

Volume 11: Appendices (Wider Scheme)

Appendix 29.2

Cumulative Visual Impact Assessment at Representative Viewpoint Locations

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Appendix 29.2: Cumulative Visual Impact Assessment at Representative Viewpoint Locations

29.2 Cumulative Visual Impacts at Representative Viewpoint Locations

As detailed in Chapter 29, there are three other East Coast Phase One all projects contained or partially contained within the 60km radius cumulative study area of the array area of the proposed development. These include:

- Oriel Array (Louth)- 16km north of the proposed development consisting of c. 25 turbines.
- Dublin Array - 36km south of the proposed development consisting of c. 48 turbines.
- Codling Array (Wicklow) - 53km South of the proposed development consisting of c. 75 turbines.

Only the northern half of the Codling Array is contained within the 60km radius cumulative study area but it will be considered in its entirety for the purposes of the cumulative impact assessment. The Arklow Array (Wicklow) is further south of the Codling Array and will not be considered in the cumulative assessment.

The assessment of cumulative visual impacts at each of the selected viewpoints is aided by spatially accurate wireframe images because there are no existing offshore wind farms. These indicate both the proposed WTGs and other Phase 1 offshore developments within a 60km radius of the NISA Offshore Array. The cumulative visualisations contained in Volume 7B consist of,

1. Existing View (Contextual 90° included angle)
2. Wireframe view - proposed and cumulative turbines (Contextual 90° included angle)

Magnitude of Visual Effects at Viewshed Reference Points

The cumulative visual impact assessment set out in Table A29.2.1 relates to the contribution of the proposed development (Project Option 1 / Project Option 2 incl. OSP) to the overall cumulative impact of proposed East coast Phase 1 offshore wind developments within the extended 60km radius cumulative study area. This involves the introduction of a further ten cumulative viewpoints between the 40km radius principal study area and the 60 km radius cumulative study area. These additional viewpoints are only used to assess potential cumulative visual effects as the potential for significant visual effects from just the proposed development are screened-out beyond 40km. It is not an assessment of the aggregated overall cumulative impact of all developments, but instead, the contribution of the proposed development to cumulative effects.

Table 1 A29.2.1

VP No.	Location	Other Offshore Wind Arrays potentially visible in conjunction with the proposed development	Context	Cumulative Impact
VP1	Knockree Summit Co. Down (NI)	Yes	<p>The Oriel Array will be considerably closer and more noticeable than the proposed development. They are closely aligned in perspective but do not overlap and the proposed development will be barely discernible in the context of the Oriel Array due to scale and distance.</p> <p>The vast majority of the broad sea horizon remains clear of Wind Turbine Generators (WTGs).</p> <p>The Dublin / Codling arrays will not be discernible from here.</p>	Low-negligible
VP2	Ballymartin, Co. Down (NI)	Yes	<p>The Oriel Array will be considerably closer and more noticeable than the proposed development. There is a modest but distinct lateral separation between the arrays, which is reinforced by the scale differential between turbines, due to relative viewing distances. Indeed, the proposed development will be barely discernible in the context of the Oriel Array.</p> <p>The vast majority of the broad sea horizon remains clear of WTGs.</p> <p>The Dublin / Codling arrays will not be discernible from here.</p>	Low-negligible
VP3	Kilkeel, Co. Down (NI)	Yes	<p>The Oriel Array will be considerably closer and more noticeable than the proposed development. There is a modest but distinct lateral separation between the arrays, which is reinforced by the scale differential between turbines, due to relative viewing distances. Indeed, the proposed development will be barely discernible in the context of the Oriel Array.</p> <p>The vast majority of the broad sea horizon remains clear of WTGs.</p> <p>The Dublin / Codling arrays will not be discernible from here.</p>	Low-negligible
VP4	Greencastle Ferry Terminal, Co. Down (NI)	Yes	<p>The eastern end of the Oriel Array overlaps in perspective with the majority of the proposed development in the far distance.</p>	Low

VP No.	Location	Other Offshore Wind Arrays potentially visible in conjunction with the proposed development	Context	Cumulative Impact
			<p>Whilst this may generate some sense of visual clutter and scale / distance confusion on very clear days when the proposed development is visible, it will be barely discernible in the context of the much closer and perceptibly larger Oriel Array. The condensed view of the two arrays also limits the amount of the seaward horizon occupied by turbines.</p> <p>The Dublin / Codling arrays will not be discernible from here.</p>	
VP5	Greenore Ferry Terminal, Co. Louth	Yes	<p>The nearer Oriel Array overlaps in perspective with the few visible turbines of the NISA Array in the far distance beyond the headland. Whilst this may generate some visual scale / distance confusion for the viewer on very clear days when the proposed development is visible, it will be barely discernible in the context of the much closer and perceptibly larger Oriel Array.</p> <p>Approximately half of the visible sea horizon will be occupied by WTGs with the Oriel Array contributing to the majority of this coverage.</p> <p>The Dublin / Codling arrays will not be discernible from here.</p>	Low-negligible
VP6	Aghameen, Co. Louth	Yes	<p>The southern end of the Oriel Array overlaps in perspective with the northern end of the proposed development in the far distance, but not in a manner than generates visual clutter. There may be some sense of scale / distance confusion on very clear days when the proposed development is visible, but it will be barely discernible in the context of the much closer and perceptibly larger Oriel Array.</p> <p>The slight overlap and between the arrays, and the scale differential between turbines that generates diminishing perspective, visually suggests that this could be a single extensive development stretching from the mid to far distance.</p> <p>Over half of the visible sea horizon will be occupied by WTGs with a similar contribution to this coverage from both arrays.</p> <p>The Dublin / Codling arrays will not be discernible from here.</p>	Medium-low
VP7	Barnevave Summit, Coolea Mountains, Co. Louth	Yes	<p>Although there is some lateral overlap between the much nearer Oriel Array and the proposed development in the far distance, the elevation of this viewpoint affords vertical separation as the Oriel WTGs sit predominantly below the sea horizon the proposed WTGs above it. The actual separation distance between the arrays is not clearly apparent due to the absence of a distinct gap between them but there is strong scale differential between the nearer and further WTGs. Indeed, the proposed development, which will only be visible very clear days, will be barely discernible in the context of the Oriel Array.</p> <p>The Dublin / Codling arrays will not be discernible from here.</p>	Low
VP8	Coolea Point, Co. Louth	Yes	<p>The much nearer Oriel Array overlaps fully in perspective with the turbines of the proposed development in the far distance.</p>	Low

VP No.	Location	Other Offshore Wind Arrays potentially visible in conjunction with the proposed development	Context	Cumulative Impact
			<p>Whilst this may generate some visual scale / distance confusion for the viewer on very clear days when the proposed development is visible, it will be barely discernible in the context of the much closer and perceptibly larger Oriel Array. Furthermore, despite the gap between the arrays not being apparent in this aligned view of the development, the starkness of the scale differential between the WTGs of each array makes it clear that there is a considerable spatial separation between them.</p> <p>The Dublin / Codling arrays will not be discernible from here.</p>	
VP9	Gyles Quay, Co. Louth	Yes	<p>The Oriel Array will be considerably closer and more noticeable than the proposed development. There is a small lateral separation between the arrays, which is reinforced by the scale differential between turbines, due to relative viewing distances. Indeed, the proposed development will be barely discernible in the context of the Oriel Array in all but very clear viewing conditions.</p> <p>Approximately half of the visible sea horizon will be occupied by WTGs with the Oriel Array contributing to the majority of this coverage.</p> <p>The Dublin / Codling arrays will not be discernible from here.</p>	Low
VP10	Blackrock Promenade, Co. Louth	Yes	<p>The Oriel Array will be considerably closer and more noticeable than the proposed development. There is a modest but distinct lateral separation between the arrays, which is reinforced by the scale differential between turbines, due to relative viewing distances. Indeed, the proposed development will be barely discernible in the context of the Oriel Array.</p> <p>Approximately half of the visible sea horizon will be occupied by WTGs.</p> <p>The Dublin / Codling arrays will not be discernible from here.</p>	Low
VP11	Dunany Bay Beach, Co. Louth	Yes	<p>The Oriel Array will be closer and more noticeable than the proposed development. There is a broad lateral separation between the arrays, which will be experienced in succession (viewer turning their head) rather than as a combined view. The separation is further reinforced by the noticeable scale differential between turbines, due to relative viewing distances.</p> <p>The majority of the broad sea horizon remains clear of WTGs, but the combined lateral extent of the arrays is still considerable in this broad context.</p> <p>The Dublin / Codling arrays will not be discernible from here.</p>	Medium
VP12	Lurganboy Beach , Co. Louth	Yes	<p>The Oriel Array will be closer and more noticeable than the proposed development. There is a broad lateral separation between the arrays, which will be experienced in succession (viewer turning their head) rather than as a combined view. The separation is further reinforced by the noticeable scale differential between turbines, due to relative viewing distances.</p> <p>The majority of the broad sea horizon remains clear of WTGs, but the combined lateral extent of the arrays is still considerable in this broad context.</p>	Medium

VP No.	Location	Other Offshore Wind Arrays potentially visible in conjunction with the proposed development	Context	Cumulative Impact
			The Dublin / Codling arrays will not be discernible from here.	
VP13	Clogherhead Beach, Co. Louth	No	There will be no cumulative effects with other proposed Offshore Wind Farms due to the absence of intervisibility with other Phase 1 developments from this location.	Negligible
VP14	Local Road at Castlecoe Hill, Co. Louth	Yes	<p>The Oriel Array will be closer and more noticeable than the proposed development, albeit the former is contained within a partially obscured section of the seaward horizon and the latter is on a more open section. There is a broad lateral separation between the arrays, which will be experienced in succession (viewer turning their head) rather than as a combined view. The separation is further reinforced by a minor scale differential between turbines, due to relative viewing distances.</p> <p>The majority of the broad sea horizon remains clear of WTGs, but the combined lateral extent of the arrays is still considerable in this broad context.</p> <p>The Dublin / Codling arrays will not be discernible from here.</p>	Medium
VP15	Termonfeckin Beach, Co. Louth	Yes	<p>The Oriel Array and the proposed development are seen at similar viewing distances and WTG scale, albeit with the former occupying a modest lateral extent beyond the northern end of the beach and the latter a broader extent of the direct offshore view. There is a broad lateral separation between the arrays, which will be experienced in succession (viewer turning their head) rather than as a combined view.</p> <p>The majority of the broad sea horizon remains clear of WTGs, but the combined lateral extent of the arrays is still considerable in this broad context.</p> <p>The Dublin / Codling arrays will not be discernible from here.</p>	Medium
VP16	Bettystown Beach, Co. Meath	Yes	<p>The nearer proposed development is seen with slightly larger WTG scale than the more distant Oriel Array, with the latter occupying a modest lateral extent beyond the northern end of the beach and the former, a broader extent of the direct offshore view. There is a broad lateral separation between the arrays, which will be experienced in succession (viewer turning their head) rather than as a combined view.</p> <p>The majority of the broad sea horizon remains clear of WTGs.</p> <p>The Dublin / Codling arrays will not be discernible from here.</p>	Medium-low
VP17	Amenity Area, Laytown, Co. Meath	Yes	<p>The nearer proposed development is seen with larger WTG scale and lateral extent than the more distant Oriel Array, with the latter occupying a modest lateral extent beyond the northern end of the beach and the former, a broader extent of the direct offshore view. There is a broad lateral separation between the arrays, which is reinforced by the scale differential between the respective turbines.</p> <p>The majority of the broad sea horizon remains clear of WTGs</p>	Medium-low

VP No.	Location	Other Offshore Wind Arrays potentially visible in conjunction with the proposed development	Context	Cumulative Impact
			The Dublin / Codling arrays will not be discernible from here.	
VP18	Dowth Passage Tomb, Co. Meath	No	There will be no cumulative effects with other proposed East coast Phase 1 Offshore Wind Farms due to the fact that the proposed development is not visible from here.	Negligible
VP19	Kennetstown, Co. Meath	Yes	The nearer proposed development is seen with larger WTG scale and lateral extent than the more distant Oriel Array, but they are both distant features of this inland view. There is a broad lateral separation between the arrays, which is reinforced by the scale differential between the respective turbines. Over half of the broad sea horizon remains clear of WTGs The Dublin / Codling arrays will not be discernible from here.	Low
VP20	Gormanston Beach, Co. Meath	Yes	The nearer proposed development is seen with larger WTG scale and lateral extent than the more distant Oriel Array, with the latter occupying a modest lateral extent at the base of the Cooley Peninsula to the north and the former, a broader extent of the direct offshore view. There is a broad lateral separation between the arrays, which is reinforced by the scale differential between them. The majority of the broad sea horizon remains clear of WTGs The Dublin / Codling arrays will not be discernible from here.	Low
VP21	Balbriggan Beach, Co. Fingal	Yes	The nearer proposed development is seen with larger WTG scale and lateral extent than the more distant Oriel Array, with the latter occupying a modest lateral extent at the base of the Cooley Peninsula to the north and the former, a broader extent of the direct offshore view. There is a considerable lateral separation between the arrays, which is reinforced by the scale differential between them. As the Oriel Array is seen to the fore of the Cooley Peninsula it does not contribute to the extent of open sea horizon occupied by WTGs, however, approximately half of the sea view is occupied by WTGs. The Dublin / Codling arrays will not be discernible from here.	Low
VP22	R108 at Snowtown, Co. Meath	Yes	The nearer proposed development is seen with larger WTG scale and lateral extent than the more distant Oriel Array, which will only be visible in clear viewing conditions and they are both distant features of this inland view. There is a broad lateral separation between the arrays, which is reinforced by the scale differential between the respective turbines. The majority of the broad sea horizon remains clear of WTGs The Dublin / Codling arrays will not be discernible from here.	Low
VP23	Ardgillen Castle Grounds, Co. Fingal	No	There will be no cumulative effects with other proposed Offshore Wind Farms	Negligible

VP No.	Location	Other Offshore Wind Arrays potentially visible in conjunction with the proposed development	Context	Cumulative Impact
VP24	Amenity Area Skerries, Co. Fingal	Yes	<p>The nearer proposed development is seen with much larger WTG scale and lateral extent than the distant Oriel Array, which will only be visible in clear viewing conditions at the base of the Cooley Peninsula. There is a reasonable separation between the arrays, which is reinforced by the scale differential between them.</p> <p>As the Oriel Array is seen to the fore of the Cooley Peninsula, it does not contribute to the extent of open sea horizon occupied by WTGs and it will be barely noticeable in the context of the nearer proposed development.</p> <p>A small number of turbines from the Dublin / Codling arrays will be potentially discernible from here between Lambay Island and the headland at Rush in a southerly direction. However, the nearest Dublin Array WTGs are 32km away and Codling, over 50km. Again, in comparison to the nearer proposed development directly offshore, these southerly schemes will be barely discernible and in a divergent direction to both the proposed development and Oriel. The only notable effect is that offshore WTGs are now potentially visible throughout nearly 180 degrees of seascape.</p>	Low-negligible
VP25	Loughshinny, Co. Fingal	Yes	<p>The nearer proposed development is seen with much larger WTG scale and lateral extent than the distant Oriel Array, which will be barely visible above the near headland and only in clear viewing conditions at the base of the Cooley Peninsula. There is a broad reasonable separation between the arrays, which is reinforced by the scale differential between them.</p> <p>As the Oriel Array is seen to the fore of the Cooley Peninsula, it does not contribute to the extent of open sea horizon occupied by WTGs and it will be barely noticeable in the context of the nearer proposed development.</p> <p>The Dublin / Codling arrays will be potentially discernible from here between Lambay Island and the headland at Rush in a southerly direction stacked together in a consolidated section of the seaward skyline. The nearest Dublin Array WTGs are 28km away and Codling, over 46km. In comparison to the nearer proposed development directly offshore, these southerly schemes will be much less noticeable and in a divergent direction to both the proposed development and Oriel. The most notable effect is that offshore WTGs are now potentially visible throughout nearly 180 degrees of seascape and the southerly arrays contribute vastly greater numbers of turbines to the scene.</p>	Low
VP26	Coast Road Rush, Co. Fingal	Yes	<p>The distant Oriel Array will be difficult to discern above the intervening headland / offshore island and will not materially contribute to cumulative impacts relative to the much nearer proposed development, which is more directly offshore.</p> <p>The Dublin / Codling arrays will not be discernible from this particular viewpoint location as views to the south are obscured. However, from the southern side of the small headland at Rush they are likely to be visible, but in a context where the Oriel will not be. The nearest Dublin Array turbines will be around 26km to the south and the nearest Codling turbines, 43km away.</p>	Low-negligible

VP No.	Location	Other Offshore Wind Arrays potentially visible in conjunction with the proposed development	Context	Cumulative Impact
VP27	Portrane, Co. Fingal	No	There will be no cumulative effects with other proposed Offshore Wind Farms due to the absence of intervisibility with other Phase 1 developments from this location.	Negligible
VP28	Donabate Beach, Co. Fingal	Yes	Parts of the Dublin Array and Codling Array emerge beyond to the east of Ireland's Eye and Howth Head in a south-easterly direction where they are seen at a small scale due to viewing distances. However, only two of the proposed development WTGs will be visible at a similar viewing distance to the north. This leaves the vast majority of the seaward view uninterrupted by WTGs where the respective arrays are only visible in near-opposite viewing directions.	Low-negligible
VP29	Malahide, Co. Fingal	No	There will be no cumulative effects with other proposed Offshore Wind Farms due to the absence of intervisibility with other Phase 1 developments from this location.	Negligible
VP30	Portmarnock Beach, Co. Fingal	No	There will be no cumulative effects with other proposed Offshore Wind Farms due to the absence of intervisibility with other Phase 1 developments from this location.	Negligible
VP31	Sutton Promenade, Co. Fingal	No	There will be no cumulative effects with other proposed Offshore Wind Farms due to the absence of intervisibility with other Phase 1 developments from this location.	Negligible
VP32	Howth Harbour, Co. Fingal	No	There will be no cumulative effects with other proposed Offshore Wind Farms due to the absence of intervisibility with other Phase 1 developments from this location.	Negligible
VP33	Howth Head, Co. Fingal	Yes	To the north, the Oriel Array is over 55km away and will not be discernible beyond the proposed development, which itself is difficult to discern. In the near-opposite direction to the south the Dublin Array and Codling Array will form a dense aligned cluster. The vast Irish Sea horizon between these southerly Arrays and the proposed development will remain uninterrupted.	Low-negligible
VP34	Great South Wall at Poolbeg Lighthouse (Dublin City County)	Yes	The Dublin Array and Codling Array will together stretch across the southern extents of Dublin Bay. However, the turbine blades of the proposed development will be barely discernible above the low northern stretch of land that defines the northern section of Dublin Bay at distances beyond 35km. Thus, the proposed development will be barely noticeable in the context of the southerly arrays and its contribution to cumulative effects, very limited.	Low-negligible
VP35	Sandymount Strand, Dublin City County	No	There will be no cumulative effects with other proposed Offshore Wind Farms as the proposed development are not discernible.	Negligible
VP36	Lambay Island – Summit, County Dublin (Fingal)	Yes	The nearer extents of the proposed development is seen with considerably larger WTG scale and lateral extent than the distant Oriel Array (beyond 44km away), which will only be visible in clear viewing conditions at the base of the Cooley Peninsula. There is a relatively small lateral separation between the arrays, but a much stronger sense of separation generated by the scale differential between them.	Medium

VP No.	Location	Other Offshore Wind Arrays potentially visible in conjunction with the proposed development	Context	Cumulative Impact
			<p>As the Oriel Array is seen to the fore of the Cooley Peninsula, it does not contribute to the extent of open sea horizon occupied by WTGs and it will be barely noticeable in the context of the nearer WTGs</p> <p>All of the WTGs from the Dublin / Codling arrays will be visible from here in open sea to the south in a dense cluster that is only 20 degrees wide in terms of included angle. The nearest Dublin Array WTGs are 20km away and Codling, around 40km. They are marginally further away than the proposed WTGs and in the opposite direction to both the array area and Oriel. Whilst the open sea to the west remains unoccupied by WTGs, the coastal context north and south is heavily occupied by offshore wind developments albeit at reasonable distances.</p>	
VP37	Lambay Island – Pier, County Dublin (Fingal)	Yes	<p>The nearer proposed development is seen with considerably larger WTG scale and lateral extent than the distant Oriel Array (beyond 44km away), which will only be visible as blade sets (due to earth curvature) in clear viewing conditions at the base of the Cooley Peninsula. There is a relatively small lateral separation between the arrays, but a much stronger sense of separation generated by the scale differential between them.</p> <p>As the Oriel Array is seen to the fore of the Cooley Peninsula, it does not contribute to the extent of open sea horizon occupied by WTGs and it will be barely noticeable in the context of the nearer proposed development.</p> <p>The Dublin and Codling arrays to the south will not be visible from here due to screening by Lambay Island itself.</p>	Low-negligible
VP38	Annalong, Co. Down (NI)	Yes	<p>Although partially screened, the Oriel Array will be considerably closer and more noticeable than the proposed development. There is a distinct lateral separation between the arrays, which is reinforced by the scale differential between turbines, due to relative viewing distances. Indeed, the proposed development will be barely discernible in the context of the Oriel Array at this distance.</p> <p>The vast majority of the broad sea horizon remains clear of WTGs.</p> <p>The Dublin / Codling arrays will not be discernible from here.</p>	Low-negligible
VP39	Deer Park, Dublin (Dun Laoghaire-Rathdown)	No	<p>There will be no cumulative effects with other proposed Offshore Wind Farms due to the absence of intervisibility with other East coast Phase 1 developments from this location.</p>	Negligible
VP40	Blackrock Park, Dublin (Dun Laoghaire-Rathdown)	Yes	<p>Whilst the Dublin Array will be partially visible at a reasonable scale from some parts of Blackrock Park, the proposed development will be barely discernible at this distance above the low section of the north Dublin Bay Coastline and at a widely disparate viewing angle to the Dublin Array</p>	Low-negligible
VP41	Coast Road, Monkstown (Dun Laoghaire-Rathdown)	Yes	<p>Whilst a small number of the WTGs from the Dublin Array will be partially visible at a reasonable scale from here, the proposed development will be barely discernible at this distance above the low section of the north Dublin Bay Coastline and at a widely disparate viewing angle to Dublin Array</p>	Low-negligible

VP No.	Location	Other Offshore Wind Arrays potentially visible in conjunction with the proposed development	Context	Cumulative Impact
VP42	East Pier, Dun Laoghaire (Dun Laoghaire-Rathdown)	Yes	Whilst the Dublin Array will be partially visible at a reasonable scale from here, the small number of blades from the proposed development are unlikely to be noticed at this distance above the ascending slopes of Howth Head and at a widely disparate viewing angle to the Dublin Array	Negligible
VP43	Forty Foot, Sandycove, (Dun Laoghaire-Rathdown),	No	There will be no cumulative effects with other proposed Offshore Wind Farms	Negligible
VP44	Dalkey Hill, (Dun Laoghaire-Rathdown) Dublin	Yes	Whilst the Dublin Array and Codling Array will be visible at a reasonable scale from some parts of Dalkey Hill (mainly its south-east facing slopes), the proposed development will only be partially visible at a long viewing distance to the right of Howth Head. They will seldom be visible in the same context and only in the clearest of viewing conditions.	Low-negligible
VP45	Three Rock Mountain, (Dun Laoghaire-Rathdown County), Dublin	Yes	At nearly 50km away the proposed development will only be visible in the clearest of viewing conditions and discernible only with scrutiny. Whereas the Dublin Array and the Codling Array will stretch uninterrupted at a much larger scale across much of the south-easterly sea horizon in a widely disparate viewing direction to the proposed development.	Low-negligible
VP46	Bray Head, (Co. Wicklow)	Yes	At just over 50km away the proposed development will only be visible in the clearest of viewing conditions and discernible only with scrutiny. Whereas the Dublin Array and the Codling Array will stretch uninterrupted at a much larger scale across much of the south-easterly sea horizon. There is a broad lateral separation between the proposed development and the more southerly arrays, which is reinforced by the scale differential between WTGs	Low-negligible
VP47	Sugar Loaf Summit, (Co. Wicklow) Codling	Yes	At over 55km away the proposed development will only be visible in the clearest of viewing conditions and discernible only with scrutiny. Whereas the Dublin Array and the Codling Array will stretch uninterrupted at a much larger scale across much of the south-easterly sea horizon. There is a broad lateral separation between the proposed development and the more southerly arrays, which is reinforced by the scale differential between WTGs	Low-negligible