ORLANDO

FLORIDA (UNITED STATES)

Land area (km^2)
295

Population size (2020)
over 280,000

Greenhouse gas emissions (CO_2 equivalent)
6,994,170 tonnes

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The City of Orlando has a strong reputation for its city-wide achievements in sustainability and resilience. Over the last decade, the Green Works Orlando initiative has revolutionised the city by adding a sustainability chapter to the local municipal code. The implementation of sustainability policies and plans has made the city a leader in developing environmentally friendly communities.

In 2020, the Orlando Utilities Commission (OUC) began developing its Electric Integrated Resource Plan, with the aim of becoming carbon neutral by 2050 (with interim CO_2 emission reduction targets of 50% by 2030 and 75% by 2040). The plan also acts as a pillar to achieve the mayor's ambitious goal of 100% renewable electricity generation[i] in the city by 2050. It supports the phase-out of coal by 2027 and provides a roadmap to diversify the city's existing electricity mix. Although solar PV will remain the main source of new energy, Orlando will invest in energy storage and other related technologies to ensure reliability and resilience.

The OUC has a major role in making solar energy affordable and accessible in the city and has found innovative ways to harness power from the sun. In 2017, it established long-term power purchase agreements to buy power from the 12.6 megawatt (MW) Kenneth P. Ksionek Community Solar Farm, the first in the country to include a solar PV array that sits atop a by-product landfill. In 2020, the OUC backed the construction of two new solar PV farms – the Harmony Solar Energy Center in St. Cloud and the Taylor Creek Solar Energy Center in east Orange County[ii], together capable of powering 30,000 homes – and started purchasing power from them.

Orlando also is home to more than 1 MW peak of floating solar PV and has been a pioneer in this new application since 2017. The OUC will to continue to study the performance and scalability of floating solar PV in collaboration with the National Renewable Energy Laboratory thanks to a USD 1 million grant from the US Department of Energy. In 2020, the City of Orlando unveiled the new "floatovoltaics" at its international airport, showcasing this unique solar application. The local government has installed several "solar sculptures" and "solar trees" in the city to generate electricity and educate customers on the benefits of solar power.

Source: See endnote 5 in the *Urban Policy Landscape* chapter.

i According to the CDP-ICLEI Unified Reporting System, the share of renewables in electricity generation in Orlando was 2% (no date specified).

ii These are two of five projects being developed in the context of the Florida Municipal Solar Project, a partnership between the Florida Municipal Power Agency and 16 Florida public power utilities, including the OUC.

OXFORD

UNITED KINGDOM

Land area (km^2)	Population size (2019)	Greenhouse gas emissions (CO_2 equivalent)
45.6	152,450	718,082 tonnes

In January 2019, Oxford City Council unanimously declared a climate emergency in Oxford and agreed to create a Citizens' Assembly to help consider new carbon targets and additional measures to reduce emissions in the city. As a result, Oxford aims to become a net-zero carbon emitter by 2030, a full 20 years ahead of the UK national target. In addition, Oxford City Council pledged to achieve net-zero carbon emissions in its own operations by the end of 2020, after the Citizens' Assembly requested such a move. Oxford City Council is a member of Low Carbon Oxford, a network of 40 public and private organisations that aimed to reduce city-wide emissions 40% below 2005 levels by 2020. Oxford also is part of the UK100, a network of local government leaders who have pledged to shift to 100% clean energy by 2050.

To decarbonise energy in transport and heat systems (the major sources of carbon emissions in Oxford) and to achieve the 40% emission reduction, the City Council has facilitated an energy storage project, the Energy Superhub Oxford (ESO). It expected to be the world's largest hybrid energy storage system, with a 50 MW grid-scale battery[i] that will support a 10-kilometre network of EV charging points and ground-source heat pumps for around 300 households.

The ESO project, which started construction in 2020, will help reduce 20,000 tonnes of CO_2 annually by 2021 and 44,000 tonnes of CO_2 annually by 2032. The project will be capable of integrating multiple sources of energy to manage energy demand, including renewables. Because Oxford is part of the UK100 network, by 2050 the ESO is to run entirely on renewable energy.

The GBP 41 million (USD 53.8 million) project will help accelerate the use of electric vehicles in Oxford, by providing charging points powered by the spare capacity of the battery to City Council depots and key businesses including local bus companies, taxi providers and commercial fleet depots. The project also aims to develop the first rapid charging hub in Oxford, making available around 20 ultra-rapid EV chargers for public use. Charging speeds will range between 10 and 30 minutes.

The project scope also includes a "Trial before you buy" programme by the City Council for taxi drivers in Oxford. This will help the taxis transition from 100% diesel to 100% electric by 2025. In total, the ESO pilot project will last for 36 months; once successful, the technology is to be expanded to up to 44 other sites across the United Kingdom.

Source: See endnote 248 in the *Markets and Infrastructure* chapter.

i The battery, connected to the Cowley sub-station in Blackberry Lane, South Oxford, will store and deliver electricity (including renewable electricity) to electricity suppliers and help balance the local requirements for the grid. Electricity will be stored at times of low demand and then resupplied back to the grid when demand peaks. The technology is capable of shifting demand to periods of low prices, minimising consumers' energy bills and overcoming local network constraints.