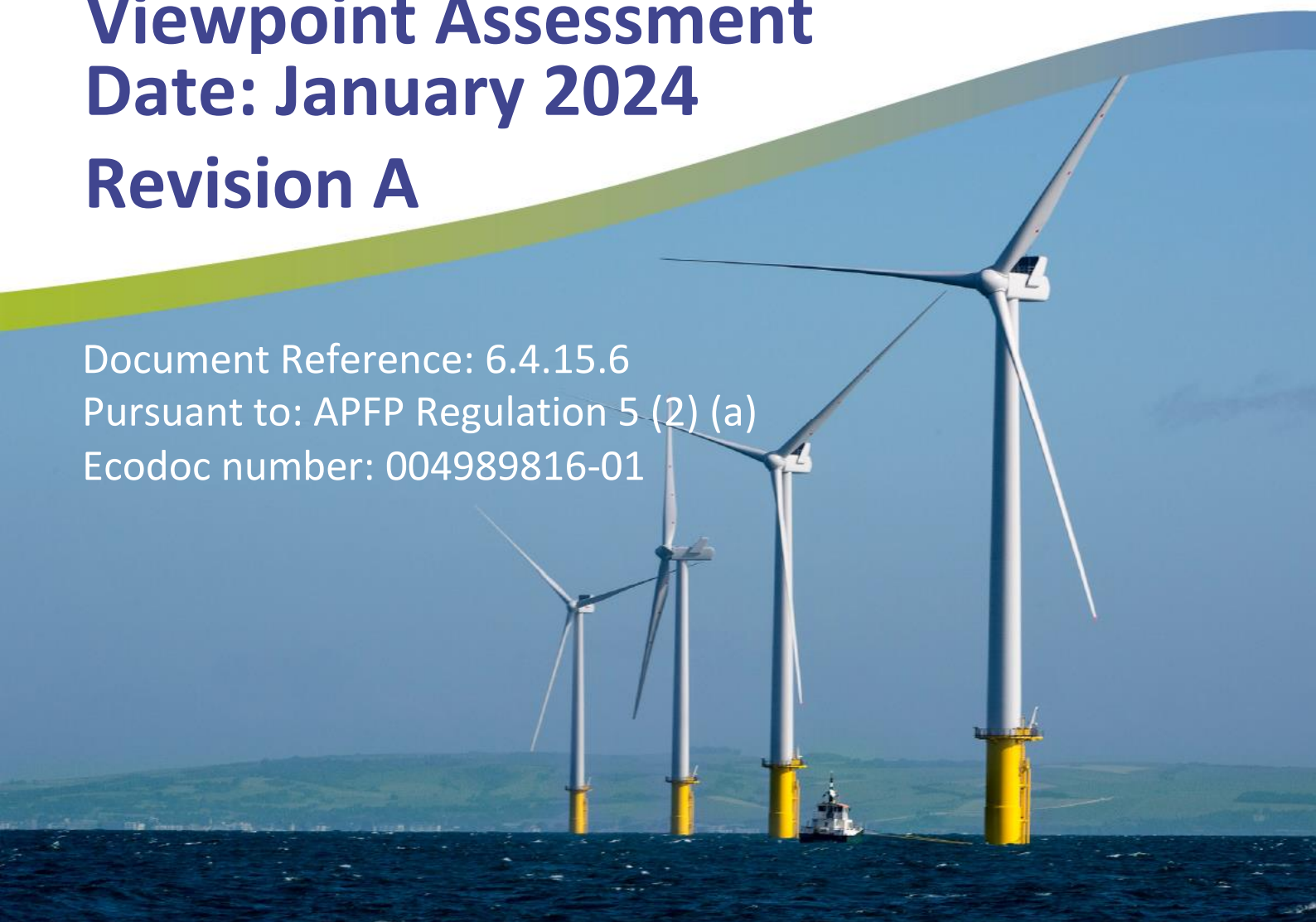


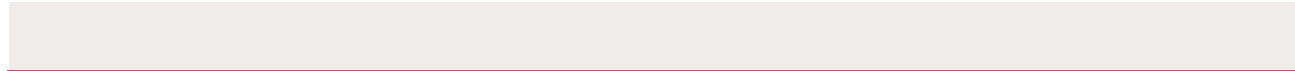
**Rampion 2 Wind Farm
Category 6:
Environmental Statement
Volume 4, Appendix 15.6:
Supplementary Night-Time
Viewpoint Assessment
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1. Introduction

- 1.1.1 In its relevant representation, West Sussex County Council (WSCC) highlighted that *“The SLVIA does not provide an assessment of nighttime views from the agreed viewpoints outside of the International Dark Sky Reserve (IDSR), relative to West Sussex receptors agreed during the Expert Topic Groups (ETGs)”*.
- 1.1.2 The Applicant notes that assessment of aviation and navigation night-time lighting is undertaken within **Appendix 15.5: Assessment of aviation and navigation night-time lighting [APP-161]** and this assessment contains consideration of effects of night-time lighting on the urban areas outside the South Downs IDSR, including the urban coastal conurbations between Brighton, Worthing and Bognor, with reference to the night-time viewpoint 8 in Brighton as a representative view. The Applicant does, however, acknowledge the omission of night-time visualisations and assessment of night-time effects in the Environmental Statement (ES) from the agreed viewpoints in West Sussex outside the IDSR.
- 1.1.3 Night-time photography from these viewpoints was undertaken (at the request of WSCC) during the preparation of the ES. Night-time visualisations and assessments have therefore been produced in this submission, from the agreed viewpoints at Worthing (Viewpoint 10) and Pagham (Viewpoint 13).
- 1.1.4 This visual assessment of WTG lighting from these representative viewpoints in West Sussex outside the IDSR is supported by night-time photomontage visualisations from two viewpoints as follows:
- **Figure 15-35j-r**, Viewpoint 10 Worthing;
 - **Figure 15-38j-r**, Viewpoint 13 Pagham Beach;
- 1.1.5 A night-time photomontage view from Brighton (Viewpoint 8) (**Figure 15-33k-s**) has also been produced and included within these night-time visualisation materials in support of the ES assessment of the night-time effects from Viewpoint 8 (contained within **Appendix 15.5: Assessment of aviation and navigation night-time lighting [APP-161]**).
- 1.1.6 A description of the proposed aviation and marine navigation lighting is found within **Chapter 4: The Proposed Development [APP-045]**. and **Chapter 14: Civil and military aviation [APP-055]**.

2. Assessment of visual effects

2.1 Overview - areas out outside the South Downs IDSR

Urban areas out outside the South Downs IDSR

- 2.1.1 As assessed in [Appendix 15.5: Assessment of aviation and navigation night-time lighting \[APP-161\]](#), areas of high theoretical visibility of the aviation lighting of Rampion 2 and most extensive geographic spread of visibility of the aviation lighting of Rampion 2 occur along the urban seafront and across the urban coastal conurbations outside the South Downs IDSR, between Selsey, Bognor Regis, Littlehampton, Worthing, Brighton, Peacehaven, Newhaven and Seaford (**Figure 15.25**). Visibility of the aviation and marine navigation lights will be considerably reduced due to the extensive screening provided by buildings within these urban environments, with views of the aviation and marine navigational lights focused along the seafront areas of these settlements, where there are direct views out to sea, and areas of higher ground set back from the coast where there are more open views out to sea from within these settlements.
- 2.1.2 Visibility of the proposed aviation and marine navigational lights occurs from these urban areas where there are clear views of the Rampion 1 aviation and marine navigation lights at night and where the influence of existing urban lighting in the night-time baseline is greatest. The existing Rampion 1 aviation and marine navigation lights are clearly visible out to sea from this urban coastline at distances between approximately 13.5km – 16km offshore, forming an array of white navigation lights on the horizon with red aviation lights above them on the peripheral WTGs. There are high levels of lighting caused by street-lights, building lights and vehicle lighting, but also from the many and varied lighting of entertainments and visitor attractions along the seafronts, including piers at Bognor Regis, Worthing and Brighton which extend into the nearshore waters and spill light onto the sea.
- 2.1.3 An assessment of the effects of the aviation lighting on views experienced from the closest urban areas of West Sussex outside the South Downs IDSR is undertaken in **Section 2.2** with reference to Viewpoint 10 Worthing (**Figure 15-35j-r**) and Viewpoint 13 Pagham Beach (**Figure 15-38j-r**).

2.2 Representative Viewpoints in West Sussex

Viewpoint 10 Worthing

Baseline Conditions and Sensitivity

- 2.2.1 The existing night-time view from Worthing seafront is shown in [Figure 15-35j-n](#). The viewpoint is located at Worthing seafront on the promenade near Worthing Pier. The baseline is a brightly lit seafront, with ornamental street lighting and rope string lighting along the promenade, together with light spill from adjacent building

frontages, beach shelters and passing car lights on the busy main road. The view looks out across Worthing beach to the sea, in which Worthing Pier is illuminated at night with bright lighting within its arcades, restaurants/bars and rides. The lighting of Worthing Pier spills light reflections onto the nearshore sea. The red lights on the i360 tower are visible in the distance along the coast beyond Worthing Pier.

- 2.2.2 The seascape section of the view is relatively dark but includes visible night-time lighting on the Rampion 1 WTGs, cardinal marks and transient lights on boats in the inshore waters. Lighting of the existing Rampion 1 WTGs is visible in the view at night, from 13.8 km to the closest WTG, including both the red medium intensity lighting at nacelle height on peripheral WTGs (which flash in sequence) and yellow marine navigational lighting at platform level of all WTGs, forming an array of multiple small points of red and yellow light extending across the view between the dark sea below and dark sky above. Fundamentally it is a view that is highly influenced by lighting of the urban environment and seascape in the baseline, although there are areas of dark seascape between the Worthing Pier, Rampion 1 and the coast.
- 2.2.3 The sensitivity of the viewpoint at night is considered to be low, reflecting that the view has low value at night-time and the receptors experiencing the view have a low susceptibility to change. The value of the view is assessed to be low at night-time, since it is not a location that people visit to experience a dark landscape or dark skies, in fact people value and are attracted to the area at night for the 'bright lights' of the seafront and its night-time attractions. The viewpoint is located on the promenade overlooking Worthing beach which provides access for visitors to other seafront visitor facilities and is also representative of residential receptors along the Worthing seafront. It is however, located within a brightly lit urban landscape outside the South Downs IDSR. Although the view at night is likely to be experienced by local residents and people visiting the seafront at night, their main attention and interest includes the many readily discernible light sources that are visible, including the bright decorative lighting along the promenade, street lighting and car lights along the road, lighting of Worthing Pier, the i360 tower and existing Rampion 1 WTG aviation and marine navigation lighting in the seascape. There are high levels of baseline lighting around the viewpoint that reduce susceptibility to further lighting and the ability of receptors to perceive the intensity of lights out to sea, such that the 'susceptibility' of receptors to aviation lighting on the proposed Rampion 2 WTG is reduced in the view.

Magnitude of Change and Significance of Effect

- 2.2.4 The predicted view of the aviation lights at 2,000cd is shown in the photomontage in [Figure 15-35o-p](#).
- 2.2.5 Aviation and marine navigation lighting of the proposed Rampion 2 WTGs will be visible in the view at night, from 14.9 km to the closest WTG, including both the red medium intensity lighting at nacelle height on peripheral WTGs (which flash in sequence) and yellow marine navigational lighting at platform level of all WTGs. These lights will extend the existing array of multiple small points of red and yellow light extending across part of the sea view, between the dark sea below and dark sky above. The lighting of the Rampion 2 WTGs will extend the lateral spread of multiple point features of red and yellow light over a wider portion of the view,

adding to the visual influence of offshore lighting in the existing view of the sea at night, due to the contrast of the lights with the dark seascape and sky into which the lights extend primarily westwards in the view. The aviation and marine navigation lighting of the proposed Rampion 2 WTGs will, however, be viewed next to the existing offshore WTG lighting, the context of the lighting on Worthing Pier in the seascape and the bright baseline lighting along Worthing promenade around the viewpoint, which will reduce the perceived intensity of the lights out to sea.

- 2.2.6 The aviation and marine navigation lights on the eastern WTG array will be visible behind the Rampion 1 WTG aviation lights, subsumed amongst and behind the existing WTG lighting. The eastern WTG array lighting does not add to the lateral extent of lighting in this view. The aviation and marine navigation lights on the western WTG array will extend the lateral spread of the lighting on the sea skyline, extending into the darker section of seascape between Rampion 1 and the West Sussex coastline.
- 2.2.7 The majority of the aviation lights will be visible at a higher position above the skyline than the Rampion 1 WTG aviation lights, due to the higher nacelle height and will be backdropped by dark sky, however the aviation lights are relatively low to the horizon and do not extend high into the sky above the viewpoint, thus limiting the amount of the night-sky that is impeded. The stars were observed and will continue to be visible in the skies above. The aviation lights are not expected to result in obtrusive light that impedes the wider expanse of night sky, which can be experienced readily above the aviation lights, nor result in brightening of the night sky (skyglow) or glare on to the sea surface and will therefore not be of detriment to the overall experience of the night skies and seascape in this view.
- 2.2.8 A result of these factors, the magnitude of change on the night-time view as a result of the aviation lights operating at 2,000cd is assessed as medium and when combined with the low sensitivity of the viewpoint, this results in a Not Significant (Minor) visual effect, occurring primarily due to the extended western spread of familiar visible WTG lights in the seascape, at a distance of 14.9km offshore, from a viewpoint that has bright baseline lighting along Worthing promenade around it and is visited at night for the purpose of enjoying the bright lights and attractions of the seafront. The operation of aviation lights at the lower intensity of 200cd when visibility from every WTG is >5 km will provide further mitigation and reduction in the perceived intensity of the visible lighting.

Viewpoint 13 Pagham Beach

Baseline Conditions and Sensitivity

- 2.2.9 The existing night-time view from Pagham Beach is shown in [Figure 15-38j-n](#). The viewpoint is located at Pagham Beach near Pagham Yacht Club and close to the point where Beach Road joins Pagham's shingle beach. The beach provides access for visitors and local residents to appreciate views of relatively dark skies and seascape at night, in a relatively less developed context than viewpoints at Bognor and Littlehampton further east. The area around the viewpoint at Pagham Beach has relatively limited baseline lighting, with baseline light mainly coming

from the light spill of adjacent low-lying residential building frontages that line the beach.

- 2.2.10 The main lighting in the baseline occurs from the brightly lit seafronts extending east towards Worthing and Brighton, including most notably the concentration of lighting at Bognor Regis, where there is a combination of street lighting along the promenade, lighting in residential flats and buildings, the Bognor Regis Observation Wheel and Bognor Regis Pier. Red lights on tall structures, such as the i360 tower, are visible in the distance along the coast. Scattered lighting at Selsley Bill can be seen along the coast to the west in the opposite direction.
- 2.2.11 There is limited existing lighting in the view across the open seascape, with the overall impression of the night-time view of a dark seascape and dark skies above, in which the stars and moonlight (including moonlight on the sea) can be observed **Figure 15-38j-n**. Lighting offshore is limited to cardinal marks, transient lights on boats and the night-time lighting on the distant Rampion 1 WTGs visible on the sea skyline. The red, medium intensity aviation lighting of the existing Rampion 1 WTGs is visible in the view at night, from 28.2 km to the closest WTG, on peripheral WTGs (which flash in sequence). The visible aviation lights form a distant array of multiple small points of relatively faint red light on the horizon to the south-east. The Rampion 1 aviation lights, lights on vessels and cardinal marks stand out as point sources of light due to the higher contrast with the otherwise dark seascape. The marine navigational lighting is not visible in this view, due to the curvature of the earth which results in the lights at platform level being situated behind the horizon. Fundamentally it is a view that has a mix of both relatively low level of lighting in the existing seascape in the baseline, where there is relative continuity between the dark sea below and dark skies above, but with urban lighting visible along the seafront of the coastline.
- 2.2.12 The sensitivity of the viewpoint at night is considered to be medium, reflecting that the view has medium value at night-time and the receptors experiencing the view have a medium susceptibility to change. The value of the view is assessed to be medium at night, since it is a location that people may visit to appreciate views of relatively dark skies and seascape at night, in a less developed context than viewpoints at Bognor and Littlehampton further east, however these views at night are influenced by notable development lighting along the coastline. **Figure 15.11** shows that Pagham Beach is within a localised area on the coast with relatively less night light pollution, which heightens its value in the context of the extensively lit urban coastline to the east, however the viewpoint is not located in an area that is designated or defined for its intrinsic darkness, so the experience is more incidental than one that may be gained from a specific dark skies viewpoint (in the IDSR, for example). The susceptibility to changes arising from further WTG lighting is heightened by the relatively dark seascape context, with a general lack of readily discernible light sources in the view, other than the Rampion 1 WTG lighting, cardinal marks and vessels, however the existing sources of light along the developed coast and existing WTG lighting in the seascape, moderates the susceptibility to further WTG lighting.

Magnitude of Change and Significance of Effect

- 2.2.13 The predicted view of the aviation lights at 2,000cd is shown in the photomontage in **Figure 15-38o-p**. Aviation and marine navigation lighting of the proposed

Rampion 2 WTGs will be visible in the view at night, from 16.7 km to the closest WTG, including both the red medium intensity lighting at nacelle height on peripheral WTGs (which flash in sequence) and yellow marine navigational lighting at platform level of all WTGs. The principal effect of the lighting of the Rampion 2 WTGs will be to extend the lateral spread of existing multiple point features of red and yellow light over more of the sea skyline, over a wider portion of the view, increasing the visual influence of offshore lighting in the existing view of the sea at night, due to the wider spread and closer proximity of the lighting. The aviation and marine navigation lighting of the proposed Rampion 2 WTGs will however, be viewed in the context of the existing Rampion 1 WTG lighting (albeit at closer range), and in the wider context of the baseline lighting that is present along the urbanised coastline, particularly around Bognor Regis.

- 2.2.14 The extension of the lighting effect occurs to the west of Rampion 1, viewed next to and at closer range than the existing offshore WTG lighting, and is therefore seen as a continuation/increase in intensity of an existing lighting effect in the seascape, rather than an entirely new or unfamiliar feature. The westwards extension of the array of lights does, however, increase the lateral extent of skyline effected by the lights, bringing them closer to the viewpoint at Pagham Beach. In doing so, the Rampion 2 aviation lights are likely to be viewed with a greater intensity, and slightly increase the interruption between the dark sea below and the dark skies above, due to their presence on the sea skyline. In the main however, the proposed Rampion 2 WTG lighting does not affect the ‘continuity’ of darkness, which will continue to occur across the wide expanse of seascape in the offshore panorama.
- 2.2.15 The majority of the aviation lights will be visible at higher elevation than the Rampion 1 WTG aviation lights, due to the higher nacelle height and will be backdropped by dark sky, however the aviation lights are low to the horizon and do not extend high into the sky, thus limiting the amount of the night-sky that is impeded and having limited influence on the view of stars in the night-sky. The stars and moon were observed in the dark skies above and will continue to be visible and unimpeded in the skies above the viewer. The aviation lights are not expected to result in obtrusive light that impedes the wider expanse of night sky, which can be experienced readily above the aviation lights, nor result in brightening of the night sky (skyglow) or glare on to the sea surface and will therefore not be of detriment to the overall experience of the night skies in this view.
- 2.2.16 A result of these factors, the magnitude of change on the night-time view as a result of the aviation lights operating at 2,000cd is assessed as Medium and when combined with the Medium sensitivity of the viewpoint, this results in a Not Significant (Moderate) visual effect, occurring primarily due to the extended spread and increased intensity of existing and familiar visible lights at closer range in the seascape, and some additional interruption of part of the continuity between the dark seascape and dark skies above due to the position of the lights along the sea skyline. The effect of the aviation and marine navigation lights is considered not significant on balance, because this effect is already experienced in the baseline lighting at night, with which the proposed Rampion 2 WTG lights will integrate, forming an extension of an existing familiar feature and at relatively long distance, such that they do not compromise or significantly diminish the view of the night sky experienced from this localised area of darker coast around Pagham

Beach/Harbour. The operation of aviation lights at the lower intensity of 200cd when visibility from very WTG is >5 km will provide further mitigation and reduction in the perceived intensity of the visible lighting.

