

Project: Kype Muir Extension
 Section: Non technical summary
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Date: 15/06/2018
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- The aim of this section is to present the results of the Carbon Calculator in easy-to-understand terms for the Carbon Balance Non-Technical Summary
 - Outputs include number of homes powered by wind farm and total carbon saving over lifetime of wind farm

Item	expected	min	max	Source
(1) Average house consumption (kWh/yr)	3,889	3,889	3,889	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/633503/ECUK_2017.pdf
(2) Average house consumption (MWh/yr)	3.89	3.89	3.89	
(3) The CO2 emissions (Fossil-mix) (kg / kWh)	0.48	0.48	0.48	DUKES 2017, Table 5D
(4) Total annual CO2 emissions (kgCO2 / house)	1,855	1,855	1,855	= (1) x (3)
(4b) Emissions from house fossil-fuel mix over lifetime of windfarm(kgCO2 / house)	55,652	55,652	55,652	= (4) * (6)
(5) Energy output from windfarm over lifetime (MWh)	6,622,560	4,257,360	8,081,100	Carbon Calculator / Payback Time and CO2 emissions tab / Energy Output from Windfarm over lifetime
(6) Design life (yrs)	30	30	30	
(7) Payback time (yrs)	3.10	0.80	11.50	Carbon Calculator / Payback Time and CO2 emissions tab / Carbon Payback Time fossil-mix
(8) Payback time (months)	37	10	138	= (7) * 12
(9) CO2 emissions from fossil mix (tCO2/yr)	105,299	67,692	128,489	Carbon Calculator / "Payback Time and CO2 emissions" / "1. Windfarm CO2 emission saving over fossil-mix"
(10) Total emissions from fossil fuels over lifetime (tCO2)	3,158,970	2,030,760	3,854,670	= (6) x (9)
(11) CO2 emissions from development (tCO2eq)	240,536	98,329	775,136	Carbon Calculator / "Payback Time and CO2 emissions" / "Net emissions of carbon dioxide"
(12) CO2 savings (tCO2)	2,918,434	1,932,431	3,079,534	= (10) - (11)
(13) Average annual CO2 savings (tCO2/yr)	97,281	64,414	102,651	= (12) / (6)
(14) No. of houses powered over lifetime	1,702,895	1,094,718	2,077,938	= (5) / (2)
(15) No. of houses powered annually	56,763	36,491	69,265	= (14) / (6)
(16) Number of houses' carbon emissions offset by wind farm	52,441	34,724	55,336	(12) / (4b/1000)
(17) No. Households in South Lanarkshire	145,182	145,182	145,182	https://www.nrscotland.gov.uk/files/statistics/council-area-data-sheets/south-lanarkshire-council-profile.html
% of household in South Lanarkshire powered by wind farm	39%	25%	48%	