

Project Assumptions

Legend
 Green cells indicate information and are updated automatically based on user input into yellow cells.
 Input information about the project into yellow cells.
 Gray cells are not used.

Project Generation		Annual Escalation	Year Start	Year End	Notes
Project Name	Beatrice Wind				
Project Owner	SSE				
Turbine Model	SWT-7.0-154				See the comments
Number of Turbines	84				A
Turbine Size (MW)	7				
Project Size (kW)	588000				
Net Capacity Factor	35 %				
Annual Hours	8 760				
Availability	98 %	-1 %	5	25	

Project Cost		Annual Escalation	Year Start	Year End	Notes
Total Cost	£ 2 128 000 000				

Revenue		Annual Escalation	Year Start	Year End	Notes
Contract for Difference(£/kWh)	£ 0.14	2.0%	1	15	
Electricity Price	£0.110	2.0%	16	25	

Equity & Flip Structure		Year Start	Year End	Notes
Equity Investor Contribution	£ 851 200 000			40% equity/ 60% debt
Total Debt	£ 1 276 800 000			

Project Debt		Year Start	Year End	Notes
Total Debt	£ 1 276 800 000			
Debt Term in Years	15			
Interest Rate	6 %			
Principal Debt Payment	£ 85 120 000	3	17	

Equity Investor Financing		Year Start	Year End	Notes
Equity Investor Equity	£ 851 200 000			
Equity Investor Discount Rate	8 %			SSE 2015 FS
Equity Investor Tax Rate	21 %			UK Corporate Rate
Equity Investor Required Rate of Return	10 %			Discount Rate + 2%

Links:

- A <http://www.4coffshore.com/windfarms/beatrice-united-kingdom-uk53.html>
- B <http://www.lorc.dk/offshore-wind-farms-map/beatrice-demonstration>

Expenses		Annual Escalation	Year Start	Year End	Notes
Operations & Maintenance	£ 56 448 000	3.0%	1	25	RB report suggests €120/KW =£96/KW with an exchange rate of 0.8 £/€
Operations & Maintenance Contingency Fund	£ -	2.0%	1	20	
Project Management Fee	£ -	2.0%	1	20	
Insurance	£ -	2.0%	1	20	
Property Tax	£ -	-1.0%	1	20	
Lease Payments to Landowners	£ -	2.0%	1	20	
Admin/Financial/Legal Management	£ -	2.0%	1	20	
Warranty Expense	£ -	2.0%	1	5	
Decomm. Fund Pre-Warranty Expiration	£ -	2.0%	1	5	
Decomm. Fund Post-Warranty Expiration	£ -	2.0%	1	20	
Other Expense	£ -	1.0%	1	20	

Depreciation		Year Start	Year End	Notes
What kind of Depreciation can the project utilize?	15			Straightline

Cost Tool		Notes
Project Cost per kW	£ 3 571	This is a tool to help the user determine the total installed cost of the project. Once the installed cost is determined the user should manually enter the results from cell J40 or J50 into cell C20.
Project Power, kW	588000	
Total Cost	\$ 2 099 748 000	
-OR-		

Debt Service Schedule

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Beginning Balance	1 276 800 000	1 191 680 000	1 106 560 000	1 021 440 000	936 320 000	851 200 000	766 080 000	680 960 000	595 840 000	510 720 000	425 600 000	340 480 000	255 360 000	170 240 000	85 120 000	0	0
Interest Payment	76 608 000	71 500 800	66 393 600	61 286 400	56 179 200	51 072 000	45 964 800	40 857 600	35 750 400	30 643 200	25 536 000	20 428 800	15 321 600	10 214 400	5 107 200	0	0
Principal Payment	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000
Ending Balance	1 191 680 000	1 106 560 000	1 021 440 000	936 320 000	851 200 000	766 080 000	680 960 000	595 840 000	510 720 000	425 600 000	340 480 000	255 360 000	170 240 000	85 120 000	0	0	0

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Low Case Assumptions:

Increase in OPEX	10 %
Capacity Factor	27 %
Interest Rate Increase	2 %
Delay in Completion	6 months
Availability	0,95

Project Generation	Annual Escalation	Year Start	Year End	Notes
Project Name	Beatrice Wind			
Project Owner	SSE			
Turbine Model	SWT-7.0-154			See the comments A
Number of Turbines	84			
Turbine Size (MW)	7			
Project Size (kW)	588000			
Net Capacity Factor	25 %			
Annual Hours	8 760			
Availability	95 %	-1 %	5	25

Project Cost	Annual Escalation	Year Start	Year End	Notes
Total Cost	£ 2 128 000 000			Costs projections to be £3B

Revenue	Annual Escalation	Year Start	Year End	Notes
Contract for Difference Rate	£ 0,14	2,0%	1	15
Electricity Price	£ 0,110	2,0%	16	25

Equity & Flip Structure	Year Start	Year End	Notes
Equity Investor Contribution	£ 851 200 000		40% equity/ 60% debt
Total Debt	£ 1 276 800 000		

Project Debt	Year Start	Year End	Notes
Total Debt	£ 1 276 800 000		
Debt Term in Years	15		
Interest Rate	8 %		
Principal Debt Payment	£ 85 120 000	3	17

Equity Investor Financing	Notes
Equity Investor Equity	£ 851 200 000
Equity Investor Discount Rate	8 %
Equity Investor Tax Rate	21 %
Equity Investor Required Rate of Return	10 %
	Discount Rate + 2%

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Expenses	Annual Escalation	Year Start	Year End	Notes
Operations & Maintenance	£ 62 092 800	3,0%	1	20
Operations & Maintenance Contingency Fund	£ -	2,0%	1	20
Project Management Fee	£ -	2,0%	1	20
Insurance	£ -	2,0%	1	20
Property Tax	£ -	-1,0%	1	20
Lease Payments to Landowners	£ -	2,0%	1	20
Admin/Financial/Legal Management	£ -	2,0%	1	20
Production Tax Expense (\$/kWh)	£ 0	2,0%	1	20
Warranty Expense	£ -	2,0%	1	5
Decomm. Fund Pre-Warranty Expiration	£ -	2,0%	1	5
Decomm. Fund Post-Warranty Expiration	£ -	2,0%	1	20
Other Expense	£ -	1,0%	1	20

Depreciation	Notes
What kind of Depreciation can the project utilize?	15 Straight Line

Cost Tool	Notes
Project Cost per kW	£ 3 571
Project Power, kW	588000
Total Cost	£ 2 099 748 000
-OR-	This is a tool to help the user determine the total installed cost of the project. Once the installed cost is determined the user should manually enter the results from cell J40 or J50 into cell C20.

Debt Service Schedule

Low Case Assumptions:

Year	1	2	Increase in OPEX	20 %	5	6	7	8	9	10	11	12	13	14	15	16	17
Beginning Balance	1 276 800 000	1 276 800 000	1 276 800 000	1 191 680 000	1 106 560 000	1 021 440 000	936 320 000	851 200 000	766 080 000	680 960 000	595 840 000	510 720 000	425 600 000	340 480 000	255 360 000	170 240 000	85 120 000
Interest Payment	102 144 000	102 144 000	102 144 000	95 334 400	88 524 800	81 715 200	74 905 600	68 096 000	61 286 400	54 476 800	47 667 200	40 857 600	34 048 000	27 238 400	20 428 800	13 619 200	6 809 600
Principal Payment	0	0	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000
Ending Balance	1 276 800 000	1 276 800 000	1 191 680 000	1 106 560 000	1 021 440 000	936 320 000	851 200 000	766 080 000	680 960 000	595 840 000	510 720 000	425 600 000	340 480 000	255 360 000	170 240 000	85 120 000	0

Project Assumptions

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High Case Assumptions:

Decrease in OPEX	-10 %
Electricity Prices in years 16-25	0.14
Capacity Factor	40 %
Interest Rate Decrease	-2 %

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Project Name	Beatrice Wind			
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Turbine Model	SWT-7.0-154			See the comments A
Number of Turbines	84			
Turbine Size (MW)	7			
Project Size (kW)	588000			
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Project Cost	Annual Escalation	Year Start	Year End	Notes
Total Cost	£ 2 128 000 000			

Revenue	Annual Escalation	Year Start	Year End	Notes
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Electricity Price	£0.140	2.0%	16	25

Equity & Flip Structure	Year Start	Year End	Notes
Equity Investor Contribution	£ 851 200 000		40% equity/ 60% debt
Total Debt	£ 1 276 800 000		

Project Debt	Year Start	Year End	Notes
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Interest Rate	4 %		
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Equity Investor Financing	Annual Escalation	Year Start	Year End	Notes
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Expenses	Annual Escalation	Year Start	Year End	Notes
Operations & Maintenance	£ 50 803 200	3.0%	1	20
Operations & Maintenance Contingency Fund	£ -	2.0%	1	20
Project Management Fee	£ -	2.0%	1	20
Insurance	£ -	2.0%	1	20
Property Tax	£ -	-1.0%	1	20
Lease Payments to Landowners	£ -	2.0%	1	20
Admin/Financial/Legal Management	£ -	2.0%	1	20
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Other Expense	£ -	1.0%	1	20

Depreciation	Annual Escalation	Year Start	Year End	Notes
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Cost Tool	Annual Escalation	Year Start	Year End	Notes
Project Cost per kW	£ 3 571			This is a tool to help the user determine the total installed cost of the project. Once the installed cost is determined the user should manually enter the results from cell J40 or J50 into cell C20.
Project Power, kW	588000			
Total Cost	\$ 2 099 748 000			

-OR-

RB report suggests €120/KW =£96/KW with an exchange rate of 0.8 £/€

Low-Cost Assumptions:
Increase in OPEX 20 %

Pro Forma

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044			
PARTIAL EXPENDITURES																												
Equity Investment (Project Cost Less Debt & Grants) - 2,128,000,000																												
REVENUES																												
ADMs	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200	2,008,843,200		
CPD Rate (EWH)	0.140	0.143	0.146	0.149	0.152	0.155	0.158	0.161	0.164	0.167	0.171	0.174	0.177	0.181	0.185	0.189	0.193	0.197	0.201	0.205	0.209	0.213	0.217	0.221	0.225	0.229		
Electricity Price (\$/MWh)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
Electricity Sales Revenue per CPD	261,718,016	269,892,909	279,000,000	288,154,065	297,341,126	306,541,126	315,741,126	324,941,126	334,141,126	343,341,126	352,541,126	361,741,126	370,941,126	380,141,126	389,341,126	398,541,126	407,741,126	416,941,126	426,141,126	435,341,126	444,541,126	453,741,126	462,941,126	472,141,126	481,341,126	490,541,126	499,741,126	
Carbon Offsets Price (\$/ton)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Carbon Offsets Revenue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Other Tax Credit (Investment Payments)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Other Tax Credit (Lump Sum)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Production Incentive Payments	281,238,068	288,882,869	296,527,670	304,172,471	311,817,272	319,462,073	327,106,874	334,751,675	342,396,476	350,041,277	357,686,078	365,330,879	372,975,680	380,620,481	388,265,282	395,910,083	403,554,884	411,200,085	418,845,286	426,490,487	434,135,688	441,780,889	449,426,090	457,071,291	464,716,492	472,361,693	480,006,894	
Total Annual Revenues	281,238,068	288,882,869	296,527,670	304,172,471	311,817,272	319,462,073	327,106,874	334,751,675	342,396,476	350,041,277	357,686,078	365,330,879	372,975,680	380,620,481	388,265,282	395,910,083	403,554,884	411,200,085	418,845,286	426,490,487	434,135,688	441,780,889	449,426,090	457,071,291	464,716,492	472,361,693	480,006,894	
EXPENSES																												
Operations & Maintenance	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	
Operations & Maintenance Contingency Fund	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Project Management Fee	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Insurance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Finance Fee	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Leasehold Improvements	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Admin/Professional/Legal Management	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Production Tax Expenses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Startup Expenses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Decom. Fund Pro-Warranty Exp./Ignition	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Decom. Fund Prod/Warranty Exp./Ignition	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000		
Other Expenses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Annual Operating Expenses	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	67,803,200	
EBITDA & Financial Income																												
EBITDA	213,434,868	221,079,669	228,724,470	236,369,271	244,014,072	251,658,873	259,303,674	266,948,475	274,593,276	282,238,077	289,882,878	297,527,679	305,172,480	312,817,281	320,462,082	328,106,883	335,751,684	343,396,485	351,041,286	358,686,087	366,330,888	373,975,689	381,620,490	389,265,291	396,910,092	404,554,893	412,200,094	
Non-recurrent	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Debt Interest Payment	18,980,992	19,995,992	21,010,992	22,025,992	23,040,992	24,055,992	25,070,992	26,085,992	27,100,992	28,115,992	29,130,992	30,145,992	31,160,992	32,175,992	33,190,992	34,205,992	35,220,992	36,235,992	37,250,992	38,265,992	39,280,992	40,295,992	41,310,992	42,325,992	43,340,992	44,355,992	45,370,992	
Total Annual Expenses	243,915,188	247,874,933	252,834,662	257,794,391	262,754,120	267,713,849	272,673,578	277,633,307	282,593,036	287,552,765	292,512,494	297,472,223	302,431,952	307,391,681	312,351,410	317,311,139	322,270,868	327,230,597	332,190,326	337,150,055	342,109,784	347,069,513	352,029,242	356,988,971	361,948,700	366,908,429	371,868,158	
Taxable Income	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	-7,480,320	
INVESTMENT																												
Equity Investor Income Tax Benefits (Lability)	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320		
Total Tax Benefits/Liability	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320	7,480,320		
PERFORMANCE METRICS																												
ADMs Back Conversion	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	141,866,667	
Leads DAM Production Payment	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	85,190,000	
FCF per grid service	264,262,868	277,788,313	292,920,000	309,000,000	326,154,065	344,365,126	363,641,126	384,001,126	405,451,126	428,001,126	451,651,126	476,401,126	502,251,126	529,201,126	557,251,126	586,401,126	616,651,126	648,001,126	679,451,126	711,001,126	743,651,126	777,401,126	812,251,126	848,201,126	885,351,126	923,701,126	963,251,126	
Net After-Tax Project Cash Flow	-2,128,000,000	171,338,889	477,238,889	833,238,889	1,249,238,889	1,725,238,889	2,261,238,889	2,857,238,889	3,513,238,889	4,230,238,889	4,998,238,889	5,818,238,889	6,690,238,889	7,615,238,889	8,595,238,889	9,630,238,889	10,720,238,889	11,865,238,889	13,065,238,889	14,320,238,889	15,630,238,889	17,000,238,889	18,430,238,889	19,920,238,889	21,470,238,889	23,080,238,889	24,750,238,889	26,480,238,889
Total Assets	1,113,482,848	1,387,271,161	1,696,631,711	2,042,532,149	2,426,341,008	2,847,722,610	3,309,193,812	3,812,																				

Debt Service Schedule

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Beginning Balance	1 276 800 000	1 191 680 000	1 106 560 000	1 021 440 000	936 320 000	851 200 000	766 080 000	680 960 000	595 840 000	510 720 000	425 600 000	340 480 000	255 360 000	170 240 000	85 120 000
Interest Payment	51 072 000	47 667 200	44 262 400	40 857 600	37 452 800	34 048 000	30 643 200	27 238 400	23 833 600	20 428 800	17 024 000	13 619 200	10 214 400	6 809 600	3 404 800
Principal Payment	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000	85 120 000
Ending Balance	1 191 680 000	1 106 560 000	1 021 440 000	936 320 000	851 200 000	766 080 000	680 960 000	595 840 000	510 720 000	425 600 000	340 480 000	255 360 000	170 240 000	85 120 000	0