

Table 19: Capital and operating cost assumptions for all technologies⁷⁷

		CCGT H Class			CCGT F Class			CCGT CHP mode			OCGT 600MW 500 hr		
Reference plant size	MW	1,200			1,471			168			625		
Average load factor (net of availability)	%	93%			93%			93%			6%		
Efficiency (HHV)	%	54%			53%			34%			35%		
Pre-development period	Duration and % spend per years 1 & 2	2 years	44%	44%	2 years	44%	44%	2 years	43.5%	43.5%	2 years	55.6%	44.4%
	% spend per years 3, 4, & 5	12%			12%			13%					
	% spend per years 6, 7, & 8												
Construction period	Duration and % spend per years 1 & 2	3 years	40%	40%	3 years	40%	40%	3 years	40%	40%	2 years	50%	50%
	% spend per years 3, 4, & 5	20%			20%			20%					
	% spend per years 6, 7, & 8												
Operating period	Duration	25 years			25 years			25 years			25 years		
		Commissioning year			Commissioning year			Commissioning year			Commissioning year		
		2018	2020	2025	2018	2020	2025	2018	2020	2025	2018	2020	2025
Pre-development £/kW	High	20	20	20	10	10	10	80	80	80	20	20	20
	Medium	10	10	10	10	10	10	60	60	60	20	20	20
	Low	10	10	10	10	10	10	30	30	30	20	20	20
Construction £/kW	High	600	600	600	500	600	600	800	800	900	300	300	300
	Medium	500	500	500	500	500	500	700	700	700	300	300	300
	Low	400	400	400	400	400	400	600	600	600	300	300	300
Infrastructure £'000s	High	30,200	30,200	30,200	30,200	30,200	30,200	27,100	27,100	27,100	30,200	30,200	30,200
	Medium	15,100	15,100	15,100	15,100	15,100	15,100	13,600	13,600	13,600	15,100	15,100	15,100
	Low	7,600	7,600	7,600	7,600	7,600	7,600	6,800	6,800	6,800	7,600	7,600	7,600
Fixed O&M £/MW/year	Medium	12,200	12,200	12,200	11,400	11,400	11,400	28,200	28,200	28,200	4,600	4,600	4,600
Variable O&M £/MWh	Medium	3	3	3	3	3	3	5	5	5	3	3	3
Insurance £/MWh/year	Medium	2,100	2,100	2,100	1,900	1,900	1,900	2,900	2,900	2,900	1,200	1,200	1,200
Connection and Use of System charges £/MW/year	Medium	3,300	3,300	3,300	3,300	3,300	3,300	3,300	3,300	3,300	2,400	2,400	2,400

⁷⁷ For the tables in this section (except for onshore and offshore wind) the load factor quoted is the same for all commissioning years. Refer to relevant table notes for exceptions related to onshore and offshore wind.

		OCGT 400MW 500 hr			OCGT 300MW 500 hr			OCGT 299MW 500 hr			OCGT 100MW 500 hr		
Reference plant size	MW	400			311			299			96		
Average load factor (net of availability)	%	6%			6%			6%			6%		
Efficiency (HHV)	%	34%			35%			35%			35%		
Pre-development period	Duration and % spend per years 1 & 2	2 years	55.6%	44.4%	2 years	55.6%	44.4%	2 years	55.6%	44.4%	2 years	55.6%	44.4%
	% spend per years 3, 4, & 5												
	% spend per years 6, 7, & 8												
Construction period	Duration and % spend per years 1 & 2	2 years	50%	50%	2 years	50%	50%	2 years	50%	50%	2 years	50%	50%
	% spend per years 3, 4, & 5												
	% spend per years 6, 7, & 8												
Operating period	Duration	25 years			25 years			25 years			25 years		
		Commissioning year			Commissioning year			Commissioning year			Commissioning year		
		2018	2020	2025	2018	2020	2025	2018	2020	2025	2018	2020	2025
Pre-development £/kW	High	30	30	30	40	40	40	40	40	40	90	90	90
	Medium	30	30	30	30	30	30	30	30	30	80	80	80
	Low	20	20	20	30	30	30	30	30	30	70	70	70
Construction £/kW	High	400	400	400	600	700	700	600	700	700	800	800	800
	Medium	300	300	300	400	400	400	400	400	400	600	600	600
	Low	300	300	300	300	300	300	300	300	300	600	600	600
Infrastructure £'000s	High	30,200	30,200	30,200	27,100	27,100	27,100	27,100	27,100	27,100	25,100	25,100	25,100
	Medium	15,100	15,100	15,100	13,600	13,600	13,600	13,600	13,600	13,600	12,600	12,600	12,600
	Low	7,600	7,600	7,600	6,800	6,800	6,800	6,800	6,800	6,800	6,300	6,300	6,300
Fixed O&M £/MW/year	Medium	5,200	5,200	5,200	6,300	6,300	6,300	6,400	6,400	6,400	9,900	9,900	9,900
Variable O&M £/MWh	Medium	3	3	3	3	3	3	3	3	3	4	4	4
Insurance £/MWh/year	Medium	1,300	1,300	1,300	1,600	1,600	1,600	1,600	1,600	1,600	2,500	2,500	2,500
Connection and Use of System charges £/MW/year	Medium	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400

		OCGT 600MW 2000 hr			OCGT 400MW 2000 hr			OCGT 300MW 2000 hr			OCGT 299MW 2000 hr		
Reference plant size	MW	625			400			311			299		
Average load factor (net of availability)	%	22%			22%			22%			22%		
Efficiency (HHV)	%	35%			34%			35%			35%		
Pre-development period	Duration and % spend per years 1 & 2	2 years	55.6%	44.4%	2 years	55.6%	44.4%	2 years	55.6%	44.4%	2 years	55.6%	44.4%
	% spend per years 3, 4, & 5												
	% spend per years 6, 7, & 8												
Construction period	Duration and % spend per years 1 & 2	2 years	50%	50%	2 years	50%	50%	2 years	50%	50%	2 years	50%	50%
	% spend per years 3, 4, & 5												
	% spend per years 6, 7, & 8												
Operating period	Duration	25 years			25 years			25 years			25 years		
		Commissioning year			Commissioning year			Commissioning year			Commissioning year		
		2018	2020	2025	2018	2020	2025	2018	2020	2025	2018	2020	2025
Pre-development £/kW	High	20	20	20	30	30	30	40	40	40	40	40	40
	Medium	20	20	20	30	30	30	30	30	30	30	30	30
	Low	20	20	20	20	20	20	30	30	30	30	30	30
Construction £/kW	High	300	300	300	400	400	400	600	700	700	600	700	700
	Medium	300	300	300	300	300	300	400	400	400	400	400	400
	Low	300	300	300	300	300	300	300	300	300	300	300	300
Infrastructure £'000s	High	30,200	30,200	30,200	30,200	30,200	30,200	27,100	27,100	27,100	27,100	27,100	27,100
	Medium	15,100	15,100	15,100	15,100	15,100	15,100	13,600	13,600	13,600	13,600	13,600	13,600
	Low	7,600	7,600	7,600	7,600	7,600	7,600	6,800	6,800	6,800	6,800	6,800	6,800
Fixed O&M £/MW/year	Medium	6,800	6,800	6,800	7,800	7,800	7,800	9,500	9,500	9,500	9,600	9,600	9,600
Variable O&M £/MWh	Medium	3	3	3	3	3	3	3	3	3	3	3	3
Insurance £/MWh/year	Medium	1,200	1,200	1,200	1,300	1,300	1,300	1,600	1,600	1,600	1,600	1,600	1,600
Connection and Use of System charges £/MW/year	Medium	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500

		OCGT 100MW 2000 hr			Recip Diesel 2000 hr			Recip Diesel 500 hrs			Recip Diesel 90 hrs		
Reference plant size	MW	96			20			20			20		
Average load factor (net of availability)	%	22%			22%			5%			1%		
Efficiency (HHV)	%	35%			34%			34%			34%		
Pre-development period	Duration and % spend per years 1 & 2	2 years	55.6%	44.4%	2 years	50%	50%	2 years	50%	50%	2 years	50%	50%
	% spend per years 3, 4, & 5												
	% spend per years 6, 7, & 8												
Construction period	Duration and % spend per years 1 & 2	2 years	50%	50%	1 years	100%		1 years	100%		1 years	100%	
	% spend per years 3, 4, & 5												
	% spend per years 6, 7, & 8												
Operating period	Duration	25 years			15 years			15 years			15 years		
		Commissioning year			Commissioning year			Commissioning year			Commissioning year		
		2018	2020	2025	2018	2020	2025	2018	2020	2025	2018	2020	2025
Pre-development £/kW	High	90	90	90	20	20	20	20	20	20	20	20	20
	Medium	80	80	80	10	10	10	10	10	10	10	10	10
	Low	70	70	70	10	10	10	10	10	10	10	10	10
Construction £/kW	High	800	800	800	300	300	300	300	300	300	300	300	300
	Medium	600	600	600	300	300	300	300	300	300	300	300	300
	Low	600	600	600	200	200	200	200	200	200	200	200	200
Infrastructure £'000s	High	25,100	25,100	25,100	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500
	Medium	12,600	12,600	12,600	2,200	2,200	2,200	2,200	2,200	2,200	2,200	2,200	2,200
	Low	6,300	6,300	6,300	400	400	400	400	400	400	400	400	400
Fixed O&M £/MW/year	Medium	14,800	14,800	14,800	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Variable O&M £/MWh	Medium	4	4	4	2	2	2	2	2	2	2	2	2
Insurance £/MWh/year	Medium	2,500	2,500	2,500	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Connection and Use of System charges £/MW/year	Medium	2,500	2,500	2,500	- 31,900	- 31,900	- 31,900	- 28,500	- 28,500	- 28,500	- 28,000	- 28,000	- 28,000

		Recip Gas 2000 hr			RECIP GAS 500 hrs			Nuclear - PWR FOAK			Pumped storage		
Reference plant size	MW	20			20			3,300			600		
Average load factor (net of availability)	%	22%			5%			90%			21%		
Efficiency (HHV)	%	32%			32%			100%			77%		
Pre-development period	Duration and % spend per years 1 & 2	2 years	50%	50%	2 years	50%	50%	5 years	20%	20%	5 years	20%	20%
	% spend per years 3, 4, & 5							20%	20%	20%	20%	20%	20%
	% spend per years 6, 7, & 8												
Construction period	Duration and % spend per years 1 & 2	1 years	100%		1 years	100%		8 years	5%	5%	5 years	22.2%	22.2%
	% spend per years 3, 4, & 5							20%	20%	20%	22.2%	22.2%	11.1%
	% spend per years 6, 7, & 8							20%	5%	5%			
Operating period	Duration	15 years			15 years			60 years			50 years		
		Commissioning year			Commissioning year			Commissioning year			Commissioning year		
		2018	2020	2025	2018	2020	2025	2018	2020	2025	2018	2020	2025
Pre-development £/kW	High	20	20	20	20	20	20	-	-	640	50	50	50
	Medium	10	10	10	10	10	10	-	-	240	40	40	40
	Low	10	10	10	10	10	10	-	-	110	30	30	30
Construction £/kW	High	300	300	300	300	300	300	-	-	5,100	1,500	1,500	1,600
	Medium	300	300	300	300	300	300	-	-	4,100	1,000	1,000	1,000
	Low	300	300	300	300	300	300	-	-	3,700	700	700	700
Infrastructure £'000s	High	10,300	10,300	10,300	10,300	10,300	10,300	-	-	50,000	50,000	50,000	50,000
	Medium	3,400	3,400	3,400	3,400	3,400	3,400	-	-	11,500	25,000	25,000	25,000
	Low	700	700	700	700	700	700	-	-	-	10,000	10,000	10,000
Fixed O&M £/MW/year	Medium	10,000	10,000	10,000	10,000	10,000	10,000	-	-	72,900	11,200	11,200	11,200
Variable O&M £/MWh	Medium	2	2	2	2	2	2	-	-	5	42	42	42
Insurance £/MWh/year	Medium	1,000	1,000	1,000	1,000	1,000	1,000	-	-	10,000	4,100	4,100	4,100
Connection and Use of System charges £/MW/year	Medium	- 31,900	- 31,900	- 31,900	- 28,500	- 28,500	- 28,500	-	-	500	15,800	15,800	15,800

		Gas - CCS CCGT Post FOAK			Gas - CCS CCGT Retro Post FOAK			Gas - CCS CCGT Pre FOAK			Gas - CCS CCGT oxy FOAK		
Reference plant size	MW	963			618			1,084			1,038		
Average load factor (net of availability)	%	88%			88%			88%			88%		
Efficiency (HHV)	%	44%			44%			38%			42%		
Pre-development period	Duration and % spend per years 1 & 2	5 years	20%	20%	4 years	25%	25%	5 years	20%	20%	6 years	16.7%	16.7%
	% spend per years 3, 4, & 5	20%	20%	20%	25%	25%		20%	20%	20%	16.7%	16.7%	16.7%
	% spend per years 6, 7, & 8										16.7%		
Construction period	Duration and % spend per years 1 & 2	5 years	20%	20%	4 years	25%	25%	5 years	20%	20%	5 years	20%	20%
	% spend per years 3, 4, & 5	20%	20%	20%	25%	25%		20%	20%	20%	20%	20%	20%
	% spend per years 6, 7, & 8												
Operating period	Duration	25 years			25 years			25 years			25 years		
		Commissioning year			Commissioning year			Commissioning year			Commissioning year		
		2018	2020	2025	2018	2020	2025	2018	2020	2025	2018	2020	2025
Pre-development £/kW	High	-	-	80	-	-	50	-	-	80	-	-	80
	Medium	-	-	50	-	-	30	-	-	50	-	-	40
	Low	-	-	30	-	-	20	-	-	30	-	-	30
Construction £/kW	High	-	-	2,700	-	-	1,800	-	-	2,600	-	-	2,700
	Medium	-	-	2,100	-	-	1,400	-	-	2,000	-	-	2,100
	Low	-	-	1,700	-	-	1,200	-	-	1,700	-	-	1,700
Infrastructure £'000s	High	-	-	30,200	-	-	-	-	-	30,200	-	-	30,200
	Medium	-	-	15,100	-	-	-	-	-	15,100	-	-	15,100
	Low	-	-	7,600	-	-	-	-	-	7,600	-	-	7,600
Fixed O&M £/MW/year	Medium	-	-	31,000	-	-	30,900	-	-	30,500	-	-	83,800
Variable O&M £/MWh	Medium	-	-	3	-	-	3	-	-	4	-	-	4
Insurance £/MWh/year	Medium	-	-	7,300	-	-	7,400	-	-	7,500	-	-	7,500
Connection and Use of System charges £/MW/year	Medium	-	-	3,300	-	-	3,300	-	-	3,300	-	-	3,300

		Gas - CCS OCGT post FOAK			Coal - CCS ASC Partial FOAK			Coal - CCS ASC FOAK			Coal - CCS ASC retrofit FOAK		
Reference plant size	MW	290			734			624			390		
Average load factor (net of availability)	%	85%			91%			91%			91%		
Efficiency (HHV)	%	24%			38%			32%			31%		
Pre-development period	Duration and % spend per years 1 & 2	5 years	20%	20%	5 years	20%	20%	5 years	20%	20%	5 years	20%	20%
	% spend per years 3, 4, & 5	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
	% spend per years 6, 7, & 8												
Construction period	Duration and % spend per years 1 & 2	5 years	20%	20%	5 years	20%	20%	5 years	20%	20%	4 years	25%	25%
	% spend per years 3, 4, & 5	20%	20%	20%	20%	20%	20%	20%	20%	20%	25%	25%	
	% spend per years 6, 7, & 8												
Operating period	Duration	25 years			25 years			25 years			15 years		
		Commissioning year			Commissioning year			Commissioning year			Commissioning year		
		2018	2020	2025	2018	2020	2025	2018	2020	2025	2018	2020	2025
Pre-development £/kW	High	-	-	120	-	-	80	-	-	110	-	-	50
	Medium	-	-	80	-	-	60	-	-	70	-	-	30
	Low	-	-	60	-	-	40	-	-	60	-	-	20
Construction £/kW	High	-	-	3,000	-	-	3,400	-	-	5,500	-	-	3,000
	Medium	-	-	2,300	-	-	2,600	-	-	4,200	-	-	2,400
	Low	-	-	1,900	-	-	2,100	-	-	3,400	-	-	1,900
Infrastructure £'000s	High	-	-	30,200	-	-	15,000	-	-	15,000	-	-	-
	Medium	-	-	15,100	-	-	10,000	-	-	10,000	-	-	-
	Low	-	-	7,600	-	-	5,000	-	-	5,000	-	-	-
Fixed O&M £/MW/year	Medium	-	-	31,800	-	-	56,400	-	-	78,500	-	-	80,700
Variable O&M £/MWh	Medium	-	-	3	-	-	3	-	-	3	-	-	3
Insurance £/MWh/year	Medium	-	-	8,500	-	-	9,600	-	-	15,800	-	-	8,200
Connection and Use of System charges £/MW/year	Medium	-	-	2,500	-	-	3,800	-	-	3,800	-	-	3,800

		Coal - CCS ASC Oxy FOAK			Coal - CCS ASC NH3 FOAK			Coal - CCS IGCC FOAK			Coal - CCS IGCC partial FOAK		
Reference plant size	MW	552			624			652			760		
Average load factor (net of availability)	%	91%			91%			88%			88%		
Efficiency (HHV)	%	32%			32%			30%			35%		
Pre-development period	Duration and % spend per years 1 & 2	6 years	16.7%	16.7%	5 years	20%	20%	5 years	20%	20%	5 years	20%	20%
	% spend per years 3, 4, & 5	16.7%	16.7%	16.7%	20%	20%	20%	20%	20%	20%	20%	20%	20%
	% spend per years 6, 7, & 8	16.7%											
Construction period	Duration and % spend per years 1 & 2	6 years	18.2%	18.2%	5 years	20%	20%	5 years	20%	20%	5 years	20%	20%
	% spend per years 3, 4, & 5	18.2%	18.2%	18.2%	20%	20%	20%	20%	20%	20%	20%	20%	20%
	% spend per years 6, 7, & 8	9.1%											
Operating period	Duration	25 years			25 years			25 years			25 years		
		Commissioning year			Commissioning year			Commissioning year			Commissioning year		
		2018	2020	2025	2018	2020	2025	2018	2020	2025	2018	2020	2025
Pre-development £/kW	High	-	-	80	-	-	110	-	-	80	-	-	60
	Medium	-	-	40	-	-	70	-	-	60	-	-	40
	Low	-	-	30	-	-	60	-	-	50	-	-	40
Construction £/kW	High	-	-	4,400	-	-	5,500	-	-	5,000	-	-	3,600
	Medium	-	-	3,400	-	-	4,200	-	-	3,900	-	-	2,800
	Low	-	-	2,900	-	-	3,400	-	-	3,300	-	-	2,400
Infrastructure £'000s	High	-	-	15,000	-	-	15,000	-	-	15,000	-	-	15,000
	Medium	-	-	10,000	-	-	10,000	-	-	10,000	-	-	10,000
	Low	-	-	5,000	-	-	5,000	-	-	5,000	-	-	5,000
Fixed O&M £/MW/year	Medium	-	-	68,200	-	-	79,600	-	-	65,300	-	-	52,100
Variable O&M £/MWh	Medium	-	-	6	-	-	3	-	-	5	-	-	5
Insurance £/MWh/year	Medium	-	-	13,000	-	-	19,300	-	-	22,700	-	-	14,000
Connection and Use of System charges £/MW/year	Medium	-	-	3,800	-	-	3,800	-	-	3,800	-	-	3,800

		Coal - CCS IGCC retro FOAK		
Reference plant size	MW	622		
Average load factor (net of availability)	%	88%		
Efficiency (HHV)	%	27%		
Pre-development period	Duration and % spend per years 1 & 2	5 years	20%	20%
	% spend per years 3, 4, & 5	20%	20%	20%
	% spend per years 6, 7, & 8			
Construction period	Duration and % spend per years 1 & 2	4 years	25%	25%
	% spend per years 3, 4, & 5	25%	25%	
	% spend per years 6, 7, & 8			
Operating period	Duration	25 years		
		Commissioning year		
		2018	2020	2025
Pre-development £/kW	High	-	-	100
	Medium	-	-	60
	Low	-	-	60
Construction £/kW	High	-	-	5,400
	Medium	-	-	4,200
	Low	-	-	3,600
Infrastructure £'000s	High	-	-	-
	Medium	-	-	-
	Low	-	-	-
Fixed O&M £/MW/year	Medium	-	-	81,900
Variable O&M £/MWh	Medium	-	-	6
Insurance £/MWh/year	Medium	-	-	27,600
Connection and Use of System charges £/MW/year	Medium	-	-	3,800

		Dedicated Biomass			Conversions			Biomass CHP			Onshore UK>5MW		
Reference plant size	MW	23			349			14			20		
Average load factor (net of availability)	%	84%			79%			80%			32%		
Efficiency (LHV)	%	29%			40%			23%			0%		
Pre-development period	Duration and % spend per years 1 & 2	3 years	33.3%	33.3%	2 years	50%	50%	3 years	33.3%	33.3%	4 years	25%	25%
	% spend per years 3, 4, & 5	33.3%						33.3%			25%	25%	
	% spend per years 6, 7, & 8												
Construction period	Duration and % spend per years 1 & 2	2 years	50%	50%	2 years	43.5%	43.5%	2 years	50%	50%	2 years	50%	50%
	% spend per years 3, 4, & 5				13%								
	% spend per years 6, 7, & 8												
Operating period	Duration	25 years			15 years			24 years			24 years		
		Commissioning year			Commissioning year			Commissioning year			Commissioning year		
		2018	2020	2025	2018	2020	2025	2018	2020	2025	2018	2020	2025
Pre-development £/kW	High	160	160	160	120	120	-	580	580	580	190	190	190
	Medium	110	110	110	80	80	-	270	270	270	110	110	110
	Low	80	80	80	50	50	-	40	40	40	40	40	40
Construction £/kW	High	3,400	3,300	3,300	300	300	-	5,400	5,600	5,900	1,500	1,500	1,400
	Medium	2,900	2,900	2,800	200	200	-	4,500	4,700	4,900	1,200	1,200	1,200
	Low	2,400	2,300	2,300	200	200	-	3,400	3,500	3,700	900	800	800
Infrastructure £'000s	High	500	500	500	-	-	-	1,100	1,100	1,100	4,100	4,100	4,100
	Medium	400	400	400	-	-	-	900	900	900	3,300	3,300	3,300
	Low	200	200	200	-	-	-	700	700	700	2,300	2,300	2,300
Fixed O&M £/MW/year	Medium	65,500	65,500	65,500	22,800	22,800	-	223,500	230,000	240,600	23,200	23,000	22,400
Variable O&M £/MWh	Medium	8	8	8	1	1	-	11	11	11	5	5	5
Insurance £/MWh/year	Medium	11,500	11,500	11,500	11,500	11,500	-	44,000	45,300	47,400	1,400	1,400	1,400
Connection and Use of System charges £/MW/year	Medium	12,900	12,900	12,900	10,500	10,500	-	15,500	16,000	16,700	3,100	3,100	3,000

Note: The load factor provided above for onshore wind is for plants commissioning from 2020 commissioning onwards. Different load factors apply to the pre 2020 levelised costs results presented in this report (refer to the underlying Arup report for this information).

		Offshore R2			Offshore R3			PV>5MW			PV 1-5MW ground		
Reference plant size	MW	321			844			16			4		
Average load factor (net of availability)	%	43%			48%			11%			11%		
Efficiency (LHV)	%	0%			0%			0%			0%		
Pre-development period	Duration and % spend per years 1 & 2	5 years	22.2%	22.2%	5 years	22.2%	22.2%	1 years	100%		1 years	100%	
	% spend per years 3, 4, & 5	22.2%	22.2%	11.1%	22.2%	22.2%	11.1%						
	% spend per years 6, 7, & 8												
Construction period	Duration and % spend per years 1 & 2	3 years	33.3%	33.3%	3 years	33.3%	33.3%	0 years	100%		0 years	100%	
	% spend per years 3, 4, & 5	33.3%			33.3%								
	% spend per years 6, 7, & 8												
Operating period	Duration	23 years			22 years			25 years			25 years		
		Commissioning year			Commissioning year			Commissioning year			Commissioning year		
		2018	2020	2025	2018	2020	2025	2018	2020	2025	2018	2020	2025
Pre-development £/kW	High	150	150	150	190	190	190	170	170	170	60	60	60
	Medium	60	60	60	120	120	120	70	70	70	60	60	60
	Low	20	20	20	60	60	60	10	10	10	60	60	60
Construction £/kW	High	3,100	3,000	2,700	2,700	2,600	2,400	700	700	600	900	800	700
	Medium	2,200	2,100	1,900	2,400	2,300	2,100	700	600	600	700	700	600
	Low	1,700	1,600	1,500	2,100	2,000	1,800	600	600	500	600	600	500
Infrastructure £'000s	High	97,400	97,400	97,400	372,400	372,400	372,400	400	400	400	300	300	300
	Medium	69,300	69,300	69,300	323,000	323,000	323,000	400	400	400	200	200	200
	Low	53,000	53,000	53,000	281,400	281,400	281,400	400	400	400	200	200	200
Fixed O&M £/MW/year	Medium	30,900	30,000	28,600	48,600	47,300	45,400	5,600	5,400	5,100	8,300	8,000	7,500
Variable O&M £/MWh	Medium	3	3	3	4	3	3	-	-	-	-	-	-
Insurance £/MWh/year	Medium	1,400	1,400	1,300	3,300	3,300	3,100	2,000	1,900	1,800	1,200	1,100	1,100
Connection and Use of System charges £/MW/year	Medium	33,500	32,600	31,100	50,300	48,900	47,000	1,300	1,300	1,200	1,300	1,300	1,200

Note: The load factor provided above for offshore wind round 2 and 3 is for plants commissioning from 2020 commissioning onwards. Different load factors apply to the pre 2020 levelised costs results presented in this report (refer to the underlying Arup report for this information).

		PV 1-5MW building			EfW			EfW CHP			AD		
Reference plant size	MW	1			30			24			2		
Average load factor (net of availability)	%	11%			81%			81%			79%		
Efficiency (LHV)	%	0%			28%			22%			40%		
Pre-development period	Duration and % spend per years 1 & 2	1 years	100%		4 years	22.8%	22.8%	4 years	22.8%	22.8%	2 years	66.7%	33.3%
	% spend per years 3, 4, & 5				22.8%	22.8%	9%	22.8%	22.8%	9%			
	% spend per years 6, 7, & 8												
Construction period	Duration and % spend per years 1 & 2	0 years	100%		3 years	33.3%	33.3%	3 years	33.3%	33.3%	1 years	100%	
	% spend per years 3, 4, & 5				33.3%			33.3%					
	% spend per years 6, 7, & 8												
Operating period	Duration	25 years			35 years			35 years			20 years		
		Commissioning year			Commissioning year			Commissioning year			Commissioning year		
		2018	2020	2025	2018	2020	2025	2018	2020	2025	2018	2020	2025
Pre-development £/kW	High	20	20	20	390	390	390	300	300	300	440	440	440
	Medium	20	20	20	230	230	230	210	210	210	340	340	340
	Low	20	20	20	110	110	110	130	130	130	260	260	260
Construction £/kW	High	800	800	700	12,500	12,400	12,200	15,900	15,800	15,600	4,900	4,900	4,900
	Medium	700	700	600	8,200	8,100	8,000	13,300	13,200	13,000	3,700	3,700	3,700
	Low	700	600	600	4,600	4,600	4,500	10,300	10,300	10,100	2,900	2,900	2,900
Infrastructure £'000s	High	-	-	-	6,600	6,600	6,600	8,500	8,500	8,500	1,000	1,000	1,000
	Medium	-	-	-	4,600	4,600	4,600	5,900	5,900	5,900	700	700	700
	Low	-	-	-	2,500	2,500	2,500	3,000	3,000	3,000	500	500	500
Fixed O&M £/MW/year	Medium	6,600	6,300	5,900	139,500	137,900	134,800	153,000	151,300	147,900	78,100	78,100	78,100
Variable O&M £/MWh	Medium	3	3	3	25	25	24	55	55	53	81	81	81
Insurance £/MWh/year	Medium	2,600	2,600	2,400	30,500	30,100	29,500	85,200	84,300	82,400	54,200	54,200	54,200
Connection and Use of System charges £/MW/year	Medium	1,300	1,300	1,200	16,700	16,500	16,100	16,700	16,500	16,100	12,900	12,900	12,900

		AD CHP			ACT Standard			ACT Advanced			ACT CHP		
Reference plant size	MW	2			12			9			1		
Average load factor (net of availability)	%	79%			83%			83%			83%		
Efficiency (LHV)	%	32%			21%			25%			24%		
Pre-development period	Duration and % spend per years 1 & 2	2 years	66.7%	33.3%	3 years	36.4%	36.4%	3 years	36.4%	36.4%	3 years	36.4%	36.4%
	% spend per years 3, 4, & 5				27.3%			27.3%			27.3%		
	% spend per years 6, 7, & 8												
Construction period	Duration and % spend per years 1 & 2	1 years	100%		2 years	50%	50%	2 years	44.4%	44.4%	2 years	44.4%	44.4%
	% spend per years 3, 4, & 5							11.1%			11.1%		
	% spend per years 6, 7, & 8												
Operating period	Duration	20 years			25 years			25 years			25 years		
		Commissioning year			Commissioning year			Commissioning year			Commissioning year		
		2018	2020	2025	2018	2020	2025	2018	2020	2025	2018	2020	2025
Pre-development £/kW	High	440	440	440	300	300	300	980	980	980	980	980	980
	Medium	340	340	340	180	180	180	410	410	410	410	410	410
	Low	260	260	260	50	50	50	90	90	90	90	90	90
Construction £/kW	High	5,600	5,600	5,600	7,100	6,900	6,600	12,300	12,000	11,400	16,700	16,300	15,400
	Medium	4,300	4,300	4,300	6,100	6,000	5,600	7,100	7,000	6,600	9,000	8,800	8,300
	Low	3,300	3,300	3,300	4,200	4,100	3,900	4,300	4,200	4,000	4,900	4,800	4,500
Infrastructure £'000s	High	1,000	1,000	1,000	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
	Medium	700	700	700	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
	Low	500	500	500	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Fixed O&M £/MW/year	Medium	132,000	132,000	132,000	232,400	229,700	223,200	157,700	156,000	151,600	157,700	156,000	151,600
Variable O&M £/MWh	Medium	81	81	81	21	21	20	40	39	38	40	39	38
Insurance £/MWh/year	Medium	54,200	54,200	54,200	56,700	56,000	54,400	83,300	82,400	80,100	83,300	82,400	80,100
Connection and Use of System charges £/MW/year	Medium	12,900	12,900	12,900	12,700	12,600	12,200	12,700	12,600	12,200	12,700	12,600	12,200

		Landfill gas			Sewage gas			Geothermal CHP			Hydro Large Store		
Reference plant size	MW	2			3			3			11		
Average load factor (net of availability)	%	58%			46%			90%			45%		
Efficiency (LHV)	%	100%			100%			100%			100%		
Pre-development period	Duration and % spend per years 1 & 2	1 years	100%		1 years	100%		1 years	100%		0 years	70%	30%
	% spend per years 3, 4, & 5												
	% spend per years 6, 7, & 8												
Construction period	Duration and % spend per years 1 & 2	0 years	100%		2 years	56%	44%	3 years	33.3%	33.3%	2 years	70%	30%
	% spend per years 3, 4, & 5							33.3%					
	% spend per years 6, 7, & 8												
Operating period	Duration	27.8571428571429 years			20 years			25 years			41 years		
		Commissioning year			Commissioning year			Commissioning year			Commissioning year		
		2018	2020	2025	2018	2020	2025	2018	2020	2025	2018	2020	2025
Pre-development £/kW	High	60	60	60	420	420	420	130	130	130	-	-	-
	Medium	40	40	40	420	420	420	110	110	110	60	60	60
	Low	20	20	20	410	410	410	80	80	80	-	-	-
Construction £/kW	High	3,600	3,600	3,600	7,000	7,000	7,000	9,400	9,300	9,100	-	-	-
	Medium	2,200	2,200	2,200	5,100	5,100	5,100	6,900	6,800	6,700	3,200	3,200	3,200
	Low	800	800	800	1,800	1,800	1,800	3,000	3,000	2,900	-	-	-
Infrastructure £'000s	High	1,000	1,000	1,000	200	200	200	500	500	500	-	-	-
	Medium	700	700	700	200	200	200	300	300	300	-	-	-
	Low	500	500	500	100	100	100	200	200	200	-	-	-
Fixed O&M £/MW/year	Medium	81,000	81,000	81,000	48,600	48,600	48,600	81,000	81,000	81,000	25,700	25,700	25,700
Variable O&M £/MWh	Medium	9	9	9	12	12	12	12	12	12	6	6	6
Insurance £/MWh/year	Medium	1,600	1,600	1,600	36,600	36,600	36,600	1,600	1,600	1,600	1,000	1,000	1,000
Connection and Use of System charges £/MW/year	Medium	6,500	6,500	6,500	12,900	12,900	12,900	12,900	12,900	12,900	7,600	7,600	7,600

		Hydro 5-16MW			Wave			Tidal stream		
Reference plant size	MW	11			9			18		
Average load factor (net of availability)	%	35%			30%			31%		
Efficiency (LHV)	%	100%			100%			100%		
Pre-development period	Duration and % spend per years 1 & 2	2 years	77%	23%	3 years	33.3%	33.3%	4 years	23.3%	23.3%
	% spend per years 3, 4, & 5				33.3%			23.3%	23.3%	7%
	% spend per years 6, 7, & 8									
Construction period	Duration and % spend per years 1 & 2	2 years	70%	30%	2 years	50%	50%	2 years	55.5%	44.5%
	% spend per years 3, 4, & 5									
	% spend per years 6, 7, & 8									
Operating period	Duration	41 years			20 years			22 years		
		Commissioning year			Commissioning year			Commissioning year		
		2018	2020	2025	2018	2020	2025	2018	2020	2025
Pre-development £/kW	High	300	300	300	-	-	270	-	-	270
	Medium	60	60	60	-	-	130	-	-	130
	Low	40	40	40	-	-	40	-	-	40
Construction £/kW	High	3,100	3,100	3,100	-	-	6,200	-	-	6,000
	Medium	3,000	3,000	3,000	-	-	4,500	-	-	4,200
	Low	1,600	1,600	1,600	-	-	2,600	-	-	2,400
Infrastructure £'000s	High	-	-	-	-	-	7,000	-	-	10,500
	Medium	-	-	-	-	-	5,100	-	-	7,400
	Low	-	-	-	-	-	2,900	-	-	4,200
Fixed O&M £/MW/year	Medium	45,100	45,100	45,100	-	-	40,600	-	-	91,400
Variable O&M £/MWh	Medium	6	6	6	-	-	24	-	-	7
Insurance £/MWh/year	Medium	-	-	-	-	-	11,900	-	-	2,500
Connection and Use of System charges £/MW/year	Medium	-	-	-	-	-	32,300	-	-	60,400

		Solar 100-1000kW			Solar <10kW			Onshore <50kW			Onshore 250-1000kW		
Reference plant size	MW	0.455			0.003			0.010			0.482		
Average load factor (net of availability)	%	11%			11%			21%			26%		
Efficiency (LHV)	%	100%			100%			100%			100%		
Pre-development period	Duration and % spend per years 1 & 2	0 years			0 years			0 years			0 years		
	% spend per years 3, 4, & 5												
	% spend per years 6, 7, & 8												
Construction period	Duration and % spend per years 1 & 2	0 years	100%		0 years	100%		0 years	100%		0 years	100%	
	% spend per years 3, 4, & 5												
	% spend per years 6, 7, & 8												
Operating period	Duration	30 years			30 years			20 years			20 years		
		Commissioning year			Commissioning year			Commissioning year			Commissioning year		
		2018	2020	2025	2018	2020	2025	2018	2020	2025	2018	2020	2025
Pre-development £/kW	High	-	-	-	-	-	-	-	-	-	-	-	-
	Medium	-	-	-	-	-	-	-	-	-	-	-	-
	Low	-	-	-	-	-	-	-	-	-	-	-	-
Construction £/kW	High	1,300	1,200	1,200	1,900	1,800	1,700	4,600	4,500	4,300	2,700	2,700	2,500
	Medium	1,000	1,000	900	1,500	1,500	1,400	3,700	3,600	3,500	2,200	2,100	2,000
	Low	800	800	700	1,200	1,100	1,000	2,800	2,800	2,600	1,700	1,600	1,500
Infrastructure £'000s	High	200	200	200	-	-	-	-	-	-	200	200	200
	Medium	200	200	200	-	-	-	-	-	-	200	200	200
	Low	200	200	200	-	-	-	-	-	-	200	200	200
Fixed O&M £/MW/year	Medium	9,400	9,400	9,200	23,500	23,400	23,200	29,700	29,600	29,600	56,900	56,900	56,700
Variable O&M £/MWh	Medium	-	-	-	-	-	-	-	-	-	-	-	-
Insurance £/MWh/year	Medium	-	-	-	-	-	-	-	-	-	-	-	-
Connection and Use of System charges £/MW/year	Medium	-	-	-	-	-	-	-	-	-	-	-	-

		AD < 250kW			Hydropower <100kW			Hydropower 500-2000kW		
Reference plant size	MW	0.155			0.033			1.046		
Average load factor (net of availability)	%	65%			60%			40%		
Efficiency (LHV)	%	38%			100%			100%		
Pre-development period	Duration and % spend per years 1 & 2	0 years			0 years			0 years		
	% spend per years 3, 4, & 5									
	% spend per years 6, 7, & 8									
Construction period	Duration and % spend per years 1 & 2	0 years	100%		0 years	100%		0 years	100%	
	% spend per years 3, 4, & 5									
	% spend per years 6, 7, & 8									
Operating period	Duration	20 years			35 years			35 years		
		Commissioning year			Commissioning year			Commissioning year		
		2018	2020	2025	2018	2020	2025	2018	2020	2025
Pre-development £/kW	High	-	-	-	-	-	-	-	-	-
	Medium	-	-	-	-	-	-	-	-	-
	Low	-	-	-	-	-	-	-	-	-
Construction £/kW	High	7,900	7,700	7,300	7,800	7,800	7,800	4,100	4,100	4,100
	Medium	5,800	5,700	5,400	6,300	6,300	6,300	3,300	3,300	3,300
	Low	3,700	3,600	3,400	4,800	4,800	4,800	2,500	2,500	2,500
Infrastructure £'000s	High	100	100	100	-	-	-	400	400	400
	Medium	100	100	100	-	-	-	400	400	400
	Low	100	100	100	-	-	-	400	400	400
Fixed O&M £/MW/year	Medium	758,700	758,700	758,700	83,300	83,300	83,300	18,200	18,200	18,200
Variable O&M £/MWh	Medium	-	-	-	-	-	-	-	-	-
Insurance £/MWh/year	Medium	-	-	-	-	-	-	-	-	-
Connection and Use of System charges £/MW/year	Medium	-	-	-	-	-	-	-	-	-