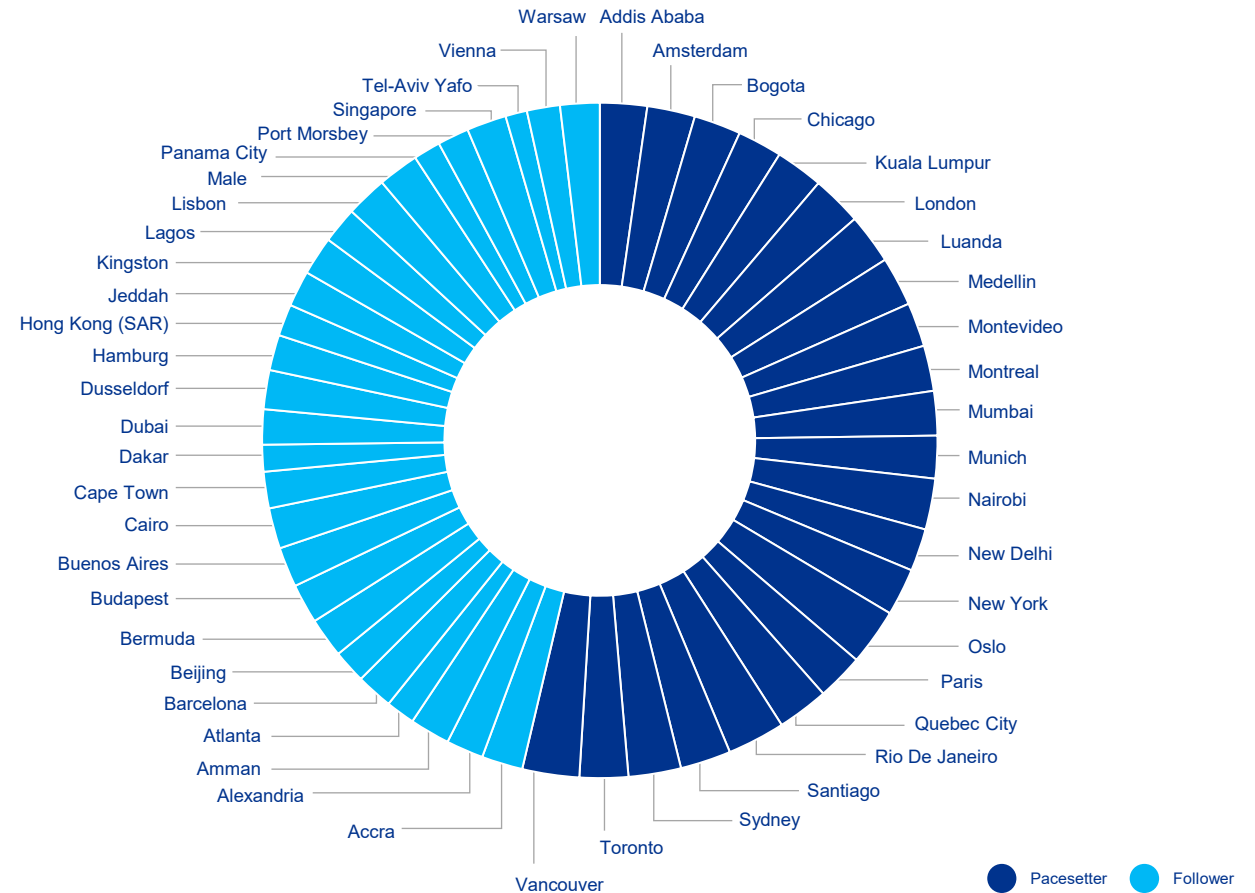


From a policy perspective, energy policies are usually designed at the national, federal, provincial, or state levels and most cities lack control over core energy decarbonization strategies such as ending use of unabated fossil fuels for electricity generation. Energy is one of the most regulated sectors. The integration of distributed energy resources and renewables is a major concern as well as the mismatch between regulations and the energy market.

In cities that are pacesetters there have been significant investments in solar, offshore wind and hydrogen. Long-term policies, coal phase-outs, market liberalization, reorientation of utilities and the adoption of new business models have transitioned the energy sector a step closer to net zero.

Furthermore, the interconnectedness of the energy sector with other high emitting sectors, makes moving this sector towards net zero both a challenge and an opportunity to simultaneously transition other sectors. Some developing cities feature as pacesetters, reinforcing the fact that they emit less than their developed counterparts as they consume less energy.

Despite the potential to use renewable energy in emerging and developing cities, the reliance on fossil fuels remains high as industrialization and development are key pillars for economic growth. The importation of diesel remains a prohibitory factor.



Source: Net Zero Readiness Spotlight: Cities. Insights Towards Progress, (KPMG), 2022

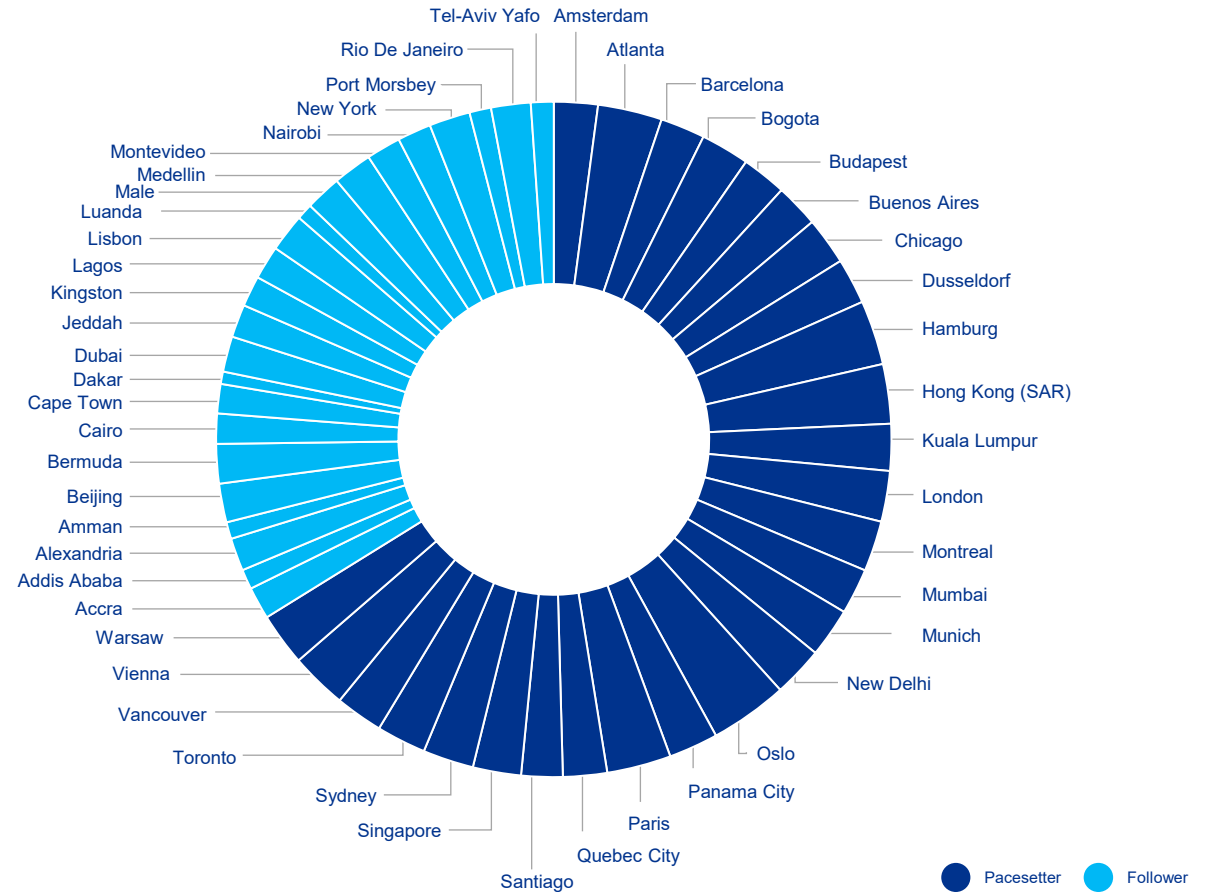
Mobility and connectivity



One of the major challenges in decarbonizing the transport sector is the cost of acquiring electric vehicles and the availability of charging infrastructure, which can make policies and initiatives redundant. The location, visibility and accessibility of charging stations must be taken into consideration and a supportive renewable electric grid should be in place to accelerate the uptake of cleaner transport.

Cities in the pacesetter category have been able to leverage spatial planning tools, innovative city design not only to encourage uptake of electric public transport and vehicles, but also to support active transport such as walking and cycling. They have used innovative finance and investments to cover upfront costs of the transition to electric vehicles, electrify public transport fleet, diversify the modal mix and test micro mobility alongside digital solutions. Tax incentives for electric vehicles, removal of fuel subsidies, and expansion of public transport infrastructure has positively influenced the transition to cleaner transport.

Some of the followers are megacities with very large populations, rampant urban sprawl and have in place public transport which is mostly informal or paratransit in nature, such as shared taxis. However, most of these cities are now in the initial stages of piloting electric public transport with a handful of buses on the roads albeit with limited charging infrastructure. Another limiting factor is that follower cities rely on counterproductive policies such as low-density suburban developments, fossil fuel subsidies and availability of cheap secondhand vehicles which negatively impact the decarbonization of the transport sector.



Source: Net Zero Readiness Spotlight: Cities. Insights Towards Progress, (KPMG), 2022

Built environment



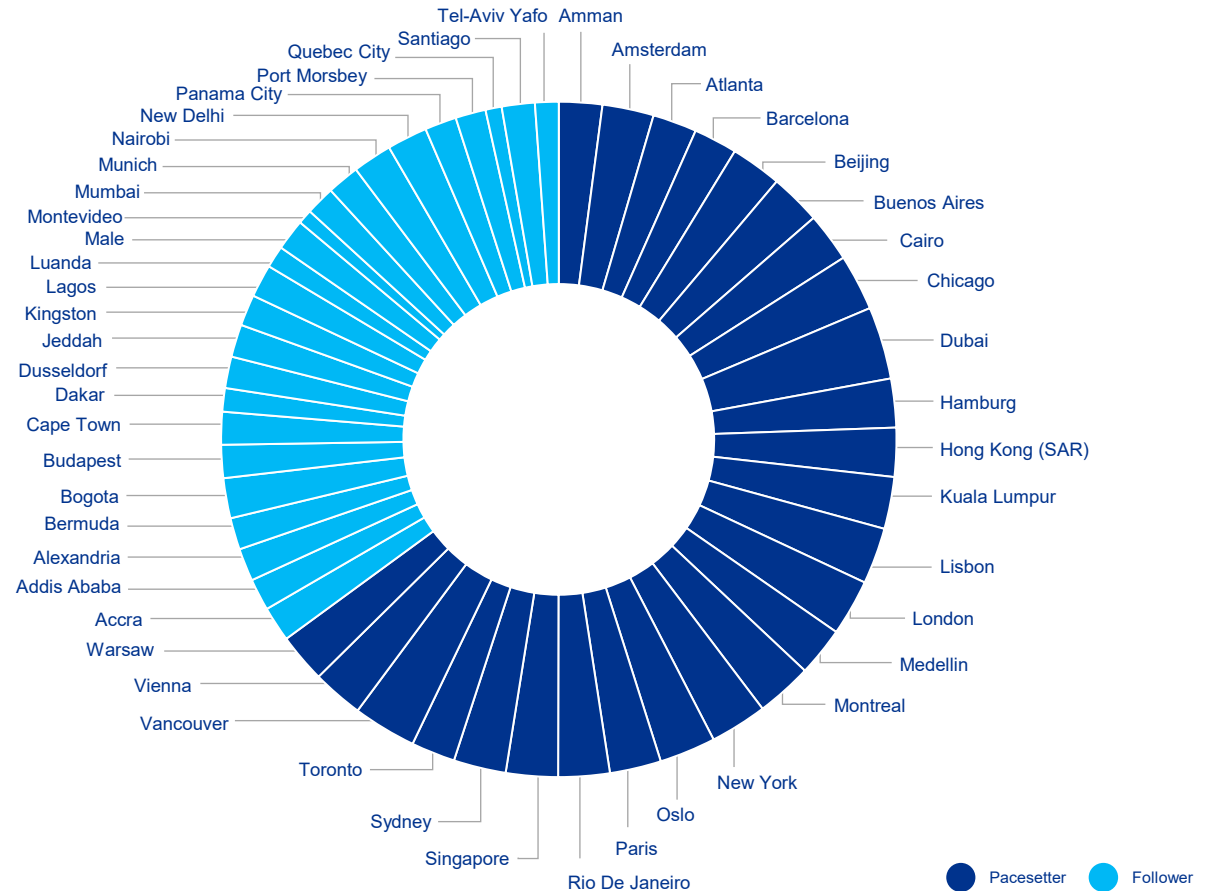
Buildings are one of the defining features of cities and as urbanization intensifies emissions are expected to continue to rise if the transition to Net zero is not accelerated. Buildings produce high levels of emissions, particularly from energy use for heating, cooling, and building operations. Seventy-five percent of global energy consumption occurs in cities and this is primarily attributed to the buildings sector.

Half of the 50 participating cities fall within the pacesetter category, signaling concerted efforts to help ensure energy efficiency in the use and operations of buildings in order to reduce emissions. Another indicator of success is the deployment of technology, digital solutions, and innovative design in the built environment sector. In cities where heating and cooling is a concern, innovative district cooling and heating, regulations such as green building codes, and the use of renewable energy has yielded positive results in the transition to net zero. There are also trends towards the enforcement of building energy regulations, the introduction of building codes that favor low carbon, and mandatory performance standards for existing and new buildings.

A major challenge in decarbonizing the built environment is that buildings are diverse in terms of their size, design, usage, and performance and vary across climatic zones. This requires climate, socio-economic and culturally appropriate decarbonization measures for both existing and new buildings. With the increasing challenges posed by rising temperatures that lead to heat waves, pacesetter cities are investing in green infrastructure and nature-based solutions. Green roofs, building retrofits and the uptake of renewable energy in particular solar energy are having positive impacts.

The challenges for cities that are followers vary depending on the city, but key concerns include rising population growth, demand for commercial and residential buildings, affordable energy and dependency on fossil fuels for heating, cooling and energy use.

Source: Net Zero Readiness Spotlight: Cities. Insights Towards Progress, (KPMG), 2022



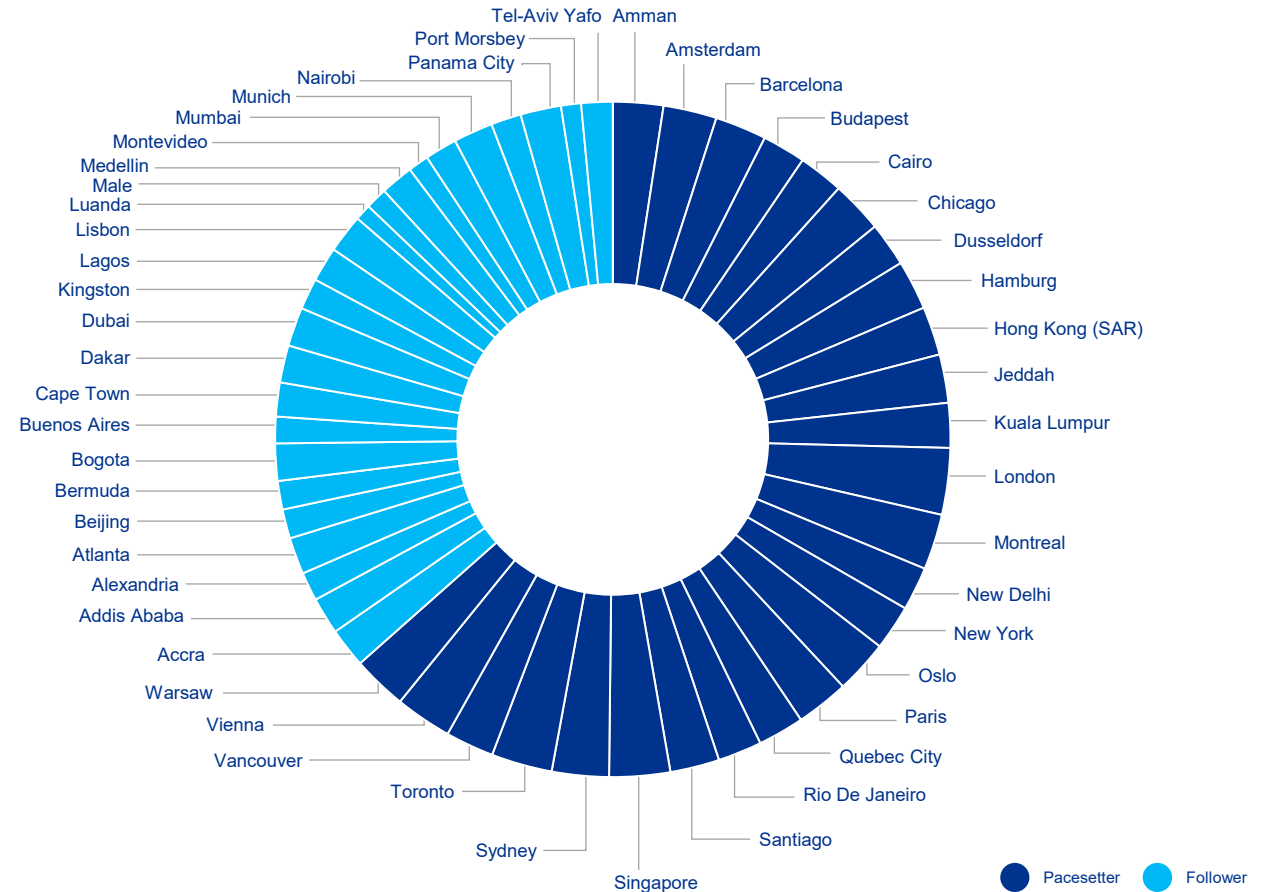
Waste and sanitation



The waste and sanitation sector typically generates fewer emissions than other sectors, but remains a major contributor to greenhouse gases. As cities continue to grow, decarbonizing waste management processes such as transportation and incineration will be critical. Water management is energy intensive and with rising energy prices across the globe, progress towards net zero may be slow.

Pacesetter cities have been able to move the sector towards net zero by decarbonizing activities in the supply chain rather than the sector in its entirety. Some cities have implemented waste-to-energy projects, developing a robust circular economy, decarbonizing waste water treatment facilities and deepening citizen and community engagement around zero waste.

Most of the followers are developing cities where the provision of waste, water and sanitation services are typically challenged by the cost of urban waste management. The World Bank finds that in low-income countries, waste is the single highest budget item comprising approximately 20 percent of a typical municipal budget.¹ Most of the cities, both pacesetters and followers, have set ambitious targets and goals for zero waste but more action is needed to achieve net zero.



1. "Kaza, Silpa; Yao, Lisa C.; Bhada-Tata, Perinaz; Van Woerden, Frank. 2018. What a Waste 2.0 : A Global Snapshot of Solid Waste Management to 2050. Urban Development. Washington, DC: World Bank. World Bank. <https://openknowledge.worldbank.org/handle/10986/30317>

Source: Net Zero Readiness Spotlight: Cities. Insights Towards Progress, (KPMG), 2022



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