

CITY FEATURES



Recife is the capital of the state of Pernambuco, located in the North-east region of Brazil. It lies on the alluvial plain, with islands, peninsulas and mangroves as its main geographical features. It is the city with the best Human Development Index in Brazil’s northeast region and the fourth Brazilian capital in the hierarchy of federal management. The city is one of the most vulnerable in the world to sea level rise and is considered Brazil’s most threatened city to climate change (IPCC). Recife is the seventh wealthiest city in Brazil, with about two-thirds of its GDP coming from trade and services. In addition, Recife has industrial areas and the Suape Industrial and Port Complex, which is the largest shipyard in the Southern Hemisphere.



Population
1,661,017
 (2021)



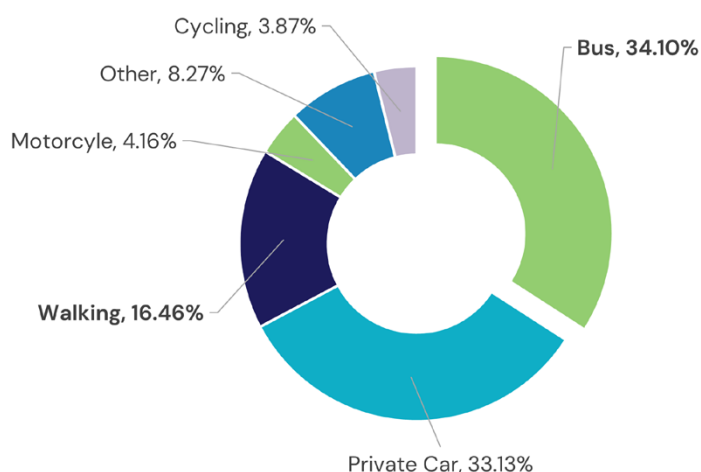
Land area
218.843 km²



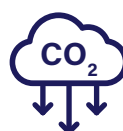
Average temperature
26°C

TRANSPORT FEATURES

Modal Split¹



GHG Emission Levels²



Total GHG emissions
3,043,608 tCO_{2eq}
 From road transport
1,738,933 tCO_{2eq}

Air Pollutant Levels



PM 2.5	NO ₂
—	—
PM 10	SO ₂
—	—

The city has a complex public transport system that includes BRT, buses, minibuses and the metro. After the pandemic, the city has been experiencing an increase in the use of private cars and a decrease in the use of public transportation, leading to an increase in traffic. This resulted in Recife being ranked the worst in the country for traffic (according to TomTom Traffic Index, 2022). Currently, the city is investing in active mobility in order to encourage the population to adopt more sustainable types of transportation. Moreover, Recife’s Urban Mobility Plan (PMU), approved in December 2021, has recommendations to discourage car use, encourage public transportation, and includes suggestions on the implementation of electric buses.

¹ Origin-Destination Survey of Recife, 2021

² 3rd Greenhouse Gas Emission Inventory, Municipality of Recife 2020

BUS SYSTEMS OUTLOOK

Bus Trips Features



Number of bus trips
1,200,000 (2019)
785,000 (2021)



Average distance³
8.22 km



Average time³
64 min



Trips by purpose⁴

Study **51.94%**
 Work **33.28%**

Shopping **6.25%**
 Recreation **3.74%**

Health **3.11%**
 Errands/Services **1.68%**



Trips by gender⁴

Men **37.85%**
 Women **62.15%**

Bus travel in Recife plays a crucial role in providing affordable and accessible transportation for many low to moderate income residents who depend on public transportation for daily trips. Most bus trips are made for work (33.28%) and study (51.94%), while recreation, shopping, health and other purposes make up a smaller percentage of trips. The majority of bus users in Recife are women (62.15%), while men account for 37.85% of the trips. The main destinations of the trips are the southern zone and the city center which are important commercial centers, while the university center of the Federal University of Pernambuco is an important hub of the city for trips for study purposes.

Fleet and Infrastructure⁵



Number of buses
2,268



Number of routes
343 bus lines
14 BRT lines

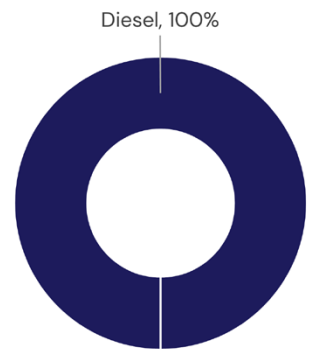


2,133 bus stops
27 bus depots

Buses by fleet type

According to the fleet statistics of Metropolitan Region Consortia, Padron buses comprise 81.3% of the fleet, followed by 9.8% of Standard buses and 9.1% of Articulated buses. Additionally, the municipality operates a complementary transport system with 154 minibuses in 25 lines that reach the remote areas of the city.

Buses by fuel type



Quality of Service

The bus lines reach the most peripheral areas of the city and serve the most vulnerable sections of the population. Despite this, a general complaint of the population is about the non-availability of air conditioning in buses which results in discomfort for commuters since the city has an average temperature of 26°C, reaching 35°C in the summer. Besides this, the heavy traffic in Recife stands out, and is considered the worst in the country, which is why the city has invested in exclusive lanes for buses on the main city streets.

The city has a fare integration that allows the user to use both modes (bus and subway) or two bus lines by purchasing only one ticket within a 2-hour interval. However, it does not yet serve all bus terminals and subway stations.



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3 Moovit Global Public Transport Report, 2022

4 NOTE: Results for trips considering the use of Bus, BRT and Metro

5 NOTE: Bus fleets and infrastructure information is from Metropolitan Region Consortia

Existing Business Model⁶

A

Model A: Vertically integrated, private operator in BRT/integrated system

B

Model B: Divided responsibilities in BRT/integrated system

C

Model C: Large, more formal, private operator in traditional service

D

Model D: Small, informal, private operator in traditional service

E

Model E: Government-run system

C

The Public Collective Passenger Transport System of the Metropolitan Region of Recife – STPCP/RMR is managed by the State of Pernambuco in association with the Municipality of the City of Recife and the Municipality of Olinda through the Grande Recife Transport Consortium (GRCT). It is responsible for managing the inter-municipal lines of the metropolitan region and municipal lines of Recife and Olinda. The bus lines are operated by 13 private companies, with two operating consortia. The GRCT is responsible for the timetables, routes, supervision and control of the system.



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⁶ Based on Accelerating a market transition in Latin America: New business models for electric bus deployment, P4G, Zebra and Dalberg, 2020

OPPORTUNITIES AND CHALLENGES FOR ADOPTION OF E-BUS FLEETS



Opportunities

- The city already has an urban mobility policy that encourages the adoption of electric vehicles in public transport.
- The city did an electric bus pilot in 2019, so the experience can be leveraged for actual implementation.
- The transportation is managed by a Metropolitan Consortium, which increases the possibility to scale up and generate a regional impact in the case of electric bus project implementation.



Challenges

- Financing the vehicles and infrastructure would be a challenge since the cost of purchase and implementation is high.
- Rethinking the type of business model so that the deployment of electric buses does not put the burden of increased fares on users, and taking into account that lesser passengers use public transport since the pandemic.
- Recife has hill areas, with streets on high slopes, which is a challenge for electric technology.
- As transportation is managed by the Metropolitan Consortium, linked to the state government, implementation will be a challenge since the discussions would involve more regional actors and not only the city of Recife.



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About the TUMI E-Bus Mission

Funded by the German Ministry for Economic Cooperation and Development (BMZ), a core group of organizations supports cities in their transition toward electric bus deployment. For more information please contact: tumi-network@iclei.org or visit <https://sustainablemobility.iclei.org/tumi/>