

## Connah's Quay Low Carbon Power

# Additional Operational Air Quality Considerations

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# 1. Introduction

## 1.1 Purpose

- 1.1.1 This technical note provides a summary of information relating to the potential for emissions to air to give rise to cumulative and in-combination effects upon sensitive receptor locations during the operational phase of the Proposed Development. The note provides clarity on the cumulative schemes that have been included in quantitative assessments reported for the Proposed Development and on emerging schemes that statutory stakeholders have brought to the attention of the Applicant.
- 1.1.2 The outstanding points of discussion with Natural Resource Wales (NRW) relating to air pollutant emissions concern the impact on nutrient nitrogen deposition rates and annual mean ammonia concentrations at ecological sites with national or international designations. The note focuses on these aspects of the wider cumulative air quality assessment for the reasons set out in Section 2.3.

## 1.2 Context

- 1.2.1 An Air Quality Assessment was included in **Chapter 8: Air Quality** originally submitted as part of the DCO Application [APP-046] and subsequently updated as part of the **Change Application Report [CR1-026]**. For the operational phase, the Zone of Influence (Zol) for potential cumulative air quality effects for process emission sources is up to a maximum of 15 km from the location of the stacks, as illustrated by **Figure 24-1: Zones of Influence [APP-168]**. For emissions from additional road traffic the Zol is 200m from the affected road network. These results are considered in the context of ecological sites within **Chapter 11: Terrestrial and Aquatic Ecology (EN010166/APP/6.2.11)** and the **Report to Inform Habitats Regulations Assessment (RIHRA) (EN010166/APP/6.12)**, where the Zols relevant to each receptor type are also set out. Human health effects are considered in **Chapter 8: Air Quality [CR1-026]**.
- 1.2.2 The Conservation of Habitats and Species Regulations 2017 require consideration of likely significant effects/adverse effects on integrity 'alone or in combination' with other plans and projects as the purpose is to pick up those projects that have dismissed impacts alone, to ensure they consider impacts cumulatively. Since an adverse effect on integrity due to loss of functionally linked land has already been identified 'alone' for the Proposed Development (prior to consideration of mitigation) there is no legal requirement to consider losses due to 'other plans or projects'. Nonetheless, the **RIHRA (EN010166/APP/6.12)** has done so for completeness and context.

### Commentary During Examination

- 1.2.3 No comments on this matter were received in relevant or written representations or other submissions made by any party until Deadline 3 (10 March 2026). Within the **Examining Authority's Written Questions 1 [PD-012]** NRW were asked to comment on whether they were satisfied with the projects and plans that have been included within the in-combination

assessment in the **Report to Inform Habitats Regulations Assessment (RIHRA) (EN010166/APP/6.12)**. At Deadline 3 (10 March 2026), NRW responded **[REP3-062]** to identify five schemes which it was aware of but were not included in the assessment. The Applicant responded at Deadline 4 **[REP4-081]** (31 March 2026) clarifying why the identified schemes had not been included in the assessment. This commentary is provided below in **Table 1-1**, which includes NRW's response at Deadline 5 **[REP5-070]** (21 April 2026).

**Table 1-1: Commentary from Deadlines 4 and 5**

<b>Identified Scheme</b>	<b>The Applicant's Position at Deadline 4 (31 March 2026)</b>	<b>NRW's Response at Deadline 5 (21 April 2026)</b>
Knauf Rock Mineral Wool Facility	Knauf Rock Mineral Wool Facility has not yet submitted its Environmental Permit application and information relating to its future emissions is not available at this time.	<i>"... We also understand that the formal planning application has recently been submitted. We therefore advise that you consult the Local Planning Authority (Flintshire County Council) to confirm whether any relevant details are available to inform an in-combination assessment of this proposal."</i>
ICT Paper Mill	This scheme is considered in the assessment presented in <b>[CR1-026]</b> .	No further comment provided
Padeswood Cement Works	This scheme is considered in the assessment presented in <b>[CR1-026]</b> .	No further comment provided
Deeside Power Station	Deeside Power Station is currently permitted at 927 MWth with unlimited operational hours and the permit application relates to reducing this to 110 MWth with 2000 hours of operation. The current background concentration maps and Air Pollution Information System (APIS) background projection include the impact from this facility at the permitted operation capacity and as such overestimate the future impacts.	<i>"... Please note that Deeside Power ceased to operate in 2018, therefore previous emissions from Deeside Power may not be included in the current APIS data set for mid-year 2020 (2019-2021)."</i>

Identified Scheme	The Applicant's Position at Deadline 4 (31 March 2026)	NRW's Response at Deadline 5 (21 April 2026)
Arrow AD plant	The combustion of biogas through CHP units from the Arrow AD plant is relatively small in scale and would only be capable of having perceptible impacts within a few hundred meters of the 3m high points of release, within the industrial area. The Environmental Statement for the Arrow AD Plant (planning application reference "058270" at Flintshire County Council) identified negligible impacts within its Air Quality assessment on all receptors (including nature conservation sites).*	<i>"NRW received an Environmental Permit Application from Arrow Bio Waste Recycling Facility on 1 April 2025. The application was assessed not to be Duly Made in February 2026. On 17 April 2026 further information was supplied by Arrow Bio Waste Recycling Facility, including an updated Air Quality Assessment."</i>

\* The Applicant understands the April 2025 permit application utilised the assessment provided in the Environmental Statement for the Arrow AD Plant, dated 2018.

- 1.2.4 In addition at Deadline 4 (31 March 2026), NRW **[REP4-091]** noted that an Environmental Permit application had been submitted to NRW for the Enfinium Parc Adfer ERF Carbon Capture development and queried if this could be assessed.
- 1.2.5 In subsequent discussions with NRW the Applicant noted that the Arrow AD Plant application dated 12 April 2026 was not available on the NRW's public access permit register (Ref 1), with the reporting only provided to the Applicant on 5 May 2026. The Applicant also reviewed the APIS data and noted that, contrary to its understanding, the existing Deeside Power Station is not included within the APIS dataset.
- 1.2.6 Further discussion on these emerging schemes is provided in Section 3.

## 1.3 Long and Short List Process

### Identification of other relevant schemes

- 1.3.1 The Applicant's assessment of other relevant schemes is presented in **Appendix 24-A: Long List ([APP-244] and [REP5-020])** and **Appendix 24-B: Short List ([APP-245] and [REP5-022])**. The criteria for the identification of relevant schemes is provided in **Chapter 24: Cumulative and Combined Effects [APP-062]** which utilised the following sources as originally presented in **Appendix 1-A: Scoping Report [APP-172]**:

- National Infrastructure Planning website (Ref 1);
- Flintshire County Council (planning portal/register) (Ref 3);
- Wirral Council (planning portal/register) (Ref 4);
- Cheshire West and Chester Council (planning portal/register) (Ref 5);

- Wrexham County Borough Council (planning portal/register) (Ref 6);
- Denbighshire County Council (planning portal/register) (Ref 7);
- Welsh Development of National Significance register (Ref 8); and
- Marine Management Organisation Marine Case Management System (Ref 9).

1.3.2 It can be noted that this does not include NRW's public access permit register as permit applications are typically linked to recent applications that would be registered on the above resources where they meet the appropriate cut off dates. The Planning Inspectorate's guidance page on cumulative effects assessment (Ref 10.) does not explicitly reference these types of applications, assumingly for the reason explained above.

### Updated Short List

- 1.3.3 In response to discussion with Flintshire County Council the Applicant updated **Appendix 24-A: Long List** and **Appendix 24-B: Short List** at Deadline 5.
- 1.3.4 This study identified that two further short listed schemes were made available following the end of March 2025 [**APP-2245**] to the updated cut off at the end of March 2026 [**REP5-022**]. These are:
- ID 38: Enfinium Parc Adfer ERF Carbon Capture (update from submission of a Scoping Report to a submitted planning application); and
  - ID 471: Stanlow Modular Hydrogen Ready Combined Heat and Power Plant.
- 1.3.5 ID 38 is discussed further in Section 3 of this report.
- 1.3.6 ID 471 has been assessed qualitatively within Chapter 24 Cumulative and Combined Effects (EN010166/APP/6.2.24).

## 1.4 Consideration of Road Traffic Emissions

- 1.4.1 Future growth on the local and strategic road network has been considered within the transport assessment in **Chapter 24 Cumulative and Combined Effects (EN010166/APP/6.2.24)** based on planned rates of development/redevelopment in Flintshire and the wider region. This has not been done by totaling the contribution from individual scheme's transport assessments but by applying a methodology based on regional growth, for example redevelopment of the Deeside Industrial Park.
- 1.4.2 The relevant transport authorities have been consulted as part of the transport assessment and have confirmed that the predicted flows are fit for purpose. These flows include some roads within Wales that are above the criteria used to define the affected road network. There are no roads in England within 200 m of a sensitive receptor that form part of the affected road network.
- 1.4.3 Additional vehicle flows on roads in Wales associated with other committed developments were accounted for in the traffic assessment and included in the "Future Year without Proposed Development" data used in the

assessment presented in this document. Details of flows and results are presented in **Appendix 8-C: Air Quality Traffic Emissions Assessment [REP4-038]**. During the operational phase, impacts decrease rapidly with distance from the edge of roads. For all roads in the affected road network, values of nutrient nitrogen deposition rates and annual mean ammonia concentrations decrease within a few tens of meters to values are too low for additional assessment to be required.

1.4.4 This note therefore focuses on impacts associated with process emissions.

## 2. Summary of Reported Cumulative Impacts

### 2.1 Overview

2.1.1 Cumulative impacts from existing sources of pollution in the study area are accounted for in the adoption of site-specific background pollutant concentrations from archive sources and a programme of project-specific baseline air quality monitoring in close proximity to the Proposed Development site. It is recognised, however, that there is a potential impact on local air quality from emission sources from other schemes that have yet to come into operation. The following have been considered quantitatively in previous submissions due to their potential operational air quality impacts:

- ID 55: Shotton Paper Mill CHP Facility, DNS/3279559 (located on the Deeside Industrial Park, 1.9 km to the north east);
- ID 102: Padeswood Cement Works Carbon Capture, DNS CAS-02009-W1R1Z7 (located over 9km to the south); and
- ID 141: New Paper Processing Mill, 63721 (located on the Deeside Industrial Park, 3.64 km to the east).

2.1.2 The Padeswood Cement Works Carbon Capture does not make a material contribution to the cumulative impacts as it is geographically remote from the Proposed Development and other schemes and the key receptors. The other two schemes are within the Deeside Industrial Park and both experience the same meteorological conditions as the Proposed Development, which are representative of the Dee Estuary.

### 2.2 Ecological Receptors

2.2.1 The maximum point of impact from the Proposed Development during the operational phase is an area of open water within the Dee Estuary Special Area of Conservation (SAC) that is located to the north west of the Proposed Development and to the south of the saltmarsh that extends from the northern shore of the estuary, as illustrated in **Figure 8-23: FEED 2 Abated Scenario, Nitrogen Deposition Process Contribution (Grassland) (CR1-069)** reproduced below as **1 Reproduction of Figure 8-23**. The point of maximum impacts reported in the assessment for the schemes in the Deeside Industrial Park are located at the eastern most end of the designated area and immediately adjacent to the A548, which is a former firing range, as illustrated in **Figure E1: FEED 2 Scenario, In-Combination Nitrogen Deposition Process Contribution within Saltmarsh (Grassland)**, reproduced below as **2: Reproduction of Figure E1**.

2.2.2 For example, results presented in Table 45 of **Appendix 8-D: Operational Air Quality Assessment(EN010166/APP/6.4)** show that at the point of maximum impact from the Proposed Development's stack emissions on the Dee Estuary (OE02), the nitrogen deposition process contribution is 0.13 kg/ha/yr, whereas the impacts from other cumulative schemes is only 0.1 kg/ha/yr.

- 2.2.3 Nitrogen deposition rate isopleths presented in **1 Reproduction of Figure 8-23** (Proposed Development alone) and **2: Reproduction of Figure E1** show the maximum point of impact for the total cumulative process contribution (including the Proposed Development) is located to the north of the Deeside Industrial Park. At this location, total cumulative impacts for nitrogen deposition are between 0.1 and 0.15 kg/ha/yr and contributions from the Proposed Development are negligible (less than 0.05 kg/ha/yr).
- 2.2.4 As included in the **Applicant's Response to ExQ1 [REP3-059]**, Q6.7, this correlates with the pattern of meteorological conditions occurring most frequently for the hours when the wind blows to the north-west or south-east, resulting in elongated isopleth lines along the north-west to south-east axis and is the reason why the locations experiencing maximum impacts between the modelled schemes do not overlap, despite being relatively close in distance.

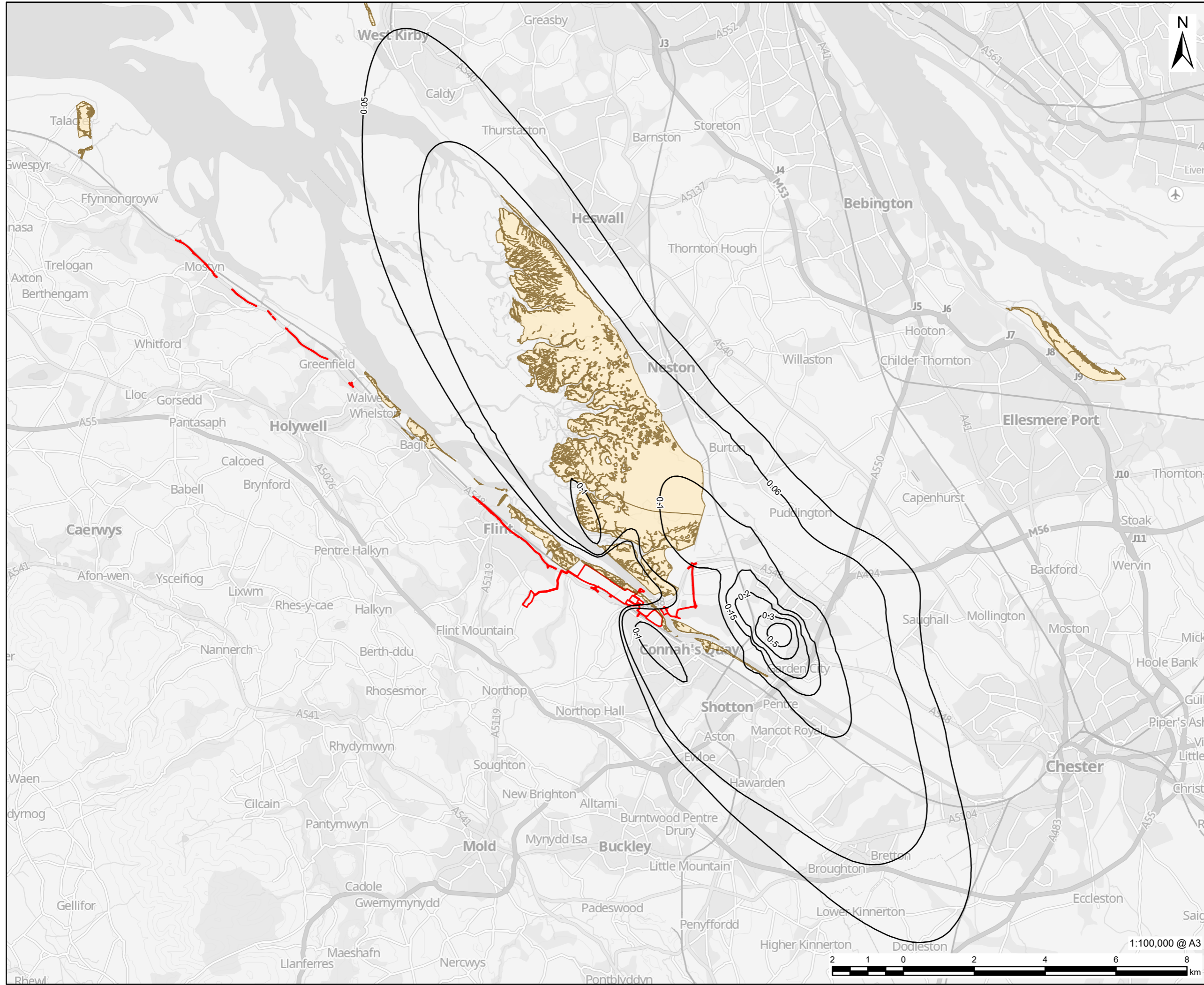
## 2.3 Human Health Receptors

- 2.3.1 **Chapter 8: Air Quality [CR1-026]** and **Appendix 8-D Air Quality Operational Assessment (EN010166/APP/6.4)** demonstrate that the Proposed Development is predicted to have negligible or minor adverse effects on human health, with the majority of effects being negligible. The most affected receptor was reported to be within Connah's Quay town to the south-east of the Main Development Area. Receptor 42, shown on **Figure 6-2: Operational Phase Assessment - Air Quality Study Area and Human Health Receptors [CR1-048]** which is representative of a location just to the south east of the Deeside Industrial Estate, was predicted to experience imperceptible effects for all assessed pollutants, as expected with the prevailing meteorological conditions of the area (see Plate 4). On this basis, it would not be considered likely that the Proposed Development would contribute to any potential human health effects cumulatively with any of the identified schemes. The distribution trends for the emerging schemes discussed within Section 3 would also be true for human health impacts.

## Plate 1 Reproduction of Figure 8-23



## Plate 2: Reproduction of Figure E1



**LEGEND**

- Order limits
- Nitrogen Deposition Process Contribution (Grassland) (% of the CL)
- Saltmarsh

**NOTES**

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**ISSUE PURPOSE**  
 Report to Inform Habitats Regulations Assessment

**DATE**  
 May 2026

**PROJECT NUMBER**  
 60768754

**FIGURE TITLE**  
 FEED 2 Scenario, In-Combination Nitrogen Deposition Process Contribution within Saltmarsh (Grassland), 2021 Meteorological Data

**FIGURE NUMBER**  
 Figure E1



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## 3. Impacts from Emerging Schemes

3.1.1 Further to the context outlined in Section 1.2, the following emerging schemes have been considered in this note:

- ID 38: Enfinium Parc Adfer ERF Carbon Capture, SCO/000970/23 (located on the Deeside Industrial Park);
- Deeside Power Station (located on the Deeside Industrial Park);
- Knauf Mineral Rock Wool Facility (located on the Deeside Industrial Park); and
- Arrow AD Plant (located on the Deeside Industrial Park).

3.1.2 The air quality assessments for these emerging schemes have been obtained from the Flintshire County Council planning portal or the NRW public access permit register. The location of each of the emerging schemes and their reported point of maximum impact on the Dee Estuary SAC are illustrated in **Plate 3**. The pattern illustrated in **Plate 4: Hawarden Meteorological Data 2021 Wind Rose** is due to the local wind flow conditions based on data from Hawarden meteorological station for 2021, and shows wind directions in the local area follow a clear north-west to south-east axis.

3.1.3 **Table 3-1** identifies each emerging scheme and sets out the Applicant's position regarding the need for inclusion in a qualitative assessment of cumulative effects. Further discussion on each of the emerging schemes is provided in Section 3.2 to 3.5, with a conclusion provided in Section 4.

**Table 3-1: Screening of emerging schemes**

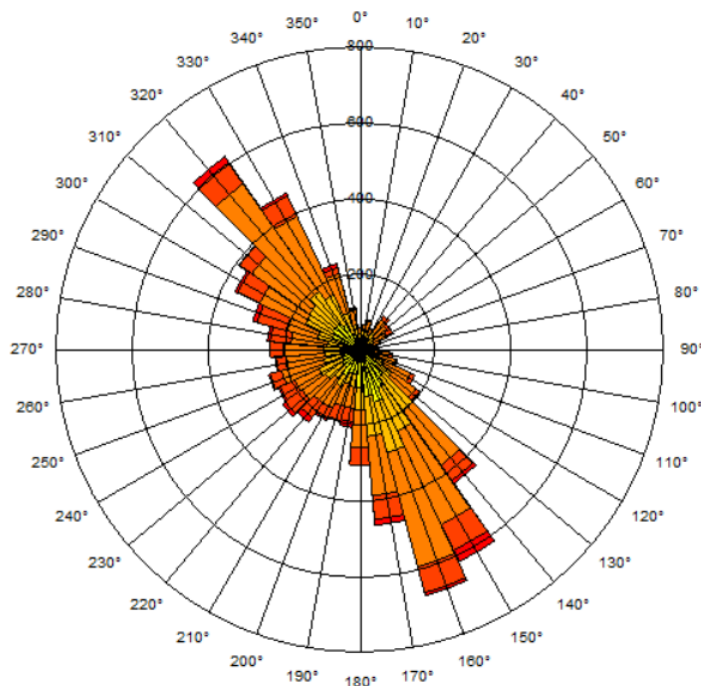
Scheme	The Applicant's Position
ID 38: Enfinium Parc Adfer ERF Carbon Capture, SCO/000970/23 (located on the Deeside Industrial Park)	The dispersion modelling assessment for this scheme was submitted in August 2025 (Ref 11) and validated after the finalisation of the Original ES cumulative assessment ( <b>Chapter 24: Cumulative and Combined Effects [APP-062]</b> ) on 31 March 2025 and was therefore not available to the Applicant at the time the quantitative cumulative effects assessment was undertaken. However, a qualitative assessment is included in this note.
Deeside Power Station (located on the Deeside Industrial Park);	The air quality assessment (Ref 14) submitted with the Deeside Power Station permit variation (dated March 2025) stated that the facility is currently permitted at 927 MWth with unlimited operational hours and the new environmental permit application relates to reducing this to 110 MWth with 2000 hours of operation. It was assumed impacts would only be reduced compared to previous operational levels and were already included in the current background concentration maps from the APIS background projection and as such including it

Scheme	The Applicant's Position
	<p>quantitatively would overestimate the future impacts. However, through discussion with NRW after Deadline 5 it has been confirmed that emissions from the site have not been included in background concentration projections since 2018 and will not be included in future projections until after a new permitting application based on the scaled down operations has been considered by NRW. This data was therefore unavailable to use in the cumulative assessment at this time. Therefore, a qualitative assessment is included in this note.</p>
<p>Knauf Mineral Rock Wool Facility (located on the Deeside Industrial Park)</p>	<p>For Knauf Mineral Rock Wool Facility, the planning application (FUL/000343/26, registered 22 April 2026) (Ref 13) was validated after the finalisation of the Original ES cumulative assessment on 31 March 2025 and after the extended cut-off date of 31 March 2026 and was therefore not available to the Applicant either at the time the quantitative cumulative effects assessment was undertaken or at the time the cumulative chapter (<b>Chapter 24 Cumulative and Combined Effects (EN010166/APP/6.2.24)</b>) was updated. Nonetheless, a qualitative consideration has been included in this note.</p>
<p>Arrow AD Plant (located on the Deeside Industrial Park)</p>	<p>The air quality assessment submitted with the 2018 planning application for the Arrow AD Plant (planning application reference "058270" at Flintshire County Council, registered 19 April 2018) reported that the combustion of biogas through CHP units from the Arrow AD plant was relatively small in scale and would only be capable of having perceptible impacts within a few hundred meters of the 3 m high points of release, within the industrial area. However, the recently updated air quality assessment (April 2026) (Ref 12) was submitted to NRW and shared with the Applicant after the extended cut-off date of 31 March 2026 and was therefore not available to the Applicant either at the time the quantitative cumulative effects assessment was undertaken or at the time the cumulative chapter (<b>Chapter 24 Cumulative and Combined Effects (EN010166/APP/6.2.24)</b>) was updated. Nonetheless, a qualitative consideration has been included in this note.</p>

## Plate 3: Location of Emerging Schemes



### Plate 4: Hawarden Meteorological Data 2021 Wind Rose



## 3.2 Enfinium Parc Adfer ERF Carbon Capture development (ID38)

- 3.2.1 Regarding the Enfinium Parc Adfer ERF Carbon Capture development (ID 38), a scoping report was submitted for this development in October 2023. At the scoping stage, a project has not yet conducted an Environmental Impact Assessment and therefore no assessment of likely significant effects (LSE) is available. As no LSE assessment had been carried out, there was insufficient information to meaningfully include this scheme in the cumulative effects assessment.
- 3.2.2 The dispersion modelling assessment (August 2025) was validated after the finalisation of the original ES cumulative assessment on 31 March 2025 and was therefore not available to the Applicant at the time the quantitative cumulative effects assessment was undertaken. The assessment submitted with that application now includes sufficient information to consider in-combination impacts with the Proposed Development. The dispersion modelling assessment (August 2025) considers the cumulative impacts of the Proposed Development, Shotton Paper Mill and Enfinium Parc Adfer ERF and reports impacts on the Dee Estuary and the Deeside and Buckley Newt Sites SAC (amongst others). The Enfinium Parc Adfer assessment considers the reported impacts from the Proposed Development prior to the **Change Application Report [CR1-118]** becoming publicly available but the impacts from the Proposed Development have not changed materially and Enfinium Parc's Environmental Statement cumulative assessment remains valid.
- 3.2.3 Figure 22 of the Enfinium Parc Adfer ERF Carbon Capture's dispersion modelling assessment (Ref 1) illustrates the greatest impacts from Enfinium Parc Adfer would occur to the eastern end of the Dee Estuary and have imperceptible contributions at the Deeside and Buckley Newt Sites SAC.

The reported values align with the pattern observed in the Applicant's cumulative assessment for emissions from sources within Deeside Industrial Park having largest impacts at the eastern edge of the Dee Estuary SAC and exhibiting minimal overlap with the impacts of the Proposed Development.

### 3.3 Deeside Power Station

- 3.3.1 The air quality assessment (Ref 14) submitted with the Deeside Power Station permit variation (dated March 2025) stated that the facility is currently permitted at 927 MWth with unlimited operational hours and the new environmental permit application relates to reducing this to 110 MWth with 2000 hours of operation. It was assumed impacts would only be reduced compared to previous operational levels and were already included in the current background concentration maps from the Air Pollution Information System (APIS) background projection and as such including it quantitatively would overestimate the future impacts. Discussions with NRW after Deadline 5 have confirmed that emissions from the Deeside Power Station have not been included in background concentration projections since 2018 and will not be included in future projections until after a new permitting application based on the scaled down operations has been considered by NRW. This data was therefore unavailable to use in the cumulative assessment at this time.
- 3.3.2 The air quality impact assessment submitted to NRW (Ref 14) (currently under review) as part of the environmental permit application to reduce the operational capacity of the Deeside Power Station reports impacts on human health and ecological receptors. The reported location of maximum impact on the Dee Estuary from the Deeside Power Station is located in the same area as the other developments within the Deeside Industrial Park, although slightly offset from the north-west/south-east alignment the others show (see **Plate 3**) due to the position of the designation boundary. This is simply because, as the stacks for the Deeside Power Station are relatively small (15m), the point of maximum impact from the Deeside Power Station would be located in an area outside the sensitive ecosystem.
- 3.3.3 The reported values align with the pattern observed in the Applicant's cumulative assessment for emissions from sources within Deeside Industrial Park having largest impacts at the eastern edge of the Dee Estuary SAC adjacent to the A548 were it extends inland from the estuary itself and exhibiting minimal overlap with the impacts of the Proposed Development.

### 3.4 Arrow AD

- 3.4.1 The air quality assessment (Ref 16) submitted with the 2018 planning application for the Arrow AD Plant (planning application reference "058270" at Flintshire County Council, registered 19 April 2018) (**Chapter 24 Cumulative and Combined Effects (EN010166/APP/6.2.24)**) was submitted prior to July 2019 and was therefore over 5 years old at the commencement of the cumulative assessment. The air quality assessment from the 2018 planning application was subsequently used in April 2025 as part of the environmental permit application. As identified in **Table 1-1**, for the assessment of the permit submitted in April 2025, the Applicant noted "*The combustion of biogas through CHP units from the Arrow AD plant is*

*relatively small in scale and would only be capable of having perceptible impacts within a few hundred meters of the 3m high points of release, within the industrial area. The Environmental Statement for the Arrow AD Plant (planning application reference "058270" at Flintshire County Council) identified negligible impacts within its Air Quality assessment on all receptors (including nature conservation sites)."*

- 3.4.2 The recently updated air quality assessment (April 2026) (Ref 12) was submitted to NRW and subsequently shared with the Applicant after the extended cut-off date of 31 March 2026. The 2026 Arrow AD plant assessment describes emissions from relatively short stacks (10 m) and identified impacts on the Dee Estuary SAC, at the eastern most end of the designated area and immediately adjacent to the A548 where it extends inland from the estuary itself.
- 3.4.3 The reported values align with the pattern observed in the Applicant's cumulative assessment for emissions from sources within Deeside Industrial Park having largest impacts at the eastern edge of the Dee Estuary SAC and exhibiting minimal overlap with the impacts of the Proposed Development.

## 3.5 Knauf Mineral Rock Wool Facility

- 3.5.1 For Knauf Mineral Rock Wool Facility, the planning application (FUL/000343/26, registered 22 April 2026) was validated after the finalisation of the Original ES cumulative assessment on 31 March 2025 and after the extended cut-off date of 31 March 2026 and was therefore not available to the Applicant either at the time the quantitative cumulative effects assessment was undertaken or at the time the cumulative chapter (**Chapter 24 Cumulative and Combined Effects (EN010166/APP/6.2.24)**) was updated. The application includes an air quality assessment (Ref 13) that considers cumulative impacts from the Proposed Development. That assessment used input data that were sourced from the Applicant's **Environmental Statement [REP4-013]** and not from the **Change Application Report [CR1-118]**. However, the impacts from the Proposed Development have not changed materially and therefore Knauf's Environmental Statement's cumulative assessment is still valid. The conclusions of Knauf's Environmental Statement's cumulative assessment (Ref 13) identify impacts from NH<sub>3</sub> and Nitrogen deposition at Dee Estuary Ramsar/SPA/SAC/SSSI, however they contextualise these impacts giving consideration to the baseline environment where there are high background concentrations, and the Predicted Environmental Concentration is less than 100% of the Critical Load. The Knauf Mineral Rock Wool Facility Stage 2 Appropriate Assessment (Ref 15) states that predicted nitrogen deposition from the operation of the facility both alone and in combination with other nearby projects would be minor and not sufficient to alter the structure, function, or conservation objectives of any European Site assessed.
- 3.5.2 The reported values align with the pattern observed in the Applicant's cumulative assessment for emissions from sources within Deeside Industrial Park having largest impacts at the eastern edge of the Dee Estuary SAC and exhibiting minimal overlap with the impacts of the Proposed Development.

## 4. Conclusion

- 4.1.1 The impacts from the emerging schemes identified in Section 3.1 have not been modelled in a cumulative scenario, for the reasons stated for each specific scheme.
- 4.1.2 The environmental permit application for the Proposed Development remains on-going. Further consideration will be given to the issue of potential impacts on designated sites during the permit application process to ensure no significant harm is experienced at those locations. Any potential releases to air can be adequately regulated under the pollution control framework.
- 4.1.3 The following points are considered to be well understood:
- The location and magnitude of the impacts due to the Proposed Development;
  - The Dee Estuary SAC is most impacted by emissions from sources in the Deeside Industrial Park (i.e. the emerging schemes) at its most easterly extent;
  - At the eastern extent of the Dee Estuary SAC, the contribution of the Proposed Development to the total cumulative impact of nitrogen deposition rate and ammonia concentrations is negligible;
  - Suitable mitigation has been identified in the **Report to Inform Habitats Regulations Assessment (EN01066/APP/6.12)** that addresses the impact of the Proposed Development; and
  - The absolute cumulative change in nitrogen deposition rate and ammonia concentrations at the eastern end of the Dee Estuary SAC can only be determined through explicit in-combination modelling of all the individual sources.
- 4.1.4 Regardless of the size of the total cumulative impact, the contribution from the Proposed Development remains the same in terms of mass of air pollutants and becomes proportionally smaller as more schemes emerge in future years, however it is clear that the relative scale of the contribution remains small. AECOM consider that sufficient information has been included in this DCO application (including this note) to assess the cumulative effects of the Proposed Development with other projects. Based on the analysis undertaken above, no new or different likely significant cumulative effects have been identified beyond those set out within **Chapter 24: Cumulative and Combined Effects (EN010166/APP/6.2.24)** and no new or different adverse effects on integrity of Habitats sites have been identified beyond those set out within **Report to Inform Habitats Regulations Assessment (EN01066/APP/6.12)**.

## References

- Ref 1 Natural Resources Wales (2026). Public Register
- Ref 2 PINS (2025). National Infrastructure Planning [online]. Available at: <https://infrastructure.planninginspectorate.gov.uk/> (Accessed 06/05/2026).
- Ref 3 FCC (2025). Flintshire County Council Planning [online]. Available at: <https://www.flintshire.gov.uk/en/Resident/Planning/Home.aspx> (Accessed 06/05/2026).
- Ref 4 Wirral Council (2025). Wirral Council Planning and Building [online]. Available at: Planning and building | wirral.gov.uk (Accessed 06/05/2026).
- Ref 5 Cheshire West and Chester Council (2025). Cheshire West and Chester Planning and Building Control [online]. Available at: <https://www.cheshirewestandchester.gov.uk/residents/planning-and-building-control> (Accessed 06/05/2026).
- Ref 6 Wrexham County Borough Council (2025). Wrexham County Borough Council Planning and Building Control [online]. Available at: Planning and building control | Wrexham County Borough Council (Accessed 06/05/2026).
- Ref 7 Denbighshire County Council (2025). Planning Home [online]. Available at: Planning Home | Denbighshire County Council (Accessed 06/05/2026).
- Ref 8 Welsh DNS; Development of National Significance Register [online]. Available at: Planning Casework (gov.wales) (Accessed 06/05/2026).
- Ref 9 Marine Management Organisation, Marine Case Management System [online]. Available at: [https://marinelicensing.marinemanagement.org.uk/mmofox5/fox/live/MMO\\_LOGIN/login](https://marinelicensing.marinemanagement.org.uk/mmofox5/fox/live/MMO_LOGIN/login) (Accessed 06/05/2026).
- Ref 10 PINS (2024). Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment [online]. Available at: [Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment - GOV.UK](#) (Accessed 06/05/2026)
- Ref 11 Enfinium: Enfinium Parc Adfer Operations Ltd (2025). Parc Adfer – Carbon Capture Facility: Dispersion Modelling Assessment [online]. Available at: <https://parcadferccs.wales/assets/images/pdf/appendices-and-figures/appendix-7-1---dispersion-model...> (Accessed 06/05/2026).
- Ref 12 Arrow Bioenergy Ltd (2026). Air Quality Assessment for the Arrow AD Plant [not publicly available].
- Ref 13 Knauf Insulation Ltd (2026). Rock Mineral Wool Facility, Deeside Industrial Park, Shotton: Environmental Statement Volume I – Main Text, Chapter 5: Air Quality [online]. Available at: <https://knauf.com/api/download-center/v1/assets/d1de4116-2d28-4692-a658-241e48088080?country=GB&download=true&locale=en-GB> (Accessed 28/05/2026).

- Ref 14 Natural Resources Wales (2025). Environmental Permit Application and Supporting Documents for the Rock Mineral Wool Facility, Deeside Industrial Park, Shotton [online]. Available at: <https://publicregister.naturalresources.wales/Search/Download?RecordId=181072> (Accessed 28/05/2026).
- Ref 15 WSP (2025) Habitats Regulations Assessment: Remediation and Site Preparation Works, Deeside Industrial Park, Shotton. Report No. 0487-WSP-XX-RP-ENV-00110-P01. Prepared by WSP on behalf of Knauf Insulation Ltd. December 2025.
- Ref 16 Smith Grant LLP (2018) *Arrow Bio Deeside: Air Quality Chapter, Appendix 7.3 — ADMS Model Outputs: Gas Engine Emissions*. Environmental Consultancy. March 2018. Supporting document to planning application ref. 058270, Flintshire County Council.

