ThamesWey

THAMESWEY GROUP ENVIRONMENTAL REPORT SUMMARY

For the reporting period 1st January to 31st December 2020.

Housing | Energy | Development | Sustainability

2020 Highlights

Reduced Emissions
Direct greenhouse gas emissions from ThamesWey energy centres decreased for the second year in a row.

GHG Savings
Our low-carbon heat, power and cooling network saved over 2,100 tonnes of greenhouse gas (GHG) emissions.

Renewable Energy
Expanded our solar capacity, increasing the amount of renewable electricity produced.

Sustainable Housing
Added 151 properties to our portfolio, with 103 of these receiving thorough energy efficiency renovations.

Biodiversity
Improvements included wildlife friendly fencing, installing natural turf and a town centre urban greening project at Middle Walk.

Energy Innovation
Trialled aggregated domestic battery storage for renewable solar power in ThamesWey properties.

Community Action
Launched Surrey's largest energy efficiency project to date ('Green Jump Surrey') to provide low-income households with funding for energy efficiency home improvements.

Supporting Businesses
New retail units in the Victoria Place development connected to the Woking Town Centre power network and a new hotel connected to the Milton Keynes network, ready for opening next year.

Future-proofing
Building work commenced on ThamesWey's new combined heat and power energy centre. The centre is designed to be flexible and ready to incorporate new renewable energy technologies in the future.

Images from top to bottom:
Solar PV on the new ThamesWey headquarters
Green walls at the refurbished Middle Walk
External insulation for a resident courtesy of Green Jump Surrey

2020 vs 2019 Performance Overview

ThamesWey **GHG Emissions** ↓ **10%**

-8%
Scope 1

-14%
Scope 2

-12%
Scope 3
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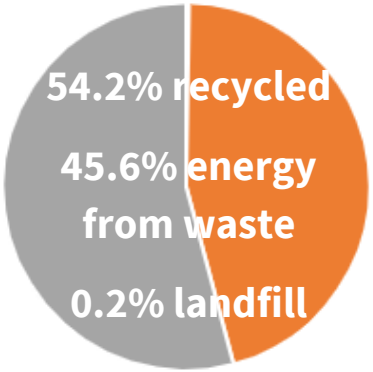
*See page 5 for definitions

Waste produced ↓ **90%**



2,174 tCO_2e of emissions avoided by supplying low-carbon heat, cooling and electricity

407 tCO_2e avoided by producing renewable solar electricity

68 tCO_2e avoided by installing energy efficiency measures in ThamesWey housing stock

87 tCO_2e avoided by projects delivering local domestic energy efficiency installations

GHG emissions saved through activities ↑ **6%**

Office water usage ↓ **51%**

Energy centre water usage ↓ **53%**

tCO_2e = Tonnes of carbon dioxide equivalent emissions

Biodiversity

Town centre renovation ‘Middle Walk’

Housing stock refurbishments

10m tall green wall, 500m² green roof

500m² artificial turf replaced with natural turf

900m of small-mammal friendly fencing

Innovation

A centralised battery storage system was piloted at a unique group of ThamesWey properties. Tesla Powerwall batteries were installed within a ThamesWey sub-station that serves 14 properties within Brookwood Farm, Knaphill.

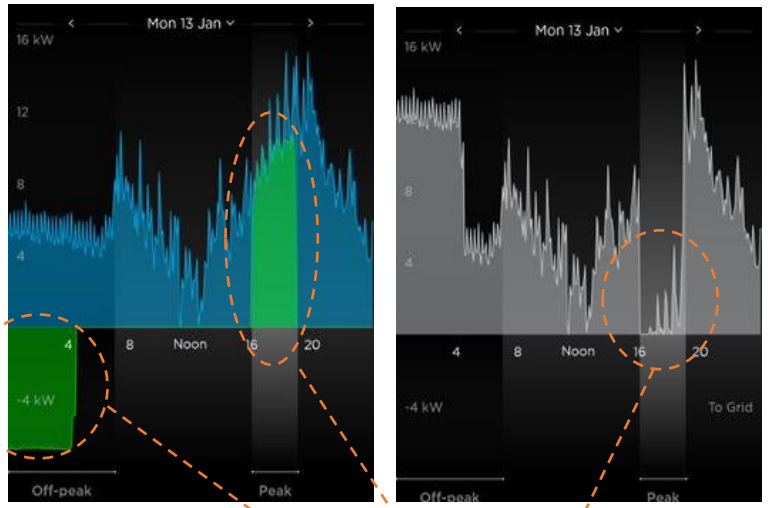
The properties connected to this electricity ‘microgrid’ have a combined 52kW of solar photovoltaic tiles across the roof spaces.

The batteries accumulate excess solar generation from the properties and store this renewable electricity. This excess solar energy is then released back to the ‘microgrid’ of properties later when it is needed, instead of using electricity from the national grid.

In winter, when there is rarely an excess in solar power generation, the battery charges from grid electricity overnight, outside of ‘peak-time’– when it is typically generated by the ‘cleanest’ technology like wind. Then, the electricity is released to the properties in ‘peak-time’, such as early evening, a time when the national electricity grid is typically operating with the most carbon intensive generators. This set-up helps to reduce carbon emissions for the properties connected.

Monitoring so far shows a two-thirds decrease in grid consumption during the most carbon intensive times.

These screenshots show a sample winter day of energy usage from the connected properties in blue, the Tesla battery usage in green and the national grid electricity use in grey.



The green sections show first the battery charging overnight when the national grid electricity is the ‘cleanest’, storing this energy, then releasing it to the properties during peak time.

This largely eliminates using grid electricity during the peak times when the national grid is at its most polluting, as shown by the sudden drop in the grey line chart.

2020 Progress

Impact area	Environmental Policy Objective	Metric	Progress during 2020
Energy and Carbon	To reduce GHG emissions to achieve carbon neutrality by 2030.	Reduction in emissions	Gross emissions reduced by 9.5% compared with the previous year. Scope 1 emissions reduced overall, due a reduced energy demand from commercial customers and as a result of the Combined Heat and Power (CHP) generator at Woking Park being inactive. Scope 2 emissions also reduced, net emissions are zero due to input from ThamesWey solar PV assets. Scope 3 decreased overall, despite the increase in ThamesWey Housing Ltd housing stock.
	To provide low carbon district energy services	CHP Quality Index value over 100	Maintained 'good quality' CHP.
Water	To use water efficiently in the district heating system (eliminate leaks and equipment malfunction)	Water use in operational activities	Water use fell by 53% compared to the previous year due to reduced cooling tower utilisation, improvement of assets and repairs made to leaks in the district heating network.
Waste	To reduce operational waste and ensure waste is managed responsibly	Operational waste Waste management	A 90% reduction was seen in the amount of waste produced. This is largely due to the reduced activity in this year due to the pandemic.
Materials and Resource Efficiency	To improve resource efficiency (reuse, recycle and recover resources)	Raw material use in developments	This impact area is not currently monitored. Consumption of key materials varies depending on the development projects currently being undertaken. The ThamesWey mission statement is to build sustainable communities, which influences key decision making when it comes to development design. Feasibility varies project to project and opportunities are taken where they align with business plans and external constraints. (Note: Water, natural gas and oil use in the energy centres and distribution network are covered under the energy and water impact areas.)

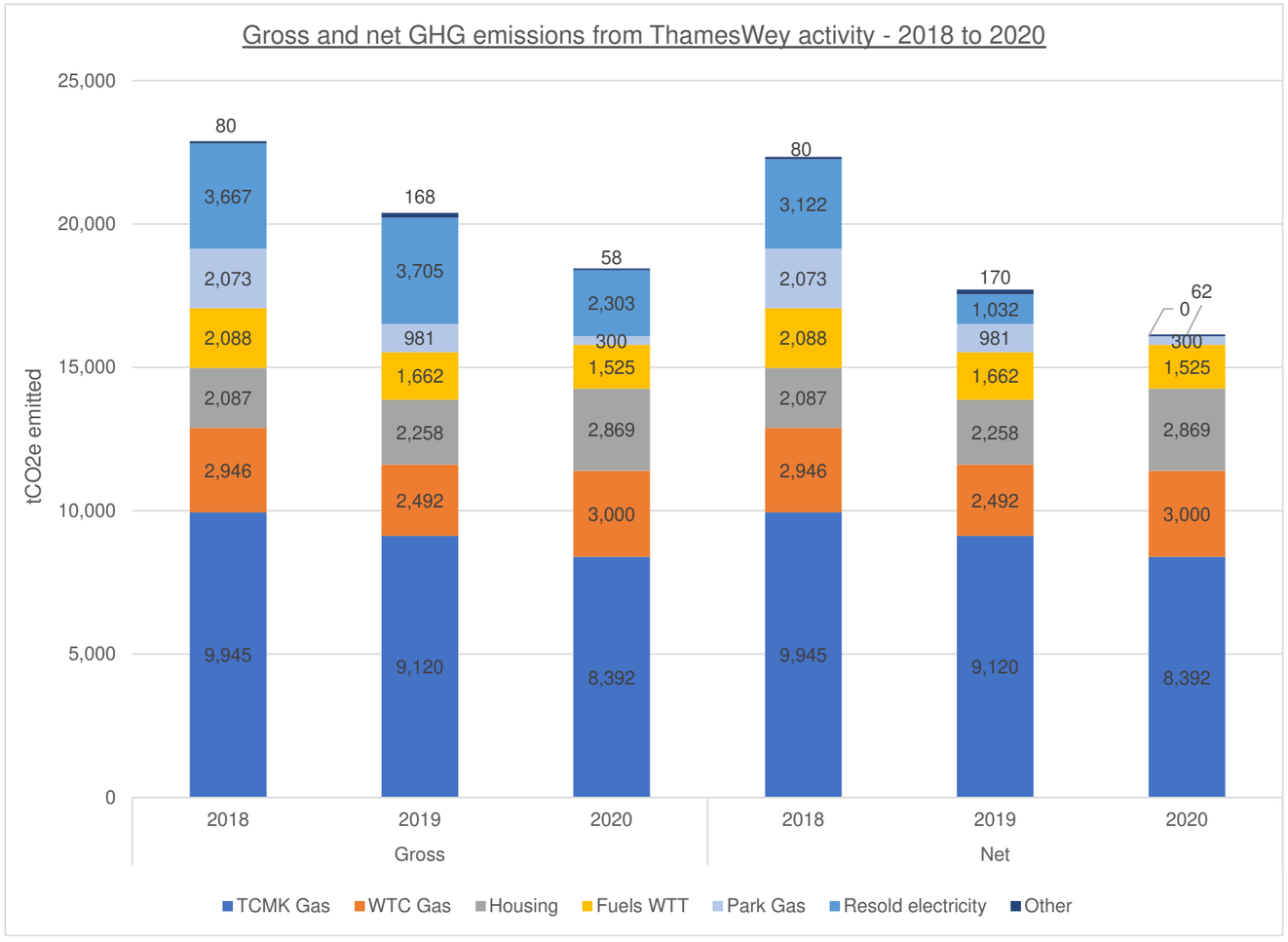
Biodiversity and Ecosystem Services	Preserve and enhance the quality of the natural environment within and around our developments Support local biodiversity by using natural blue and green infrastructure	No metric specified.	Currently biodiversity enhancement opportunities are taken where identified in property renovations, in new developments, and on an ad hoc project basis. These include opportunities to remove artificial turf, create mammal runs and integrate bird/bat boxes into new brickwork, which are always taken where appropriate. Greater priority to support certain species/habitats will be examined with respect to local green infrastructure priorities and strategies.
Emissions to land, air and water	Remain under statutory limits for emissions to air from CHP	Oxides of nitrogen (NO and NO_2 expressed as NO_2 mg/m^3)	All statutory air emissions limits met.

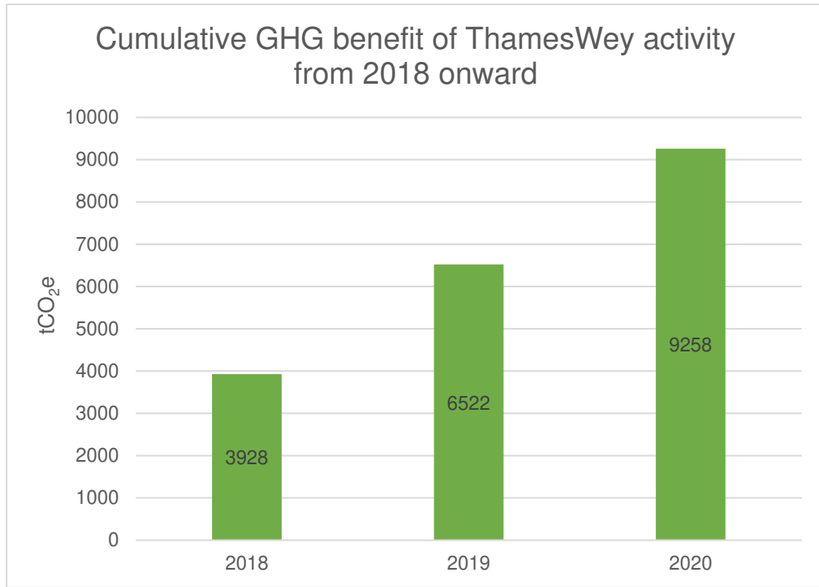
Scope 1 – Greenhouse Gas (GHG) emissions produced as a direct result of ThamesWey activities, primarily from the Combined Heat and Power engines.

Scope 2 – Indirectly produced GHG emissions from upstream activities, for example from the purchased electricity used to run the energy centres.

Scope 3 – Indirectly produced GHG emissions from downstream activities, for example the use of the electricity sold to ThamesWey customers.

Environmental performance dashboard





	Gross GHGs (tCO_2e)	PV generation (MWh)	Water (m^3)	Waste (kg)
2018	23,018	1,248	17,884	No data
2019	20,385	1,285	22,045	4,228
2020	18,448	1,411	10,471	409