

Appendix 4 Assessment case spreadsheet

The operational assessment case spreadsheet is shown in Table A4.1. This includes the energy use for the new G2 Airport Development buildings and infrastructure. The reduction in CO₂ emissions from the Energy from Waste plant and the Photovoltaic and wind generation are also shown.

Table A4.1 Assessment case G2 Operational Energy

Year	G2 Airport Development additional buildings and infrastructure operational CO ₂ Emissions	G2 Airport Development Operational Energy from Waste emissions savings	G2 Airport Development operational energy from Photovoltaic and wind	Assessment Case G2 Airport Development additional Operational	G2 Airport Development additional Operational Diesel/Petrol of airport vehicles	Assessment Case G2 Airport Development additional Operational	Total G2 Airport Development CO ₂ Emissions Buildings and Infrastructure	
							No Vehicles	With vehicles
	tonnes of CO ₂	tonnes of CO ₂	tonnes of CO ₂	tonnes of CO ₂	tonnes of CO ₂	tonnes of CO ₂	tonnes of CO ₂	tonnes of CO ₂
2030	23,700	-4975	- 1598	17,127	4,539	21,666	77,836	87,189

The basis of the G2 Airport Development additional operational energy is detailed in Table A4.2. This data indicates the assumed building areas in the energy modelling and benchmarking. The Ground Coupled Chiller Heat Pump contribution is also shown as delivered cooling energy. Table A4.2 also indicates the specific energy consumptions used and the method of energy analysis applied to each building type.

Table A4.2 G2 Airport Development Building and Facilities Energy consumption

G2 Airport Development New Buildings & facilities	Energy from GCCHP system				Electricity (Lighting, small power, fans & pumps)	Source	Operational Emissions Tonnes of CO ₂
	Floor Areas	Cooling	Heating				
	m ²	MWh	MWh	MWh			
Offices	35570	4883	1701	4086	Carbon Trust ECON 19 - Category 3 Air Con Office	1724	
Terminal (Passenger Areas)	35048	65	1295	3173	Energy model	1339	
Piers	88996	163	3135	9117	Energy model	3847	
Runway lighting				4556	Energy model	1923	
Apron lighting				2474	Energy model	1044	
Car parks	1716000			3787	Energy model -external lighting	1598	
Baggage handling (Terminal building)				4380	Energy model	1848	
Retail (Terminal and Pier Areas)	18400	11283		8059	CIBSE Guide F Table 20.1	3401	
Hotels	112000	82	9304	5600	Carbon Trust En Con 36 Good category	2363	
Cargo	81395		2728	1628	Carbon Trust En Con 18	687	
Catering Warehouses	16380			2047	CIBSE Guide F Table 20.6 Refrigerated Warehouses	864	
General Aviation	71000		2380	2201	Carbon Trust En Con 18	929	
Total	2145132	16475	20543	51108		21568	
Central GCHP system Electricity Consumption Seasonal Co-efficient of Performance =3		5052				2132	
					Grand total	23700	