

**S13 Table. Estimated energy available through the deployment of onshore renewable energy technologies in the UK.** Land areas available for the deployment of commercial-scale onshore wind, solar and biomass energy; potential installed capacity and annual energy outputs considering the available resource, physical constraints, policy constraints and ecological sensitivity.

Onshore technologies		High ecological risk			Medium ecological risk			Low ecological risk		
		(no sensitivity applied)			(high sensitivity areas excluded)			(high and medium sensitivity areas excluded)		
Opportunity	Constraints	Area (km <sup>2</sup> ) [relative to UK land area]	Potential installed capacity (GW)	Annual energy output (TWh/yr)	Area (km <sup>2</sup> ) [relative UK land area]	Potential installed capacity (GW)	Annual energy output (TWh/yr)	Area (km <sup>2</sup> ) [relative to UK land area]	Potential installed capacity (GW)	Annual energy output (TWh/yr)
Onshore wind <sup>a</sup>	<i>None</i>	235,398 [96.3%]	2,119	5,571	190,581 [78.0%]	1,715	4,511	150,154 [61.5%]	1,351	3,554
	<i>Physical only</i>	124,048 [50.8%]	1,116	2,936	94,011 [38.5%]	846	2,225	69,967 [28.6%]	630	1,656
	<i>Physical + Policy</i>	16,976 [6.9%]	153	402	10,523 [4.3%]	95	249	5,932 [2.4%]	53	140
Solar <sup>b</sup>	<i>None</i>	242,605 [99.3%]	5,337	4,211	206,284 [84.4%]	4,543	3,580	81,199 [33.2%]	1,786	1,409
	<i>Physical only</i>	182,148 [74.5%]	4,007	3,161	161,047 [65.9%]	3,543	2,795	64,513 [26.4%]	1,419	1,120
	<i>Physical and Policy</i>	146,028 [59.8%]	3,213	2,535	134,793 [55.2%]	2,965	2,340	56,808 [23.3%]	1,250	986
Biomass <sup>c</sup>	<i>None</i>	127,977 [52.4%]	96	445	124,302 [50.9%]	93	432	56,374 [23.1%]	42	196
	<i>Physical only</i>	118,744 [48.6%]	89	413	115,576 [47.3%]	87	402	51,371 [21.0%]	39	179
	<i>Physical and Policy</i>	104,289 [42.7%]	78	362	102,058 [41.8%]	77	355	46,138 [18.9%]	35	160

<sup>a</sup> Onshore wind: power density = 9 MW/km<sup>2</sup> [1]; load factor = 0.3 [2, 3].

<sup>b</sup> Solar photovoltaics: power density = 22 MW/km<sup>2</sup> [4]; load factor = 0.09 [2, 3].

<sup>c</sup> Biomass electricity: power density = 0.75 MW/km<sup>2</sup> [4]; load factor = 0.53 [2, 3].

[1] SQWenergy. Renewable and Low-carbon Energy Capacity Methodology: Methodology for the English Regions. London: DECC & CLG; 2010. Available: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/226175/renewable\\_and\\_low\\_carbon\\_energy\\_capacity\\_methodology\\_jan2010.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/226175/renewable_and_low_carbon_energy_capacity_methodology_jan2010.pdf).

Accessed 2015 Oct 28.

[2] DECC. Digest of United Kingdom energy statistics (DUKES) 2014. London: Department of Energy and Climate Change (DECC); 2014. Available: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/338750/DUKES\\_2014\\_printed.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/338750/DUKES_2014_printed.pdf). Accessed 2015 Oct 27.

[3] DECC. Digest of United Kingdom energy statistics (DUKES) 2015. London: Department of Energy and Climate Change (DECC); 2015. Available: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/450302/DUKES\\_2015.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/450302/DUKES_2015.pdf). Accessed 2015 Oct 27.

[4] MacKay DJC. Sustainable Energy - without the hot air. Cambridge: UIT Cambridge Ltd.; 2009. Available: <http://www.inference.eng.cam.ac.uk/sustainable/book/tex/sewtha.pdf>. Accessed 2015 Oct 28.