

## **APPENDIX E4**

### **Maximum-Case Scenario Estimates for Select Offshore Wind Project Components**



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## **Introduction**

The following table provides maximum-case scenario estimates of potential No Action, Proposed Action, and other action alternative impacts for specific offshore wind project components, assuming maximum buildout, using the geographic analysis areas in the Revolution Wind Farm (RWF) and Revolution Wind Export Cable (RWEC) project environmental impact statement (EIS) and cumulative estimates developed by Bureau of Ocean Energy Management BOEM (see Table E3-1 in Appendix E3). All numbers are estimates and subject to change.

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Table E4-1. Maximum-Case Scenario Estimates of Potential Impacts for Specific Offshore Wind Project Components

Project Component	Geographic Analysis Area	OCS Total (without Proposed Action)	Proposed Action	Alt C	Alt D	Alt E	Alt F	Proposed Action + OCS Total (Cumulative)	Alt C + OCS Total (Cumulative)	Alt D + OCS Total (Cumulative)	Alt E + OCS Total (Cumulative)	Alt F + OCS Total (Cumulative)
Offshore export cable length (statute miles)	All	4,921	84	84 <sup>F</sup>	84 <sup>F</sup>	84 <sup>F</sup>	84 <sup>F</sup>	5,005	5,005 <sup>F</sup>	5,005 <sup>F</sup>	5,005 <sup>F</sup>	5,005 <sup>F</sup>
Inter-array cable and OSS-link cable length (statute miles)	All	5,103	164	164 <sup>F</sup>	164 <sup>F</sup>	164 <sup>F</sup>	164 <sup>F</sup>	5,258	5,267 <sup>F</sup>	5,267 <sup>F</sup>	5,267 <sup>F</sup>	5,267 <sup>F</sup>
WTG number	Air	371	100	64–65	78–93	64 or 81	56	471	435–436	449–464	435 or 452	427
	Water	200	100	64–65	78–93	64 or 81	56	300	264–265	278–293	264 or 281	256
	Benthic/cultural resources	12	100	64–65	78–93	64 or 81	56	112	76–77	90–105	76 or 93	68
	Birds/bats/finfish-invertebrates-EFH/marine mammals/sea turtles/land-use	2,932	100	64–65	78–93	64 or 81	56	3,032	2,996–2,997	3,010–3,025	2,996 or 3,013	2,988
	Navigation/ commercial fisheries/other uses	1,007	100	64–65	78–93	64 or 81	56	1,107	1,071–1,072	1,085–1,100	1,071 or 1,088	1,063
	Visual/recreation-tourism	936	100	64–65	78–93	64 or 81	56	1,036	1,000–1,001	1,014–1,029	1,000 or 1,017	992
	Demographics/ environmental justice	2,932	100	64–65	78–93	64 or 81	56	3,032	2,996–2,997	3,010–3,025	2,996 or 3,013	2,988
Foundation number (WTG and OSS)	Air	380	102	66–67	80–95	66 or 83	58	482	446–447	460–475	446 or 463	438
	Water	205	102	66–67	80–95	66 or 83	58	307	271–272	285–300	271 or 288	263
	Benthic/cultural resources	13	102	66–67	80–95	66 or 83	58	115	79–80	93–108	79 or 96	71
	Birds/bats/finfish-invertebrates-EFH/marine mammals/sea turtles/land-use	3,008	102	66–67	80–95	66 or 83	58	3,110	3,074–3,075	3,088–3,103	3,074 or 3,091	3,066
	Navigation/ commercial fisheries/other uses	1,036	102	66–67	80–95	66 or 83	58	1,138	1,102–1,103	1,116–1,131	1,102 or 1,119	1,094
	Visual/recreation-tourism	953	102	66–67	80–95	66 or 83	58	1,055	1,019–1,020	1,033–1,048	1,019 or 1,036	1,011
	Demographics/ environmental justice	3,008	102	66–67	80–95	66 or 83	58	3,110	3,074–3,075	3,088–3,103	3,074 or 3,091	3,066
Operation footprint of foundations (WTG and OSS) (acres)	Air	23	3	2	2–3	2	2	26	25	25–26	25	25
	Water	12	3	2	2–3	2	2	15	14	14–15	14	14
	Benthic/cultural resources	1	3	2	2–3	2	2	4	3	3–4	3	3
	Birds/bats/finfish-invertebrates-efh/marine mammals/sea turtles/land-use	403	3	2	2–3	2	2	406	405	405–406	405	405

Project Component	Geographic Analysis Area	OCS Total (without Proposed Action)	Proposed Action	Alt C	Alt D	Alt E	Alt F	Proposed Action + OCS Total (Cumulative)	Alt C + OCS Total (Cumulative)	Alt D + OCS Total (Cumulative)	Alt E + OCS Total (Cumulative)	Alt F + OCS Total (Cumulative)
	Navigation/ commercial fisheries/other uses	199	3	2	2-3	2	2	202	201	201-202	201	201
	Visual/recreation-tourism	190	3	2	2-3	2	2	193	192	192-193	192	192
	Demographics/ environmental justice	403	3	2	2-3	2	2	406	405	405-406	405	405
<b>Construction footprint of foundations (WTG and OSS) (acres)</b>	<b>Air</b>	Not available	734.4	475.2-482.4	576-684	475.2-597.6	417.6	Not available	Not available	Not available	Not available	Not available
	<b>Water</b>	Not available	734.4	475.2-482.4	576-684	475.2-597.6	417.6	Not available	Not available	Not available	Not available	Not available
	<b>Benthic/cultural resources</b>	Not available	734.4	475.2-482.4	576-684	475.2-597.6	417.6	Not available	Not available	Not available	Not available	Not available
	<b>Birds/bats/finfish-invertebrates-EFH/marine mammals/sea turtles/land-use</b>	Not available	734.4	475.2-482.4	576-684	475.2-597.6	417.6	Not available	Not available	Not available	Not available	Not available
	<b>Navigation/ commercial fisheries/other uses</b>	Not available	734.4	475.2-482.4	576-684	475.2-597.6	417.6	Not available	Not available	Not available	Not available	Not available
	<b>Visual/recreation-tourism</b>	Not available	734.4	475.2-482.4	576-684	475.2-597.6	417.6	Not available	Not available	Not available	Not available	Not available
	<b>Demographics/ environmental justice</b>	Not available	734.4	475.2-482.4	576-684	475.2-597.6	417.6	Not available	Not available	Not available	Not available	Not available
<b>Operation footprint of scour protection at foundations (foundation + scour protection) (acres)</b>	<b>Air</b>	394	71.4	46-47	56-67	46-58	41	465.4	440-441	450-461	440 or 452	435
	<b>Water</b>	201	71.4	46-47	56-67	46-58	41	272.4	247-248	257-268	247 or 259	242
	<b>Benthic/cultural resources</b>	11	71.4	46-47	56-67	46-58	41	82.4	57-58	67-78	57 or 69	52
	<b>Birds/bats/finfish-invertebrates-EFH/marine mammals/sea turtles/land-use</b>	5,883	71.4	46-47	56-67	46-58	41	5,954.4	5,929-5,930	5,939-5,950	5,929 or 5,941	5,924
	<b>Navigation/ commercial fisheries/other uses</b>	2,753	71.4	46-47	56-67	46-58	41	2,824.4	2,799-2,800	2,809-2,820	2,799 or 2,811	2,794
	<b>Visual/recreation-tourism</b>	2,670	71.4	46-47	56-67	46-58	41	2,741.4	2,716-2,717	2,726-2,737	2,716 or 2,728	2,711
	<b>Demographics/ environmental justice</b>	5,883	71.4	46-47	56-67	46-58	41	5,954.4	5,929-5,930	5,939-5,950	5,929 or 5,941	5,924
<b>Offshore export cable seabed disturbance (acres)</b>	<b>Water</b>	2,126	1,390	1,390 <sup>f</sup>	1,390 <sup>f</sup>	1,390 <sup>f</sup>	1,390 <sup>f</sup>	3,516	3,516 <sup>f</sup>	3,516 <sup>f</sup>	3,516 <sup>f</sup>	3,516 <sup>f</sup>
	<b>Benthic/cultural resources</b>	555	1,390	1,390 <sup>f</sup>	1,390 <sup>f</sup>	1,390 <sup>f</sup>	1,390 <sup>f</sup>	1,945	1,945 <sup>f</sup>	1,945 <sup>f</sup>	1,945 <sup>f</sup>	1,945 <sup>f</sup>
	<b>Birds/bats/finfish-invertebrates-EFH/marine mammals/sea turtles/land-use</b>	10,954	1,390	1,390 <sup>f</sup>	1,390 <sup>f</sup>	1,390 <sup>f</sup>	1,390 <sup>f</sup>	12,344	12,344 <sup>f</sup>	12,344 <sup>f</sup>	12,344 <sup>f</sup>	12,344 <sup>f</sup>



Project Component	Geographic Analysis Area	OCS Total (without Proposed Action)	Proposed Action	Alt C	Alt D	Alt E	Alt F	Proposed Action + OCS Total (Cumulative)	Alt C + OCS Total (Cumulative)	Alt D + OCS Total (Cumulative)	Alt E + OCS Total (Cumulative)	Alt F + OCS Total (Cumulative)
	Navigation/ commercial fisheries/other uses	5,880	1,390	1,390 <sup>f</sup>	1,390 <sup>f</sup>	1,390 <sup>f</sup>	1,390 <sup>f</sup>	7,270	7,270 <sup>f</sup>	7,270 <sup>f</sup>	7,270 <sup>f</sup>	7,270 <sup>f</sup>
	Visual/recreation-tourism	6,023	1,390	1,390 <sup>f</sup>	1,390 <sup>f</sup>	1,390 <sup>f</sup>	1,390 <sup>f</sup>	7,413	7,413 <sup>f</sup>	7,413 <sup>f</sup>	7,413 <sup>f</sup>	7,413 <sup>f</sup>
	Demographics/ environmental justice	10,954	1,390	1,390 <sup>f</sup>	1,390 <sup>f</sup>	1,390 <sup>f</sup>	1,390 <sup>f</sup>	12,344	12,344 <sup>f</sup>	12,344 <sup>f</sup>	12,344 <sup>f</sup>	12,344 <sup>f</sup>
Offshore export cable hard protection (acres)	Water	41	160	160 <sup>f</sup>	160 <sup>f</sup>	160 <sup>f</sup>	160 <sup>f</sup>	201	201 <sup>f</sup>	201 <sup>f</sup>	201 <sup>f</sup>	201 <sup>f</sup>
	Benthic/cultural resources	7	160	160 <sup>f</sup>	160 <sup>f</sup>	160 <sup>f</sup>	160 <sup>f</sup>	167	167 <sup>f</sup>	167 <sup>f</sup>	167 <sup>f</sup>	167 <sup>f</sup>
	Birds/bats/finfish-invertebrates-EFH/marine mammals/sea turtles/land-use	1,730	160	160 <sup>f</sup>	160 <sup>f</sup>	160 <sup>f</sup>	160 <sup>f</sup>	1,890	1,890 <sup>f</sup>	1,890 <sup>f</sup>	1,890 <sup>f</sup>	1,890 <sup>f</sup>
	Navigation/ commercial fisheries/other uses	892	160	160 <sup>f</sup>	160 <sup>f</sup>	160 <sup>f</sup>	160 <sup>f</sup>	1,052	1,052 <sup>f</sup>	1,052 <sup>f</sup>	1,052 <sup>f</sup>	1,052 <sup>f</sup>
	Visual/recreation-tourism	935	160	160 <sup>f</sup>	160 <sup>f</sup>	160 <sup>f</sup>	160 <sup>f</sup>	1,095	1,095 <sup>f</sup>	1,095 <sup>f</sup>	1,095 <sup>f</sup>	1,095 <sup>f</sup>
	Demographics/ environmental justice	1,730	160	160 <sup>f</sup>	160 <sup>f</sup>	160 <sup>f</sup>	160 <sup>f</sup>	1,890	1,890 <sup>f</sup>	1,890 <sup>f</sup>	1,890 <sup>f</sup>	1,890 <sup>f</sup>
Anchoring disturbance (acres)	Water	698	3,178	2,062–2,093	2,496–2,961	2,062 or 2,589	1,814	3,876	2,760–2,791	3,194–3,659	2,760 or 3,287	2,512
	Benthic/cultural resources	1,326	3,178	2,062–2,093	2,496–2,961	2,062 or 2,589	1,814	4,504	3,388–3,419	3,822–4,287	3,388 or 3,915	3,140
	Birds/bats/finfish-invertebrates-EFH/marine mammals/sea turtles/land-use	2,672	3,178	2,062–2,093	2,496–2,961	2,062 or 2,589	1,814	5,850	4,734–4,765	5,168–5,633	4,734 or 5,261	4,486
	Navigation/ commercial fisheries/other uses	2,148	3,178	2,062–2,093	2,496–2,961	2,062 or 2,589	1,814	5,326	4,210–4,241	4,644–5,109	4,210 or 4,737	3,962
	Visual/recreation-tourism	2,160	3,178	2,062–2,093	2,496–2,961	2,062 or 2,589	1,814	5,338	4,222–4,253	4,656–5,121	4,222 or 4,749	3,974
	Demographics/environmental justice	2,672	3,178	2,062–2,093	2,496–2,961	2,062 or 2,589	1,814	5,850	4,734–4,765	5,168–5,633	4,734 or 5,261	4,486
Inter-array cable and oss-link cable seabed disturbance (acres)	Water	1,008	2,619	2,619 <sup>f</sup>	2,619 <sup>f</sup>	2,619 <sup>f</sup>	2,619 <sup>f</sup>	3,627	3,627 <sup>f</sup>	3,627 <sup>f</sup>	3,627 <sup>f</sup>	3,627 <sup>f</sup>
	Benthic/cultural resources	340	2,619	2,619 <sup>f</sup>	2,619 <sup>f</sup>	2,619 <sup>f</sup>	2,619 <sup>f</sup>	2,959	2,959 <sup>f</sup>	2,959 <sup>f</sup>	2,959 <sup>f</sup>	2,959 <sup>f</sup>
	Birds/bats/finfish-invertebrates-EFH/marine mammals/sea turtles/land-use	10,119	2,619	2,619 <sup>f</sup>	2,619 <sup>f</sup>	2,619 <sup>f</sup>	2,619 <sup>f</sup>	12,738	12,738 <sup>f</sup>	12,738 <sup>f</sup>	12,738 <sup>f</sup>	12,738 <sup>f</sup>
	Navigation/ commercial fisheries/other uses	4,168	2,619	2,619 <sup>f</sup>	2,619 <sup>f</sup>	2,619 <sup>f</sup>	2,619 <sup>f</sup>	6,787	6,787 <sup>f</sup>	6,787 <sup>f</sup>	6,787 <sup>f</sup>	6,787 <sup>f</sup>
	Visual/recreation-tourism	4,125	2,619	2,619 <sup>f</sup>	2,619 <sup>f</sup>	2,619 <sup>f</sup>	2,619 <sup>f</sup>	6,744	6,744 <sup>f</sup>	6,744 <sup>f</sup>	6,744 <sup>f</sup>	6,744 <sup>f</sup>

Project Component	Geographic Analysis Area	OCS Total (without Proposed Action)	Proposed Action	Alt C	Alt D	Alt E	Alt F	Proposed Action + OCS Total (Cumulative)	Alt C + OCS Total (Cumulative)	Alt D + OCS Total (Cumulative)	Alt E + OCS Total (Cumulative)	Alt F + OCS Total (Cumulative)
	<b>Demographics/ environmental justice</b>	10,113	2,619	2,619 <sup>†</sup>	2,619 <sup>†</sup>	2,619 <sup>†</sup>	2,619 <sup>†</sup>	12,732	12,732 <sup>†</sup>	12,732 <sup>†</sup>	12,732 <sup>†</sup>	12,732 <sup>†</sup>
<b>Inter-array cable and oss-link cable hard protection (acres)</b>	<b>Water</b>	149	85.6	85.6 <sup>†</sup>	85.6 <sup>†</sup>	85.6 <sup>†</sup>	85.6 <sup>†</sup>	235	235 <sup>†</sup>	235 <sup>†</sup>	235 <sup>†</sup>	235 <sup>†</sup>
	<b>Benthic/cultural resources</b>	29	85.6	85.6 <sup>†</sup>	85.6 <sup>†</sup>	85.6 <sup>†</sup>	85.6 <sup>†</sup>	115	115 <sup>†</sup>	115 <sup>†</sup>	115 <sup>†</sup>	115 <sup>†</sup>
	<b>Birds/bats/finfish-invertebrates-EFH/marine mammals/sea turtles/land-use</b>	588	85.6	85.6 <sup>†</sup>	85.6 <sup>†</sup>	85.6 <sup>†</sup>	85.6 <sup>†</sup>	674	674 <sup>†</sup>	674 <sup>†</sup>	674 <sup>†</sup>	674 <sup>†</sup>
	<b>Navigation/commercial fisheries/other uses</b>	588	85.6	85.6 <sup>†</sup>	85.6 <sup>†</sup>	85.6 <sup>†</sup>	85.6 <sup>†</sup>	674	674 <sup>†</sup>	674 <sup>†</sup>	674 <sup>†</sup>	674 <sup>†</sup>
	<b>Visual/recreation-tourism</b>	589	85.6	85.6 <sup>†</sup>	85.6 <sup>†</sup>	85.6 <sup>†</sup>	85.6 <sup>†</sup>	675	675 <sup>†</sup>	675 <sup>†</sup>	675 <sup>†</sup>	675 <sup>†</sup>
	<b>Demographics/ environmental justice</b>	588	85.6	85.6 <sup>†</sup>	85.6 <sup>†</sup>	85.6 <sup>†</sup>	85.6 <sup>†</sup>	674	674 <sup>†</sup>	674 <sup>†</sup>	674 <sup>†</sup>	674 <sup>†</sup>
<b>Total hazardous fluids (WTG and OSS) (gallons)</b>	<b>Air</b>	2,992,729	1,017,806	746,726–754,256	852,146–965,096	746,726–874,736	686,486	4,010,535	3,739,455–3,746,985	3,844,875–3,957,825	3,739,455 or 3,867,465	3,679,215
	<b>Water</b>	1,814,407	1,017,806	746,726–754,256	852,146–965,096	746,726–874,736	686,486	2,832,213	2,561,133–2,568,663	2,666,553–2,779,503	2,561,133 or 2,689,143	2,500,893
	<b>Benthic/cultural resources</b>	134,426	1,017,806	746,726–754,256	852,146–965,096	746,726–874,736	686,486	1,152,232	881,152–888,682	986,572–1,099,522	881,152 or 1,009,162	820,912
	<b>Birds/bats/finfish-invertebrates-EFH/marine mammals/sea turtles/land-use</b>	18,289,598	1,017,806	746,726–754,256	852,146–965,096	746,726–874,736	686,486	19,307,404	19,036,324–19,043,854	19,141,744–19,254,694	19,036,324 or 19,164,334	18,976,084
	<b>Navigation/ commercial fisheries/other uses</b>	9,193,997	1,017,806	746,726–754,256	852,146–965,096	746,726–874,736	686,486	10,211,803	9,940,723–9,948,253	10,046,143–10,159,093	9,940,723 or 10,068,733	9,880,483
	<b>Visual/recreation-tourism</b>	8,364,829	1,017,806	746,726–754,256	852,146–965,096	746,726–874,736	686,486	9,382,635	9,111,555–9,119,085	9,216,975–9,329,925	9,111,555 or 9,239,565	9,051,315
	<b>Demographics/ environmental justice</b>	23,878,823	1,017,806	746,726–754,256	852,146–965,096	746,726–874,736	686,486	24,896,629	24,625,549–24,633,079	24,730,969–24,843,919	24,625,549 or 24,753,559	24,565,309

<sup>†</sup> Project design has not occurred for Alternatives C through F; therefore, GIS calculations for the IAC, OSS-link cable, and RWEC are not available. This table uses the Proposed Action as the most conservative proxy estimate. However, best professional judgment suggests that the footprint of the IAC, OSS-link cable, and RWEC would change and be slightly reduced to match the reduced number of WTGs under Alternatives C through F.

## Literature Cited

Bureau of Ocean Energy Management (BOEM). 2019. *National Environmental Policy Act Documentation for Impact-Producing Factors in the Offshore Wind Cumulative Impacts Scenario on the North Atlantic Outer Continental Shelf*. Available at: <https://www.boem.gov/sites/default/files/environmental-stewardship/Environmental-Studies/Renewable-Energy/IPFs-in-the-Offshore-Wind-Cumulative-Impacts-Scenario-on-the-N-OCS.pdf>. Accessed December 2020.

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