FICHTNER
Consulting Engineers Limited

Powerfuel Portland ERF

Supplementary Inquiry Note

Response to third party statements

1 Introduction

During the third party representation sessions of the Public Inquiry on 14 December 2023, some speakers made statements which I would have responded to in my evidence if I had not already completed my evidence. Rather than being recalled, the Appellant has asked me to respond in writing.

I note that most of the points raised by third parties, including UKWIN, are already addressed in my evidence or other documents before the Inquiry and so I have not repeated this material. In particular, most of the technical points around the air quality assessment are covered in the original application documents (CD1.37d-f) or in the detailed response to the Environment Agency's technical queries (CD2.29d).

2 Portland Port

During my cross-examination by Mr Bird, he asked me when the Appellant secured its grid connection agreement. I can confirm that this was dated 12 November 2019.

I was also asked about the letter from Portland Port dated 23 November 2020 (CD12.81), which stated:

"The existing power supply to the island has a capacity of 18 MW. The current peak demand is 11 MW and another 2 MW is reserved for projects in progress, whilst a further 0.8 MW will be used by a project under construction when it comes online in 2021. That leaves only 4.2 MW spare capacity if the power station is not built."

I understand that this was the Port's best understanding of the situation at the time. However, I note that the current power supply situation is explained in the latest letter from the Port, dated 6 November 2023 and included in Mr Robert's Appendix NR2. This confirms that the port is currently using diesel generators to supply crane operations and, as I noted in my evidence, the port is also using diesel generators to supply the Bibby Stockholm. This supports the conclusion that there is currently no, or very little, spare capacity in the grid.

3 UKWIN

In their oral presentation, UKWIN made two points which had not appeared in their previous submissions in this form or which were not clear before.

On **Slide 7**, UKWIN included a quote from the Environmental Improvement Plan (CD9.24) and stated that this demonstrated that the government anticipated removing paper and card from residual waste, as well as food waste and plastic waste. Therefore, UKWIN concluded that the biogenic

content of waste would be likely to reduce further than I had allowed for. This point had been alluded to in their third submission (November 2023) but it was not clear what they meant until the oral presentation.

UKWIN has failed to understand the implications of all the targets relating to residual municipal waste per person by 2028. There are different targets for a number of different waste types, which contribute to the overall reduction target. I have set these out below, but I have reordered them by the size of the target:

- To reduce residual municipal food waste produced per person by 50%;
- To reduce residual municipal glass waste produced per person by 48%;
- To reduce residual municipal plastic waste produced per person by 45%;
- To reduce residual municipal metal waste produced per person by 42%;
- To reduce residual municipal paper and card waste produced per person by 26%;
- To reduce overall municipal residual waste per person by 24%;

Hence, the government's targets focus on five materials. For the first four, the target implies that the reduction in waste production will be considerably higher than the overall reduction, meaning that the fraction of residual waste made up by these materials will reduce. However, for paper and card, the reduction in waste production is essentially the same as the overall reduction, meaning that the fraction of paper and card in residual waste if all the targets are met will barely change.

Therefore, my approach of removing plastic and food waste preferentially, but not removing paper/card, is consistent with the government's targets.

On **Slide 10**, UKWIN suggests that the sequestration rate of 50% is no longer conservative, on the grounds that a significant part of the biogenic fraction would have been food waste which degrades more easily and so, if this is removed, the sequestration rate would increase. Again, while this point was mentioned in their third submission, the meaning was not clear until the oral presentation.

UKWIN failed to note two points in their presentation.

1. In paragraph 3.5.30 of my proof, I specifically calculated the sequestration rates for the waste compositions used and showed that they were below 50%.
2. More importantly, I noted in paragraph 3.5.30 that the data source for DDOC content, which UKWIN also used, is considered to be conservative itself. Hence, any sequestration values calculated using these figures are conservative.

I can confirm that other points made by UKWIN have already been responded to in my written evidence or in my evidence-in-chief.

4 Other parties

Councillor Jan Bergman referred to a review paper from Australia and New Zealand. I think that he was referring to "The health impacts of waste incineration: a systematic review", authored by Peter W Tait et al and published on 18 September 2019.[1] The authors carried out a systemic literature review for papers up to 31 December 2017. This is important, as it means that the work carried out by Imperial College and Kings College on behalf of Public Health England, which I discuss in paragraphs 4.5.5 – 4.5.18 of my proof, would not have been included. As that work was specifically considering the health impacts of Energy-from-Waste plants in the UK, operating to modern standards, I consider that this should be preferred.

[1] Available at: https://onlinelibrary.wiley.com/doi/10.1111/1753-6405.12939.

Councillor Bergman also stated that filters only remove 5-30% of particulate matter. This is a point which is raised frequently in the context of energy from waste plants, but it is incorrect. Bag filters are very effective at removing all sizes of particulate matter, achieving abatement levels of 99.9%, and I have presented evidence on this previously, most recently at the Northacre public inquiry. The EA's decision document for the Northacre plant confirmed this point.

Councillor Paul Kimber suggested that shore power would only be suitable for some uses on ships, specifically suggesting that cranes would continue to use diesel engines. This may be correct for some ships, but is irrelevant for cruise ships and the RFA ships which would be connected to shore power. The port is also interested in using power from the ERF to replace diesel engines being used to power shore-based cranes, as well as other shore-based activities.

Dr John Webb presented various claims about the impact of emissions from the ERF on the marine environment. He referred to Appendix 9.3 to the ES Addendum (CD2.17p), which is a report by ABPmer entitled "Potential Marine Impacts of the Proposed Portland ERF" and extracted Figure 1, but it appears that he has not understood the derivation of the figure. This was prepared from data provided by my team.

- It assumes that the ERF operates at the emission limit for Mercury at all times. In reality, as shown in Figure 29 in Tolvik's "Uk Energy from Waste Statistics 2021" (CD12.01), mercury emissions from UK ERFs are less than 10% of the emission limit.
- It assumes that all of the mercury emissions from the ERF end up in the sea, as opposed to on land.
- Allowing for tidal movements, ABPmer calculates below the graph that the concentration of mercury in the water would increase by less than 2%, even with these conservative assumptions. It can be seen that, in reality, the increase would be more than 10 times smaller than this, at 0.2%.

Given this tiny impact, Mr Webb's concerns are clearly misplaced.

Etienne Scott MBE and **Laura Baldwin** were both concerned about the impact of emissions, particularly particulate matter, on sailors from the expanded sailing centre at the Marina. As I mentioned when giving evidence, by displacing emissions from ship engines, the levels of particulate matter in the port, including the areas where sailors would be practising, would reduce. (See Appendix SO5).

Rebecca Kemp spoke on behalf of people who own or lease plots at the Incline Gardens and use these to grow food. She was concerned that emissions from the ERF would affect the food grown in the allotments at Incline Gardens and, by implication, the health of those who eat the food. (Laure Baldwin expressed similar concerns.) I can confirm that the human health risk assessment (CD1.37j) and the assessments of intake of dioxins and metals (CD2.29h) specifically considered the impact on a resident at the highest impacted location who consumed home grown food, and demonstrated that the impact would be negligible. This would also apply to a resident who grew food at an allotment anywhere on Portland.

Steven Coggins was concerned about the potential for spillage of IBA in the water, and compared this to spillages from animal feed. As explained in CD12.7, appropriate measures would be included to ensure that IBA is not spilled into the sea. Mr Coggins might be concerned about whether IBA would be dusty, given that he commented on his experience with animal feed at the port. One important difference is that animal feed is handled dry and so could be blown around by the wind, whereas IBA is handled wet and so is not dusty.

Andy McQueen considered that the Appellant has been overstating the benefits of shore power. He noted that some cruise ships are reducing their emissions of sulphur dioxide and nitrogen dioxide, specifically noting the case of the MCS Virtuosa. I agree that it is possible that some newer

ships will be fitted with additional emission abatement equipment, but it is not fitted to all ships. MCS, for example, has fitted NOx abatement equipment to three of its 23 cruise ships (including the Virtuosa), but has also made 11 of them shore-power enabled. My assessment of the benefits of shore power for local air quality is already conservative.

- As stated in Appendix 3.1 to the first ES Addendum (CD 2.17d), I have assumed that all of the cruise ships will comply with the Tier III emissions standard, which only applies to ships constructed after 2016 and, in fact, only applies to ships operating in the English Channel constructed after 2021.
- I have assumed that the RFA ships, which actually contribute more emissions than the cruise ships over a year, are some of the newer RFA ships and so have lower emissions than some of the older RFA ships.
- I have assumed that the ERF operates at its emission limit.

In addition, the primary benefit of shore power is that it avoids the need to burn fossil fuels and this benefit is unaffected by improvements in other emissions.